Electronics & Communication Engg.

Part B

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1 Vision, Mission and Programme Educational Objectives (100) **Total Marks : 100.00**

1.1 Vision and Mission (5) Total Marks : 5.00

1.1.1 State the Vision and Mission of the institute and department (1) Institute Marks : 1.00

(List and articulate the vision and mission statements of the institute and department)

Vision of the Institute

To be among the best of the institutions for engineers and technologists with attitudes, skills and knowledge and to become an epicenter of creative solutions.

Mission of the Institute

To achieve and impart quality education with an emphasis on practical skills and social relevance.

Vision of the Department

The Electronics and Communication Department strives to be recognized globally through quality education for well-qualified engineers, who are innovative in research, ethically strong, entrepreneurial with good managerial skills and successful in advanced fields of their professional carrier.

Mission of the Department

The Electronics and Communication Engineering Department is committed**:**

- To create, knowledgeable and skilled person with strong fundamentals, through rigorous curriculum that develops the ability to solve problems individually and in teams.
- To create professional leaders to society with research attitudes in the core areas of Electronics and Communication with collaborations to impact quality of academics, Industry and social needs.
- To create competent man power with deep awareness on ethics, skills, and leadership qualities to our profession and society.

1.1.2 Indicate how and where the Vision and Mission are published and disseminated (2) Institute Marks : 2.00

(Describe in which media (e.g. websites, curricula books) the vision and mission are published and how these are disseminated among stakeholders)

Every effort is made to ensure the Vision and Mission are communicated effectively to all stakeholders namely students, faculty, parents, industry, regulating authority, alumni and management etc.

Presently Vision and Mission are published and disseminated through the following methods:

· **Print Media:** College Diary, College Brochures

· **Electronic Media:** College/Departmental Website, Display Monitors

· **Display Boards:** Flexi-Boards, Permanent Wooden Boards

· **Direct Communication:** Orientation Programmes to freshers/parents/guardians, Induction Programmes to staff members

1.1.3 Mention the process for defining Vision and Mission of the department (2) Institute Marks : 2.00

Articulate the process involved in defining the vision and mission of the department from the vision and mission of the institute.)

The department established the vision and mission through a consultative process involving the stakeholders (students, alumni, faculty, industry, management) considering the scope for growth the department and the future societal requirements.

The process to arrive at the Mission and Vision of the department is as follows:

1. This process reviews aspirations of our Institution in the light of the vision and mission

   some of best educational institutions running similar programmes.

2. Feedback from all stakeholders is considered.

3. Departmental Advisory Board (DAB)/ Departmental development and Monitoring Committee(DDMC) makes the draft.

4. Recommendations of the Board of Studies are consider.

5. These proposals will be reviewed and ratified by the Governing Body.

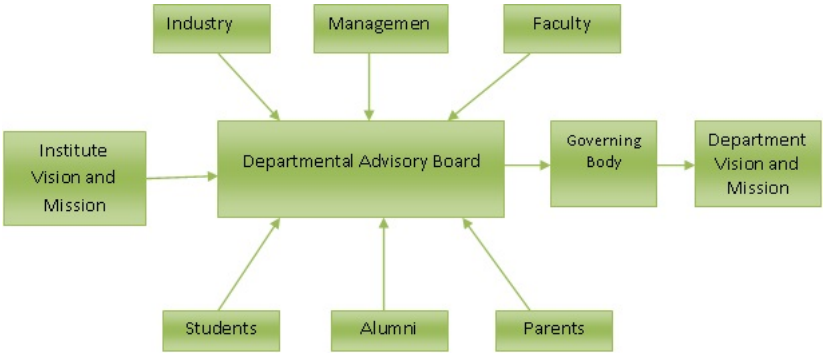


Figure1: The process for defining the Mission and Vision of the department

1.2 Programme Educational Objectives (15) — Total Marks : 15.00

1.2.1 Describe the Programme Educational Objectives (PEOs) (2) — Institute Marks : 2.00

(List and articulate the programme educational objectives of the programme under accreditation)

This programme is meant to prepare our students to professionally thrive and to lead. During their progression:

PEO 1: Graduates will shoulder responsibilities in their chosen careers including supportive and leadership roles in multidisciplinary teams.

PEO 2: Graduates will effectively understand, use and develop modern data storage, interpretation, analytical and simulation technologies and other engineering concepts and tools in the field of electronics and communications.

PEO 3: Graduates will communicate effectively, recognize and incorporate societal needs and constraints in their professional endeavors, and practice their profession with high regard to legal and ethical responsibilities.

PEO 4: Graduates will be able to engage in life-long learning and be abreast with the changing technologies in their profession and to be leaders in the society.

1.2.2 State how and where the PEOs are published and disseminated (2) — Institute Marks : 2.00

(Describe in which media (e.g. websites, curricula books) the PEOs are published and how these are disseminated among stakeholders)

Institute makes every effort to ensure Department PEOs are communicated effectively to all stakeholders namely students, faculty, parents, industry, alumni and management etc.

Presently PEOs are published and disseminated through the following methods:

- **Print Media:** Departmental Brochure/Booklets, Course Registers
- **Electronic Media:** College/Departmental Website, Display Monitors
- **Display Boards:** Notice Boards
- **Direct Communication:** Orientation Programmes to freshers/parents, Induction Programmes to staff members

1.2.3 List the stakeholders of the programme (1) — Institute Marks : 1.00

(List stakeholders of the programme under consideration for accreditation and articulate their relevance)

The Stake holders for the programme are

1. Students
2. Faculty
3. Parents
4. Industry
5. Alumni
6. Management

Students: Students seek quality environment at the Institute which includes good infrastructure, qualified faculty, and conducive learning environment. Students expect that the qualification be well recognized for an employment at a reputed industry or for an admission in the best educational institution if opted for higher education or prepare one for career of own choice.

Faculty: Faculty acts as a facilitator for the students to achieve their goals. Faculty wants to improve their credentials and grow in profession. Faculty takes pride in associating with a good learning environment and expects results from their students for self satisfaction.

Parents: Parents seek quality education for their children for a better future through the institution. Parents seek better career for their wards. Parents expect that their feedback can be considered in the development of the institution.

Industry: In most cases industry needs to hire the best students from good institutions such that these well trained students are readily employable, trainable and contribute to their growth. Industry also sees institutions as a complementary asset to their R&D. Industry, being one of the direct beneficiary provides the necessary direction and growth plans.

Alumni: The Alumni take pride in their educational institution from where they graduated. The Alumni prefer to maintain traditions by guiding their juniors on approaches to get better professional growth. The present social networking sites have made better interaction between Alumni and students. The Alumni contributes to the institution at times financially and other times through technical guidance and also gives feedback for the development of the Institution.

Management: Management is interested to impart quality education by providing best infrastructure, qualified faculty members and latest equipments and softwares. Management is looking to attract the best students.

1.2.4 State the process for establishing the PEOs (5) Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates that the PEOs are based on the needs of the programme's various stakeholders.)

We draw upon the inputs from stake holders typically the faculty, alumni, industry, professional bodies input to formulate our PEOs.

Faculty: The faculty members of the department are one of the key stake holders empowered to evaluate the feedback received from all other stake holders, proposing improvements in the curriculum, the outcomes and objectives, and in implementing any ratified changes. All changes in the curriculum are initiated by the faculty. Additionally, all the faculty members continually interact with all of the other stakeholders, allowing for the opportunities to receive, apart from formal, the informal feedback also into the process.

Alumni: The Alumni provides vital inputs for drafting and review our PEOs. The inquiry includes opinion on the current courses, its shortfall, suggestive changes to be considered in the revising curriculum, their success in their careers and the suitability of the preparation attributed to the curriculum they were tutored in, any advice they have to give to the current students, and what they have to do for succeeding in their careers.

Regular input from alumni is obtained via the following interactions:

Surveys: Formatted Survey data is utilized to gather comprehensive information for scrutiny and analysis.

Alumni visits: Formal and informal visits by the alumni gives scope for direct personal interaction, discussions and also gives an opportunity to collect and record information required for improving the programme based on their professional experiences.

Employers: Input from employers plays a vital role in the formulation and review of the PEOs which reflects on the success and relevance of the designed courses. Employers are at the forefront of the practice of the profession; hence their feedback is important. They give us early indications of changing or new trends in the profession. The information is gathered from employers using both formal surveys and various informal interactions. In such interactions, employers are inquired about their views on the needs and direction of growth of the domain and correspondingly what the goals should be in educating the students.

Regular input from employers is obtained via the following interactions:

Surveys: Industry is directly or indirectly interacted with, during institutional visits for guest lectures, workshops, seminars, placement drives or for any other informal interaction and the opportunity is utilized to fill in the Survey Form designed for formulating PEOs.

Tours: Departments regularly arrange tours to industries as part of their courses education processes. Discussions with the industries, and the faculty visitors help gain additional information on the current needs of industry with regard to our graduates, and thereby contribute the understanding needed to formulate or revise our PEOs.

Professional Bodies: Professional Bodies like CII, NASSCOM periodically express the status of industry which are noted and utilized during formulating or reviewing the PEOs.

The PEOs are established through the following steps:

Step 1: Vision and Mission of the Institute / Department is taken as the basis to interact with all the key stake holders.

Step 2: All documents relating to the Programme and the department are reviewed. These include instructional materials which are collected for all the courses and reviewed. The Outcomes in terms of courses are listed for the programme and the Graduate attributes are taken into account apart from the information collected from Alumni in terms of career achievements, contribution to society, ethical practices and intellectual contributions.

Step 3: Program Coordinator consults the key stakeholders in the light of the current status of the institutes teaching learning environment, student and faculty quality and infrastructure. Feedback from prospective employers and current employers of the alumni are collected.

Step 4: Formation of a body of members functioning as a committee i.e., Programme Assessment Committee, which collects, reviews and recommends within the guidelines defined for the formulation of the PEOs. The Programme Coordinator summarizes their views in consultation with the Course and Module coordinators and submits them to the Board of Study of the programme. The Departmental Advisory Board , is also part of the activity. The recommendations of the Programme Assessment Committee are considered.

Step 5: The minutes of all the meetings is recorded and the actions are initiated.

Step 6: The established PEOs are suggested by Board of Studies are approved by the Academic Council.

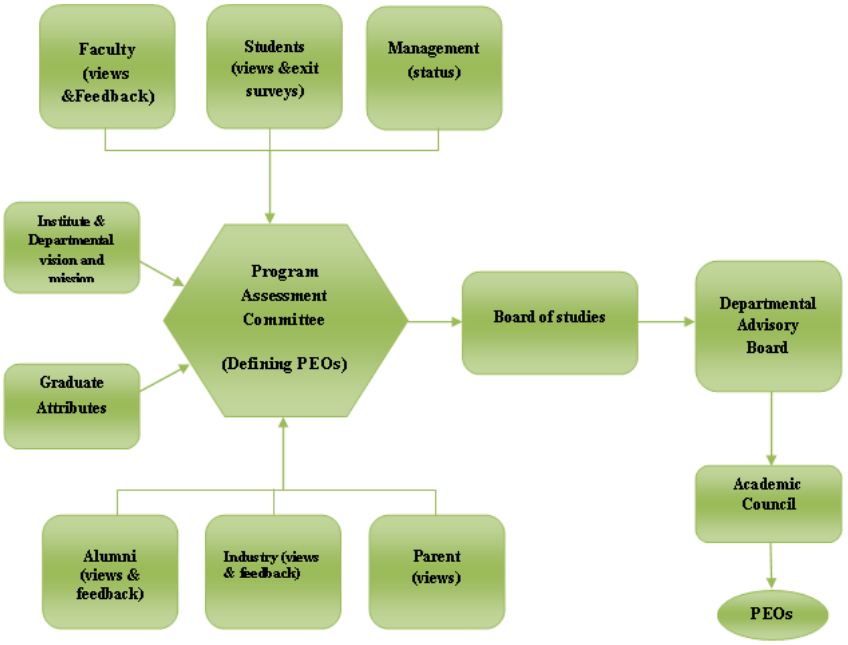


Figure 2: The process of establishing PEOs

1.2.5 Establish consistency of the PEOs with the Mission of the institute (5) Institute Marks : 5.00

(Describe how the Programme Educational Objectives are consistent with the Mission of the department.)

The PEOs are consistent with the Mission of Department as described by mapping wherein it gives evidence on the agreement between GRIET Mission and the ECE Program Educational Objectives. The ECE-PEOs reflect the expected accomplishments of the graduates a few years after their graduation. These objectives are consistent with the GRIET Mission statement as is evident from the statement above.

By educating students in Electronics and Communication Engineering, they are being molded for careers in professional practice, leadership and by providing them with a broad based education including communication and life-long learning skills. This also develops and strengthens their ability to solve practical problems of social relevance, for civic contribution as well as professional practice.

These Program Educational Objectives also subsume Program Outcomes which are entirely consistent with the NBA Criteria (a)-(l). Therefore, our Program Educational Objectives are deemed to be consistent with the NBA Criteria for Accrediting Engineering Programs.

PEOs	Mission of Program		
	Knowledge and Skill	Professionals with Social Responsibility	Ethics and Leadership qualities
PEO 1: Graduates will shoulder responsibilities in their chosen careers including supportive and leadership roles in multidisciplinary teams.	**L**	**M**	**H**
PEO 2: Graduates will effectively understand, use and develop modern data storage, interpretation, analytical and simulation technologies and other engineering concepts and tools in the field of electronics and communications.	**H**	**L**	**M**
PEO 3: Graduates will communicate effectively, recognize and incorporate societal needs and constraints in their professional endeavors, and practice their profession with high regard to legal and ethical responsibilities.	**M**	**L**	**H**
PEO 4: Graduates will be able to engage in life-long learning and be abreast with the changing technologies in their profession and to be leaders in the society.	**H**	**M**	**L**

1.3 Achievement of Programme Educational Objectives (30) Total Marks : 30.00

1.3.1 Justify the academic factors involved in achievement of the PEOs (15) Institute Marks : 15.00

(Describe the broad curricular components that contribute towards the attainment of the Programme Educational Objectives.)

By introducing courses in core engineering, basic sciences, mathematics, management, allied engineering and elective courses, seminars and projects that form the programme components, which contribute to the attainment of the Program Educational Objectives.

1. The academic factors are decided by Academic Council and Board of Studies committees which involve university professors, Industrial experts and

subject experts from the departments. These committees play main role to frame the curriculum.

2. Student participation in Internship programmes and Major Projects.
3. By conducting continuing education and professional development programmes for the faculty.
4. By effective monitoring of all systems and processes including the feedback.
5. By providing budgetary resources and modern infrastructure.
6. By developing and maintaining quality in instructions.
7. By collaborating with leading institutions and industries to achieve education goals.
8. By effectively employing appropriate technologies to enhance instructions and student learning.

Course Component	PEOs	Curricular Content (% of Total Number of Credits of the program)	Credits
Mathematics	PEO 1, PEO 2	8	16
Sciences	PEO 1, PEO 2	10	20
Computing	PEO 1, PEO 2, PEO 3 & PEO 4	12	24
Humanities	PEO 3	7.5	15
Professional core	PEO 1, PEO 2, PEO 3 & PEO 4	62.5	125

1.3.2 Explain how administrative system helps in ensuring the Achievement of the PEOs (15) Institute Marks : 15.00

(Describe the committees and their functions, working process and related regulations.)

To ensure achievement of PEOs and goals of Outcome Based Education a well structured administrative hierarchy exists in the institute. Administrative System to ensure achievement of PEOs is as follows:

1. Course Coordinator: Faculty member who teaches course, monitors and reviews activities related to attainment of course outcomes.

2. Module Coordinator: Seiner faculty coordinates and supervises the faculty teaching a particular course in a module (group of like courses)

3. **Programme Coordinator:** Interacts and maintains liaison with key stakeholders like students, faculty, and administration. He conducts and interprets various surveys required to assess to POs and PEOs.

In order to monitor and ensure Outcome Based Education the Institution level committees and department level committees are created.

1. Class Coordinators Committee
2. Programme Assessment Committee
3. Board of Studeis
4. Depatmental Advisory Board/ Depatmental Development and Monitoring Committe
5. Academic Council

Committee	Chair	Members	Responsibilities
Class Coordinators Committee (CCC)	Programme coordinator	1. Faculty designated as class coordinators, 2. Faculty of a particular course 3. Course and module coordinators 4. Student representatives	1. To tap the suggestions of the students, to enhance teaching-learning process. 2. To monitor and improve the relations and shortfalls between academics and teaching environment. 3. Review of activities related to attainment of course outcomes
Programe Assessment Committee(PAC)	Programme coordinator	1. All module coordinator of each course/ specialization offered. 2. Not more than two persons to be co-opted for their expert knowledge including those belonging to concerned profession or industry. 3. One post-graduate meritorious alumni nominated by the Principal. 4. Head of the department / Programme coordinator to act as chairman.	1. To review implementation of institutional quality assurance in the department for improving programme. 2. Guiding in evolving POs and COs based on assessment. 3. Develops and recommends new or revised PEOs.
Board of Studies (BOS)	BOS Chairman	1. All teaching faculty of each course/ specialization offered. 2. Two external experts in the course concerned and nominated by the Academic Council. 3. One expert to be nominated by the Vice-chancellor from a panel of six recommended by Principal of the institute. 4. Not more than two persons to be co- opted for their expert knowledge including those belonging to the concerned profession or industry. 5. One post-graduate meritorious alumni nominated by the Principal.	1. To prepare, frame and modify the syllabus for the various courses keeping in view POs of the programme. 2. Evaluates programme effectiveness and proposes continuous improvement. 3. To suggest panel of names for appointment of examiners; and coordinate research, teaching, extension and other academic activities in the programme / institute. 4. To suggest new methodologies for innovative teaching and evaluation techniques and tools.

		6. The Chairman Board of Studies may with the approval of the Principal of the Institute co-opt: a) Experts from outside the institute whenever special courses of studies are to be formulated. b) Other members of the staff of the same faculty.	5. To review implementation of institutional quality assurance in the department for improving programme. 6. Guiding in evolving POs and COs based on assessment.
Departmental Advisory Board/ Depatmental Development and Monitoring Committe	Head of the Department	1. All faculty are members- one among them will act as Secretary. 2. Members may be co-opted from other programmes, University and industry as per requirement	1. To formalize the departmental mission and vision. 2. To plan and monitor the growth of programmes of the department 3. Develops and recommends new or revised PEOs. 4. To ensure infrastructure, support facilities and activities to ensure for attainment of PEOs.
Academic Council	Principal	1. Heads of Departments 2. Four faculty members other than the HODs representing the various categories (by rotation and seniority). 3. Four persons including educationalists of repute, one person from the industry and engineering related to the activities of the institute, who are not in the service of the institute and nominated by the Governing Body. 4. Two nominees of the parent university 5. A faculty member nominated by the Principal of the institute to act as Member Secretary.	1. To exercise general supervision over the academic work of the institute, to give directions regarding method(s) of instruction, evaluation, research and improvements in academic standards. 2. To scrutinize and approve the proposals of the Board of Studies related to programmes and their educational objectives, academic regulations, curricula, syllabi, their objectives and outcomes and modifications, instructional and evaluation arrangements, methods, procedures etc. 3. To make regulations regarding the admission of students to different programs of study in 4. To recommend to the Governing Body the proposals of institution for new programs of study. 5. To recommend to the Governing Body, institution of scholarships, studentships, fellowships, prizes and medals, and to frame regulations for the award of the same. 6. To advise the Governing Body on suggestion(s) pertaining to academic affairs made by it. 7. To perform such other functions as may be assigned by the Governing Body.

1.4 Assessment of the Achievement of Programme Educational Objectives (40) — Total Marks : 40.00

1.4.1 Indicate tools and processes used in assessment of the attainment of the PEOs (10) — Institute Marks : 10.00

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Educational Objectives are attained. Also include information on:

a) A listing and description of the assessment processes used to gather the data upon which the evaluation of each programme educational objective is based. Examples of data collection processes may include, but are not limited to, employer surveys, graduate surveys, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the programme;

b) The frequency with which these assessment processes are carried out.

The following assessment processes are used for the assessment of the achievement of the PEOs

S.No	Method	Assessment Tool	Description
1	Direct	Oral & Written Exams	Objective, subjective, theory, practical, seminar and viva evaluation
2		Projects	Mini & Major project evaluation
3	Indirect	Alumni Survey	Old batches of the students
4		Employer Survey	Industries which recruits
5		Student Exit Survey	Passing out students
6		Industry Survey	Leading industry in the domain of particular programme

PEOs (Program Educational Objectives) relate to the career and professional accomplishments of students after they graduate from the program. Consequently, assessment and evaluation of the objectives requires assessment tools that can be applied after graduation. The PEO's assessment process and methods are tabulated. However, keeping the significance of contribution of the curriculum and the assessment opportunities such as placement data and higher education entrance performance, these assessments are taken as supplementary evidence.

Program Educational Objectives	Assessment Tools & Performance Criteria	Process Used in assessment		Documentation
		Assessment Cycle	Evaluation Cycle	
PEO 1: Graduates will shoulder responsibilities in their chosen careers including supportive and leadership roles in multidisciplinary teams.	Placement: 70% of ECE graduates are currently employed in leading Industries	Every year	Every year	Department & Institute
	Alumni Survey:			

	ECE Alumni rate the overall quality of educational experience as well as gives the insight for improving the program.	Every year	Every year	Department & Institute
PEO2: Graduates will effectively understand, use and develop modern data storage, interpretation, analytical and simulation technologies and other engineering concepts and tools in the field of electronics and communications	Mid Examinations, Quzzicals & viva: Written mid examinations are clearly linked to learning objectives.	twice in a semester	Every semester	Department & Institute
	Semester Examination: These help in assessing the overall development of the students, which directly link to attainment of PEOs.	Every Semester	Every Semester	Department & Institute
	Assignments, written Lab & project Reports: these are direct assessment methods which help in evaluation of PEOs	Quarterly	Quarterly	Department
PEO3: Graduates will communicate effectively, recognize and incorporate societal needs and constraints in their professional endeavors, and practice their profession with high regard to legal and ethical responsibilities.	Alumni Surveys: Alumni are asked to rate the quality of preparation to demonstrate abilities which they feel needed by under graduate.	Every year	Every year	Institute & Department
	Employer Survey 70% of ECE employers responding to the Employer Survey will indicate they are either very satisfied or satisfied with ECE graduates' performance	Every year	Every year	Institute & Department
PEO4: Graduates will be able to engage in life-long learning and be abreast with the changing technologies in their profession and to be leaders in the society. .	Alumni Survey: Alumni will help their juniors in understanding the importance of their profession, to learn the course with creative thinking which enhances the overall skill.	Every year	Every year	Department & Institute

b) The frequency with which these assessment processes are carried out.

Frequency of the Assessment Processes;

Assessment Tool	Description	Assessment Cycle	Evaluation Cycle	Documentation and Maintenance
Mid Exams	Internal Evaluation	Twice in a semester	Twice in a semester	Marks are recorded in department and examination cell.
End Exams	External Evaluation	Once in a semester	Once in a semester	Result Recorded at examination cell and department
Assignments	Before Every Mid Exam	Twice in a semester	Twice in a semester	Course Register
Viva	End of the Semester	Once in a semester	Once in a semester	Lab Register
Seminars	General and Technical	Once in a semester	Once in a semester	Course Register
Lab Exams	Internal and External experimental evaluation	Once in a semester	Once in a semester	Lab record, Examination Cell
Projects	Mini and Major project evaluation	Once in four years	Once in four years	Examination Cell
Surveys	All Stake Holders	Once in a year	Once in a year	Recorded in department

1.4.2 Give evidences for the attainment of the PEOs (30) Institute Marks : 30.00

File Name
Surveys
Minutes of Meetings
Placements
Placements(2013-14)

PEO	Assessment	Expected Level			Achieved Attainment
		Good	Average	Below Average	
	Placements	70 % above	40 - 70 % placement record	Less than 50% of students selected off campus	40%

		placement record			
	Performance	70% above distinctions	40-70% with distinction	Below40% with distinctions	73%
PEO 1	Higher Education	Above 15-25% of graduates pursue higher education	10-15% of graduates successful completion	Below 10% of graduates successful completion	22 % for higher education
	Alumni	Returned for subsequent placement drives with more intake	Returned for subsequent placement drives	Reluctant to come for placement drives	Returned for placement drives
	Employer	Highly satisfied graduates performance	Satisfied graduates performance	Not satisfied graduates performance	Highly satisfied as they repeated placement drives
PEO 2	Alumni Survey	Above 65% graduates are in application development	40-60% graduates are in application development	Below 40% graduates are in bench waiting for task	65% are in development tasks
	Employer survey	Above 60% of graduates were able to analyze societal problems	40-60% of graduates were able to analyze societal problems	Below 40% of graduates were able to analyze real time problems	60% graduates were able to analyze societal problems
PEO 3	Student Exit Survey	Above 80% graduates are satisfied with their curriculum	Above 60-80% graduates are satisfied with their curriculum	60% below graduates are satisfied with their curriculum	Above 60-80% graduates are satisfied with their curriculum
	Alumni Survey	Above 80% graduates working large teams	50-80% graduates working in large tams	Below 60% graduates working in large teams	Above 80% graduates working large teams
	Employer Survey	Above 60% of graduates posses good communication abilities	50-60% of graduates posses good communication abilities	Below 40% of graduates posses good communication abilities	Above 60% of graduates posses good communication abilities
	Industry Survey	Above 70% graduates are familiar with modern tool usage	Above 40-70% graduates are familiar with modern tool usage	40% below graduates are familiar with modern tool usage	Above 40-70% graduates are familiar with modern tool usage
PEO 4	Alumni Survey	Above 80% graduates trained in profession and be leader in the society	Above60- 80% graduates trained in profession and be leader in the society	Below 60% graduates trained in profession and be leader in the society	Above60- 80% graduates trained in profession and be leader in the society
	Employer Survey	Above 60% of graduates posses good management skills	50-60% of graduates posses good management skills	Below 40% of graduates posses good management skills	50-60% of graduates posses good management skills

1.5 Indicate how the PEOs have been redefining in the past (10)

Total Marks : 10.00

Institute Marks : 10.00

(Articulate with rationale how the results of the evaluation of PEOs have been used to review/redefine the PEOs)

We have introduced the Outcome Based Education system in GRIET. Therefore students, having experienced the learning environment as per defined PEOs are yet to graduate from the Institute. The PEOs have been defined based on the vision and mission of institution and the department and also to suit curriculum given by the affiliating university JNTUH and the feedback received from the stakeholders through surveys. The continuous process of assignments, direct and indirect assessments and evaluation will lead to the revision and refinement of the PEOs. Mechanism is produced to review the results of the evaluation of our outcome based education system at the end of each academic year. Redefining of PEOs considers student exit survey, professional bodies view, alumni survey, employer survey, feedback. Department Advisory Board (DAB) consisting of the Head of the Department along with Board of Studies, Programme Coordinator prepares the action plan to improve PEOs. After receiving inputs from the internal committees Board of Studies, Academic Council will give the final approval for the necessary improvements.

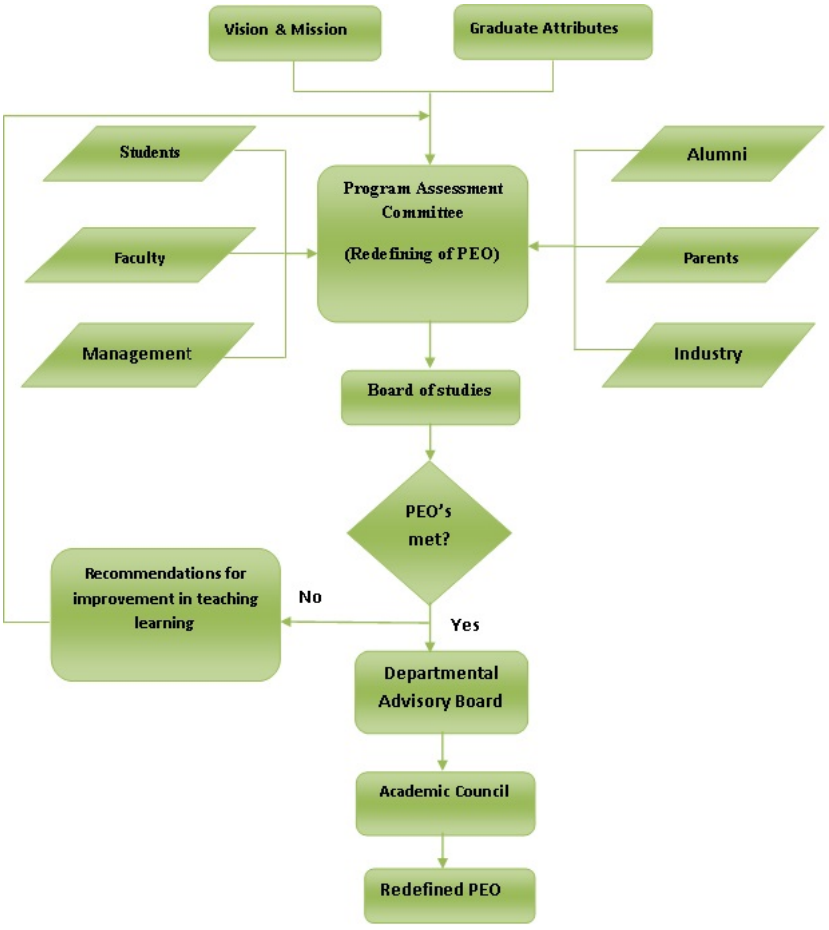


Figure 3: Process for Redefining the PEOs

2 Programme Outcomes (225) **Total Marks : 225.00**

2.1 Definition and Validation of Course Outcomes and Programme Outcomes (30) **Total Marks : 30.00**

2.1.1 List the Course Outcomes(COs) and Programme Outcomes (POs) (2) Institute Marks : 2.00

(List the course outcomes of the courses in programme curriculum and programme outcomes of the programme under accreditation)

Course Outcomes (COs):

List of course outcomes of the courses in programme curriculum.

Course Outcomes: I Year B. Tech Electronics and Communication Engineering

At the end of the course, the student will be able to

COURSE CODE	COURSE TITLE	COURSE OUTCOMES
GR14A1001	Linear Algebra and Single Variable Calculus	1. Recognize the concepts of matrix rank to analyze linear algebraic systems.
		2. Compute Eigen values and vectors for engineering applications.
		3. Illustrate the concepts of mean value theorems to describe the medical imaging and industrial automation.
		4. Differentiate various differential equations using elementary techniques(exact or linear constant coefficient equations)
		5. Demonstrate model and solve linear dynamical equations.
		6. Apply concepts of higher order differential
		7. Equations to solve typical problems in electrical circuits.
		8. Identify the physical phenomena of simple harmonic motion by concepts of differential

		equations.
GR14A1008	Engineering Chemistry	1. Analyze water for the industry required specifications. 2. Understand the fundamental principles of electrochemistry for energy production and corrosion prevention. 3. Know the origin of different types of engineering materials used in modern technology. 4. Design new materials for novel applications. 5. Develop the skills required for synthesis and analysis of materials. 6. Relate the structure of materials to their properties and applications. 7. Understand the processing of fossil fuels for the effective utilization of chemical energy 8. Know the necessity of sustainable, environmentally-friendly energy sources like solar energy.
GR14A1005	English	1. Read and comprehend a wide range of text and know the importance of lifelong learning. 2. Improve English language proficiency with an emphasis on LSRW skills. 3. Interpret academic subjects with better understanding. 4. Express ideas fluently and appropriately in terms of various social and professional areas. 5. Revamp English language skills to meet the corporate needs. 6. Present themselves sin various formal, social and professional situations. 7. Improve literary sense through wide range of selections from various genres.
GR14A1018	Basic Electrical Engineering	1. Comprehend the basics of Electrical Engineering and practical implementation of Electrical fundamentals. 2. Develop numerical solutions to fundamental electrical engineering. 3. Make use of basic principles involved in electrical engineering concepts. 4. Examine the methods to solve AC circuits. 5. Analyze various circuits using network theorems. 6. Know the basics of electric machines used in industries. 7. Summarize the different applications of commonly used electric machinery.
GR14A1009	Computer Programming	1. Describe the basic computer system concepts. 2. Recite algorithm, draw flowchart and write the program for a given scenario. 3. Use the concepts of C-programming language and functions available in C-library to develop the programs. 4. Experiment recursive and non-recursive functions. 5. Create and update files. 6. Examine the static memory allocation and dynamic memory allocation of variables 7. Find the errors and trace the output of the program.
		1. Recognize different peripherals and install different

		system and application software's.
GR14A1026	IT Workshop	2. Analyze and explore the use of web browsers and related tools for information extraction. 3. Create different documents, presentations and spread sheet applications. 4. Recognize different network devices and their usage. 5. Recognize and use different cables. 6. Design a static webpage. 7. Design and develop Database.
GR14A1030	Engineering Chemistry lab	1. Perform analysis of water to the required industrial standards. 2. Apply the red ox and acid-base titrations for analyzing materials used in routine usage like cement, coal, acid in lead acid battery,etc., 3. Develop the skills required for assessing the quality of materials used in industries. 4. Design novel ways of instrumental methods of analysis. 5. Know the correlation between the measured property and the corresponding application. 6. Understand scientific method of designing experiment and learn the skill necessary to perform it. 7. Know how to innovate to design alternative energy sources utilizing chemistry for sustainable environment for future generations.
GR14A1027	Computer Programming lab	1. Use the programming concepts and c-library for writing the programs. 2. Analyze and debug the given program. 3. Develop an efficient program. 4. Differentiate static and dynamic memory allocation. 5. Compare the recursive and non-recursive programming approaches 6. Create and update files 7. Apply searching and sorting techniques for real time scenario.
GR14A1003	Fourier Series and Transform Calculus	1. Calculate definite integral values using Beta and Gamma Functions. 2. Develop the skill of evaluating Laplace and inverse Laplace transform to solve linear systems under initial and boundary conditions. 3. Illustrate the concepts of Laplace Transform to find the solutions of physical problems such as Electrical circuits. 4. Interpret the Fourier series and Fourier transform in the context of signals and systems. 5. Solve difference equations by Z-Transform. 6. Formulate Partial differential equations by eliminating arbitrary functions and arbitrary constants. 7. Determine the solution of Boundary value problems(PDE)by Fourier Transform Method.
		1. Develop the skill of determining approximate solutions to problems having no analytical Solutions in different contexts. 2. Solve problems related to cubic sp line fitting and

		approximation of functions using B- sp lines and least squares
		3. Develop the skill of finding approximate solutions to problems arising in linear differential Equations.
GR14A1004	Numerical Methods	4. Identify how the numerical methods play a vital role in many areas in engineering for example Dynamics, elasticity, heat transfer, electromagnetic theory and quantum mechanics.
		5. Interpret the mathematical results in physical or other terms to see what it practically means and implies.
		6. Explain the concept of interpolation is useful in predicting future out comes base on the present knowledge.
		7. Solve the model by selecting and applying a suitable mathematical method.
		1. Identify and describe various bonds between the atoms and properties of various materials.
		2. Explain the behavior of free electrons and how they are responsible for exhibition of various properties.
		3. Classify various magnetic materials and apply knowledge gained in various fields.
GR14A1007	Engineering Physics	4. Differentiate different dielectric materials and its utilization.
		5. Analyze why Laser light is more powerful than normal light and its applications in various fields.
		6. Demonstrate the applications of optical fibers in communication.
		7. Extend the knowledge of characterization techniques to know the composition of Nano material.
		1. Demonstrate data structures operations like insertion, searching, deletion and traversing.
		2. Exemplifying and experiment basic data structures.
		3. Compare and contrast the benefits of dynamic and static data structure simple mentations.
GR14A1010	Data Structures	4. Demonstrate different methods for traversing trees.
		5. Compare and contrast the various data structures performance.
		6. Recite data structures concept sin other domains like data bases, compiler construction.
		1. Demonstrate different types of lines, the use of different types of pencils and drafter tore present.
		2. Illustrate the basic drawing techniques, conic sections, cycloid curves, involutes and engineering.
		3. Explain the basic concept of principle of planes of projections in front view and top view.
GR14A1023	Engineering Graphics	4. Make use of orthographic projections of points ,lines, planes and solids.
		5. Analyze the structure which was hypostatically designed ex: development of surfaces, section of.
		6. Explain the logic to convert pictorial vies to orthographic project ions and orthographic projectionsto.
		7. Evaluate conversions of isometric views to orthographic views helps in inventing new machinery.
		1. Comprehend the fundamentals of construction of the semiconducting materials.
		2. Fabrication of elements working principles and

		operation of semiconductors.
GR14A1019	Fundamentals of Electronics Engineering	3. Analyze the concept with the working principles of forward and reverse bias characteristics. 4. Know the basic skills in design and analysis of the filters circuits ,biasing circuits. 5. Discriminate the principle, construction and operation BJTs, FETs and MOSFETs. 6. Interpret the different techniques for FET and MOSFET circuit designs. 7. Create the performance and analysis-volt amp characteristics of a BJT and FET amplifiers. 8. Analyze the small signal low frequency Transistor amplifier susingh-parameters.
GR14A1024	Business Communicatipon and Soft Skills	1. Interpret the role and importance of various forms of communication skills. 2. Utilize various media of verbal and nonverbal communication with reference to various professional contexts. 3. Enable to tote professional responsibilities in analytical manner. 4. Accredit the activities of sequencing ideas in an efficacious style. 5. Evaluate and use a neutral and correct form of English. 6. Formulate behavior in various formal situations. 7. Integrate business communication & soft skills to meet the requirement of corporate communication.
GR14A1025	Engineering Workshop	1. Design and model different proto types in the Carpentry trade such as Crosslap joint,Dovetail joint 2. Create various types in the trade of Fitting such as Straight fit, V-fit 3. Construct various basic proto types in the trade of tin smithy such as rectangular tray and open scoop etc. 4. Analyze to make in the tradeoff TinSmithy such as Rectangular tray and Open Cylinder. 5. Apply various HouseWiring techniques such as Connecting one lamp with one switch. 6. Develop various basic house wiring techniques such as two lamps with one switch, Connecting a Fluorescent tube, Series Wiring, God own wiring. 7. Demonstrate to develop various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, But Tjoint and Corner joint.
GR14A1029	Engineering Physics lab	1. Identify the usage of CRO, digital multi meter to record various physical quantities. 2. Distinguish the characteristics and behavior of dielectric materials in a practical manner. 3. Calculate losses in optical fiber and interpret them to the optical communication system. 4. Quantify the type of semiconductor and measurement of energy gap in a semiconductor. 5. Investigate the properties of light like interface and diffraction through experimentation. 6. Examine the behavior of magnetic materials with the help of graph. 7. Analyze the characteristics of light emitting diodes for their optimum utilization.

Course outcomes: II year B. Tech Electronics and Communication Engineering

At the end of the course, the student will be able to:

Course Code	Course Title	Course Outcomes
GR14A2047	Electrical Circuits	1. Comprehend the mathematical expression for voltages and currents in RL, RC and RLC circuits to find the transient response of inductor and capacitor in dc circuits.
		2. Analyze the concept with working principles of linear constant coefficient differential equations with the help of Laplace transforms.
		3. Know the basic skills of an ac circuits with independent/dependent voltage current sources by drawing impedance/admittance diagrams or using various laws/ techniques like source conversion
		4. Acquaint with AC circuits in the frequency domain and compute transient response for first and second order circuits.
		5. Discriminate the concepts like cut-set, tie-set, pole zero parameters and stability analysis
		6. Interpret the pole zero network functions, transfer and driving point functions
		7. Create the two-port network parameters, conversion between parameters, Interconnection of two port networks.
GR14A2048	Electronic Circuit Analysis	1. Comprehend the fundamental concepts in feedback amplifier circuits.
		2. Analyze the oscillators design, frequency responses calculations with the help of mathematical expressions.
		3. Describe the various cascade amplifier circuits using BJT and FET models
		4. Apply the h-parameter model to power amplifiers circuit design
		5. Discriminate the concepts quality factor, form-factor in small signal tuned amplifier analysis and design.
		6. Interpret the tuned amplifiers and tuned cascaded networks functionality
		7. Create the circuit design analysis, testing and utilization of the circuits in various levels.
GR14A2049	Signals and Systems	1. Defines the fundamentals of mathematical models and analyze deterministic CT signals and systems
		2. Analyze the concepts in assess the effect of LTI systems on signals passing through them in frequency and time domains
		3. Demonstrates an appreciate effect of sampling in continuous-time signals and explain the application of sampling theorem in signal processing
		4. Acquaint with mathematically represent of discrete-time (DT) signals
		5. Discriminate the Fourier, Laplace and Z-transforms as appropriate for various signals and systems
		6. Interpret to analyze the importance of various transformation techniques in signal processing.

		7. Create the terms mean, variance, mean squared error, random process and orthogonality functions
GR14A2050	Probability Theory and Stochastic Process	1. Define probability and interpret probability by modeling sample spaces. 2. Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance. 3. Solve the problems involving multiple random variables. 4. Apply the concepts of random process in communication and signal processing. 5. Evaluate response of a linear system to Random Process 6. Analyze the importance of various probability distributions in signal analysis 7. Compare the various distributions and its performance characteristics
GR14A2057	Analog Electronics	1. Explain the basic concepts of linear and non linear wave shaping circuits 2. To analyze the working principles of clippers and clappers 3. Describe and compare the Bi-stable, Mono-stable and Astable circuits and its applications 4. Design various multivibrators from the given constraints 5. Explain the ideal and practical Op-Amp characteristics 6. Perform the various Op-Amp circuits in different applications 7. Compare the negative and positive feedback amplifiers
GR14A2043	Digital Electronics	1. Aware of theory of Boolean Algebra & the underlying features of various number systems. 2. Use the concepts of Boolean Algebra for the analysis & design of various combinational & sequential logic circuits. 3. Design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays. 4. Explain the concepts of VHD Language 5. Analyze the various coding schemes are the part of the digital circuit design 6. Analyze the sequential logic circuits design both in synchronous and asynchronous modes for various complex logic and switching devices. 7. Design of various circuits with the help of VHDL Coding techniques
GR14A2052	Signals and Systems Lab	1. Comprehend the fundamentals to explain the classification of signals and systems 2. Analyze the concepts to simulate the Fourier series, Fourier transform in singles and systems 3. Know the behavior of LTI system with matlab simulation environment 4. Acquaint with sampling of signals with matlab 5. Discriminate in writing the code for convolution response

		6. Interpret to write code and analyze the graphical representation of gibbs phenomenon in signals and systems
		7. Create in writing the code for simulation and synthesis of Laplace transform
GR14A2051	Electronic Circuit Analysis Lab	1. Comprehend the fundaments of multistage amplifiers, feedback, power amplifiers and oscillator circuits
		2. Analyze the circuit design process and simulate the common base, common emitter and common collector amplifier circuits
		3. Know the origin of failure of a circuit when it is in an application
		4. Acquaint with the design and simulate the RC coupled and Cascade amplifier circuits
		5. Discriminate the design and simulate various oscillator circuits
		6. Interpret to design and simulate Darlington pair,
		7. Create the design and simulate the cascade, class A power amplifier circuits, and single tuned voltage amplifier circuits
GR14A2053	Digital Electronics Lab	1. Study the theory of Boolean algebra and to study representation of switching functions through various experiments.
		2. Perform the combinational logic design of various logic and switching devices and validate the outputs
		3. Perform the sequential logic circuits design both in synchronous and Asynchronous modes for various complex logic and switching devices and validate the outputs
		4. Design and validate the counters and registers for synchronous and asynchronous circuits
		5. Design the combinational logic circuits using VHDL programming syntaxes.
		6. Design the sequential circuits using VHDL programming syntaxes.
		7. Describe the various VHDL programming concepts
GR14A2054	Electromagnetic Theory and Transmission Lines	1. Define and describe Electromagnetic field quantities mathematically/graphically in words.
		2. Solve simple problems involving EM fields.
		3. Explain important deductions maid from Maxwell’s equations.
		4. Analyze and solve problems of EM wave propagation in unbounded media
		5. Analyze and solve problems of EM wave propagation along transmission lines.
		6. Solve transmission line problems using Smith chart.
		7. Derive propagation characteristics of EM waves in parallel plates wave guides
GR14A2058	Special functions and complex variables	1. Solve linear differential equations using power series methods.
		2. Approximate Polynomial in terms of Legendre, Bessel and chebyshev.
		3. Evaluate Real definite integrals using Cauchy’s Residue Theory.
		4. Interpret geometrically the Complex functions and their qualitative behavior in the Complex Plane

		5. Describe Singularity and Residue Theory.
		6. Solve potential functions, stream functions and velocity potential.
		7. Illustrate the concepts of residues in the context of determination of real integrals.
GR14A2056	Analog Communications	1. Analysis and design of various modulation and demodulation techniques.
		2. Analyze and demonstrate a good background in analyzing the block diagram of communication system.
		3. Illustrates how the mathematical concepts bend the analog communication process
		4. Acquaint with formulate the frequency modulation and angle modulation signals
		5. Discriminate the design skills to illustrate the electronic component and method to implement different communication systems.
		6. Interpret with differentiate types of transmitters and receivers used for particular application.
		7. Create the spectrum and noise performance of particular communication system.
GR14A2055	Microcontrollers	1. Compare the functionally and architectures of microprocessors and microcontrollers
		2. Analyze assembly language programming techniques
		3. Explain the implementation of 8051 instruction set
		4. Analyze assembly language programming concepts
		5. Acquainted with design of microcontrollers
		6. Interface various devices with microcontrollers
		7. Design various programs to run several applications
GR14A2060	Analog Communications Lab(AC LAB)	1. Comprehend the fundamentals in explain the functionality of modulation and demodulation environment
		2. Analyze the concepts, write and simulate the concepts of AM and AM-Demodulation process in Communication.
		3. Know the origin and simulation of FM and FM-Demodulation process in communication
		4. Acquaint with AM and FM basic functionalities
		5. Discriminate the AM and FM functionalities
		6. Interpret with various angle modulation and demodulation systems
		7. Create the writing and simulation environments in PWM, PPM, Mixer and ring modulation
GR14A2059	Microcontrollers Lab(MC LAB)	1. Comprehend the fundamentals in programming for microcontrollers
		2. Analyze the code and build simple real time applications using microcontrollers
		3. Know the skill to write, upload the programs on LED patterns, Switches and LEDs Compile and compose the programs on LED patterns, Switches and LEDs
		4. Describe the LCD and UART based programs
		5. Interpret with various applications using TRIAC,

		ADC and DAC
		6. Discriminate the Control based programs
		7. Interpret with RF 433 MHz, Bluetooth and ZigBee transmitter and Receiver
GR14A2061	Analog Electronics Lab(AE lab)	1. Analyze and select analog devices using circuit specifications based on circuit requirements.
		2. Conduct experiments on different types of multivibrators.
		3. Design Digital to Analog Converters (DAC).
		4. Design pulse stretcher and square wave generating circuits.
		5. Design oscillators and function generator circuits.
		6. Identify the positive and negative feedback circuits.
		7. Discriminate the design of simple circuits like summers, subtractors and multivibrators using op-amp.

Course outcomes: III year B. Tech Electronics and Communication Engineering

At the end of the course, the student will be able to:

COURSE CODE	COURSE TITLE	COURSE OUTCOMES
GR14A3042	ANTENNAS AND WAVE PROPOGATION	1. Learn the fundamentals of Antennas.
		2. Illustrate the different types of arrays and their radiation patterns.
		3. Analyze a complete radio system, from the Transmitter to the Receiver end with reference to antenna.
		4. Quantify the fields radiated by various types of antennas
		5. Design wire antennas, loop antennas, reflector antennas, lens antennas, horn antennas and micro strip antennas
		6. Analyze antenna measurements to assess antenna's performance
		7. Know the concept of radio wave propagation.
GR14A3041	DIGITAL COMMUNICATIONS	1. Classification of digital modulation techniques.
		2. Communications with a focus on modern digital communications theory and systems.
		3. Explains the spread spectrum techniques.
		4. Apply the underlying methods for up-to-date examples of real world systems.
		5. Demonstrate the error detection and error correction in linear convolution codes.
		6. Emphasize on modern digital data transmission concepts and optimization of receivers.
		7. Build a basis for subsequent related courses such as wireless, cellular and mobile communications.

GR14A3103	LINEAR CONTROL SYSTEMS	1. Analyze and improve the system performance by selecting a suitable controller and a compensator for a specific application 2. Represent the mathematical model of a system. 3. Analyze the stability of the system. 4. Design a system, component, or process to meet desired needs. 5. Identify, formulate, and solve engineering problems 6. Analyze various time domain and frequency domain techniques to assess the system performance 7. Apply various control strategies to different applications (example: Power systems, electrical drives etc…)
GR14A3043	VLSI DESIGN	1. Differentiate between IC families and their manufacturing processes. 2. Analyze and model the MOS transistor circuit, down to physical level considering parasitic components. 3. Analyze and implement various CMOS subsystems at gate level and transistor level. 4. Compare the various parameters used in fabrication process 5. Describe the various operations like stick and layout diagrams of VLSI 6. Implement designs using various programmable devices. 7. Know the testing of ICs and design IC s with testability features.
GR14A2104	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS	1. Select the suitable form of business organization which meets the requirement of selected business also perform decision – making effectively in an uncertain frame work by applying concepts of Managerial Economics 2. Recognize decision that increase firm value (e.g., capital budgeting). 3. Gain knowledge of graduate-level microeconomic theory & macroeconomic theory 4. Meet and manipulate the demand efficiently and plan the future course of action. 5. Apply right kind cost and to reduce cost by paying attention towards the costs which can be regulated or reduced. Take decision whether to buy or produce. 6. Reduce the cost of capital by selecting best sources of fund mobilization and select best investment opportunity which yields higher rate of return.

		7. Fix the right price which can best meets the predetermined objectives of the business firm under different market conditions.
GR14A3100	ADVANCED ENGLISH COMMUNICATION SKILLS LAB	1. Summarize and synthesize information and produce technical writing that is required in academics as well as in the engineering profession 2. Write covering letters, resume, SOP, Project Proposals and Technical Reports 3. Speak fluently and address a large group of audience and participate in debates and discussions 4. Communicate their ideas and opinions by utilizing the various communication mediums in organizational scenario. 5. Identify the ways and means that need to be evolved to crack the examinations like GRE, TOFEL and IELTS. 6. Induce courtesy, formality and positive body language for effective communication. 7. Present themselves sin various formal, social and professional situations and Revamp English language skills to meet the corporate needs.
GR14A3044	VLSI Design LAB	1. Apply switching theory to the solution of logic design problems. 2. Understand the logical properties of flip-flops and how to design counters, adders, sequence detectors and similar circuits. 3. Program various digital circuits in different models using Verilog. 4. Understand the work flow of mentor graphic tools for digital design. 5. Draw layouts using Cadence/Mentor Graphics/Synopsys CAD tools. 6. Have the knowledge and experience to design using HDL languages like Verilog and able to transfer and interpret the design results on FPGA kits 7. Do transistor level design and layout
GR14A3045	DIGITAL COMMUNICATION LAB	1. Develop any real application using digital modulation techniques. 2. Develop time division multiplexing concepts in real applications. 3. Measures the bandwidth of various modulation techniques and observes the output waveforms. 4. Demonstrate a good background in analyzing the block diagram of communication systems. 5. Use appropriate design skills to illustrate design skills to illustrate

		electronic components & method to implement different communication circuits &systems
		6. Emphasize on sampling modeling ,techniques ,signal constellations.
		7. Study the spectral characteristics of PAM and QAM
GR14A2077	COMPUTER NETWORKS	1. Understand the Layered Architecture of Computer Networks.
		2. Understand the operation of the main components of computer networks.
		3. Learn various network protocols and algorithms.
		4. Acquire the required skill to design simple computer networks.
		5. Become familiar with security risks threatening computer networks.
		6. Code the binary into a digital signals pattern which has less baseline wandering and less DC components, and can also decide which type of network is suitable based on the application requirement.
		7. Acquire the methods to design backbone networks, virtual LANs and wireless WANs.
GR14A2076	COMPUTER ORGANIZATION	1. Demonstrate knowledge of register organization of a basic computer system
		2. To incorporate In-depth understanding of control unit organization and micro programmed control
		3. Perform arithmetic operations and understand the performance of central processing unit of a basic computer system.
		4. To analyze and emphasize various communication media in the basic computer system
		5. Develop an ability to analyze and design various memory structures
		6. Be familiar with the basics of systems topics:single-cycle (MIPS),multi-cycle (MIPS),parallel, pipelined, superscalar, and RISC/CISC architectures
		7. Program using the capabilities of the stack, the program counter, and the status register and show how these are used to execute a machine code program.
GR14A2063	DATA BASE MANAGEMENT	1. Design a Database based on given requirements.
		2. Expected to make projects with knowledge of subject provided to them.
		3. Expected to Use Standard Query Language and its various versions.
		4. Expected to apply normalization techniques on given database.

	SYSTEMS	5. Learn the relational model and relational database management system. 6. Know how normalization is important for DBMS and different normalization Techniques 7. Identify the basics of Transaction, concurrency and recovery strategies of DBMS.
GR14A3046	Digital Signal Processing	1. Analyze and process signals in the discrete domain 2. Design filters to suit specific requirements for specific applications 3. Perform statistical analysis and inferences on various types of signals 4. Design multi rate signal processing of signals through systems. 5. Analyze binary fixed point and floating-point representation of numbers and arithmetic operations 6. Design and apply digital signal processing techniques to design discrete time systems and digital filters 7. Compile and solve the digital signal processing problems using MAT lab.
GR14A4059	MICROWAVE ENGINEERING	1. Integrating a wide range of Microwave components into one design oriented frame work 2. Design and solve real world problems 3. Characterize microwave devices in terms of the directionality of communication. 4. Use a microwave test bench in analyzing various types of microwave measurements. 5. Measure the various parameters in microwave engineering. 6. An in-depth knowledge of applying the concepts on real time applications 7. Design & analyze the micro wave integrated circuits.
GR14A2070	OBJECT ORIENTED PROGRAMMING THROUGH JAVA (OPEN ELECTIVE)	1. Compile and run a Java application 2. Apply object oriented programming features and concepts for solving given problem. 3. Use java standard API library to write complex programs. 4. Implement object oriented programming concepts using java 5. Develop interactive programs using applets and swings. 6. Know the division of classes into Java packages 7. Know the role of the Java Virtual Machine in achieving platform

		Independence
GR14A2069	OPERATING SYSTEMS (OPEN ELECTIVE)	1. Learn the major algorithms used in various operating system components and the factors used to evaluate different designs. 2. Analyze different memory management techniques. 3. Plan the application program interface (API) for at least one contemporary operating system to construct programs that illustrate that API. 4. Relate the methods for providing concurrency, communication and synchronization among concurrent tasks. 5. Learn the single-cycle (MIPS),multi-cycle (MIPS),parallel, pipelined, superscalar, and RISC/CISC architectures 6. Gain knowledge about the internal memory management done by OS. 7. Gain the knowledge of different types of operating systems.
GR14A3049	DIGITAL SIGNAL PROCESSING LAB	1. Apply knowledge of digital filter design for various applications. 2. Analyse various signals in transform domain 3. Apply MultiMate concepts in different areas 4. Perform real time experiments on processors such as audio and speech processing. 5. Work with MATLAB functions 6. Enable students to analyze and design different signals & filters using MATLAB 7. Provide the basic knowledge of trainer kit TMS320C6713 DSP Processors.
GR14A2072	OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB	1. Write java program for a given problem. 2. Compile and run a Java application 3. Use java jdk environment to create, debug, compile and run java programs. 4. Import user defined packages and java standard API library to write complex programs. 5. Develop an application using applets and swings. 6. Learn the division of classes into Java packages 7. Know the role of the Java Virtual Machine in achieving platform Independence

Course outcomes of IV year B. Tech Electronics and Communication Engineering

At the end of the course, the student will be able to:

COURSE CODE	COURSE TITLE	COURSE OUTCOMES
GR14A4064	DIGITAL DESIGN THROUGH VERILOG (ELECTIVE)	1. Describe Verilog hardware description, languages (HDL). 2. Write Behavioral models of digital circuits. 3. Write Register Transfer Level (RTL) models of Digital Circuits. 4. Verify Behavioral and RTL models. 5. Describe standard cell libraries and FPGAs 6. Synthesize RTL models to standard cell libraries and FPGAs 7. Implement RTL models on FPGAs and Testing and Verification
GR14A4060	CELLULAR AND MOBILE COMMUNICATION (ELECTIVE)	1. Design and analyze Basic Cellular System 2. Understand of frequency reuse and Co-channel Interference and different methods of cell splitting and sectoring. 3. Measure the real time Co-Channel Interference. 4. Apply the different methods of Handoff mechanisms 5. Research work with good engineering breadth so as to analyze the accessing techniques for cellular and mobile communications. 6. Explore the implementing of these wireless technologies in cellular and mobile communications. 7. An in-depth knowledge of applying the concepts on real time applications
GR14A3048	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	1. Describe the fundamental concepts and principles of instrumentation. 2. Learn principle of operation, working of different electronic instruments like digital multi meter, vector voltmeter. 3. Know functioning, specification, and applications of signal analyzing instruments. 4. Know the purpose of various electronic circuits, ,systems and how to design them, and how those are useful in real time 5. An ability to work in industry with good skill. 6. Measure various parameters using proper instruments without errors 7. Define importance of electronic instrumentation and measurements in the real world
GR14A3070	EMBEDDED SYSTEMS	1. Learn assembly language programming & embedded C. 2. Know and design embedded systems and real-time systems 3. Define the unique design problems and challenges of real-time systems & program the embedded system 4. Identify the unique characteristics of real-time operating systems and evaluate the need for real-time operating system. 5. Explain the general structure of a real-time system 6. Know and use RTOS to build an embedded real-time system. 7. Gain knowledge and skills necessary to design and develop embedded applications based on real-time operating systems.

