ACADEMIC REGULATIONS
PROGRAM STRUCTURE
and
DETAILED SYLLABUS

Bachelor of Technology
(Information Technology)
(Effective for the students admitted from the Academic Year 2015-16)

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Autonomous)

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

B.Tech (IT) Programme Structure

III B.Tech (IT) **I Semester**

Group	Sub-Code	Name Of Subject	L	T	P	Credits	Hours	Marks
PC	GR15A3056	Design & Analysis of Algorithms	3	1	-	4	5	100
PC	GR15A3059	Web Technologies	3	1	-	4	5	100
PC	GR15A2055	Micro Controllers	3	1	-	4	5	100
Open Elective 1			**2**	**1**		**3**	**4**	**100**
Professional Elective 1			**3**	**1**	**-**	**4**	**5**	**100**
PE	GR15A3057	Software Engineering						
PE	GR15A3069	Computer Graphics						
PE	GR15A3053	Principles of Programming Languages						
PC	GR15A3063	Web Technologies Lab			2	2	4	75
PC	GR15A3100	Advanced English Communication Skills Lab			2	2	4	75
PC	GR15A2059	Micro Controllers Lab			2	2	4	75
Total			**14**	**5**	**6**	**25**	**36**	**725**

III B.Tech (IT) **II Semester**

Group	Sub-Code	Subject	L	T	P	Credits	Hours	Marks
PC	GR15A3103	Advanced Linux Programming	3	1		4	5	100
PC	GR15A3064	Automata and Compiler Design	3	1		4	5	100
PC	GR15A3065	Object Oriented Analysis and Design	3	1		4	5	100
Open Elective 2			**2**	**1**		**3**	**4**	**100**
Professional Elective 2			**3**	**1**			**4**	**5**
PE	GR15A3058	Information Security						
PE	GR15A3070	Embedded Systems						
PE	GR15A3068	Distributed Databases and Systems						
PC	GR15A3072	Advanced Linux Programming Lab			2	2	4	75
PC	GR15A3071	Compiler Design and Unified Modeling Language Lab			2	2	4	75
PC	GR15A3101	Industry Oriented Mini Project			2	2	4	75
Total			**14**	**5**	**6**	**25**	**36**	**725**

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INSTITUTE OF ENGINEERING AND TECHNOLOGY

B.Tech (IT) Programme Structure

IV B.Tech (IT) **I Semester**

Group	Sub-Code	Subject	L	T	P	Credits	Hours	Marks
PC	GR15A3102	Management Science	3	1		4	5	100
PC	GR15A3060	Scripting Languages	3	1		4	5	100
PC	GR15A4104	Middleware Technologies	3	1		4	5	100
Open Elective 3			**2**	**1**		**3**	**4**	100
Professional Elective 3			**3**	**1**		**4**	**5**	100
PE	GR15A4077	Software Testing Methodologies						
PE	GR15A3061	Artificial Intelligence and Neural Networks						
PE	GR15A4094	Semantic Web and Social Networks						
PC	GR15A4084	Scripting Languages Lab			2		4	75
PC	GR15A4099	Middleware Technologies Lab			2	2	4	75
PC	GR15A4100	Animations Lab			2	2	4	75
Total			**14**	**5**	**6**	**25**	**36**	**725**

IV B.Tech (IT) **II Semester**

Group	Sub-Code	Subject	L	T	P	Credits	Hours	Marks
PC	GR15A4082	Mobile Application Development	2	1		3	4	100
Professional Elective 4			**3**	**1**		**4**	**5**	**100**
PE	GR15A4101	Software Project Management						
PE	GR15A4079	Cloud Computing						
PE	GR15A4091	E-Commerce						
Professional Elective 5			**3**	**1**		**4**	**5**	**100**
PE	GR15A4090	Design Patterns						
PE	GR15A4102	Adhoc Sensor Networks						
PE	GR15A4098	Network Programming						
PC	GR15A4105	Mobile Application Development Lab			2	2	4	75
SPW	GR15A4142	Comprehensive Viva Voce			1	1	2	50
SPW	GR15A4143	Seminar			1	1	2	100
SPW	GR15A4144	Major Project			10	10	14	200
Total			8	3	**14**	**25**	**36**	**725**

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DESIGN AND ANALYSIS OF ALGORITHMS

Course Code: GR15A3056 L:3 T:1 P:0 C:4
III Year I Semester

UNIT-I

Introduction: Definition of an algorithm, properties of an Algorithm, performance analysis--space complexity & time complexity, asymptotic notations: big oh notation, omega notation, theta notation, little oh notation & little omega notation. **Disjoint sets:** disjoint set Representation, Operations, union and find algorithms.

UNIT-II

Divide and conquer: General method, applications, binary search, quick sort, merge sort, strassen's matrix multiplication. Time complexities of divide and conquer algorithms**, Dynamic programming-1:** General method, applications, matrix chain multiplication, optimal binary search trees, 0/1 knapsack problem

UNIT- III

Dynamic programming -II: All pairs shortest path problem, travelling salesperson problem, reliability design**, Greedy method:** General method, applications-- job sequencing with deadlines, 0/1 knapsack problem, minimum cost spanning trees, single source shortest path problem.

UNIT-IV

Backtracking: General method, applications, n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.

UNIT-V

Branch and Bound: General method, applications, travelling sales person problem, /1 knapsack problem: LC branch and bound solution, FIFO branch and bound solution**, NP-hard and NP-complete problems:** Basic concepts, non deterministic algorithms, deterministic algorithms, Introduction to P class problems, NP class problems.

TEXT BOOKS

1. Ellis Horowitz, SatrajSahni and S Rajasekharam, Fundamentals of Computer Algorithms, Galgotia publishers
2. T H Cormen, C E Leiserson, and R L Rivest, Introduction to Algorithms, 3rdEdn, Pearson Education

REFERENCE BOOKS

1. R C T Lee, Hang and TT Sai, Introduction to Design and Analysis of Algorithms, A strategic approach, TMH

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WEB TECHNOLOGIES

Course Code: GR15A3059 L:3 T:1 P:0 C:4
III Year I Semester

UNIT-I

HTML Common tags- List, Tables, images, forms, Frames, Cascading Style sheets,
Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

UNIT-II

XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors (DOM and SAX).
Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties, Persistence, Customizes, Java Beans API, Introduction to EJB's

UNIT-III

Web Servers and Servlets: Tomcat web server, Introduction to Servlets, Lifecycle of a Servlet, JSDK, The Servlet API, The javax.servlet Package, Reading Servlet parameters, Reading Initialization parameters, Thejavax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues.

UNIT-IV

Introduction to JSP: The Problem with Servlet, The Anatomy of a JSP Page, JSP Processing, JSP Application Design with MVC Setting Up and JSP Environment, Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat.
JSP Application Development: Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods, Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages, Sharing Session and Application Data, Memory Usage Considerations

UNIT-V

Database Access : Database Programming using JDBC, Studying Javax.sql.*package, Accessing a Database from a JSP Page, Application – Specific

Database Actions, Deploying JAVA Beans in a JSP Page, Introduction to struts framework..

TEXT BOOKS

1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNIT s 1,2 ,3)
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) (UNIT 4)
3. Java Server Pages –Hans Bergsten, SPD O'Reilly (UNITs 5,6,7,8)

REFERENCE BOOKS

1. Programming world wide web-Sebesta,Pearson
2. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
4. Jakarta Struts Cookbook , Bill Siggelkow, S P D O'Reilly for chap 8.
5. Murach's beginning JAVA JDK 5, Murach, SPD
6. An Introduction to web Design and Programming –Wang-Thomson
7. Web Applications Technologies Concepts-Knuckles,John Wiley
8. Programming world wide web-Sebesta,Pearson
9. Web Warrior Guide to WebProgrammming-Bai/Ekedaw-Thomas
10. Beginning Web Programming-Jon Duckett WROX.
11. Java Server Pages, Pekowsky, Pearson.

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MICROCONTROLLERS

Course Code: GR15A2055 L:3 T:1 P:0 C:4
III Year I Semester

UNIT-I

Introduction and 8086 Architecture: Introduction to microprocessors, 8086Architecture: Functional diagram, Register organization, Memory segmentation, Programming model, Memory address, Physical memory organization, Signal description of 8086, Timing diagrams, Interrupts of 8086.

UNIT-II

Introduction and 8051 Architecture: Introduction to microcontrollers, comparing microprocessors and microcontrollers, 4,8,16 and 32 bit microcontrollers, Development systems for Microcontrollers, Architecture; Architecture of 8051, pin configuration of 8051 microcontroller, hardware input pins, output pins ports and external memory, counters and timers, serial data input/output and interrupts.

UNIT-III

Moving Data and Logical Operations: Introduction, Addressing modes, External Data moves, Code Memory Read-only Data Moves, PUSH and POPOp codes, Data Exchanges, Logical Operations; Introduction, Byte-Level Logical Operations, Bit-Level Logical Operations, Rotate and Swap Operations

UNIT-IV

Arithmetic Operations, Jump and Call Opcodes: Introduction, Flags, Incrementing and Decrementing, Addition, Subtraction, Multiplication and Division, Decimal Arithmetic, Jump and Callop codes; introduction, The jump and call program range, Jumps, Calls and Subroutines, call and returns, Interrupts and Returns

UNIT-V

8051MicrocontrollerDesign: Introduction, Microcontroller specification, Microcontroller Design, Testing the Design, Timing subroutines, Serial Data Transmission.

Applications and Serial Data Communication: Keyboards, Displays, Pulse Measurement, D/A and A/D Conversions, Multiple interrupts, Serial data Communication;

TEXT BOOK

1. D.V.Hall, Microprocssors and Interfacing, TMH,2nd edition 2006.
2. KennethJ.Ayala,The8051MicrocontrollerArchitectureProgrammingand Applications,2ndEdition,PenramInternationalPublishers(I),1996.

REFERENCE BOOK

1. A.K.Ray and K.M. Bjurchandani, TMH, 2nd edition, Advanced Microprocessors and Peripherals TMH, 2006
2. MohammedAriMazidiandJanciGillispie,The8051Microcontrollerand Embedded Systems, Pearson Education Asia, New Delhi, 2003.

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SOFTWARE ENGINEERING
(Professional Elective – I)

Course Code: GR15A3057 L:3 T:1 P:0 C:4
III Year I Semester

UNIT-I

Introduction to Software Engineering : The evolving role of software,Changing Nature of Software, Software myths.
A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.
Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

UNIT-II

Software Requirements: Functional and non-functional requirements, Userrequirements, System requirements, Interface specification, the software requirements document.
Requirements engineering process: Feasibility studies, Requirementselicitation and analysis, Requirements validation, Requirements management.

UNIT-III

Design Engineering: Design process and Design quality, Design concepts, thedesign model.
Creating an architectural design: Software architecture, Data design,Architectural styles and patterns, Architectural Design.
Performing User interface design : Golden rules, User interface analysis anddesign, interface analysis, interface design steps, Design evaluation.

UNIT-IV

Testing Strategies : A strategic approach to software testing, test strategies forconventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.
Product metrics : Software Quality, Metrics for Analysis Model, Metrics forDesign Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

UNIT-V

Metrics for Process and Products : Software Measurement, Metrics forsoftware quality.

Risk management : Reactive vs. Proactive Risk strategies, software risks, Riskidentification, Risk projection, Risk refinement, RMMM, RMMM Plan.

Quality Management : Quality concepts, Software quality assurance, SoftwareReviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition.McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

REFERENCE BOOKS

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt,Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

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COMPUTER GRAPHICS
(Professional Elective – I)

Course Code: GR15A3069 L:3 T:1 P:0 C:4
III Year ISemester

UNIT-I

Introduction, Application areas of Computer Graphics, overview of graphics systems, video- display devices, raster- scan systems, random scan systems, graphics monitors and work stations and input devices.
Output primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms

UNIT-II

2-D geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.
2-D viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm

UNIT-III

3Dgeometrictrans formations: Translation, rotation, scaling, reflection and shear transformations, composite transformations.
3-Dviewing:Viewingpipeline,viewingcoordinates,viewvolumeandgeneral projection transforms and clipping.
3-D object representation: Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon rendering methods.

UNIT-IV

Visible surface detection methods : Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP- tree methods, area sub-division and octree methods.

UNIT-V

Computer animation: Design of animation sequence, general computeranimationfunctions,rasteranimation,computeranimationlanguages,keyframesys tems, motion specifications.

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TEXT BOOKS

1.“ComputerGraphicsCversion”,DonaldHearnandM.PaulineBaker,Pearson Education.

2. “Computer Graphics Principles & practice”, secondeditioninC, Foley, VanDam, Feiner and Hughes, Pearson Education.

REFERENCE BOOKS

1. “Computer Graphics”, second Edition, Donald HearnandM. Pauline Baker, PHI/Pearson Education.
2. “Computer Graphics Secondedition”, Zhigandxiang, RoyPlastock, Schaum’s outlines, TataMc-Grawhilledition.
3. Procedur alelements for Computer Graphics, David FRogers,T ataMcGraw hill, 2ndedition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.5. PrinciplesofComputerGraphics,ShaliniGovil,Pai,2005,Springer.
5. Computer Graphics, Steven Harrington,TMH

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PRINCIPLES OF PROGRAMMING LANGUAGE
(Professional Elective – I)

Course Code: GR15A3053 **L:3 T:1 P:- C:4 III Year I Semester**

UNIT-I

Preliminary Concepts: Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, Influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, Functional Programming , Logic Programming.
Programming Language Implementation: Compilation and Virtual Machines, programming environments.

UNIT-II

Syntax and Semantics: General Problem of describing Syntax and Semantics, formal methods of describing syntax - BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.
Data types: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization.

UNIT-III

Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation, mixed mode assignment, Assignment Statements, Control Structures – Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.
Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions, user defined overloaded operators,coroutines.

UNIT-IV

Abstract Data types: Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95.
Concurrency: Subprogram level concurrency, semaphores, monitors, message passing, Java threads, C# threads.

Exception handling: Exceptions, Exception propagation, Exception handler in Ada, C++ and Java.
Logic Programming Language : Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

UNIT - V :
Functional Programming Languages: Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and imperative languages.

TEXT BOOKS :
1. Concepts of Programming Languages Robert .W. Sebesta 6/e, Pearson Education.
2.. Programming Languages –Louden, Second Edition, Thomson.

REFERENCE BOOKS :
1. Programming languages –Ghezzi, 3/e, John Wiley
2. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition PHI/Pearson Education
3. Programming languages –Watt, Wiley Dreamtech
4. LISP Patric Henry Winston and Paul Horn Pearson Education.
5. Programming in PROLOG Clocksin, Springer

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WEB TECHNOLOGIES LAB

Course Code: GR15A3063 L:0 T:0 P:2 C:2
III Year I Semester

1. XML editor like Altova Xml-spy [www.Altova.com/XMLSpy free] , Stylusstudio , etc.,
2. A database either Mysql or Oracle
3. JVM(Java virtual machine) must be installed on your system
4. BDK(Bean development kit) must be also be installed
5. Apache Tomcat sever

Task -1

Design the following static web pages required for an online book store web site.

Home Page: The static home page must contain three frames.

Top frame : Logo and the college name and links to Home page, Loginpage, Registration page, Catalogue page and Cart page (the description of these pages will be given below).
Left frame: At least four links for navigation, which will display thecatalogue of respective links.
For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.
Right frame: The pages to the links in the left frame must be loadedhere. Initially this page contains description of the web site.

Logo	**Web Site Name**			
Home	**Login**	**Registration**	**Catalogue**	**Cart**
CSE **ECE** **EEE** **CIVIL**	**Description of the Web Site**			

Fig 1.1

Login Page

This page looks like below:

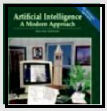
Logo	Web Site Name			
Home	**Login**	**Registration**	**Catalogue**	**Cart**
CSE **ECE** **EEE** **CIVIL**	User Name Password SubmitReset			

CATOLOGUE PAGE

The catalogue page should contain the details of all the books available in the web site in a table.

The details should contain the following:

1. Snap shot of Cover Page.
2. Author Name.
3. Publisher.
4. Price.
5. Add to cart button.

Logo	Web Site Name			
Home	**Login**	**Registration**	**Catalogue**	**Cart**
CSE **ECE** **EEE** **CIVIL**		Book : XML Bible Author : Winston Publication : Wiely	$ 40.5	
		Book : AI Author : S.Russel Publication : Princeton hall	$ 63	
		Book : Java 2 Author : Watson Publication : BPB publications	$ 35.5	
		Book : HTML in 24 hours Author : Sam Peter Publication : Sam	$ 50	

Note: Week 2 contains the remaining pages and their description.

Task -2

Cart Page

The cart page contains the details about the books which are added to the cart. The cart page should look like this:

Logo	Web Site Name			
Home	**Login**	**Registration**	**Catalogue**	**Cart**
CSE **ECE** **EEE** **CIVIL**	**Book name**	**Price**	**Quantity**	**Amount**
	Java 2	$35.5	2	$70
	XML bible	$40.5	1	$40.5
			Total amount -	**$130.5**

Registration Page

Create a "registration form "with the following fields

1. Name (Text field)
2. Password (password field)
3. E-mail id (text field)
4. Phone number (text field)
5. Sex (radio button)
6. Date of birth (3 select boxes)
7. Languages known (check boxes English, Telugu, Hindi, Tamil)
8. Address (text area)

Task-3

Validation

Write *JavaScript* to validate the following fields of the above registration page.

1. Name (Name should contains alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note : You can also validate the login page with these parameters.

Task-4

Design a web page using CSS (Cascading Style Sheets) which includes the following:

1. Use different font, styles: In the style definition you define how each selector should work (font, color etc.).

Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red; font-size:22px; font-family:arial; text-
decoration:underline}
</style>

</HEAD>

<BODY>
<b>This is normal bold</b><br>
Selector {cursor:value}

For example:

<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>
<body>
<b>
<a href="mypage.htm" class="xlink">CROSS
LINK</a><br>
<a href="mypage.htm" class="hlink">HELP
LINK</a></b>
</body>
</html>

<b class="headline">This is headline style
bold</b></BODY>

</HTML>
```

2. Set a background image for both the page and single elements on the page. You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif);}
```

3. Control the repetition of the image with the background-repeat property. As background-repeat: repeat Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4. **Define styles for links as**

   A:link
   A:visited
   A:active
   A:hover

   Example:

   <style type="text/css"> A:link
   {text-decoration: none}
   A:visited {text-decoration: none}
   A:active {text-decoration: none}
   A:hover {text-decoration: underline; color:
   red;} </style>

5. **Work with layers:**

   For example:

   LAYER 1 ON TOP:
    LAYER 1
   LAYER 2
   LAYER 2 ON TOP:
    LAYER 1
   LAYER 2

6. **Add a customized cursor:**

   Selector {cursor:value}
   For example:

```
<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
```

```
.Hlink{cursor:help}
</style>
</head>
<body>
<b>
<a href="mypage.htm" class="xlink">CROSS
LINK</a><br>
<a href="mypage.htm" class="hlink">HELP
LINK</a></b>
</body>
</Html>
```

Task-5

Write an XML file which will display the Book information which includes the following:

1. Title of the book
2. Author Name
3. ISBN number
4. Publisher name
5. Edition
6. Price

Write a Document Type Definition (DTD) to validate the above XML file. Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns. Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.Hint: You can use some xml editors like XML-spy

Task- 6

Visual Beans

Create a simple visual bean with a area filled with a color.
The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.
The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the “property window “.

Task-7

1. Install TOMCAT web server and APACHE.
   While installation assign port number 4040 to TOMCAT and 8080 to

APACHE. Make sure that these ports are available i.e., no other process is using this port.

2. Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.
   Access the pages by using the urls
   http://localhost:4040/rama/books.html (for tomcat)
   http://localhost:8080/books.html (for Apache)

Task-8

User Authentication :

Assume four users user1,user2,user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a servelet for doing the following.

1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.

If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display " You are not an authenticated user ".

Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

Task-9

Install a database(Mysql or Oracle).Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract d a t a from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Task-10

Write a JSP which does the following job:

Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).

Task-11

Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount)) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Task-12

HTTP is a stateless protocol. Session is required to maintain the state. The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate()).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality using sessions.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

ADVANCED ENGLISH COMMUNICATION SKILLS LAB

Course Code: GR15A3100 L:0 T:0 P:2 C:2
III Year I Semester

UNIT-I

Functional English: Starting a conversation, responding appropriately and relevantly. Body Language, Role play in different situations

UNIT-II

Vocabulary: Synonyms & Antonyms, Word Roots, One word substitutes ,Prefixes & Suffixes, Study of word origin, Idioms and Phrases, Analogy.