GR14A3102	MANAGEMENT SCIENCE	1. Learn and implement various concepts of Management and Organization. 2. Maximize Results with Minimum Efforts. 3. Increase the Efficiency of factors of Production. 4. Maximize Prosperity for Employer & Employees. 5. Provide Human betterment & Social Justice 6. Design the departmentation and decentralization. 7. Know the concepts of Personnel Management, HRM and HRD and Industrial Relations (IR), HRM vs. PMIR and Statistical Quality Control
GR14A4061	OPTICAL COMMUNICATIONS (ELECTIVE)	1. Learn the propagation of light in optical fiber and An in-depth knowledge of applying the concepts on real time applications. 2. Know the principles governing optical sources and amplifiers used in optical communications. 3. Design optical communication systems to serve a defined purpose. 4. Analyze optical systems for performance and utility. 5. Critically review and summarize modern topics in optical communications. 6. Design the optical fiber link. 7. Explain operation of different fiber techniques.
GR14A4070	RADAR SYSTEMS (ELECTIVE)	1. Demonstrate an understanding of the factors affecting the radar performance using Radar Range Equation. 2. Analyze the principle of FM-CW radar and apply it in FM- CW Altimeter. 3. Differentiate between a MTI Radar and a Pulse Doppler Radar based on their working principle. 4. Demonstrate an understanding of the importance of Matched Filter Receivers in Radars. 5. Familiarize with the different types of Radar Displays and their application in real time scenario 6. Know the suitable measurement methodologies to characterize and verify the performance of radar systems 7. Design radar systems and to undertake measurements to characterize and verify the performance of radar systems
GR14A3057	SOFTWARE ENGINEERING (ELECTIVE)	1. Identity the minimum requirements for the development of application. 2. Develop, maintain, efficient, reliable and cost effective software solutions. 3. Critically thinking and evaluate assumptions and arguments.
GR14A3059	WEB TECHNOLOGIES (ELECTIVE)	1. Choose any suitable manual system for analysis. 2. Apply knowledge learned in this course as well knowledge earned from previous courses to design an almost error-free database structure to reflect the automated system. 3. Use the development products of Microsoft Visual Studio.Net® products to implement and connect the automated system to a database stored on a web server. 4. Learn how to link and publish Visual Studio.Net® applications to reflect a web application.

GR14A4067	COMMUNICATION PROTOCOLS LAB	1. Identify and describe the functions of basic components required to build data communication networks, both local area and wide area. 2. Describe the process of converting information from its original form, to a form that can be transmitted through data networks; 3. Discuss how different types of transmission media are affected by their physical characteristics and the role that multiplexing plays in data networks; 4. Describe specific processes and functions that apply to a layered network model, with specific reference to the OSI reference model and TCP/IP; 5. Subnet a network using multi-level sub netting and provide a sub netted IP design based on a given topology or business profile; 6. Describe the process by which distance vector and link state routing protocols update information within a network; 7. Learn the importance of DNS within the Internet; and understand the emerging issues for IT as it relates to networks and IT Infrastructure such as cloud and grid computing, and securing networks.
GR14A4113	EMBEDDED SYSTEMS LAB	1. Develop programs to add numbers in various number system representation 2. Examine the I/O port operation using a simulator. 3. Develop a program to transfer and receive data from/to a PC serially. 4. Learn assembly language programming & embedded C. 5. Familiarize with programming and interfacing microcontrollers to various devices. 6. Build various applications using microcontrollers. 7. Develop a program to use a software delay to toggle an LED on the evaluation board and ADC & sample sequencer
GR14A4066	MICROWAVE ENGINEERING LAB	1. Design test bench for measurement of various microwave parameters. 2. Analyze various characteristics of microwave junctions and design of microwave communication links. 3. Integrating a wide range of Microwave components into one design oriented frame work 4. Design and solve real world problems 5. Use a microwave test bench in analyzing various types of microwave measurements. 6. Measure the various parameters in microwave engineering. 7. Design & analyze the micro wave integrated circuits.
GR14A4069	DIGITAL IMAGE PROCESSING	1. Apply to current technologies and issues that are specific to image processing systems. 2. Learn how images are formed, sampled, quantized and represented digitally. 3. Leverage the student's knowledge of image processing to a practical system. 4. Compress the Digital image which is required for storage and transmission of digital images.

		5. Learn transform-domain representation of images (Fourier, DCT, Haar, WHT)
		6. Know the morphological processing and wavelet transforms
		7. Know the principles of image compression, enhancement and restoration and segmentation
GR14A4082	DIGITAL SIGNAL PROCESSORS ANDARCHITECTURE (ELECTIVE)	1. Learn to represent real world signals in digital format and understand transform-domain (Fourier and z-transforms) representation of the signals;
		2. Learn to apply the linear systems approach to signal processing problems using high-level programming language;
		3. Learn the basic architecture of microprocessors and digital signal processors;
		4. Learn to implement linear filters in real-time DSP chips;
		5. Introduce applications of linear filters and their real-time implementation challenges.
		6. Provide the basic knowledge of different DSP Processors.
		7. Interfacing Memory and I/O Peripherals to different Programmable DSP Devices
GR14A4071	ELECTRONIC NAVIGATION SYSTEM (ELECTIVE-I)	1. Learn and analyze radar Systems
		2. Analyse radar signal processing
		3. Appreciate the wide range of applications of radar Systems
		4. Know Target detection and tracking using radar systems
		5. Know various electronic counter measures(ECM)
		6. Learn various electronic navigation systems
		7. Design simulation experiments related to radar systems and radar signal processing
GR14A4082	MOBILE APPLICATION AND DEVELOPMENT (ELECTIVE)	1. Describe those aspects of mobile programming that make it unique from programming for other platforms,
		2. Critique mobile applications on their design pros and cons,
		3. Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces,
		4. Program mobile applications for the Android operating system that use basic and advanced phone features, and
		5. Deploy applications to the Android marketplace for distribution.
		6. Create the innovative and robust mobile application that will be valuable addition to their programming portfolio
		7. Know the different Intents and Services and in Developing Mobile Applications
GR14A4075	SATELLITE COMMUNICATIONS (ELECTIVE)	1. Learn the communication satellite mechanics
		2. Know about the satellite internal sub systems for communication applications
		3. Design the power budget for satellite links
		4. Know about the principles of GPS
		5. Learn various constellations of satellite and their applications
		6. Know the Low earth orbit and geo-stationary

		satellite systems
		7. Know the Earth station technology and Satellite navigation & the global positioning system
GR14A4063	WIRELESS COMMUNICATIONS AND NETWORKS (Elective)	1. Become familiar with security risks threatening computer networks.
		2. Code the binary into a digital signals pattern which has less baseline wandering and less DC components, and can also decide which type of network is suitable based on the application requirement.
		3. Acquire the methods to design backbone networks, virtual LANs and wireless WANs.
		4. Design the Multiple access techniques for wireless communication
		5. Learn the Different Mobile Data Networks, Blue Tooth and Mobile ip and wireless access protocol
		6. Learn the Wireless LAN Technology and Wireless data services
		7. An in-depth knowledge of applying the concepts on real time applications
GR14A4076	DIGITAL IMAGE PROCESSING LAB	1. Process images using techniques of smoothing, sharpening, histogram processing, and filtering,
		2. Explain sampling and quantization processes in obtaining digital images from continuously sensed data,
		3. Enhance digital images using filtering techniques in the spatial domain,
		4. Enhance digital images using filtering techniques in the frequency domain,
		5. Restore images in the presence of only noise through filtering techniques,
		6. Explain most commonly applied color models and their use in basic color image processing,
		7. Familiarize with Mat lab and image processing toolbox.

Programme outcomes:

Based on the department educational objectives, students will achieve the following specific **Programme outcomes**.

a. Ability to apply knowledge of mathematics, science, and engineering.
b. Ability to design and conduct experiments, as well as to analyze and interpret data.
c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. Ability to function on multi-disciplinary teams.
e. Ability to identify, formulates, and solves engineering problems.
f. Understanding of professional and ethical responsibility.
g. Ability to communicate effectively.
h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. Recognition of the need for, and an ability to engage in life-long learning.
j. Knowledge of contemporary issues.
k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice
l. An ability to demonstrate knowledge and understanding of Electronics

and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.

2.1.2 State how and where the POs are published and disseminated (3) Institute Marks : 3.00

(Describe in which media (e.g. websites, curricula books) the POs are published and how these are disseminated among stakeholders)

Institute makes every effort to ensure Department Programme Outcomes are communicated effectively to all stakeholders namely students, faculty, parents, industry, alumni and management etc.

Presently Programme Outcomes are published and disseminated through the following methods:

Print Media: Departmental Brochure/Booklets, Course Registers

Electronic Media: College/Departmental Website, Display Monitors

Display Boards: Notice Boards

Direct Communication: Orientation Programmes to freshers/parents, Induction Programmes to staff members

2.1.3 Indicate processes employed for defining of the POs (5) Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates that the POs are defined in alignment with the graduate attributes prescribed by the NBA.)

The POs (a-l) are as defined and developed for each program with the consultation and involvement of various stakeholders from management, industry, alumni, faculty, and students. Their interests, suggestions and contributions in defining and developing the POs are taken into account.

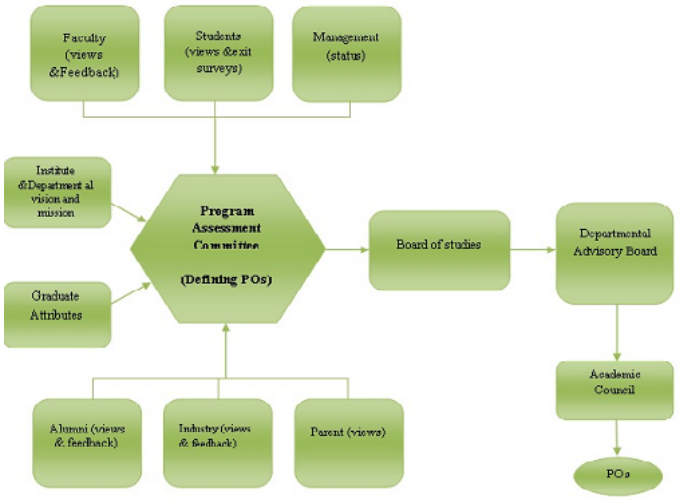


Figure 4: Process for Defining PO's

2.1.4 Indicate how the defined POs are aligned to the Graduate Attributes prescribed by the NBA (10) Institute Marks : 10.00

(Indicate how the POs defined for the programme are aligned with the Graduate Attributes of NBA as articulated in accreditation manual.)

The following are the graduate attributes prescribed by the NBA

- Engineering knowledge
- Problem analysis
- Design/Development of solutions
- Conduct investigation of complex problems
- Modern tool usage
- The engineer and society
- Environment and sustainability
- Ethics
- Individual and team work
- Communication
- Project management and finance
- Life- long learning

Programme Outcomes are aligned with the graduate attributes as given below:

Graduate Attributes	Programme Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Engineering Knowledge	X											X
Problem Analysis		X										X
Design/Development of Solutions			X									X
Conduct investigations of complex problems				X								X
Modern Tool Usage					X							X
Engineer and SocietyEnvironment and Sustainability						X						X
Ethics							X					X
Individual and Teamwork								X				X
Communication									X			X
Project Management and Finance										X		X
Life Long Learning											X	X

2.1.5 Establish the correlation between the POs and the PEOs (10) Institute Marks : 10.00

(Explain how the defined POs of the program correlate with the PEOs)

Correlation between the Programme Outcomes and Programme Educational Objectives

Programme Educational Objective(PEO)	Programme Outcomes(PO)
PEO 1: Graduates will shoulder responsibilities in their chosen careers including supportive and leadership roles in multidisciplinary teams.	a. Ability to apply knowledge of mathematics, science, and engineering. b. Ability to design and conduct experiments, as well as to analyze and interpret data. d. Ability to function on multi-disciplinary tearms f. Understanding of professional and ethical responsibility. g. Ability to communicate effectively k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice. l. An ability to demonstrate knowledge and understanding of Electronics and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.
PEO 2: Graduates will effectively understand, use and develop modern data storage, interpretation, analytical and simulation technologies and other engineering concepts and tools in the field of electronics and communications.	a. Ability to apply knowledge of mathematics, science, and engineering. b. Ability to design and conduct experiments, as well as to analyze and interpret data. c.Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. d. Ability to function on multi-disciplinary tearms e. Ability to identify, formulates, and solves engineering problems. f.Understanding of professional and ethical responsibility. ii.Recognition of the need for, and an ability to engage in life-long learning. j.Knowledge of contemporary issues. k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice. l. An ability to demonstrate knowledge and understanding of Electronics and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.
	f. Understanding of professional and ethical responsibility.

PEO 3: Graduates will communicate effectively, recognize and incorporate societal needs and constraints in their professional endeavors, and practice their profession with high regard to legal and ethical responsibilities.	g. Ability to communicate effectively. h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context. i .Recognition of the need for, and an ability to engage in life-long learning. j.Knowledge of contemporary issues. k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.
PEO 4: Graduates will be able to engage in life-long learning and be abreast with the changing technologies in their profession and to be leaders in the society.	a. Ability to apply knowledge of mathematics, science, and engineering. b. Ability to design and conduct experiments, as well as to analyze and interpret data. c.Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. d. Ability to function on multi-disciplinary tearms e. Ability to identify, formulates, and solves engineering problems. f.Understanding of professional and ethical responsibility. g. Ability to communicate effectively. h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context. i.Recognition of the need for, and an ability to engage in life-long learning. k Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice. l.An ability to demonstrate knowledge and understanding of Electronics and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.

Mapping of PEOs with POs

Programme Outcomes		Programme Educational Objectives			
		PEO1	PEO2	PEO3	PEO4
a	Ability to apply knowledge of mathematics, science, and engineering.	M	H		L
b	Ability to design and conduct experiments, as well as to analyze and interpret data.	M	H		L
c	Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.		M		M
d	Ability to function on multi-disciplinary teams.	H	L		L
e	Ability to identify, formulates, and solves engineering problems.		H		H
f	Understanding of professional and ethical responsibility.	L	L	H	M
g	Ability to communicate effectively.	M		H	L
h	Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.			L	H
i	Recognition of the need for, and an ability to engage in life-long learning.		L	L	H
j	Knowledge of contemporary issues.		L	L	
k	Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice	L	M	L	M

l	An ability to demonstrate knowledge and understanding of Electronics and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.	H	H		M

2.2 Attainment of Programme Outcomes (40) **Total Marks : 40.00**

2.2.1 Illustrate how course outcomes contribute to the POs (10) Institute Marks : 10.00

(Provide the correlation between the course outcomes and the programme outcomes. The strength of the correlation may also be indicated)

Correlation between Course Outcomes and Programme Outcomes of I B.Tech Electronics and Communication Engineering

Course Title/Course Code	Course Outcomes	Program Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	l
Linear Algebra and Single Variable Calculus (GR14A01001)	Recognize the concepts of matrix rank to analyze linear algebraic systems.	H			M					M		H	H
	Compute Eigen values and vectors for engineering applications.	M			M					M		H	M
	Illustrate the concepts of mean value theorems to describe the medical imaging and industrial automation.	H			M					M		M	M
	Differentiate various differential equations using elementary techniques(exact or linear constant coefficient equations)	H			M							H	M
	Demonstrate model and solve linear dynamical equations.	M								H		H	M
	Apply concepts of higher order differential Equations to solve typical problems in electrical circuits.	M	M	H		H						H	
	Identify the physical phenomena of simple harmonic motion by												

	concepts of differential equations.	M	M	H		H							
Engineering Chemistry (GR14A01008)	Analyze water for the industry required specifications.	H		M		H						H	M
	Understand the fundamental principles of electrochemistry for energy production and corrosion prevention.	H	M			M							M
	Know the origin of different types of engineering materials used in modern technology.	M										H	M
	Design new materials for novel applications.	H	M	M		H						H	
	Develop the skills required for synthesis and analysis of materials.	H	H	M	M	H			M			M	H
	Relate the structure of materials to their properties and applications.	H		M	M	H			M			M	H
	Understand the processing of fossil fuels for the effective utilization of chemical energy	H	H		M	H			M			M	H
	Know the necessity of sustainable, environmentally-friendly energy sources like solar energy.	H	H	M	H	M			M			M	H
English (GR14A01005)	Read and comprehend a wide range of text and know the importance of lifelong learning.	H	H	M	M	H			M			M	H
	Improve English language proficiency with an emphasis on LSRW skills.	H	H	M	M	H			M			M	H
	Interpret academic subjects with better understanding.	H	H	H	M	H						M	H
	Express ideas fluently and appropriately in terms of various social and professional areas.	M	H		M	H						M	H
	Revamp English language skills to meet the corporate needs.	H	H	H	M	H						M	H
	Present themselves sin various formal, social and professional situations.	H	M	H	M	H						M	
	Improve literary sense through wide range of selections from various genres.	H	H	H	M	H						M	H
Basic Electrical Engineering (GR14A01018)	Comprehend the basics of Electrical Engineering and practical implementation of Electrical fundamentals.	H			M	H						M	H
	Develop numerical solutions to fundamental electrical engineering.	H	M	H	M	H						M	H
	Make use of basic principles involved in electrical engineering concepts.	H	H	H	M	H						M	H
	Examine the methods to solve AC circuits.	M	H		M	H						M	H
	Analyze various circuits using network theorems.	H	H	H	M	H						M	H
	Know the basics of electric												

	Know the basics of electric machines used in industries.	H	M	H	M	H						M	
	Summarize the different applications of commonly used electric machinery.	H	H	H	M	H						M	H
Computer Programming (GR14A01009)	Describe the basic computer system concepts.	H			M	H						M	H
	Recite algorithm, draw flowchart and write the program for a given scenario.	H	M	H	M	H						M	H
	Use the concepts of C-programming language and functions available in C-library to develop the programs.	M	M	H		H						M	H
	Experiment recursive and non-recursive functions.	H		H		H						M	H
	Create and update files.	M	M	H		H						M	H
	Examine the static memory allocation and dynamic memory allocation of variables	M	H	M		H						M	H
	Find the errors and trace the output of the program.	M	M	H		H						M	H
IT Workshop (GR14A01026)	Recognize different peripherals and install different system and application software's.	H	H	M	M	H						M	H
	Analyze and explore the use of web browsers and related tools for information extraction.	H		M	H	H						M	H
	Create different documents, presentations and spread sheet applications.	H	H	M	M	H						M	H
	Recognize different network devices and their usage.	M	H	H	M	H						H	M
	Recognize and use different cables.	M			M					M		H	M
	Design a static webpage.	M			M					M		H	M
	Design and develop Database.	M			H					M		H	M
Engineering Chemistry lab (GR14A01030)	Perform analysis of water to the required industrial standards.	M			M					M		H	M
	Apply the red ox and acid-base titrations for analyzing materials used in routine usage like cement, coal, acid in lead acid battery,etc.,	M								H		M	M
	Develop the skills required for assessing the quality of materials used in industries.	M			M					M		H	M
	Design novel ways of instrumental methods of analysis.	H			M					H		H	M
	Know the correlation between the measured property and the corresponding application.	M			M					M		H	M
	Understand scientific method of designing experiment and learn the skill necessary to perform it.	M			H					M		H	M
	Know how to innovate to design alternative energy sources utilizing chemistry for sustainable environment for future generations.	M			M					M		H	M
	Use the programming concepts and c-library for writing the programs.	M			M					H		M	M
	Analyze and debug the	H				H			M				

	given program.	H				H			M				
Computer Programming lab (GR14A01027)	Develop an efficient program.								M			M	
	Differentiate static and dynamic memory allocation.	H	H	M	M	H			M			M	
	Compare the recursive and non-recursive programming approaches	H	M		M	H			H			M	
	Create and update files	H	H	M	M	H			M			M	
	Apply searching and sorting techniques for real time scenario.	M	H	M	M	H			M			M	
Fourier Series and Transform Calculus (GR14A01003)	Calculate definite integral values using Beta and Gamma Functions.	M	M	H		H						M	H
	Develop the skill of evaluating Laplace and inverse Laplace transform to solve linear systems under initial and boundary conditions.	H		H		H						M	H
	Illustrate the concepts of Laplace Transform to find the solutions of physical problems such as Electrical circuits.	M	M	H		H						M	H
	Interpret the Fourier series and Fourier transform in the context of signals and systems.	M	H	M		H						M	H
	Solve difference equations by Z-Transform.	M	M	H		H						M	H
	Formulate Partial differential equations by eliminating arbitrary functions and arbitrary constants.	M	H	H					M	M		M	H
	Determine the solution of Boundary value problems(PDE)by Fourier Transform Method.	M	H	H					M	M		M	H
Numerical Methods (GR14A01004)	Develop the skill of determining approximate solutions to problems having no analytical Solutions in different contexts.	M	H	H					M	M		M	H
	Solve problems related to cubic sp line fitting and approximation of functions using B- sp lines and least squares		H	H						H		H	H
	Develop the skill of finding approximate solutions to problems arising in linear differential Equations.		H	H						H		H	H
	Identify how the numerical methods play a vital role in many areas in engineering for example Dynamics, elasticity, heat transfer, electromagnetic theory and quantum mechanics.		H	H						H		H	H
	Interpret the mathematical results in physical or other terms to see what it practically means and implies.	M	M	H	M							M	H
	Explain the concept of interpolation is useful in	M	H		M							H	M

	predicting future out comes base on the present knowledge.	M	H		M							H	M
	Solve the model by selecting and applying a suitable mathematical method.	M	M	H	M							M	H
Engineering Physics (GR14A01007)	Identify and describe various bonds between the atoms and properties of various materials.	H	M	H								M	H
	Explain the behavior of free electrons and how they are responsible for exhibition of various properties.	M	M	H	M							M	H
	Classify various magnetic materials and apply knowledge gained in various fields.	H	H	M								M	H
	Differentiate different dielectric materials and its utilization.	H		M								M	H
	Analyze why Laser light is more powerful than normal light and its applications in various fields.	H	H	M								H	M
	Demonstrate the applications of optical fibers in communication.	H		M								M	H
	Extend the knowledge of characterization techniques to know the composition of Nano material.	H	H	M								M	H
Data Structures (GR14A01010)	Demonstrate data structures operations like insertion, searching, deletion and traversing.	M	H									H	M
	Exemplifying and experiment basic data structures.				H			H	M				M
	Compare and contrast the benefits of dynamic and static data structure simple mentations.				H			H					M
	Demonstrate different methods for traversing trees.				H			H	M				M
	Compare and contrast the various data structures performance.				H				M				M
	Recite data structures concept sin other domains like data bases, compiler construction.				H			H	M				M
Engineering Graphics (GR14A01023)	Demonstrate different types of lines, the use of different types of pencils and drafter tore present.				H			H					M
	Illustrate the basic drawing techniques, conic sections, cycloid curves, involutes and engineering.				M			H	M				M
	Explain the basic concept of principle of planes of projections in front view and top view.				M				H				M
	Make use of orthographic projections of points ,lines, planes and solids.								H			H	H
	Analyze the structure which was hypostatically designed ex: development of surfaces, section of.	M			M					M		H	M
	Explain the logic to convert pictorial vies to orthographic project ions and orthographic projectionsto.	M								H		M	M
	Evaluate conversions of												

	isometric views to orthographic views helps in inventing new machinery.	M			M				M		H	M
Fundamentals of Electronics Engineering (GR14A01019)	Comprehend the fundamentals of construction of the semiconducting materials.	H			M				H		H	M
	Fabrication of elements working principles and operation of semiconductors.	M			M				M		H	M
	Analyze the concept with the working principles of forward and reverse bias characteristics.	M			H				M		H	M
	Know the basic skills in design and analysis of the filters circuits ,biasing circuits.	M			M				M		H	M
	Discriminate the principle, construction and operation BJTs, FETs and MOSFETs.	M							H		M	M
	Interpret the different techniques for FET and MOSFET circuit designs.	M			M				M		H	M
	Create the performance and analysis-volt amp characteristics of a BJT and FET amplifiers.	H			M				H		H	M
	Analyze the small signal low frequency Transistor amplifier susingh-parameters.	M			M				M		H	M
Business Communicatipon and Soft Skills (GR14A01024)	Interpret the role and importance of various forms of communication skills.	M			H				M		H	M
	Utilize various media of verbal and nonverbal communication with reference to various professional contexts.	M			M				M		H	M
	Enable to tote professional responsibilities in analytical manner.	M							H		M	M
	Accredit the activities of sequencing ideas in an efficacious style.	M			M				M		H	M
	Evaluate and use a neutral and correct form of English.	H			M				H		H	M
	Formulate behavior in various formal situations.	M			M				M		H	M
	Integrate business communication & soft skills to meet the requirement of corporate communication.	M			H				M		H	M
Engineering Workshop (GR14A01025)	Design and model different proto types in the Carpentry trade such as Crosslap joint,Dovetail joint	M			M				M		H	M
	Create various types in the trade of Fitting such as Straight fit, V-fit	M							H		M	M
	Construct various basic proto types in the trade of tin smithy such as rectangular tray and open scoop etc.	M			M				M		H	M
	Analyze to make in the tradeoff TinSmithy such as Rectangular tray and Open Cylinder.	H			M				H		H	M
	Apply various HouseWiring techniques such as Connecting one lamp with one switch.	M			M				M		H	M
	Develop various basic house wiring techniques such as two lamps with one switch, Connecting a	M			H				M		H	M

	Fluorescent tube, Series Wiring, God own wiring.												
	Demonstrate to develop various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, But Tjoint and Corner joint.	M			M				M		H	M	
Engineering Physics lab (GR14A01029)	Identify the usage of CRO, digital multi meter to record various physical quantities.	M							H		M	M	
	Distinguish the characteristics and behavior of dielectric materials in a practical manner.	M			M				M		H	M	
	Calculate losses in optical fiber and interpret them to the optical communication system.	H			M				H		H	M	
	Quantify the type of semiconductor and measurement of energy gap in a semiconductor.	M			M				M		H	M	
	Investigate the properties of light like interface and diffraction through experimentation.	M			H				M		H	M	
	Examine the behavior of magnetic materials with the help of graph.	M							H		H	M	
	Analyze the characteristics of light emitting diodes for their optimum utilization.	M	M	H		H					H		

Correlation between Course Outcomes and Programme Outcomes of II B.Tech Electronics and Communication Engineering

Couse Title/Course Code	COs	Program Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	l
Electrical Circuits (GR14A02047)	Comprehend the mathematical expression for voltages and currents in RL, RC and RLC circuits to find the transient response of inductor and capacitor in dc circuits.	H			M					M		H	H
	Analyze the concept with working principles of linear constant coefficient differential equations with the help of Laplace transforms.	M			M					M		H	M
	Know the basic skills of an ac circuits with independent/dependent voltage current sources by drawing impedance/admittance diagrams or using various laws/ techniques like source conversion	H	M	M		H						H	
	Acquaint with AC circuits in the frequency domain and compute transient response for first and second order circuits.	H	H	M	M	H			M			M	H
	Discriminate the concepts like cut-set, tie-set, pole zero												

	parameters and stability analysis	H	M	M		H					H		
	Interpret the pole zero network functions, transfer and driving point functions	H	M	M		H					H		
	Create the two-port network parameters, conversion between parameters,Interconnection of two port networks.	H	H	M	M	H			M			M	H
Electronic Circuit Analysis (GR14A02048)	Comprehend the fundamental concepts in feedback amplifier circuits.	H			M						H	M	
	Analyze the oscillators design, frequency responses calculations with the help of mathematical expressions.	M								H	H	M	
	Describe the various cascade amplifier circuits using BJT and FET models	M	M	H		H					H		
	Apply the h-parameter model to power amplifiers circuit design	M	M	H		H							
	Discriminate the concepts quality factor, form-factor in small signal tuned amplifier analysis and design.	H		M		H					H	M	
	Interpret the tuned amplifiers and tuned cascaded networks functionality	H	M	M		H					H		
	Create the circuit design analysis, testing and utilization of the circuits in various levels.	H	H	M	M	H			M			M	H
Signals and Systems (GR14A02049)	Defines the fundamentals of mathematical models and analyze deterministic CT signals and systems	H	M			M							M
	Analyze the concepts in assess the effect of LTI systems on signals passing through them in frequency and time domains	M									H	M	
	Demonstrates an appreciate effect of sampling in continuous-time signals and explain the application of sampling theorem in signal processing	H	M	M		H					H		
	Acquaint with mathematically represent of discrete-time (DT) signals	H	H	M	M	H			M			M	H

	Discriminate the Fourier, Laplace and Z-transforms as appropriate for various signals and systems	H	M	M		H					H		
	Interpret to analyze the importance of various transformation techniques in signal processing.	H	H	M	M	H			M			M	H
	Create the terms mean, variance, mean squared error, random process and orthogonality functions	H	M	M		H					H		
Probability Theory and Stochastic Process (GR14A02050)	Define probability and interpret probability by modeling sample spaces.	H		M	M	H			M			M	H
	Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance.	H	H		M	H			M			M	H
	Solve the problems involving multiple random variables.	H	H	M	H	M			M			M	H
	Apply the concepts of random process in communication and signal processing.	H	H	M	M	H			M			M	H
	Evaluate response of a linear system to Random Process	H	M	M		H					H		
	Analyze the importance of various probability distributions in signal analysis	H	H	M	M	H			M			M	H
	Compare the various distributions and its performance characteristics	H	M	M		H					H		
Digital Electronics (GR14A02043)	Aware of theory of Boolean Algebra & the underlying features of various number systems.	H	H	M	M	H			M			M	H
	Use the concepts of Boolean Algebra for the analysis & design of various combinational & sequential logic circuits.	H	H	H	M	H						M	H
	Design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays.	M	H		M	H						M	H
	Explain the concepts of VHD Language	H	H	H	M	H						M	H
	Analyze the various coding schemes are the part of the digital circuit design	H	M	M		H					H		
	Analyze the sequential logic circuits design both in synchronous and asynchronous modes for various complex logic and switching devices.	H	H	M	M	H			M			M	H
	Design of various circuits												

	Design of various circuits with the help of VHDL Coding techniques	H	M	M		H					H		
Electronic Circuit Analysis Lab (GR14A02051)	Comprehend the fundaments of multistage amplifiers, feedback, power amplifiers and oscillator circuits	H	M	H	M	H					M		
	Analyze the circuit design process and simulate the common base, common emitter and common collector amplifier circuits	H	H	H	M	H					M	H	
	Know the origin of failure of a circuit when it is in an application	H			M	H					M	H	
	Acquaint with the design and simulate the RC coupled and Cascade amplifier circuits	H	M	H	M	H					M	H	
	Discriminate the design and simulate various oscillator circuits	H	M	M		H					H		
	Interpret to design and simulate Darlington pair,	H	H	M	M	H			M		M	H	
	Create the design and simulate the cascade, class A power amplifier circuits, and single tuned voltage amplifier circuits	H	M	M		H					H		
Signals Systems and Simulation Lab (GR14A02052)	Comprehend the fundamentals to explain the classification of signals and systems	H	H	H	M	H					M	H	
	Analyze the concepts to simulate the Fourier series, Fourier transform in singles and systems	M	H		M	H					M	H	
	Know the behavior of LTI system with matlab simulation environment	H	H	H	M	H					M	H	
	Acquaint with sampling of signals with matlab	H	M	H	M	H					M		
	Discriminate in writing the code for convolution response	H	M	M		H					H		
	Interpret to write code and analyze the graphical representation of gibbs phenomenon in signals and systems	H	H	M	M	H			M		M	H	
	Create in writing the code for simulation and synthesis of Laplace transforms	H	M	M		H					H		
	Study the theory of Boolean algebra and to study representation of switching functions through various experiments.	H	H	H	M	H					M	H	
	Perform the combinational logic design of various logic and switching devices and validate the outputs	H			M	H					M	H	
	Perform the sequential logic circuits design both in synchronous and Asynchronous modes for various complex logic and switching devices and	H	M	H	M	H					M	H	

	validate the outputs												
Digital Electronics Lab(GR14A02053)	Design and validate the counters and registers for synchronous and asynchronous circuits	M	M	H		H						M	H
	Design the combinational logic circuits using VHDL programming syntaxes.	H	M	M		H						H	
	Design the sequential circuits using VHDL programming syntaxes.	H	H	M	M	H			M			M	H
	Describe the various VHDL programming concepts	H	M	M		H						H	
Electromagnetic Theory and Transmission Lines(GR14A02054)	Define and describe Electromagnetic field quantities mathematically/graphically in words.	H		H		H						M	H
	Solve simple problems involving EM fields.	M			M					M		H	M
	Explain important deductions maid from Maxwell’s equations.	H			M					M		M	M
	Analyze and solve problems of EM wave propagation in unbounded media	H			M							H	M
	Analyze and solve problems of EM wave propagation along transmission lines.	H	M	M		H						H	
	Solve transmission line problems using Smith chart.	H	H	M	M	H			M			M	H
	Derive propagation characteristics of EM waves in parallel plates wave guides	H	M	M		H						H	
	Compare the functionally and architectures of microprocessors and microcontrollers	M								H		H	M
	Analyze assembly language programming techniques	M	M	H		H						H	
	Explain the implementation of 8051 instruction set	M	M	H		H							
	Analyze assembly language												

Microcontrollers(GR14A02055)	Analyze assembly language programming concepts	H		M		H						H	M
	Acquainted with design of microcontrollers	H	M			M							M
	Interface various devices with microcontrollers	H	M	M		H						H	
	Design various programs to run several applications	H	H	M	M	H			M			M	H
Analog Communications(GR14A02056)	Analysis and design of various modulation and demodulation techniques.	M										H	M
	Analyze and demonstrate a good background in analyzing the block diagram of communication system.	H	M	M		H						H	
	Illustrates how the mathematical concepts bend the analog communication process	H	H	M	M	H			M			M	H
	Acquaint with formulate the frequency modulation and angle modulation signals	H		M	M	H			M			M	H
	Discriminate the design skills to illustrate the electronic component and method to implement different communication systems.	H	M	M		H						H	
	Interpret with differentiate types of transmitters and receivers used for particular application.	H	H	M	M	H			M			M	H
	Create the spectrum and noise performance of particular communication system.	H	M	M		H						H	
Analog Electronics (GR14A02057)	Explain the basic concepts of linear and non linear wave shaping circuits	H	H		M	H			M			M	H
	To analyze the working principles of clippers and clappers	H	H	M	H	M			M			M	H
	Describe and compare the Bi-stable, Mono-stable and Astable circuits and its applications	H	H	M	M	H			M			M	H
	Design various multivibrators from the given constraints	H	H	M	M	H			M			M	H
	Explain the ideal and practical Op-Amp characteristics	H	M	M		H						H	
	Perform the various Op-Amp circuits in different applications	H	H	M	M	H			M			M	H

	Compare the negative and positive feedback amplifiers	H	M	M		H					H		
Special functions and complex variables(GR14A02058)	Solve linear differential equations using power series methods.	H	H	H	M	H					M	H	
	Approximate Polynomial in terms of Legendre, Bessel and chebyshev.	M	H		M	H					M	H	
	Evaluate Real definite integrals using Cauchy's Residue Theory.	H	H	H	M	H					M	H	
	Interpret geometrically the Complex functions and their qualitative behavior in the Complex Plane	H	M	H	M	H					M		
	Describe Singularity and Residue Theory.	H	H	H	M	H					M	H	
	Solve potential functions, stream functions and velocity potential.	H	M	M		H					H		
	Illustrate the concepts of residues in the context of determination of real integrals.	H	H	M	M	H			M		M	H	
Microcontrollers Lab(MC LAB) (GR14A02059)	Comprehend the fundamentals in programming for microcontrollers	H			M	H					M	H	
	Analyze the code and build simple real time applications using microcontrollers	H	M	H	M	H					M	H	
	Know the skill to write, upload the programs on LED patterns, Switches and LEDs Compile and compose the programs on LED patterns, Switches and LEDs	H	H	H	M	H					M	H	
	Describe the LCD and UART based programs	M	H		M	H					M	H	
	Interpret with various applications using TRIAC, ADC and DAC	H	M	M		H					H		
	Discriminate the Control based programs	H	H	M	M	H			M		M	H	
	Interpret with RF 433 MHz, Bluetooth and ZigBee transmitter and Receiver	H	M	M		H					H		
Analog	Comprehend the fundamentals in explain the functionality of modulation and demodulation environment	H	H	H	M	H					M	H	
	Analyze the concepts, write and simulate the concepts of AM and AM-Demodulation process in Communication.	H	M	H	M	H					M		
	Know the origin and simulation of FM and FM-Demodulation process in communication	H	H	H	M	H					M	H	

Communications Lab(AC LAB)(GR14A02060)	Acquaint with AM and FM basic functionalities	H	M	M		H					H		
	Discriminate the AM and FM functionalities	H	H	M	M	H			M			M	H
	Interpret with various angle modulation and demodulation systems	H	M	M		H					H		
	Create the writing and simulation environments in PWM, PPM, Mixer and ring modulation	H	H	M	M	H			M			M	H
Analog Electronic Lab(AE lab) (GR14A02061)	Analyze and select analog devices using circuit specifications based on circuit requirements.	H			M	H						M	H
	Conduct experiments on different types of multivibrators.	H	M	H	M	H						M	H
	Design Digital to Analog Converters (DAC).	M	M	H		H						M	H
	Design pulse stretcher and square wave generating circuits.	H		H		H						M	H
	Design oscillators and function generator circuits.	H	M	M		H					H		
	Identify the positive and negative feedback circuits.	H	H	M	M	H			M			M	H
	Discriminate the design of simple circuits like summers, subtractors and multivibrators using op-amp.	H	M	M		H					H		

Correlation between Course Outcomes and Programme Outcomes of III B.Tech Electronics and Communication Engineering

Course Title/Course Code	COs	Program Outcomes										
		a	b	c	d	e	f g	h	i	j	k	l
ANTENNAS AND WAVE PROPOGATION (GR14A3042)	Understand the fundamentals of Antennas.	H			M				M		H	H
	Illustrate the different types of arrays and their radiation patterns.	M			M				M		H	M
	Analyze a complete radio system, from the Transmitter to the Receiver end with reference to antenna.	H			M				M		M	M
	Quantify the fields radiated by various types of antennas	H	M	M		H					H	
	Design wire antennas, loop antennas, reflector antennas, lens antennas, horn antennas and micro strip antennas	H	H	M	M	H		M			M	H
	Analyze antenna measurements to											

	assess antenna´s performance	H	M	M		H					H		
	Know the concept of radio wave propagation.	H	H	M	M	H		M			M	H	
Digital Communications (GR14A3041)	Classification of digital modulation techniques.	H			M						H	M	
	Communications with a focus on modern digital communications theory and systems.	M							H		H	M	
	Explains the spread spectrum techniques.	M	M	H		H					H		
	Apply the underlying methods for up-to-date examples of real world systems.	M	M	H		H							
	Demonstrate the error detection and error correction in linear convolution codes.	H		M		H					H	M	
	Emphasize on modern digital data transmission concepts and optimization of receivers.	H	M	M		H					H		
	Build a basis for subsequent related courses such as wireless, cellular and mobile communications.	H	H	M	M	H		M			M	H	
LINEAR CONTROL SYSTEMS (GR14A3103)	Analyze and improve the system performance by selecting a suitable controller and a compensator for a specific application	H	M			M						M	
	Represent the mathematical model of a system.	M									H	M	
	Analyze the stability of the system.	H	M	M		H					H		
	Design a system, component, or process to meet desired needs.	H	H	M	M	H		M			M	H	
	Identify, formulate, and solve engineering	H	M	M		H					H		

	problems											
	Analyze various time domain and frequency domain techniques to assess the system performance	H	H	M	M	H		M		M	H	
	Apply various control strategies to different applications (example: Power systems, electrical drives etc…)	H	M	M		H				H		
VLSI DESIGN (GR14A3043)	Differentiate between IC families and their manufacturing processes.	H	H	M	M	H		M		M	H	
	Analyze and model the MOS transistor circuit, down to physical level considering parasitic components.	H	H		M	H		M		M	H	
	Analyze and implement various CMOS subsystems at gate level and transistor level.	H	H	M	H	M		M		M	H	
	Compare the various parameters used in fabrication process	H	H	M	M	H		M		M	H	
	Describe the various operations like stick and layout diagrams of VLSI	H	M	M		H				H		
	Implement designs using various programmable devices.	H	H	M	M	H		M		M	H	
	Know the testing of ICs and design IC s with testability features.	H	M	M		H				H		
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS (GR14A3042)	Select the suitable form of business organization which meets the requirement of selected business also perform decision – making effectively in an uncertain frame work by applying concepts of Managerial Economics	H	H	M	M	H		M		M	H	
	Recognize decision that increase firm value (e.g., capital budgeting).	H	H	H	M	H				M	H	
	Gain knowledge of graduate-level microeconomic theory & macroeconomic theory	M	H		M	H				M	H	
	Meet and manipulate the demand efficiently and plan the future	H	H	H	M	H				M	H	

	course of action.												
	Apply right kind cost and to reduce cost by paying attention towards the costs which can be regulated or reduced. Take decision whether to buy or produce.	H	M	M		H					H		
	Reduce the cost of capital by selecting best sources of fund mobilization and select best investment opportunity which yields higher rate of return.	H	H	M	M	H			M			M	H
	Fix the right price which can best meets the predetermined objectives of the business firm under different market conditions.	H	M	M		H					H		
ADVANCED ENGLISH COMMUNICATION SKILLS LAB(GR14A3042)	Summarize and synthesize information and produce technical writing that is required in academics as well as in the engineering profession	H	M	H	M	H					M		
	Write covering letters, resume, SOP, Project Proposals and Technical Reports	H	H	H	M	H					M		H
	Speak fluently and address a large group of audience and participate in debates and discussions	H			M	H					M		H
	Communicate their ideas and opinions by utilizing the various communication mediums in organizational scenario.	H	M	H	M	H					M		H
	Identify the ways and means that need to be evolved to crack the examinations like GRE, TOFEL and IELTS.	H	M	M		H					H		
	Induce courtesy, formality and positive body language for effective communication.	H	H	M	M	H			M			M	H
	Present themselves sin various formal, social and professional situations and Revamp English language skills to meet the corporate needs.	H	M	M		H					H		
	Apply switching theory to the solution of logic design problems.	H	H	H	M	H					M		H
	Understand the												

	logical properties of flip-flops and how to design counters, adders, sequence detectors and similar circuits.	M	H		M	H					M	H	
	Program various digital circuits in different models using Verilog.	H	H	H	M	H					M	H	
	Understand the work flow of mentor graphic tools for digital design.	H	M	H	M	H					M		
VLSI LAB	Draw layouts using Cadence/Mentor Graphics/Synopsys CAD tools.	H	M	M		H					H		
	Have the knowledge and experience to design using HDL languages like Verilog and able to transfer and interpret the design results on FPGA kits	H	H	M	M	H		M			M	H	
	Do transistor level design and layout	H	M	M		H					H		
	Develop any real application using digital modulation techniques.	H	H	H	M	H					M	H	
	Develop time division multiplexing concepts in real applications.	H			M	H					M	H	
DIGITAL COMMUNICATION LAB (GR14A03045)	Measures the bandwidth of various modulation techniques and observes the output waveforms.	H	M	H	M	H					M	H	
	Demonstrate a good background in analyzing the block diagram of communication systems.	M	M	H		H					M	H	
	Use appropriate design skills to illustrate design skills to illustrate electronic components & method to implement different communication circuits &systems	H	M	M		H					H		
	Emphasize on sampling modeling ,techniques ,signal constellations.	H	H	M	M	H		M			M	H	
	Study the spectral characteristics of PAM and QAM	H	M	M		H					H		
	Understand the												

Computer Networks (GR14A03077)	Layered Architecture of Computer Networks.	H		H		H					M	H
	Understand the operation of the main components of computer networks.	M			M				M		H	M
	Learn various network protocols and algorithms.	H			M				M		M	M
	Acquire the required skill to design simple computer networks.	H			M						H	M
	Become familiar with security risks threatening computer networks.	H	M	M		H					H	
	Code the binary into a digital signals pattern which has less baseline wandering and less DC components, and can also decide which type of network is suitable based on the application requirement.	H	H	M	M	H		M			M	H
	Acquire the methods to design backbone networks, virtual LANs and wireless WANs.	H	M	M		H					H	
COMPUTER ORGANIZATION (GR14A02076)	Demonstrate knowledge of register organization of a basic computer system	M							H		H	M
	To incorporate In-depth understanding of control unit organization and micro programmed control	M	M	H		H					H	
	Perform arithmetic operations and understand the performance of central processing unit of a basic computer system.	M	M	H		H						
	To analyze and emphasize various communication media in the basic computer system	H		M		H					H	M
	Develop an ability to analyze and design various memory structures	H	M			M						M

	Be familiar with the basics of systems topics:single-cycle (MIPS),multi-cycle (MIPS),parallel, pipelined, superscalar, and RISC/CISC architectures	H	M	M		H				H		
	Program using the capabilities of the stack, the program counter, and the status register and show how these are used to execute a machine code program.	H	H	M	M	H		M		M	H	
DATA BASE MANAGEMENT SYSTEMS (GR14A02063)	Design a Database based on given requirements.	M								H	M	
	Expected to make projects with knowledge of subject provided to them.	H	M	M		H				H		
	Expected to Use Standard Query Language and its various versions.	H	H	M	M	H		M		M	H	
	Expected to apply normalization techniques on given database.	H		M	M	H		M		M	H	
	Understand the relational model and relational database management system.	H	M	M		H				H		
	Know how normalization is important for DBMS and different normalization Techniques	H	M	M		H				H		
	Identify the basics of Transaction, concurrency and recovery strategies of DBMS.	H	H	M	M	H		M		M	H	
Digital Signal Processing (GR14A03046)	Analyze and process signals in the discrete domain	H	H		M	H		M		M	H	
	Design filters to suit specific requirements for specific applications	H	H	M	H	M		M		M	H	
	Perform statistical analysis and inferences on various types of signals	H	H	M	M	H		M		M	H	
	Design multi rate signal processing of signals through systems.	H	H	M	M	H		M		M	H	
	Analyze binary fixed point and floating-point representation of	H	M	M		H				H		

	numbers and arithmetic operations												
	Design and apply digital signal processing techniques to design discrete time systems and digital filters	H	H	M	M	H		M			M	H	
	Compile and solve the digital signal processing problems using MAT lab.	H	M	M		H					H		
MICROWAVE ENGINEERING (GR14A04059)	Integrating a wide range of Microwave components into one design oriented frame work	H	H	M	M	H		M			M	H	
	Design and solve real world problems	M	H		M	H					M	H	
	Characterize microwave devices in terms of the directionality of communication.	H	H	H	M	H					M	H	
	Use a microwave test bench in analyzing various types of microwave measurements.	H	M	H	M	H					M		
	To measure the various parameters in microwave engineering.	H	H	H	M	H					M	H	
	An in-depth knowledge of applying the concepts on real time applications	H	M	M		H					H		
	To design & analyze the micro wave integrated circuits.	H	H	M	M	H		M			M	H	
OBJECT ORIENTED PROGRAMMING THROUGH JAVA (OPEN ELECTIVE) (GR14A02070)	Compile and run a Java application	H			M	H					M	H	
	Apply object oriented programming features and concepts for solving given problem.	H	M	H	M	H					M	H	
	Use java standard API library to write complex programs.	H	H	H	M	H					M	H	
	Implement object oriented programming concepts using java	M	H		M	H					M	H	
	Develop interactive programs using applets and swings.	H	M	M		H					H		
	Understand the division of classes into Java packages	H	H	M	M	H		M			M	H	
	Understand the												

	role of the Java Virtual Machine in achieving platform Independence	H	M	M		H					H		
SYSTEMS OPERATING SYSTEMS (OPEN ELECTIVE) (GR14A02069)	Understand the major algorithms used in various operating system components and the factors used to evaluate different designs.	H			M	H					M	H	
	Analyze different memory management techniques.	H	M	H	M	H					M	H	
	Plan the application program interface (API) for at least one contemporary operating system to construct programs that illustrate that API.	M	M	H		H					M	H	
	Relate the methods for providing concurrency, communication and synchronization among concurrent tasks.	H		H		H					M	H	
	Understand the single-cycle (MIPS),multi-cycle (MIPS),parallel, pipelined, superscalar, and RISC/CISC architectures	H	M	M		H					H		
	Gain knowledge about the internal memory management done by OS.	H	H	M	M	H			M		M	H	
	Gain the knowledge of different types of operating systems.	M	M	H	M	H			M		L	M	
Digital Signal Processing Lab (GR14A03049)	To apply knowledge of digital filter design for various applications.	H	M	M		H					H		
	To analyse various signals in transform domain	H	H	M	M	H			M		M	H	
	To apply MultiMate concepts in different areas	H	M	M		H					H		
	To perform real time experiments on processors such as audio and speech processing.	H	H	M	M	H			M		M	H	
	Work with MATLAB functions	H	M	M		H					H		
	Enable students to analyze and design different signals &	H	H	M	M	H			M		M	H	

	filters using MATLAB											
	Provide the basic knowledge of trainer kit TMS320C6713 DSP Processors.	H	M	M		H					H	
OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB (GR14A02072)	Write java program for a given problem.	H	H	M	M	H			M		M	H
	Compile and run a Java application	H	M	M		H					H	
	Use java jdk environment to create, debug, compile and run java programs.	H	H	M	M	H			M		M	H
	Import user defined packages and java standard API library to write complex programs.	H	M	M		H					H	
	Develop an application using applets and swings.	H	H	M	M	H			M		M	H
	Understand the division of classes into Java packages	H	M	M		H					H	
	Understand the role of the Java Virtual Machine in achieving platform Independence	H	H	M	M	H			M		M	H

Correlation between Course Outcomes and Programme Outcomes of IV B.Tech Electronics and Communication Engineering

Course Title/Course Code	COs	Program Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	l
DIGITAL DESIGN THROUGH VERILOG (ELECTIVE)(GR14A04064)	Describe Verilog hardware description, languages (HDL).	H			M					M		H	H
	Write Behavioral models of digital circuits.	M			M					M		H	M
	Write Register Transfer Level (RTL) models of Digital Circuits.	H			M					M		M	M
	Verify Behavioral and RTL models.	H	M	M		H						H	
	Describe standard cell libraries and FPGAs	H	H	M	M	H			M			M	H
	Synthesize RTL models to standard cell libraries and FPGAs	H	M	M		H						H	
	Implement RTL models on FPGAs and Testing and Verification	H	H	M	M	H			M			M	H
CELLULAR AND MOBILE COMMUNICATION (ELECTIVE) (GR14A04060)	Design and analyze Basic Cellular System	H			M							H	M
	Understand of frequency reuse and Co-channel Interference and different methods of cell splitting and sectoring.	M								H		H	M
	Measure the real time Co-Channel Interference.	M	M	H		H						H	
	Apply the different methods of Handoff mechanisms	M	M	H		H							
	Research work with good engineering breadth so as to analyze the accessing	H		M		H						H	M

	techniques for cellular and mobile communications.											
	Explore the implementing of these wireless technologies in cellular and mobile communications.	H	H	M	M	H		M		M	H	
	An in-depth knowledge of applying the concepts on real time applications	H			M					H	M	
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION (GR14A03048)	Describe the fundamental concepts and principles of instrumentation.	M							H	H	M	
	Understand principle of operation, working of different electronic instruments like digital multi meter, vector voltmeter.	M								H	M	
	Understand functioning, specification, and applications of signal analyzing instruments.	H	M	M		H				H		
	Know the purpose of various electronic circuits, ,systems and how to design them, and how those are useful in real time	H	H	M	M	H		M		M	H	
	An ability to work in industry with good skill.	H	H	M	M	H		M		M	H	
	Measure various parameters using proper instruments without errors	H			M					H	M	
	Define importance of electronic instrumentation and measurements in the real world	M							H	H	M	
Embedded Systems	Learn assembly language programming & embedded C.	H		M	M	H		M		M	H	
	Understand and design embedded systems and real-time systems	H	H		M	H		M		M	H	
	Define the unique design problems and challenges of real-time systems Program an embedded system	H	H	M	H	M		M		M	H	
	Identify the unique characteristics of real-time operating	H	H	M	M	H		M		M	H	

(GR14A03070)	systems and evaluate the need for real-time operating system.											
	Explain the general structure of a real-time system	H	H	M	M	H			M		M	H
	Understand and use RTOS to build an embedded real-time system.	H			M						H	M
	Gain knowledge and skills necessary to design and develop embedded applications based on real-time operating systems.	M								H	H	M
Management Science (GR14A03102)	Understand and implement various concepts of Management and Organization.	H	H	M	M	H			M		M	H
	Maximize Results with Minimum Efforts.	H	H	H	M	H					M	H
	Increase the Efficiency of factors of Production.	M	H		M	H					M	H
	Maximize Prosperity for Employer & Employees.	H	H	H	M	H					M	H
	Ability to provide Human betterment & Social Justice	H	H	M	M	H			M		M	H
	Ability to design the departmentation and decentralization.	H			M						H	M
	Understand the concepts of Personnel Management, HRM and HRD and Industrial Relations (IR), HRM vs. PMIR and Statistical Quality Control	M								H	H	M
OPTICAL COMMUNICATIONS (ELECTIVE)	Understand the propagation of light in optical fiber and An in-depth knowledge of applying the concepts on real time applications.	H	M	H	M	H					M	
	Understand the principles governing optical sources and amplifiers used in optical communications.	H	H	H	M	H					M	H
	Design optical communication systems to serve a defined purpose.	H			M	H					M	H
	Analyze optical systems for performance and utility.	H	M	H	M	H					M	H
	Critically review and summarize modern topics in	H	H	M	M	H			M		M	H

(GR14A04061)	optical communications.											
	Design the optical fiber link.	H			M						H	M
	Explain operation of different fiber techniques.	M							H		H	M
RADAR SYSTEMS (ELECTIVE) (GR14A04070)	Demonstrate an understanding of the factors affecting the radar performance using Radar Range Equation.	H	H	H	M	H					M	H
	Analyze the principle of FM-CW radar and apply it in FM-CW Altimeter.	M	H		M	H					M	H
	Differentiate between a MTI Radar and a Pulse Doppler Radar based on their working principle.	H	H	H	M	H					M	H
	Demonstrate an understanding of the importance of Matched Filter Receivers in Radars.	H	M	H	M	H					M	
	Familiarize with the different types of Radar Displays and their application in real time scenario	H	H	M	M	H			M		M	H
	Know the suitable measurement methodologies to characterize and verify the performance of radar systems	H			M						H	M
	Design radar systems and to undertake measurements to characterize and verify the performance of radar systems	M							H		H	M
SOFTWARE ENGINEERING (ELECTIVE) (GR14A03057)	Identity the minimum requirements for the development of application.	H	H	H	M	H					M	H
	Develop, maintain, efficient, reliable and cost effective software solutions.	H			M	H					M	H
	Critically thinking and evaluate assumptions and arguments.	H	M	H	M	H					M	H
	Choose any suitable manual system for analysis.	M	M	H		H					M	H
	Apply knowledge learned in this course as well knowledge earned from previous courses to design an almost error-free database	H	H	M	M	H			M		M	H

	structure to reflect the automated system.										
	Use the development products of Microsoft Visual Studio.Net® products to implement and connect the automated system to a database stored on a web server.	H		M					H	M	
	Learn how to link and publish Visual Studio.Net® applications to reflect a web application.	M						H	H	M	
WEB TECHNOLOGIES (ELECTIVE) (GR14A03059)	Identify and describe the functions of basic components required to build data communication networks, both local area and wide area;	H		H		H				M	H
	Describe the process of converting information from its original form, to a form that can be transmitted through data networks;	M			M			M	H	M	
	Discuss how different types of transmission media are affected by their physical characteristics and the role that multiplexing plays in data networks;	H			M			M		M	M
	Describe specific processes and functions that apply to a layered network model, with specific reference to the OSI reference model and TCP/IP;	H			M				H	M	
	Subnet a network using multi-level sub netting and provide a sub netted IP design based on a given topology or business profile;	H	H	M	M	H		M		M	H
	Describe the process by which distance vector and link state routing protocols update information within a network;	H			M				H	M	
	Understand the importance of DNS within the Internet; and understand the emerging issues for IT as it relates to networks and IT Infrastructure such as cloud and grid computing, and	M						H	H	M	

	securing networks.											
COMMUNICATION PROTOCOLS LAB (GR14A04067)	Develop programs to add numbers in various number system representation	H		M		H					H	M
	Examine the I/O port operation using a simulator.	M	M	H		H					H	
	Develop a program to transfer and receive data from/to a PC serially.	M	M	H		H						
	Learn assembly language programming & embedded C.	H		M		H					H	M
	Familiarize with programming and interfacing microcontrollers to various devices.	H	M			M						M
	Build various applications using microcontrollers.	H	M	M		H					H	
	Develop a program to use a software delay to toggle an LED on the evaluation board and ADC & sample sequencer	H	H	M	M	H		M			M	H
MICROWAVE ENGINEERING LAB (GR14A04066)	Design test bench for measurement of various microwave parameters.	M									H	M
	Analyze various characteristics of microwave junctions and design of microwave communication links.	H	M	M		H					H	
	Integrating a wide range of Microwave components into one design oriented frame work	H	H	M	M	H		M			M	H
	Design and solve real world problems	H		M	M	H		M			M	H
	Use a microwave test bench in analyzing various types of microwave measurements.	H	M	M		H					H	
	To measure the various parameters in microwave engineering.	H	H	M	M	H		M			M	H
	To design &											

	analyze the micro wave integrated circuits.	H	M	M		H					H		
DIGITAL IMAGE PROCESSING (GR14A04069)	Apply to current technologies and issues that are specific to image processing systems.	H	H	M	M	H			M		M	H	
	Understand how images are formed, sampled, quantized and represented digitally.	H	H	M	H	M			M		M	H	
	Leverage the student's knowledge of image processing to a practical system.	H	H	M	M	H			M		M	H	
	Compress the Digital image which is required for storage and transmission of digital images.	H	H	M	M	H			M		M	H	
	Understand transform-domain representation of images (Fourier, DCT, Haar, WHT)	H	M	M		H					H		
	Understand the morphological processing and wavelet transforms	H	H	M	M	H			M		M	H	
	Understand the principles of image compression, enhancement and restoration and segmentation	H	M	M		H					H		
DIGITAL SIGNAL PROCESSORS ANDARCHITECTURE (ELECTIVE) (GR14A04082)	Learn to represent real world signals in digital format and understand transform-domain (Fourier and z-transforms) representation of the signals;	H	H	M	M	H			M		M	H	
	Learn to apply the linear systems approach to signal processing problems using high-level programming language;	M	H		M	H					M	H	
	Learn the basic architecture of microprocessors and digital signal processors;	H	H	H	M	H					M	H	
	Learn to implement linear filters in real-time DSP chips;	H	M	H	M	H					M		
	Introduce applications of linear filters and their real-time implementation challenges.	H	H	H	M	H					M	H	
	Provide the basic knowledge of different DSP Processors.	H	M	M		H					H		
	Interfacing												

	Memory and I/O Peripherals to different Programmable DSP Devices	H	H	M	M	H			M			M	H
ELECTRONIC NAVIGATION SYSTEM (ELECTIVE-I) (GR14A04071)	Understand and analyze radar Systems	H			M	H						M	H
	Analyse radar signal processing	H	M	H	M	H						M	H
	Appreciate the wide range of applications of radar Systems	H	H	H	M	H						M	H
	Understand Target detection and tracking using radar systems	M	H		M	H						M	H
	Understand various electronic counter measures(ECM)	H	M	M		H						H	
	Understand various electronic navigation systems	H	H	M	M	H			M			M	H
	Design simulation experiments related to radar systems and radar signal processing	H	M	M		H						H	
Mobile Application Development (ELECTIVE) (GR14A04082)	Describe those aspects of mobile programming that make it unique from programming for other platforms,	H	H	M	M	H			M			M	H
	Critique mobile applications on their design pros and cons,	H	M	M		H						H	
	Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces,	H	H	M	M	H			M			M	H
	Program mobile applications for the Android operating system that use basic and advanced phone features, and	H	M	M		H						H	
	Deploy applications to the Android marketplace for distribution.	H	H	M	M	H			M			M	H
	Create the innovative and robust mobile application that will be valuable addition to their programming portfolio	H	M	M		H						H	
	Understand the different Intents and Services and in Developing Mobile Applications	H	H	M	M	H			M			M	H
	Understand the												

SATELLITE COMMUNICATION (ELECTIVE) (GR14A04075)	communication satellite mechanics	H	M	M		H					H		
	Know about the satellite internal sub systems for communication applications	H	H	M	M	H			M			M	H
	Design the power budget for satellite links	H	M	M		H					H		
	Know about the principles of GPS	H	H	M	M	H			M			M	H
	Understand various constellations of satellite and their applications	H	M	M		H					H		
	Understand the Low earth orbit and geo-stationary satellite systems	H	H	M	M	H			M			M	H
	Know the Earth station technology and Satellite navigation & the global positioning system	H	M	M		H					H		
Wireless Communications and Networks (Elective) (GR14A04063)	Become familiar with security risks threatening computer networks.	H	H	M	M	H			M			M	H
	Code the binary into a digital signals pattern which has less baseline wandering and less DC components, and can also decide which type of network is suitable based on the application requirement.	H	M	M		H					H		
	Acquire the methods to design backbone networks, virtual LANs and wireless WANs.	H	H	M	M	H			M			M	H
	Design the Multiple access techniques for wireless communication	H	M	M		H					H		
	Understand the Different Mobile Data Networks, Blue Tooth and Mobile ip and wireless access protocol	H	H	M	M	H			M			M	H
	Understand the Wireless LAN Technology and Wireless data services	H	M	M		H					H		
	An in-depth knowledge of applying the concepts on real	H	H	M	M	H			M			M	H

	time applications										
DIGITAL IMAGE PROCESSING LAB (GR14A04076)	Process images using techniques of smoothing, sharpening, histogram processing, and filtering,	H	M	M		H				H	
	Explain sampling and quantization processes in obtaining digital images from continuously sensed data,	H	H	M	M	H		M		M	H
	Enhance digital images using filtering techniques in the spatial domain,	H	M	M		H				H	
	Enhance digital images using filtering techniques in the frequency domain,	H	H	M	M	H		M		M	H
	Restore images in the presence of only noise through filtering techniques,	H	M	M		H				H	
	Explain most commonly applied color models and their use in basic color image processing,	H	H	M	M	H		M		M	H
	Familiarize with Mat lab and image processing toolbox.	H	M	M		H				H	

2.2.2 Explain how modes of delivery of courses help in attainment of the POs (10) Institute Marks : 10.00

(Describe the different course delivery methods/modes (e.g. lecture interspersed with discussion, asynchronous mode of interaction, group discussion, project etc.) used to deliver the courses and justify the effectiveness of these methods for the attainment of the POs. This may be further justified using the indirect assessment methods such as course-end surveys.)