UNIT- III

Group Discussion: Introduction to Group Discussion its features and qualities desired in a participant of Group Discussion.

UNIT-IV

Presentation Skills: Knowing audience; acquiring content; organizing ideas; foreseeing the possible clarifications sought; adopting of appropriate medium; positive stage presence; Presenting and feedback

UNIT-V

Letter Writing & Résumé Writing: Manual and Emailing; types and formats; content and body of the letter. Email etiquettes; Resume Writing, tools required for writing resume's, role of cover letter in a resume.

UNIT-VI

Interview Skills: Introduction, various types of questions asked in an interview, qualities required to be a competent interviewee.

UNIT-VII

Reading comprehension: Introduction, types of reading, qualities of a good reader

UNIT-VIII

Technical Report Writing
Formats and types of reports

REFERENCE BOOKS

1. English language laboratories: A Comprehensive Manual; NiraKonar, PHI Learning Pvt.Ltd.,Delhi.
2. Effective Technical Communication: A Guide for Scientist and Engineers;Barun K. Mitra, OUP.
3. Great Answers to Though Interview Questions; Martin John Yate; Seventh Edition;Kogan Page.
4. Business Communication; HorySankarMukerjee;OUP.
5. Technical Communication, Meenakshi Raman, Sangeeta Sharma, Oxford higher Education.
6. Professional Presentations; Malcom Goodale; Cambridge University Press.
7. Murphy's English Grammar with CD, Murphy, Cambridge University Press.
8. Effective Technical Communication, M. Ashraf Rizvi, Tata McGraw Hill.
9. Communication Skills, Sanjay Kumar, PushpLatha, Oxford Higher Education.
10. Business communication; Second Edition,Prentice Hall of India , New Delhi.
11. English for Engineers Made Easy, AedaAbidi, Ritu Chaudhry, Cengage Learning.
12. Effective Business Communication ; Seventh Edition; Murphy, HertaA.,Herbert W. Hildebrandt, and Jane P.Thomas 2009,Tata Mc Graw-Hill Publishing Company Limited, New Delhi.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

MICRO CONTROLLERS LAB

Course Code: GR15A2059 L:0 T:0 P:2 C:2
III Year I Semester

List of experiments on 2G kit

1. LED patterns

a) Blinking LEDs, b) Serial lights,
c) Half on/Half off, d) Alternate on/off

2. Switches & LEDs

a) Press switch to make corresponding LED on,
b) Press switch to make corresponding LED off
c) First switch press, last LED on,
d) First switch press, last LED off

3. LCD

a) Character &string display on LCD,
b) SW1-Display strring1 on first line ofLCD,
c) SW2-Display strring1 on first line of LCD, SW2

4. UART

a) Echo Program,
b) Take command from PC & glow corresponding LED,
c) Press Switch & display switch number on PC,
d) Display data received by UART on LCD

5. TRIAC

a) 220V AC bulb switch on/off,
b) 220 V AC fan speed control with fixed step size.

6. ADC

a) Raw ADC value display on LCE,
b) Raw ADC value display on Hyper Terminal,
c) Engineering unit conversion and display on LCD,
d) Engineering unit conversion and display on Hyper Terminal
e) Limit checking for temperature value and switching on fan using triac
f) Limit checking for ambient light value and switching on light using triac.

7. DAC

a) Fixed step incremented DAC, output seen on multi-meter,
b) DAC input value received from Hyper Terminal
c) DAC input value taken from switches

8. DC motor

a) DC motor control-CW, CCW and stop using switches,
b) DC motor control- CW, CCW and stop using commands received from Hyper Terminal

9. ZigBee

a) Receive data on ZigBee from PC ZigBee dongle and display data on LEDs
b) Receive data on ZigBee from PC ZigBee dongle and display data on LCD
c) Read ADC and transmit data using ZigBee d)Triac based control of fan and light using data received on ZigBee

10. RF 433MHz

a) Receive data on RF from another kit with RF transmitter. Connect PCs to both kits. Type in data in Hyper Terminal of Transmitter kit & see on Hyper Terminal of Receiver kit
b) Read switches on transmitter kit, send their status on RF to receiver kit and control motor using switch status

11. Bluetooth

a) Transfer data to PC using Bluelink,
b) Receive data from PC using BlueLink & display on LCD
c) Transfer data from mobile phone(using a J2ME app) and receive using Blue link and control motor operation
d) Transfer data from mobile phone(using a J2ME app) and receive using BlueLink and control electrical appliance operation

12. Ethernet

a) Transfer data to PC using WIZI05SR and display on Hyper Terminal,
b) Implement an embedded web server

13. RTC

a) Read and display RTC data on LCD,
b) Read and display RTC data on Hyper Terminal,
c) Set RTC using Hyper terminal and display data on Hyper Terminal,
d) Implement an Event Logger with Time Stamp display

14. SDcard

a) Transfer data to PC, store on SDcard and retrieve it back(block transfer)
b) Implement FAT file system on SDcard c) Implement data acquisition system and store data in a CSV file on SD card with time stamp

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

WATER RESOURCES ENGINEERING

(Open Elective-1)

Course Code: GR15A3151

L T P C

III Year. I Semester

2 1 0 3

UNIT I

Introduction to Engineering Hydrology and its applications: Hydrologic Cycle, types and forms of precipitation, rainfall measurement, types of Rain gauges, computation of average rainfall over a basin, processing of rainfall data-adjustment of record-Rainfall Double Mass Curve. Runoff-Factors affecting Runoff over a Catchment- Empirical and Rational Formulae.

Abstraction from rainfall: Evaporation, factors effecting evaporation, Measurement of evaporation- Evapotranspiration- Penman and Blaney & Criddle Methods -Infiltration, factors affecting infiltration, measurement of infiltration, infiltration indices'.

UNIT II

Distribution of Runoff: Hydrograph Analysis Flood Hydrograph – Effective Rainfall - Base Flow- Base Flow Separation - Direct Runoff Hydrograph– Unit Hydrograph, definition and limitations of application of Unit hydrograph, Derivation of Unit Hydrograph from Direct Runoff Hydrograph and vice versa S- hydrograph, Synthetic Unit Hydrograph.

UNIT III

Ground water Occurrence: Types of aquifers, aquifer parameters,' porosity' Specific yield, permeability, transmissivity and storage coefficient, Darcy’s law, radial flow to wells in confined and unconfined aquifers, Types of wells, Well Construction - Well Development.

UNIT IV

Necessity and importance of irrigation: Advantages and ill-effects of irrigation, Types of irrigation, Methods of application of irrigation water, Indian Agriculture soils, Methods of improving soil fertility-Crop

rotation, preparation land for irrigation, Standards of quality for irrigation water.

Soil-water-plant relationship: Vertical distribution of soil moisture, soil moisture constants, soil moisture tension, consumptive use, Duty and delta, factors Affecting duty- design discharge for a water course. The depth and frequency of Irrigation, Irrigation efficiencies-Water Logging.

UNIT V

Classification of canals: Design of Irrigation canals by Kennedy's and Lacey's theories, balancing depth of cutting, IS standards for canal design canal lining.

Design discharge over a catchment: computation of design discharge– rational formula, SCS curve number method, flood frequency analysis introductory part only. Stream gauging-measurement and estimation of stream flow.

TEXT BOOKS

1. A text book of hydrology by P. Jaya Rami Reddy, laxmi publications pvt limited
2. Irrigation and water power engineering- B.C. Punmia, PandeB. B.Lal, Ashok kumarjain, Arun kumarjain- Laxmi publications 16th edition

REFERENCE

l. Elementary hydrology by V.P. Singh PHI publications
2. Irrigation and Water- Resources &Water Power by P'N 'Modi' StandardBook House.
3. Irrigation Water Management by D'K' Majundar' Printice Hall ofIndra.
4. Irrigation and Hydraulic structures by S'K'Grag'
5. Applied Hydrology by VenTe Chow' David R' Maidmentlarry W'MaysTataMC. GrawHill'
6. Introduction to Hydrology by Warren Viessman' Jr' Garyl' Lewis'
7. Handbook of Hydrology by David R. Maidment (Editour-in-chief)-McGrow - Hill

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

SOLAR AND WIND ENERGY SYSTEMS
(Open Elective- I)

Course Code: GR15A3152

L T P C

III Year I Sem

2 1 0 3

UNIT I

Solar Energy Basics: The sun as a source of energy, The Earth Sun, Earth Radiation Spectrums, Extra-terrestrial and Terrestrial Radiations, Spectral Energy Distribution of Solar Radiation, Depletion of Solar Radiation, Solar Radiation Data, Measurement of Solar Radiation, Solar Time(Local Apparent Time), Solar Radiation Geometry, Solar Day Length, Empirical Equations for Estimating Solar Radiation Availability on Horizontal Surface For Cloudy skies, Hourly Global, Diffuse and Beam Radiation on Horizontal Surface Under Cloudless Skies, Solar Radiation on Inclined Plane Surface

UNIT II

Solar Thermal Systems: Solar Collectors, Solar Water Heater, Solar Passive Space-Heating and Cooling Systems, Solar Ustrial Heating Systems, Solar Refrigeration and Air-Conditioning Systems, Solar Cookers, Solar Furnaces, Solar Green House, Solar Dryer, Solar Distillation(or Desalination of Water), Solar Thermo-Mechanical Systems.

UNIT III

Solar Photovoltaic Systems: Solar Cell Fundamentals, Solar Cell Characteristics, Solar Cell Classification, Solar Cell, Module, Panel and Array Construction, Maximizing The Solar PV Output and Load Matching, Maximizing Power point tracker(MPPT),Balance of System Components, Solar PV Systems, Solar PV Applications

UNIT IV

Wind Energy: Origin of Winds, Nature of Winds, Wind Turbine Siting, Major Applications of Wind Power, Basics of Fluid Mechanics, Wind Turbine Aerodynamics.

UNIT V

Wind Energy Conversion Systems: Wind Energy Conversion Systems (WECS), Wind-Diesel Hybrid System, Effects of Wind Speed and Grid Condition (System Integration), Wind Energy Storage, Environmental Aspects.

TEXT BOOKS

- B.H.Khan, “Non- Conventional Energy Resources”, 2nd edition, Tata McGraw-Hill, New Delhi

REFERENCE

1. SP Sukhatme, Solar Energy - Principles of thermal collection and storage, 2nd edition, Tata McGraw-Hill, New Delhi

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

APPLIED THERMODYNAMICS

(Open Elective-I)

Course Code: GR15A3153
L T P C
III B. Tech I Semester
2 1 0 3

UNIT I

Steam Power Cycles: Carnot cycle, Rankine cycle, Modified Rankine - Schematic layouts, Thermodynamic Analysis, Concept of Mean Temperature of Heat addition, Methods to improve cycle performance – Regeneration &Reheating. Binary vapour cycle

Combustion: Fuels and combustion, basic chemistry, combustion equations, stochiometric air fuel ratio, volumetric and mass basis conversion, Flue gas analysis by Orsat apparatus.

UNIT II

Boilers : Classification – Working principles – with sketches including H.P. Boilers, L.P. Boilers and Modern H.P. Boilers – Mountings and Accessories – Working principles, Boiler horse power, equivalent of evaporation, efficiency and heat balance. Draught, classification – Height of chimney for given draught and discharge, condition for maximum discharge, efficiency of chimney – Artificial draught: induced, forced, balanced and steam jet draught,

UNIT III

Steam Nozzles: Function of a nozzle – applications - types, Flow through nozzles, thermodynamic analysis, assumptions -velocity of nozzle at exit-Ideal and actual expansion in nozzle, velocity coefficient, condition for maximum discharge, critical pressure ratio, criteria to decide nozzle shape: Super saturated flow, its effects, degree of super saturation and degree of under cooling - Wilson line.

Steam Condensers: Requirements of steam condensing plant – Classification of condensers – working Principle of different types –

vacuum efficiency and condenser efficiency – air leakage, sources and its affects, Air pump- cooling water requirement. Cooling towers.

UNIT IV

Steam Turbines: Classification – Impulse turbine ,De-Laval Turbine its features; Mechanical details – Velocity diagram – effect of friction – power developed, axial thrust, blade or diagram efficiency – condition for maximum efficiency.-.

Reaction Turbine: Mechanical details – principle of operation, thermodynamic analysis of a stage.-Degree of reaction –velocity diagram – Parson's reaction turbine – condition for maximum efficiency.

Compounding: Methods to reduce rotor speed-Velocity compounding and pressure compounding, pressure velocity compounding, Velocity and Pressure variation along the flow – combined velocity diagram for a velocity compounded impulse turbine.

UNIT V

Gas Turbines: Simple gas turbine plant – Ideal cycle, essential components – actual cycle –methods for improvement of performance - regeneration, inter cooling and reheating –Closed and Semi-closed cycles – merits and demerits, Brief concepts about compressors, combustion chambers and turbines of Gas Turbine Plant.

Jet Propulsion: Principle of Operation –Classification of jet propulsive engines – Working Principles with Schematic diagrams and representation on T-S diagram - Thrust, Thrust Power and Propulsion Efficiency– Turbo jet engines – Needs and Demands met by Turbo jet – Schematic Diagram, Thermodynamic Cycle, Performance Evaluation Thrust Augmentation – Methods.

Rockets: Working Principle – Classification – Propellant Type – Thrust, Propulsive Efficiency – Specific Impulse – Solid and Liquid propellant Rocket Engines.

TEXT BOOKS:

1. Thermal Engineering / R.K. Rajput / Lakshmi Publications
2. Thermal Engineering-P.L.Ballaney/ Khanna publishers
3. Thermal Engineering/R.S.Khurmi/JS Gupta/S.Chand.

REFERENCES:

1. Thermodynamics and Heat Engines / R. Yadav / Central Book Depot
2. Gas Turbines and Propulsive Systems – P.Khajuria&S.P.Dubey - /Dhanpatrai

3. Gas Turbines / Cohen, Rogers and SaravanaMuttoo / Addison Wesley – Longman
4. Thermal Engineering-M.L.Marthur& Mehta/Jain bros
5. Gas Turbines – V.Ganesan /TMH

Teaching Methodology: Power Point Presentations, Working models, White Board & Marker

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

PRINCIPLES OF E-COMMERCE
(OPEN ELECTIVE- I)

Course Code: GR15A3154	**L**	**T**	**P**	**C**
III Year I Semester	**2**	**1**	**0**	**3**

UNIT I

INTRODUCTION TO E-COMMERCE

E-commerce, Difference between E-commerce and E-business, Purpose of E-Commerce, Eight Unique Features of E-commerce Technology, Web 2:0, Types of E-commerce, Growth of the Internet and the Web, Origins and Growth of E-commerce, Understanding E-commerce.

UNIT II

E-COMMERCE BUSINESS MODELS AND CONCEPTS

E-commerce Business Models, Business-to-Consumer (B2C) Business Models, Business-to-Business (B2B) Business Models, Business Models in Emerging E-commerce Areas.

UNIT III

BUILDING AN E-COM WEB SITE

Building an E-commerce Web Site, Choosing Software, Choosing the Hardware, E-commerce Site Tools.

UNIT IV

ONLINE SECURITY AND PAYMENT SYSTEMS

Security Threats in the E-commerce Environment, Technology Solutions, payment systems, E-commerce Payment System, Electronic Billing Presentment and Payment.

UNIT V

ONLINE CONTENT AND MEDIA

Online Content, Online Publishing Industry, Online Entertainment Industry.

TEXT BOOKS:

Kenneth C. Laudon Carol GuercioTraver, “E-commerce: business, technology, society”, Fifth edition, Pearson Prentice Hall, 2009. (Unit-1:Chapter -1, Unit-II: Chapter-2, Unit-III: Chapter-4, Unit-IV: Chapter-5, Unit-V:Chapter-10)

REFERENCES

1. Dave Chaffey, "E-Business and E-Commerce Management: Strategy, Implementation and Practice", Fifth edition, Pearson Education, 2013.
2. K.K. Bajaj, Debjani Nag, "E-Commerce: The Cutting Edge of Business", Second edition, McGraw Hill Education (India) Private Limited, 2005.
3. David Whiteley ,“E-Commerce: Strategy, Technologies And Applications”, McGraw Hill Education (India) Private Limited, 2001.
4. SteffanoKorper, "The E-Commerce Book: Building the E-Empire", Morgan Kaufmann, 2000.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

DATA MINING AND APPLICATIONS
(Open Elective – I)

Course Code: GR15A3155	**L**	**T**	**P**	**C**
III Year I Semester	**2**	**1**	**0**	**3**

UNIT I

Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives, Major issues in Data Mining. Data Preprocessing: Need for Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT II

Mining Frequent Patterns, Associations and Correlations: Basic Concepts, Efficient and Scalable Frequent Itemset Mining Methods, Mining various kinds of Association Rules, From Association Mining to Correlation Analysis, Constraint- Based Association Mining

UNIT III

Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Back propagation, Support Vector Machines, Associative Classification, Prediction, Accuracy and Error measures, Evaluating the accuracy of a Classifier or a Predictor.

Cluster Analysis Introduction :Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Outlier Analysis - Distance-Based Outlier Detection, Density-Based Local Outlier Detection

UNIT IV

Mining World Wide Web: Mining web page layout structure, Identification of authoritative web pages using web link structures, Automatic Classification of Web Documents, Web Usage Mining.

Spatial Mining: Mining spatial association and colocation patterns, spatial clustering methods, spatial classification and spatial trend analysis.

UNIT V

Text Mining: Text Data analysis and Information retrieval, Dimensionality reduction for text, text mining approaches.

Applications and trends in Data Mining : Data Mining for Financial Data Analysis, , Data Mining for Telecommunication Industry, Data Mining for Intrusion Detection, Various themes on Data Mining, Social impacts of data mining

TEXT BOOKS

1. Data Mining – Concepts and Techniques - Jiawei Han and Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, Second Edition, 2006.
2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.
3. Data Mining – Introductory and advanced topics – Margaret H. Dunham &S.Sridhar, Pearson Education.

REFERENCES

1. Data Mining Techniques – Arun K. Pujari, Second Edition, Universities Press.
2. Data Warehousing in the Real World, Sam Anahory and Dennis Murray, Pearson Edn Asia.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

COMPUTER ARCHITECTURE AND ORGANIZATION (OPEN ELECTIVE-I)

Course Code: GR15A3156 **L T P C**

III Year I Semester **2 1 0 3**

UNIT I

Introduction

Computing and Computers, Evolution of Computers, VLSI Era, System Design;

Register Level, Processor Level, CPU Organization, Data Represent ation, Fixed Point Numbers, Floating Point Numbers, Instruction Formats, Instruction Types, addressing modes.

UNIT II

Data Path Design

Fixed Point Arithmetic, Addition, Subtraction, Multiplication and Divis ion, Combinational and SequentialALUs, Carry look ahead adder, Robe rtson algorithm, booth's algorithm, non-
restoring division algorithm,Floating Point Arithmetic, Coprocessor, Pi peline Processing, Pipeline design, Modified booth's Algorithm

UNIT III

Control Design

Hardwired Control, Microprogrammed Control, Multiplier Control Unit , CPU Control Unit, Pipeline Control

Instruction Pipelines, Pipeline Performance, Superscalar Processing, Na no Programming.

UNIT IV

Memory Organization

Random Access Memories, Serial Access Memories, RAM Interfac es, Magnetic Surface Recording,Optical Memories, multilevel memorie s, Cache & Virtual Memory, Memory Allocation, Associative Memory.

UNIT V

System Organization

Communication methods, Buses, Bus Control, Bus Interfacing, Bus a rbitration, IO and system control, IOinterface circuits, Handshaking, DMA and interrupts, vect ored interrupts, PCI interrupts, pipelineinterrupts, IOP organization, ope ration systems, multiprocessors, fault tolera--nce, RISC and CISC processors, Superscalar and vector processor.

TEXT BOOKS:

1. John P.Hayes, 'Computer architecture and Organisation', TMH Third edition, 1998.
2. V.
Carl Hamacher, Zvonko G. Varanesic and Safat G. Zaky, "Computer Organisation", V edition, McGraw-Hill Inc, 1996.