Different delivery methods are employed with individuals and groups. Some implementation techniques, however, are common to most programmes. They include the following:

1. **Lectures/Presentation :** These are the effective ways of achieving educational objective and outcomes synchronously. The course objectives and outcomes could not be better achieved without these. Lectures are the best ways to get facts, make students think and get better in their attitudes. These make sure that the ground of the course is covered which improves the ability to design, formulate and solve the problems. Modes of delivery of lectures are PPT presentations and OHP presentations.
2. **Guest Lectures/Expert Lectures :** The invitation of guest speakers from various eminent institutes and industries helps the students and faculty to understand the current trends in various courses which leads to attainment of PO's. External resource persons also add value to the program, and help students to realize the link between education and the world outside along with professional responsibilities.
3. **Seminars / Workshops :** Department organizes seminars/workshops in topics of current relevance and interest to both students and faculty. These serve as a platform for sharing knowledge/expertise in advanced areas which results in collaborative attempt for further enhancement of the skills, techniques and modern engineering tools necessary for their engineering practice.
4. **Project Work :** Mini and a Main Project works in the curriculum gives the practical and analytical exposures of students. They can learn and implement for subjective knowledge while implementing project. This will empower them to work in teams, learn how to gather data and systematically arrange it in an understandable form.
5. **Roadshows** : Roadshows are organized for display of project works/for peers/ experts evaluation and source of inspiration and information for others.
6. **Mentoring and Counseling:** Mentoring concepts are integral part of the curriculum. All faculty members play an important role in counseling and motivating the students which helps in augmenting the program. It prepares students adequately for contemporary issues.
7. **Educational/Industrial Tours:** Another delivery strategy includes visits and educational/ Industrial tours. Resource centers, work places and others place of interest, help to explore all orpportunities that have an impact on students. It allows students to think and make realistic decisions. This has proved successful in career exploration and decision making moulding them as life- long learners.
8. **Certification Courses:** With technology advancing at a rapid pace, opportunities for advanced applications of software are limitless. Certification courses

will update the student skills and broaden their knowledge in the course which enhances their employability.

9. **Research projects:** encourage students to carry out small research projects on their own empowering them to know how to gather data and systematically arrange it in an understandable form. Students will also be trained to be more curious and able to gather information for them rather than wait to be spoon-fed; it prepares them adequately and allows them to take pride in themselves. Students are prepared to carry out their own research which serves in multiple ways. The documentation of the research benefits the students in their overall development.
10. **E-Resources:** Faculty provides course information and peripheral knowledge on the web so that students can asynchronously accept the same.

Attainments of Programme Outcomes using different delivery methods

Delivery Methods	Programme Outcomes											
	a	b	c	d	e	f.	g	h	I	j	k	l
Lectures/Presentation				X		X	X		X			
Guest Lecturers/Expert Lecturers				X			X		X			X
Seminars/Workshops		X	X						X	X	X	
Project Work	X								X			X
Road Shows	X		X	X	X	X	X	X	X	X	X	X
Mentoring and Counseling					X	X	X		X	X	X	X
Educational/Industrial Tours	X	X	X				X		X	X	X	
Certification Courses				X		X		X			X	X
Research Projects	X	X	X		X		X		X	X	X	
e-Resources	X					X			X		X	X

2.2.3 Indicate how assessment tools used to assess the impact of delivery of course/course content contribute towards the attainment of course outcomes/programme outcomes (10) Institute Marks : 10.00

(Describe different types of course assessment and evaluation methods (both direct and indirect) in practice and their relevance towards the attainment of POs.)

Assesment Method	Course Assesment & Evaluation Method	Relevance to the Attainment of POs with mapping	Explanation
Direct	University Examination	a, b, c, d, e, f, g, i, j	Same as tests but with a much larger scope and covering wider syllabus.
Direct	Assignments	a, b, c, e, i, j	Assignments carry a bigger problem nearer to reality that cannot be done in the classroom. Such problems normally require the knowledge of mathematics, science and engineering and all other related aspects.
Direct	Presentations	a, b, c, e, f, g, i, j, k	Since presentations carry questions and answers that usually lead to wider discussions, they give to the students ideas related to contemporary issues and a realization that learning is a continuous process.
Direct	Tests	a, b, e, f, i	Tests basically test the understanding and use of scientific and engineering techniques for problem solving.
Direct	Seminar Lectures (Colloquium)	e, f, g, i, j, k	Here students collect knowledge related to a topic and present it in a technical report and oral lecture comprehensively.
Direct	Quiz	a, b, e, j	Practice of extempore recall of knowledge and ability of quick analysis, many a times without preparation.

All the theory and practical courses are directly related to one or more than one POs. Performance in various courses reflects the extent of achievement of POs.

The undergraduate progam of the college is based on continuous evaluation system and credit based. Evaluation is conducted by the subject teacher throughout the semester. Each subject contains three main components for evaluation:

- **Course Work:**

  In this component, home assignments, tutorials, problem solving, group discussions, quiz, etc are given and evaluated regularly.

- **Mid Semester Examination:**

  Mid semester examination is conducted within 7-8 weeks after the start of teaching of each semester.

- **End Semester Examination:**

  End semester examination is conducted at the end of semester

2.2.4 Indicate the extent to which the laboratory and project course work are contributing towards attainment of the POs (10) Institute Marks : 10.00

(Justify the balance between theory and practical for the attainment of the POs . Justify how the various project works (a sample of 20% best and average projects from total projects) carried as part of the programme curriculum contribute towards the attainment of the POs.)

Course	Associated Laboratory
Computer Programming	Computer Programming Lab
Engineering Physics	Engineering Physics Lab
Basic Engineering Subjects	Engineering Workshop
Basic Engineering Subjects	IT Workshop
Engineering Chemistry	Engineering Chemistry Lab
English	Business Communication& Soft Skills Lab
Signals & Systems	Signals & Systems lab
Electronic Circuit Analysis	Electronic Circuit Analysis Lab
Digital Electronics	Digital Electronics lab
Analog Communications	Analog Communications Lab
Microcontrollers	Microcontrollers Lab
Analog Electronics	Analog Electronics lab
Object Oriented Programming Through Java	Object Oriented Programming Through Java Lab
VLSI Design	VLSI Design Lab
Digital Signal Processing	Digital Signal Processing Lab
Microwave Engineering	Microwave Engineering Lab
Embedded Sytems	Embedded Systems Lab

Description of Laboratories:

Computer programming and data structure lab: It is exclusively used, with an area of 66Sq.m, and it accommodates 65 students and sufficient exercises are conducted. It is equipped with computers, printers and softwares. Qualified faculty, staff with good condition of computer lab equipment has created an ambience for learning. In this lab students learns programming with C language and data structure through number of laboratory experiments. Find Fibonacci series, find prime numbers, find sum/multiplication, sorting roots of quadratic equation, tower of Honoi etc. In this workshop students learns how to use various tools for engineering applications.

Engineering Physics Lab: is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, equipments ,meters and required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student learn how to measure values with multi meter, measure voltage, current and frequency using CRO, experiment on B-H curve, dielectric constant, energy gap in semiconductors, about magnetic field, Hall voltage, carrier concentration and carrier mobility in semiconductors, optical fibers and laser diodes. In this lab students learns design, mathematical modeling and complex analysis of various physical components.

Engineering workshop: is exclusively used, with an area of 200 Sq.m, and it accommodates 65 students and sufficient exercises are conducted. It is equipped with equipments and tools. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this workshop student learns carpentry, fitting, tin-smithy, electrical wiring, foundry, welding, plumbing and about power tools. In these workshop students learns how to use various tools for engineering applications.

IT workshop: is exclusively used, with an area of 66 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with computer components, peripherals, equipments and tools. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this workshop student learns pc hardware, hardware trouble shooting and software trouble shooting, world wide web surfing, booting, sear engines, latex, words, excel and conversions. In these workshop students learns how to use computer for various applications in engineering course.

Engineering Chemistry Lab: is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, equipments ,meters and required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student learn how to measure values with volumetric analysis, mineral analysis, colorimetry, instrumental analysis and organic preparations. In this lab students learns design, mathematical modeling and complex analysis of various chemical components.

English language and communication Lab: is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, audio, video aids , required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student learns about communication, interpersonal, soft personnel skills, Interview skills, body language, etiquettes, oral, written skills and phonetics.

Signals &systems lab: Ability to design a system, component, or a process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. The main aim of the lab is to gain the practical hands on experience by exposing the students to various signals & systems concepts in MATLAB and gives an idea how to generate various signals & verify the properties of signals & systems live linearity, stability, time invariance, conclusions, corrections etc. Ability to design and conduct experiments, as well as to analyze and interpret data.

Electronic Circuit Analysis: To provide the knowledge on basics of analog integrated circuits design. Ability to design and conduct experiments, as well as to analyze and interpret data. To comprehend the different issues related to the development of analog integrated circuits including circuit design implementation methodologies testing design methodologies and tools and future trends. To train the students with a solid foundation in electrical and electronics concepts required to engineering problems.

Digital electronics: To train the students in exploring the knowledge of switching theory this will enable the process of logical design. To provide mathematical foundations and tools for digital system design that is an essential part in the research and development in almost all areas of modern technology.To provide the ability to analyze and simplify a given digital electronic circuit using different methods of simplification.Recognition of the need and an ability to engage in life-long learning. To provide the students with an academic environment aware of excellence, guidelines and the lifelong learning needed for successful professional carrier.

Microcontrollers: To develop assembly level programs parallely providing the basics of processors. To solve problems with solid foundation on interfacing the external devices to the processor. Enable to implement the applications using processors in arduino. Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. Its intended for artists, designers, hobbyists and anyone interested in creating interactive objects or environments. Ability to identifying , formulating ,and solving engineering problems.

Analog communication: The main objective of this lab is to gain the practical hands on experience by exposing the students to various modulation and demodulations techniques. The students will have an understanding of the concepts involved in transmission and reception of the signals in communication. The main objective of this lab is to gain the practical hands on experience by exposing the students to various analog communication activities using MATLAB/ DSK C6713.Ability to communicate effectively.Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.

OOP through Java: To Compile and run a Java application.To understand the role of the Java Virtual Machine in achieving platform independence.To navigate through the API docs. To use the Object Oriented paradigm in Java programs.To understand the division of classes into Java packages. To use exceptions to handle run time errors.To select the proper I/O class among those provided by the JDK. To use threads in order to create more efficient Java programs.

Analog Electronics: The main objective of this lab course is to gain the practical hands on experience by exposing the students to various linear IC applications. The students will have an understanding of the concepts involved in various linear integrated circuits and their various applications.Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice. Through this lab the students will get understanding of various linear ICs and finally this also introduces some TTL ICs for digital circuit applications especially the LM 386 operational amplifier and its various applications. The lab also introduces to the students 555 timer and its applications, various voltage regulators.

Digital communication: To solve problems with a fundamental knowledge and digital communication techniques.To create with a solid foundation in mathematical and engineering fundamentals required to design basic analog or digital communication systems. The C6713 DSK tool includes the latest fast simulators from TI and access to the Analysis Toolkit via Update Advisor which features the Cache Analysis tool and Multi-Event Profiler. The DSK C6713 tools with CC studio includes the latest fast simulators from TI and access to the Analysis Toolkit via Update Advisor which features the Cache Analysis tool and Multi-Event Profile.To design and establish the connection and understand differences between analog and digital representation and transmission of information.

Microwave Engineeering: The main objective of this lab is to gain the practical hands on experience by exposing the students to various microwave components and optical fibers. The students will have an understanding of the concepts involved in transmission and reception of the microwave signals, characteristics of components. Knowledge of analog communications, digital communications, electromagnetic theory,microwave engineering, optical communications is required. Also the laboratory course of analog communications should have been completed.

VLSI Design: To describe over view about evolution of integrated circuits.To provide knowledge about fabrication process and technology.An ability to demonstrate knowledge and understanding of engineering and management principles and apply these to manage project. To provide an insight into the effective methods of circuit design using design rules.To introduce and familiarize with the various building blocks.To prepare them to face the challenges in VLSI technology and filling the gap between industry and academics.

Digital Signal Processing: The main objective of this lab is to gain the practical hands on experience by exposing the students to various digital signal processing activities. The students will have an understanding of the concepts of DSP processors and their architecture, MATLAB. The digital signal processing lab will give a thorough understanding of various DSP processors and various DSP instructions. The various signal processing operations such as linear convolutions and circular convolution and the design of various filters are studied. The DSK C6713 tools with CC studio tools includes the latest fast simulators from TI and access to the Analysis Toolkit via Update Advisor which features the Cache Analysis tool and Multi-Event Profiler.

Embedded Systems Lab: To develop various application programmes with the help of embedded c language. To solve the problems with solid foundation on interfacing the external devices. Its intended for artists, designers, hobbyists and anyone interested in creating interactive objects or environments. Ability to identifying , formulating ,and solving engineering problems.

Gender Sensitization: To develop students sensibility with regard to issues of gender in contemporary India, provides the critical respective on the socialization of men and women and intoduces information about some biological aspects of genders. To expose debates on the politics and economics of work, helps to reflect critically on gender violence and exposes students to more egalitarian interactions between men and women.

Laboratory tasks towards attainment of Programme Outcomes

Laboratory Tasks	Type	Programme Outcomes
GR14A1027:Computer Programming Lab		
Program for a) To find the sum of individual digits of a positive integer. b) Generate the first n terms of the Fibonacci sequence	Problem Analysis	a,b,c,e,k,l
Program for a) Generate all the prime numbers between 1 and n b) Calculate the following Sum: Sum=1-x2/2!+x4/4!-x6/6!+x8/8!-x10/10!	Problem Analysis	a,b,c,e,k,l
Program to find the roots of a quadratic equation using if-else.	Problem Analysis	a,b,c,e,k,l
Programs that use both recursive and non-recursive functions a) To find the factorial of a given integer. b) To find the GCD (greatest common divisor) of two given integers.	Problem Analysis	a,b,c,e,k,l
Program to find the distance travelled by a vehicle at regular intervals of time given the values of ‘u’ and ‘a’	Problem Analysis	a,b,c,e,k,l
Program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +,-,*,/,% and use Switch Statement)	Problem Analysis	a,b,c,e,k,l
Program to find both the largest and smallest number in a list of integers.	Problem Analysis	a,b,c,e,k,l
Program that uses functions to perform the Addition of Two Matrices	Problem Analysis	a,b,c,e,k,l
Program that uses functions to perform the Multiplication of Two Matrices	Problem Analysis	a,b,c,e,k,l
Program that uses functions to perform the following operation: To insert a sub-string in to given main string to a given position.	Problem Analysis	b,c,k,l
Program that uses functions to perform the following operation: To delete n Characters from a given position in a given string.	Problem Analysis	b,c,k,l
Program to determine if the given string is a palindrome or not?	Problem Analysis	b,c,k,l
Program that displays the position or index in the string S where the string T begins, or – 1 if S doesn’t contain T.	Problem Analysis	b,c,k,l
Program to count the lines, words and characters in a given text.	Problem Analysis	b,c,k,l
a) Program to generate Pascal’s triangle. b) Program to construct a pyramid of numbers.	Problem Analysis	b,c,k,l
Program to read in two numbers, x and n, and then compute the sum of this geometric progression: 1+x+x2+x3+ ……+xn	Problem Analysis	b,c,k,l
Program that uses functions to		

Program that uses functions to perform the following operations: i) Addition of two complex numbers ii) Multiplication of two complex numbers	Problem Analysis	b,c,k,l
a) Program to display the contents of a file. b) Program merging of two files in a single file. c) Program to append data into a file.	Problem Analysis	b,c,k,l
a) Program which copies one file to another. b) Program to reverse the first n characters in a file.	Problem Analysis	b,c,k,l
Program to Search for a given element using Linear & Binary Search Techniques.	Problem Analysis	b,c,k,l
Program to Sort a given list of integers using a) Bubble Sort Technique. b) Merge Sort Technique. c) Insertion Sort Technique. d) Quick Sort Technique. e) Selection Sort Technique.	Problem Analysis	b,c,k,l
GR14A1029-Engineering Physics Lab		
Measurements using Multimeter.	Demonstration	b,d,k,l
Measurement of voltage and Frequency using CRO.	Demonstration	a,c,d,k
B-H curve.	Problem Analysis	b,c,d,l
Determination of Dielectric constant.	Problem Analysis	a,d,k,l
Energy gap of a semi conductor	Problem Analysis	a,c,l
Study of magnetic field along the axis of a circular coil.	Problem Analysis	b,c,l
Study of Hall Voltage	Problem Analysis	b,k,l
Determination of carrier concentration and carrier mobility of a semiconductor.	Problem Analysis	a,c,e,k
Numerical Aperture of optical fiber.	Problem Analysis	b,c,e,l
Bending losses in optical fiber.	Problem Analysis	a,k,l
Air gap losses in optical fiber	Problem Analysis	a,c,l
Characteristics of LASER diode	Problem Analysis	a,b,l
GR14A1025:Engineering Workshop		
Carpentry	Engineering Practice	h,k,l
Fitting	Engineering Practice	h,k,l
Tin – Smithy and Development of jobs carried out and soldering.	Engineering Practice	h,k,l
House – Wiring	Engineering Practice	h,k,l
Black Smithy	Engineering Practice	h,k,l
Foundry	Engineering Practice	h,k,l
Welding	Engineering Practice	h,k,l
Plumbing	Engineering Practice	h,k,l
Power tools	Engineering Practice	h,k,l
GR14A1026-IT Workshop		
PC Hardware	Demonstration	a,c,l
Internet & World Wide Web	Demonstration	a,c,k
Productivity tools	Demonstration	b,c,k
Hardware Troubleshooting	Demonstration	a,c,l
Software Troubleshooting	Demonstration	a,c,k
Orientation & Connectivity Boot Camp	Demonstration	a,c,k
Web Browsers, Surfing the Web	Demonstration	a,c,l
Search Engines & Netiquette	Demonstration	b,k,l
Cyber Hygiene.	Demonstration	a,c,k
Productivity Tools	Demonstration	b,c,l
GR14A1030-Engineering Chemistry Lab		

Conductometry	Demonstration	a,c,l
Potentiometry	Demonstration	b,k,l
Lubricants	Demonstration	a,b,k
Organic preparations.	Demonstration	a,c,k
Complexometry.	Demonstration	a,c,k
Permanganometry	Demonstration	a,c,l
GR14A1015: Bussiness Comunication and soft skills Lab		
Introduction to the sounds of English –Vowels, Diphthongs & Consonants.	Demonstration	d,g,h
Situational Dialogues/Role-play.	Demonstration	d,g,h
Just A Minute' Sessions (JAM).	Demonstration	d,g,h
Describing Objects/Situations/People.	Demonstration	d,g,h
Information Transfer.	Demonstration	d,g,h
Debate.	Demonstration	d,g,h
Telephone Skills	Demonstration	d,g,h
Giving Directions	Demonstration	d,g,h
GR14A2052- Signals & Systems lab		
Basic Operations On Matrices	Simulation	a,b
Genaration Of Various Signals &Sequences	Simulation	a,c,k
Operations On Signals &Sequences	Simulation	b,c,k
Finding Even & Odd ,Real & Imaginary Part of Signals /Sequences	Simulation	a,c,k
Convolution between Signals &Sequences	Simulation	a,c,k
Auto Correlation &Cross Correlation	Simulation	b,e,f,k
Verification Of Linearity &Time Invariance Properties	Simulation	a,b,c
Gibbs Phenomenon	Simulation	b,c,k
Computation of responses of the given LTI system	Simulation	a,k
Fourier transform of a given signal	Simulation	a,b,c,k
Waveform synthesis using Laplace transforms.	Simulation	a,b,c,e,k
Locating the zeros and poles of given Transfer Function	Simulation	b,c
Sampling Theorem Verification.	Simulation	b,k
Generation of Gaussian noise and its calculation	Simulation	a,c,k
GR14A2061-Analog Electronics Lab		
Operational Amplifier	Problem Analysis	a,c
Summing Amplifier	Problem Analysis	a,c,k
Subtractor	Problem Analysis	b,c,k
Integrator And Differentiator	Problem Analysis	a,c,k
Astable, Monostable Multivibrators	Problem Analysis	a,c
Function Generator	Problem Analysis	a,c,k
Half, Full Wave Rectifiers	Problem Analysis	b,c
Low Pass, High pass ,Band pass,Band stop filters	Problem Analysis	a,c
Schmit Trigger	Problem Analysis	a,b
Wien Bridge, RC Phase Shift Oscillators	Problem Analysis	a,b,k
Digital to Analog Converter	Problem Analysis	b,c,k
Astable,Monostable Multivibrators Using 555 Timer	Problem Analysis	b,k
Voltage Controlled Oscillator Applications	Problem Analysis	a,b,k
GR14A2053-Digital Electronics Lab		
Realization of Gates(AND, OR,NOT, NAND, NOR	Design	b,k
Design of Half adder, Full adder using Gates	Design	a,c,k
Verification of 4 bit Magnitude comparator	Implementation	b,c,l
Design of 2 to 4 decoder	Design	a,k
Design of 2 to 1 Multiplexer	Design	a,c,k
Design of 1 to 4 Demultiplexer	Design	a,b,c,h
Implementation of Binary to	Implementation	a,b,k

Grey code converter		
Design a 4 bit Parity Checker	Design	b,c,k
Verification of truth tables of D and T Flip-Flops	Implementation	b,k
Implementation of Frequency divider(by 8)	Implementation	a,b,c,k
Conversion of JK Flip Flop to D Flip Flop	Design	b,k
Design of 8 bit left Shift Register	Design	a,c,k
Design of serial to parallel shift register	Design	b,c
Design of Binary counter	Design	a,k
Design of Asynchronous Up counter	Design	a,c,k
Design of Synchronous Down counter	Design	a,b,k
GR14A2060-Analog Communication Lab		
AM modulator and demodulator	Implementation	b,k,l
FM modulator and demodulator	Implementation	a,c,l
Sample & hold and PAM	Implementation	a,c,k
Pre-emphasis and de-emphasis	Implementation	b,c,k
Tuned and wideband amplifiers	Implementation	a,c,k
Frequency mixer and ring modulator	Implementation	a,c,k
Simple and delayed AGC	Implementation	a,c,k
PWM and PPM	Implementation	b,c,k
TDM	Implementation	a,c,k
SSB SC Modulation and Demodulation	Implementation	a,c,k
Design of Mixer	Design	b,k
PAM and Reconstruction	Implementation	a,c,k
Effect of Noise on the Communication Channel	Problem Analysis	b,c,k
GR14A2059-Microcontrollers lab		
LED patterns on 2G kit	Implementation	a,c,k
Switches & LEDs on 2G kit	Implementation	b,k,k
LCD on 2G kit	Implementation	a,c,k
UART on 2G kit	Implementation	b,c,e,f
TRIAC on 2G kit	Implementation	a,k
ADC on 2G kit	Implementation	a,c
DAC on 2G kit	Implementation	a,b
DC Motor on 2G kit	Implementation	a,b,k
Zigbee on 2G kit	Implementation	b,c,k
RF 433MHz on 2G kit	Implementation	a,b,c,k
Bluetooth on 2G kit	Implementation	a,b,c,e
Ethernet on 2G kit	Implementation	a,c,k
RTC on 2G kit	Implementation	b,c,k
SD Card on 2G kit	Implementation	a,k
GR14A2072-OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB		
Simple java Applications	Coding	a,b,k
Simple Package creation	Coding	a,b,k
Interfaces -Developing user-defined interfaces and implementation	Coding	b,c,k
Threading and Multithreading	Coding	b,k
Exception Handling mechanism in Java	Coding	a,c,k
Programs using applets	Coding	b,c,l
Largest Number Finding of N Values Java	Coding	a,k
Sorting of Name (String)	Coding	a,c,k
String Manipulation	Coding	a,b,c,h
Bank Operation using Class & Object	Coding	a,b,k
Multiple Inheritance using Interface	Coding	b,k
Simple AWT to Design Simple Calculator	Coding	a,c,k
Drawing 2D Shapes using Menu bar Note	Coding	b,c,l
GR14A3049-Digital Signal Processing Lab		
Generation of sinusoidal waveform using recursive difference equations	Simulation	a,c,k
To find DFT/IDFT of given DT signal	Simulation	b,c,k
To find frequency response of		

transfer function/ difference equations	Simulation	a,c,k
Implementation of FFT of given sequence	Simulation	a,c,k
Implementation of LP-FIR of given sequence	Simulation	b,e,f,k
Implementation of HP-FIR of given sequence	Simulation	a,b,c
Implementation of LP-IIR of given sequence	Simulation	b,c,k
Implementation of HP-IIR of given sequence	Simulation	a,k
Determination of power spectrum of a given signal	Simulation	a,b,c,k
Generation of sinusoidal signal through filtering	Simulation	a,b,c,e,k
Generation of DTMF signals	Simulation	b,c,
Implementation of decimation process	Simulation	b,k,
Implementation of Interpolation process	Simulation	a,c,k
Implementation of I/D sampling rate converters	Simulation	c,k
Noise removal	Simulation	b,c,k
Impulse response of first and second order systems	Simulation	a,c
GR14A3044-VLSI Design lab		
HDL code to realize all the logic gates	Design	a,c,k
Design of 2 to 4 decoder	Design	a,c
Design of 8 to 3 encoder	Design	a,c,k
Design of 8 to 1 multiplexer	Design	b,c
Design of 4 bit binary to gray converter	Design	a,c
Design of multiplexer/demultiplexer, comparator	Design	a,b
Design of full adder using 3 modeling styles	Design	a,b,k
Design of FF : SR ,D , JK, T	Design	b,c,k
Design of 4 bit binary, BCD counters	Design	b,k
Finite state machine design	Design	a,b,k
Introduction to layout design rules	Design	a,c,k
Layout, physical verification , placement and route for complex design :Basic logic gates, latch, pass transistor	Design	b,c,k
Layout of any combinational circuit	Design	a,c,k
Introduction to SPICE simulation and coding of NMOS/CMOS circuits	Simulation	a,c,k
Analog circuit simulation	Simulation	b,e,f,k
System level design using PLL	Design	a,b,c
GR14A4059-Microwave Engineering lab		
Reflex klystron characteristics	Demonstration	a,c,k
Gunn Diode characteristics	Demonstration	b,c,k
Directional Coupler characteristics	Demonstration	a,c,k
VSWR measurement	Demonstration	a,c,k
Measurement of waveguide parameters	Demonstration	b,e,f,k
Measurement of impedance of given load	Demonstration	a,b,c
Measurement of scattering parameters of a Magic Tee	Demonstration	b,c,k
Measurement of scattering parameters of a Circulator	Demonstration	a,k
Attenuation measurement	Demonstration	a,b,k
Microwave Frequency Measurement	Demonstration	b,c,k
PCM generation and detection	Problem Analysis	b,k,l
Differential PCM	Problem Analysis	a,k,l
TDM of 2 band limited signals	Problem Analysis	a,c,l
FSK : generation and detection	Problem Analysis	a, b,e,k
PSK : generation and detection	Problem Analysis	b,c,e
ASK : generation and detection	Problem Analysis	b,k,l
DPSK: generation and detection	Problem Analysis	a,c,l
QPSK: generation and detection	Problem Analysis	b,k,l

QPSK: generation and detection	Problem Analysis	b,k,l
Spectral characteristics of PAM, QAM	Problem Analysis	a,c,k
GR11A2073 -Advanced English Communication Skills Lab		
Gather ideas and information, to organize ideas relevantly and coherently	Demonstration	d,g
Engage in debates	Demonstration	d,g
Participate in group discussions	Demonstration	d,g
Face interviews	Demonstration	d,g
Write project /research reports/technical reports	Demonstration	d,g
Make oral presentations	Demonstration	d,g
Write formal letters	Demonstration	d,g
To take part in social and professional communication	Demonstration	d,g
To improve the student's fluency in English	Demonstration	d,g
Functional English	Demonstration	d,g,l
Vocabulary building	Demonstration	d,g,l
Reading Comprehension	Demonstration	d,g,l
Writing skills	Demonstration	d,g,l

Mapping of Laboratories with Programme Outcomes

Name of the Lab	Program Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Computer Programming Lab	x	x	x		x						x	x
Engineering Physics Lab	x	x	x	x	x						x	x
Engineering Workshop			x					x			x	x
Business Communication Skills Lab				x		x	x	x				x
IT Workshop	x	x	x		x						x	x
Engineering Chemistry Lab	x	x	x			x					x	x
Analog Electronics Lab		x	x				x					
Digital Electronics Lab		x	x					x	x			
Signals & systems Lab		x	x						x		x	
Micro Controllers Lab		x	x		x					x	x	
OOPs through Java Lab		x	x		x					x	x	
Analog Communications Lab		x	x				x				x	x
Digital Communications Lab		x	x								x	
Advance English Communication Skills Lab						x		x	x	x		x
ES Lab		x	x						x		x	
VLSI lab		x	x					x	x			x
Microwave Engineering Lab		x	x						x		x	
Digital Signal Processing Lab		x	x		x		x		x		x	
Electronic Circuit Analysis Lab	x	x	x		x			x			x	x

Lab Manuals are prepared by Faculty as per the curriculum requirements as well as to attain PEOs from POs

S.No	Monograph/Manual	PEOs	Prepared by
1	Micro Controllers	1,2,3	K.Nagaja/ GL Sumalatha
2	Digital Electronics Lab Manual	1,2	Prof.P.S.Raju
4	Electronic Circuit Analysis	1,2,3	K.Swathi
5	Analog Communications	1,2	V. Aravind
6	Microwave Engineering handouts Cellular & Mobile Communication handouts Optical Communications study material Microwave & O.C Lab manual	1,2	Dr. RDSSSSVRaju
7	Analog communications Lab manual Digital Communications Lab manual	1,2,3	K. Padmavathi /N.Swetha/ DL Chaitanya
8	Digital Signal Processing Lab	1,2,4	

	manual		T. Jagannadha Swamy
9	Basic Simulation Lab Manual	1,2,4	T.Jagannadha Swamy
10	VLSI Design Lab	1,2,4	MOV Pavan Kumar
11	Embedded Systems	1,2	B. Shilpa

All Project works (Mini and Major) of the curriculum in the Programme are performed by the students as per the curriculum requirements as well as to attain Programme Educational Objectives (PEOs) with the help of Program Outcomes (POs).

S.No	Areas	PEOs
1	Embedded and Real Time Applications sensing applications, robotics, home applications etc…	1,2,3,4
2	Robotics Sensors, movements, path finding etc	1,2
3	Wireless Communications & Networks: Various protocols in routing, data transmissions, MAC layer applications etc	1,2,3
4	Wireless sensor Networks: Energy efficient managements, sensor protocols, security & reliability	1,2
5	Android based: Protocol based applications	1,2
6	Digital Signal Processing with Matlab: Various filtering applications with adaptive digital signal processing applications	1,2,4
7	Digital Signal Processing with DSK C 6713KIT: Communications and signal processing applications through DSP processor	1,2
8	Communications : Noise eliminations, adaptive techniques, Coding techniques, etc using matalb, or C language with hardware DSP processor.	1,2,3,4
9	Computer networks with protocols: all protocols, like routing, congestion control etc..	1,2
10	VLSI Design projects with CADENCE: Design and development a circuitry using software up to backend leve	1,2,4
11	VLSI Design Projects with Xlinix: Implementing all digital circuitry levels with VHDL Programming upto frontend	1,2,3,4
12	VLSI Design Projects with Altera: Implementing all digital Circuitry levels with Verilog/Vhdl codes using kits	1,2
13	Microcontrolled based applications: Implementing projects in household appliances , industry levels	1,2,3
14	Microprocessor based applications; Industy level based applications	1,2
15	Microwave and optical communications based: Design and development of antennas, testing of microwave tubes etc..	1,2
16	Digital Image Processing: Image enhancements, Image compression, Video analysis, video transmission etc..	1,2,3
17	Study Projects: technology level study, New innovative, comparison study, marketing etc…	1,2,3,4
18	Technical material Based: Innovative improvements implementation based, ethical based, tools study based, tool learning based etc..	1,2,3,4
19	Circuits and Applications Based: Devices based, Hardware Circuitry based, etc..	1,2,3

S.No	Areas of Project Work Carried by Students	Programme Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	l
1	Communications	X		X				X		X			X
2	Wireless Communications	X	X	X				X		X			X
3	Embedded Systems					X	X		X	X	X		X
4	Robotics	X	X			X	X		X	X			

5	VLSI with Xlinix	X			X		X					
6	VLSI with Cadence			X								X
7	Image Processing	X		X						X			X
8	Speech Processing		X	X						X		X	X
9	Digital Sigal Processing	X	X	X		X				X		X	X
10	DSP with Matlab		X	X		X				X	X	X	X
11	Microcontrllers		X	X				X		X		X	X
12	Microwave Engineering	X	X	X						X		X	X
13	Microprocessor Applications		X	X						X		X	X

2.3 Assessment of the attainment of the Programme Outcomes (125)

Total Marks : 12

2.3.1 Describe assessment tools and processes used for assessing the attainment of each PO (25)

Institute Marks : 2

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Outcomes are attained. Also include information o
a) A listing and description of the assessment processes used to gather the data upon which the evaluation of each the programme educational objective is based. Examples of data collection processes may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, industrial advisory committee;
b) The frequency with which these assessment processes are carried out.

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Outcomes are attained.

The following assessment processes are used for achievement of the POs

S. No	Method	Assessment Tool	Description
1	Direct	Mid Exams	Objective, Subjective exams
2		End Exams	Subjective written exams
3		Assignments	Coursewise assignments
4		Viva	Course / Lab wise viva, Comprehensive viva
5		Seminars	Individual Seminars, Group seminars
6		Lab Exams	Internal and External Lab exams
7		Projects	Mini & Major projects evaluation
8	Indirect	Student Exit Survey	Passing out students
9		Alumni Survey	Old batches of the students
10		Employer Survey	Industries which recruits
11		Industry Survey	Leading industry in the domain of particular programme

Exams and assignments: The results and the subsequent grade of pass in that course is based on end semester exam results and continuous assessments. Individual breakup is as follows.

As per GR14 regulations:

S. No	Component of assessment	Marks allotted	Type of assessment	Scheme of examination
1	Theory	30	Internal exams and continuous evaluation	Two mid semester examinations shall be conducted for 20 marks each for duration of 2 hrs. Average of two mid exams shall be considered Subjective – 15marks Objective – 5 marks Tutorials/Assignments – 5 marks Attendance – 5 marks
		70	Semester end examination	The semester end examination is for a duration of 3 hours.
2	Practical	25	Internal exams and continuous evaluation	Lab internal – 10 marks Record – 5 marks Continuous assessment – 5 marks Attendance – 5 marks
		50	Semester end examination	The semester end examination is for a duration of 3 hours.
3	Industry oriented mini project	25	Internal exams and continuous evaluation	Continuous assessment – 5 Marks Report – 5 marks Attendance – 5 marks Road show, evaluation by committee – 10 marks
		50	Semester end examination	Project presentation before committee consisting external examiner – 50 marks
4	Major project	50	Internal exams and continuous evaluation	Continuous assessment – 15 Marks Report – 5 marks Attendance – 5 marks Road show, evaluation by committee – 25 marks
		150	Semester end examination	Project presentation before committee consisting external examiner – 150 marks
5	Comprehensive viva	100	Evaluation committee	Overall understanding of all subjects by committee -100
6	Seminar	50	Evaluation committee	Efforts in collecting data and way of presentation in the form of report and oral is assessed by the committee – 50

Types of Assessment Tools and Methods

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
a	GR14A1001- Linear Algebra and Single Variable Calculus	91	86
	GR14A1002- Advanced Calculus	85	
	GR14A1018- Fourier Series and Transform Calculus	83	
	GR14A1004- Numerical Methods	81	
	GR14A1008-Engineering Chemistry	89	
	GR11A2043-Mathematics-IV	85	
	GR11A2051-Networks & Transmission lines	87	
	GR14A1007-Engineering Physics	81	
	GR14A1018-Basic Electrical Engineering	87	
	GR14A1019-Fundamentals of Electronics Engineering	80	
	GR14A1009-Computer Programming	92	
	GR11A2049-Computer Organization and Operating	90	
	GR14A1010-Data Structures	91	

Direct Assessment			
PO	**Contributing Courses**	**Attainment**	**Average attainment**

		%	
b	GR14A1027-Computer Programming lab	98	85
	GR14A1029-Engineering Physics lab	93	
	GR14A1030-Engineering Chemistry lab	98	
	GR11A2055-Object Oriented Programming through JAVA lab	99	
	GR11A2068-Analog Electronics	97	
	GR11A2064-Digital Electronics	99	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
c	GR11A3095-VLSI Design	94	96.5
	GR14A1026-IT Workshop	99	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average
d	GR14A1025-Engineering Workshop	99	98
	GR14A1026- IT Workshop IT Workshop	99	
	GR11A2050-MicroControllers	96 96	
	GR11A2054-Microcontrollers lab	100	
	GR11A4038-Embedded Systems Lab	96	
	GR11A3001-Advanced Microcontrollers Lab	100	
	GR11A3064-Industry Oriented Mini Project lab	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
e	GR14A1023-Engineering Graphics	85	88
	GR11A2051-Networks & Transmission lines	87	
	GR11A3041 -Digital Signal Processing	92	

Direct Assessment			
PO	Contributing Courses	Attainment	Average attainment

		%	
f	GR14A1026: IT Workshop	99	99

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
g	GR14A1005-English	98	99
	GR14A1024-Business communication& Soft Skills lab	100	
	GR11A2073 -Advanced English Language lab	100	
	GR11A4110-Seminar	100	

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
h	GR11A3006-Antennas & Wave Propagation	93	95.33
	GR11A4027-Computer Networks	95	
	GR11A4080-Optical Communications	98	

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
i	GR11A2048-Analog Communications	96	97
	GR11A3039-Digital Communications	98	

Direct Assessment			
PO	**Contributing Courses**	**Attainment % %**	**Average attainment**
j	GR11A4026-Digitl Image Processing	94	94.75
	GR11A4015-cellular and Mobile Communications	90	
	GR11A4130-Wireless Communications & Networks	98	

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
	GR11A2066-Signals & Systems	91	
	GR11A2044-Probability Theory & Stochastic Process	98	
	GR11A2047-Signals Systems & Simulation Lab	99	
	GR11A2045-Analog Electronics lab	97	
	GR11A2046-Digital Electronics lab	99	

k			89
	GR11A2053-Analog Communications lab	99	
	GR11A3042-Digital Signal Processing lab	100	
	GR11A4064-Microwave Engineering	97	
	GR11A3096-VLSI lab	100	
	GR11A4063-Microwave Engineering & Optical Communications lab	100	

Direct Assessment			
PO	**Contributing Courses**	**Attainment %**	**Average attainment**
l	GR11A2071-Managerial Economics & Financial Analysis	98	98
	GR11A3068-Management Science	97	
	GR11A4018-Main Project work	100	
	GR11A4097-Comprehensive viva	100	

Indirect Method

Assessment Tool	Attainment Level	Average Attainment level in Indirect measure
Student Exit Survey	Good	Satisfactory
Alumni Survey	Good	Satisfactory
Employer Survey	Good	Satisfactory
Industry Survey	Good	Satisfactory

Programme out comes assessed through direct and indirect methods. Choosing criteria is where rubrics come in. A Rubric is a set of criteria for assessing student work or performance. Rubrics are particularly suited to lea outcomes that are complex or not easily quantifiable, for which there are no clear "right" or "wrong" answers, or which are not evaluated with standardized tests or surveys. Assessment of writing, oral communication, c thinking, or information literacy often requires rubrics.

Rubrics have two dimensions: they identify the various characteristics of the outcome, and they specify various levels of achievement in each characteristic. Thus, a well-designed rubric consists of:

1. Clear definitions of each characteristic to be assessed for a given learning outcome, and
2. Clear descriptions of the different levels of achievement for each characteristic.

Because rubrics establish criteria, they can help make assessment more transparent, consistent, and objective. Faculty members and evaluators can use rubrics to communicate to students and each other what they s excellent work, while student's gain an understanding of what is expected and how their performance will be assessed. Rubrics are also useful when there is more than one evaluator; rubrics can serve as standardized sc guides that assist different evaluators to determine the quality of student work in a consistent manner.

ECE Program Outcome	Assessment Evidence Source or Tool
a). Ability to apply knowledge of mathematics, science, and engineering.	Mathematics, Physics and Basics of Engineering, quality assessment review alumni and other surveys faculty reviews course outcome data, results are analyzed
b). Ability to design and conduct experiments, as well as to analyze and interpret data.	exit other surveys data, faculty reviews and results are analyzed
c). Ability to design a system, component, or	

process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	course feedback, professional body survey, result are analyzed
d). Ability to function on multi-disciplinary teams.	Mini project, Project Work, Lab work and its outcomes with Several Stake holders, results are analyzed
e). Ability to identify, formulates, and solves engineering problems.	Courses like Electrical Machines, Control System, and Power Systems, and its outcomes with several surveys and outcomes of the courses are analyzed
f). Understanding of professional and ethical responsibility.	Data collected and analyzed from alumni survey , employer survey and analyzed
g). Ability to communicate effectively.	Results of the courses like English, English Lab, Advanced English Lab, and surveys of several stake holders are analyzed
h). Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.	Results of usage of modern tools and subject outcomes, surveys data analyzed
i) Recognition of the need for, and an ability to engage in life-long learning.	alumni and senior faculty survey data is analyzed
j). Knowledge of contemporary issues.	FDPs, workshops, Conferences are organized and their feedback analyzed
k).Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.	Alumni survey data, feedback, results are analyzed
l). An ability to demonstrate knowledge and understanding of Electronics and Communication Engineering with management principles and apply these to one's own work, as a member and leader in a team, to manage projects.	Results , surveys data, feedback analyzed

Frequency of the Assessment Processes:

Assessment Tool	Description	Assessment Cycle	Evaluation Cycle	Documentation and Maintenance
Mid Exams	Internal Evaluation	Twice in a semester	Twice in a semester	Marks are recorded in department and examination cell.
End Exams	External Evaluation	Once in a semester	Once in a semester	Result Recorded at examination cell and department
Assignments	Before Every Mid Exam	Twice in a semester	Twice in a semester	Course Register
Viva	End of the Semester	Once in a semester	Once in a semester	Lab Register
Seminars	General and Technical	Once in a semester	Once in a semester	Course Register
Lab Exams	Internal and External experimental evaluation	Once in a semester	Once in a semester	Lab record, Examination Cell
Projects and comprehensive viva	Mini and Major project evaluation	Once in four years	Once in four years	Examination Cell
Surveys	All Stake Holders	Once in a year	Once in a year	Recorded in department

2.3.2 Indicate results of Evaluation of each PO (100) Institute Marks : 10

c) The expected level of attainment for each of the program outcomes;
d) Summaries of the results of the evaluation processes and an analysis illustrating the extent to which each of the programme outcomes are attained; and
e) How the results are documented and maintained.

File Name
Indicate results of Evaluation of each PO
Results of the evaluation processes and an analysis of student data for the CO's and PO's are attained

c. The expected level of attainment for each of the program outcomes

Step-by-step process for assessing through attainment of each Program Outcomes

Step 1: The Program coordinator analyses each outcome into elements (different abilities specified in the outcome) and a set of attributes are defined for each elemen (actions that explicitly demonstrate mastery of the abilities specified). In addition, generate well designed surveys to assess the outcome.

Step 2: For each outcome define performance indicators (Assessment criteria) and their targets.

Step 3: Identify/select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge/skills of an outcome.

Step 4: The module coordinators collects the qualitative and quantitative data and were used for outcome assessment in a continual process.

Step 5: The Head of the department analyze the collected data. If the assessed data meets the performance targets which are specified in step 2, the outcome is attaine

Otherwise, consider step6.

Step 6: The Head of the Department recommends content delivery methods/course outcomes/ curriculum improvements as needed.

d. Summaries of the results of the evaluation processes and an analysis illustrating the extent to which each of the programme outcomes are attained:

Evaluation and Analysis Process for the attainment of POs

- Evaluation of examinations is done through the Examination Branch.
- Analysis of exam results is done after the results.
- All the details of results are stored as digital soft copy and printed hard copy format at the department and examination branch.
- Model data is enclosed in the annexure.
- Other internal, mid exam, lab internal data, and surveys data is maintained by the department.

e) How the results are documented and maintained.

- Displayed in the website.
- Filed in the department and also available with the examination branch.
- Maintained by each Course Faculty as a course file with all the results and evaluation details. These results and evaluation are informed and discussed with students.

2.4 Use of Evaluation results towards improvement of the programme (30) — Total Marks : 30.00

2.4.1 Indicate how results of assessment used for curricular improvements (5) — Institute Marks : 5.00

(Articulate with rationale the curricular improvements brought in after the review of the attainment of the POs)

We have introduced the outcome based education system in GRIET recently. Students, having experienced the learning environment as per new defined PEOs and POs are to graduate from the Institute. We have defined POs based on the NBA graduate attributes mapping to curriculum and used the feedback received from the stakeholders through surveys. We have a system to review the results of the evaluation of our outcome based education system at the end of each academic year.

Based on the attainment of POs, PAC prepares the action plan to improve the courses of the programme thus influencing the attainment of Programme Outcomes.

2.4.2 Indicate how results of assessment used for improvement of course delivery and assessment (10) — Institute Marks : 10.00

(Articulate with rationale the curricular delivery and assessment improvements brought in after the review of the attainment of the POs)

After receiving results of each semester, faculty analyses the percentage of pass in his subjects and finds out the average of marks obtained in his course, in order to recommend necessary actions to improve the courses. The improvement of PO attainment can be expected by bringing appropriate changes in course outcomes, curriculum, delivery methods, and assessment and evaluation methods. After receiving inputs from the internal committees Programme Assessment Committee (PAC), BOS and Academic Council will give the final approval for the necessary improvements. Once the action plan is defined, data for the performance indication is to be collected and analyzed and evaluated by the course coordinator to see the performance. This process continues till the performance improves to the target value.

2.4.3 State the process used for revising/redefining the POs (15) — Institute Marks : 15.00

(Articulate with rationale how the results of the evaluation of the POs have been used to review/redefine the POs in line with the Graduate Attributes of the NBA.)

We have introduced the outcome based education system in GRIET. Therefore students, having experienced the learning environment as per defined PEOs and POs are yet to graduate from the Institute. We have defined POs based on the NBA graduate attributes mapping to curriculum given by affiliating university JNTUH and used the feedback received from the stakeholders through surveys. The continuous process of assignments, direct and indirect assessments and evaluation will lead to the revision and refinement of the POs. We have a system to review the results of the evaluation of our outcome based education system at the end of each academic year.