REFERENCES:

1. Morris Mano, "Computer System Architecture", Prentice-Hall of India, 2000.
2. Paraami, "Computer Architecture", BEH R002, Oxford Press.
3. P.Pal Chaudhuri, "Computer organization and design", 2nd Ed., Prentice Hall of India, 2007.
4. G.Kane & J.Heinrich, "MIPS RISC Architecture", Englewood cl iffs, New Jersey, Prentice Hall, 1992.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

ADVANCED LINUX PROGRAMMING

Course Code: GR15A3103 L:3 T:1 P:0 C:4
III Year II Semester

UNIT-I

Utilities-Introduction to Linux file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w, finger, ftp, telnet, text processing utilities and backup utilities, detailed commands to be covered are cat, tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, comm, cmp, diff, tr, tar.
Working with the Bourne shell: what is a shell, shell responsibilities, pipes andinput Redirection, output redirection, here documents, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

UNIT-II

Files System: Linux file structure, directories, files and devices, System calls,library functions, low level file access, usage of open, creat, read, write, close, lseek, stat, fstat, umask, dup, dup2. The standard I/O (fopen, fclose, fflush, fseek, fgetc, getc, fputc, putc, fgets, gets), formatted I/O, streams and file descriptors, file and directory maintenance (chmod, chown, unlink, link, symlink, mkdir, rmdir, chdir, getcwd), Directory handling system calls (opendir, readdir, closedir,rewinddir, seekdir, telldir)

UNIT-III

LINUX Process and Signals: What is process, process structure, starting new process, waiting for a process, zombie process, process control, process identifiers, system call interface for process management-fork, vfork, exit, wait, wait pid, exec, system, Signals- Signal functions, unreliable signals, interrupted system calls, kill and raise functions, alarm, pause functions, abort, sleep functions.

UNIT-IV

Inter process Communication Overview: Introduction to IPC, IPC between processes on a single computer system, IPC between processes on different systems, file and record locking, other LINUX locking techniques, pipes, FIFOs, streams and messages, namespaces, introduction to three types of IPC(system-V)-message queues, semaphores and shared memory.

UNIT-V

Message Queues- LINUX system: V messages, LINUX kernel support for messages, LINUX APIs for messages, client/server example. Semaphores- LINUX system-V semaphores, LINUX kernel support for semaphores, LINUX APIs for semaphores, file locking with semaphores. Shared Memory- LINUX system-V shared memory, LINUX kernel support for shared memory, LINUX APIs for shared memory, semaphore and shared memory example.

TEXT BOOKS

1. Unix the ultimate guide, Sumitabha Das, TMH
2. Unix Network Programming, W.R.Stevens, Pearson/PHI

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

AUTOMATA AND COMPILER DESIGN

Course Code: GR15A3064 L:3 T:1 P:0 C:4
III Year II Semester

UNIT-I

Introduction: Alphabets, Strings and Languages; Automata and Grammars, Deterministic Finite Automata (DFA)-Formal Definition, Simplified notation: State transition graph, Transition table, Language of DFA, Nondeterministic Finite Automata (NFA), Equivalence of NFA and DFA, Minimization of Finite Automata, Regular Expressions, Arden's theorem.

UNIT-II

Compiler Structure: Compilers and Translators, Various Phases of Compiler, Pass Structure of Compiler, Bootstrapping of Compiler. Lexical Analysis: The role of Lexical Analyser, A simple approach to the design of Lexical Analyser, Implementation of Lexical Analyser. The Syntactic Specification of Programming Languages: CFG, Derivation and Parse tree, Ambiguity, Capabilities of CFG. Basic Parsing Techniques: Top-Down parsers with backtracking, Recursive Descent Parsers, Predictive Parsers.

UNIT- III

Bottom–up Parsers: Shift-Reduce Parsing, Operator Precedence Parsers, LRparsers (SLR, Canonical LR, LALR) Syntax Analyser Generator: YACC, **Intermediate Code Generation:** Different Intermediate forms: three addresscode, Quadruples & Triples. Syntax Directed translation mechanism and attributed definition. Translation of Declaration, Assignment, Control Flow, Boolean expression, Array References in arithmetic expressions, procedure calls, case statements, postfix translation

UNIT- IV

Run Time Memory Management: Static and Dynamic storage allocation, stackbased memory allocation schemes, Symbol Table management, Error Detection and Recovery: Lexical phase errors, Syntactic phase errors, Semantic errors

UNIT-V

Code Optimization and Code Generation: Local optimization, Loop optimization, Peephole optimization, Basic blocks and flow graphs, DAG, Data flow analyser, Machine Model, Order of evaluation, Register allocation and code selection.

TEXT BOOKS

1. Introduction to Theory of Computation.Sipser, 2nd Edition, Thomson.
2. Hopcroft, Ullman, “Introduction to Automata Theory, Languages and Computation”, Pearson Education
3. Compilers Principles, Techniques and Tools Aho, Ullman, Sethi, Pearson Education

REFERENCE BOOKS

1. Modern Compiler Construction in C , Andrew W.Appel Cambridge University Press.
2. Compiler Construction, LOUDEN, Thomson.
3. Elements of Compiler Design, A. Meduna, Auerbach Publications, Taylor and Francis Group.
4. Principles of Compiler Design, V. Raghavan, TMH.
5. Engineering a Compiler, K. D. Cooper, L. Torczon, ELSEVIER.
6. Introduction to Formal Languages and Automata Theory and Computation - Kamala Krithivasan and Rama R, Pearson.
7. Modern Compiler Design, D. Grune and others, Wiley-India.
8. A Text book on Automata Theory, S. F. B. Nasir, P. K. Srimani, Cambridge Univ. Press.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

OBJECT ORIENTED ANALYSIS AND DESIGN

Course Code: GR15A3065 L:3 T:1 P:0 C:4
III Year II Semester

UNIT - I

Introduction to UML: Importance of modeling, Principles of modeling, Object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle. Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.

UNIT - II

Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.
Class & Object Diagrams: Terms, concepts, Modeling Techniques for Class & Object Diagrams.

UNIT - III

Basic Behavioral Modeling-I: Interactions, Interaction diagrams.
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT - IV

Advanced Behavioral Modeling: Events and signals, State machines, processes and Threads, time and space, State chart diagrams.

UNIT - V

Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.
Case Study: The Unified Library application

TEXT BOOKS

1. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.
2. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, WILEY-Dreamtech India Pvt. Ltd.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

INFORMATION SECURITY
(Professional Elective – II)

Course Code: GR15A3058 L:3 T:1 P:0 C:4
III Year IISemester

UNIT-I

Security Attacks(Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security.
Conventional Encryption Principles, Conventional encryption algorithms(DES,Blowfish,Idea), cipher block modes of operation, location of encryption devices, key distribution, Approaches of Message Authentication, Secure Hash Functions(MD-5,SHA-1) and HMAC.

UNIT-II

Public key cryptography principles, public key cryptography algorithms (RSA, Deffie-Hellman), digital signatures, digital Certificates, Certificate Authority and key management, Kerberos, X.509 Directory Authentication Service.

UNIT-III

Email privacy: Pretty Good Privacy (PGP) and S/MIME.

UNIT -IV

IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management, Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT - V

Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3.
Intruders, Viruses and related threats ,Firewall Design principles, Trusted System, Intrusion Detection Systems.

TEXT BOOKS

1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain ForestPuppy, Joe Grand, David Ahmad, Hal Flynn IdoDubrawsky, Steve W.Manzuik and Ryan Permeh, wileyDreamtech

REFERENCE BOOKS

1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
2. Network Security - Private Communication in a Public World by CharlieKaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Cryptography and network Security, Third edition, Stallings, PHI/Pearson
4. Principles of Information Security, Whitman, Thomson.
5. Network Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
6. Introduction to Cryptography, Buchmann, Springer.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

EMBEDDED SYSTEMS
(Professional Elective – II)

Course Code: GR15A3070 L:3 T:1 P:0 C:4
III Year II Semester

UNIT-I

Introduction to Embedded Systems: Embedded Systems, Processor Embedded to a system, Embedded hardware units and devices in a system, Embedded software in a system, Examples of Embedded systems, Soc(System on chip) and use of VLSI circuit design technology, complex system design and processors, Design process in Embedded system, formalization of system design, design process and design examples, classification of embedded systems, skills required for embed system design.

UNIT-II

Devices and Buses for Devices Network: I/O Devices:- Types and Examples of I/O devices, Synchronous, Iso-synchronous and Asynchronous Communications from Serial Devices - Examples of Internal Serial-Communication Devices:- SPI, UART, Parallel Port Devices - Timer and Counting Devices – Serial Communication using: 'I2C', 'USB', 'CAN'- Advanced I/O Serial high speed buses: ISA, PCI, PCI- X, cPCI and advanced buses.

UNIT-III

Programming Concepts and Embedded Programming in C, C++ : Programming in assembly language (ALP) vs High Level Language - C Program Elements:- Macros and functions, Use of Date Types, Structure, Pointers, Function Calls - Concepts of Embedded Programming in C++:- Objected Oriented Programming, Embedded Programming in C++, 'C' Program compilers
– Cross compiler – Optimization of memory needs.

UNIT-IV

Real Time Operating Systems: Definitions of process, tasks and threads – InterProcess Communication:- Shared data problem, Use of Semaphore(s), Priority Inversion Problem and Deadlock Situations, Message Queues, Mailboxes, Pipes, Virtual (Logical) Sockets, Remote Procedure Calls (RPCs) - Operating System Services:- Goals, Structures, Kernel, Process Management, Memory Management, Device Management - Real Time Operating System - RTOS Task scheduling models:- Co-operative Round Robin Scheduling, Cyclic Scheduling with Time Slicing.

UNIT-V

System Design Techniques: Design Methodologies, Requirement Analysis, Specification, System Analysis and Architecture Design. Design Examples:- Telephone PBX- System Architecture, Ink jet printer - Hardware Design and Software Design, Personal Digital Assistants, Set-top Boxes.

TEXT BOOK

1. Rajkamal, Embedded Systems Architecture, Programming and Design, TATA McGraw-Hill, First reprint Oct. 2003
2. Computers as Components-principles of embedded computer system design, Wayne Wolf, Elseveir.
3. The 8051 Microcontroller, Third Edition, Kenneth J.Ayala, Thomson.