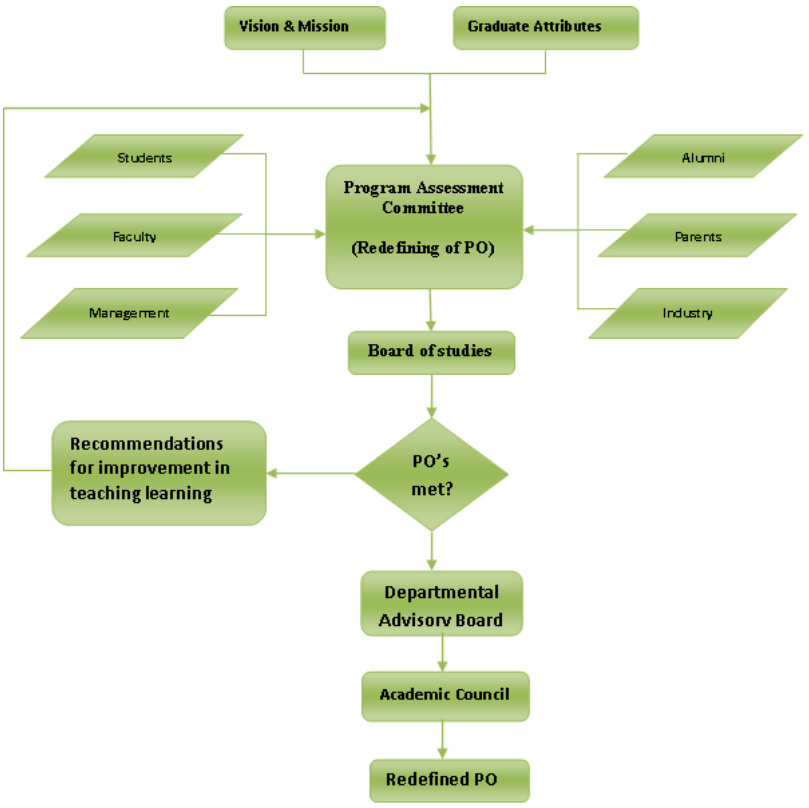


Figure 5: Process for Redefining POs

3 Programme Curriculum (125) **Total Marks : 125.00**

3.1 Curriculum (20) **Total Marks : 20.00**

3.1.1 Describe the Structure of the Curriculum (5) Institute Marks : 5.00

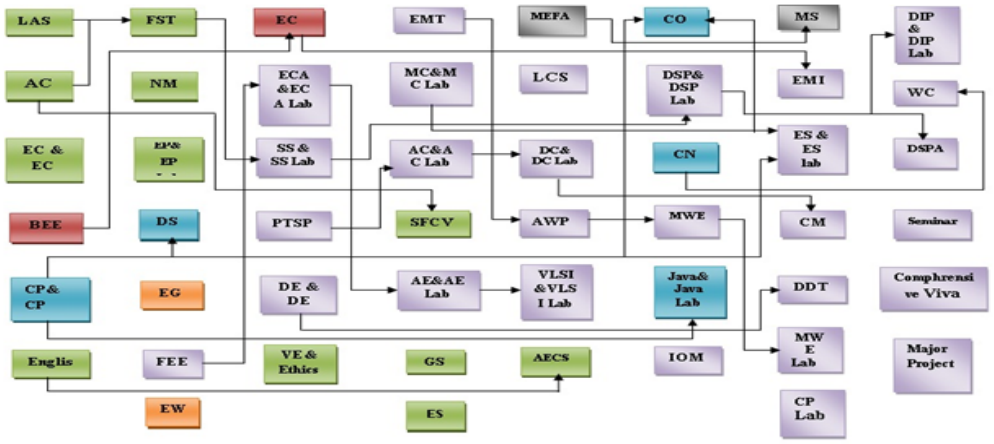
Course Code	Course Title	Total Number of contact hours				Credits
		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
GR14A1001	Linear Algebra and Single Variable Calculus	2.00	2.00	0.00	4.00	3.00
GR14A1002	Advanced Calculus	2.00	2.00	0.00	4.00	3.00
GR14A1008	Engineering Chemistry	2.00	2.00	0.00	4.00	3.00
GR14A1005	English	2.00	2.00	0.00	4.00	3.00
GR14A1018	Basic Electrical Engineering Computer Programming	3.00	2.00	0.00	5.00	4.00
GR14A1009	Computer Programming	2.00	2.00	0.00	4.00	3.00
GR14A1026	IT Workshop	0.00	0.00	4.00	4.00	2.00
GR14A1030	Engineering Chemistry lab	0.00	0.00	4.00	4.00	2.00
GR14A1027	Computer Programming lab	0.00	0.00	4.00	4.00	2.00
GR14A1003	Fourier Series and Transform Calculus	2.00	2.00	0.00	4.00	3.00
GR14A1004	Numerical Methods	2.00	2.00	0.00	4.00	3.00
GR14A1007	Engineering Physics	2.00	2.00	0.00	4.00	3.00
GR14A1010	Data Structures	2.00	2.00	0.00	4.00	3.00
GR14A1023	Engineering Graphics	1.00	0.00	4.00	5.00	3.00
GR14A1019	Fundamentals of Electronics	3.00	1.00	0.00	4.00	4.00
GR14A1024	Business Communicatipon and Soft	0.00	0.00	4.00	4.00	2.00
GR14A1025	Engineering Workshop	0.00	0.00	4.00	4.00	2.00
GR14A1029	Engineering Physics lab	0.00	0.00	4.00	4.00	2.00
GR14A2047	Electrical Circuits	2.00	2.00	0.00	4.00	3.00
GR14A2048	Electronic Circuit Analysis	3.00	2.00	0.00	5.00	4.00
GR14A2049	Signals and Systems	3.00	2.00	0.00	5.00	4.00
GR14A2050	Probability Theory and Stochastic	3.00	2.00	0.00	5.00	4.00
GR14A2043	Digital Electronics	3.00	2.00	0.00	5.00	4.00
GR14A2051	Electronics Circuits Analysis Lab	0.00	0.00	4.00	4.00	2.00
GR14A2052	Signals and Systems Lab	0.00	0.00	4.00	4.00	2.00
GR14A2053	Digital Electronics Lab	0.00	0.00	4.00	4.00	2.00

GR14A2002	Value Education and Ethics	2.00	2.00	0.00	4.00	0.00
GR14A2054	Electromagnetic Fields and	3.00	2.00	0.00	5.00	4.00
GR14A2055	Microcontrollers	3.00	2.00	0.00	5.00	4.00
GR14A2056	Analog Communications	3.00	2.00	0.00	5.00	4.00
GR14A2057	Analog Electronics	3.00	2.00	0.00	5.00	4.00
GR14A2058	Special functions and Complex	2.00	2.00	0.00	4.00	3.00
GR14A2059	Microcontrollers Lab	0.00	0.00	4.00	4.00	2.00
GR14A2060	Analog Communications Lab	0.00	0.00	4.00	4.00	2.00
GR14A2061	Analog Electronics Lab	0.00	0.00	4.00	4.00	2.00
GR14A2001	Environmental Sciences	2.00	2.00	0.00	4.00	0.00
GR14A2104	Managerial Economics and Financial Analysis	2.00	2.00	0.00	4.00	3.00
GR14A3103	Linear Control Systems	3.00	2.00	0.00	5.00	4.00
GR14A3041	Digital Communications	3.00	2.00	0.00	5.00	4.00
GR14A3042	Antennas and Wave Propagation	3.00	2.00	0.00	5.00	4.00
GR14A3043	VLSI Design	3.00	2.00	0.00	5.00	4.00
GR14A3044	VLSI Design Lab	0.00	0.00	4.00	4.00	2.00
GR14A3045	Digital Communications Lab	0.00	0.00	4.00	4.00	2.00
GR14A3100	Advanced English Communication Skills Lab	0.00	0.00	4.00	4.00	2.00
GR14A2076	Computer Organization	3.00	2.00	0.00	5.00	4.00
GR14A3046	Digital Signal Processing	3.00	2.00	0.00	5.00	4.00
GR14A2077	Computer Networks	3.00	2.00	0.00	5.00	4.00
GR14A4059	Microwave Engineering	3.00	2.00	0.00	5.00	4.00
GR14A2070	OOP through Java	3.00	2.00	0.00	5.00	3.00
GR14A3049	Digital Signal Processing Lab	0.00	0.00	4.00	4.00	2.00
GR14A2072	OOP through Java Lab	0.00	0.00	4.00	4.00	2.00
GR14A3101	Industry Oriented Mini Project	0.00	0.00	4.00	4.00	2.00
GR14A3102	Management Science	2.00	2.00	0.00	4.00	4.00
GR14A3048	Electronic Measurements and	3.00	2.00	0.00	5.00	4.00
GR14A3070	Embedded Systems	2.00	2.00	0.00	4.00	3.00
GR14A4060	Cellular Mobile Communication	3.00	2.00	0.00	5.00	4.00
GR14A4064	Digital Design Through Verilog	3.00	2.00	0.00	5.00	4.00
GR14A4066	Microwave Engineering Lab	0.00	0.00	4.00	4.00	2.00
GR14A4067	Communication Protocols Lab	0.00	0.00	4.00	4.00	2.00
GR14A4113	Embedded Systems Lab	0.00	0.00	4.00	4.00	2.00
GR14A4069	Digital Image Processing	2.00	2.00	0.00	4.00	3.00
GR14A4063	Wireless Communications and Networks	2.00	2.00	0.00	4.00	3.00
GR14A4082	Digital Signal Processors and Architectures	2.00	2.00	0.00	4.00	3.00
GR14A4076	Digital Image Processing Lab	0.00	0.00	4.00	4.00	2.00
GR14A4143	Seminar	0.00	0.00	4.00	4.00	2.00
GR14A4142	Comprehensive Viva	0.00	0.00	4.00	4.00	2.00
GR14A2002	Gender Sensitization	2.00	2.00	0.00	4.00	0.00
GR14A4144	Major Project	0.00	0.00	12.00	12.00	10.00
Total		107.00	83.00	112.00	302.00	200.00

3.1.2 Give the Prerequisite flow chart of courses (5) Institute Marks : 5.00

(Draw the schematic of the prerequisites of the courses in the curriculum)

I-I **I-II** **II-I** **II-II** **III-I** **III-II** **IV-I** **IV-II**



3.1.3 Justify how the programme curriculum satisfies the program specific criteria (10) Institute Marks : 10.00

(Justify how the programme curriculum satisfies the program specific criteria specified by the American professional societies relevant to the programme under accreditation)

Program Specific Criteria:

ELECTRICAL, COMPUTER, AND SIMILARLY NAMED ENGINEERING PROGRAMS

Lead Society: Institute of Electrical and Electronics Engineers **(IEEE)** Cooperating Society for Computer Engineering Programs: CSAB

Applicability:

This program criterion applies to Electronics and Communication Engineering programs that include software, software components, and, electronic, or similar modifiers in their titles.

The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program. The curriculum must include probability and statistics, including applications appropriate to the program name; mathematics through differential and integral calculus; sciences (defined as biological, chemical, or physical science); and engineering topics (including computing science) necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components. The curriculum for programs containing the modifier “electrical” in the title must include advanced mathematics, such as differential equations, linear algebra, complex variables and discrete mathematics.

The following are the curriculum components:

Mathematics

Sciences

Humanities

Professional Core

Computing

Course Code	Course Title	Abbreviation	Total Number of contact hours				Credits
			Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
Courses in **Mathematics** stream							
GR14A1001	Linear Algebra and Single Variable Calculus	LA& SVC	2	2		4	3
GR14A1002	Advanced Calculus	AdC	2	2		4	3
GR14A1003	Transform Calculus and Fourier Series	TC& FS	2	2		4	3
GR14A1004	Numerical Methods	NM	2	2		4	3
Courses in **Sciences** stream							

GR14A1007	Engineering Physics	Eg Physics	2	2		4	3
GR14A1029	Engineering Physics lab	EP-Lab			4	4	2
GR14A1008	Engineering chemistry	Eg Chemistry	2	2		4	3
GR14A1030	Engineering Chemistry lab	EChem-Lab			4	4	2
GR14A1018	Basic Electrical Engineering	BEE	3	2		5	4
GR14A1019	Fundamentals of Electronics Engineering	FEE	3	1		4	4
GR14A1026	IT Workshop	IT Workshop			4	4	2
GR14A1023	Engineering Graphics	EG	1		4	5	3
GR14A1025	Engineering Workshop	EW- Lab			4	4	2
Courses in **Humanities and Social Sciences** stream							
GR14A1005	English	Eng	2	2		4	3
GR14A1024	Business Communication and Soft Skills Lab	BC& SSL			4	4	2
GR14A2104	Managerial Economics &Financial Analysis	MEFA	4	1		5	4
GR14A3102	Management Science	MS	4	1		5	4
GR14A3100	Advanced English communication skills lab	AECS Lab			3	3	2
Courses in **Computing** stream							
GR14A1009	Computer Programming	Computer Pg	2	2		4	3
GR14A1027	Computer Programming lab	CP Lab			4	4	2
GR14A1010	Data Structures	DS	2	2		4	3
Professional Core Engineering Subjects							
GR14A2049	Signals& Systems	SS	4	1		5	4
GR14A2050	Probability theory and stochastic processes	PTSP	3	1		4	3
GR14A2068	Analog Electronics	AE	4	1		5	4
GR14A2043	Digital Electronics	DE	4	1		5	4
GR14A2052	Signals and systems lab	SSS Lab			3	3	2
GR14A2061	Analog Electronics lab	AE Lab			3	3	2
GR14A2053	Digital Electronics lab	DE Lab			3	3	2
GR14A2054	Electromagnetic Fields and Transmission Lines	NWTL	3	1		4	4
GR14A2076	Computer	CO	4	1		5	3

	organization						
GR14A2056	Analog communications	AC	4	1		5	4
GR14A2055	Microcontrollers	MC	4	1		5	4
GR14A2071	Object oriented programming through java	OOPS-JAVA	4	1		5	4
GR14A2056	Analog communications lab	AC Lab			3	3	2
GR14A2059	Microcontrollers lab	MC Lab			3	3	2
GR14A2072	Object oriented programming through java lab	OOPS- JAVA Lab			3	3	2
GR14A3041	Digital communications	DC	4	2		6	4
GR14A3043	VLSI design	VLSI	4	1		5	4
GR14A3103	Control Systems	CS	3			3	3
GR14A3045	Digital communications lab	DC Lab			3	3	2
GR14A3044	VLSI lab	VLSI-Lab			3	3	2
GR14A3042	Antennas and wave propagation	AWP	4	1		5	4
GR14A3070	Embedded Systems	ES	4	1		5	4
GR14A3046	Digital signal processing	DSP	4	1		5	4
GR14A3101	Industry oriented Mini Project	IOMP			3	3	2
GR14A3049	Digital signal processing lab	DSP Lab			3	3	2
GR14A4060	Cellular and Mobile Communications	CMC	4	1		5	4
GR14A4059	Microwave Engineering	MWE	4	1		5	4
GR14A4064	Digital Design through Verilog	DDTV	4			4	4
GR14A2077	Computer Networks	CN	4			4	4
GR14A4113	Embedded Systems Lab	ES Lab			3	3	2
GR14A4066	Microwave Engineering lab	MWE-Lab			3	3	2
GR14A4066	Digital Image processing	DIP	3	1		4	3
GR14A4063	Wireless communication Networks	WC	3	1		4	3
GR14A4072	Digital signal processors & Architecture	DSP- Architecture	3	1		4	3
GR14A4076	Digital Image processing lab	DIP Lab			3	3	2
GR14A4143	Seminar	SEMINAR			3	3	2
GR14A4142	Comprehensive Viva	C-VIVA			3	3	2
GR14A4144	Major Project	MP	10			10	10
Total			139	47	82	267	200

Program Specific Core Course Modules with Faculty Competence

The core subjects divisions of electronics and communication engineering are electronics, communications, signals, embedded systems, computer hardware programming, RF and Microwave Engineering.

Electronics and VLSI:

The courses in this module cover basis of electronics include the operations of BJT, FET, MOSFET and also Characteristics of the above devices, configurations, working principles. It covers principles of op-amp ideal characteristics and practical characteristics and includes various applications. Design of digital system is also one of the main topic covers Boolean algebra k-maps simplification of logic equations, combinational and sequential circuits with ASM Charts. It is also covers principles of VLSI and applications of ics,vlsi stick and layout diagrams of various circuits. They study of these courses makes the student to design effective real time chips and circuits.

Electronics and VLSI	
Basic electrical and electronics	
Analog Electronics	
Digital Electronics	
Electronic Measurements and Instrumentation	
IC Applications	
Digital design through VHDL	
VLSI Design	
Faculty	Specialization
Dr. G. Mamatha (Module Coordinator)	VLSI
G.V. Subba Reddy	VLSI
Jamal K	VLSI
G. Surekha	VLSI
MOV Pavan Kumar	VLSI
D.V.Prasanthi	VLSI
R.Naga Pavani	VLSI
T.Santosh Kumar	VLSI
N Ome	VLSI
D.Sudha	VLSI
Shivani Kuninti	IC Design
Y. Priyanka	Digital Systems
V.Vijaya Kumar	VLSI
K.Sravani	VLSI
B. Veera reddy	VLSI
N. Srinivasa Rao	VLSI
Pallavi Dilip Sathawane	VLSI
G. Naga Raju	VLSI
Meera G	VLSI
K.Sarvani	VLSI
P Sampathkrishna Reddy	VLSI
N Anjani Devi	VLSI
P. Sri Ram Kumar	VLSI
K P S Sravanthi	VLSI System Design
K Gayathri	VLSI & Embedded Systems
V Sirisha	VLSI System Design
R Prashanth Kumar	VLSI

Module coordinator is a M.Tech from Bharath University, with several research publications in the Electronics and VLSI. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes

Communications:

The courses in this module covers principles of communication, probability of communication auto correlation and cross correlation of signals, various analog modulation techniques, principles, advantages and disadvantages, Operation of television, receiver transmitter scanning process picture tubes and color TV techniques.

Mobile communication gives the principle operation of cellular system. Satellite communication gives the Principle of operations of satellite link budgets.WCN includes wired and wireless communication network topologies and its functions. Study of these courses enables the students to analyze various communication techniques.

Communications Module	
Probability Theory and Stochastic Process	
Analog Communication	
Digital Communication	
Television Engineering	
Optical Communications	
Cellular & Mobile Communications	
Satellite Communications	
Wireless Communications	
Analog Communications Lab	
Digital Communications Lab	
Faculty	**Specialization**
Dr. V.Ayyem Pillai (Module Coordinator)	Wireless Communication
Dr.Ch Usha Kumari	Wireless Communication
T. Jagannadha Swamy	Wireless Communication
M. Kiran	Communications
N. Swetha	Wireless Communications
D. Lakshmi Chaitanya	Wireless Communications
K.N.V.Khasim	Communications
R. Sri Uma Suseela	Wireless Communications
Hima Bindu V	Wireless Communications
T.Laxminarayana	Communications
V.Jyothi Sree	Communications
G Pradeep Reddy	Communications
A Siva Ganesh	Communications

Module coordinator is a PhD from BITS Pilani, with several research publications in the Communications. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes

Signals and Image Processing:

Courses in this module cover basis of signals, classification of signals, various operations on signals, convolution correlation importance of convolution and its applications. Control system covers various feed backing mechanism includes the stability of system, measurement of stability of a system using RH criteria, bodem plots root locus, nyquist criteria. In digital domain various system operations concepts includes characteristics of analog and digital filter design with reduction techniques. DSP processors give architecture and mechanism of fixed and floating point processors. Enhancement and reduction of images through Image Processing. Study of these courses makes the students to enhance the knowledge on signals, operations and hardware concepts.

Signal and Image Processing Module	
Signals and Systems	
Control Systems	
Digital Signal Processing	
Digital Image Processing	
DSP processors and Architectures	
Signals, Systems and Simulation Lab	
Digital Signal Processing Lab	
Faculty	**Specialization**
T. C. Sarma(Module Co-ordinator)	Image Processing
Dr. T. Padma	Signal Processing & VLSI
K. Padmavathi	Bio-Medical Signal Processing
K.Meenakshi	Image Processing
N. Madhu Sudhan Rao	Signal Processing
M.Suneetha	Signal Processing
Pratyusha Chowdari	VLSI Signal Processing
K. Swaraja	Image Processing

Module coordinator is a PhD in EE from USA, with several research publications in the Signal and Image Processing. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes

Embedded Systems:

The courses in this module covers basics of micro processors and micro controllers, basics of 8080,80286,80386,80486 Pentium processors,8051 architecture, programming of different applications related to micro processor and micro controller, real time operations of different embedded processors. Study of these courses enables the students to learn and implement various embedded concepts.

Embedded Systems	
Micro processors	
Micro controllers	
Embedded systems	
Microprocessor Lab	
Microcontrollers Lab	
Faculty	**Specialization**
V Aravind(Module Co-ordinator)	Embedded Systems
K.N. Balaji Kumar	Embedded Systems
Radhanand Ananta	Embedded Systems
K. Nagaja	Embedded Systems
Mohd. Javeed Mehdi	Embedded Systems
G.L.Sumalatha	Embedded Systems
A. Lavanya	Embedded Systems
K.Swathi	Embedded Systems
M.Mounica	Embedded Systems
B.Vijaya Kumari	Embedded Systems
D Yesu Babu	Embedded Systems
K Ravikanth Reddy	Embedded Systems
B Navya	Embedded Systems

Module coordinator is a M.Tech from BITS Pilani, with several research publications in the Embedded Systems. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes.

Computer hardware and programming:

The courses in this module includes operating systems concepts, programming of c includes data structures, computer organization and its related issues .computer networks covers various hieratical structures like OSI model TCP/IP model and various networking techniques like conjunction control flooding and various algorithms and protocols. Study of these courses enables the students to learn various computer hardware and programming techniques.

Computer hardware and programming	
C & Data Structures	
Computer organization	
Operating systems	
OOPS through JAVA	
Computer Networks	
C & Data Structures Lab	
OOPS through JAVA Lab	
Faculty	**Specialization**
MD Javeed (Module Coordinator)	Embedded Systems
K.Shivani	IC Technology
Y Priyanka	Digital Systems and Computer Electronics
A.Ambika	Electronics and Communication
M. Manjusha	Embedded System
B.Navya	Digital Electronics and Communication Engg

Module coordinator is a M.Tech from JNTH Hyderabad, with several research publications in the Computer hardware and programming. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes

RF and Microwave:

The courses in this module cover principles of networks, network theorems, two port networks and its applications, transmission lines covers the relation between voltage current impendence and admittance parameters and smith chart. it gives the open and short circuit impedance. Electromagnetic field theory covers principles of static and magnetic fields, Maxwells equations, point loss. Antennas and wave propagation covers the concepts of antenna, working principles and related applications. Propagation of waves covers different waves and its channels, effect of environment on different frequencies like fading ducting skip distance skin effect. Microwave and radar engineering covers different microwave components microwave tubes, principle of radar, different types of radars and its principles. Study of these courses enables the students to get knowledge on various microwaves, RF, antennas and its related principles.

RF and Microwave	
Networks and transmission lines	
Electromagnetic field	
Antenna wave propagation	
Microwave Engineering	
Radar Engineering	
RF Circuit Design	
Microwave and Optical Communications Lab	
Faculty	**Specialization**
A P Narasimha Rao(Module Co-ordinator)	Microwave Engineering

Y. Sudharshan Reddy	Embedded Systems
G. Bindu Madhavi	Microwave Engineering
B.Shilpa	Microwave Engineering
A.Usha Sree	Embedded Systems

Module coordinator is a PhD from IITM, with several research publications in the RF and Microwave. The faculty members teaching this course are also pursuing PhD from reputed universities and have published several research papers in journal and conferences. They are well versed with the latest technologies in this field. The faculty members developed various course modules, lab manuals, and conduct and attend several faculty development programs, workshops, seminars and conferences. These faculty members with core competence are vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes.

3.2 State the components of the curriculum and their relevance to the POs and the PEOs (15)

Total Marks : 15.00

Institute Marks : 15.00

Programme curriculum grouping based on different components

Course Component	Curriculum Content (% of total number of credits of the programme)	Total number of contact hours	Total Number of credits	POs	PEOs
Mathematics	8	20.00	16.00	a,b,d,e,k	1,2
Science	11.5	30.00	23.00	a,b,c,e,h,k	2,3
Computing	12	33.00	24.00	a,c,e,k	2,3,4
Humanities	7.5	21.00	15.00	d,f,g,i,j,l	3,4
Professional core	49.5	133.00	122.00	a,b,c,d,e,f,g,h,i,j,k,l	1,2,3,4

3.3 State core engineering subjects and their relevance to Programme Outcomes including design experience (60)

Total Marks : 60.00

Institute Marks : 60.00

Following are the core engineering courses and their relevance to POs:

Probability theory and Stochastic Process

This course is a hand on introduction to probability and its importance in various communication engineering problems with mathematical experience. In this probability and stochastic process course structure includes the introduction, random variable concepts, Cumulative Distribution Functions, Probability Density Functions, one variable, two-variables, and the several random variables with characteristics. Random process includes the concept of random process on signals from various communication sources. Marginal probability functions, independent random variables are the important aspects in probability process. Correlation different signals which includes auto correlation and cross correlation applications in various communication and signal processing applications. Noise with different types of sources and its importance in probability in communication engineering gives wide scope of research areas to students. Information theory gives the importance of coding techniques for effective data transmission with several innovative projects to the students.

Digital Electronics

The students will examine the basic ideas and techniques with Boolean fundamentals,principles of logic gates, combinational and sequential circuits. The course also provides simplification of the logic circuits with K-Maps in different aspects. The course intended to introduce students to face the challenging engineering design problems. Course uses a problem-based design approach to learning. Students will familiarize with design problems like Mulitiplexers, Demultiplexers, flipflops, counters and registers with state transition diagrams. Students to go beyond design and implementation. Project requirements definitely contribute to design systems to meet desired needs.

Analog Electronics

This course is a hand on introduction to Operational Amplifier and its characteristics, applications in various operations, Ideal and practical relations, Internal structure and its AC and DC analysis with mathematical concepts and use. Expose the students, the concepts of efficiency and CMRR,SVRR, Slew-rate, etc. Students will be able to emphasis on the use of Analog Electronics in solving different application problems which will include design case studies as well as assignments. A Class project may be assignment to each team. Also, students will aware the concepts of different op-amp applications like multivibrators, instrumentation amplifier, etc. From this subject projects are intended to introduce students to challenging engineering design problems, including real world hands on and group based projects are required during the semester, there by students will communicate ideas effectively.

Signals and Systems

This course gives a wide exposition of Signals and Systems and their functionality in communications and signal processing areas. Topics include: signal classification, system classification, convolution of different signals with representation. Autocorrelation and cross-correlation of signals gives the mathematical representation of signals in communication. Signal as input and output to a system will gives the representation and analysis of system with various filtering options.. The students will do programming project and assignments which explore the ways of implementing signal concepts and techniques. The project and assignments require the use of tools and skills learned in this course and programming skills in a programming language. The understanding of the subject is

accessed via coursework and written examination. The coursework includes a mini project. The project provides students an opportunity to go through every stage of the signals representation and make decisions and judgment over issues such as convolution and correlation. The project aims to enhance the knowledge and understanding of the subject through a practical experience. The course, which is a reputation for demanding assignment/project work, is approximately 70% design.

Analog Communication

This course introduces students communication specifications and different areas of Modulation techniques like AM,FM,ASK,FSK,PSK,SSB,VSB analysis. Students will examine different design techniques like formulation and implementation. The main intention of this course is to introduce students to challenging engineering design problems. Course uses a problem-based approach to learning. A specific focus will be given to various principles and techniques for solving communication engineering problems. Different types of problems like noise in communication introduced and applicable in all most all engineering disciplines.

C and Data structures

This course introduces the requirement of different data structures in computer science area and wide applications of them. Students are exposed to both linear and non-linear data structures and basic operations like searching, insertion, deletion and sorting. All the data structures along with the operations are practically implemented using C language. Every student is given a scenario where some basic programming has to be implemented using a specific data structure as home assignment. This enables the student to explore the concepts and identify which data structure suits the objective. Apart from this the student answers the tutorial papers which are designed in a pattern of guided enquiry learning. With this exercise the student raises interest in the subject as well as improves his learning methodologies.

Computer Networks

This course starts with the basic information of how a network can be designed, possible choice of various models for designing a network. The students will be able to understand the protocol layer specific communication between two trusted entities. They will analyse the possible attacks on a network to interrupt the transmission and mislead the communication between different entities. Students will be able to analyse the shortest path over which data can be transmitted, able to design a routing protocol implementing security mechanisms for secure transmission of data from sender to the receiver. The understanding of the subject can be assessed based on course work, assignments and through implementation on a specific platform. The students can design a network topology with the available networking elements and can implement a routing protocol along with a secure mechanism ensuring the error free transmission of data.

Wireless Networks

Students will be able to know the various multiple access techniques available in mobile communications. They will analyse the differences between the wired and wireless networks along with the techniques available to establish a communication line between two parties. They should design a project implementing the multiple access techniques over wireless medium between two mobile nodes, distinguishing the forward and reverse channels over the medium ensuring the effective full-duplex communication. Students can be assessed based on their project and course work. Students will get to know the latest mobile technologies available for communication like Bluetooth, infrared, various network architectures like GSM, CDMA etc. The study will be exposed to various wireless parameters like signal strength, coverage area**,** Mobile IP**.**

Electromagnetic Fields

Students will get knowledge on various fields and its importance in elecromagnetics. Different laws will gives the brief idea on electromagnetic. Pointing vectors, Gauss theorem explains the field operations.Maxwell equations with time varying fields gives the overall importance of electromagnetic theory in real world applications. Students will acquire the knowledge on communications, antennas and wave propagation, microwave engineering, wireless communication and its related advanced communication and Radio Frequency Applications. Wireless networks along with the techniques available to establish a communication line between two parties. They should design a project implementing the multiple access techniques over wireless medium between two mobile nodes, distinguishing the forward and reverse channels over the medium ensuring the effective full-duplex communication.Students will get to know the information on antenna classifications.

Very Large Scale Integration

VLSI has been around for a long time, there is nothing new about it ... but as a side effect of advances in the world of computers, there has been a dramatic proliferation of tools that can be used to design VLSI circuits. Alongside, obeying Moores law, the capability of an IC has increased exponentially over the years, in terms of computation power, utilization of available area, yield. The combined effect of these two advances is that people can now put diverse functionality into the ICs, opening up new frontiers. Examples are embedded systems, where intelligent devices are put inside everyday objects, and ubiquitous computing where small computing devices proliferate to such an extent that even the shoes you wear may actually do something useful like monitoring your heartbeats! These two fields are kind a related, and getting into their description can easily lead to another article.

Digital VLSI circuits are predominantly CMOS based. The way normal blocks like latches and gates are implemented is different from what students have seen so far, but the behaviour remains the same. All the miniaturization involves new things to consider. A lot of thought has to go into actual implementations as well as design. Let us look at some of the factors involved .

Digital Signal Processing:

This core course gives the signal analysis, system analysis, stability response, discrete fourier transforms and its importance in signal processing and also converts discrete time signal to its frequency domain representation. Fast fourier transform reduces the number of multiplications and additions and it gives the butterfly structure to reduce computations. IIR and FIR filter design methods are very much used full in digital filter design techniques. Multirate Digital Signal Processing is useful in up-sampling, down sampling and filter design.

3.4 Industry interaction/internship (10) **Total Marks : 10.00**

Institute Marks : 10.00

(Give the details of industry involvement in the programme such as industry-attached laboratories and partial delivery of courses and internship opportunities for students)

Student are encouraged take internship in the leading industries to get overall expertise on the engineering education in academically relevant work during semester break or vacation time.

Industrial visits are organized to the students along with the faculty members to bridge the gap between theoretical and practical aspects of the curriculum. Experts from industry are invited to interact with the students in every semester so that the students get the latest technical developments in the industry. Department are having collaborations with the reputed industries and professional bodies so that to bridge the gap between learning and people who are actually practicing technologies

- An expert from Industry is considered to be a member of Board of Studies active role in the curriculum design.
- The institution has MoU’s with Innovation Communications Systems Limited a reputed company headquarters at Hyderabad, India to strengthen the relationships with industry

- Department is active member with Innovation Communications Systems Limited campus connect program.
- Students are provided and given internship facility in Innovation Communications Systems Limited Pvt Limited, Hyderabad for completion of project work.
- The department has conducted several workshops on Embedded, VLSI and DSP Tools forB.Tech II/ III/IV students.
- The department has conducted several FDPs for the benfit of faculty in the areas of wireless communications and VLSI signal processing.

Participation Details: Industry Internship Programmes

Academic Year	No. of Students Attended/Participated in Industry Internship Programmes	Name of the Organization
2015-16	25	BHEL, Hyderabad, ECIL, Hyderabad DLRL, Hyderabad BSNL, Hyderabad, ISRO, Bangalore
2014-15	19	BHEL, Hyderabad, ECIL, Hyderabad DLRL, Hyderabad BSNL, Hyderabad NTPC, Ramagundam
2013-14	22	BHEL, Hyderabad, ECIL, Hyderabad DLRL, Hyderabad BSNL, Hyderabad NTPC, Ramagundam

3.5 Curriculum Development (15) — Total Marks : 15.00

3.5.1 State the process for designing the programme curriculum (5) — Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates how the programme curriculum is evolved considering the PEOs and the POs)

The curriculum is design by the faculty members of the Board of Studies(BOS)

The following points are kept as guide lines for the entire curriculum design process:

- Policies are dicussed and approved by Academic Council.
- Considerartion of existing curriculum of reputed institutes in India and abroad.
- Model AICTE Curriculum.
- Expertise and resourse available in the department.

After considering all the suggestions and recomendations made by all the faculty members of the department, curriculum is designed and is approved by the members of Board of Studies. The approved curriculum is send to Academic Council for their final endorsement.

The faculty in the department is divided into 5 modules. For the development of course structure the entire program is divided into 5 modules. Each module is consists of group of faculty members and it is headed by the module coordinator. Each module discss the portions of the curriculum specifically related to them and come up with recommendations. Such recomendations are then discussed in Board of Studies (BOS) meeting, which finally approves the curriculum after adding general elective courses. Similar procedure is used for changes in syllabi of various courses. Syllubi changes are done more often than curricular changes.

3.5.2 Illustrate the measures and processes used to improve courses and curriculum (10) — Institute Marks : 10.00

(Articulate the process involved in identifying the requirements for improvements in courses and curriculum and provide the evidence of continuous improvement of courses and curriculum)

To identify the curricular gaps for attainment of COs/POs we have followed these methods:-

1. Course feedback collected from the students is analyzed to measure the gap for attainment of COs and POs.
2. Faculty surveys are considered to identify curriculum gaps for attainment of CO's and PO's. Faculty inputs are valuable because they understand student comprehension and learning abilities better.
3. Based on the COs and POs and using result analysis and surveys, the curricular gaps are ascertained.
4. 'Student Exit surveys' are collected to identify curriculum gaps and the requisite skills for their future endeavors in their career paths.
5. Surveys are conducted with industry and the employers of our students, regarding their expectations from our graduates, which are then matched with our COs and POs.
6. Panel discussions are organized with focus groups such as IE, IWWA, CREDAI, Institution of Valuers, and other professional bodies to identify the curricular gaps.
7. Feedback is collected from the alumni who have joined in the professional careers or pursuing higher studies or has become entrepreneurs.
8. The required achievement level of Graduates Attributes are observed to identify gaps in attainment of COs and POs.

The feedback and surveys being utilized in the process are aimed at analyzing and discerning the extent to which the outcomes are addressed. This includes analysis for missing out on outcomes, by students in case of change in electives; the extent of support by pedagogy and assessments in the development of the students; the attainment of required skills and qualities by students for professional growth. Inputs and suggestions on improvements in courses after result analysis from course coordinators, Guest lecture, web content, video lectures and additional power point presentations of the course are shared with the students for further strengthening the course outcomes.

3.6 Course Syllabi (5)

Total Marks : 5.00

Institute Marks : 5.00

(Include, in appendix, a syllabus for each course used. Syllabi format should be consistent and shouldn't exceed two pages.)
The syllabi format may include:

- Department, course number, and title of course
- Designation as a required or elective course
- Pre-requisites
- Contact hours and type of course (lecture, tutorial, seminar, project etc.,.)
- Course Assessment methods(both continuous and semester-end assessment)
- Course outcomes
- Topics covered
- Text books, and/or reference material

File Name
ECE_Syllabus

Course Syllabi

The Course Syllabi of Electronics and Communication Engineering programmes consists of general guidelines, academic requirements, attendance requirements, credit requirements and details about curriculum. Each semester modules are given in which courses and laboratory required content is provided. Details about elective subjects and requirement about seminar, comprehensive viva, mini and major project is provided. Finally requirements for tha award of the degree are given.

The syllabi format includes:

- Department, course number, and title of course
- Details about elective course
- Contact hours (lecture, tutorial, seminar, project , Lab)
- Course Assessment methods (continuous and semester-end assessment)
- Course Outcomes
- Topics to be covered
- Text books, and/or reference material

4 Students' Performance (75)

Total Marks : 66.15

Admission intake in the programme

Item	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012	2010-2011	2009-2010
Sanctioned intake strength in the programme	300	240	240	180	180	120	120
Total number of admitted students in first year minus number of students migrated to other programmes at the end of 1st year (N1)	300	240	240	180	180	120	120
Number of admitted students in 2nd year in the same batch via lateral entry (N2)	0	48	48	36	35	24	12
Total number of admitted students in the programme N = (N1 + N2)	300	288	288	216	215	144	132

4.1 Success Rate (20)

Total Marks : 17.80

Institute Marks : 17.80

Provide data for the past seven batches of students

Year of entry (in reverse chronological order)	Number of Students admitted in 1st year + admitted via lateral entry in 2nd year (N1 + N2)	Number of students who have successfully completed			
		1st year	2nd year	3rd year	4th year
2015-2016	300	0	0	0	0
2014-2015	288	179	0	0	0
2013-2014	288	200	207	0	0
2012-2013	216	151	162	181	0
2011-2012 (LYG)	215	160	173	168	171
2010-2011 (LYGm1)	144	93	123	102	129
2009-2010 (LYGm2)	132	85	103	117	130

Success rate = 20 × mean of success index (SI) for past three batches
SI = (Number of students who graduated from the programme in the stipulated period of

course duration)/(Number of students admitted in the first year of that batch

and admitted in 2nd year via lateral entry)

	LYG (2011-	LYGm1 (2010-	LYGm2 (2009-

Item	2012)	2011)	2010)
Number of students admitted in the corresponding First Year + admitted via lateral entry in 2nd year	215.00	144.00	132.00
Number of students who have graduated in the stipulated period	171.00	129.00	130.00
Success index (SI)	0.80	0.90	0.98

Average SI 0.89

Success rate 17.80

4.2 Academic Performance (20)

Total Marks : 14.91

Institute Marks : 14.91

Academic Performance = 2 * API
Where API = Academic Performance Index
= Mean of Cumulative Grade Point Average of all successful
Students on a 10 point CGPA System
OR
= Mean of the percentage of marks of all successful students / 10

Item Approximating the API by the following mid-point analysis	2011-2012	2010-2011	2009-2010
9 < Number of students with CGPA < 10	0.00	0.00	0.00
8 < Number of students with CGPA < 9	42.00	28.00	27.00
7 <= 8	99.00	64.00	64.00
6 <= 7	30.00	35.00	35.00
5 <= 6	0.00	2.00	4.00
Total	171.00	129.00	130.00
Approximating API By Mid-CGPA	0.00	0.00	0.00
Mean of CGPA/Percentage of all the students API	7.57	7.41	7.38
Assessment	15.14	14.82	14.76

Average assessment points 14.91

4.3 Placement and Higher Studies (20)

Total Marks : 18.44

Institute Marks : 18.44

Item	LYG 2011-2012	LYGm1 2010-2011	LYGm2 2009-2010
Number of admitted students corresponding to LYG including lateral entry (N)	215.00	144.00	132.00
Number of students who obtained jobs as per the record of placement office (x1)	135.00	68.00	60.00
Number of students who found employment otherwise at the end of the final year (x2)	20.00	29.00	27.00
Number of students who opted for higher studies with valid qualifying scores/ranks (y)	16.00	32.00	43.00
x=x1+x2	155.00	97.00	87.00
Assessment points	16.28	19.03	20.00

Average assessment points 18.44

4.4 Professional Activities (15)

Total Marks : 15.00

4.4.1 Professional societies / chapters and organising engineering events (3)

Institute Marks : 3.00

(Instruction: The institution may provide data for past three years).

GRIET lays stress not only on the academic excellence but also on the beyond academic excellence to make the Programme a holistic experience. This is managed by providing time and resources to allow the students to take part in Co and Extracurricular activities which are integrated and spread over the entire academic year. This we believe has a profound impact in shaping the overall persona of a student.

The activities are pre-planned and included in the College diary.

The activities are planned and executed by the student bodies of the college with supervision from faculty.

Pragnya (a tech-fest) and Pulse (a cultural fest) are major annual attractions and widely participated.

To give fillip to beyond-curricular activity, the institution has encouraged registration of its student groups as members in professional societies, chapters such as: Institution of Engineers (IE), Computer Society of India (CSI), Institute of Electrical and Electronic Engineers (IEEE), Institute of Electronic and Telecommunication Engineers (IETE), Society of Automobile Engineers (SAE), Indian Society for Technical Education (ISTE), Indian Concrete Institute (ICI), Free Software Foundation (FSF), Robotics Club, Gaming Club.

The student chapters of professional societies such as IEEE, CSI, Robotic Club, and FSF have been intensely involved in Co-curricular activities giving full benefit and encouragement to the students.

Events organized by the professional societies/chapters during the last three years:

(DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING)

INSTITUTE OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING (IETE)

STUDENT FORUM – ISF 2015-16

Number of students under ISF is: 245

1. A two day workshop on "Mobile Applications Development" was held on 28-29 Sep 2015.In-house speakers Prof.A.Radhanand and Prof.K.Naga Balaji Kumar conducted the sessions. First day students were exposed to simple mobile apps using sensors available in android phone and second day students were able to write apps to control external hardware devices like coffee machine and switch the bulb on-off using bluetooth. The progrmme concluded with the closing remarks by Prof.T.C.Sharma,HOD and Pratyusha Chowdari.CH,coordinator of the workshop.

2. On 12-13 Oct 2015,ECE GRIET conducted a two day workshop on " Microcontrollers using Arduino". Prof.A.Radhanand and Asst.Prof. N.Ome demonstrated Arduino functionalities with the help of UNO board to provide hands-on experience for the students.

3. Election was conducted in the department to elect the core committee members of IETE on 17th October 2015

President: K.Nikhil (IIIrd year)

Secretary: K.Akhil Babu(IIIrd Year)

Vice president: Ram Chandra Murthy (IInd year)

Joint Secretary : Md.Azmath(IInd year)

Members:K.Abhi Ram(Ist year)

Rohit (IInd year)

Rishab Singh(IInd year)

Lekhya(IInd year)

Akhil(IInd year)

Ch.Bhavana(IIIrd Year)

K.Sai Krishna(IIIrd Year)

T.Anudeep(IIIrd Year)

Bhavya(IIIrd Year)

Sujatha(IIIrd Year)

4. IETE at Dept. of ECE of Gokaraju Rangaraju Institute of Engineering and Technology(GRIET),HYD, conduted three events as a part of annual day namely "EXTEMPORE","PROJECT IDEAS","POSTER PRESENTATIONS", on Jan 29, 2016. These events are based on technology, in this events students were given some specific time to express there creative idealogical thoughts.

   Assoc. Prof. N.Swetha, Assoc. Prof.D.L. Chaitanya (Asst .Prof.), Mohd Javeed mehdi (Asst. Prof.), R.S.Uma suseela (Asst. Prof.), Nagaraju (Asst. Prof.), V.Himabindu (Asst .Prof.), judged these events and awarded marks, prizes first three winners of these events.

The winners of EXTEMPORE are

- 1st: G.Triveni ,
- 2nd: K.R.G.Srikar and N.Yugandar Reddy,
- 3rd: S.Aamna Iqra.

The winners of PROJECT IDEAS are

- 1st Vinay Kumar,
- 2nd : K.S.S.Kishore,
- 3rd:Y.Madhan Reddy.

The winners of POSTER PRESENTATION are

- 1st : Mounika & P. Vinisha,
- 2nd : Ch.Sravani &B.Krishna Ramya,
- 3rd : swetha & Suma Vyshnava.

All of them were given prizes and certificates on annual day

5. The ECE department in association with IETE has conducted a workshop on PCB soldering for all the students of Ist year ECE and EEE, the workshop is scheduled for 3 weeks.

6. Conducted one day workshop on PCB design on 26th April, 2016.

Institute of Electrical and Electronics Engineers (IEEE)-IEEE GRIET

Academic Year 2015-16

Title	Professional Societies	Date	Achievement / Benefit
Hackathon ’16	IEEE	20/03/2016	The theme of the competition being “Smart City”, the participants got to identify a complication, find a practical solution and build a working prototype for the same using any technical platform
HACKATHON	IEEE	9/03/2016	The participants got to identify a complication, find a practical solution and build a working prototype for the same using any technical platform
Web Technologies Cluster-I	IEEE	18/02/2016	The main objective of the session is to expand the technical knowledge of the students
Field Trip to Sanjay Technical Services Pvt. Ltd	IEEE	10/02/2016	As the main objective of conducting the Field Trip is to impart technical and practical knowledge and trip mainly focused on involvement of mainly for EEE and ECE branch student members
WIE AWARENESS PROGRAMME	IEEE	9/02/2016	The students were explained about the vision and mission of WIE AG-IEEE. They were also briefed about the humanitarian activities and events conducted by WIE
TALK ON SELF MOTIVATION AND STRESS MANAGEMENT	IEEE	9/02/2016	Deal with stress & self motivation and overcome the most common problems due to stress
VOTER AWARENESS	IEEE	1/02/2016	The main theme ‘Voting’ is one of most important duties of every human being. But people in our country are still neglecting it. One vote can change the country’s future as ‘An Ocean is formed by several drops of water’.
MEELO EVARU KOTEESWARUDU	IEEE	30/01/2016	Students has taken up a voluntary activity of participating as the audience and The students had to answer few questions for the audience poll questions, which was a test for their general knowledge and intelligence.
			the main objective in conducing the SBM is

Student Body Meeting	IEEE	28/01/2016	to inculcate networking and required technical skills to the student members
WIE STAR program	IEEE	19/01/2016	An initiative in promoting the retention of men and women engineers through WIE STAR program conducted by IEEE GRIET Student exe-com members and educated the students of Zilla parishat High School, Nizampet by practically demonstrating the experiments.
Membership Drive	IEEE	14/11/2015	It is important to bring awareness among the students regarding the benefits of being a member of IEEE as it would enroute them towards the path of success.
GO GREEN	IEEE	10/10/2015	The main objective of this event was to spread awareness about natural vegetable colors and dyes.

INSTITUTE OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING (IETE)

STUDENT FORUM – ISF 2014-15

Number of students under ISF is: 144

1. Conducted workshop on microcontrollers using Arduino on 5th and 6th of January 2015 for 93 registered candidates.

2. Project Expo on Microcontrollers using Arduino has organized for the students and prices has given on 30th January 2015.

Prize	Names Of the Students	Project Title
1st	Palla Sai Vyshnavi Kotti Sai Venkata Lalitha Tejaswi Y. Vandana M.Hasika	Overhead Water tanker Control using Arduino with Motor Shield
2nd	Kondapalli Sai Himalay Nikhil	Direction Control of a ROBO
3rd	V.Bhavya Sujatha	Charging Mobile phone using Arduino with Solar pannels

3. Technical Quiz was conducted by ISF on 19th march 2015.

Academic Year 2013-14

Title	Professional Societies	Date	Achievement / Benefit
National symposium on software 2.0 emerging competencies	CSI	30/04/2013	Workshop conducted for academic improvement
Seminar on "Transformation of Data: from Relation data to Big data"	IEEE	01/03/2013	The seminar aimed at introducing the students to the increasing importance of "Data" in today's technological world and how this continuously multiplying data can be dealt with.
Workshop on "Android Application Development"	IEEE	27/02/2013 to 28/02/2013	The workshop focused on the basic theoretical concepts of android application development tools and practical implementation of these concepts to design a simple application
Seminar on "Research and Education Opportunities in Data Sciences"	IEEE	28/01/2013	Emphasized the importance of Data Sciences to the students
Industrial Visit To Center for Electronic Test Engineering (CETE), ECIL, Hyderabad	IEEE	02/01/2013	Exposed to the importance of testing all the electric machinery used in both research and industry in order to prevent any hazardous accidents.
PRAGNYA'12	IEEE	09/10/2012 to 10/10/2012	Prangnya'12 a national level technical symposium offers challenges for people coming from various walks of engineering. The breadth of events extends from the classical paper presentations, to new and demanding events such as carbon trading.
WIE Star Program	IEEE	03/08/2012, 06/08/2012, 16/08/2012	To educate the government school students about the basics of computers, electronics, communication etc., and update them with various developments in technology such as robotics.
IEEE Star Program	IEEE	03/08/2012	This educational outreach program promotes involvement of IEEE members with local junior high and high schools in order to create a positive image of engineering careers.
Open Source Seminar	IEEE & FSF	21/07/2012	The second and third year students attended this seminar where introduction to the concept of open source was given and its uses and advantages were discussed.
Android Seminar	IEEE & FSF	21/07/2012	To let the students know the working of android and its applications
"GRIET Productions"	IEEE	31/07/2012	It provides a platform for the students who are interested in photography,

Club			cinematography, direction and script writing.
Student Outreach Session	IEEE	25/06/2012	The basic idea of this session is to impart knowledge about safety from peril of addictions by the youngsters.
Robo Project Expo At D.A.V School	Robotic Club	21/04/2012	Display and demo of the projects developed at GRIET
Photoshop Workshop	IEEE & GAP	03/04/2012	This workshop was designed to help youngsters to design posters and edit pictures to a professional level. They were taught different aspects of the Photoshop which can be used in a variety of ways.
Cloud Computing Seminar	IEEE	31/03/2012	The Seminar was a half day session which dealt with the basics of Cloud Computing.
Mobi Tronix Robo Workshop	Robotic Club	09/03/2012 to 10/03/2012	Enhancement of Micro controller concepts, and Embedded system concepts in practical manner
Women's Day Celebration	IEEE	08/03/2012	Emphasizing on how the present day women have managed to overcome so many barriers by making a constant effort to follow their heart and manage their restrictions.
Visit to Indicon 2011	IEEE	16/12/2011 to 18/12/2011	Socializing with eminent personalities globally.
Pragnya'11	IEEE	18/11/2011 to 19/11/2011	Prangnya'11 a national level technical symposium offers challenges for people coming from various walks of engineering. The breadth of events extends from the classical paper presentations, to new and demanding events such as carbon trading.
CMS Workshop	IEEE	03/08/2011	To learn the Content Management System and Web designing tool Joomla, was the topic for the hands on workshop.
FOSS Workshop (**Free and Open Source Software)**	IEEE & FSF	11/03/2011	This workshop was conducted to enable the students to have more insight into the open source technologies.
IIIT R&D Showcase	IEEE	26/02/2011	The educational trip provided the students with the knowledge of diverse subjects. Different projects were displayed by the students belonging to different research centers of IIIT, namely Robotic Research Center, Earthquake Engineering Research Center, Lab for Spatial Information, Center for Computational Natural Sciences, Center for Security Theory and Algorithmic Research(C-STAR) Etc .
Linux Workshop	IEEE & FSF	16/02/2011	This workshop is intended to introduce the open source technology to the students where they were explained about Linux, its uses and advantages.
LET's MEET	IEEE	18/01/2011	This program was mainly intended for the benefit of new members who joined IEEE for the year 2011 and to reach the members and make them familiar to IEEE, and to maintain good interaction with the members.
e-TRIx Robo Workshop	Robotic Club, IEEE	05/01/2011 to 06/01/2011	The e-TRIx was a two day workshop focusing on the art of building autonomous robots. It included numerous hands on sessions on designing, analyzing and building a variety of circuits and using them as basic building blocks for different robots. Enhancement of Micro controller concepts, and Embedded system concepts in practical manner
Robotic Competition In Pragnya-2	Robotic Club	20/10/2010 to 21/10/2010	Showcase of Practical skill sets through competitions
Haptic Robotic Workshop	Robotic Club	08/10/2010 to	Enhancement of Micro controller concepts, and Embedded system concepts in practical manner

e-TRIx Robo Workshop	Robotic Club	08/08/2010 to 10/08/2010	Enhancement of Micro controller concepts, and Embedded system concepts in practical manner

4.4.2 Organisation of paper contests, design contests, etc. and achievements (3) Institute Marks : 3.00

(Instruction: The institution may provide data for past three years).

The Institute organizes contests in paper presentations, design contests in each department under an event title, and the details are as follows:

PRAGNYA is a national level annual technical symposium held at GRIET, and is one among the most popular and eagerly awaited events in Hyderabad. It is organized by the institute and conducted by the IEEE Student Branch of GRIET. The event offers a platform for students to enhance their class room knowledge in various domains and find connection with the real time world while collaterally having fun. Academically it challenges the students potential to exhibit their ideas, technical skills and prowess in their domain. The events like **Paper Contest, Poster Presentation, Design Contest, Electronic Quiz, Code-O-Mania, Web Design, Show Your Potential, Robotics, CAD Mania, Master-Caster** are conducted under the PRAGNYA Symposium.

x-Kernel is a annual event conducted to provide a platform for young Engineers to test their skills. This Event is organized by CSE Department. x-Kernel is not the usual programming contest. The core concept of the competition is the actual code consisting of logic and minimum time of computation. It deals with out of the box thinking where participants ransack their brains to find an accurate solution.

Scientific Fore Step is a technical competition wherein the students from various departments of the institution participate and show case in project design and development contest.

Department Level Activities:

Name of the Event Organized	Date	Target Audience	No. benefited	Achievements
Pragnya-15 (Paper Contest)	8/10/2015 To 10/10/2015	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-14 (Paper Contest)	16/10/2014 To 17/10/2014	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-13 (Paper Contest)	03/10/2013 To 04/10/2013	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-12 (Paper Contest)	8/11/2012 to 9/11/2012	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-12 (Paper Contest)	08/10/2012 to 09/10/2012	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
x-Kernal	13/02/2015	I,II,III and IV B.Tech students	250	This event covers latest trend in Electronics and Communication field.
x-Kernal	3/04/2014	I,II,III and IV B.Tech students	250	This event covers latest trend in Electronics and Communication field.
x-Kernal	24/01/2012	I,II,III and IV B.Tech students	250	This event covers latest trend in Electronics and Communication field.
Pragnya-11 (Paper Contest)	18/11/2011	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-11 (Paper Contest)	19/11/2011	II,III and IV B.Tech students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-11 (Design Contest)	18/11/2011	II,III and IV B.Tech students	200	This event enhances Circuit Designing skills in the areas of Analog and Digital
Pragnya-10 (Paper Contest)	08/12/2010 to 09/12/2010	II,III and IV B.Tech Students	200	This event covers latest trends in Micro Controllers, Embedded systems, Digital Signal Processing, Wireless and VLSI, Image Processing like fields.
Pragnya-10 (Design	08/12/2010 to	II,III and IV B.Tech	200	This event enhances Circuit Designing

Contest)	05/12/2010	Students		skills in the areas of Analog and Digital
Scientific Fore Step	8/04/2015	II,III and IV B.Tech Students	200	This event enhances the knowledge in project design.
Scientific Fore Step	28/02/2013	II,III and IV B.Tech Students	200	This event enhances the knowledge in project design.
Scientific Fore Step	13/08/2010	II,III and IV B.Tech Students	200	This event enhances the knowledge in project design.

4.4.3 Publication of technical magazines, newsletters, etc (3) Institute Marks : 3.00

(Instruction: The institution may list the publications mentioned earlier along with the names of the editors, publishers, etc.).

GRIET is actively engaged in R & D, in encouraging research, promoting and contributing information in this sphere as is evident from the publications originating from its campus.

e-GEM: GRIET e-Magazine (GeM) is an e-initiative taken by Gokaraju Rangaraju Institute of Engineering and Technology (GRIET) to encourage e-culture among its students. This will also serve as a wall for students to paint their thoughts and be as creative as their minds can be. Using GeM we plan to raise the awareness of how this multifaceted internet can also serve as a medium for colleges to encourage creativity among its students. Gem will be portal for students to showcase their oft hidden talents, be it in their literary skills or their knowledge of latest happenings in their respective field of interest.

REFLECTIONS: The College Magazine- "**Reflections"** truly reflects the mood and mind of GRIETians. College Editorial team brings out the reflections annually with college events, achievements, life elements in and around GRIET covering circular aspects and beyond GRIET.

International Journal of Advanced Computing (IJAC): IJAC is Quarterly Research Journal by GRIET and published from Hyderabad, Andhra Pradesh, India. It provides a world wide forum with innovative, practical development exposure as well as original research results on Computing Technologies. The Journal bring out the researchers and application developers from a wide range of Computing Techniques such as Statistics, Data Mining, VLSI, Nano Computing, Parallel Computing, Mobile Computing etc and is promoting high quality and novel research findings and innovative solutions to challenging Advanced Computing Problems, the Journal seeks to continuously advance the state of the art in Computing Techniques.

International Journal of Data Engineering and Computer Science (JDEC): As part of academic development and R&D, we have initiated this Journal with every effort to foster the values of inquisitiveness, exploration, invention. The Research community is invited to share their ideas through this Journal and publish their research work related to areas of Data Engineering and Computer Science.

International journal of Advanced Materials Manufacturing & Characterization (IJAMMC): The aim of IJAMMC is to promote a greater knowledge and understanding of the attributes and capabilities of all types of modern engineering materials in the context of engineering processing and characterization. The objective of this journal is to bring together experts' research ideas, advanced industry practices through various research organizations and professional engineers for sharing of knowledge, expertise and experience in the emerging trends related to advanced materials processing, manufacturing and characterization. And also make these ideas available to various academia and others to promote research in the country.

Management Today: An International Journal, published by Department of Management Studies, GRIET. The journal publishes the latest developments in Management Education, Practice and Profession. The principal objective is to provide a forum for academicians, researchers, and professionals in Management all over the world to promote their research, share their ideas, discuss and/or communicate their views on various issues and developments in different areas of Management. The areas of focus could include: General Management, Financial Management, Human Resource Management, Marketing Management, Production Management, Strategic Management, Management of Change, Organizational Behavior, Organizational Development, Management Information Systems, International Management, Management Accounting, Managerial Economics, etc.

Publications	Name of Magazine / newsletter	Issue	Started Year	Editor	Publisher(s)
e-Magazine	GEM	Monthly	July 2008	Ramya V	Gokaraju Rangaraju Institute of Engineering and Technology
News Letter	Reflections	Yearly	April 2001	Lakshmi Prasanna	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of advanced computing (IJAC)	Quarterly ISSN: 0975-7686	2009	Prof. P.S.Raju	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of Data Engineering and Computer Science (JDEC)	Yearly ISSN: 0975-8372	2009	Dr. Jandhyala N Murthy	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of Advanced Materials Manufacturing and Characterization (IJAMMC)	Yearly ISSN: 2277-3886	2012	Dr. Swadesh Kumar Singh	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	Management Today, International Journal of Management Studies	Half Yearly ISSN: 2230-9764	2012	Dr. P.B. Appa Rao	Gokaraju Rangaraju Institute of Engineering and Technology

4.4.4 Entrepreneurship initiatives, product designs, and innovations (3) Institute Marks : 3.00

(Instruction: The institution may specify the efforts and achievements.)

Entrepreneurship Development Cell takes initiatives for motivating students in product designs and innovations concerned with the individual specialty.

Departmental Level Entrepreneurial Activities:

Event	Event Name / Effort	Achievements
2015-16		
Entrepreneurship Initiatives	A Dual microcontroller (8051/AVR) Trainer Kit has been designed	One hundred units have been manufactured
Product Designs	A Dual microcontroller (8051/AVR) Trainer Kit has been designed	Self reliance
Innovations	Staff Attendance system introduced	Proof of concept achieved and product is released
2014-15		
Entrepreneurship Initiatives	A dual channel USB-based data acquisition card has been designed	units have been manufactured
Product Designs	A dual channel USB-based data acquisition card has been designed	Self reliance
Innovations	PCB Design software introduced	Students are trained and number of PCB units are designed
2013-14		
Entrepreneurship Initiatives	Wireless controlled Robot Kit has been designed	One hundred units have been manufactured.
Product Designs	Wireless controlled Robot Kit has been designed	Self reliance
Innovations	Students Attendance through Mobile Phone	Proof of concept achieved and product is released

4.4.5 Publications and awards in inter-institute events by students of the programme of study (3) Institute Marks : 3.00

(Instruction: The institution may provide a table indicating those publications, which fetched awards to students in the events/conferences organised by other institutes. A tabulated list of all other student publications may be included in the appendix.)

All Technological Universities and institutions hold technical festivals annually and paper and model presentations are awarded prizes. The students of GRIET have also won many laurels over the years and this is a regular annual achievement the institute is proud of.

Inter-Institute Events by Students:

NAME OF THE PROGRAM	YEAR	PLACE	ROLL.No/ NAME	ACHIEVEMENTS/ PRIZE
VLSI DSP workshop	2016	GRIET	12241A0407	Participation
VLSI DSP workshop	2016	GRIET	12241A0407	Participation
LIFE	2016	GNITS	12241A0438	Participation
LIFE	2016	GNITS	S.RAJA SRI	Participation
VLSI DSP workshop	2016	GRIET	12241A0443	Participation
Certificate of service	2016	Street cause HYDERABAD	12241A0444	Participation
GHMC Live Web Casting Of Pollling Process	2016	Qutubullapur	13241A0466	Participation
GHMC Live Web Casting Of Pollling Process	2016	Safdar Nagar JB Memorial School	13241A0469	Participation
Pragnya15	2016	GRIET	13241A0469	Participation
GHMC Live Web Casting Of Pollling Process	2016	Nalanda Grammar High school	13241A0466	Participation
Ethical Hacking Work shop	2016	IITH	13241A0492	Participation
GHMC Live Web Casting Of Pollling Process	2016	Old Bowen pally	13241A0480	Participation
Circuitrix	2016	Anurag Group of Institutions	13241A0484	Participation
Sixth Sense REALITY Workshop	2016	VNR VJIET	13241A0490	Participation
GHMC Live Web	2016	Shapur Nagar	13241A0494	Participation

Casting Of Pollling Process	2016	Shilpa Nagar	13241A0454	Participation
GHMC Live Web Casting Of Pollling Process	2016	Vivek nagar	13241A0466	Participation
GHMC Live Web Casting Of Pollling Process	2016	Patan Cheru	13241A0466	Participation
Test bench Creation For Video Processor FPGA	2016	GRIET	Bhavana	Participation
Internet of Things@ Convergence	2016	VNR VJIET	13241A0422	Participation
Work Shop On Cloud Computing	2016	Smartbridge Educational Services PVT.Ltd	13241A0422	Participation
IOT Work Shop	2016	VNR VJIET	13241A0428	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	D.Navya Reddy	Participation
Sports Fest-2016	2016	VNRVJIET, Hyd	Bhargav Teja	Participation
Innovision	2016	GRIET, Hyd	Priyanka Kumari	2nd
two days work shop on Embedded Programming	2016	GRIET, Hyd	Mahammed Azamath	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	B. Bhagya Sree	Participation
QUADCOPTER Workshop	2016	IIT , Hyd	L. Bhavitha	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	N. Vinitha	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	P. Hema manasa	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	M. Siddhanth	Participation
DIYA-National level Youth convention	2015	shilpakalavedika	12241A0407	Best volunteer winner
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Participation
RUEDO	2015	GRIET	12241A0407	Appreciation
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Most talented volunter
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Participation
RUEDO	2015	GRIET	12241A0407	Appreciation
SCIENTIFIC FORESTEP - ARDUINO MANIA	2015	GRIET	12241A0413	Participation
NPTEL online certification	2015	IITM	12241A0413	Certificate Course
SCIENTIFIC FORESTEP-PPT	2015	GRIET	12241A0424	Participation
WORK SHOP ARM MC	2015	ATIEPI	12241A0424	Certificate
SCIENTIFIC FORESTEP-TRESURE HUNT	2015	GRIET	12241A0431	1ST PRIZE
PROJECT WORK	2015	ECIL	S.RAJA SRI	Participation
Throw ball	2015	GRIET	S.RAJA SRI	Proficiency
DIYA-National level Youth convention	2015	shilpakalavedika	12241A0443	Participation
RUEDO	2015	GRIET	12241A0443	Appreciation
CRICKET	2015	GRIET	12241A0444	Winner
RUEDO	2015	GRIET	12241A0444	Participation
SCIENTIFIC FORESTEP-Tresure hunt	2015	GRIET	12241A0445	1st prize
RUEDO-PPT	2015	GRIET	12241A0445	Participation
PROMENTHEN-E-PPT	2015	BVRIET	13245A0409	Participation
CONVERGENCE-Techno hunt	2015	VNRVJIET	13245A0434	Participation
PRAGNA-ROBOTIC CLUB	2015	GRIET	12241A0475	Appreciation
SYNAPSE-PPT	2015	CBIT	12241A0475	Participation
PROJECT WORK	2015	ECIL	12241A0475	Participation
RUN FOR A CAUSE	2015	HYDERABAD	12241A0477	Participation
Certificate of service	2015	Street cause	12241A0477	Participation

		HYDERABAD		
RUEDO	2015	GRIET	12241A0477	Appreciation
WORK SHOP ON MC	2015	GRIET	12241A0477	Participation
WORK SHOP ON MC	2015	GRIET	12241A0485	Participation
Throw ball	2015	GRIET	12241A0485	Profeciency
mini project	2015	BSNL	12241A0485	Participation
CERTIFICATE OF MERIT	2015	GRIET	12241A0485	Merit
RUEDO	2015	GRIET	12241A04A8	Participation
ANDROID SPRINT	2015	GRIET	12241A04A8	Participation
ENTERPRENURSHIP	2015	TCS Deccan Park HYDERABAD	12241A04C5	Participation
PROMEDHAN-PPT	2015	BVRIET	12241A04D8	1ST PLACE
ADVANCED ACADEMICCENTER	2015	GRIET	12241A04D8	Appreciation
mini project	2015	BSNL	12241A04D8	Participation
THROWBAlL	2015	GRIET	12241A04D8	RUNNER
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04E5	Participation
GROUP DANCE	2015	GRIET	12241A04E5	2ND PRIZE
SCIENTIFIC FORESTEP	2015	GRIET	12241A04E5	Participation
PROJECT WORK	2015	HRDD	12241A04E6	Participation
SCIENTIFIC FORESTEP-PPT	2015	GRIET	12241A04E6	Participation
SCIENTIFIC FORESTEP-MIND CRAFT	2015	GRIET	12241A04E6	Appreciation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04E6	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04F5	1ST PRIZE
PROJECT WORK	2015	HRDD	12241A04G5	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04G5	2ND PRIZE
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04G5	Participation
SCIENTIFIC FORESTEP-LOGO QUIZ	2015	GRIET	12241A04H1	1ST PRIZE
ANDROID SPIRIT	2015	GRIET	12241A04H1	Participation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04H1	Appreciation
PROJECT WORK	2015	ECIL	12241A04H2	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04H2	Appreciation
CONVERGENCE-Techno hunt	2015	VNRVJIET	12241A04H3	Participation
ANDROID SPIRIT	2015	GRIET	12241A04H3	Participation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04H7	Appreciation
CONVERGENCE-Techno hunt	2015	VNRVJIET	12241A04H7	Participation
ANDROID SPIRIT	2015	GRIET	12241A04H7	Participation
ANDROID SPIRIT	2015	GRIET	12241A04I0	Participation
SCIENTIFIC FORESTEP-ELECTRO BUZZ	2015	GRIET	13245A0429	1ST PRIZE
Throw ball	2015	GRIET	13245A0433	ProfIciency
Pragnya15	2015	GRIET	13241A0466	Participation
Work Shop on CRN	2015	GRIET	13241A0469	Participation
Tech Housie in Scientific Forestep 15	2015	GRIET	13241A0469	2nd Prize
Paper Presentation in Scientific Forestep15	2015	GRIET	13245A0407	Participation
Work Shop on CRN	2015	GRIET	13241A0492	Participation
Work Shop on Pridtctive Analasis With Rapid Miner	2015	GRIET	13241A0493	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0494	Participation
Tech Housie in Scientific Forestep 15	2015	GRIET	13241A0494	Participation
Work Shop on CRN	2015	GRIET	13241A0484	Participation
Convergence2k15	2015	VNR VJIET	13241A0484	Participation
Training in Basic Telecom at BSNL	2015	Regional Telecom Training Centre	13241A0452	Participation
IEEE Entrepreneurship Development Program	2015	TCS Dccan Park	13241A0452	Participation
Work Shop on Androide Sprint	2015	GRIET	13241A0452	Participation

International day of Yoga on 21 JUNE 2015	2015	Secunderabad	13241A0453	Participation
AIR SQN(TECH)NCC-4X100 mtr relay	2015	Secunderabad	13241A0453	Participation
Scientific Forestep 15	2015	GRIET	13241A0478	Participation
Internship on Embedded Avionics	2015	DRDL HYDERABAD	13241A0478	Participation
Paper Presentation in Ruedo15	2015	GRIET	13245A0407	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0468	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0467	Participation
Testing of Avionics	2015	DRDL HYDERABAD	13241A0467	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0470	Participation
Project Work in utility Department	2015	ITC Limited(bhadrachalam)	13241A0471	Participation
Paper Presentation in Pragnya15	2015	GRIET	13245A0477	Participation
Paper Presentation in Pragnya15	2015	GRIET	13241A0450	Participation
Work Shop on Androide Sprint	2015	GRIET	13241A0450	Participation
RUN FOR A CAUSE	2015	GRIET	14245A0419	Participation
Training in Basic Telecom at BSNL	2015	Regional Telecom Training Centre	13241A0455	Participation
Paper Presentation in Pragnya15	2015	GRIET	13241A0451	Participation
Paper Presentation in Pragnya15	2015	GRIET	13241A0495	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0475	Participation
Logo Quize	2015	GRIET	13241A0475	1st Prize
Paper Presentation in Ruedo15	2015	GRIET	13245A0407	Participation
dance in Shree surabhi Acadamy	2015	kotha peta,Hyderabad	Suguna Lekha	Participation
19th International Childrens Film Festival	2015	Hyderabad	Suguna Lekha	Participation
Volunteering at the Blue Cross of Hyderabad animal shelter	2015	Blue Cross Of hyd	Suguna Lekha	Participation
Core Java Courses	2015	Durga Software Solutions	13241A0412	Participation
Project Work Training Work Training	2015	BHEL	13241A0412	Participation
Microcontrollers using Arduino Platform	2015	GRIET	13241A0422	Participation
Enigma2k15	2015	GRIET	13241A0422	Participation
Cine-Trolls	2015	GRIET	13241A0482	Participation
Memorize It	2015	GRIET	13241A0489	Participation
Memorize It	2015	GRIET	Chandana	Participation
Paper Presentation	2015	VASAVI COLLEGE OF ENGINEERING	13241A0461	Participation
Core Java Courses	2015	Durga Software Solutions	13241A0428	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	U. Suma	Participation
Mobile Application Development	2015	GRIET, Hyd	U. Suma	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	N. Leela Maithry	Participation
Mobile Application Development	2015	GRIET, Hyd	N. Leela Maithry	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	A. Manasa	Participation
Mobile Application Development	2015	GRIET, Hyd	A. Manasa	Participation
Mobile Application Development	2015	GRIET, Hyd	P. Vineetha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	M. Lahari	Participation
Mobile Application Development	2015	GRIET, Hyd	M. Lahari	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	T. Supriya	Participation
Micro Controller using	2015	GRIET, Hyd	K. Manisha	Participation

Mobile Application Development	2015	GRIET, Hyd	K. Manisha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	M. Susmitha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	N. Sarpa Sravani	Participation
Mobile Application Development	2015	GRIET, Hyd	N. Sravani	Participation
Talentine 2K15	2015	KG Reddy College	D. Bhargav Teja	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	J. Ragini	Participation
Mobile Application Development	2015	GRIET, Hyd	J. Ragini	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	Priyanka Kumari	Participation
Mobile Application Development	2015	GRIET, Hyd	Priyanka Kumari	Participation
Predictive Analysis with Rapid Miner	2015	GRIET, Hyd	Priyanka Kumari	Participation
Advitiiya 2K15	2015	RRS Engg College, Hyd	Priyanka Kumari	Participation
Centre for English Language	2015	GRIET, Hyd	K. Soumya	1st
Predictive Analysis with Rapid Miner	2015	GRIET, Hyd	K. Soumya	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	K. Soumya	Participation
Mobile Application Development	2015	GRIET, Hyd	K. Soumya	Participation
Through Transformation &Leadership program	2015	DIYA	D. Navya Reddy	Participation
Mobile Application Development	2015	GRIET, Hyd	D. Navya Reddy	Participation
Mobile Application Development	2015	GRIET, Hyd	Md. Azmath	Participation
Through Transformation & Leadership program	2015	DIYA	Md. Azmath	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	D. Navya Reddy	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	Md. Azmath	Participation
World Water Day	2015	GRIET, Hyd	Md. Azmath	Participation
Android Controlled Robots	2015	BVRIT, Hyd	Md. Azmath	Participation
PCB Design & Circuit Debugging	2015	MLRIT,Hyd	P. Sushma	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	G. Nihal Reddy	Participation
Mobile Application Development	2015	GRIET, Hyd	G. Nihal Reddy	Participation
Convergence 2K15	2015	VNRVJIET	Md. Ghouse	1st
Mobile Application Development	2015	GRIET, Hyd	S. Akhil Kumar	Participation
Mobile Application Development	2015	GRIET, Hyd	B. Bhagya sri	Participation
Through Transformation &Leadership program	2015	DIYA	B. Bhagya sri	Participation
Micro Controller using ARDUINO	2015	DIYA	B. Bhagya sri	Participation
Mobile Application Development	2015	GRIET, Hyd	I. Sai Ravali	Participation
Through Transformation &Leadership program	2015	DIYA	N. Vineetha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	S. Akhil Kumar	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	V. Lavan Kumar	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	P. Hema Manasa	Participation
Mobile Application Development	2015	GRIET, Hyd	P. Hema Manasa	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	V.N.S.Tejesh	Participation
Mobile Application Development	2015	GRIET, Hyd	V.N.S.Tejesh	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	L. Bhavitha	Participation

Mobile Application Development	2015	GRIET, Hyd	B. Haritha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	B. Haritha	Participation
Mobile Application Development	2015	GRIET, Hyd	K. Sravya	Participation
Accelerobotix	2015	IIT, Madras	B. Haritha	Participation
TableTennies	2015	GECFEST	B.prasanthKumar	Participation
Mobile Application Development	2015	GRIET, Hyd	N.R.cmurthy	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	N.R.cmurthy	Participation
CRICKET	2015	SRM.University, Chennai	R.Rohit Brathwaj	Participation
Mobile Application Development	2015	GRIET, Hyd	G.Akhil	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	G.Akhil	Participation
Mobile Application Development	2015	GRIET, Hyd	M.Nandini	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	M.Nandini	Participation
TableTennies	2015	GECFEST	G. Akhil	Participation
5th State Level Jawahar Cricket Tourney	2015	JNTU, M.P.Patelguda	R. Rohit	Participation
AccelerRobotics, NRC India	2015	IIT Madras	K. Begum	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	A. Sindhu Reddy	Participation
Mobile Application Development	2015	GRIET, Hyd	A. Sindhu Reddy	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	K. Manvitha	Participation
Mobile Application Development	2015	GRIET, Hyd	K. Manvitha	Participation
AccelerRobotics, NRC India	2015	IIT Madras	K. Manvitha	Participation
Micro Controller using ARDUINO	2015	GRIET, Hyd	G. Hari Charan Reddy	Participation
Mobile Application Development	2015	GRIET, Hyd	G. Hari Charan Reddy	Participation
Microcontrollers using Arduino Platform	2015	GRIET	13241A0428	Participation
Throw ball	2014	GRIET	12241A0407	Winner
NRC-Workshop	2014	GRIET	12241A0407	Participation
Certificate ofservice	2014	Street cause HYDERABAD	12241A0407	Participation
NRC-Workshop	2014	GRIET	12241A0407	Participation
Throw ball	2014	GRIET	12241A0407	Winner
PRAGNA-PPT	2014	GRIET	12241A0413	Participation
NRC-Workshop	2014	GRIET	12241A0413	Participation
PRAGNA-ROBOT POOL	2014	GRIET	12241A0424	Participation
PROJECT WORK	2014	BHEL	12241A0431	Participation
NRC-Workshop	2014	GRIET	12241A0438	Participation
VLSI DSP workshop	2016	GRIET	12241A0407	Participation
VLSI DSP workshop	2016	GRIET	12241A0407	Participation
LIFE	2016	GNITS	12241A0438	Participation
LIFE	2016	GNITS	S.RAJA SRI	Participation
VLSI DSP workshop	2016	GRIET	12241A0443	Participation
Certificate of service	2016	Street cause HYDERABAD	12241A0444	Participation
GHMC Live Web Casting Of Pollling Process	2016	Qutubullapur	13241A0466	Participation
GHMC Live Web Casting Of Pollling Process	2016	Safdar Nagar JB Memorial School	13241A0469	Participation
Pragnya15	2016	GRIET	13241A0469	Participation
GHMC Live Web Casting Of Pollling Process	2016	Nalanda Grammar High school	13241A0466	Participation
Ethical Hacking Work shop	2016	IITH	13241A0492	Participation
GHMC Live Web Casting Of Pollling Process	2016	Old Bowen pally	13241A0480	Participation
Circuitrix	2016	Anurag Group of Institutions	13241A0484	Participation
Sixth Sense REALITY	2016	VNR VJIET	13241A0490	Participation

Workshop				
GHMC Live Web Casting Of Pollling Process	2016	Shapur Nagar	13241A0494	Participation
GHMC Live Web Casting Of Pollling Process	2016	Vivek nagar	13241A0466	Participation
GHMC Live Web Casting Of Pollling Process	2016	Patan Cheru	13241A0466	Participation
Test bench Creation For Video Processor FPGA	2016	GRIET	Bhavana	Participation
Internet of Things@ Convergence	2016	VNR VJIET	13241A0422	Participation
Work Shop On Cloud Computing	2016	Smartbridge Educational Services PVT.Ltd	13241A0422	Participation
IOT Work Shop	2016	VNR VJIET	13241A0428	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	D.Navya Reddy	Participation
Sports Fest-2016	2016	VNRVJIET, Hyd	Bhargav Teja	Participation
Innovision	2016	GRIET, Hyd	Priyanka Kumari	2nd
two days work shop on Embedded Programming	2016	GRIET, Hyd	Mahammed Azamath	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	B. Bhagya Sree	Participation
QUADCOPTER Workshop	2016	IIT , Hyd	L. Bhavitha	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	N. Vinitha	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	P. Hema manasa	Participation
Two days Work shop on Embedded Programming	2016	GRIET, Hyd	M. Siddhanth	Participation
DIYA-National level Youth convention	2015	shilpakalavedika	12241A0407	Best volunteer winner
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Participation
RUEDO	2015	GRIET	12241A0407	Appreciation
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Most talented volunteer
Certificate ofservice	2015	Street cause HYDERABAD	12241A0407	Participation
RUEDO	2015	GRIET	12241A0407	Appreciation
SCIENTIFIC FORESTEP - ARDUINO MANIA	2015	GRIET	12241A0413	Participation
NPTEL online certification	2015	IITM	12241A0413	Certificate Course
SCIENTIFIC FORESTEP-PPT	2015	GRIET	12241A0424	Participation
WORK SHOP ARM MC	2015	ATIEPI	12241A0424	Certificate
SCIENTIFIC FORESTEP-TRESURE HUNT	2015	GRIET	12241A0431	1ST PRIZE
PROJECT WORK	2015	ECIL	S.RAJA SRI	Participation
Throw ball	2015	GRIET	S.RAJA SRI	Proficiency
DIYA-National level Youth convention	2015	shilpakalavedika	12241A0443	Participation
RUEDO	2015	GRIET	12241A0443	Appreciation
CRICKET	2015	GRIET	12241A0444	Winner
RUEDO	2015	GRIET	12241A0444	Participation
SCIENTIFIC FORESTEP-Tresure hunt	2015	GRIET	12241A0445	1st prize
RUEDO-PPT	2015	GRIET	12241A0445	Participation
PROMENTHEN-E-PPT	2015	BVRIET	13245A0409	Participation
CONVERGENCE-Techno hunt	2015	VNRVJIET	13245A0434	Participation
PRAGNA-ROBOTIC CLUB	2015	GRIET	12241A0475	Appreciation
SYNAPSE-PPT	2015	CBIT	12241A0475	Participation
PROJECT WORK	2015	ECIL	12241A0475	Participation

RUN FOR A CAUSE	2015	HYDERABAD	12241A0477	Participation
Certificate of service	2015	Street cause HYDERABAD	12241A0477	Participation
RUEDO	2015	GRIET	12241A0477	Appreciation
WORK SHOP ON MC	2015	GRIET	12241A0477	Participation
WORK SHOP ON MC	2015	GRIET	12241A0485	Participation
Throw ball	2015	GRIET	12241A0485	Profeciency
mini project	2015	BSNL	12241A0485	Participation
CERTIFICATE OF MERIT	2015	GRIET	12241A0485	Merit
RUEDO	2015	GRIET	12241A04A8	Participation
ANDROID SPRINT	2015	GRIET	12241A04A8	Participation
ENTERPRENURSHIP	2015	TCS Deccan Park HYDERABAD	12241A04C5	Participation
PROMEDHAN-PPT	2015	BVRIET	12241A04D8	1ST PLACE
ADVANCED ACADEMICCENTER	2015	GRIET	12241A04D8	Appreciation
mini project	2015	BSNL	12241A04D8	Participation
THROWBAlL	2015	GRIET	12241A04D8	RUNNER
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04E5	Participation
GROUP DANCE	2015	GRIET	12241A04E5	2ND PRIZE
SCIENTIFIC FORESTEP	2015	GRIET	12241A04E5	Participation
PROJECT WORK	2015	HRDD	12241A04E6	Participation
SCIENTIFIC FORESTEP-PPT	2015	GRIET	12241A04E6	Participation
SCIENTIFIC FORESTEP-MIND CRAFT	2015	GRIET	12241A04E6	Appreciation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04E6	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04F5	1ST PRIZE
PROJECT WORK	2015	HRDD	12241A04G5	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04G5	2ND PRIZE
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04G5	Participation
SCIENTIFIC FORESTEP-LOGO QUIZ	2015	GRIET	12241A04H1	1ST PRIZE
ANDROID SPIRIT	2015	GRIET	12241A04H1	Participation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04H1	Appreciation
PROJECT WORK	2015	ECIL	12241A04H2	Participation
SCIENTIFIC FORESTEP-SIMCUIT	2015	GRIET	12241A04H2	Appreciation
CONVERGENCE-Techno hunt	2015	VNRVJIET	12241A04H3	Participation
ANDROID SPIRIT	2015	GRIET	12241A04H3	Participation
ADVANCED ACADEMIC CENTER	2015	GRIET	12241A04H7	Appreciation
CONVERGENCE-Techno hunt	2015	VNRVJIET	12241A04H7	Participation
ANDROID SPIRIT	2015	GRIET	12241A04H7	Participation
ANDROID SPIRIT	2015	GRIET	12241A04I0	Participation
SCIENTIFIC FORESTEP-ELECTRO BUZZ	2015	GRIET	13245A0429	1ST PRIZE
Throw ball	2015	GRIET	13245A0433	ProfIciency
Pragnya15	2015	GRIET	13241A0466	Participation
Work Shop on CRN	2015	GRIET	13241A0469	Participation
Tech Housie in Scientific Forestep 15	2015	GRIET	13241A0469	2nd Prize
Paper Presentation in Scientific Forestep15	2015	GRIET	13245A0407	Participation
Work Shop on CRN	2015	GRIET	13241A0492	Participation
Work Shop on Pridtctive Analasis With Rapid Miner	2015	GRIET	13241A0493	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0494	Participation
Tech Housie in Scientific Forestep 15	2015	GRIET	13241A0494	Participation
Work Shop on CRN	2015	GRIET	13241A0484	Participation
Convergence2k15	2015	VNR VJIET	13241A0484	Participation
Training in Basic Telecom at BSNL	2015	Regional Telecom Training Centre	13241A0452	Participation
IEEE Entrepreneurship	2015	TCS Dccan Park	13241A0452	Participation

Development Program				
Work Shop on Androide Sprint	2015	GRIET	13241A0452	Participation
International day of Yoga on 21 JUNE 2015	2015	Secunderabad	13241A0453	Participation
AIR SQN(TECH)NCC-4X100 mtr relay	2015	Secunderabad	13241A0453	Participation
Scientific Forestep 15	2015	GRIET	13241A0478	Participation
Internship on Embedded Avionics	2015	DRDL HYDERABAD	13241A0478	Participation
Paper Presentation in Ruedo15	2015	GRIET	13245A0407	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0468	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0467	Participation
Testing of Avionics	2015	DRDL HYDERABAD	13241A0467	Participation
Project Expo on Microcontrollers	2015	GRIET	13241A0470	Participation
Throw ball	2014	GRIET	12241A0407	Winner
NRC-Workshop	2014	GRIET	12241A0407	Participation
Certificate ofservice	2014	Street cause HYDERABAD	12241A0407	Participation
NRC-Workshop	2014	GRIET	12241A0407	Participation
Throw ball	2014	GRIET	12241A0407	Winner
PRAGNA-PPT	2014	GRIET	12241A0413	Participation
NRC-Workshop	2014	GRIET	12241A0413	Participation
PRAGNA-ROBOT POOL	2014	GRIET	12241A0424	Participation
PROJECT WORK	2014	BHEL	12241A0431	Participation
NRC-Workshop	2014	GRIET	12241A0438	Participation

5 Faculty Contributions (175) **Total Marks : 138.71**

List of Faculty Members:

Exclusively for the Programme / Shared with other Programmes (20)

(Instruction: The institution may complete this table for the calculation of the student-teacher ratio (STR). Teaching loads of the faculty member contributing to only u programme (2nd, 3rd, and 4th year) are considered to calculate the STR.)

For CAYm2 2013-2014

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Hol a incub u
						1st Year	UG	PG			Funding Agency	Amount	
Dr. Ravi Billa	PhD	Southern Methodist Univ.Dallas,Texas,USA	1976	Professor	17/08/2006	0.00	50.00	50.00	5	Copyrights	None	0.00	Yes
Dr.T.C.Sarma	PhD	BITS PILANI	2006	Professor	05/07/2012	0.00	50.00	50.00	4	Copyrights	None	0.00	Yes
Dr V.V.Rao	PhD	IITM	1975	Professor	27/07/2012	0.00	50.00	50.00	4	Copyrights	None	0.00	Yes
Dr Syed Basha S	PhD	CUP	2013	Professor	08/02/2014	0.00	50.00	50.00	3	Copyrights	None	0.00	Yes
Sri Radhanand Ananta	Other	JNTUH	2007	Associate Professor	01/03/2008	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil
Sri T. Jagannadha Swamy	ME/ M Tech	Osmania University	2006	Associate Professor	16/05/2005	0.00	100.00	0.00	3	Copyrights	None	0.00	Yes
Sri M. Kiran	ME/ M Tech	JNTU	2007	Associate Professor	14/11/2005	0.00	100.00	0.00	2	Copyrights	None	0.00	Nil
Sri K.N. Balaji Kumar	B.E/B.Tech	BITS PILANI	2002	Associate Professor	01/03/2008	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil

Sri G.V. Subba Reddy	ME/ M Tech	Bharath University	2007	Associate Professor	25/04/2007	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Sri Jamal K	ME/ M Tech	Bharath University	2005	Associate Professor	25/07/2008	0.00 100.00 0.00	2	Copyrights	None	0.00	Nil
Mr. N Ome	ME/ M Tech	OU	2009	Assistant Professor	26/11/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Sri Y. Sudharshan Reddy	ME/ M Tech	JNTUH	2011	Assistant Professor	02/07/2007	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Sri N. Madhu Sudhan Rao	ME/ M Tech	JNTUH	2013	Assistant Professor	10/07/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Sri MOV Pavan Kumar	ME/ M Tech	SATYABHAMA	2007	Assistant Professor	08/10/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Sri K.N.V.Khasim	ME/ M Tech	AU	2013	Assistant Professor	30/06/2008	0.00 100.00 0.00	0	None	None	0.00	Nil
Mohd. Javeed Mehdi	ME/ M Tech	JNTUH	2014	Assistant Professor	11/06/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Mr. T.Santosh Kumar	ME/ M Tech	JNTUH	2014	Assistant Professor	30/06/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Mr. K.Nagarjuna	ME/ M Tech	AU	2013	Assistant Professor	18/02/2013	0.00 100.00 0.00	0	None	None	0.00	Nil
Mr. T.Laxminarayana	ME/ M Tech	KU	2012	Assistant Professor	01/07/2013	0.00 100.00 0.00	0	None	None	0.00	Nil
Wg.Com.V.H.Raju	M.Sc.	AU	1965	Associate Professor	17/11/2008	0.00 100.00 0.00	0	None	None	0.00	Nil
Sri V Aravind	Other	Northillunious	2000	Professor	29/11/2002	0.00 100.00 0.00	1	Copyrights	None	0.00	Yes
Sri A P Narasimha Rao	ME/ M Tech	PUNAU	1989	Professor	30/06/2003	0.00 100.00 0.00	0	None	None	0.00	Nil
Mr. V.Vijaya Kumar	B.E/B.Tech	JNTUH	2012	Assistant Professor	07/06/2013	100.00 0.00 0.00	0	None	None	0.00	Nil
Ms. Hima Bindu V	ME/ M Tech	RMIT,AUS	2005	Assistant Professor	28/06/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. K. Padmavathi	ME/ M Tech	JNTU	2005	Associate Professor	16/11/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms.K.Meenakshi	ME/ M Tech	JNTU	2005	Associate Professor	05/05/2010	0.00 100.00 0.00	3	Copyrights	None	0.00	Yes
N. Swetha	ME/ M Tech	JNTU	2007	Associate Professor	16/09/2006	0.00 100.00 0.00	1	Copyrights	None	0.00	Yes
Ms. G. Surekha	ME/ M Tech	JNTUH	2009	Associate Professor	25/06/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. D. Lakshmi	ME/ M Tech	JNTUH	2010	Associate	17/07/2006	0.00 100.00 0.00	0	None	None	0.00	Nil

Shakuntla				Professor							
M.Suneetha	ME/ M Tech	ANU	2007	Assistant Professor	26/06/2008	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. K. Sri Latha	ME/ M Tech	JNTUH	2009	Assistant Professor	15/04/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. R. Sri Uma Suseela	ME/ M Tech	JNTU	2006	Assistant Professor	10/05/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. K. Nagaja	ME/ M Tech	BHARATH UNIVERSITY	2011	Assistant Professor	22/06/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. Tanusree Sahana	ME/ M Tech	BU	2009	Assistant Professor	27/06/2011	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. Pratyusha Chowdari	ME/ M Tech	AU	2011	Assistant Professor	11/07/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. D.V.Prasanthi	ME/ M Tech	JNTUH	2011	Assistant Professor	30/05/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. A.Usha Sree	ME/ M Tech	JNTU	2008	Assistant Professor	25/06/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. G.L.Sumalatha	ME/ M Tech	JNTUH	2011	Assistant Professor	15/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. R.Naga Pavani	ME/ M Tech	JNTUH	2011	Assistant Professor	30/06/2012	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. D.Sudha	ME/ M Tech	JNTU	2007	Assistant Professor	06/12/2012	0.00 0.00 100.00	0	None	None	0.00	Nil
Ms. B.Navya	ME/ M Tech	JNTUH	2011	Assistant Professor	30/05/2013	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. M. Manjusha	ME/ M Tech	JNTUH	2012	Assistant Professor	30/05/2013	100.00 0.00 0.00	0	None	None	0.00	Nil
Ms. Shivani Kuninti	ME/ M Tech	HCU	2012	Assistant Professor	10/06/2013	0.00 0.00 100.00	0	None	None	0.00	Nil
Ms. B.Shilpa	ME/ M Tech	OU	2010	Assistant Professor	10/06/2013	0.00 0.00 100.00	0	None	None	0.00	Nil
Ms. Y.Priyanka	ME/ M Tech	JNTUH	2012	Assistant Professor	17/06/2013	0.00 0.00 100.00	0	None	None	0.00	Nil
Ms. A. Ambika	ME/ M Tech	JNTUK	2012	Assistant Professor	19/06/2013	0.00 0.00 100.00	0	None	None	0.00	Nil
Ms. M.Mounica	B.E/B.Tech	JNTUH	2015	Assistant Professor	17/06/2013	100.00 0.00 0.00	0	None	None	0.00	Nil
Ms. D.Anjali	B.E/B.Tech	JNTUH	2012	Assistant Professor	17/10/2013	100.00 0.00 0.00	0	None	None	0.00	Nil
Ms. T.Anusha	B.E/B.Tech	JNTUH	2013	Assistant Professor	11/03/2014	100.00 0.00 0.00	0	None	None	0.00	Nil

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Hol a incub ur
						1st Year	UG	PG			Funding Agency	Amount	
Dr.T.C.Sarma	PhD	BITS PILANI	2006	Professor	05/07/2012	0.00	50.00	50.00	4	Copyrights	None	0.00	Yes
Sri Radhanand Ananta	Other	JNTUH	2007	Associate Professor	01/03/2008	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil
Sri T. Jagannadha Swamy	ME/ M Tech	Osmania University	2006	Associate Professor	16/05/2005	0.00	100.00	0.00	3	Copyrights	None	0.00	Yes
Sri M. Kiran	ME/ M Tech	JNTU	2007	Associate Professor	14/11/2005	0.00	100.00	0.00	2	Copyrights	None	0.00	Nil
Sri K.N. Balaji Kumar	B.E/B.Tech	BITS PILANI	2002	Associate Professor	01/03/2008	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil
Sri G.V. Subba Reddy	ME/ M Tech	Bharath University	2007	Associate Professor	25/04/2007	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil
Sri Jamal K	ME/ M Tech	Bharath University	2005	Associate Professor	25/07/2008	0.00	100.00	0.00	2	Copyrights	None	0.00	Nil
Mr. N Ome	ME/ M Tech	OU	2009	Assistant Professor	26/11/2012	0.00	100.00	0.00	0	None	None	0.00	Nil
Sri Y. Sudharshan Reddy	ME/ M Tech	JNTUH	2011	Assistant Professor	02/07/2007	0.00	100.00	0.00	1	Copyrights	None	0.00	Nil
Sri N. Madhu Sudhan Rao	ME/ M Tech	JNTUH	2013	Assistant Professor	10/07/2007	0.00	100.00	0.00	0	None	None	0.00	Nil
Sri MOV Pavan Kumar	ME/ M Tech	SATYABHAMA	2007	Assistant Professor	18/10/2007	0.00	100.00	0.00	1	Copyrights	state agency/ private sector,	700000.00	Nil
Sri K.N.V.Kashim	ME/ M Tech	AU	2013	Assistant Professor	30/06/2008	0.00	100.00	0.00	0	None	None	0.00	Nil
Mohd. Javeed Mehdi	ME/ M Tech	JNTUH	2014	Assistant Professor	11/06/2012	0.00	100.00	0.00	0	None	None	0.00	Nil
Mr. T.Santosh Kumar	ME/ M Tech	JNTUH	2014	Assistant Professor	30/06/2012	0.00	100.00	0.00	0	None	None	0.00	Nil
Mr. K.Nagarjuna	ME/ M Tech	AU	2013	Assistant Professor	18/02/2013	0.00	100.00	0.00	0	None	None	0.00	Nil
Mr. T.Laxminarayana	ME/ M Tech	KU	2012	Assistant Professor	01/07/2013	0.00	100.00	0.00	0	None	None	0.00	Nil
Wg.Com.V.H.Raju	M.Sc.	AU	1965	Associate Professor	17/11/2008	0.00	100.00	0.00	0	None	None	0.00	Nil
Sri V Aravind	Other	Northillunious	2000	Professor	29/11/2002	0.00	100.00	0.00	0	None	None	0.00	Nil
Dr.Ayyem Pillai	PhD	Anna University	2014	Professor	27/12/2014	0.00	50.00	50.00	1	Copyrights	None	0.00	Yes

Dr.G.Mamatha	PhD	IITH	2014	Professor	19/01/2015	0.00 50.00 50.00	3	Copyrights	None	1000000.00	Yes
Dr.Ch Usha Kumari	PhD	JNTUH	2015	Professor	28/05/2015	0.00 50.00 50.00	2	Copyrights	None	0.00	Yes
Dr.T.Padma	PhD	JNTUH	2014	Professor	27/06/2003	0.00 50.00 50.00	3	Copyrights	None	0.00	Yes
Ms.D.Sudha	ME/ M Tech	JNTU	2007	Assistant Professor	15/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Mr.B.Veera Reddy	ME/ M Tech	JNTUH	2014	Assistant Professor	20/07/2014	0.00 0.00 100.00	1	Copyrights	None	0.00	Nil
Mr. V.Vijaya Kumar	ME/ M Tech	JNTUH	2014	Assistant Professor	07/06/2013	50.00 0.00 50.00	1	Copyrights	None	0.00	Nil
Sri A P Narasimha Rao	ME/ M Tech	University of Puna	1989	Professor	30/06/2003	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Mr. N.Srinivasa Rao	ME/ M Tech	JNTUH	2014	Assistant Professor	28/07/2014	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. Hima Bindu V	ME/ M Tech	RMIT,AUS	2005	Assistant Professor	28/06/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. K. Padmavathi	ME/ M Tech	JNTU	2005	Assistant Professor	16/11/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms.K.Meenakshi	ME/ M Tech	JNTU	2005	Associate Professor	05/05/2010	0.00 100.00 0.00	7	Copyrights	None	0.00	Yes
N. Swetha	ME/ M Tech	JNTUH	2009	Associate Professor	16/11/2006	0.00 100.00 0.00	2	Copyrights	None	0.00	Nil
Ms. G. Surekha	ME/ M Tech	JNTUH	2009	Associate Professor	25/06/2007	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. D. Lakshmi Chaitanya	ME/ M Tech	JNTUH	2010	Associate Professor	17/07/2006	0.00 100.00 0.00	1	Copyrights	None	0.00	Yes
M.Suneetha	ME/ M Tech	ANU	2006	Assistant Professor	30/06/2006	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. R. Sri Uma Suseela	ME/ M Tech	JNTU	2006	Assistant Professor	10/05/2011	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. K. Nagaja	ME/ M Tech	Bharath University	2011	Assistant Professor	22/06/2011	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. Tanusree Sahana	ME/ M Tech	BU	2009	Assistant Professor	27/06/2011	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. Pratyusha Chowdari	ME/ M Tech	AU	2011	Assistant Professor	11/07/2011	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. D.V.Prasanthi	ME/ M Tech	JNTUH	2011	Assistant Professor	30/05/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. A.Usha Sree	ME/ M Tech	JNTU	2008	Assistant Professor	25/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil

Ms. G.L.Sumalatha	ME/ M Tech	JNTUH	2011	Assistant Professor	15/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. R.Naga Pavani	ME/ M Tech	JNTUH	2011	Assistant Professor	30/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. B.Navya	ME/ M Tech	JNTUH	2011	Assistant Professor	30/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. M. Manjusha	ME/ M Tech	JNTUH	2012	Assistant Professor	30/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. Shivani Kuninti	ME/ M Tech	HCU	2012	Assistant Professor	10/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. B.Shilpa	ME/ M Tech	OU	2010	Assistant Professor	10/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. Y.Priyanka	ME/ M Tech	JNTUH	2012	Assistant Professor	06/06/2013	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. A. Ambika	ME/ M Tech	JNTUK	2012	Assistant Professor	19/06/2013	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. V.Jyothi	ME/ M Tech	VIGNAN University	2011	Assistant Professor	03/09/2014	0.00 100.00 0.00	1	Copyrights	None	0.00	Nil
Ms. A. Lavanya	ME/ M Tech	JNTUH	2014	Assistant Professor	03/09/2014	0.00 100.00 0.00	0	None	None	0.00	Nil
Ms. K. Swaraja	ME/ M Tech	JNTUH	2007	Assistant Professor	26/09/2014	0.00 0.00 100.00	1	Copyrights	None	0.00	Nil
Ms. K. Swathi	ME/ M Tech	JNTUH	2014	Assistant Professor	22/12/2014	0.00 0.00 100.00	1	Copyrights	None	0.00	Nil
Ms. M.Mounica	ME/ M Tech	JNTUH	2015	Assistant Professor	17/06/2013	50.00 0.00 50.00	0	None	None	0.00	Nil
Ms. D. Anjali	B.E/B.Tech	JNTUH	2012	Assistant Professor	17/10/2013	50.00 0.00 50.00	0	None	None	0.00	Nil

For CAY 2015-2016

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Hol a incub ur
						1st Year	UG	PG			Funding Agency	Amount	
Dr.T.C.Sarma	PhD	BITS PILANI	2006	Professor	05/07/2012	0.00	50.00	50.00	5	Copyrights	None	0.00	YES
Dr. T. Padma	PhD	JNTUH	2014	Professor	27/06/2003	0.00	50.00	50.00	4	Copyrights	None	0.00	YES
Dr. V.Ayyem Pillai	PhD	Anna University	2014	Professor	27/12/2014	0.00	50.00	50.00	4	Copyrights	None	1000000.00	YES
Dr. G.Mamatha	PhD	IIITH	2014	Professor	19/01/2015	0.00	50.00	50.00	3	Copyrights	None	0.00	YES
Dr.Ch Usha Kumari	PhD	JNTUH	2015	Professor	28/05/2015	0.00	50.00	50.00	2	Copyrights	None	0.00	YES

Sri V Aravind	Other	Northillunious	2000	Professor	29/11/2002	0.00 100.00 0.00	0	None	None	0.00	YES
Sri A P Narasimha Rao	ME/ M Tech	University of puna	1989	Professor	30/06/2003	0.00 100.00 0.00	0	None	None	0.00	NIL
Sri T. Jagannadha Swamy	ME/ M Tech	Osmania University	2006	Associate Professor	16/12/2005	0.00 100.00 0.00	1	Copyrights	None	0.00	YES
Ms. K. Padmavathi	ME/ M Tech	JNTU	2005	Associate Professor	16/11/2007	0.00 100.00 0.00	5	Copyrights	state agency/ private sector,	200000.00	YES
Sri M. Kiran	ME/ M Tech	JNTU	2007	Associate Professor	14/11/2005	0.00 100.00 0.00	1	Copyrights	state agency/ private sector,	200000.00	NIL
Sri K.N. Balaji Kumar	ME/ M Tech	BITS PILANI	2002	Associate Professor	01/04/2008	0.00 100.00 0.00	0	None	None	0.00	NIL
Sri Radhanand Ananta	Other	JNTUH	2007	Associate Professor	01/04/2008	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms.K.Meenakshi	ME/ M Tech	JNTU	2005	Associate Professor	05/05/2010	0.00 100.00 0.00	1	Copyrights	None	0.00	YES
N. Swetha	ME/ M Tech	JNTUH	2009	Associate Professor	16/11/2006	0.00 100.00 0.00	3	Copyrights	None	0.00	YES
Sri G.V. Subba Reddy	ME/ M Tech	Bharath University	2007	Associate Professor	31/07/2007	0.00 100.00 0.00	2	Copyrights	state agency/ private sector,	700000.00	YES
Sri Jamal K	ME/ M Tech	Bharath University	2005	Associate Professor	25/07/2008	0.00 100.00 0.00	2	Copyrights	None	0.00	YES
Ms. G. Surekha	ME/ M Tech	JNTUH	2009	Associate Professor	25/06/2007	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. D. Lakshmi Chaitanya	ME/ M Tech	JNTUH	2010	Associate Professor	17/07/2006	0.00 100.00 0.00	2	Copyrights	None	0.00	YES
Sri Y. Sudharshan Reddy	ME/ M Tech	JNTUH	2011	Assistant Professor	04/08/2001	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Sri N. Madhu Sudhan Rao	ME/ M Tech	JNTUH	2013	Assistant Professor	10/07/2007	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Sri MOV Pavan Kumar	ME/ M Tech	Satyabhama University	2007	Assistant Professor	18/10/2007	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
M.Suneetha	ME/ M Tech	ANU	2007	Assistant Professor	30/06/2008	0.00 100.00 0.00	0	None	None	0.00	NIL
Sri K.N.V.Khasim	ME/ M Tech	AU	2013	Assistant Professor	30/06/2008	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. R. Sri Uma Suseela	ME/ M Tech	JNTU	2006	Assistant Professor	10/05/2011	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. K. Nagaja	ME/ M Tech	Bharath University	2011	Assistant Professor	11/06/2011	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. Hima Bindu V	ME/ M Tech	RMIT, AUS	2005	Assistant Professor	28/06/2011	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL

Ms. Pratyusha Chowdari	ME/ M Tech	AU	2011	Assistant Professor	09/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. D.V.Prasanthi	ME/ M Tech	JNTUH	2011	Assistant Professor	30/05/2012	0.00 100.00 0.00	0	None	None	0.00	NIL
Mohd. Javeed Mehdi	ME/ M Tech	JNTUH	2014	Assistant Professor	11/06/2012	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. A.Usha Sree	ME/ M Tech	JNTU	2008	Assistant Professor	25/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. G.L.Sumalatha	ME/ M Tech	JNTUH	2011	Assistant Professor	15/06/2012	0.00 100.00 0.00	2	Copyrights	None	0.00	NIL
Ms. R.Naga Pavani	ME/ M Tech	JNTUH	2011	Assistant Professor	30/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Mr. T.Santosh Kumar	ME/ M Tech	JNTUH	2013	Assistant Professor	02/07/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Mr. N Ome	ME/ M Tech	OU	2009	Assistant Professor	26/11/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. D.Sudha	ME/ M Tech	JNTU	2007	Assistant Professor	15/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. Shivani Kuninti	ME/ M Tech	HCU	2012	Assistant Professor	15/06/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. B.Shilpa	ME/ M Tech	OU	2010	Assistant Professor	10/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. Y.Priyanka	ME/ M Tech	JNTUH	2012	Assistant Professor	17/06/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. A. Ambika	ME/ M Tech	JNTUK	2012	Assistant Professor	19/06/2013	0.00 100.00 0.00	2	Copyrights	None	0.00	NIL
Mr. T.Laxminarayana	ME/ M Tech	KU	2012	Assistant Professor	01/07/2013	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Mr. B. Veera reddy	ME/ M Tech	JNTUH	2014	Assistant Professor	20/07/2014	0.00 100.00 0.00	0	None	None	0.00	NIL
Mr. N.Srinivasa Rao	ME/ M Tech	JNTUH	2014	Assistant Professor	28/07/2014	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. V.Jyothi Sree	ME/ M Tech	VIGNAN University	2011	Assistant Professor	06/09/2014	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Ms. A. Lavanya	ME/ M Tech	JNTUH	2014	Assistant Professor	06/09/2014	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. K. Swaraja	ME/ M Tech	JNTUH	2007	Assistant Professor	26/09/2014	0.00 100.00 0.00	3	Copyrights	None	0.00	NIL
Ms. K.Swathi	ME/ M Tech	JNTUH	2014	Assistant Professor	22/12/2014	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. M.Mounica	ME/ M Tech	JNTUH	2015	Assistant Professor	17/06/2013	100.00 0.00 0.00	1	Copyrights	None	0.00	NIL

Mr. V.Vijaya Kumar	ME/ M Tech	JNUTH	2014	Assistant Professor	07/06/2013	100.00 0.00 0.00	0	None	None	0.00	NIL
Ms. K.Sravani	ME/ M Tech	JNTUH	2014	Assistant Professor	26/03/2015	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms.Pallavi Dilip Sathawane	ME/ M Tech	JNTUH	2014	Assistant Professor	26/03/2015	100.00 0.00 0.00	0	None	None	0.00	NIL
Mr. G. Naga Raju	ME/ M Tech	JNTUH	2014	Assistant Professor	26/03/2015	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. Meera G	ME/ M Tech	JNTUH	2014	Assistant Professor	27/03/2015	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. K.Sarvani	ME/ M Tech	JNTUH	2014	Assistant Professor	28/03/2015	0.00 100.00 0.00	0	None	None	0.00	NIL
Ms. G. Bindu Madhavi	ME/ M Tech	GITAM University	2014	Assistant Professor	27/03/2015	100.00 0.00 0.00	0	None	None	0.00	NIL
Mr. G Pradeep Reddy	ME/ M Tech	VITU	2010	Assistant Professor	27/04/2015	0.00 0.00 100.00	0	None	None	0.00	NIL
Ms.N Anjani Devi	ME/ M Tech	JNTUH	2010	Assistant Professor	27/04/2015	0.00 0.00 100.00	0	None	None	0.00	NIL
Ms. B.Vijaya Kumari	ME/ M Tech	JNTUK	2010	Assistant Professor	28/04/2015	100.00 0.00 0.00	0	None	None	0.00	NIL
Mr.P Sampathkrishna Reddy	ME/ M Tech	JNTUH	2012	Assistant Professor	01/07/2015	0.00 0.00 100.00	0	None	None	0.00	NIL
Mr A Siva Ganesh	ME/ M Tech	ISM DHANABAD	2015	Assistant Professor	01/01/2016	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
Mr. P. Sri Ram Kumar	ME/ M Tech	OU	2009	Assistant Professor	06/02/2012	0.00 100.00 0.00	1	Copyrights	None	0.00	NIL
MS. K P S Sravanthi	ME/ M Tech	JNTUK	2014	Assistant Professor	26/02/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
MS. K Gayathri	ME/ M Tech	JNTUA	2013	Assistant Professor	26/02/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
MS. V Sirisha	ME/ M Tech	JNTUH	2015	Assistant Professor	29/02/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
K Ravikanth Reddy	ME/ M Tech	OU	2014	Assistant Professor	01/03/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
R Prashanth Kumar	ME/ M Tech	JNTUH	2015	Assistant Professor	26/03/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
D Yesu Babu	ME/ M Tech	JNTUH	2013	Assistant Professor	26/03/2016	0.00 0.00 100.00	0	None	None	0.00	NIL
B Navya	ME/ M Tech	JNTUH	2011	Assistant Professor	30/05/2013	0.00 100.00 0.00	0	None	None	0.00	NIL
				Assistant							

Ms. D.Anjali	ME/ M Tech	JNTUH	2015	Professor	17/10/2015	100.00 0.00 0.00	0	None	None	0.00	NIL

5.1 Student-Teacher Ratio (STR) (20)

Total Marks : 19.22

Institute Marks : 19.22

Assessment = 20 × 15/STR; subject to maximum assessment of 20
STR = (x + y + z)/N1
where, x = Number of students in 2nd year of the programme
y = Number of students in 3rd year of the programme
z = Number of students in 4th year of the programme
N1 = Total number of faculty members in the programme (by considering fractional load)

Year	X	Y	Z	N1	X+Y+Z	STR	Assessment
2013-2014	216	216	147	37	579	15.65	19.17
2014-2015	288	216	216	46	720	15.65	19.17
2015-2016	288	288	216	51	792	15.53	19.32

Average assessment 19.22

N = Maximum {N1, N2}
N1 = Total number of faculty members in the programme (considering the fractional load)
N2 = Number of faculty positions needed for student-teacher ratio of 15

Year	Sanctioned Intake	Actual Admitted	N1	N2	N=Max.(N1,N2)
2013-2014	480	579	37	39	39
2014-2015	600	720	46	48	48
2015-2016	660	792	51	53	53

5.2 Faculty Cadre Ratio (20)

Total Marks : 20.00

Institute Marks : 20.00

Assessment = 20 × CRI
where, CRI = Cadre ratio index
= 2.25 × (2A + B)/N; subject to max. CRI = 1.0
where, A = Number of professors in the programme
B = Number of associate professors in the programme programme

Year	A	B	N	CRI	Assessment
2013-2014	6	12	39.00	1.00	20.00
2014-2015	7	11	48.00	1.00	20.00
2015-2016	7	11	53.00	1.00	20.00

Average assessment 20.00

5.3 Faculty Qualifications (30)

Total Marks : 20.47

Institute Marks : 20.47

Assessment = 3 × FQI
where, FQI = Faculty qualification index
= (10x + 6y + 2z0)/N2
where, x = Number of faculty members with PhD
y = Number of faculty members with ME/ M Tech
Z = Number of faculty members with B.E/B.Tech

	X	Y	Z	N	FQI	Assessment
2013-2014	4	37	5	39.00	6.62	19.85
2014-2015	5	44	2	48.00	6.50	19.50
2015-2016	5	61	0	53.00	7.36	22.08

Average assessment 20.47

5.4 Faculty Competencies correlation to Programme Specific Criteria (15)

Total Marks : 15.00

Institute Marks : 15.00

(Provide evidence that program curriculum satisfies the applicable programme criteria specified by the appropriate American professional associations such as ASME, IEEE and ACM. You may list the programme specific criteria and the competencies (specialisation, research publication, course developments etc.,) of faculty to correlate the programme specific criteria and competencies)

In GRIET, the quality and performance of the students during their course duration and subsequent passage in their careers are very important considerations. The institution evaluates student performance, advises students regarding curricular and career matters, and also monitors student's progress to foster their success in achieving program outcomes, thereby enabling them as graduates to attain program objectives. The institution has enforced policies for the validation of programme curriculum to satisfy the applicable programme criteria specified by the IEEE and IUCEE. The procedures evolved based on the policies to assure that students at GRIET meet all program requirements.

GRIET constantly endeavors to have faculty with relevant competency and qualification to satisfy all of the curricular areas of the program. The institution

development, and interactions with industrial and professional practitioners, as well as employers. The faculty ensures that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution.

Our faculty has appropriate qualifications and demonstrates sufficient authority to ensure proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program, and its objectives and outcomes. Our faculty has the overall competence with diversity of backgrounds, engineering experience, teaching experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship, participation in professional societies.

At GRIET, the structure of the curriculum provides both breadth and depth across the range of engineering topics implied by the title of the program. The professional component of our curriculum includes:

One year of a combination of college level mathematics and basic sciences(some with experimental experience) appropriate to the discipline.

One and half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the students field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.

A general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

The program demonstrates that graduates have: knowledge of Analog and Digital Communications through probability theory and stochastic process, analyzing and design of circuits using front end and back end tools of cadence from basic electrical and electronics, analog electronics and digital electronics.

Wave propagation and antenna techniques with the help of Microwave components with the help of Electromagnetic Fields.Modern tool usage, working on multi areas like microcontrollers, embedded areas with effective communication skills improves the life-long learning carrier.

The details of the faculty competencies that correlate to the Programme Specific Criteria are given in the tables below:

Faculty Specializations with competences

<table>
<tr><th>Electronics and VLSI</th><th>About Electronics and VLSI</th></tr>
<tr><td>Basic Electrical and Electronics
Analog Electronics
Digital Electronics
Electronic Measurements and Instrumentation
IC Applications
Digital design through VHDL
VLSI Design</td><td>The courses in this area cover basis of electronics include the operations of BJT, FET, MOSFET and also Characteristics of the above devices, configurations, working principles. It covers principles of op-amp ideal characteristics and practical characteristics and includes various applications. Design of digital system is also one of the main topic covers Boolean algebra k-maps simplification of logic equations, combinational and sequential circuits with ASM Charts. It is also covers principles of VLSI and applications of ics, VLSI stick and layout diagrams of various circuits. They study of these courses makes the student to design effective real time chips and circuits</td></tr>
<tr><td>  </td><td>G.V.Subba Reddy is a M.Tech Very Large Scale Integration. He has 9 years of strong teaching experience in the VLSI field. He has attended and conducted several workshops for students and faculty. He has very good knowledge in modern tool usage. He developed various course modules. He is well versed with the latest trends and technologies in this Basic Electronics, IC applications and VLSI field. Core competence of this faculty in Electronic instrumentations field is vital for attainment of Course Outcomes and Program Outcomes.</td></tr>
<tr><td>  </td><td>K.Jamal is a M.Tech VLSI Very Large Scale Integration. He has 5 years teaching experience and 3 years industrial experience. He conducted several workshops in the domain of VLSI, VHDL and Digital Electronics and IC applications area. A he has industrial and teaching experiences, his contribution to students make them experts in the field of electronics and VLSI. Core competence of this faculty is vital for attainment of Corse Outcomes and Program Outcomes.</td></tr>
<tr><td>  </td><td>G.Surekha is M.Tech VLSI from JNT University, Hyderabad. She has 8 years teaching experience. She attended several workshops on new trends and technologies organized by premier Universities/ Institutions in India. She has strong fundamentals in Basic Electronics, Digital Electronics and VLSI Design areas. She has taken training on modern tool usage like CADENCE, Altera. Core competence of this faculty is vital for attainment of Course Outcomes and Program Outcomes.</td></tr>
<tr><td>  </td><td>MOV.Pavan Kumar is M.Tech VLSI from Satyabhama University, Tamilnadu. He has 7 years teaching experience. He has strong experience in modern tool usages like CADENCE etc. He conducted several workshops in the VLSI and VHDL and Digital Design areas. His core competence is vital for attainment of Course Outcomes and Program Outcomes.</td></tr>
<tr><td></td><td>DV.Prasanthi is M.Tech Digital Electronics and Communication System from</td></tr>
</table>

	JNTU Kakinada. She has 4 years of teaching experience. She has good experience in Basic Electronics, Analog Electronics and IC design area. She has actively participated in workshop conducted by Dept of ECE, GRIET. Her core competence is vital for attainment of Course Outcomes and Program Outcomes.
	R.N.Pavani is M.Tech VLSI System Design from JNTU Hyderabad. She has 5 years of teaching experience. She has good experience in Analog Electronics Verilog and IC Applications. She has well trained in modern tool usage. Her core competence is vital for attainment of course outcomes and Program Outcomes.
	T.Santosh Kumar is a M.Tech from JNTU Hyderabad; He has good experience in teaching. He participated several workshops and conferences. He has well with latest trends and technologies. His competences in this VLSI and Electronics are is vital for attainment of course outcomes and program outcomes.
	Pratyusha Ch. is a M.Tech in VLSI from Andhra University. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
	**K.Sravani,** is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
	**PallaviDilipSathawane**,is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
B. Veera Reddy (Photo)	**B. Veera Reddy,** ,is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
K.Swathi (Photo)	**K.Swathi,** ,is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
Meera.G (Photo)	**Meera.G,** ,is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
M. Mounica (Photo)	**M. Mounica,** ,is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
V. Vijaya Kumar (Photo)	**V. Vijaya Kumar,** is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
D. Anjali (Photo)	**D. Anjali,** is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
G. Naga Raju (Photo)	**G. Naga Raju** is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
KasaSarvani (Photo)	**KasaSarvani** is a M.Tech in VLSI from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
K P S Sravanthi (Photo)	**K P S Sravanthi** is a M.Tech in VLSI Design from JNTUK. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
K Gayathri (Photo)	**K Gayathri** is a M.Tech in VLSI from JNTUA. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
V Sirisha (Photo)	**V Sirisha** is a M.Tech in VLSI Design from JNTUH. She is good experience in teaching with knowledge on modern tool usages in VLSI and Electronics fields. She participated for several workshops and modules developments.
K Ravikanth Reddy (Photo)	**K Ravikanth Reddy** is a M.Tech in VLSI & ES from OU. He is good experience in teaching with knowledge on modern tool usages in VLSI and Embedded Systems fields. He participated for several workshops and modules developments.
R Prashanth Kumar	**R Prashanth Kumar** s a M.Tech in VLSI & ES from JNTUH. He is good

(Photo)	Experience in teaching with knowledge on modern tool usages in VLSI and Embedded Systems fields. He participated for several workshops and modules developments.