REFERENCE BOOKS

1. Steve Heath, Embedded Systems Design, Second Edition-2003, Newnes,
2. David E.Simon, An Embedded Software Primer, Pearson Education Asia, First Indian Reprint 2000.
3. Frank Vahid and Tony Givargis, Embedded Systems Design – A unified Hardware /Software Introduction, John Wiley, 2002.
4. Embedding system building blocks, Labrosse, via CMP publishers.
5. Embedded Systems, Raj Kamal, TMH.
6. Micro Controllers, Ajay V Deshmukhi, TMH.
7. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley.
8. Microcontrollers, Raj kamal, Pearson Education.
9. An Embedded Software Primer, David E. Simon, Pearson Education.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

DISTRIBUTED DATABASES AND SYSTEMS
(Professional Elective – II)

Course Code: GR15A3068 L:3 T:1 P:0 C:4
III Year II Semester

UNIT-I

Features of Distributed versus Centralized Databases, Principles of Distributed Databases, Levels Of Distribution Transparency, Reference Architecture for Distributed Databases, Types of Data Fragmentation, Distributed Database Design.
Translation of Global Queries to Fragment Queries, Equivalence transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries.

UNIT-II

The Management of Distributed Transactions, A Framework for Transaction Management, Supporting Atomicity of Distributed Transactions, Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions
Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

UNIT-III

Reliability, Basic Concepts, Nonblocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart, Distributed Database Administration.

UNIT-IV

Introduction to Distributed Systems: The different forms of computing, monolithical, distributed, parallel and cooperative computing, the architecture of distributed applications.
Paradigms for distributed applications-massage passing paradigm, the client-server paradigm, the peer to peer paradigm, the message passing (MOM) paradigm- point to point message model and the publisher-subscriber message model, RPC model, The distributed Object Paradigms, choosing a paradigm for an application.

UNIT-V

Distributed Object Space Paradigm (RMI): message passing versesdistributed objects, an archetypal distributed object architecture, distributed object system, RPC, RMI, the RMI java architecture, java RMI API, a simple RMI application, steps for building an RMI application, testing and debugging, comparison of RMI and socket API,Introduction to CORBA distributed architectures,

TEXT BOOKS

1. Distributed Databases Principles & Systems, Stefano Ceri, Giuseppe Pelagatti,TMH.
2. Distributed computing principles and applications, M LLiu, Pearson Edition.
3. Distributed computing principles and applications A.S Tanenbaum.

REFERENCE BOOKS

1. Principles of Distributed Database Systems, M. Tamer Ozsu, Patrick Valduriez , Pearson Education, 2nd Edition.
2. Distributed Systems, Concepts and Design, 3rd Edition G.Colouris, J.Dollimore, Pearson .Education

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

ADVANCED LINUX PROGRAMMING LAB

Course Code: GR15A3072 L:0 T:0 P:2 C:2
III Year II Semester

1. Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.
2. Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.
3. Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
4. Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported.
5. Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files
6. Write a shell script to list all of the directory files in a directory.
7. Write a shell script to find factorial of a given integer.
8. Write an awk script to count the number of lines in a file that do not contain vowels.
9. Write an awk script to find the number of characters, words and lines in a file.
10. Write a C program that makes a copy of a file using standard I/O and system calls
11. Implement in C the following LINUX commands using System calls (A). cat (B). ls (C). mv
12. Write a program that takes one or more file/directory names as command line input and reports the following information on the file. (A) File type. (B)Number of links. (C) Time of last access. (D) Read, Write and Execute permissions.
13. Write a C program to emulate the LINUX ls –l command.
14. Write a C program to list for every file in a directory, its inode number and file name.
15. Write a C program that demonstrates redirection of standard output to a file. Ex: ls > f1.
16. Write a C program to create a child process and allow the parent to display “parent” and the child to display “child” on the screen.
17. Write a C program to create a Zombie process.

18. Write a C program that illustrates how an orphan is created.
19. Write a C program that illustrates how to execute two commands concurrently with a command pipe. Ex: - ls –l | sort
20. Write C programs that illustrate communication between two unrelated processes using named pipe
21. Write a C program to create a message queue with read and write permissions to write 3 messages to it with different priority numbers.
22. Write a C program that receives the messages (from the above message queue as specified in (21)) and displays them.
23. Write a C program to allow cooperating processes to lock a resource for exclusive use, using a) Semaphores b) flock or lockf system calls.
24. Write a C program that illustrates suspending and resuming processes using signals
25. Write a C program that implements a producer-consumer system with two processes. (Using Semaphores).
26. Write a C program that illustrates two processes communicating using shared memory

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

COMPILER DESIGN & UNIFIED MODELLING LANGUAGE LAB

Course Code: GR15A3071 L:0 T:0 P:2 C:2
III Year II Semester

I. UML diagrams to be developed are:

- Use Case diagram.
- Class diagram.
- Sequence diagram.
- Collaboration diagram.
- State diagram.
- Activity diagram
- Component Diagram
- Deployment Diagram.

II. Case Studies:

- ATM System.
- Library Management System
- Railway reservation system.
- Hospital Management System.
- School Management System

Compiler Design Lab

Task 1: Design a lexical analyzer for to kenizing an expression.
Task 2: Design a lexical analyzer to identify comment lines in a program.
Task 3: Implement brute force technique for a given grammar.
Task 4: Implement RDP for a given grammar.
Task 5: Find the first set of a given grammar.
Task 6: Find the follow set of a given grammar.
Task 7: Construct predictive parser for a given grammar.
Task 8: Design shift-reduce parser for a given grammar.
Task 9: Design operator precedence for a given grammar.
Task 10: Design LALR parser for a given grammar.
Task 11: Generate a three address code for a given expression.
Task 12: Generate an optimized three address code for a given expression.

TEXT BOOKS

1. Principles of compiler design -A.V. Aho , J.D.Ullman, Pearson Education.
2. Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.

REFERENCE BOOKS

1. Lex&Yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.
4. Compiler Construction- Louden, Thomson.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

TRANSPORTATION ENGINEERING

(Open Elective-II)

Course Code: GR15A3161	**L T P C**
III Year II Semester	**2 1 0 3**

UNIT I

Highway development and planning: Highway development in India – Necessity for Highway Planning- Different Road Development Plans- Classification of Roads- Road Network Patterns – Highway Alignment- Factors affecting Alignment- Engineering Surveys – Drawings and Reports.

UNIT II

Highway geometric design: Importance of Geometric Design- Design controls and Criteria- Highway Cross Section Elements- Sight Distances- Stopping sight Distance, Overtaking Sight Distance, intermediate Sight Distance and Head light sight distance- Design of Horizontal Alignment- Design of Super elevation and Extra widening- Design of Transition Curves-Design of Vertical alignment-Gradients-Vertical curves.

UNIT III

Traffic engineering: Traffic flow parameters-Volume, Speed, Density and headway- Traffic Volume Studies- Data Collection and Presentation-speed studies- Data Collection and Presentation- Parking Studies, Parking types and Parking characteristics- Road Accidents-Causes and Preventive measures- Accident Data Recording – Condition Diagram and Collision Diagrams.

Traffic regulation and management: Road Traffic Signs – Types and Specifications – Road markings-Need for Road Markings-Types of Road Markings- Design of Traffic Signals –Webster Method –IRC Method.

UNIT IV

Intersection design: Types of Intersections – Conflicts at Intersections- Types of At-Grade Intersections- Channelization: Objectives –Traffic Islands and Design criteria-Types of Grade Separated Intersections- Rotary Intersection – Concept of Rotary and Design Criteria- Advantages and Disadvantages of Rotary Intersection.

UNIT V

Introduction to railway and airport engineering: Gradients- Grade Compensation- Cant and Negative Super elevation- Cant Deficiency – Degree of Curve – Crossings and Turn outs.

Factors affecting Selection of site for Airport – Aircraft Characteristics- Geometric Design of Runway- Computation of Runway length – Correction for runway length – Orientation of Runway – Wind Rose Diagram – Runway Lighting system.

TEXT BOOKS:

1. Highway Engineering – S.K.Khanna&C.E.G.Justo, Nemchand& Bros., 9th edition (2011).

2. Railway Engineering – A text book of Transportation Engineering – S.P.Chandola – S.Chand& Co. Ltd. – (2001).

3. Highway Engineering Design – L.R.Kadiyali and Lal- Khanna Publications.

4. Airport Planning and Design- S.K.Khanna and Arora,Nemchand Bros.

REFERENCES:

1. Highway Engineering – S.P.Bindra ,DhanpatRai& Sons. – 4th Edition (1981)

2. Traffic Engineering & Transportation Planning – Dr.L.R.Kadyali, Khanna publications – 8th Edition – 2011.

3. Railway Engineering – S.C.Rangwala –Charotar Publishers.

4. Air Transportation Planning & design – S.K.Khanna – Nem Chnd and Bros.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

SENSORS AND TRANSDUCERS

(Open Elective – II)

Course Code: GR15A3162

L T P C

III Year II Sem

2 1 0 3

UNIT I

Introduction: Sensors / Transducers, principles, classification, parameters, characterizations

UNIT II

Introduction to mechanical & Electro Mechanical Sensors: Resistive Potentiometer, Inductive sensors, Capacitive Sensors, Ultrasonic Sensors

UNIT III

Basics of Thermal and Magnetic Sensors: Gas thermometric sensors, Thermal expansion type thermometric sensors, acoustic temperature sensors, dielectric constant and refractive index thermo sensors. Sensors and principles: Yoke coil sensor, coaxial type sensor, Force and displacement sensor

UNIT IV

SMART Sensors: Introduction, Primary sensors, Excitation, Amplification, Filters, Converters, Compensation, Information coding / processing, Data Communication, The Automation

UNIT V

Sensors their Applications: Flow - rate sensors, Pressure Sensors, Temperature
Sensors, Torque & Position Sensors, Home Appliance Sensors - Distance Sensing
Medical Diagnostic sensors, Sensors for Environmental Monitoring

TEXT BOOKS:

1. Sensors & Transducers By D. Patranabis , PHI Publications

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

AUTOMOBILE ENGINEERING
(Open Elective-II)

Course code: GR15A3163
L T P C
III B. Tech II Semester
2 1 0 3

UNIT I
INTRODUCTION, ENGINE AND LUBRICATION SYSTEM

Components of four wheeler automobile – chassis and body – power unit –power transmission – rear wheel drive, front wheel drive, 4 wheel drive – types of automobile engines, Engine construction, turbo charging and super charging, Engine lubrication, splash and pressure lubrication systems, oil filters, oil pumps – crank case ventilation – engine service, reboring, decarbonisation, Nitriding of crank shaft.