Communications

Communications	About Communications
Probability Theory and Stochastic Process	The courses in this module covers principles of communication, probability of communication auto correlation and cross correlation of signals, various analog modulation techniques, principles, advantages and disadvantages, Operation of television, receiver transmitter scanning process picture tubes and color TV techniques. Mobile communication gives the principle operation of cellular system. Satellite communication gives the Principle of operations of satellite link budgets.WCN includes wired and wireless communication network topologies and its functions. Study of these courses enables the students to analyze various communication techniques.
Analog Communication	
Digital Communication	
Television Engineering	
Optical Communications	
Cellular & Mobile Communications	
Satellite Communications	
Wireless Communications	
Analog Communications Lab	
Digital Communications Lab	

	Dr.T.C.Sarma is a PhD in Electronics and Computer Engineering from BITS Pilani, He has several research publications in the Communications that includes 25 national and 27 in international levels. He has 40 years of experience that including 10 years of teaching experience and total 35 years of research experience in the field of embedded, Image processing, Data Acquisition systems and Satellite Communications. He conducted several workshops and FDPs. He attended and delivered information in several conferences and seminars organized by world premier organizations and institutions existing in India and rest of India. He worked as a group head Research and Development to ISRO from 1974 to 2008. After he worked as a principal/director to VBIT Institution at Hyderabad. From 2010 to 2012 he worked as a Chief Research and Development and he trained for modern tools usage. These faculty members with core competence are vital for attainment course outcomes and Program outcomes.
	T.Jagannadha Swamy is a M.E in Systems and Signal Processing form University College of Engineering, Osmania University, Hyderabad. He has strong 12 teaching and 5 years research experience in the field of wireless communication networks. He published 07 research papers which includes several papers in National and International Journal and National, International conferences. He has well trained for usage of modern tools and its functionality in Matlab, Mathematica, Digital Signal Processors and Wireless Sensor Networks. He attended and conducted several numbers of conferences, workshops, seminars and FDPs organized by premier institutions in India. He has strong knowledge with fundamentals in Probability theory and stochastic process, Wireless Communication. His core competences are vital for attainment of course outcomes and program outcomes.
	M.Kiran is a M.Tech in Computer and Communications specializations from JNTU Kakinada. He has strong 10 years teaching experience from JNTUniversity, Hyderabad. He developed several Course Modules in Telecommunication Switching Systems. He has well in modern tool usage with strong fundamentals in digital communications, mobile communication. His core competences are vital for attainment of course outcomes and program outcomes.
	N.Swetha is a M.Tech from JNT University, Hyderabad. She attended and conducted various workshops and FDP programs in the areas of Analog and Digital Communication. She has trained in modern tool use. She developed various course modules for the benefit of students. She presented several research papers in international conferences. Her core competence is vital for attainment of Course outcomes and Program Outcomes.
	V.Hima Bindu is a M.Tech in Telecommunications from Australia. She attended various courses, organized by various organizations in the field of tool usage, analog and digital communications. Her core competences are vital role for attainment of course outcomes and program outcomes.
	R.Uma Susheela is a M.Tech in Computer and Communications from JNT University, Kakinada. She is well in Cellular and Mobile Communications, Satellite communications and Optical Communications. She trained for modern tool usage. She attended and conducted various programs in the areas of communications. Her core competences are vital importance for attainment of Course outcomes and Program outcomes.
	D.L.Chaitanya is a M.Tech from JNTU Hyderabad. She is good in digital communications,

	various FDPs, Courses and Workshops organized by institutions/Organizations. Her competence is vital role for attainment of course outcomes and program outcomes.

Signals and Image Processing

Signal and Image Processing	About Signal and Image Processing
Signals and Systems	Courses in this module cover basis of signals, classification of signals, various operations on signals, convolution correlation importance of convolution and its applications. Control system covers various feed backing mechanism includes the stability of system, measurement of stability of a system using RH criteria, bodem plots root locus, nyquist criteria. In digital domain various system operations concepts includes characteristics of analog and digital filter design with reduction techniques. DSP processors give architecture and mechanism of fixed and floating point processors. Enhancement and reduction of images through Image Processing. Study of these courses makes the students to enhance the knowledge on signals, operations and hardware concepts.
Control Systems	
Digital Signal Processing	
Digital Image Processing	
DSP processors and Architectures	
Signals, Systems and Simulation Lab	
Digital Signal Processing Lab	

	V.Arvind is a MS with Digital Signal Processing from Northern Illinois University, USA, B.E from Thapar University, Patiala. He has strong electronics industrial experience, software professional experience and good teaching experience. He has well trained in Digital signal prcessing, Digital Image processing and its related areas. He published several research papers in Journal and Conferences. His core competences are vital for attainment of Course Outcomes and Program Outcomes.
	T.Jagannadha Swamy is a M.E in Systems and Signal Processing form University College of Engineering, Osmania University, Hyderabad. He has strong 12 teaching and 5 years research experience in the field of wireless communication networks. He published 07 research papers which includes several papers in National and International Journal and National, International conferences. He has well trained for usage of modern tools and its functionality in Matlab, Mathematica, Digital Signal Processors and Wireless Sensor Networks. He attended and conducted several numbers of conferences, workshops, seminars and FDPs organized by premier institutions in India. He has strong knowledge with fundamentals in Probability theory and stochastic process, Wireless Communication. His core competences are vital for attainment of course outcomes and program outcomes.
	K.Meenakshi is a M.Tech from JNTU. She has 12 years of strong teaching experience. She participated for several conferences and workshops. She has well in strong fundamentals. She developed several course modules. Her core competences are vital for attainment of course outcomes and program outcomes.
	K.Padmavathi is a M.Tech from JNTU. She has 11 years teaching experience and she developed several course works, modules and she attended for several course conducted by various institutions. She has strong fundamentals in the areas of Digital Signal Processors and Architectures and its related lab-courses. Her core competences are vital role for attainment of course outcomes and program outcomes.
	N.Madhusudana Rao is a M.tech from JNTU Hyderabad. He has good experience in signals and its related lab-courses. He attended several course, workshops and he developed several course modules. He has 7 years of experience with good knowledge on tool usage. His core competences are vital for attainment of course outcomes and program outcomes.
	M.Suneetha, is a M.Tech with Communications and Signal Processing. She has 7 years of strong teaching experience. She attended and conducted workshops, seminars. She has strong fundamentals in Control Systems, Signal and Systems and it lab-courses. She has well trained in usage of modern tools. Her core competences are vital role for attainment of course outcomes and program outcomes.

Embedded Systems

Embedded Systems	About Embedded Systems	
Micro processors		

and Micro controllers	The courses in this module covers basics of micro processors and micro controllers, basics of 8080,80286,80386,80486 Pentium processors,8051 architecture, programming of different applications related to micro processor and micro controller, real time operations of different embedded processors. Study of these courses enables the students to learn and implement various embedded concepts.
Micro controllers	
Embedded systems	
Microprocessor Lab	
Microcontrollers Lab	

	K.N.Balaji Kumar is a M.Tech from Bits Mesra. He has strong Industrial and Research experience. He has the CEO and Head of the company from 2001 to 2008. Manager Projects in ICS limited 1999 to 2001, In Indus as a Managing-Projects and also in-charge of all projects and research. From 1987 to 1997 worked as a director technical ICE pvt ltd. He has 26 years of experience includes 21 years of research experience and 5 years of teaching experience. He has well trained and knowledge on usage of modern tool usage. With strong industrial and research experience, his experience is most use-full for students. He conducts, organizes several Conferences, FDPs and Number of Workshops. He publishes, develops course modules, innovative products in the areas of Embedded Systems, Microcontrollers. His core competences vital for the attainment of Course Outcomes, Program Outcomes.
	A Radhanad is a M.S from JNTU Hyderabad. He has strong experience in research and teaching. He has 5 years of teaching and 23 years of research experience in various levels in industry. He worked as seiner manager research and development 1986 to 2005. Worked as a General Manager projects implementation in Nalanda Telematics. He published several papers in conferences. His strong Embedded and Real time industrial experiences more use-full for student's carrier. His core competence is vital role for attainment of course outcomes and program outcomes.
	K.N.V.Khasim is a M.Tech from Andhra University. He has strong fundaments in microcontrollers and Embedded fields. He attended for several workshops, conferences, and seminars. He has well in tool usages related to industry needs. His core competences are vital for attainment of course outcomes and program outcomes
	K.Nagaja is a M.Tech in Embedded Systems. She has 7 years strong teaching experience. She has well trained with modern tools. She participated for several course and lab developments. She has strong fundamentals in embedded and microprocessor and microcontrollers. Her core competences are vital for attainment of Course Outcomes and Program Outcomes.
	N.Ome is a M.Tech from Osmania University Hyderabad with VLSI and Embedded Systems specializations. He has 4 years of teaching experience. He participated for several workshops and programs. His core competences are vital for the attainment of Course outcomes and program outcomes.
	G.L.Sumalatha is a M.Tech from JNTU with Embedded Systems specialization. She has 6 years of teaching experience with strong embedded fundamentals. She has trained for modern tool usage. She attended for several workshops and programs conducted by various organization. Her core competences are vital for attainment of course outcomes and program outcomes.

Computing

Computer hardware and programming	About Compute hardware and programming
C & Data Structures	Computer hardware and programming: The courses in this module includes operating systems concepts, programming of c includes data structures, computer organization and its related issues .computer networks covers various hieratical structures like OSI model TCP/IP model and various networking techniques like conjunction control flooding and various algorithms and protocols. Study of these courses enables the students to learn various computer hardware and programming techniques. Also includes the Java and its applications with laboratory experiments. Operating system concepts includes functionality of the operating systems with different
Computer organization	
Operating systems	
OOPS through JAVA	
Computer Networks	
C & Data Structures Lab	
OOPS through JAVA Lab	

	MD Javeed is a M.Tech from JNTU Hyderabad, with strong 9 years of teaching experience. He has well trained in usage of modern tools and softwares. He has attended and participated in several workshops, conferences, FDPs. His core competence is vital for attainment of course outcomes and program outcomes.
	K. Shivani is a M.Tech from University of Hyderabad with strong fundamental knowledge in core and allied subjects. She has well trained with modern tool usage. Her core components are vital for attainment of course outcomes and program outcomes.
	M.Manjusha is a M.Tech from JNTUniversity, Hyderabad with strong fundamental knowledge in core and allied subjects. She has well trained with modern tool usage. Her core components are vital for attainment of course outcomes and program outcomes.
	Y. Prayanka is a M.Tech JNTUCEH with strong fundamental knowledge in core and allied subjects. She has experience in teaching. She has well trained with modern tool usage. Her core components are vital for attainment of course outcomes and program outcomes.
	A.Ambika is a M.Tech from JNTU with strong fundamental knowledge in core and allied subjects. She has 4 years of teaching experience and she has well trained with modern tool usage. Her core components are vital for attainment of course outcomes and program outcomes.
	B. Navya is a M.Tech from JNTUniversity, Hyderabad with strong fundamental knowledge in core and allied subjects. She has 2years of teaching experience. She has well trained with modern tool usage. Her core components are vital for attainment of course outcomes and program outcomes.

RF and Microwave:

RF and Microwave	About RF and Microwave
Networks and transmission lines Electromagnetic field Antenna wave propagation Microwave Engineering Radar Engineering RF Circuit Design Microwave and Digital Communications Lab	The courses in this module cover principles of networks, network theorems, two port networks and its applications, transmission lines covers the relation between voltage current impendence and admittance parameters and smith chart. It gives the open and short circuit impedance. Electromagnetic field theory covers principles of static and magnetic fields, Maxwell's equations, point loss. Antennas and wave propagation covers the concepts of antenna, working principles and related applications. Propagation of waves covers different waves and its channels, effect of environment on different frequencies like fading ducting skip distance skin effect. Microwave and radar engineering covers different microwave components microwave tubes, principle of radar, different types of radars and its principles. Study of these courses enables the students to get knowledge on various microwaves, RF, antennas and its related principles.

	A.P.N.Rao is a M.E from Puna University with guided missiles. He has strong 17 years of teaching and 19 years of research and services experiences. He worked as a commander in navy. He worked as engineer in DRDL/RCI, Hyderabad. He has well in usage of modern tools. He has strong fundamentals in EMF, Antennas and wave propagation. He has attended, conducted, and organized several workshops, conferences, seminars and FDPs. His core competences are vital for attainment of Course outcomes and program outcomes.
	Y.Sudharasana Reddy is a M.Tech form JNTU Hyderabad with 15 years of strong teaching experience. He has well in usage of modern tool usage. He participated and attended several workshops, faculty development programs. His core competences are vital for attainment of course outcomes and program outcomes.
	A.Ushasree is M.Tech from JNTU Hyderabad with good knowledge in Microwave Engineering, Radar engineering, Networks and Transmission Lines.

	tool usage. She published 3 research papers. She attended and conducted several workshops, seminars. She has 6 years of teaching experience. Her core competences are vital for attainment of course outcomes and program outcomes.
	B.Shilpa is a M.E from Osmania University, Hyderabad with strong fundamental knowledge in core and allied subjects. She has 6 years of teaching experience; she has well trained with modern tool usage. She has good knowledge on RF and Microwave components and Microwave Engineering. Her core components are vital for attainment of course outcomes and program outcomes.

5.5 Faculty as participants/resource persons in faculty development/training activities (15)

Total Marks : 13.98

Institute Marks : 13.98

(Instruction: A faculty member scores maximum five points for a participation/resource person.)

File Name
Faculty as participants

Name of the faculty	max. 5 per faculty		
	2013-2014	2014-2015	2015-2016
D Yesu Babu	3.00	0.00	0.00
Dr Syed Basha S	5.00	0.00	0.00
Dr V.V.Rao	5.00	0.00	0.00
Dr. Ravi Billa	5.00	0.00	0.00
Dr. V.Ayyem Pillai	5.00	5.00	3.00
Dr.Ch Usha Kumari	3.00	3.00	3.00
Dr.G.Mamatha	3.00	5.00	5.00
Dr.T.C.Sarma	3.00	5.00	5.00
Dr.T.Padma	3.00	5.00	5.00
K Ravikanth Reddy	0.00	3.00	0.00
M.Suneetha	3.00	5.00	5.00
Mohd. Javeed Mehdi	3.00	5.00	5.00
Mr A Siva Ganesh	3.00	5.00	3.00
Mr. G Pradeep Reddy	3.00	3.00	5.00
Mr. G. Naga Raju	3.00	5.00	3.00
Mr. K.Nagarjuna	3.00	0.00	0.00
Mr. N Ome	3.00	3.00	5.00
Mr. N.Srinivasa Rao	3.00	5.00	3.00
Mr. P. Sri Ram Kumar	0.00	3.00	5.00
Mr. T.Laxminarayana	3.00	3.00	5.00
Mr. T.Santosh Kumar	3.00	3.00	3.00
Mr. V.Vijaya Kumar	3.00	0.00	0.00
Mr.B.Veera Reddy	3.00	3.00	5.00
Mr.P Sampathkrishna Reddy	3.00	3.00	3.00
Ms. A. Ambika	5.00	3.00	5.00
Ms. A. Lavanya	3.00	5.00	3.00
Ms. A.Usha Sree	3.00	5.00	5.00
Ms. B.Navya	3.00	3.00	3.00
Ms. B.Shilpa	3.00	3.00	5.00
Ms. B.Vijaya Kumari	0.00	3.00	0.00
Ms. D. Lakshmi Chaitanya	5.00	3.00	5.00
Ms. D.Anjali	0.00	3.00	0.00
Ms. D.V.Prasanthi	3.00	3.00	5.00
Ms. G. Bindu Madhavi	3.00	0.00	0.00
Ms. G. Surekha	3.00	5.00	5.00

Ms. Hima Bindu V	5.00	3.00	5.00
MS. K Gayathri	3.00	0.00	0.00
MS. K P S Sravanthi	3.00	0.00	0.00
Ms. K. Nagaja	3.00	5.00	5.00
Ms. K. Padmavathi	3.00	5.00	5.00
Ms. K. Sri Latha	3.00	0.00	0.00
Ms. K. Swaraja	3.00	3.00	5.00
Ms. K. Swathi	3.00	0.00	0.00
Ms. K.Sarvani	3.00	0.00	0.00
Ms. K.Sravani	0.00	3.00	0.00
Ms. M. Manjusha	3.00	0.00	0.00
Ms. M.Mounica	3.00	3.00	3.00
Ms. Meera G	3.00	3.00	3.00
Ms. Pratyusha Chowdari	5.00	3.00	5.00
Ms. R. Sri Uma Suseela	5.00	5.00	3.00
Ms. R.Naga Pavani	3.00	5.00	3.00
Ms. Shivani Kuninti	3.00	3.00	3.00
Ms. T.Anusha	3.00	0.00	0.00
Ms. Tanusree Sahana	3.00	3.00	0.00
MS. V Sirisha	0.00	3.00	0.00
Ms. V.Jyothi Sree	3.00	3.00	3.00
Ms. Y.Priyanka	5.00	3.00	3.00
Ms.D.Sudha	5.00	3.00	3.00
Ms.K.Meenakshi	3.00	3.00	5.00
Ms.N Anjani Devi	3.00	3.00	3.00
Ms.Pallavi Dilip Sathawane	3.00	3.00	3.00
N. Swetha	5.00	3.00	5.00
R Prashanth Kumar	0.00	0.00	3.00
Sri A P Narasimha Rao	5.00	5.00	3.00
Sri G.V. Subba Reddy	5.00	3.00	5.00
Sri Jamal K	3.00	3.00	5.00
Sri K.N. Balaji Kumar	3.00	3.00	3.00
Sri K.N.V.Kashim	5.00	3.00	5.00
Sri M. Kiran	3.00	3.00	5.00
Sri MOV Pavan Kumar	5.00	3.00	3.00
Sri N. Madhu Sudhan Rao	3.00	3.00	5.00
Sri Radhanand Ananta	3.00	3.00	5.00
Sri T. Jagannadha Swamy	5.00	5.00	3.00
Sri V Aravind	5.00	3.00	5.00
Sri Y. Sudharshan Reddy	3.00	5.00	5.00
Wg.Com.V.H.Raju	3.00	0.00	0.00
Sum	246.00	221.00	232.00
N	39.00	48.00	53.00
Assessment = 3 × Sum/N	15.00	13.81	13.13

Average assessment 13.98

5.6 Faculty Retention (15)

Total Marks : 12.22

Institute Marks : 12.22

Assessment = 3 × RPI/N
where RPI = Retention point index
= Points assigned to all faculty members
where points assigned to a faculty member = 1 point for each year of experience at the institute but not exceeding 5.

Item	2013-2014	2014-2015	2015-2016
Number of faculty members with experience of less than l year (x0)	0.00	0.00	8.00
Number of faculty members with 1 to 2 years experience (x1)	0.00	9.00	18.00
Number of faculty members with 2 to 3 years experience (x2)	7.00	7.00	6.00

Number of faculty members with 4 to 5 years experience (x4)	6.00	6.00	5.00
Number of faculty members with more than 5 years experience (x5)	22.00	21.00	21.00
N	39.00	48.00	53.00
RPI = x1 + 2x2 + 3x3 + 4x4 + 5x5	190.00	185.00	185.00
Assessment	14.62	11.56	10.47

Average assessment 12.22

5.7 Faculty Research Publications (FRP) (20) **Total Marks : 15.75**

Institute Marks : 15.75

(Instruction: A faculty member scores maximum five research publication points depending upon the quality of the research papers and books published in the past three years.)

Assessment of FRP = 4 × (Sum of the research publication points scored by each faculty member)/N

File Name
Faculty research publications

Name of the Faculty (contributing to FRP)	FRP points (max. 5 per faculty)		
	2013-2014	2014-2015	2015-2016
D Yesu Babu	3.00	0.00	0.00
Dr Syed Basha S	5.00	0.00	0.00
Dr V.V.Rao	5.00	0.00	0.00
Dr. G.Mamatha	0.00	3.00	5.00
Dr. Ravi Billa	5.00	0.00	0.00
Dr. T. Padma	5.00	3.00	5.00
Dr. V.Ayyem Pillai	5.00	3.00	5.00
Dr.Ch Usha Kumari	5.00	5.00	3.00
Dr.T.C.Sarma	5.00	5.00	3.00
K Ravikanth Reddy	3.00	0.00	0.00
M.Suneetha	3.00	3.00	5.00
Mohd. Javeed Mehdi	3.00	3.00	5.00
Mr A Siva Ganesh	3.00	0.00	0.00
Mr. B. Veera reddy	3.00	3.00	3.00
Mr. G Pradeep Reddy	3.00	3.00	3.00
Mr. G. Naga Raju	3.00	0.00	0.00
Mr. K.Nagarjuna	3.00	0.00	0.00
Mr. N Ome	3.00	3.00	3.00
Mr. N.Srinivasa Rao	3.00	3.00	3.00
Mr. P. Sri Ram Kumar	0.00	3.00	3.00
Mr. T.Laxminarayana	3.00	3.00	3.00
Mr. T.Santosh Kumar	3.00	3.00	3.00
Mr. V.Vijaya Kumar	3.00	0.00	0.00
Mr.P Sampathkrishna Reddy	3.00	0.00	0.00
Ms. A. Ambika	5.00	3.00	3.00
Ms. A. Lavanya	3.00	3.00	3.00
Ms. A.Usha Sree	3.00	3.00	5.00
Ms. B.Navya	3.00	3.00	0.00
Ms. B.Shilpa	3.00	3.00	3.00
Ms. B.Vijaya Kumari	0.00	3.00	0.00
Ms. D. Anjali	0.00	3.00	0.00
Ms. D. Lakshmi Chaitanya	3.00	5.00	5.00
Ms. D.V.Prasanthi	3.00	3.00	5.00
Ms. G. Bindu Madhavi	3.00	0.00	0.00
Ms. G. Surekha	3.00	3.00	3.00
Ms. G.L.Sumalatha	3.00	3.00	5.00
Ms. Hima Bindu V	3.00	5.00	3.00
MS. K Gayathri	3.00	0.00	0.00
MS. K P S Sravanthi	3.00	0.00	0.00
Ms. K. Nagaja	3.00	3.00	3.00
Ms. K. Padmavathi	5.00	5.00	5.00

Ms. K. Swaraja	3.00	3.00	3.00
Ms. K. Swathi	3.00	0.00	0.00
Ms. K.Sarvani	3.00	0.00	0.00
Ms. K.Sravani	3.00	0.00	0.00
Ms. K.Swathi	0.00	0.00	0.00
Ms. M. Manjusha	3.00	0.00	0.00
Ms. M.Mounica	3.00	0.00	0.00
Ms. Meera G	3.00	0.00	0.00
Ms. Pratyusha Chowdari	3.00	5.00	3.00
Ms. R. Sri Uma Suseela	5.00	3.00	3.00
Ms. R.Naga Pavani	3.00	3.00	3.00
Ms. Shivani Kuninti	3.00	3.00	3.00
Ms. T.Anusha	0.00	0.00	0.00
Ms. Tanusree Sahana	0.00	0.00	0.00
MS. V Sirisha	3.00	0.00	0.00
Ms. V.Jyothi Sree	3.00	3.00	3.00
Ms. Y.Priyanka	5.00	3.00	3.00
Ms.D.Sudha	5.00	3.00	3.00
Ms.K.Meenakshi	5.00	5.00	3.00
Ms.N Anjani Devi	3.00	0.00	0.00
Ms.Pallavi Dilip Sathawane	3.00	0.00	0.00
N. Swetha	3.00	5.00	5.00
R Prashanth Kumar	3.00	0.00	0.00
Sri A P Narasimha Rao	3.00	5.00	3.00
Sri G.V. Subba Reddy	3.00	3.00	3.00
Sri Jamal K	5.00	5.00	3.00
Sri K.N. Balaji Kumar	5.00	3.00	3.00
Sri K.N.V.Kashim	3.00	3.00	5.00
Sri M. Kiran	3.00	3.00	5.00
Sri MOV Pavan Kumar	3.00	3.00	3.00
Sri N. Madhu Sudhan Rao	3.00	3.00	5.00
Sri Radhanand Ananta	3.00	3.00	3.00
Sri T. Jagannadha Swamy	5.00	5.00	5.00
Sri V Aravind	5.00	3.00	3.00
Sri Y. Sudharshan Reddy	3.00	3.00	3.00
Wg.Com.V.H.Raju	5.00	0.00	0.00
Sum	249.00	172.00	171.00
N	39.00	48.00	53.00
Assessment of FRP = 4 × Sum/N	20.00	14.33	12.91

Average assessment 15.75

5.8 Faculty Intellectual Property Rights (FIPR) (10)

Total Marks : 8.60

Institute Marks : 8.60

Assessment of FIPR = 2 × (Sum of the FIPR points scored by each faculty member)/N
(Instruction: A faculty member scores maximum five FIPR points each year??. FIPR includes awarded national/international patents, design, and copyrights.)

Name of faculty member (contributing to FIPR)	FIPR points (max. 5 per faculty member)		
	2013-2014	2014-2015	2015-2016
D Yesu Babu	0.00	0.00	3.00
Dr Syed Basha S	5.00	0.00	0.00
Dr V.V.Rao	5.00	0.00	0.00
Dr. G.Mamatha	5.00	5.00	5.00
Dr. Ravi Billa	5.00	0.00	0.00
Dr. V.Ayyem Pillai	0.00	5.00	5.00
Dr.Ch Usha Kumari	5.00	5.00	5.00
Dr.T.C.Sarma	5.00	5.00	5.00

K Ravikanth Reddy	0.00	0.00	3.00
M.Suneetha	3.00	3.00	5.00
Mohd. Javeed Mehdi	3.00	3.00	5.00
Mr A Siva Ganesh	0.00	3.00	0.00
Mr. G Pradeep Reddy	0.00	3.00	0.00
Mr. G. Naga Raju	3.00	0.00	0.00
Mr. K.Nagarjuna	3.00	0.00	0.00
Mr. N Ome	3.00	3.00	3.00
Mr. N.Srinivasa Rao	3.00	3.00	3.00
Mr. P. Sri Ram Kumar	0.00	3.00	3.00
Mr. T.Laxminarayana	3.00	3.00	3.00
Mr. T.Santosh Kumar	3.00	3.00	3.00
Mr. V.Vijaya Kumar	3.00	0.00	0.00
Mr.B.Veera Reddy	3.00	3.00	3.00
Mr.P Sampathkrishna Reddy	3.00	0.00	0.00
Ms. A. Ambika	5.00	3.00	3.00
Ms. A. Lavanya	3.00	3.00	3.00
Ms. A.Usha Sree	3.00	3.00	5.00
Ms. B.Navya	3.00	3.00	0.00
Ms. B.Shilpa	3.00	3.00	3.00
Ms. B.Vijaya Kumari	0.00	3.00	0.00
Ms. D. Lakshmi Chaitanya	5.00	3.00	5.00
Ms. D.Anjali	3.00	3.00	0.00
Ms. D.V.Prasanthi	3.00	3.00	5.00
Ms. G. Bindu Madhavi	3.00	0.00	0.00
Ms. G. Surekha	3.00	3.00	5.00
Ms. G.L.Sumalatha	3.00	3.00	5.00
Ms. Hima Bindu V	5.00	3.00	5.00
MS. K Gayathri	0.00	0.00	3.00
MS. K P S Sravanthi	0.00	0.00	3.00
Ms. K. Nagaja	3.00	3.00	3.00
Ms. K. Padmavathi	5.00	5.00	5.00
Ms. K. Sri Latha	5.00	0.00	0.00
Ms. K. Swaraja	3.00	3.00	3.00
Ms. K. Swathi	3.00	0.00	0.00
Ms. K.Sarvani	0.00	3.00	0.00
Ms. K.Sravani	3.00	0.00	0.00
Ms. M. Manjusha	5.00	0.00	0.00
Ms. M.Mounica	3.00	0.00	0.00
Ms. Meera G	3.00	0.00	0.00
Ms. Pratyusha Chowdari	5.00	3.00	5.00
Ms. R. Sri Uma Suseela	5.00	3.00	3.00
Ms. R.Naga Pavani	3.00	3.00	3.00
Ms. Shivani Kuninti	3.00	3.00	3.00
Ms. T.Anusha	3.00	0.00	0.00
Ms. Tanusree Sahana	3.00	5.00	0.00
MS. V Sirisha	0.00	0.00	3.00
Ms. V.Jyothi Sree	3.00	3.00	3.00
Ms. Y.Priyanka	5.00	3.00	3.00
Ms.D.Sudha	5.00	3.00	3.00
Ms.K.Meenakshi	5.00	5.00	5.00
Ms.N Anjani Devi	3.00	0.00	0.00
Ms.Pallavi Dilip Sathawane	3.00	0.00	0.00
N. Swetha	5.00	5.00	5.00
R Prashanth Kumar	0.00	0.00	3.00
Sri A P Narasimha Rao	5.00	5.00	5.00
Sri G.V. Subba Reddy	3.00	5.00	5.00

Sri K.N. Balaji Kumar	5.00	5.00	5.00
Sri K.N.V.Kashim	5.00	3.00	3.00
Sri M. Kiran	5.00	5.00	5.00
Sri MOV Pavan Kumar	5.00	3.00	3.00
Sri N. Madhu Sudhan Rao	3.00	3.00	5.00
Sri Radhanand Ananta	5.00	5.00	5.00
Sri T. Jagannadha Swamy	5.00	5.00	5.00
Sri V Aravind	5.00	5.00	5.00
Sri Y. Sudharshan Reddy	3.00	3.00	3.00
Wg.Com.V.H.Raju	5.00	0.00	0.00
Sum	251.00	191.00	208.00
N	39.00	48.00	53.00
Assessment of FIPR = 2 × Sum/N	10.00	7.96	7.85

Average assessment 8.60

5.9 Funded R&D Projects and Consultancy (FRDC) Work (20) **Total Marks : 4.34**

Institute Marks : 4.34

(Instruction: A faculty member scores maximum 5 points, depending upon the amount.) A suggested scheme is given below for a minimum amount of Rs. 1 lakh:)

Assessment of R&D and consultancy projects = 4 × (Sum of FRDC by each faculty member)//N
Five points for funding by national agency,
Four points for funding by state agency,
Four points for funding by private sector, and
Two points for funding by the sponsoring trust/society.

Name of faculty member (contributing to FRDC)	FRDC points (max. 5 per faculty member)		
	2013-2014	2014-2015	2015-2016
D Yesu Babu	0.00	0.00	0.00
Dr Syed Basha S	5.00	0.00	0.00
Dr V.V.Rao	5.00	0.00	0.00
Dr. G.Mamatha	3.00	3.00	3.00
Dr. Ravi Billa	5.00	0.00	0.00
Dr. T. Padma	3.00	3.00	3.00
Dr. V.Ayyem Pillai	3.00	3.00	3.00
Dr.Ch Usha Kumari	3.00	3.00	3.00
Dr.T.C.Sarma	5.00	3.00	3.00
K Ravikanth Reddy	0.00	0.00	0.00
M.Suneetha	0.00	0.00	0.00
Mohd. Javeed Mehdi	0.00	0.00	0.00
Mr A Siva Ganesh	0.00	0.00	0.00
Mr. B. Veera reddy	0.00	0.00	0.00
Mr. G Pradeep Reddy	0.00	0.00	0.00
Mr. G. Naga Raju	0.00	0.00	0.00
Mr. K.Nagarjuna	0.00	0.00	0.00
Mr. N Ome	0.00	0.00	0.00
Mr. N.Srinivasa Rao	0.00	0.00	0.00
Mr. P. Sri Ram Kumar	0.00	0.00	0.00
Mr. T.Laxminarayana	0.00	0.00	0.00
Mr. T.Santosh Kumar	0.00	0.00	0.00
Mr. V.Vijaya Kumar	0.00	0.00	0.00
Mr.P Sampathkrishna Reddy	0.00	0.00	0.00
Ms. A. Ambika	0.00	0.00	0.00
Ms. A. Lavanya	0.00	0.00	0.00
Ms. A.Usha Sree	0.00	0.00	0.00
Ms. B.Navya	0.00	0.00	0.00
Ms. B.Shilpa	0.00	0.00	0.00
Ms. B.Vijaya Kumari	0.00	0.00	0.00
Ms. D. Anjali	0.00	0.00	0.00

Ms. D.Sudha	0.00	0.00	0.00
Ms. D.V.Prasanthi	0.00	0.00	0.00
Ms. G. Bindu Madhavi	0.00	0.00	0.00
Ms. G. Surekha	0.00	0.00	0.00
Ms. G.L.Sumalatha	0.00	0.00	0.00
Ms. Hima Bindu V	3.00	3.00	3.00
MS. K Gayathri	0.00	0.00	0.00
MS. K P S Sravanthi	0.00	0.00	0.00
Ms. K. Nagaja	0.00	0.00	0.00
Ms. K. Padmavathi	2.00	2.00	2.00
Ms. K. Sri Latha	0.00	0.00	0.00
Ms. K. Swaraja	0.00	0.00	0.00
Ms. K. Swathi	0.00	0.00	0.00
Ms. K.Sarvani	0.00	0.00	0.00
Ms. K.Sravani	0.00	0.00	0.00
Ms. M. Manjusha	0.00	0.00	0.00
Ms. M.Mounica	0.00	0.00	0.00
Ms. Meera G	0.00	0.00	0.00
Ms. Pratyusha Chowdari	3.00	3.00	3.00
Ms. R. Sri Uma Suseela	0.00	0.00	0.00
Ms. R.Naga Pavani	0.00	0.00	0.00
Ms. Shivani Kuninti	0.00	0.00	0.00
Ms. T.Anusha	0.00	0.00	0.00
Ms. Tanusree Sahana	0.00	0.00	0.00
MS. V Sirisha	0.00	0.00	0.00
Ms. V.Jyothi Sree	0.00	0.00	0.00
Ms. Y.Priyanka	0.00	0.00	0.00
Ms.D.Sudha	0.00	0.00	0.00
Ms.K.Meenakshi	0.00	0.00	0.00
Ms.N Anjani Devi	0.00	0.00	0.00
Ms.Pallavi Dilip Sathawane	0.00	0.00	0.00
N. Swetha	0.00	0.00	0.00
R Prashanth Kumar	0.00	0.00	0.00
Sri A P Narasimha Rao	2.00	2.00	2.00
Sri G.V. Subba Reddy	0.00	0.00	0.00
Sri Jamal K	2.00	2.00	2.00
Sri K.N. Balaji Kumar	3.00	3.00	3.00
Sri K.N.V.Kashim	2.00	2.00	2.00
Sri M. Kiran	0.00	0.00	0.00
Sri MOV Pavan Kumar	0.00	0.00	0.00
Sri N. Madhu Sudhan Rao	0.00	0.00	0.00
Sri Radhanand Ananta	3.00	3.00	3.00
Sri T. Jagannadha Swamy	3.00	3.00	3.00
Sri V Aravind	2.00	2.00	2.00
Sri Y. Sudharshan Reddy	0.00	0.00	0.00
Wg.Com.V.H.Raju	3.00	0.00	0.00
Sum	62.00	42.00	42.00
N	39.00	48.00	53.00
Assessment of FRDC = 4 × Sum/N	6.36	3.50	3.17

Average assessment 4.34

5.10 Faculty Interaction with Outside World (10)

Total Marks : 9.13

Institute Marks : 9.13

(Instruction: A faculty member gets maximum five interaction points, depending upon the type of institution or R&D laboratory or industry, as follows)

FIP = Faculty interaction points
Assessment = 2 × (Sum of FIP by each faculty member)/N
Five points for interaction with a reputed institution abroad, institution of eminence in India,
or national research laboratories,
Three points for interaction with institution/industry (not covered earlier).

Name of faculty member (contributing to FIP)	FIP		
	2013-2014	2014-2015	2015-2016
D Yesu Babu	0.00	0.00	3.00
Dr Syed Basha S	5.00	0.00	0.00
Dr V.V.Rao	5.00	0.00	0.00
Dr. G.Mamatha	5.00	5.00	5.00
Dr. Ravi Billa	5.00	0.00	0.00
Dr. T. Padma	5.00	5.00	5.00
Dr. V.Ayyem Pillai	5.00	5.00	5.00
Dr.Ch Usha Kumari	5.00	5.00	5.00
Dr.G.Mamatha	5.00	5.00	5.00
Dr.T.C.Sarma	5.00	5.00	5.00
Dr.T.Padma	5.00	5.00	5.00
K Ravikanth Reddy	0.00	0.00	3.00
M.Suneetha	3.00	3.00	3.00
Mohd. Javeed Mehdi	3.00	3.00	3.00
Mr A Siva Ganesh	0.00	0.00	3.00
Mr. B. Veera reddy	3.00	3.00	3.00
Mr. G Pradeep Reddy	3.00	3.00	3.00
Mr. G. Naga Raju	0.00	3.00	3.00
Mr. K.Nagarjuna	3.00	0.00	0.00
Mr. N Ome	3.00	3.00	3.00
Mr. N.Srinivasa Rao	3.00	3.00	3.00
Mr. P. Sri Ram Kumar	3.00	3.00	3.00
Mr. T.Laxminarayana	3.00	3.00	3.00
Mr. T.Santosh Kumar	3.00	3.00	3.00
Mr. V.Vijaya Kumar	3.00	3.00	3.00
Mr.P Sampathkrishna Reddy	3.00	3.00	3.00
Ms. A. Ambika	3.00	3.00	3.00
Ms. A. Lavanya	0.00	3.00	3.00
Ms. A.Usha Sree	3.00	3.00	3.00
Ms. B.Navya	3.00	3.00	3.00
Ms. B.Shilpa	3.00	3.00	3.00
Ms. B.Vijaya Kumari	3.00	3.00	3.00
Ms. D. Anjali	3.00	3.00	3.00
Ms. D. Lakshmi Chaitanya	3.00	3.00	3.00
Ms. D.Sudha	3.00	3.00	3.00
Ms. D.V.Prasanthi	3.00	3.00	3.00
Ms. G. Bindu Madhavi	0.00	3.00	3.00
Ms. G. Surekha	3.00	3.00	3.00
Ms. G.L.Sumalatha	3.00	0.00	0.00
Ms. Hima Bindu V	3.00	3.00	3.00
MS. K Gayathri	0.00	0.00	3.00
MS. K P S Sravanthi	0.00	0.00	3.00
Ms. K. Nagaja	3.00	3.00	3.00
Ms. K. Padmavathi	3.00	3.00	3.00
Ms. K. Sri Latha	3.00	0.00	0.00
Ms. K. Swaraja	3.00	3.00	3.00
Ms. K. Swathi	3.00	3.00	3.00
Ms. K.Sarvani	3.00	3.00	3.00
Ms. K.Sravani	3.00	3.00	3.00
Ms. M. Manjusha	3.00	0.00	0.00
Ms. M.Mounica	3.00	3.00	3.00
Ms. Meera G	0.00	3.00	3.00
Ms. Pratyusha Chowdari	3.00	3.00	3.00
Ms. R. Sri Uma Suseela	3.00	3.00	3.00
Ms. R.Naga Pavani	3.00	3.00	3.00

Ms. Shivani Kunnuri	3.00	3.00	0.00
Ms. T.Anusha	3.00	3.00	3.00
Ms. Tanusree Sahana	3.00	0.00	0.00
MS. V Sirisha	0.00	0.00	3.00
Ms. V.Jyothi Sree	3.00	3.00	3.00
Ms. Y.Priyanka	3.00	3.00	3.00
Ms.D.Sudha	3.00	3.00	3.00
Ms.K.Meenakshi	3.00	3.00	3.00
Ms.N Anjani Devi	3.00	3.00	3.00
Ms.Pallavi Dilip Sathawane	0.00	3.00	3.00
N. Swetha	3.00	3.00	3.00
R Prashanth Kumar	0.00	0.00	3.00
Sri A P Narasimha Rao	5.00	5.00	5.00
Sri G.V. Subba Reddy	3.00	3.00	3.00
Sri Jamal K	3.00	3.00	3.00
Sri K.N. Balaji Kumar	3.00	3.00	3.00
Sri K.N.V.Kashim	3.00	3.00	3.00
Sri M. Kiran	3.00	3.00	3.00
Sri MOV Pavan Kumar	3.00	3.00	3.00
Sri N. Madhu Sudhan Rao	3.00	3.00	0.00
Sri Radhanand Ananta	3.00	3.00	3.00
Sri T. Jagannadha Swamy	5.00	5.00	5.00
Sri V Aravind	5.00	5.00	5.00
Sri Y. Sudharshan Reddy	3.00	3.00	3.00
Wg.Com.V.H.Raju	5.00	0.00	0.00
Sum	232.00	212.00	227.00
N	39.00	48.00	53.00
Assessment of FIP = 2 × Sum/N	10.00	8.83	8.57

Average assessment 9.13

6 Facilities and Technical Support (75) **Total Marks : 75.00**

Description of classrooms, faculty rooms, seminar, and conference halls:

Description of classrooms, faculty rooms, seminar, and conference halls:

Room description	No. of Rooms	Usage	Shared/ Exclusive	Capacity	Rooms Equipped with PC, Internet, etc.
Class Rooms	09	For conducting classes	Exclusive	72 each	Class rooms are equipped with state-of-art infrastructure and are well designed to give ideal teaching and learning environment.
HOD Room	01	For Head of the Department	Exclusive	5	Equipped with Desktop computer, Laptop, Scanner, printer with Wi-Fi facility
Faculty Rooms	03	For Department faculty	Exclusive	20 each	Equipped with necessary infrastructure, Wi-Fi facility
Seminar Halls	01	For conducting workshops, Guest lectures and departmental meetings	Exclusive	36	Fully air-conditioned hall equipped with modern teaching aids and public addressing system
Conference Hall	01	For conducting conferences and technical events	Exclusive	250	Fully air-conditioned hall equipped with modern teaching aids and public addressing system
Tutorial Rooms	04	For conducting tutorial and remedy classes	Exclusive	36 each	Tutorial rooms are equipped with state-of-art infrastructure and are well designed to give ideal teaching and learning
Laboratories	15	For conducting practical sessions	Exclusive	36 each	Equipped with necessary hardware and licensed software, LAN and Wi-Fi facility

6.1 Classrooms in the Department (20) **Total Marks : 20.00**

6.1.1 Adequate number of rooms for lectures (core/electives), seminars, tutorials, etc., for the program (10) Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

No. of Class rooms : 09

No. of Seminar Halls : 01

No. of Tutorial rooms : 05

Room Number	Usage	Exclusive/ Shared	Room Equipped with
2203	Class Rooms	Exclusive	Class rooms are equipped with good infrastructure and are well designed to give ideal teaching and learning environment.
2208			
2301			
2302			
2303			
2307			
2308			
2403			
2408			
2205	Tutorial Rooms	Exclusive	Tutorial rooms with a seating capacity of 36 students are available for special and remedial classes
2209			
2210			
2409			
2502			
2206	Seminar Hall	Exclusive	Air conditioned hall equipped with modern teaching aids and PA system.
2311	Girls Waiting Room	Exclusive	Equipped with Chairs & Almarahs

6.1.2 Teaching aids---multimedia projectors, etc (5) Institute Marks : 5.00

(Instruction: List the various teaching aids available)

Teaching Aids:

From the inception, the teaching staff at GRIET uses the modern Teaching aids for effective way of teaching. The process of teaching-learning depends on different types of teaching aids and tools available in the classroom. Teaching aids used at GRIET facilitate the student learning without having to rely only on textbooks and form an integral component of a classroom and are very important in the TLP (Teaching Learning Process). These teaching aids play an important role in assisting students to improve reading comprehension skills, illustrating or reinforcing a skill or concept, differentiating instruction and relieving anxiety or boredom by presenting information in a new and interesting way.

The teaching – learning resources address multiple learning styles, themes, grades and academic skill levels. Teachers at GRIET find these aids, as supplements to curriculum materials. Such resources can make teaching and learning, a rewarding experience. We use the latest teaching aids available in the form of audio, video and audio-visual aids. They are very important in implementation of learning objectives which affects the outcomes.

We at GRIET enjoy the following advantages by implementing Teaching Aids:

- Students tend to forget if they only listen in their classroom. Appropriate teaching aid if properly used helps them to retain the concepts better and for a longer period.
- Providing conceptual thinking and imagining capabilities.
- Helping the student to get clarity on the subject more clearly.
- Enhancing the learning experience for the students by motivating those using different teaching aids.
- Making the classrooms more interesting, live and interactive.
- Helping the students to increase and improve their vocabulary and communication skills.
- Creating a proper image of the subject when the students hear, visualize and imagine.
- Creating an interesting environment for the students.
- Provide hands-on experience to the students with the help of teaching aids such as models.

Different Teaching aids used in GRIET:

Visual Aids:

White board:

The written matter on the board is meant to attract the attention and it stays visually for a long time to the student. It acts as a prompt and a reminder of the on-going lecture. Thus acts as a reinforcing tool in TLC. It is used simultaneously along with other aids which may last a short period visually. It helps in step-wise/sequentially depict a process or derive formulae. It makes the student put his or her understanding on the board, upon an invitation of the teacher in front of the audience. The summary of the lecture is captured on the board, reinforcing the teaching objective.

The Bulletin-Board:

available. It acts as a display for result of an individual or group activity. It acts as a motivator when displaying awards and prizes or appreciations. Visual information other than written/ typed matter, photos and posters are also displayed.

Overhead Projector/ LCD Projector:

They evoke more involvement by the audience as the visuals are strong in composition and content.The teacher has the flexibility of using still photos, typed matter and video. Numerical data is projected as tables, graphs, charts, flow-charts, info graphics, which provoke self analysis of the projection as against the information being talked. Projected data or figures are put for discussion and for analysis by the group. Still projections are used for quiz, tests and guide students effectively.

Representations -charts, sketches, flash cards, posters, pictures, pamphlets, hand-outs etc:

A good way to present and practice and also recycle vocabulary for all the activities in a class room. We use bright and colorful Flash cards to make visual impact on the viewer that leaves a longer imprint of the content on the minds. Increases the creative time of students and also adds context to subject learning. They are visually stimulating and very versatile in fitting most of the activities at all levels.

Audio-Visual aids:

Motion pictures / Video Lectures:

Video lectures are virtual classes by subject experts which not only provide content; they also stimulate the interest that makes the curriculum relevant, meeting the course objectives. Students can watch these video lectures or they can revisit the stream at any point replaying the part that they did not understand. Students can view and study these instructors's lecture as often as they wish until they understand the material. These video lectures helps in improving student's grades and increases their overall level of satisfaction and confidence. Even the most complex and challenging subjects can be delivered to the students in a more interesting way.

Activity aids:

Industrial Tours, Excursion, field trips:

Industrial visits are considered as one of the most strategic methods of teaching and learning process. These tours provide students with an opportunity to learn in real time, practically through interaction, working methods and employment practices. They represent an important activity that contributes to the achievement of various essential learning outcomes and program objectives for the pre-final year and final year students.

Preparation of models, charts, Role play, Demonstration, Interactive games, Quizzical, Questionnaires:

This is an instant way of assessment of the students and reflects the teaching and learning process. The teacher prepares the questionnaire based on the subject, divides the class into groups and conducts the questionnaire or interactive games. They evoke memory recall of the subject or the topic(s) that are covered in the classroom by the students very effectively. It is used as a tool to elicit competitive spirit to gain good grades and winning attitude. Overall, this helps the students to prepare for online tests and quizzes which are assessments.

Internet:

Internet provides access to an amazing number of constantly updated and expanding resources and an incredible wealth of information. The Teaching-Learning Process at the institute includes self-research by students on topics given as assignments and seminars. Students use it as discussion boards, to discuss what they find with classmates or, if they're using e-mail, with students in another class or an expert in the field they are studying, and finally they can publish their work on the Web. Students are empowered as learners, they are motivated to use e-tools to enhance and develop team building skills, and learning through sharing.

The framework for learning is more adaptable to a fast-changing world, resources for learning are replaced by online link to the real world, resources can be adapted to immediate learning needs and skills are developed for the information age.

The institute records all activity under Mini- and Major Projects as video presentations for motivating and educating the fresh batch students providing a platform for novelty, innovative thinking and interaction with alumni.

Internet skills are important for employment, improve quality of life, etc.; our students need to master them no matter whatever their field or profession.

6.1.3 Acoustics, classroom size, conditions of chairs/benches, air circulation, lighting, exits, ambience, and such other amenities/facilities (5) Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table and the inspection thereof.)

All classrooms are well furnished, ventilated, and spacious and equipped with modern teaching aids. Separate rooms are available for tutorial classes with necessary infrastructure. Large size classrooms, seminar halls and laboratories have two exits for emergencies. All classrooms are acoustically designed to minimize echo and sound distortion. On the whole at GRIET, the class / tutorial rooms, seminar halls are designed in a way that they provide a conductive environment which is needed for technology enhance learning with all the modern teaching aids and amenities.

				Air circulation /	Amenities

Room No	Room Size in sq.mt / strength	Acoustics	Conditions of chairs/benches	Lighting / Exit / Ambience	/ Facilities
2203	84 sq.mt / 60	Good	Excellent	Excellent	State-of-art infrastructure, necessary gadgets
2208	84 sq.mt / 60				
2301	84 sq.mt / 60				
2202	84 sq.mt / 60				
2303	84 sq.mt / 60				
2307	84 sq.mt / 60				
2403	84 sq.mt / 60				
2408	84 sq.mt / 60				
2414	84 sq.mt / 60				

6.2 Faculty Rooms in the Department (15)

Total Marks : 15.00

6.2.1 Availability of individual faculty rooms (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- Three halls of size 84 sq.mt each are utilized to have room for the teaching faculty.
- Each hall is portioned into 8 cubicles for accommodating 1 – 3 faculty members comfortably.
- Each cubicle is well equipped with necessary infrastructure, good ventilation and wi-fi facility round the clock.
- The cabins are spacious enough to have interactions with students personally.
- Three halls of size 21 sq.mt each are utilized to have room for the teaching faculty.

Room No	No. of Cabins	Room size in sq.mt
2209	8	84 sq.mt
2210	8	84 sq.mt
2409	8	84 sq.mt
2313	2	21 sq.mt
2216	1	21 sq.mt

6.2.2 Room equipped with white/black board, computer, Internet, and such other amenities/facilities (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table)

- Rooms are provided with Wi-Fi internet facility and uninterrupted power supply
- Staff rooms are equipped with computers, printers and scanners.
- Every staff cabin is equipped with wooden racks to facilitate the faculty for storing books and files
- Staff room is provided with purified drinking water and a kitchenette for the recreation.

Room No	White/ Black Board	Computer/ Internet Facilities	Cupboards	Amenities/facilities
2209	Yes	Wi-Fi Connectivity	Adequate in number	Common desktop computer, scanner, printer, Water purifier, Microwave Oven, Induction Stove etc…
2210	Yes			
2409	Yes			

6.2.3 Usage of room for counselling/discussion with students (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table and the inspection thereof.)

- Adequate space is available in the faculty rooms for discussions / clarifications / counseling with the students.
- Each faculty can have discussion with his / her project team or research group in their respective cabins.
- Faculty mentors are assigned to students in the program. Mentors meet one – on – one with students in their respective cubicles to counsel on course planning, inspire students to gain confidence and self- motivation.

Room No	Space For Discussions with Students	Department library facility for faculty
2209		

2210	Yes	Yes
2409		

The following table is required for the subsequent criteria.

Laboratory description in the curriculum	Exclusive use / shared	Space, number of students	Number of experiments	Quality of instruments	Laboratory manuals
Microwave Engineering Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Signals and Systems Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Analog Communication Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Digital Signal Processing Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Microcontrollers Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Digital Communication Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Analog Electronics Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
VLSI Design Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Embedded Systems Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Digital Electronics lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Electronic Circuit Analysis Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Communication Protocols Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
Digital Image Processing Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available
OOP Through JAVA Lab	Exclusive	84 sq.mt , 36	15	Excellent	Available

6.3 Laboratories in the Department to meet the Curriculum Requirements and the POs (25)

Total Marks : 25.00

6.3.1 Adequate, well-equipped laboratories to meet the curriculum requirements and the POs (10) Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The department has excellent laboratory infrastructural facilities and all the year students are trained in their respective laboratories to enhance their practical skills and also to meet their curriculum requirements.
- Laboratories are equipped with sufficient hardware & licensed software to run program specific curriculum and off program curriculum.
- These laboratories are under the guidance of well experienced faculty, lab assistants and lab technicians.
- Lab manuals are available for all the lab courses which consist of solutions for curriculum experiments and additional experiments.
- Product laboratory is available for faculty and students to carry their innovative products and projects.
- Exclusively a project lab has been provided for the students to carry out their mini and major project work.

Lab Description in the Curriculum	Exclusive / Shared	Space (Sq.mts), Number of Students	Number of Experiments	Quality of instruments	Lab manuals
Microwave Engineering Lab	Exclusive	84sq.mt, 36	15	Excellent	Available
Signals and Systems Lab		84sq.mt, 36	15		
Analog Communication Lab		84sq.mt, 36	15		
Digital Signal Processing Lab		84sq.mt, 36	15		
Microcontrollers Lab		84sq.mt, 36	15		
Digital Communication Lab		84sq.mt, 36	15		
Analog Electronics Lab		84sq.mt, 36	15		
VLSI Lab		84sq.mt, 36	15		
Embedded Systems Lab		84sq.mt, 36	15		
Digital Electronics lab		84sq.mt, 36	15		
Electronic Circuit Analysis Lab		84sq.mt, 36	15		
Communication Protocols Lab		84sq.mt, 36	15		
Digital Image Processing		84sq.mt, 36	15		

OOP Through Java Lab		84sq.mt, 36	15		

Mapping of Laboratories with Programme Outcomes:

Name of the Laboratory	Programme Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Microwave Engineering Lab		x	x						x		x	
Signals and Systems Lab	x	x	x		x			x			x	x
Analog Communication Lab		x			x						x	x
Digital Signal Processing Lab	x					x		x		x		x
Microcontrollers Lab		x		x			x					x
Digital Communication Lab	x				x	x			x			x
Analog Electronics Lab		x	x						x			x
VLSI Design Lab						x		x		x		
Embedded Systems Lab		x			x						x	
Digital Electronics lab	x	x									x	
Electronic Circuit Analysis Lab		x	x						x			x
Communication Protocols Lab	x				x	x			x			x
Digital Image Processing Lab	x					x		x		x		x
OOP Through JAVA Lab		x	x	x		x					x	

6.3.2 Availability of computing facilities in the department (5) Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- Around 290 computers are available in the labs with fully loaded licensed software's to facilitate all students to carry their course work.
- Product lab is also provided with adequate number of computers to carry their product /promotion and projects.
- All labs are provided with Un-interruptible power supply

Laboratory	Room Number	No of Computers/ Laptops	Condition of Equipment	Hardware / Software	PEOs
Microwave Engineering Lab/ Digital Image Processing Lab	Laboratory Room No:2207	30	Excellent	Microwave Work Benches, Optical Communications Work Benches, Spectrum analyzer etc…	1,2,3,4
Signals and Systems Lab/ Digital Signal Processing Lab	Laboratory Room No:2201	27	Excellent	Computers, CROs, DSK 6713 kits, Matlab Software etc.. Matlab software	1,2,3,4
Analog Communication Lab/ Digital communication Lab	Laboratory Room No:2202	30	Excellent	Kits, CROs, Function Generators, Computers, Matlab software	1,2,3,4
Digaital ElectronicsLab/ Microcontrollers Lab	Laboratory Room No:2402	60	Excellent	CPLD Kits, Computers, Xilinx software etc…& Microcomputer Kits, Bread boards, AVR software, CROs, Interfacing units etc…	1,2,3,4
Communication Protocols Lab		30	Excellent	DC Kits, DSKc 6713 kits, Computers, CROs, Matlab software, CCStudio software	1,2,3,4

	No:2306				
Electronic Circuit Analysis Lab / Analog Electronics Lab	Laboratory Room No:2205	30	Excellent	Kits, CROs, Function Generators, Computers, Eagle software etc…	1,2,3,4
VLSI Design Lab	Laboratory Room No:2204	36	Excellent	FPGA Kits, Computers	1,2,3,4
Industrial Oriented Mini Project Lab	Laboratory Room No:2206	32	Excellent	Computers and Software.	1,2,3,4
Embedded System Lab/ OOP Through Java	Laboratory Room No:2401	15	Excellent	Computers, Microcontroller Kits, AVR software, CROs, Interfacing units etc… & JAVA software etc…	1,2,3,4

6.3.3 Availability of laboratories with technical support within and beyond working hours (5) Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

Name of the Laboratory	Working Hours	Work carried out in beyond working hours	Lab In-charge	Lab Faculty
Signals and Systems lab	8.00 A.M to 2.00 P.M	Signal applications through SEILAB	M.Gopala Krishnam Raju	V. Hima Bindu & N.Srinivasa Rao
Electronic Circuit Analysis Lab/Analog Electronics Lab	8.00 A.M to 2.00 P.M	PCB Design	D.V.S.S.Kumar	G.Pradeep Reddy /G.Meera
Analog Communications Lab	8.00 A.M to 2.00 P.M	Analog Modulation techniques using DSK 6713 kits	I.Nagendra Verma	K.Padmavathi/A.Ushasree
Digital Communications Lab	9.00 A.M to 3.00 P.M	Digital Modulation techniques using DSK 6713 kits	I.Nagendra Verma	N.Swetha & D.L.Chaitanya
Microcontrollers Lab	9.00 A.M to 3.00 P.M	Working on arduino Boards	M.R. Bhagavan Raju	G.L.Sumalatha/Ch.Pratyusha
Digital Signal Processing Lab	9.00 A.M to 3.00 P.M	Communication applications with DSK 6713	M.Gopala Krishnam Raju	G.V.Subba Reddy/ R.N.Pavani
Microwave Engineering Lab	11.00 A.M to 5.00 P.M	Working with Antenna module with different applications	K.Vijaya Lakshmi	Y.S.Reddy /R.Uma Susheela
Digital Electronics Lab	8.00 A.M to 2.00 P.M	Coding&Simulation with Verilog HDL	D.V.S.S.Kumar	K.Nagaja/ T.Santosh Kumar
Embedded Systems Lab	11.00 A.M to 5.00 P.M	Microprocessors applications	M.R.Bhagavan Raju	Y.Priyanka/ B.Shilpa
VLSI Design Lab	11.00 A.M to 5.00 P.M	Digital system design through CADENCE tools	K.Vijaya Lakshmi	MOV Pavan Kumar/B.Veera Reddy
Digital Image Processing Lab	11.00 A.M to 5.00 P.M	Matalb tool boxes	K.Vijaya Lakshmi	K.Meenaksh/K.Swaraja
Communication Protocols Lab	11.00 A.M to 5.00 P.M	Ardinuo kits	Bhavana Raju	K.Swaraja/ V.Anjani

- The college timings are staggered for all the four year students in order to avoid any discrepancy in the laboratory schedules.
- All the laboratories are open from 8:00AM in the morning till 6:00PM in the evening and the technical staff is made available for the time the laboratory is open to assist the students in their respective sessions irrespective of their lab schedules.
- All the laboratories have sufficient equipment in running condition for the students to perform their experiments.
- The ratio of student to equipment available is maintained to be 2:1 to have a clear understanding of all the experiments performed in the lab sessions.
- Technical staff is trained to handle all the laboratory activities and every laboratory has an in-charge who takes care of all the laboratory equipment.
- To ensure the smooth functioning of the laboratory a couple of staff members accompany the technical staff along with lab assistants and lab technicians.

Year	College Timings	Laboratories & Student projects Lab timings	Availability of tech support in lab timings
II	8.00 A.M to 2.00 P.M	8.00 A.M to 6.00 P.M	YES
III	9.00 A.M to 3.00 P.M	8.00 A.M to 6.00 P.M	YES
IV	11.00 A.M to 5.00 P.M	8.00 A.M to 6.00 P.M	YES

6.3.4 Equipment to run experiments and their maintenance, number of students per experimental setup, size of the laboratories, overall ambience, etc (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The laboratories are equipped with high-end configuration systems needed for execution of experiments.
- Laboratories are well maintained by the technical and non-technical staff.
- Sufficient numbers of systems are available for the students to carry out the experiments.

Laboratory	Equipment	Maintenance	No of Students per Experiment	Size of the Laboratory	Overall ambience
Signals and Systems Lab	Computers with MATLAB software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84sq.mt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Analog Electronics Lab	Kits, Bread boards, Discrete Components, CROs, Function Generators, Computers	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Analog Communications Lab	Kits, Computers, CROs, Function Generators, Matlab Software etc..	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Digital Communications Lab	Kits, Computers, CROs, Function Generators, DSK 6713 kits, Matlab Software	Maintained by Skilled lab technician & Skilled computer		84 sqmt	Qualified faculty, staff with good condition of lab equipment has created

		Professional			learning
Micro Controllers Lab	Kits, Computers, Interfacing units, TASM Software etc…	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Digital Signal Processing	DSKc 6713 kits, Computers, CROs, Matlab software, CCStudio software etc..	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Microwave Engineering Lab	Microwave Work Benches, Optical Communications Work Benches, Spectrum analyzer etc…	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Digital Electronics Lab	Computers with Xilinx software, CPLD kits	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Embedded systems Lab	Arduino Kits, Computers with arduino Software etc…	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
VLSI Design Lab	Computers with Xilinx software, FPGA kits	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Electronic Circuit Analysis Lab	Computers with Licensensed NI softeare	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Communication Protocols Lab	Computers Aurdino Boards	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Digital Image Prcessing Lab	Computers with licensed Matalab Software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning
Digital Electronics Lab	Computers with licensed Vivaldo Software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84 sqmt	Qualified faculty, staff with good condition of lab equipment has created an ambience for learning

6.4 Technical Manpower Support in the Department (15) **Total Marks : 15.00**

Name of the technical staff	Designation	pay-scale	Exclusive / shared work	Date of joining	Qualification At Joining	Qualification Now	Other technical skills gained	Responsibility
M. Gopala Krishnam Raju	Mechanic	Basic 24440/- Gross 36193/-	Exclusive	04/12/2000	L.E.C.E	L.E.C.E	Trained on PC hardware maintenance	DSP&SS Labs
I. Nagendra Verma	Mechanic	Basic 24440/- Gross 36193/-	Exclusive	14/07/2000	D.E.C.E	D.E.C.E	Trained on PC hardware maintenance	AC & DC Labs
D.V.S.S.Kumar	Lab Assistant	Basic 25140/- Gross 37159/-	Exclusive	05/11/1998	I.T.I	I.T.I	Trained on PCB Design & maintenance	Analog Electronics, ECALab, VLSI
M.R. Bhagavan Raju	Lab Assistant	Basic 24440/- Gross 36193/-	Exclusive	01/07/2000	I.T.I	I.T.I	Trained on PC hardware maintenance	Communication Protocols
K.Vijaya Lakshmi	Lab Assistant	Basic 24000/- Gross 36693/-	Exclusive	22/06/2012	B.TECH	B.TECH	Trained on PC hardware maintenance	Microwave & Digital Image Processing
B.Srinivasa Rao	Lab Assiatant	Basic 6700/- Gross 9500/-	Exclusive	18/12/2014	B.TECH	B.TECH	Trained on PC hardware maintenance	Microwave & Digital Image Processing

6.4.1 Availability of adequate and qualified technical supporting staff for programme-specific laboratories (10) Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The technical proficiency of the technical staff is such that they are highly versatile in adapting as per programme needs and running the experiment and cater to requirements of all the three year-wise batches and their experiments.
- Each laboratory is maintained by one Technical Staff and they are available exclusively for that laboratory based on the semester requirements.

Their duties are:

- Issuing the components and equipment, Monitoring and take the responsibilities along with concerned lab in charge faculty.
- Maintenance of the equipment, collecting the complaints from students / staff on equipment and resolve their complaints.
- Maintain the stock register as per the guidelines from the higher authorities.
- Taking safety precautionary measures while handling the equipment.
- The technical staff regularly enhances their skills through participating in workshops.

S.No	Laboratory	Qualified technical Staff	Designation
1	Signals &Systems	I.Nagendra Verma	Mechanic
2	Micro controllers	B.Srinivasa Rao	Lab Assistant
3	Electronic Circuit Analysis	D.V.S.S.Kumar	Lab Assistant
4	Digital Electronics	M. Gopala Krishnam Raju	Mechanic
5	Analog Communications	I.Nagendra Verma	Mechanic
6	Digital Communications	I.Nagendra Verma	Mechanic
7	VLSI Design	K.Vijaya Lakshmi	Lab Assistant
8	Digital Signal Processing	M. Gopala Krishnam Raju	Mechanic
9	Microwave Engineering	K. Vijaya Lakshmi	Lab Assistant
10	Embedded Systems	B.Srinivasa Rao	Lab Assistant
11	Communication protocols	M.R. Bhagavan Raju	Lab Assistant
12	Analog Electronics	D.V.S.S.Kumar	Lab Assistant
13	Digital Image Processing	K. Vijaya Lakshmi	Lab Assistant
14	Oops through Java	M. Gopala Krishnam Raju	Mechanic

Technical Staff	About Technical Staff
	M. Gopala Krishnam Raju is a Diploma in Electronics and Communication Engineering (LECE) from State Board of Technical Education and Training, Hyderabad; He has well trained for modern tool usage. He has good in computer maintenance software and hardware loading. He has attended and participated in several workshops on modern tool usage.
	I. Nagendra varama is Diploma in Electronics and Communications Engineering from State Board of Technical Education, Karnataka. He has well trained for modern tool usage. He has good in software and hardware maintenance. He has good in Analog, Digital Communication Experimental concepts, and usage of DSP Processors and CCStudio tool usage.

	modern tool usages like cadence, Multisim, eagle tool for PCB designs. He has participated several workshops in the areas of Microcontrollers tools and PCB design tool usage. He has well in experimental setups and hardware, software maintainer.
	M.R.Bhavan Raju is ITI trainer from Minisry of Labour. He has well for modern tool usage like multisim. He has participated for several workshops on Networks and Electronic Devices. He is also trained for PCB design tool.
	K.Vijaya Laxmi is B.Tech Graduate from JNTU Hyderabad with Electronics and communication Engineering as a specialization. She has well trained for modern tool usage in the areas of Microwave and optical communication.
	B.Srinivasa Rao is B.Tech Graduate from JNTU Hyderabad with Electronics and Communication Engineering as a specialization. He has well trained for modern tool usage in the areas of Microcontrollers and Embedded System

6.4.2 Incentives, skill-upgrade, and professional advancement (5) Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

INCENTIVES:

- College provides incentives to non teaching and technical staff members
- The staff on official work are compensated for the conveyance expenses
- Staff deputed for any outstation programs is reimbursed the amount by the administration.
- Group Insurance Schemes are implemented.
- Interest free loans are disbursed for emergency needs on a case-to-case basis.
- Subsidized lunch & snacks facility are provided.
- Free lunch coupons are provided under a general scheme to help staff in times of need.
- Transportation is free
- Free medical facility is provided in the campus, apart from medical leaves and medical allowances.
- Educational loan for higher studies is available in eligible cases.
- Employee State Insurance (ESI), Employee Provident Fund (EPF) subscription available as per norms.
- College arranges get-together every year for non teaching and technical staff along with their family members.

SKILL UPGRADE:

- Staff training programmes are organized and conducted regularly to upgrade the technical skills of both technical and non teaching staff members
- Staff is trained on new equipments or tool by the Vendor during induction and installation in the department.
- Training is provided on operation of PCs, Printer, and Scanner, Internet modems, configuring IP address, power connection, software installations, PC format activity and antivirus installation.
- Training is provided on MS Office, Excel to non teaching and technical staff members as part of computer literacy programme
- Regular Training is provided to improve soft skills and communication skills.
- Training is provided on the aspects of safety, security and best laboratory practices.
- Training is provided on energy conservation for optimum use of all other resources.
- Induction and orientation programmes are conducted for all new recruits
- Intensive training provided on all laboratory experiments to meet changing syllabus requirements.

PROFESSIONAL ADVANCEMENT/ DEVELOPMENT:

- Eligible non teaching and technical staff members are given chance to study B.Tech and M.Tech course with subsidized tuition fee
- Eligible staff is promoted to the next cadre upon accumulation of seniority and experience in service e.g., eligible Lab assistant are promoted as Lab supervisors.
- Administrative staff is promoted as senior assistants; senior assistants are promoted to the next level in administration.
- Lab staff upon successful completion of B.Tech and M.Tech programmes is considered for promotion as teaching faculty after suitable orientation training like FDP.
- Technical staff are given free time to upgrade their knowledge and technical skill.

7 Academic Support Units and Teaching-Learning Process (75) **Total Marks : 70.91**

Students' Admission

Admission intake (for information only)

(Instruction: The intake of the students during the last three years against the sanctioned capacity may be reported here.)

Item	2015-2016	2014-2015	2013-2014	2012-2013
Sanctioned intake strength in the institute (N)	1080	1110	1110	930
Number of students admitted on merit basis (N1)	756	699	745	610
Number of students admitted on management quota/otherwise (N2)	324	306	308	259
Total number of admitted students in the institute (N1 + N2))	1080	1005	1053	869

Admission quality (for information only)

(Instruction: The admission quality of the students in terms of their ranks in the entrance examination may be presented here.)
Tabular data for estimating student-teacher ratio and faculty qualification for first year common courses)

Rank Range	2015-2016	2014-2015	2013-2014	2012-2013
1-10000	70	50	114	145
10000-50000	460	449	452	347
50000-100000	143	148	131	77
100000-150000	36	28	31	28
150000-200000	40	12	9	12
200000 and above	11	0	4	1
Admitted with State Government Norms based on Percentage in Intermediate Course	320	318	312	259

List of faculty members teaching first year courses:

(Instruction: The institution may list here the faculty members engaged in first year teaching along with other relevant data.)

Name of faculty member	Qualification	Designation	Date of joining the institution	Department with which associated	Distribution of teaching load(%)		
					1st year	UG	PG
Dr. S. Rama Murthy	Ph.D	Professor	14/07/2000	Basic Sciences	100	0	0
Dr. B R K Reddy	Ph.D	Professor	06/01/1998	Basic Sciences	100	0	0
Dr. D. Indira	Ph.D	Professor	17/01/2004	Basic Sciences	100	0	0
Dr. P.B. Appa Rao	Ph.D	Professor	25/04/2009	Basic Sciences	100	0	0
Dr. B.Srinivasa Rao	Ph.D	Professor	29/05/2013	Basic Sciences	100	0	0
Dr. K.V.Subba Raju	Ph.D	Professor	28/04/2014	Basic Sciences	100	0	0
Dr. C.R.Venkateswara Rao	Ph.D	Professor	29/03/2015	Basic Sciences	100	0	0
Dr. G.Patrick	Ph.D	Professor	27/03/2015	Basic Sciences	100	0	0
Dr. G Srinivas Bapiraju Dr. G Srinivas Bapiraju	Ph.D	Professor	05/06/2015	Basic Sciences	100	0	0
Dr. K.V.S.Raju	Ph.D	Assoc. Professor	08/11/2005	Basic Sciences	100	0	0
M. Sridhar	M.Sc, M.Tech	Assoc. Professor	14/09/2006	Basic Sciences	100	0	0
Dr.V.N. Rama Devi	M.Sc., MBA Ph.D	Asst. Professor	07/07/2008	Basic Sciences	200	0	0
Dr. G.Swapna	Ph.D	Asst. Professor	29/04/2015	Basic Sciences	100	0	0
Ms. Y. Gayathri	M.Com M.Phil	Asst. Professor	12/01/2003	Basic Sciences	100	0	0
K. Vagdevi	M.Sc., M.Tech	Asst. Professor	14/09/2005	Basic Sciences	100	0	0
M. Aravind Kumar	M.Phil (Ph.D)	Asst. Professor	30/06/2006	Basic Sciences	50	50	0
V. Lakshmi Prasanna	MA, M.Phil (Ph.D)	Asst. Professor	28/07/2008	Basic Sciences	75	25	0
Nirmalya Kumar Mohanty	M.Sc, M.Tech	Asst. Professor	19/07/2007	Basic Sciences	100	0	0
P. Sujeetha	MA	Asst. Professor	12/09/2007	Basic Sciences	75	25	0
S. Bhagath Kumar	M.Sc,	Asst.	10/01/2008	Basic Sciences	100	0	0

Ch. Phani Rama Krishna	M.Sc (Ph.D)	Asst. Professor	05/09/2008	Basic Sciences	0	100	0
R. Lakshmi Kanthi	MA (Ph.D)	Asst. Professor	07/02/2009	Basic Sciences	75	25	0
Ch.Vani	M.Sc	Asst. Professor	09/11/2009	Basic Sciences	100	0	0
Bh Saroja Rani	M.Sc	Asst. Professor	17/07/2010	Basic Sciences	100	0	0
K. Kalpana	M.Sc (Ph.D)	Asst. Professor	21/07/2010	Basic Sciences	100	0	0
M. Haritha Kiranmai	M.Sc	Asst. Professor	21/07/2010	Basic Sciences	100	0	0
Ms. N.Latha	MBA	Asst. Professor	26/07/2010	Basic Sciences	100	0	0
M. Krishna	M.Sc	Asst. Professor	17/10/2010	Basic Sciences	100	0	0
B. Shanti Sree	M.Sc	Asst. Professor	08/08/2011	Basic Sciences	100	0	0
M.V.Srikantha Reddy	M.Sc (ph.d)	Asst. Professor	23/09/2011	Basic Sciences	100	0	0
Ms. D.Roopa	MBA	Asst. Professor	20/10/2011	Basic Sciences	100	0	0
P. Lakshmi	M.Sc., M.Tech	Asst. Professor	01/07/2012	Basic Sciences	100	0	0
P.M. Rekha	M.Sc (Ph.D)	Asst. Professor	02/02/2012	Basic Sciences	75	25	0
B.Suresh	M.Sc (Ph.D)	Asst. Professor	09/02/2012	Basic Sciences	100	0	0
P.Naveen	M.Sc	Asst. Professor	16/06/2012	Basic Sciences	100	0	0
V.Sesha Sai Kumar Reddy	M.Sc	Asst. Professor	18/06/2012	Basic Sciences	100	0	0
J.Kishore Babu	M.Sc	Asst. Professor	13/09/2012	Basic Sciences	100	0	0
V. Sailaja	MBA	Asst. Professor	26/07/2012	Basic Sciences	100	0	0
Ms. G.Kalpana	M.Sc	Asst. Professor	07/01/2013	Basic Sciences	100	0	0
Ms.Arshia Fathima	M.Sc	Asst. Professor	17/06/2013	Basic Sciences	100	0	0
Ms. Sailaja Eswara	M.A, M.Phil	Asst. Professor	16/10/2013	Basic Sciences	100	0	0
Ms.M.Madhavi	M.Sc	Asst. Professor	07/10/2013	Basic Sciences	100	0	0
Ms. M. Hema Sri	M.SC, M.TECH & M.Phil	Asst. Professor	07/01/2014	Basic Sciences	100	0	0
Ms. Niharika A	B.Tech, PGDM	Asst.Professor	12/01/2014	Basic Sciences	100	0	0
Ms. S.Rama	M.Sc	Asst.Professor	09/02/2014	Basic Sciences	100	0	0
Mr. Yesu M	M.Sc	Asst.Professor	27/08/2014	Basic Sciences	100	0	0
Mr. M.Srinivas	M.Sc	Asst.Professor	22/09/2014	Basic Sciences	100	0	0
Mr. A Sri Hari	M.Sc	Asst.Professor	30/04/2015	Basic Sciences	100	0	0
Mr. V.Vinay Kumar	M.Sc	Asst.Professor	30/04/2016	Basic Sciences	100	0	0
Ms. G. Saimatha	M.Sc	Asst.Professor	30/04/2015	Basic Sciences	100	0	0
Ms. M.Pushpa Latha	M.A	Asst.Professor	06/11/2015	Basic Sciences	100	0	0
Mr. J.R. Hari Ram	M.A	Asst.Professor	06/11/2015	Basic Sciences	100	0	0
Ms. Rimy Kulshreshtha	M.A	Asst.Professor	06/12/2015	Basic Sciences	100	0	0
Ms T Sabitha	M.A	Asst.Professor	06/12/2015	Basic Sciences	100	0	0
Ms G Bhuvaneshwari	M.A	Asst.Professor	06/12/2015	Basic Sciences	100	0	0
G. Surekha	M.Tech	Asst.Professor	25/06/2007	ECE	100	0	0
N.Madhusudhana Rao	M.Tech	Asst.Professor	10/07/2007	ECE	100	0	0
D.Chandrashekar	M.E	Asst.Professor	07/11/2007	EEE	100	0	0
G. Sandhya Rani	M.Tech	Asst.Professor	11/07/2007	EEE	100	0	0
V.Himabindu	M.Tech	Asst.Professor	28/06/2011	EEE	100	0	0
M.Lohitha	M.Tech	Asst.Professor	23/04/2015	EEE	100	0	0
K. Sudha	M.E	Asst.Professor	12/08/2014	EEE	50	50	0
V V S Madhuri	M.Tech	Asst.Professor	30/06/2011	EEE	50	50	0

D. Dakshayini	M.Tech	Asst.Professor	15/12/2014	IT	100	0	0
P. Bharathi	M.Tech	Asst.Professor	19/12/2014	IT	50	50	0
Dr.Y.Vijayalatha	Phd	Professor	04/11/2007	IT	50	50	0
K. Sunil Reddy	M.Tech	Asst.Professor	15/04/2014	ME	100	0	0
M.Mamatha Gandhi	M.Tech	Asst.Professor	25/04/2013	ME	100	0	0
K.P Sirisha	M.E	Asst.Professor	20/08/2014	ME	100	0	0
P.Praveen	M.Tech	Asst.Professor	30/04/2015	ME	100	0	0
STGY Sandhya	M.Tech	Asst.Professor	10/06/2013	CSE	100	0	0
K.CH Suneetha	M.Tech	Asst.Professor	10/06/2013	CSE	100	0	0
D. Suguna Kumari	M.Tech	Asst.Professor	04/09/2014	CSE	100	0	0
A. Shravanthi	M.Tech	Asst.Professor	04/09/2014	CSE	100	0	0
H. Suresh	M.Tech	Asst.Professor	05/09/2014	CSE	100	0	0
P.Vijaya Lakshmi	M.Tech	Asst.Professor	06/09/2014	CSE	100	0	0
A. Sowmya	M.Tech	Asst.Professor	26/03/2015	CSE	100	0	0
P.Sujana	M.Tech	Asst.Professor	23/04/2015	CSE	100	0	0
P.Rajesh	M.Tech	Asst.Professor	09/09/2014	CSE	100	0	0
S.P.Raju	M.Tech	Asst.Professor	15/10/2010	CIVIL	50	50	0
P.Sirisha	M.Tech	Asst.Professor	10/02/2014	CIVIL	50	50	0
P.Bharat	M.Tech	Asst.Professor	01/07/2015	CIVIL	50	50	0

7.1 Academic Support Units (35)

Total Marks : 30.91

7.1.1 Assessment of First Year Student Teacher Ratio (FYSTR) (10)

Institute Marks : 10.00

Year	No. of students(approved intake strength)	No. of faculty members(considering fractional load)	FYSTR	Assessment=(10 x 15)/FYSTR(Max. is 10))
2013-2014	1110	75	14.8	10
2014-2015	1110	75	14.8	10
2015-2016	1080	75	14.4	10

Average assessment 10

7.1.2 Assessment of Faculty Qualification Teaching First Year Common Courses (15)

Institute Marks : 10.91

Assessment of qualification = 3 × (5x + 3y + 2z0)/N, where x + y + z0 ≤ N and z0 ≤ Z
x = Number of faculty members with PhD
y = Number of faculty members with ME/MTech/NET-Qualified/MPhil
z = Number of faculty members with BE/BTech/MSc/MCA/MA
N = Number of faculty members needed for FYSTR of 25

Year	X	Y	Z	N	Assessment of faculty qualification
2013-2014	11	38	33	45	10.73
2014-2015	13	36	33	45	11.00
2015-2016	13	36	33	45	11.00

Average assessment 10.91

7.1.3 Basic science/engineering laboratories (adequacy of space, number of students per batch, quality and availability of measuring instruments, laboratory manuals, list of experiments) (8)

Institute Marks : 8.00

(Instruction: The institution needs to mention the details for the basic science/engineering laboratories for the first year courses. The descriptors as listed here are suggestive in nature.)

Laboratory description	Space, number of students	Software Used	Type of experiments	Quality of instruments	Laboratory manuals
Engineering Physics Lab - 1	90 sqm / 30	NIL	12 experiments in Optical electrical	Excellent	Available
Engineering Physics Lab - 2	98 sqm / 30	NIL	12 experiments in Optical electrical	Excellent	Available
Engineering Chemistry Lab - 1	85 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available
Engineering Chemistry Lab - 2	80 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available
Engineering Chemistry Lab - 3	80 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available

programming and Data Structures Lab - 1	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu,	30 experiments in C language	Excellent	Available
Computer programming and Data Structures Lab - 2	80 sqm / 30	DevC, Turbo C, Linux with Ubuntu,	30 experiments in C language	Excellent	Available
Computer programming and Data Structures Lab - 3	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu,	30 experiments in C language	Excellent	Available
Computer programming and Data Structures Lab - 4	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu,	30 experiments in C language	Excellent	Available
Computer programming and Data Structures Lab - 5	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu,	30 experiments in C language	Excellent	Available
Engineering Workshop - 1	133 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
Engineering Workshop - 2	134 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
Engineering Workshop - 3	133 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
IT Workshop Lab-1	120 sqm / 60	Microsoft office, CISCO	16 experiments in Assembling disassembling of components, worksheets involving Microsoft office, installations of OS	Excellent	Available
IT Workshop Lab-2	120 sqm / 60	Microsoft office, CISCO	16 experiments in Assembling disassembling of components, worksheets involving Microsoft office, installations of OS	Excellent	Available

7.1.4 Language laboratory (2) Institute Marks : 2.00

(Instruction: The institution may provide the details of the language laboratory. The descriptors as listed here are not exhaustive).

Language Laboratory	Space, number of students	Software Used	Type of experiments	Quality of instruments	Guidance
English Language and Communication Skills Lab -1	85 sqm/60	Study skills, Clarity, Sky pronunciation suite, Teacher	Grammatical Exercises, Phonetics, pronounciation, Resume writing	Excellent	Students are guided & monitored by the instructor
English Language and Communication S2ills Lab -1	85 sqm/60	KAPLAN, Clarity, Sky Pronunciation suite	Oral & Technical Presentations, Vocabulary building, Writing skills, Interview skills	Excellent	Students are guided & monitored by the instructor

7.2 Teaching – Learning Process (40) Total Marks : 40.00

7.2.1 Tutorial classes to address student questions: size of tutorial classes, hours per subject given in the timetable (5) Institute Marks : 5.00

(Instruction: Here the institution may report the details of the tutorial classes that are being conducted on various subjects and also state the impact of such tutorial classes).

- Provision of tutorial classes in timetable(Yes/No) Yes
- Tutorial sheets provided(Yes/No) Yes
- Tutorial classes taken by: Faculty
- Number of tutorial classes per subject per week: 1
- Number of students per tutorial class: 40
- Number of subjects with tutorials: 1st year..... 2nd year..... 3rd year..... 4th year.....

1st Year : 66 2nd Year: 80 3rd Year : 77 4th Year : 55

Tutorial Classes for the Year 2015-16:

Branch	I Year	II Year	III Year	IV Year	Total
Electrical and Electronics Engineering	11	10	10	07	38
Mechanical Engineering	11	10	10	07	38
Electronics and Communication Engineering	11	10	09	06	36
Computer Science and Engineering	11	10	10	07	38
Information Technology	11	10	10	07	38
Civil Engineering	11	10	09	07	37

Biotechnology	-	10	10	07	27
Total	66	80	77	55	278

Tutorial classes are conducted for majority of the subjects for all the years. Additional exercises are designed for critical theory or practical subjects so as to enhance subject knowledge. Tutorials help the students to understand the subject through analysis, problem solving and in a discussion mode with the tutor. Tutorial impact is apparent through the higher performance level of the students and subsequent evaluation stages and their higher confidence levels when the subject is discussed in subsequent lecture classes.

7.2.2 Mentoring system to help at individual levels (5) Institute Marks : 5.00

(Instruction: Here the institution may report the details of the mentoring system that has been developed for the students for various purposes and also state the efficacy of such system).

• Mentoring System	Yes
• Type of Mentoring	Total Development
• Number of faculty mentors	All
• Number of students per mentor	20
• Frequency of meeting	Fortnightly or on need basis

Mentoring program is adopted in GRIET in order to improve the performance of the graduate students. Each mentor is assigned with a group of students (mentees) to closely monitor their academic performance and give timely guidance**.** Good mentoring is crucial to graduate student success both during and after graduation. Mentoring moves beyond advising because it becomes a more personal relationship that involves socialization into the norms of the profession, role modeling, career guidance and friendship along with support during research and thesis preparation.

Duties and Responsibilities of Mentor:

The **Mentor** is a teacher doing the role of friend, philosopher and guide to strengthen the weak student's academic performance. A Mentor is responsible for his/her mentees assigned, for the entire academic year and is answerable to the programme coordinator and has the following responsibilities:

- Maintaining the mentoring record of the students containing the information such as contact details, admission details, academic record, co/extra-curricular activities details, achievements and disciplinary actions if any etc.
- Conducting counseling sessions at least once a fort night and keeping a record of it. The frequency of meeting may be increased based on need.
- Noting the physical, mental, emotional status of the assigned mentees and to provide assistance.
- Keeping a tab on absenteeism in classes or exams, poor academic performance, unacceptable behavior and bringing to the notice of college authorities and their parents.
- All the counseling sessions lay emphasis on attitudes, value systems, hard work, and career planning.

7.2.3 Feedback analysis and reward / corrective measures taken, if any (5) Institute Marks : 5.00

(Instruction: The institution needs to design an effective feedback questionnaire. It needs to justify that the feedback mechanism it has developed really helps in evaluating teaching and finally contributing to the quality of teaching).

• Feedback collected for all courses(Yes/No)	Yes

• Specify the feedback collection process

1. Feedback is collected through structured forms from students, parents, employees and alumina. 2. Student's feedback on faculty is collected twice in semester once at the beginning of the course and one at the end. 3. Same feedback can also be taken through online. 4. Parents, Employers, Alumni as and when they visit the institute, every effort is made to collect feedback. (a) Organisation is responsive to the needs of the stakeholders by continuously monitoring the pulse of the Institution. This will ensure proper implementation of programmes, help to take mid course corrections, provide a mechanism to monitor and reward the good performers at the same time make the lagging behind to improve. Also to ensure an effective feedback and corrective mechanisms (b) Feedback forms are carefully designed for the following stake holders with responsibility indicated in brackets. i. Students (Head of Individual Dept) ii. Faculty (Dean of Faculty Development) iii. Parents (HOD of Individual Dept) iv. Employers (Dean of Training &Placements) v. Alumni (GRIET Alumni Association)

• Percentage of students participating	60%

• Specify the feedback analysis process

Feedback form consists of 10-13 questions. 2. Each question consists of the grading 5-1. 3. Cumulative analysis is done taking help of the feedback form for every faculty. 4. Based on the analysis the teaching /learning process in improved periodicity The Periodicity is chosen to form a valuable and appropriate input. (a) Student: Twice in an academic session once after a month of subject coverage and second after the subject completion. (b) Faculty: Twice a year in the month of May and November. (c) Parent: Once on Institute Parent Interaction Day and as and when a parent visits the institution. (d) Employer: Once a year at least. (e) Alumni: Once on Alumni Day i.e. on 15th August of each year

• Basis of reward / corrective measures, if any

Rewards: Letters of appreciation Monetary benefits Encouragement in terms of privileges Appreciations through mention in public functions. Corrective Mechanism (a) The feedbacks are analyzed by respective departmental Heads and provide the summary for discussion for Departmental and Institutional Developmental Monitoring meetings. (b) The student feedback is confidential. Therefore each HOD should exercise while preparing the summary sheet strictly for the benefit of the individual concerned, take his/her signature on the summary sheet and the same needs to be transferred to the appraisal system. (c) Alumni feedback is perused by GRIET alumni association secretary. (d) Employer's feedback need to be reviewed by Dean Training and Placements

• Number of corrective actions taken in the last three years	7

Faculty with top feedback grade are appreciated by the department, incentives of the current year are based on the past feedback reports. Faculties with bad feedback are sent to the Faculty Development Programs.

7.2.4 Scope for self-learning (5) Institute Marks : 5.00

(Instruction: The institution needs to specify the scope for self-learning / learning beyond syllabus and creation of facilities for self-learning / learning beyond syllabus.)

- The Co-curricular calendar is published at the beginning of each year which helps students to time their activity and involvement in self-learning.
- College timings are much wider than student working hours, giving students the time to refer and research, consult and learn.
- Time table is framed and provides for adequate leisure time to focus on self learning.
- Two electives in fourth year I Semester and three electives in fourth year II Semester gives ample flexibility to probe into advanced topics in the discipline concerned.
- Students are encouraged to utilize facilities to promote synthesis of knowledge by research while choosing topics for seminars, industry-oriented mini projects or main project/dissertation.
- The Programme centers introduce from time to time, innovative ways of combining Certification courses with the curriculums to give a professional touch to the learning process.
- College has created a digital class room as a remote center of IIT Bombay with facilities such as specialized internet 2Mbps bandwidth to watch programmes through Aview software. Computers, LCD projector and sound system is provided in the digital to see special video classes from the web.
- Digital library access is given to all the students through wifi internet where they can read latest research papers from the IEEE, Elsevier, Science Direct, McGraw Hill and ACM in the college campus.
- Professional Society Events are conducted in the college through IEEE, ISTE, IETE, IEI and CSI to create a platform for students to discuss various technical topics and demonstrate, exhibit their projects.
- Hardware and software project exhibition is conducted yearly once in the college to encourage students to demonstrate their work to all the college students, faculty, invitees, press and media
- Group discussions and technical quiz actives are conducted regularly to make students curious about innovating things.
- New additional facilities are provided to the students to explore innovative things in the laboratories.

7.2.5 Generation of self-learning facilities, and availability of materials for learning beyond syllabus (5) Institute Marks : 5.00

(Instruction: The institution needs to specify the facilities for self-learning / learning beyond syllabus.)

The institute patronizes self-leaning environment and has invested in facility building to support and enhance teaching-learning process.

Self learning facilities available for both the staff and students alike are:

- The Institute Library, a vast repository of volumes and titles
- Department Library, a specialized repository of volumes and titles and projects.
- e-learning Tools
  - Digital Libraries (IEEE, ACM, NPTEL)
  - e-lessons by faculty on college portal
  - CDs, Video bank in the library

- Links to other institutions locally and across the country:
  - Organizing seminars / Technical and Hands-on workshops; taking part in them by students
  - Membership in students-chapter of professional bodies like ICI, IEI, IEEE, ISTE, IETE, CSI, SAE.
  - Availability of course material from IUCEE
  - Interaction with eminent academic personalities through Guest lectures.
  - Interaction with industry experts through academic alliance events.
  - Organizing and take part in displays and road shows of industry oriented mini projects at the institute.
  - Taking part in Co-curricular activities, contests like x-Kernal, Scientific Fore Step and activities of Entrepreneurship Development Cell.
  - Access to streaming videos from ‘You Tube’ and uploading the projects on to ‘You Tube’ for receiving open critique.
  - Accessibility to popular Free access journals and resources on line such as:

    www.howstuffworks.com

    www.eng-tips.com

    www.sakshat.ac.in

    www.ocw.mit.edu

The above facilities go on, not only to strengthen the teaching–learning process for the students but also generates - academic discipline, scientific attitude, innovativeness and inculcates the self-learning process, and availability of materials support learning beyond syllabus whose beneficiary are both the faculty and the students.

7.2.6 Career Guidance, Training, Placement, and Entrepreneurship Cell (5) Institute Marks : 5.00

(Instruction: The institution may specify the facility and management to facilitate career guidance including counselling for higher studies, industry interaction for training/internship/placement, Entrepreneurship cell and incubation facility and impact of such systems)

Facilities

GRIET has set up a separate cells as per norms prescribed, to facilitate and manage career guidance, counseling, industry interaction, entrepreneurship development, incubation facility and to monitor their impacts.

“Career and Counseling”, “Training and Placement” and “Entrepreneurship Development cell” are under the charge of a senior faculty with industrial experience.

The Dean of Career Guidance and Counseling monitors the cell. The cell provides, Career Guidance and Counseling to students as per requirement.

- The Dean CG &C is assisted by 32 Counselors (8 Branches x 4 Batches each) who are faculty from respective Programme/Branch/Discipline.
- The cell reaches out to the students both professionally and personally.
- All eligible and employable graduates are transformed into competent employees for prospective industrial houses both in India and overseas with the help of CG&C
- In its service CG&C apart from career guidance, it also organizes seminars on career planning, soft skills development and campus recruitments and also interacts proactively with Industry HRD cells to facilitate campus placements.
- The Dean CG&C and his counselors are accessible to the students and it makes adequate arrangements for the guidance of students during admissions. They are counseled on choice of careers, and show empathy to their state of confusion and anxiety. They are also given psychological and social counseling apart from academic and career counseling.
- CG&C share a common facility created with the training and placement cell. Facilities available includes: One air conditioned Seminar hall with seating capacity for 250 persons with Wi-Fi and LCD projectors and screens, stage lighting and audio equipment. This is used for seminars on soft skills and technical subjects and for free placement seminars by companies.
- Air conditioned cabins are available for conducting interviews and one to one discussions.
- There are 19 discussion rooms provide the necessary accommodation for any information exchange.
- Dean Career Guidance and Counseling also assists the Training and Placement cell on the vital aspect of higher education.
- Books and software are available in Library for GATE/GRE / TOEFL / IELTS / GMAT/CAT preparation.
- GATE preparation books written by GRIET staff are also made available.
- Awareness lectures are given by Dean and other senior faculty from time to time.
- Alumni studying at IIMs, IITs whenever they visit GRIET are made to interact with students.
- Consultants of Higher Education and Universities of repute are invited to interact with students for clarification on higher studies, admission procedures, requirements and immigration rules.

Impact:

Higher studies information (MBA, M Tech and MS)

For higher studies both in India and abroad for last three years record is as follows:

Batch	Higher Studies Students in Abroad	Higher Studies Students In India	Total
2013-14	123	91	214
2014-15	111	18	129
2015-16	120	50	170

Training & Placements Cell:

Training and placements is one of the vital departments at GRIET. The cell is handled by a senior faculty with rich experience who is also Dean Training and Placement. He is also associated with Dean CG & C. The broad areas handled by the cell are:

1. Training on Soft Skills and personality development right from first year so as to prepare students for careers in industry.
2. It coordinates with industry for campus training, internship and for suitable placements.

The activities consist of:-

- Arranging personality development sessions both by experts from college, and from industry consultants like Time, Globe Arena, Career Path etc, appropriate to the year of study.
  - In the first year B.Tech. the focus is on goal setting and value systems
  - In the second year B.Tech. Time Management, Communication and Analytical Skills.
  - In the pre final and final years B.Tech. Group discussions, Interview skills, mock Interviews, H.R. & Technical Aptitude tests are conducted.
- College organize a unique Programme called ‘Parampara’, which is an interactive session between students in final year who are placed with pre-final students and also with the alumni who are about to face placement interviews.
- Periodic motivational lectures from industry experts.
- Periodic psychometric tests to assess the students.
- Arrange internships with industry and R&D.
- Arrange noted Consultants of Higher Education and Universities of repute- interaction sessions to clarify on higher studies, admission procedures, requirements and immigration rules.

Facilities

GRIET Training and Placement section is staffed well with qualified personal as below.

- Dean Training and Placements : 1
- Dean Career Guidance and Counseling : 1
- Training and Placement Officer : 1
- Placement Coordinators : 2

- One Air conditioned Seminar Hall is available with capacity of 250 students at a time. This is being used for giving training to the students of all academic years for soft skills development and technical subjects. This is also being used for the Pre-placement Talk by companies during Campus Placements.
- Air-conditioned rooms are available to simultaneously conduct a number of panels of Group Discussions (GDs), with each panel accommodating up to about 12 students.
- Air-conditioned cabins are available to simultaneously conduct interviews for a large number of students.
- Rooms are available to simultaneously conduct written test for a large number of students during Campus Placements.
- Online test can be conducted for about 200 students at a time.
- E-mail groups are formed every year for each batch of final year students for effective communication with the final year and passed out students.

Impact:

Batch	Placements
2013-14	407
2014-15	440
2015-16	450

Entrepreneurship Development Cell and Incubation Facility

Entrepreneurship Development Cell (EDC) is inaugurated on 5th October 2005 at Gokaraju Rangaraju Institute of Engineering and Technology with the aim of

- Developing entrepreneurial awareness and ability in students
- Creating a forum for potential entrepreneurs
- Developing an interface between academy and industry

The following programs are organized to develop entrepreneurship skills in students and also to familiarize them with various procedures required in converting an idea into a successful business.

It is handled by EC &IF coordinator who is senior faculty with experience.

Entrepreneurship Activities:

Year	Event	Achievement/ Impact
2013-14	1. Organized a guest lecture by eminent and entrepreneur Mr. Srikanth of sunfield energy pvt.Ltd on 23.10.2013 2. An interactive session with CEO of Fortune Automobiles Mr. Nirav Modi on 22.11.2013 3. Conducted competition on exhibiting innovative products on 22.01.2014	1. Explained entrepreneur opportunities to students 2. Improves the students knoweldge 3. Students participated with their ideas received the prizes and appreciation certificates
2014-15	1. Organized a seminar on importance of entrepreneurship on 27-8-2014 and Assistant Director MSME was chief guest 2. Conducted " idea tree" on 19-2-2015 3. Conducted an FDP for GRIET Staff from 26-3-2015 to 8-4-2015 in collaboration with Centre for Entrepreneurship Development GRIET initiated the culture of incubation centres in association with Govt.of India and private industries. 4. GRIET established incubation centre with Micro Small Medium Enterprise(MSME) 5. GRIET received grant worth Rs. 52 lakhs funding for 8 projects from MSME (Micro Small	1. For the Improvment of the students placement 2. Selected 2 ideas to be presented for Financial assistance to MSME 3.Thiry faculty participated in this program 4.Encourages students to become entrepreneurs

	government organization for encouraging students to become entrepreneurs	
2015-16	1."Outstanding Engineering colleges of Excellence" by CSR, July 2015 2. AAA+ by CAREERS 360,April 2015 3. GRIET in collaboration with IBM included Business Analytics& Big Data in Under Graduate (B. Tech) curriculum 4. Recognized as SIRO by DSIR 5. Recipient of TEQIP PHASE-II under WBA 6. Received Best Principal, Teacher, Student awards in 2014 by ISTE 7. Research funding from Govt. agencies like DST, DRDO, AICTE, UGC	1.For the Improvment of student project and its quality 2.For the Improvment of the faculty reasearch work 3.For the Improvment of students for placement 4. Encourages students to become entrepreneurs 5. Provides the industry relevant skills on the emerging technology for better understanding of the capability areas and employability

7.2.7 Co-curricular and Extra-curricular Activities (5) Institute Marks : 5.00

(Instruction: The institution may specify the Co-curricular and extra-curricular activities, e.g., NCC/NSS, cultural activities, etc)

GRIET lays stress on beyond academic activities through structured Co and Extra-curricular activities integrated and spread over the entire academic year, as they have profound impact in shaping up the overall personality of a student.

a) All activities are preplanned and included in the college diary.

b) All activities are planned and executed by the student bodies with assistance from faculty when needed.

c) Pragnya (the Tech festival) and Pulse (the Cultural festival) are the major annual attractions.

Co-curricular activities:

a) Associations:

- Institute of Engineers India (IEI)
- Indian Concrete Institute(ICI)
- Computer Society of India (CSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- The Institution of Electronics and Telecommunication Engineers (IETE)
- Society for Automobile Engineers (SAE)
- Society of Manufacturing Engineers (SME)
- Indian Society for Technical Education (ISTE)
- Confederation of Indian Institute (CII)
- Hyderabad Management Association (HMA)
- Free Software Foundation
- Robotics Club
- Gaming Club
- Faculty Club
- GRIET is a life member of Institution of Engineers

GRIET-IEEE student branch is declared as III best exemplary branch in 2012-13 in R10 (Asia Pacific Region 10)

b) Annual Events:

projecting one's intellect and personality are sharpened and honed.

· **Quizzicals:** This event aims to provide a platform to concentrate on facts and figures with spontaneity in this competitive world through quiz programmes.

· **x-Kernel:** This event conducts periodic contests mainly in the software area.

· **Scientific Forestep:** Skills in hardware are put to constant test through this event.

· **i-TRIx and e-TRIx:** These are popular annual events on Robotics including both hardware and software components and students from across the country competes.

· **Pragnya:** An annual technical fest is organized during September-October.

Extra-Curricular Activities:

a) Games:

The Institute has a college team in all major games and sports. The teams participate in inter-university and state level tournaments and have won the prizes. GRIET has been regularly winning the local tournaments.

b) Cultural Activities:

The College has been conducting annual cultural competitions every year through the following bodies.

· **Rhythms:** Rhythms is an annual event wherein the students showcase their talents in music and dance. Competitive spirit is infused by way of awards and prizes for best performance. The event has created a Rock Band which has set a trend.

· **Spices:** This is an annual event where the culinary skills of students are tested annually – it is unique and the most popular contest in GRIET

· **Pulse:** A cultural festival held during the months of Jan-Mar every year to showcase the talents in dance, music and to witness the performances of famous Indian artists.

c) NSS Activities:

The National Service Scheme Unit of GRIET is actively involved in making students to be socially conscious by promoting involvement in the following activities:

· Involvement with NIRMAN, a home for mentally challenged students at Chintal, Hyderabad. Every year time and assistance is spared to make a one day memorable for the inmates. On 15 Aug 2011, students of Mechanical Engineering designed & Manufactured a paper plate making machine as part of the final year project and donated the same to NIRMAN to make them self-reliant. A true example of Engineers Social Responsibility vindicating the GRIET Mission statement.

· Associated with 'Sahaya', a home for destitute children at Miyapur, Hyderabad.

· Blood Donation Camp: GRIET is honoured by Governor, AP in June 2011 for being the highest donor in college category by Red Cross Society. The College has received this award four times in the last five years.

· Green Campus awareness – waste disposal, power and water optimization, plantations etc.

o In the recently held great power race, clean energy campus competitions in India, China & US in July-Oct 2010, GRIET is adjudged the second best.

o As part of WOW (Wealth from Waste), an effort from ITC, GRIET was appreciated as one of the top contributors in saving Trees. GRIET was felicitated on National Recycling Day on 01 July 11.

· Relief activities during floods in AP in October 2009

· Reudo: An Environmental fest is organized annually.

d) Other activities:

College promotes literary expressions through REFLECTIONS the college annual magazine, and GEM (GRIET E Magazine) a monthly letter.

Other Important Annual Functions are as follows:

· Annual Day: Celebrated on 26 January of each year

· Graduation Day: Second Saturday in July of each year. A unique celebration similar to the convocation ceremony in University. Graduate students are presented with provisional certificates in traditional graduation robes.

· Alumni Day: 15 Aug of each year Alumni meet at the college

· Parents Interaction Day: Parents are welcome to interact on every second Saturday

· Women's Day

- Teachers Day, Engineers Day are also celebrated.

7.2.8 Games and Sports facilities, and qualified sports instructors (5) Institute Marks : 5.00

(Instruction: The institution may specify the facilities available and their usage in brief)

GRIET understands that real education should concentrate on activities to develop body, mind and soul. There is adequate emphasis and facilities for physical activities. The Director of Physical Education supervises the students, oversees the management of equipment and the facility apart from interacting with other external sporting bodies for involving his protégé's in sports competitions. Sports and games is an essential extra-curricular activity to maintain competitive spirit, disciple and team spirit. Physical education also encourages the talented sports persons of the institute to excel in the all India inter-university competitions. Those who come out with good performance are given suitable incentives.

The Director of Physical Education acts as the chief organizer of the sports events plans, conducts and supervises them throughout the year.

Sports Facilities available in the college:

S.No	Name of the Event	Facility available	Management	Usage of Students
		OUTDOOR GAMES		
1	Basket Ball	38 x18 mtrs	Physical Director	60
2	Volley Ball	28 x 20 mtrs		120
3	Foot Ball	110 x 70 mtrs		80
4	Hockey	100 x 50 mtrs		20
5	Throw Ball	20 x 15 mtrs		150
6	Tennikoit	12 x 9.5 mtrs		75
7	Shuttle Badminton	13.5 x 6 mtrs		50
8	Ball Badminton	24 x 12 mtrs		30
9	Atheletic Track	200 mtrs		20
10	Cricket	Hard Pitch		200
		INDOOR GAMES		
1	TT	5 International Standard tables	Physical Director	80
2	Carroms	5 Game Boards		50
3	Chess	10 Game Boards		50
4	Gymnasium	Assorted Fitness Equipment worth Rs.15 lakhs		40
5	Billiards	1 Table with accessories		30

All the games and sports as mentioned above are extensively played every working day also at times holidays are also utilized for play in the spirit of competition.

Listed below are the categories and events that the students have participated in National/International and won awards in the last three academic years.

National and International Achievements:

1. G. Rohit of ECE (2006-10 Batch) is a Chess Player and

- Participated in World Junior Chess Championship
- Runner in Asian Junior Chess Championship
- Participated four times in All India Inter University Championship
- Winners in JNTU Inter University Championship

2. K. Sreekanth of Civil Engineering (2009-13 Batch) is a Cricket Player and

- Participated under 25 Andhra 'A' Team
- Participated under 22 Andhra Team
- Participated in South Zone Inter University Championship
- Runners Vizzy Trophy
- Participated in Ranji Trophy T20
- Selected for BCCI Specialist Academy Chennai

Others:

- Moulikaram of I B Tech CSE in Tennis, P Tejasri of I B Tech CE Ball Badminton.
- Mr L Rakesh lal of IV B Tech (EEE) won the "TCS Fit4life-Campus Challenge" a 5KM run organized by TCS on 08 Feb 15.
- Ms. Moulika Ram of II B Tech (CSE) won the 26 Rank in ITF and Runner of South Zone Inter University.
- Mr N Abhishek, 14245A0423, II B Tech (ECE) won the Gold Medal in Hyderabad District Archery Championship, Bronze Medal in 34th Sub junior National Archery Championship at Haryana, and through glory to the state by imagining , Bronze Medal in 35th National Games at Kerala. Please give them a big hand to encourage them.
- Swimming: Mr C M Sai Prasad participated in All Inter University.
- Volley Ball: Mr Varun of IV B Tech (EEE) participated in South Zone Inter University
- Circket: Mr Vikram II B Tech (CE) and Circket Mr Rohit B II B Tech (ECE) participated in South Zone Inter University
- Basket Ball: Ms Mrunalini II B Tech participated in South Zone Inter University
- Ball Badminton: Ms. S Soujanya participated in South Zone Inter University
- Kabadi: Ms Prameela B Tech (Mech) participated in South Zone Inter University
- Food Ball: Mr V Kalyan III B Tech (CSE) and Mr Varun Giri IV B Tech (BT) participated in South Zone Inter University
- Shuttle Badminton: Ms. P Teja girls single runners in JNTUH Inter college Competitions

Other Achievements:

Session	Category Name	Event Name	Organizer	Results
2013-14	Football	SNIST tournament	SNIST	Runners
	Football	MGIT Tournament	MGIT	Runners
	Football	CVSR Tournament	CVSR	Runners
	Basket Ball	Sreenidhi Tournament	Sreenidhi	Runners
	Basket Ball	NBA JAM	NBA	Runners
	Basket Ball	Osamania University Tournament	OU	Winners
	Basket Ball	All India BITs PILANI	BITs PILANI	Runners
	Basket Ball	HITAM College Tournament	HITAM College	Runners
	Basket Ball	CMR College Tournament	CMR College	Runners
	Cricket	MGIT Tournament	MGIT	Runners
	Table Tennis (Doubles)	SNIST Fest	SNIST	Runners
	Table Tennis (Singles)	SNIST Fest	SNIST	Runners
2014-15	Cricket	Vignan University Tournament	Vignan University	Winners
	Cricket	MVSR	MVSR	Semis
	Cricket	Aurora	Aurora	Semis
	Cricket	JNTU Zonals	JNTU	Leagues
	Cricket	JNIT	JNIT	Quarters
	Cricket	Telangana	Telangana	Semis
	Cricket	JNTUH tournament	JNTUH	Runners
	Cricket	MGIT Tournament	MGIT	Runners
	Basket Ball	MRCET Tournament	MRCET	Runners
	Basket Ball	CMRIC Tournament	CMRIC	Runners
	Basket Ball	VNR SLASH Tournament	VNR	Runners
	Basket Ball	MVSR Tournament	MVSR	Winners
	Basket Ball	HITAM Tournament	HITAM	Winners
	Basket Ball	BITS Hyderabad All India Tournament	BITS	Runners

8 Governance, Institutional Support and Financial Resources (75) **Total Marks : 75.00**

8.1 Campus Infrastructure and Facility (10) **Total Marks : 10.00**

8.1.1 Maintenance of academic infrastructure and facilities (4) Institute Marks : 4.00

(Instruction: Specify distinct features)

- Immaculately maintained campus with aesthetic Green coverage by Housekeeping and gardening personnel.
- All rooms have ample and large windows for day light and ventilation, Electrical illumination and electric fans as backup.
- Furnished Class rooms and labs with Desks and chairs, experiment tables; Lecture halls have White board, Over–head Projectors and LCD projectors-on demand, Wi-Fi internet. Maintained by qualified and trained Technical support staff.
- Laboratories are well equipped for the contemporary experiments as well as for projects, maintained by Laboratory Technicians and support staff.
- The campus has a fiber-optic cable backbone between the buildings and has Wi-Fi internet connectivity manned by qualified technical staff.
- Well-equipped workshops.
- Library Facility available at both Central and Department levels. Central library is maintained by the Librarian and support staff.
- Four seminar halls with seating capacity of 250 persons and a Main seminar hall with seating capacity for 450 persons, maintained by the House keeping and Trade technicians.
- Fully furnished and equipped Department Seminar Halls with LCD TV/Monitor, Projection screen, Lectern, Audio-Video equipment, Power backup and Air-conditioners, maintained by the House keeping and Trade technicians.
- Fully equipped and manned Career Guidance, Training and Placement cell.
- Open air Amphitheater and stage with seating capacity for 2000 persons.
- Adequate Toilet facilities are maintained by housekeeping.
- Reverse Osmosis water treatment Plant for purified drinking water. The raw water is brought by water tankers on a need basis for drinking and general purposes.
- Ample parking space on campus, coordinated by the Security wing.
- Oriental Bank of Commerce, Bachupally, GRIET campus- a nationalized bank with ATM facility on campus is maintained by branch personnel.
- Equipped Sports facilities for both Outdoor and Indoor games supervised by the Physical Director and manned by support staff.
- Hygienic Food Service by a Canteen, Kiosks and other catering facilities maintained by contractors.
- Institute owns a Fleet of Buses and Vans to cater to transportation needs of staff and students. They are operated and maintained by a team of experienced drivers, cleaners overseen by a Supervisor-Transport department and his support staff. The bus service covers all the corners of the city as per student demand.
- Stationery and Reprographic Centre maintained by contractor.
- Stand by Generators for uninterrupted power supply apart from UPS at vital nodes maintained by Support staff.
- The Institute contributes to reduction in Carbon foot print by adopting Green initiative -Solar Power generation with an installed capacity of 110 kW, the excess power being transferred to the State Power grid.
- Established Infrastructure Maintenance team of Housekeeping, Mechanical, Electrical, Plumbing, civil trades.
- Round-the-clock Security Team and Surveillance devices, maintained by Contractor.
- Dedicated Health Centre with Doctor and a Paramedic.

Transport facility:

College owns an exclusive fleet of 32 Light and Heavy vehicles for students and staff, ferrying them to and from notified stops on prominent routes in the surrounding areas and Special routes running across the city connecting borders of the city limits including maintenance vehicles.

Category	Passenger Buses	Mini Buses	Minivan /Trucks/Trollies
Student	19	7	-
Staff	1	1	-
Maintenance	-	-	Mini trucks-2; Water Tanker -1; Tractor Trolly-1

The routes and destinations are designed to transport students residing along an axis based on their density. The drivers are whetted for their experience and driving skills required to drive Education Institution vehicles and the support staff are trained to ensure safe and prompt shuttle services keeping the schedules. All Vehicles used are complying with the safety norms laid down by the Road Transport Authority for educational institution passenger vehicles. The Institute Transport committee periodically updates the staff on safety and related issues.

Canteen Facility:

Meeting the shift timings of Instructions for each batch of students the diet component is kept in mind to facilitate them with healthy food made by approved contractors. A spacious built-up facility is provided specifically for dining and refreshments for both staff and students. The Boys and girls section is demarcated so is the staff section to provide relaxed environment while consuming food. Hygiene is constantly monitored via feed back to the Canteen committee. The students and staff have a variety of food available both ‘a la carte’ and ‘table dhôte’ or platter. They also have the choice of specialist kiosks.