Emissions : Emission from Automobiles – Pollution standards National and international – Pollution Control – Techniques – Energy alternatives – Photovoltaic, hydrogen, Biomass, alcohols, LPG and CNG.

UNIT II
FUEL SYSTEM AND COOLING SYSTEM

Fuel System in S.I. Engine : Fuel supply systems, Mechanical and electrical fuel pump – filters– carburetor – types – air filters – petrol injection-Multi point fuel injection(MPFI).

Fuel System in C.I. Engines: Requirements of diesel injection systems, types of injection systems, fuel pump, nozzle, spray formation, injection timing, testing of fuel pumps. CRDI engines.

Cooling System: Cooling Requirements, Air Cooling, Liquid Cooling, Forced Circulation System – Radiators – Types – Cooling Fan - water pump, thermostat, evaporative cooling – pressure sealed cooling – anti freeze solutions.

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UNIT III
IGNITION SYSTEM AND ELECTRICAL SYSTEM

Ignition System: Function of an ignition system, battery ignition system, constructional features of storage, battery, auto transformer,

contact breaker points, condenser and sparkplug – Magneto coil ignition system, electronic ignition system using contact breaker, electronic ignition using contact triggers – spark advance and retard mechanism.

Electrical System : Charging circuit, generator, current – voltage regulator – starting system, bendix drive mechanism solenoid switch, lighting systems, Horn, wiper, fuel gauge – oil pressure gauge, engine temperature indicator etc.

UNIT IV

TRANSMISSION AND STEERING SYSTEM

Transmission System: Clutches, principle, types, cone clutch, single plate clutch, multi plate clutch, magnetic and centrifugal clutches, fluid fly wheel – gear boxes, types, sliding mesh, constant mesh, synchro mesh gear boxes, epicyclic gear box, over drive, torque converter. Propeller shaft – Hotch – Kiss drive, Torque tube drive, universal joint, differential rear axles –types – wheels and tyres.

Steering System: Steering geometry – camber, castor, king pin rake, combined angle toein, center point steering. Types of steering mechanism – Ackerman steering mechanism, Davis steering mechanism, steering gears – types, steering linkages.

UNIT V

SUSPENSION AND BRAKING SYSTEM

Suspension System: Objects of suspension systems – rigid axle suspension system, torsion bar, shock absorber, Independent suspension system.

Braking System: Mechanical brake system, Hydraulic brake system, Master cylinder, wheel

Cylinder, tandem master cylinder, Requirement of brake fluid, Pneumatic and vacuum brakes.

TEXT BOOKS:

4. Automobile Engineering -R B Gupta
5. Automotive Mechanics – William Crouse
6. Automobile Engineering Vol. 1 & Vol. 2 / Kripal Singh

REFERENCES

1. Automotive Engineering / Newton Steeds & Garrett

2. Automotive Mechanics / G.B.S. Narang
3. Automotive Mechanics / Heitner
4. Automotive Engines / Srinivasan
5. Automobile Engineering – K.K. Ramalingam / Scitech Publications (India) PVT.

Teaching Methodology:
Power point Presentations, Working models, white board & marker

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

HUMAN COMPUTER INTERFACE
(Open Elective-II)

Course Code: GR15A3164
L T P C
IIIYear II Semester
2 1 0 3

UNIT I

Introduction: Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design, The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

UNIT II

Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.

UNIT III

Screen Designing: Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow.

UNIT IV

Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls, Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors, Software tools – Specification methods, interface – Building Tools.

UNIT V

Interaction Devices – Keyboard and function keys – pointing devices – speech recognition digitization and generation – image and video displays – drivers.

TEXT BOOKS:

1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamaTech.
2. Designing the user interface. 3rd Edition Ben Shneidermann , Pearson Education Asia.

REFERENCES:

1. Human – Computer Interaction. ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.
2. Interaction Design PRECE, ROGERS, SHARPS. Wiley Dreamtech,
3. User Interface Design, Soren Lauesen Pearson Education

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

ESSENTIALS OF BIG DATA ANALYTICS

(Open Elective – II)

Course Code: GR15A3165

L T P C

III Year II Semester

2 1 0 3

UNIT I

INTRODUCTION TO BIG DATA AND HADOOP: Introduction to Big Data Platform – Big Data definition, Challenges of Conventional Systems: Enterprise/structured data, Social/unstructured Data, Unstructured data needs for Analytics, Analytics vs Reporting, Data Analytic Tools, History of Hadoop, Components of Hadoop, Analyzing the Data with Hadoop, Different Echo systems of Hadoop, IBM Big Data Platform Strategy and Introduction to Infosphere Big Insights.

UNIT II

HDFS (Hadoop Distributed File System): Significance of HDFS in Hadoop, Design of HDFS, HDFS Architecture overview, 5 daemons of Hadoop: Name Node, Data Node, Secondary Node, Job Tracker and Task Tracker, their functionality, Data Storage in HDFS: Introduction about Blocks, Data replication, Accessing HDFS: CLI (Command Line Interface) and admin commands, How to store various types of data in HDFS using CLI-command.

UNIT III

Map Reduce Map Reduce Architecture, Map Reduce Programming Model, Map Reduce Java API, Anatomy of Map Reduce Job run, Failures, Job Scheduling, Sort & Shuffle phase, Task Execution. Map Reduce Program using IBM BigInsights. Adaptive Map Reduce.

Introduction to Oozie: Overview of Managing job Execution. Apache Pig: Introduction to Apache Pig, Map Reduce Vs Apache Pig, SQL Vs Apache Pig, Pig Datatypes, Modes Of Execution in Pig.

UNIT IV

Data Stores on Hadoop Hive: Introduction, architecture, Integration with Hadoop, Hive Tables: Managed Tables, External Tables, Hive Query Language (Hive QL) Hbase: Introduction to HBase, Architecture, HBaseVs RDBMS, HBaseUseCasesHmaster. Introduction to Zookeeper.

UNIT V

BM APPLICATIONS ON HADOOP

Big SQL: Introduction to Big SQL, Datatypes, Big SQL Statistics.

Big Sheets: Introduction, Processing and Accessing BigSheets, Big SQL
Integration.

TEXT BOOKS

1. Tom White “Hadoop: The Definitive Guide” Third Edit on, O’reily Media, 2012.

REFERENCES

1. Michael Berthold, David J. Hand, "Intelligent Data Analysis”, Springer, 2007.
2. Jay Liebowitz, “Big Data and Business Analytics” Auerbach Publications, CRC press (2013)
3. Tom Plunkett, Mark Hornick, “Using R to Unlock the Value of Big Data: Big Data Analytics with Oracle R Enterprise and Oracle R Connector for Hadoop”, McGraw-Hill/Osborne Media (2013), Oracle press.
4. AnandRajaraman and Jefrey David Ulman, “Mining of Massive Datasets”, Cambridge University Press, 2012.
5. Bill Franks, “Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics”, John Wiley & sons, 2012.
6. Glen J. Myat, “Making Sense of Data”, John Wiley & Sons, 2007
7. Pete Warden, “Big Data Glossary”, O’Reily, 2011.
8. Michael Mineli, Michele Chambers, AmbigaDhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley Publications, 2013.
9. ArvindSathi, “Big Data Analytics: Disruptive Technologies for Changing the Game”, MC Press, 2012
10. Paul Zikopoulos, Dirk De Roos, Krishnan Parasuraman, Thomas Deutsch, James Giles, David Corigan, "Harness the Power of Big Data The IBM Big Data Platform", Tata McGraw Hill Publications, 2012.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

PRINCIPLES OF OPERATING SYSTEMS
(OPEN ELECTIVE-II)

Course Code: GR15A3166
L T P C
III Year II Semester
2 2 0 3

UNIT I

Computer System and Operating System Overview: Overview of computer operating systems, operating systems functions, operating systems structures and systems calls, Evaluation of Operating Systems.

UNIT II

Process Management – Process concept- process scheduling, operations, Inter process communication. Multi Thread programming models. Process scheduling criteria and algorithms, and their evaluation.

UNIT III

Concurrency: Process synchronization, the critical- section problem, Peterson's Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors and Synchronization examples
Memory Management: Swapping, contiguous memory allocation, paging, structure of the page table, segmentation

UNIT IV

Virtual Memory Management: virtual memory, demand paging, page-Replacement, algorithms, Allocation of Frames, Thrashing
Principles of deadlock – system model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock,

UNIT V

File system Interface- the concept of a file, Access Methods, Directory structure, File system mounting, file sharing, protection.

File System implementation- File system structure, allocation methods, free-space management

Mass-storage structure overview of Mass-storage structure, Disk structure, disk attachment, disk scheduling, Introduction to Storage Area Networks (SAN), Introduction to Network Attached Storage.

TEXT BOOKS:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.
2. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.

REFERENCES:

1. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
2. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhere, TMH.
3. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.
4. Operating Systems, A. S. Godbole, 2nd Edition, TMH
5. An Introduction to Operating Systems, P.C.P. Bhatt, PHI.
6. Operating Systems, S, Haldar and A. A. Arvind, Pearson Education.
7. Operating Systems, R. Elmasri, A. G. Carrick and D. Levine, Mc Graw Hill.
8. Operating Systems in depth, T. W. Doeppner, Wiley.

IV-Year

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

MANAGEMENT SCIENCE

Course Code: GR15A3102 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

Introduction to Management &Organisation: Concepts of Management andOrganization: Nature, Importance, Functions and Theories of Management;Systems Approach to Management; Leadership Styles; Social Responsibilities of Management. Designing Organisational Structures: Basic concepts relating to Organisation;Departmentation and Decentralisation, Types and Evolution of mechanistic and organic structures of organisation and suitability.

UNIT-II

Operations &Marketing Management: Principles and Types of Plant Layout,Methods of production (Job, batch and Mass Production), Work Study - Basic procedure involved in Method Study and Work Measurement.Statistical Quality Control: Control Charts for Variables and Attributes (Simple Problems) and Acceptance Sampling, Deming's contribution to quality. Objectives of InventoryControl, EOQ, ABC Analysis, Purchase Procedures, Stores Management and Stores Records - Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle, Channels of Distribution.