Additionally the institute runs the “Annaprasadam Scheme”, a social initiative to promote “sharing/ giving food” concept amongst GRIET members. The scheme started with providing ‘free lunch’ for 5 persons and has grown with voluntary contributions from staff members to provide free meals to up to 200 persons by noon. Volunteers from both students and staff apart from 2 cooks from support staff prepare homely meals and also help in self-service.

8.1.3 Electricity, power backup, telecom facility, drinking water, and security (4) Institute Marks : 4.00

(Instruction: Specify the details of installed capacity, quality, availability, etc.)

a) Electricity

Description	Qty
Transformers	2

b) Power Backup

Description	Qty
Diesel Generator Sets :250 KVA -1No 160 KVA -1No	2
UPS 10 KVA	1
UPS 5KVA	6
Solar power systems 10 KVA	1
Solar power systems 100 KVA	1

c) Telecom Facility

Description	Qty
Tata Indicom (Land lines)	10
Mobiles	10

d) Drinking Water

Description	Qty
R.O. Plant with a capacity of 3000 litres per hour	1
Tanker (12 KL) to convey	1
Mineral Water coolers with purifiers	30

e) Security

Description	Total
Security staff	35
Supervisors	3

8.2 Organisation, Governance, and Transparency (10) — Total Marks : 10.00

8.2.1 Governing body, administrative setup, and functions of various bodies (2) — Institute Marks : 2.00

(Instruction: List the governing, senate, and all other academic and administrative bodies; their memberships, functions, and responsibilities; frequency of the meetings; and attendance therein, in a tabular form. A few sample minutes of the meetings and action taken reports should be annexed.)

Committee	Chair	Members			Policies
Governing Body	President Dr. Gokaraju Ganga Raju	Management	Sri G.V.K. Ranga Raju	Vice-President	1. To set and monitor the organization's mission, purpose, direction, priorities and strategies within the boundaries of the organizational policies and bye-laws. 2. To approve the institution of new programmes of study, leading to the award of Degrees and or Diplomas based on the recommendations of the Academic Council. 3. To develop policies that allows the organization to serve well all its stakeholders. 4. To monitor the organization's programmes and services by influencing decisions and finances. 5. To institute scholarships, fellowships, studentships, medals, prizes and certificates. 6. To monitor development, the direction and growth of the institute and issue directions and recommendations. 7. To perform such other functions and institute committees, as may be necessary and deemed fit for the proper development and fulfill the objectives of the institute. 8. To approve appointments made by the Appointment/Selection Committee. **Committee Scheduled Meetings:** Once in Three months (A copy of sample is annexed)
			Sri G. Rama Raju	Member	
			Smt A. Vani	Member	
			Prof P S Raju	Member	
		Teachers of the Institute	Dr. S. V. Jayaram Kumar	Member	
			Dr. S. Rama Murthy	Member	
		Educationist/ Industrialist	Prof. V S Raju	Member	
			Sri V Rajanna	Member	
		AICTE Nominee	Mr. S. K. Jena	Member	
		UGC Nominee	Dr. S. Devaneshan	Member	
		State Government Nominee	Dr. S. Narsing Rao	Member	
		University Nominee	Dr. A. Damodaram	Member	
		Principal of Institute	Dr. Jandhyala N Murthy	Member-Secretary	
Academic Council	Principal	1. Heads of Departments. 2. Four faculty members other than the Heads of Departments representing the various categories (by rotation and seniority). 3. Four persons including educationalists of repute, one person from the industry and engineering related to the activities of the institute, who are not in the service of the institute and nominated by the Governing Body. 4. Three nominees of the parent university 5. A faculty member nominated by the Principal of the institute to act as Member Secretary.			1. To exercise general supervision over the academic work of the institute, to give directions regarding method(s) of instruction, evaluation, research and improvements in academic standards. 2. To scrutinize and approve the proposals of the Board of Studies related to courses of study, academic regulations, curricula, syllabi, their objectives and outcomes and modifications, instructional and evaluation arrangements, methods, procedures etc. 3. To make regulations regarding the admission of students to different programs of study. 4. To recommend to the Governing Body the proposals of institution for new programs of study. 5. To recommend to the Governing Body, institution of scholarships, studentships, fellowships, prizes and medals, and to frame regulations for the award of the same. 6. To advise the Governing Body on suggestion(s) pertaining to academic affairs made by it. 7. To perform such other functions as may be assigned by the Governing Body. **Committee Scheduled Meetings:** Two time a year (A copy of sample is annexed)
Board of Studies	Chairman Board of Studies	1. Programme Coordinators of the Department. 2. All teaching faculty of each course/ specialization offered. 3. Module coordinators. 4. Two external experts in the course concerned and nominated by the Academic Council. 5. One expert to be nominated by the Vice-chancellor from a panel of six recommended by Principal of the institute. 6. Not more than two persons to be co-opted for their expert knowledge including those belonging to the concerned profession or industry. 7. One post-graduate meritorious alumni nominated by the Principal. 8. The Chairman Board of Studies may with the approval of the Principal of the Institute co-opt: a. Experts from outside the institute whenever special courses of studies are to be formulated. b. Other members of the staff of the same faculty.			1. To prepare, frame and modify the syllabus for the various courses keeping in view the Programme objectives of the programme. 2. Evaluates programme effectiveness and proposes continuous improvement. 3. To suggest panel of names for appointment of examiners; and coordinate research, teaching, extension and other academic activities in the programme / institute. 4. To suggest new methodologies for innovative teaching and evaluation techniques and tools. 5. To review implementation of institutional quality assurance in the department for improving programme. 6. Guiding in evolving POs and COs based on assessment. **Committee Scheduled Meetings:** As and when necessary (A copy of sample is annexed)
					1. To review the financial affairs of the Institute and report

Finance Committee	Principal	1. One person nominated by the Governing Body of the institute for a period of two years. 2. Two senior-most faculty member of the institute to be nominated in rotation by the principal for two years. 3. Administrative Officer (Finance).	2. To consider budget estimates relating to the grant received/receivable from funding agencies, and income from fees, etc. collected for the activities to undertake the scheme of autonomy; 3. To prepare Annual Budget of the institution and Audited accounts for all the incomes and expenditures. 4. To review the audit reports and making recommendations. 5. To contribute to the preparation of the draft budget and recommending their approval to the Governing Body. **Committees Scheduled Meetings**: Once a Year (A copy of sample is annexed)
Selection Committee	Chairman of Governing Body or his nominee	1. Principal / Director of the institute. 2. Two nominees of the Vice Chancellor of the affiliating University. 3. Two subject experts 4. Head of the concerned programme of Professor Cadre.	1. To prepare a detailed list of vacant posts in all the programmes of the institute based on consultations with the Institute development committee, the HOD's of various programmes and guidelines from various agencies like UGC, AICTE, Parent University and the State Government. 2. To oversee notification, publication and scrutiny of the applications received before scheduling the tests, interviews and demo lectures. 3. To involve in the pro-active recruitment periodically of high quality faculty with exceptional qualifications from India or overseas. 4. To facilitate highly qualified personnel from both industry and R & D institutions as adjunct or visiting faculty for short durations to undertake teaching / research assignments. **Committee Scheduled Meetings:** Two time a year
Internal Quality Assurance Committee (IQAC)	Chairperson: Principal	1. Senior Administrative Officer 2. Administrative Officer 3. Faculty Members from all branches -7 4. Management Member-1 5. Student Members- 2 6. External Members- 2 (Industry and University) 7. Senior Professor Coordinator -1	1. Development of quality benchmarks/parameters for various academic and administrative activities of the institution and carry out the gap analysis for GRIET. 2. Facilitating the creation of a learner-centric environment conducive to quality education and faculty maturation to adopt the required knowledge and technology for participatory teaching and learning process carrying out periodic check of course outcome attainment and action taken from each faculty and its mapping on to POs, PEOs. 3. Monitor the action taken by departments on feedback response from students, parents and other stakeholders on quality-related institutional processes. 4. Dissemination of information on various quality parameters of higher education. 5. Organization of inter and intra institutional workshops, seminars on quality related themes and promotion of quality circles. 6. Documentation of the various programmes/activities leading to quality improvement. 7. Acting as a nodal agency of the Institution for coordinating quality-related activities, including adoption and dissemination of best practices, in tune with the institution strategic plan and goals by various departments. 8. Development and maintenance of institutional database through MIS for the purpose of maintaining /enhancing the institutional quality. 9. Development of Quality Culture in the institution. 10. Preparation of the Annual Quality Assurance Report (AQAR) and submit to NAAC. **Committee Scheduled Meetings:** Two times a year or as and when needed.
Institutional Development Monitoring Committee	Principal-IDMC Coordinator	1. Heads of all Departments/ Programme coordinators. 2. Two external members, 3. The administrative officer, 4. Two deans/senior Professors.	1. Principle Planning Body 2. Monitoring of Institute performance by Top Down-Bottom Up approach. 3. Monitors the attainment of Mission and Vision of Institute. 4. Evaluation of Departmental Mission and Vision, Programme specific POs and PEOs. 5. Taking suggestions from all stake holders and its subcommittees -Academic Affairs Committee, Departmental Development and Monitoring Committee, Class Coordinators Committee. 6. To provide the developmental and application of quality benchmarks/ parameters for the various academic and

		programmes.	7. To monitor promotion, implementation and continuous improvement of innovations in Curriculum, Co-curricular and Extra-curricular activities and facilities of the institution. 8. To advice and recommend the General Body and the academic council on any matter, that is considered necessary for the fulfillment of the objectives of the institute for consideration and approval. 9. To promote synergetic relationship with the industry and society, and promote Research and Consultancy. **Committee Scheduled Meetings:** Once in three months. (A copy of sample is annexed)
Academic Affairs Committee	Dean Academic Affairs	1. Deans of the institute 2. HODs of all the programmes.	1. To monitor and review academic activities as per academic calendar. 2. To monitor programme adherence of course work as per framed time tables. 3. To monitor attendance and implement promotional policy based on attendance and credits. 4. To generate student data required for Student Information System (SIS). **Committee Scheduled Meetings:** Once in three months or as and when needed
Departmental Development and Monitoring Committee (DDMC)	Head of the Department	1. All faculty are members- one among them will act as Secretary, 2. Members may be co-opted from other programmes, University, industry and key stake holders as per requirement	1. To formalize the departmental vision and mission. 2. Deliberates on the report of Programme Assessment Committee (PAC) and future issues. 3. To plan and monitor the growth of programmes of the department. 4. Develops and recommends new or revised PEOs 5. To ensure infrastructure, support facilities and activities to ensure for attainment of PEOs. **Committee Scheduled Meetings:** Two times a semester or as and when needed. (A copy of sample is annexed)
Programme Assessment Committee (PAC)	Programme Coordinator	1. Module Coordinators 2. Faculty of a particular course 3. Class Coordinators	1. To monitor feed backs from stake holders and taking action thereafter on academic matters 2. To monitor assessment and attainment of COs, POs and PEOs. 3. Evaluate Programme effectiveness and propose necessary changes for continuous improvement. 4. Motivate faculty and students to attend workshops, developing projects, working models, paper publications and research. 5. Interacts with Students, faculties, Programme coordinator, Module coordinators, and external stake holders in facilitating PEOs. 6. The report is submitted to the Department Development & Monitoring Committee **Committee Scheduled Meetings:** Once a semester or as and when needed. (A copy of sample is annexed)
Class Coordinating Committee (CCC)	Respective Class Coordinator	1. Faculty of a particular course 2. Student representatives.	1. To tap the suggestions of the students, to enhance teaching-learning process. 2. To monitor and improve the relations and shortfalls between academics and teaching environment. 3. Review of activities related to attainment of course outcomes **Committee Scheduled Meetings:** Two times a semester or as and when needed. (A copy of sample is annexed)
Research committee	Dean R&D	1. Five Staff members with R &D /Industry experience nominated by the Principal of the institute	1. To encourage faculty from each programme to submit research projects for extra-mural funding. 2. To screen, modify and submit the projects to funding agencies. 3. To promote tie-up with industry and other reputed universities. 4. To monitor the progress of the sanctioned projects, consultancy, patents and tie-ups. 5. To initiate industry-institute interaction for promoting new projects. 6. To guide and counsel, conduct courses on Entrepreneurship. **Committee Scheduled Meetings:** Two times a year or as and when needed.
Institute		1. Coordinators of Extra- curricular Groups,	1. Prepare college diary for the academic year 2. Monitor the progress of events as per diary

Coordinators Committee (ICC)	Dean Student Affairs	Student Class and Faculty In-charge for college diary and The Physical Director	beyond curricular activities for overall development of students. **Committee Scheduled Meetings:** Two times a year or as and when needed.

8.2.2 Defined rules, procedures, recruitment, and promotional policies, etc (2) Institute Marks : 2.00

(Instruction: List the published rules, policies, and procedures; year of publications; and state the extent of awareness among the employees/students. Also comment on its availability on Internet, etc.)

Policy:

The institution is constantly upgrading its quality of education and increasing the intake. To match changes in existing staff strength (both Teaching & Non-teaching), the human resources are constantly upgraded through fresh recruitments on biannual basis, also during emergencies/exigencies to meet the academic schedule. The institution recruits once in May / June and in Nov / Dec of the academic year.

Following acts and rules are adopted as guidelines for procedures, recruitments, promotional policies, code of conduct issued and updated from time to time by the regulatory bodies and the GRIET Administrative Manual (Red Book).

- Rules for Affiliation by Jawaharlal Nehru Technological University Hyderabad 2011-12
- AICTE Norms 2010-11
- UGC Norms for autonomous college 2011
- Rules and Bye laws of Society

Recruitment Procedure:

Teaching Staff:

Cadre Structure for Teaching Staff:

(a) Director

(b) Principal

(c) Dean -Professor / Associate Professor

(d) Professor / Associate Professor

(e) Assistant Professors / Lecturer (Selection Grade)

(f) Senior Lecturer / Senior Librarian

(g) Lecturer / Librarian / Director of Physical Education

(h) Teaching Assistants

Qualifications:

Faculty has been recruited based on the qualifications prescribed by the AICTE from time to time. Additionally JNTUH-FET,UGC-CSIR NET , Phd,and Post graduates with Industry Experience are prefered.

For the top administrative position of the Principal, apart from the guidelines given by the AICTE and JNTUH, administrative experience and ratification by the University is taken into consideration.

Mode of Selection of Teaching Staff:

Direct recruitment to all cadres is based strictly on merit. Invariably in almost all cases, the following procedure is followed:

(a) Advertisements are issued in leading newspapers.

(b) Applications are scrutinized on the fourth day after the last day for receipt of application.

(c) A Selection Committee is constituted as per Affiliating University and AICTE norms.

(d) Call letters for interviews are sent to eligible candidates, specifying place, date and time of interview.

(e) Selection Committee decides and recommends the candidates.

Sometimes depending on emergency / exigency of the situation, adhoc appointments are made on contract basis for specified periods.

Non-Teaching Staff:

Cadre Structure for Non-Teaching Staff:

(a) Office

- Administrative Officer
- Office Superintendent
- Senior Assistant
- Junior Assistant
- Record Assistant/ Data Entry Operator
- Attender

(b) Labs (other than computer Labs)

- Lab Assistant
- Lab Technician (Diploma)
- Lab Attender (SSC/Inter/ITI)

(c) Computer Labs

- System Administrator
- Programmer
- Lab Assistant
- Lab Technician

Qualifications:

Non-Teaching Staff has been recruited based on the qualifications prescribed by the state government/University/AICTE.

Mode of Selection for Non – Teaching Staff:

All positions are advertised in the news papers or notified in the local notice boards. After scrutiny of applications received, a short listing is made by the GRES Secretary / Principal. Interview call letters are sent to eligible candidates to appear for a trade test and subsequent personal interview. The selection committee consists of some or all of the following:

(a) President / nominee of President of the society

(b) Principal

(c) Administrative Head

(d) HOD of concerned department

- All appointments (Teaching and Non-teaching staff) made after selection, are forwarded to the Chairman for approval and the governing body is notified.
- Management is a single term, used to collectively represent the society through resident of GRES also known as Chief Executive Officer (CEO), Vice President also known as Chief Operations Officer (COO).

Promotion Policy :

Teaching Staff:

- Career Advancement Scheme implemented strictly in accordance with AICTE Rules.
- Higher Posts such as Professor and Associate Professor are offered through selection procedure.

Non-Teaching Staff:

- Time Bound promotions given to Non-Teaching Staff.
- Promotion to higher post through selection procedure.

Awareness:

- The administrative rules and regulations covering all cadres of staff employed also all information relating to roles, powers and administration is mentioned with clarity in the Institutes Administrative Manual/ GRIET Manual.
- The rules and regulations cover general administration, recruitment of staff, service conditions, duties, promotion policies, increments, awards and disciplinary actions etc.
- Syllabus books containing current regulation and rules, Programme nd course related information are made available for all students and staff, apart from its availability on the institute Web site www.griet.ac.in.
- Awareness of staff recruitment is made utilizing Newspaper and electronic media and widely broadcasted to attract fresh talents and skills.
- At the time of joining and through periodic departmental meetings and notices, awareness of rules and procedures is being maintained.
- The institute website publishes information on fresh vacancies and appointments for new posts.
- The 'College Diary', gives the academic calendar and all activities (circular and beyond), and the same information is accessible on the institute web site.

8.2.3 Decentralisation in working including delegation of financial power and grievance redressal system (3) Institute Marks : 3.00

(Instruction: List the names of the faculty members who are administrators/decision makers for various responsibilities. Specify the mechanism and composition of grievance redressal system, including faculty association, staff-union, if any.)

The management of the institute consists of a Governing Body with a panel of members as per norms of Society (GRES), nominees from industry, regulatory bodies such as UGC, AICTE, Affiliating University and the State Government.

I. **Decentralization in working**:

(i) Administration

- The Principal of the college is the head of the institution providing the required leadership to the institution and its system. The principal ensures that all provision of the university bye-laws, statutes and the regulations are observed. He convenes the meetings of the Advisory councils, the Academic council, Board of Studies, Finance committee, Institutional Development and Monitoring Committee, Selection Committee. He also oversees admission of students, recruitment of faculty, curricular co-curricular and extra-curricular activities, student feedback, internal and external assessments, financial implications, course contents.
- B.Tech I Year is monitored by Vice-Principal (I Year) while the B.Tech II, III and IV Year and PG Programmes are monitored by the respective Head of Departments.
- The faculty are actively engaged and involved in decision making process.
- Periodic meetings of HODs of all of the departments and also the intra-departmental meetings, convey and implement decisions taken by the committees and endorsed by management. Senior faculty members are represented in all committees by rotation to enhance administrative experience of all staff. This will help to refine and run the system of administration to continuously sustain, renew and enhance quality of the education by the institution.
- The Senior Administrative Officer oversees the non-academic aspects of Management of the institutes support systems including HR and is assisted by the Administrative Officer and Office Assistants who look after correspondence, admissions, HR, scholarships etc.
- The Finance aspects are looked after by the Finance Officer and are assisted by the Accountant and Deputy Accountant.

(ii) Examinations

- All the examination matters are dealt by Dean of Examinations (DOE) assisted the Controller of Examinations (CE) and by five Assistant Controllers of Examination (ACEs). The duties are delegated to the ACEs to assist the DOE in smooth functioning of both conduct and evaluation of examinations, publishing of result and maintaining records.

(iii) Departments

- HODs through their departmental committees and coordinators, administer each department's activity.
- Various annual activities, professional bodies and clubs are organized through their respective coordinators. The activities are grouped as given below:

(a) Academic Activities

S.No	Academic Activity
1	Ist Year B.Tech (All Branches)
2	M.Tech Programme
3	B.Tech (CCC)
4	TASK
5	EDP Cell
6	Technology Cell
7	College Diary
8	College Web Page
9	GRIP
10	Faculty Club
11	Women Development Cell
12	FSW
13	GRIET Alumni Association
14	Gaming Club
15	Robotic Club

(b) Co-Curricular & Extra-Curricular Activities

S No.	Activity
1	Annual Day
2	Graduation Day
3	NSS
4	Pragnya
5	Pulse
6	Quizzicals
7	Reflections
8	Rhythms
9	Scientific Forestep
10	Souvenir
11	Spices
12	Spirals
13	Sports & Games
14	x-Kernel

(c) Other Committees

S No	Committee
1	Canteen
2	Editorial
3	Library
4	Public Relations
5	Time Table
6	Transport
7	e-Resources

(d) Professional Bodies

S No.	Professional Bodies
1	CSI
2	IEEE
3	ISTE
4	SAE
5	SME
6	ICI
7	IEI
8	IETE
9	HMA
10	AIMS
11	TIE
12	BMSI
13	CII
14	CREAM

II. Delegation of financial power

(i) Director / Principal

(a) To authorize purchase of consumables for laboratories over and above the powers of the Head of the Departments.

(b) To permit reimbursement of traveling and other expenses for official purposes within the permitted limit to be decided by the CEO.

(c) To entertain guests.

(d) To sponsor faculty / staff for any academic and co-curricular activities as per norms.

(e) To authorize any other expenses he may deem essential.

The Principal may in case of any contingency obtain oral permission from the CEO, if the expenditure to be incurred exceeds his powers and get ratified by the CEO along with required receipts.

(ii) Heads of Departments:

The HODs are delegated with powers up to Rs.25,000/- for sanctioned work and Rs.10,000/- for unplanned work

(a) To make urgent consumable purchases for Lab.

(b) To meet small non-recurring expenses.

(c) To incur any other expense deemed necessary.

Utilization of financial powers for each of the assessment years:

Delegation of Financial Powers

S.No	Account Head	Delegated Amount	Utilization			
			CFY	CFYm1	CFYm2	CFYm3
1	Director /Principal	₹. 2,00,000	4,44,925	95,429	Nil	35,000
2	Head of Department / Programme	₹. 25,000	*			

(*to be filled in from HODs accounts)

III. Grievance Redressal Cell

All grievances of staff and students are to be redressed expeditiously, and each member is a key stakeholder of the organization. Any grievance reported verbally or written will be appropriately dealt with by the concerned Head of the Department. However, the aggrieved, if so desires or feels that his/her grievance is not redressed satisfactorily, can approach the Grievance Redressal Cell for Redressal. The composition of Cell is as follows:

Chairman

- Vice President, Governing Body

Members

- Director
- Principal
- Dean Student Affairs
- Dean Faculty Development
- Dean Discipline

The Grievance Redressal cell delegates to three other sub committees to deal with specific complaints, which are described as follows:

(i) Discipline Committee

The main role of discipline cell is to address the complaints from Student and Staff.

Self-discipline is primarily desirable, and all members in the institutions environment are expected to adhere to rules and regulations in an ideal situation. Any aberrations in this regard are to be referred to the Discipline Committee, who should dispose of the case expeditiously. All discipline matters of students and matters related to Teaching and non-Teaching staff are to be referred to Discipline Committee, consisting of:

Chairman

- Dean Discipline

Members

- Physical Director
- Two faculty Members nominated by the Principal

Co-opted

- HOD of concerned member staff/student
- Student member/Non-teaching staff member

(ii) Anti-ragging Committee

Ragging involves an act by senior students in baiting or bullying new students. Though a Universal phenomena, it often takes a malignant form wherein the newcomers may be subjected to psychological or physical discomfort or harassment.

To prevent and deter such incidents in Higher Educational Institutions, the Government of India has taken serious view on the cases of ragging. The other effective steps taken by the Government include notification of anti-ragging regulations by regulatory authorities viz. All Indian Council for Technical Education (AICTE) and University Grants Commission (UGC) vide F.1-16/2009(CPP-II) dated 21 October 2009. The media campaign started by Government since 2009 through print, audio/visual has created awareness throughout the country is reiterated every year.

Anti-ragging Committee members are as below:

- Principal
- Dean Discipline
- Circle Inspector of Police of Local Police Station
- Dean Student Affairs
- Dean Academic Affairs
- Physical Director
- Senior Administrative Officer
- Students Members –One from each Programme

GRIET follows the notification strictly and implements to protect its academic atmosphere from being marred by the acts of ragging. GRIET follows a three pronged approach of “Awareness, Avoidance & Action”. All direct approaches of talking to students in addition to using various media to make aware of the bad effects and strict punishments if indulged in. Under Avoidance it has instituted Anti Ragging squads under the Anti Ragging Committee to prevent ragging at the time of joining and continues the monitoring through the first year session. It also procedurally segregates Instructions, Travel and Canteen timings respectively. Any cases of ragging observed are to be referred to Disciplinary Committee for appropriate action. The students/parents are required to submit anti-ragging related affidavit to the Institute at the time of admissions.

(iii) Anti Sexual Harassment Cell

The Honorable Supreme Court in the case of Vishaka and Others Vs State of Rajasthan and Others (JT1997 (7) SC 384), has laid down guidelines and norms to be observed to prevent sexual harassment of working women. These are ingrained in the Government of India CCS Conduct Rules [Rule 3 (1) (iii)] in the light of misconduct which attracts appropriate disciplinary action at work place and where ever such conduct amounts to a specific offence under IPC the concerned authorities can initiate appropriate action under the law. Being a private academic institution GRIET is also within the purview of the law and its jurisdiction as UGC in its notification F.No.14-4/ 2012 (CPP-II) of December 2012 has formulated regulations in the letter (Para 1.1 and 1.2, which also applies to institutions recognized under Clause (f) of Section 2 of UGC act 1956).

At GRIET, the Principal has constituted the Anti Sexual Harassment Cell for prevention of sexual harassment in the campus, and the cell is empowered to deal with cases concerning sexual harassment of women staff and students and hence will function as a sub-committee of the institute.

The list of members and terms of references are given below:-

1. Chairperson
2. Faculty members from all departments
3. Senior Administrative Office
4. Co-opted Members
    i. Social Activist
    ii. Student Representative
    iii. Non-teaching Staff Representative

Functions:

- To deal appropriately with reported cases of sexual harassment, abuse or discrimination, and initiate action against particular grievances in respect of unfair treatment due to gender bias.
- The Anti Sexual Harassment Cell is responsible for initiating the necessary process of inquest on receipt of complaint from the dean Discipline.
- In case of the complaint is against any staff member of the committee then the Principal shall nominate appropriate Chair or member for the enquiry.
- The Anti Sexual Harassment Cell arbitrates sexual harassment cases, complete with provisions to recommend suitable punishment of the guilty to the Grievance Cell for further action.
- The guidelines have provisions depending on the different degrees of fault or offence-Minor, Moderate or Major, there are different degrees of “punishment” to deal with such offences

Tools to respond to offences include (1) Communication of the standard, (2) Disapproval, (3) Verbal warning, (4) Written warning, (5) Suspension/ Rustication of the guilty parties, (6) Termination of employment, in order to protect complainants from victimization.

- The guidelines followed are meant to act as a deterrent, and that this cell can be effective only influence suitable attitudinal change.

The activity of WDC addresses problems of women employees and empowerment of women.

(i) History & Inception

The JNT University Hyderabad, makes it mandatory for all affiliated colleges to have a Women's Development Cell and gives guidelines to the college establishment relating to functioning of gender issues cells (2001). Following in the footsteps of the JNT University, Gokaraju Rangaraju Institute of Engineering & Technology also has established a Women's Development Cell.

(ii) Scope

The Women's Development Cell of GRIET purports to conduct activities for the students, teachers and administrative / supporting staff of the college at 3 levels- Apex, College and Departmental levels. Activities at the Institutional Apex, level will aim at the community at large, the focus being on providing community interaction and meaningful humanitarian experience to students and teachers. It will also interact with governmental social bodies that address women's issue such as sexual harassment — verbal or physical in nature.

(iii) Objectives

- Create awareness on equal opportunity for women that will ultimately lead to improved attitude and behavior.
- To raise awareness vide lectures/ workshops for GRIET women students and staff members on different aspects of women's welfare.
- Bring about attitudinal and behavioral change in adolescent youth of the female gender.
- To discuss and suggest methods to promote gender amity amongst all GRIET women employees and students.
- Conduct programmers for ladies to empower them physically, emotionally, mentally and financially.
- To educate the women students to break out of social impediments and to convince them to come forward with problems and complaints.
- Provide a harassment free working atmosphere, by identifying and fixing responsibility on the concerned persons for ensuring equal treatment of and participation by women in all areas.
- To consider any other matter on women's issues referred to the cell.

(iv) Constitution of the Women's Development Cell:

1. Coordinator Lady Faculty

2. Members

Dean Faculty Development

Dean Student Affairs

Senior Lady Faculty

3. Co-opted members

Lady Faculty

Female Student

(v) Programmes/Activities:

In order to achieve the stated goals, the following programmers will be conducted / celebrated.

March 8 - Women's Day

April 7 - Health Day

Lectures will be organized, as per convenient timings, on adolescent health issues, women's professional problems, women's domestic / personal problems due to work-place pressures, and gender discrimination at different levels. Competitions such as Quiz, Debates and, Elocution competitions will be held besides activities of interest to ladies such as Rangoli, Mehendi, and Cooking etc.

V. Malpractice Prevention Committee:

A Malpractice Prevention Committee shall be constituted to examine and punish the students who indulge in malpractice/behave in an undisciplined way in examinations as per the punishment guidelines approved by the Academic Council.

Composition

- The Principal
- Controller of Examinations of the college
- Observer/ Invigilator
- Subject Expert (case/offence dependent)
- Head of Department of concerned candidate

8.2.4 Transparency and availability of correct/unambiguous information (3) Institute Marks : 3.00

(Instruction: Availability and dissemination of information through the Internet. Information provisioning in accordance with the Right to Information Act, 2005).

of the departments and the institute.

- The data of all staff are periodically collected and updated, the teaching faculty information is uploaded on the college web site.
- The administrative rules and regulations covering all cadre of staff employed is mentioned with clarity in the GRIET Manual which is updated. This manual is available with all the administrative heads as well as Head of Departments. Transparency is maintained relating to rules followed which include general administration, recruitment of staff, service conditions, duties, promotion policies, increments and awards and disciplinary actions.
- Recruitment and interview of all staff is done by issuing advertisements in leading local and national News papers and on college web site.

- The Selection Committee chaired by the Chairman, Governing Body or his nominee , the Principal, subject experts, Head of Departments and nominee of affiliating university form the constituent members and the recruitment and the short listed candidates are intimated by telephone and e mail.
- Recruited teaching faculty are interviewed and ratified by the University Ratification Committee and the result is intimated.
- All activities at the institute are recorded and posted on the institute web site.
- Periodic meetings of the Governing Body, Academic Council, Board of Studies are recorded as minutes of the meeting and the decisions and ratifications are handed down to the department levels. The departments in turn intimate the faculty members during the Departmental meetings. All administrative meetings held are recorded for transparency in order to maintain unambiguity.
- Mobile phone Short Messaging Service (SMS) are also effectively utilized to alert Students, staff, and other stake holders.
- All schedules are displayed on the Notice Boards, College Diary and the Web site. The College Diary gives the academic calendar and all activities (curricular and beyond) and the same can be accessed through the college web site.
- The Academic Regulations and Syllabus give transparency in implementing academic plans and gives information on the current regulations in force and its rules, credits , courses, attendance, examination etc. this information is available on the college web site.
- All relevant documents of the administrative and academic processes are displayed and available for inspections by several regulatory bodies such as the Affiliating University Task Force, State Government Task Force/ Committee, AICTE, NAAC, UGC and NBA teams. It is also available for corporate entities who recruit students, such as TCS, Infosys etc.
- The mandatory disclosure presented on the website provides all the academic details including the academic regulations and syllabus
- There are notice boards in all the blocks through which information is made available to the staff and students and very significant circulars are sent to the classrooms.

8.3 Budget Allocation, Utilisation, and Public Accounting (10) — Total Marks : 10.00

Summary of current financial year's budget and the actual expenditure incurred (exclusively for the institution) for three previous financial years.

(Instruction: The preceding list of items is not exhaustive. One may add other relevant items if applicable.)

Item	Budgeted in 2015-2016	Expenses in 2015-2016	Expenses in 2014-2015	Expenses in 2013-2014
Infrastructure built-up	55000000	63030000	5149000	4864000
Library	5000000	3228000	3790000	4131000
Laboratory equipment	35750000	27512000	28591000	11512000
Laboratory consumables	3900000	2465000	1311000	1049000
Teaching and non-teaching staff salary	248000000	251567000	192349000	153681000
R&D	3305000	6037000	1800000	1655000
Training and Travel	6500000	4969000	1356000	1017000
Maintenance and spares	25100000	2329000	5484000	6524000
Other Equipments	29000000	17167000	13603000	14587000
others	42500000	51332000	67279000	53944000
Total	454055000	429636000	320712000	252964000

8.3.1 Adequacy of budget allocation (4) — Institute Marks : 4.00

(Instruction: Here the institution needs to justify that the budget allocated over the years was adequate.)

GRIET follows the process of distributing the available financial resources to departments in a manner consistent with our institute's vision, mission, long-term goals which is transparent to stakeholders. The allocation model is updated annually and will continue to serve as the allocation instrument. Keeping in view that no budgeting process is perfect and that ideally there would be more funds to allocate, the goals of the process are to:

- Recognize the importance of staff to our long term success
- Encourage areas to focus on outputs directly related to our strategic plan
- Improve instructional and support facilities to make the learning environment vibrant
- Increase Research and Development

The institute allocates the available resources to the departments based on the forecasted requirements of the departments keeping the curricular and beyond curricular activities, R&D, Library, Transport, Welfare and Maintenance. It is the responsibility of the Departmental Development and Monitoring Committee (DDMC) to ensure the allocated resources are expended as per their forecasted plans. The emphasis will be to increase quality of academic inputs delivered and positively contribute to the institute in terms of development of new technologies, methods and practices.

8.3.2 Utilisation of allocated funds (5) — Institute Marks : 5.00

(Instruction: Here the institution needs to state how the budget was utilised during the last three years.)

The respective academic and supportive units are informed on allocation of funds under various heads. At the department level, the DDMC decides the utilization for the financial year's allocated funds in consultation with the concerned experts including Director/Principal following the purchase procedures.

Purchases are done up to the level of allocated funds, however under some special priority considerations, the purchases can go beyond the allocated funds which will be later ratified by the Governing Body. Delegation of financial powers done to keep the autonomy of the departments and reduce time delays.

8.3.3 Availability of the audited statements on the institute's website (1) Institute Marks : 1.00

(Instruction: Here the institution needs to state whether the audited statements are available on its website.)

YES, the Audited statements are available on GRIET website www.griet.ac.in

8.4 Programme Specific Budget Allocation, Utilisation (10) Total Marks : 10.00

Summary of budget for the CFY and the actual expenditure incurred in the CFYm1 and CFYm2 (exclusively for this programme in the department):

Items	Budgeted in 2015-2016	Actual Expenses in 2015-2016	Budgeted in 2014-2015	Actual Expenses in 2014-2015	Budgeted in 2013-2014	Actual Expenses in 2013-2014
Laboratory equipment	3000000	31000	3000000	1391000	2000000	1489000
Software	700000	57000	600000	955000	200000	114000
R&D	300000	0.00	300000	0.00	200000	3000
Laboratory consumables	500000	179000	450000	226000	300000	128000
Maintenance and spares	4000000	3964000	3700000	3700000	2000000	1025000
Training and Travel	1000000	901000	650000	234000	400000	160000
Miscellaneous expenses for academic activities	900000	1688000	900000	943000	900000	581000
Total	10400000	6820000.00	9600000	7449000.00	6000000	3500000

8.4.1 Adequacy of budget allocation (5) Institute Marks : 5.00

(Instruction: Here the institution needs to justify that the budget allocated over the years was adequate.)

The process of analyzing the adequacy of budget allocation involves the analysis of information pertaining to each item of the budget with respect to the priorities and policies set out by the institution. The priorities of the organization are:-

1. Improvement in the quality of education.
2. Development of infrastructure including classrooms, teaching aids and student facilities in classroom.
3. Research and Development.
4. Addition of latest Laboratory equipment.
5. Addition of resources in the Library.

In this regard, by comparing the priorities set out with the allocations made, it can be informed that the items included are in line with the policies and long term goals of the institution.

(**to be quoted as below as per expenditure under various heads of the programme vis-a-vis preceding years)

For, **example**, the budget in the year 2015-16, half of the budget amount was allocated towards the laboratory equipment. This was due to improvement of laboratories to enhance the technical skills.

Another substantial spending amount was for building infrastructure making GRIET one of the leading institutions having state of the art infrastructure. Institutional infrastructure is the key and the base to provide quality environment, similarly emphasis is given towards development of laboratory equipment and resources.

R&D is the next key area where major funds are allocated for projects, patents and tie-ups.

A good emphasis is given on training both teaching and non-teaching staff by conducting FDP's and workshops in the college and also encouraging staff to attend FDP's, workshops and conferences outside the institution with sufficient funds. Hence it can be interpreted that the allocated funds are very much in line with the priorities set out by the institution.

8.4.2 Utilisation of allocated funds (5) Institute Marks : 5.00

(Instruction: Here the institution needs to state how the budget was utilised during the last three years.)

The allocated funds act as guideline towards making purchase of lab equipment, programme conduction, training activities and other miscellaneous needs. The department conducts regular meeting to see that the allocated funds are properly utilized vis-à-vis the projection and plans.

The allocated funds are utilized as per the priorities set at the department level. The emphasis is on increasing quality of academic inputs delivered and positively contributes to the Institute in terms of development of new technologies, methods and practices.

recruitment of quality faculty, training of senior faculty members. Emphasis is given on training both teaching and non-teaching staff by conducting FDP's and workshops in the college and also encouraging staff to attend FDP's, workshops and conferences outside the institution with sufficient funds. Hence it can be interpreted that the allocated funds are very much in line with the priorities set out by the institution. This is for continuous improvement of quality literature for teaching and laboratories and to enhance the teaching and technical skills as an investment towards teaching and learning process. The increase in expenditure is observed compared to the preceding years.

GRIET management is a forerunner in terms of providing the best and updated infrastructural facilities to its staff and students and also in facilitating funds for the purpose of improving quality of teaching and research. Departments make optimum utilization of this attitude and policy of the management by utilizing the funds allocated by spending it in lines with the mission and objectives.

8.5 Library (20)

Total Marks : 20.00

8.5.1 Library space and ambience, timings and usage, availability of a qualified librarian and other staff, library automation, online access, networking, etc (5)

Institute Marks : 5.00

(Instruction: Provide information on the following items).

• Library Services	Yes
• Carpet area of library (in m2)	1670
• Reading space (in m2)	1355
• Number of seats in reading space	300
• Number of users (issue book) per day	200
• Number of users (reading space) per day	300
• Timings: During working day, weekend, and vacation	8AM to 8PM
• Number of library staff	08
• Number of library staff with degree in Library	04

• Management Computerisation for search, indexing, issue/return records Bar coding used

At present the Library Information Center uses in-house developed Library Management Software

• Library services on Internet/Intranet INDEST or other similar membership Archives

The following Library services are present on Internet / Intranet.

Library Management Computerization for search, indexing, issue/return records Bar coding used

At present the LibraryInformationCenter uses in-house developed Library Management Software with the following functions automated

- Circulation Section – Issue / Return using bar codes and code reader
- Information Retrieval Services

 Which includes searching of data and retrieval of data using various searchoptions like title, author, subject, publisher etc.

 Recently barcoding of library holdings was taken up and successfully completed.

Library Services on internet / intranet, membership archives

- **Library Services on internet / intranet, membership archives**

1. NPTEL (National Programme for Technology Enhanced Learning) lessons are procured and are available all over campus through intranet at link http://172.16.0.88 LocalG that can be accessed from any system with LAN connection. These lessons are stored at IBM server of library with capacity of 3TB.

2. DELNET (Developing Library Network): GRIET Library is a member of DELNET through which services such as Inter Library Loan (ILL) facility is available. Through this, a book or a document or a part of a document / article can be procured from any member library throughout India.

- **Links to E-Journals / Databases**

The following e-resources / online e-Journals Packages of various publishers can be accessed from any computer (with internet) connected to the campus LAN including Library. IP based access to the subscribed journals are provided through these resources.

1. IEEE ASPP - Transactions & Magazines (for CSE, ECE, EEE, IT Depts.) http://ieeexplore.ieee.org
2. ELSEVIER - Science Direct (for Engineering) http://www.sciencedirect.com
3. ASCE Digital library (for Civil Dept.) http://ascelibrary.org

5. Springer link: (for CSE, ECE, EEE, IT Depts.) http://springerlink.com/journals
6. McGraw-Hills Access Engineering (for Engineering) http://accessengineeringlibrary.com
7. J-Gate Engineering and Technology (JET) (for Engineering & Technology) http://jgateplus.com
8. ASTM Digital Library (for Engineering) http://enterprise.astm.org
9. J-Gate Social and Management Sciences (JSMS) (for Management Sciences) http://jgateplus.com
10. EBSCO-BSA (for Management Sciences) http://www.search.ebscohost.com

S.No	Package	No of Journals	Back files up to
1	IEEE-ASPP	145	2000
2	ASCE	34	1983
3	McGraw Hill	Access Engineering-274 titles	All
4	Springer-EEE,ECE,CSE	149 (Titles Collection)	1997
5	ASME	26	2000
6	J-Gate (E & T)	1700	2001
7	Elesevier-Science Direct	275(Engg & Comp.Sc)	2000
8	ASTM	Digital Library	Complete
9	J-Gate Management Science	2000	2001
10	EBSCO-BSE	1102 titles	

8.5.2 Titles and volumes per title (4) Institute Marks : 4.00

Year	Number Of New Titles Added	Number Of New Editions Added	Number Of New Volumes Added
2013-2014	655	475	4764
2014-2015	395	230	1572
2015-2016	830	265	5600

8.5.3 Scholarly journal subscription (3) Institute Marks : 3.00

Year	No. of Technical Magazines/Periodicals	No. of Total Technical Journals subscribed		Scholarly Journal Titles(in originals, reprints)
		In Hardcopy	In Softcopy	
2015-2016	249	249	6849	6849
2014-2015	293	293	6849	6849
2013-2014	300	300	300	300
2012-2013	300	300	8412	300

8.5.4 Digital Library (3) Institute Marks : 3.00

• Digital Library Services	Yes
• Availability of digital library contents (If available, then mention number of courses, number of e-books, etc. Availability of an exclusive server)	yes: 260 NPTEL Lessons
• Availability of an exclusive server	yes
• Availability over Intranet/Internet	yes
• Availability of exclusive space/room	yes
• Number of users per day	200

GRIET Digital Library provides literature search through Internet and provides Online Access to the following e-resources

1. **IEEE ASPP - Transactions & Magazines (for CSE, ECE, EEE, IT Depts.)**

   http://ieeexplore.ieee.org

2. **ELSEVIER - Science Direct (for Engineering)**

   http://www.sciencedirect.com

3. **ASCE Digital library (for Civil Dept.)**

   http://ascelibrary.org

4. **ASME Digital Library Online : (for Mechanical Dept.)**

   http://asmedl.org

5. **Springerlink: (for CSE, ECE, EEE, IT Depts.)**

   http://springerlink.com/journals

6. **McGraw-Hills Access Engineering (for Engineering)**

   http://accessengineeringlibrary.com

7. **J-Gate Engineering and Technology (JET) (for Engineering & Technology)**

8. **ASTM Digital Library (for Engineering)**

   http://enterprise.astm.org

9. **J-Gate Social and Management Sciences (JSMS) (for Management Sciences)**

   http://jgateplus.com

10. **ProQuest Management Collection (for Management Sciences)**

    http://search.proquest.com

11. **Scientific Technical and Medical journals (for EEE,ECE,CSE)**

    www.stmjournals.com

12. **Digital Information Research Foundation (for Computer Science)**

    http://www.dirf.org

An **Online Public Access Catalogue (OPAC)** terminal is kept to the users to facilitate them to search through catalogue to ascertain the availability of documents. It can be searched using various options like title, author, subject, publisher etc.

8.5.5 Library expenditure on books, magazines/journals, and miscellaneous contents (5) Institute Marks : 5.00

Year	Expenditure (in Rs.)				Comments, If Any
	Book	Magazines/Journals (for hard copy subscription)	Magazines/Journals (for soft copy subscription)	Misc. Contents	
2013-2014	19.06	6	16.2	-	-
2014-2015	15.13	6.75	20.2	2	-
2015-2016	16.92	5.91	23.09	-	-

8.6 Internet (5) Total Marks : 5.00

Institute Marks : 5.00

(Instruction: The institute may report the availability of Internet in the campus and its quality of service.)

• Internet Services	Yes
• Name of the Internet provider	AIRTEL
• Available bandwidth	65Mbps
• Access speed	100Mbps
• Availability of Internet in an exclusive lab	Yes
• Availability in most computing labs	Yes
• Availability in departments and other units	Yes
• Availability in faculty rooms	Yes
• Institute’s own e-mail facility to faculty/students	Yes
• Security/privacy to e-mail/Internet users	Yes

Availability of Internet in the campus is given below:

- The institute is currently subscribed with the service provider “Bharti – Airtel” for the internet services.
- Wi-Fi routers in all vantage points connecting all registered laptops in the departments and faculty rooms.
- The same network is used for institute’s intra-mail.
- The network is secure in that it has its own firewalls and anti-virus/worm programmes to protect vital institute information and database apart from confidential emails of all its users.

8.7 Safety Norms and Checks (5) Total Marks : 5.00

8.7.1 Checks for wiring and electrical installations for leakage and earthing (1) Institute Marks : 1.00

Safety Norms implemented at GRIET are given below:

- Institute buildings are well designed with proper electrical installations.
- Special care is taken at the time of installation by using quality certified components in terms of wiring, switches, plugs and circuit breakers.
- Monthly maintenance is done which includes arrest of any leakage, working condition check for lighting conductor, earthing / grounding checks and inspection of electrical installations for safety.
- Separate Electrical Maintenance is monitored by the Maintenance & Safety Officer with a dedicated team to deal with routine and emergency maintenance.

8.7.2 Fire-fighting measurements: Effective safety arrangements with emergency / multiple exits and ventilation/exhausts in auditoriums and large classrooms/laboratories, fire-fighting equipment and training, availability of water, and such other facilities (1) Institute Marks : 1.00

Fire - fighting measures and facilities:

- Institute buildings are designed with adequate light, ventilation, stairs, corridors, pathways, multiple / wide staircases and all round approach.
- Pathways, corridors and stairs are wide enough to handle emergencies.
- Large size class rooms, Seminar halls and laboratories have two exits.
- Laboratories handling chemicals have adequate ventilation and exhaust facilities.
- Fire extinguishers are provided at key points in all buildings.
- First Aid facility is available in all emergencies.
- Each building is being provided with automatic alarm system with water tanks and fire prevention system.
- Safety instructions are prominently displayed throughout the college.
- Quarterly maintenance drills are done for awareness and familiarity with hazards and safety actions in case of emergencies.

8.7.3 Safety of civil structure (1) Institute Marks : 1.00

Details of the measures taken for the safety of civil structures are given below:

- Buildings are well designed by expert architects and qualified structural engineers
- Quarterly inspection is carried out for the safety of civil structures
- Adequate maintenance is done by taking care of painting and white-wash, crack filling, water logging, and leakages

8.7.4 Handling of hazardous chemicals and such other activities (2) Institute Marks : 2.00

(Instruction: The institution may provide evidence that it is taking enough measures for the safety of the civil structures, fire, electrical installations, wiring, and safety of handling and disposal of hazardous substances. Moreover, the institution needs to show the effectiveness of the measures that it has developed to accomplish these tasks.)

Safety measures taken for handling hazardous materials are given below:

- Safety precautions such as shoes, aprons, safety glasses are insisted upon for staff and students.
- Special drives are done to collect electronic wastage.
- Awareness of safety precautions for handling chemicals is done every semester.

8.8 Counselling and Emergency Medical Care and First-aid (5) Total Marks : 5.00

8.8.1 Availability of counselling facility (1) Institute Marks : 1.00

(Instruction: The institution needs to report the availability of the facilities discussed here.)

Counselling Center:

- An experienced counselor Ms. Revathi Thuraga, life member of the International Association of Holistic Psychology (IAHP), is being consulted whenever needed
- Dean Career Guidance and Counseling, GRIET deals with students and parents by giving counseling and motivating them in all aspects.

8.8.2 Arrangement for emergency medical care (2) Institute Marks : 2.00

(Instruction: The institution needs to report the availability of the facilities discussed here.)

Medical facility within the Institution:

- A Qualified Medical Practitioner is available every day between 9:30-1.00 p.m on the campus medical centre.
- He is being assisted by a qualified medical assistant and a Lady attendant.

Medical facility nearby:

- College is being situated at a distance of 4.5 km from busy KPHB (Kukatpally Housing Board) area. Even the connecting road called Nizampet Road is densely populated with all medical facilities doctors, clinics, pharmaceutics & diagnostic centres.
- Nearest Hospitals: Apollo- 2 km, Remedy Hospitals-4.5 km at KPHB (Multi Specialty Hospital with good emergency facilities)
- Many private practitioners of every specialty are available at 1.5 km.
- Number of ambulances within the Institution : **One**
- Facility in ambulances : **First Aid**
- Response-time in calling ambulance services from outside : **7-10 mins**
- College has a fleet of 32 buses, LMVs which can be used to ferry people in emergency as and when needed.
- Remedy Hospitals Ambulances and 108 EMRI-State Ambulance facility situated at Kukatpally Police station which is at 4 km, have very good track record of response time in meeting the emergencies. The journey time is involved in response to any emergency calls which is around 7-10 mins.

(Instruction: The institution needs to report the availability of the facilities discussed here.)

Details of the First - aid unit available:

- College Medical centre provide first aid facility equipped with 4 beds, wheel chair, stretcher facility, consulting room with all emergency care and medical centre facility.
- The Medical Center consists of Emergency Medical equipment such as ECG, EMG machines, Pace Maker, Holter Monitor
- It is open throughout college working hours including sports periods.

9 Continuous Improvement (75) **Total Marks : 65.24**

This criterion essentially evaluates the improvement of the different indices that have already been discussed in earlier sections.

9.1 Improvement in Success Index of Students (5) **Total Marks : 4.29**

Institute Marks : 4.29

From 4.1
a, b and c are the success indices which correspond to LYGm2, LYGm1 and LYG respectively
Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2011-2012(c)	2010-2011(b)	2009-2010(a)	Assessment
Success Index	0.80	0.90	0.98	4.29

9.2 Improvement in Academic Performance Index of Students (5) **Total Marks : 3.75**

Institute Marks : 3.75

From 4.2
a, b and c are calculated respectively for LYGm2, LYGm1 and LYG by dividing the API values, obtained from the criterion 4.2 by 10 . The maximum value of a, b, and c should not exceed one.
Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2011-2012(c)	2010-2011(b)	2009-2010(a)	Assessment
API	0.76	0.74	0.74	3.75

9.3 Improvement in Student-Teacher Ratio (5) **Total Marks : 3.90**

Institute Marks : 3.90

From 5.1
a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the STR values, obtained from the criterion 5.1 by 20. The maximum value of a, b, and c should not exceed one.
Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2015-2016 (c)	2014-2015 (b)	2013-2014 (a)	Assessment
STR	0.78	0.78	0.78	3.90

9.4 Enhancement of Faculty Qualification Index (5) **Total Marks : 3.50**

Institute Marks : 3.50

From 5.3
a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the FQI values, obtained from the criterion 5.3 by 10. The maximum value of a, b, and c should not exceed one.
Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2015-2016 (c)	2014-2015 (b)	2013-2014 (a)	Assessment
FQI	0.74	0.65	0.66	3.50

9.5 Improvement in Faculty Research Publications, R&D Work and Consultancy Work (10) **Total Marks : 4.80**

Institute Marks : 4.80

From 5.7 & 5.9
a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the FRP and FRDC values, obtained from the criterion 5.7 and 5.9 by 20 . The maximum value of a, b, and c should not exceed one.
Assessment = (b-a) + (c-b) + (a+b+c)x(10/3)

FRP	1.00	0.72	0.65	7.55
FRDC	0.32	0.18	0.16	2.04

9.6 Continuing Education (10)

Total Marks : 10.00

Institute Marks : 10.00

Module Description	Any Other Contributory Institute/Industry	Developed/Organized By	Duration	Resource Persons	Target Audience	Usage and Citation,etc
A Two Week Workshop on “Computer Programming” by IIT Bombay in association with MHRD, Government of India	IIT Bombay	GRIET	Two Weeks	Experts from IIT Bombay	Faculty	Acquired knowledge on Computer Programming
A Two Week Workshop on “Computer Networks” by IIT Bombay in association with MHRD, Government of India	IIT Bombay	GRIET	Two Weeks	Experts from IIT Bombay	Faculty	Acquired Knowledge on Computer Networks
A Two Week ISTE Workshop on “Pedagogy for Effective use of ICT in Engineering Education” by IIT Bombay in association with MHRD, Government of India	IITBombay	GRIET	Two Weeks	Experts from IIT Bombay	Fcaulty	Acquired Knowledge
ISTE Workshop on “Introduction to Design of algorithms” by IIT Kharagpur in association with MHRD, Government of India	IIT Kharagpur	GRIET	Two Weeks	Experts from IIT Kharagpur	Fcaulty	Acquired Knowledge on Design of algorithms
DBMS workshop conducted by IITB	IIT B	GRIET	10 days	Faculty from IITB	Fcaulty	Acquired Knowledge on DBMS
IBM WORKSHOP-1and 2	Teqip	GRIET	20 days	Faculty from IBM	Fcaulty	Acquired knowledge on Cognos
Training on IBM SEED Program	GRIET	GRIET	OneWeek	Faculty	Faculty	Acquired Knowledge
JNTU_EXCITE 2015	JNTU	JNTU	One day	Faculty from other country	Faculty and students	Acquired Knowledge

9.7 New Facility Created (15)

Total Marks : 15.00

Institute Marks : 15.00

Module Description	Any other contributory Inst./Industry	Developed /Organized by	Duration	Resource Persons	Target Audience	Usage and citation etc	Curricu-lum/PEO
2015-16							
Circuit Design Workshop	Institution	Mr. Radhanand A/KNB Kumar	6 days / Semister (4 Hrs / Day)	Mr. Radhanand A/KNB Kumar	IYear Students	Helpful for Project work	1,2,4
SDR-FDP	Institution	Dr Usha Kumari. Ch	2 Days	Mr.Sumeeth IIITH	FDP	Helpful for Faculty	2,3,4
VLSI-DSP FDP	Institution	Dr Mamatha. G	3 Days	Resource persons from IITKGP, IITH	FDP	Helpful for Faculty	2,3,4
2014-15							
Examined the Industrial Exhibition and navigation tools	RCI Hyderabad-CII	RCI Hyderabad-CII	1 Day	RCI Hyderabad-CII	II Year Students	For the improvement of faculty	1,2,4
Applications of micro controllers	Institution	Various faculty	2 Days	Various faculty	faculty	For the faculty development	2,3,4
Applications of digital electronics	Institution	Various faculty	2 Days	Various faculty	faculty	For the faculty development	2,3,4
Applications of analog electronics	Institution	Various faculty	2 Days	Various faculty	faculty	For the faculty development	2,3,4
Analog and digital VLSI design through cadence	Institution	M.O.V.Pavan kumar	2 Days	M.O.V.Pavan kumar	Faculty	For the faculty development	1,2,4
Management capacity enhancement program	IIM I	IIM R	6 Days	IIM R	Faculty	For the faculty development	1,2,4
Research methodologies	IIT Hyderabad	IIT Hyderabad	2 Days	IIT Hyderabad	Faculty	For the faculty development	1,2,4
Signal Predictive Analysis	Institution	N. Swetha/ V.Himabuindu	3 Days	Resource persons from IITK, HCU	FDP	Helpful for Faculty	2,3,4
2013-14							

Research methodologies	VCE Hyderabad	ECE Dept. VCE	1 Day	Dr.T.C.Sharma	Students	For the benefit of students	1,2,4
Cadence Tools	Institution	Mr.M.Kiran	6 Days	Mr.M.O.V.Pavan Kumar	Faculty	For the benefit of faculty	1,2,4
Project Work shop	Institution	Mr.K.N.V.Kumar	1 Day	Mr.A.Radhanand	IV Year Students	Helpful for projects	1,2,4
Pedagogical Training Module 1	NITTTR	Faculty NITTTR	5 Days	Faculty NITTTR	Mr.K.Nagarjuna	Faculty Teaching skills development	1,2,3,4

9.8 Overall Improvements since last accreditation, if any, otherwise, since the commencement of the programme (20)

Total Marks : 20.00

Institute Marks : 20.00

Specify the overall improvement:

GRIET is recognized as Scientific and Industrial Research Organization (SIRO) by Department of Scientific and Industrial Research (DSIR).

Accreditation by Tata Consultancy Services (TCS) of 'B' Category.

Specify the Strenghths/Weakness	Improvement Brought In	Contributed By	List the PO(s), which are strengthened	Comments, if any
2015-2016	Introduction of in house project work with VLSI, DSP tools, NS2, Multisim, Android, Microcontrollers, Introduction to Labview	ECE-GRIET	a,b,d,f,jk,l	Improvement in placement
2014-2015	Interaction through Robotics Discussion Forum, Android tools, cool runner kits…	ECE-GRIET	a,c,e,g,k,l	Improvement in placement
2013-2014	Interaction through Viveldo	ECE-GRIET	b,c,l	Increased the placement record
2012-2013	Interaction through Cadence	ECE-GRIET	a,b,h,i	Improvement in pass percentage