UNIT-III

Human Resources Management (HRM): Concepts of Personnel Management,HRM and HRD and Industrial Relations (IR), HRM vs. PMIR. Basic functions of HR Manager: Manpower planning, Recruitment and Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Grievance Handling and Welfare Administration, Job Analysis, Job Description, and Job Evaluation.

UNIT-IV

Project Management (PERT/CPM): Network Analysis, Programme Evaluationand Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing (simple problems).

UNIT-V

Strategic Management and Contemporary Strategic Issues: Mission, Goals,Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning

Process, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives. Contemporary Management Practices: Basic concepts of MIS, End User Computing, Materials Requirement Planning (MRP), Just-In-Time (JIT) System, Total Quality Management (TQM), Six Sigma and Capability Maturity Model (CMM) Levels, Supply Chain Management, Enterprise Resource Planning (ERP), Performance Management, Business Process Outsourcing (BPO), Business Process Re-engineering and Bench Marking, Balanced Score Card.

TEACHING METHODOLOGIES

1. Lecture Method
2. Use of OHP
3. Power Point Presentation
4. Tutorials and Assignments

TEXT BOOK

1. Aryasri: Management Science, TMH, 2009.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

SCRIPTING LANGUAGES

Course Code: GR15A3060 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

Introduction to Scripting: Scripts and Programs, Origin of Scripting, ScriptingToday, Characteristics of Scripting Languages, Web Scripting, and the universe of Scripting Languages.

PHP Basics: PHP Basics- Features, Embedding PHP Code in your Web pages,Outputting the data to the browser, Data types, Variables, Constants, expressions, string interpolation, control structures, Function, Creating a Function, Function Libraries, Arrays, strings and Regular Expressions.

UNIT-II

MYSQL Basics: Introduction to MYSQL: Database Concepts, GeneralOverview of MYSQL database, Installation. Connecting and disconnecting from MYSQL Server, Querying the database, Data Definition Language, Functions and Logical operators, Access privilege system.

UNIT-III

Advanced PHP Programming Part-1: PHP and Web Forms, Files, PHPAuthentication and Methodolgies-Hard Coded, File Based, Database Based, IP Based, Login Administration, Uploading Files with PHP.

UNIT-IV

Advanced PHP Programming Part-2: Sending Email using PHP, PHPEncryption Functions, the Mcrypt package, Building Web sites for the World – Translating Websites- Updating Web sites Scripts, Creating the Localization Repository, Translating Files, text, Generate Binary Files, Set the desired language within your scripts, Localizing Dates, Numbers and Times.

UNIT-V

Python: Introduction to Python langauge, Python-syntax, statements, functions,Built-in-functions and Methods, Modules in Python, Exception Handling, Integrated Web Applications in Python – Building Small, Efficient Python Web Systems ,Web Application Framework.

TEXT BOOKS

1. The World of Scripting Languages, David Barron,Wiley India.
2. Beginning PHP and MySQL, 3rd Edition, Jason Gilmore, Apress Publications.
3. Python Web Programming, Steve Holden and David Beazley,New Riders Publications.

REFERENCE BOOKS

1. Open Source Web Development with LAMP using Linux, Apache, MYSQL, Perl and PHP, Lee and B.Ware (Addison Wesley) Pearson Education.
2. Programming Python, M.Lutz, SPD.
3. PHP 6 Fast and Easy Web Development,Julie Meloni and Matt Telles, Cengage Learning Publications.
4. PHP 5.1,I.Bayross and S.Shah,The X Team,SPD.
5. Core Python Programming,Chun,Pearson Education.
6. Guide to Programming with Python,M.Dawson,Cengage Learning.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIDDLEWARE TECHNOLOGIES

Course Code: GR15A4104 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

CLIENT/SERVER CONCEPTS: Client – Server – File Server, Database server, Group server, Object server, Web server. Middleware – General middleware – Service specific middleware. Client/Server Building blocks-RPC – Messaging – Peer – to – Peer.

UNIT-II

EJB ARCHITECTURE: EJB –EJB Architecture – Overview of EJB software architecture – View of EJB – Conversation – Building and Deploying EJBs – Roles in EJB.

UNIT-III

EJB APPLICATIONS: EJB Session Beans – EJB entity beans – EJB clients – EJB Deployment – Building an application with EJB.

UNIT-IV

CORBA: CORBA – Distributed Systems – Purpose – Exploring CORBA alternatives – Architecture overview – CORBA and networking model – CORBA object model – IDL – ORB – Building an application with CORBA.

UNIT-V

COM: COM – Data types – Interfaces – Proxy and stub – Marshalling – Implementing server/Client – Interface pointers – Object Creation, Invocation, Destruction – Comparison COM and CORBA – Introduction to .NET – Overview of .NET architecture–Marshalling – Remoting.

TEXT BOOKS

- Robert Orfali, Dan Harkey and Jeri Edwards, “The Essential Client/server Survival Guide”, Galgotia publications Pvt. Ltd., 2002.(UNIT 1)
- Tom Valesky, “Enterprise Java Beans”, Pearson Education, 2002.(UNIT 2 & 3)
- Jason Pritchard. “COM and CORBA side by side”, Addison Wesley,2000 (UNIT 4 & 5)
- Jesse Liberty, “Programming C#”, 2nd Edition, O’Reilly press,2002. (UNIT 5)

REFERENCE BOOKS

- Mowbray, “ Inside CORBA”, Pearson Education, 2002.
- Jeremy Rosenberger, “Teach yourself CORBA in 14 days”, Tec media,2000

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

BUSINESS INTELLIGENCE
(Open Elective – III)

Course Code: GR15A4087 L:2 T:1 P:0 C:3
IV Year I Semester

UNIT-I

Business Data and Business Intelligence: An Introduction: What is data? Data and business, Big Data, Information and insight, challenges in data decision, operational and informational data, Data decision challenge, Decision Support System, understanding Business Intelligence, Business Intelligence and its components, Importance of Business Intelligence, Business Intelligence areas, Business Intelligence Implementation, Business Intelligence and Integration Implementation, Overview of IBM Cognos BI.

UNIT-II

Data warehouse: An Overview Data warehouse architecture, Data warehouse Modelling and Design, Challenges , Data Modelling requirements, Modelling Techniques; Entity relationship Modelling, Dimensional Modelling, Temporal Modelling, Multidimensional data modelling, ERM Vs MDDM, What is Metadata, Types of metadata, Benefits of metadata, Data Analytics Techniques: OLAP and OLTP systems

UNIT-III

Building and Accessing a Data Warehouse: Enterprise data warehouse, Challenges of Building a Warehouse, Data warehouse for decision support system, Data Analytics, Data analytics techniques, Information Mining Vs Data mining, Usage of Data Mining, Information Integration, Data warehouse Master Data Management System, MDM Logical Architecture, DB2 UDB Warehouse

UNIT-IV

IBM Cognos BI: IBM Cognos Framework Manager, Connection of Framework Manager to Cognos Business Intelligence, Framework Manager Query Model, Frame work manager Model Types, Enterprise Components, Architecture, Security, Query Modes, Model types, Framework Manager Workflow, Administration Workflow, Cognos Configuration

UNIT-V

Query and Reporting: Query and Process flow, Report studio, Generation of different reports such as List, cross tab ,Charts, Prompts etc, Focus reports using prompts and filters, Drilling from one report to another, Report using Relational Data

TEXT BOOKS

1. Chuck Ballard, Dirk Herreman, Don Schau, Rhonda Bell,Data Modeling Techniques for Data Warehousing , IBM [ebook]
2. Business Analytics : Data Analytics & Decision Making by S. Christian Albright and Wayne L. Winston.
3. Analytics at Work by Morisson
4. Competing on Analytics - Davenport
5. IBM Cognos 10 Report Studio : Practical Examples by Philip & Roger
6. IBM Cognos BI 10.2 Administration Essentials by Mehmood Awan Khalid.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

SOFTWARE TESTING METHODOLOGIES
(Professional Elective – III)

Course Code: GR15A4077 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

Introduction: Purpose of testing, Dichotomies, Model for testing,Consequences of bugs, Taxonomy of Bugs

UNIT-II

Flow Graphs and Path Testing: Basics concepts of Path Testing, Predicates,Path Predicates and Achievable Paths, Path Sensitizing, Path Instrumentation, Application of Path Testing. Transaction Flow Testing: Transaction flows, transaction flow testing techniques.

UNIT-III

Dataflow testing: Basics of dataflow testing, strategies in dataflow testing,application of dataflow testing.
Domain Testing: Domains and paths, Nice & ugly domains, Domain Testing,domains and interfaces testing, domain and interface testing, domains and testability.

UNIT-IV

Paths, Path products and Regular expressions: Path products & pathexpression, reduction procedure, applications, regular expressions & flow anomaly detection.
Logic Based Testing: Overview, decision tables, path expressions, kv charts,specifications.

UNIT-V

State, State Graphs and Transition testing: State graphs, good & bad state graphs, state testing, Testability tips.
Graph Matrices and Application: Motivational overview, matrix of graph,relations, power of a matrix, Node Reduction algorithm.

TEXT BOOKS

1. Software Testing techniques - BarisBeizer, Dreamtech, second edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

REFERENCE BOOKS

1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD(Oreille)
3. Software Testing in the Real World – Edward Kit, Pearson.
4. Effective methods of Software Testing, Perry, John Wiley.
5. Art of Software Testing – Meyers, John Wiley.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

ARTIFICIAL INTELLIGENCE AND NEURAL NETWORKS
(Professional Elective – III)

Course Code: GR15A3061 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

Introduction: AI problems, foundation of AI and history of AI intelligent agents,Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem formulation.
Searching: Searching for solutions, uniformed search strategies – Breadth first search, depth first Search. Search with partial information (Heuristic search) Greedy best first search, A* search. Game Playing:Adversal search, Games, minmax, algorithm, optimal decisions in multiplayer games, Alpha-Beta pruning, Evaluation functions, cutting of search.

UNIT-II

Knowledge Representation & Reasons: Logical Agents, Knowledge – BasedAgents, the Wumpus world, logic, propositional logic, Resolution patterns in propositional logic, Resolution, Forward & Backward Chaining.
First order logic: Inference in first order logic, propositional Vs. first order inference, unification & lifts forward chaining, Backward chaining, Resolution.

UNIT-III

Characteristics of Neural Networks: Historical Development of NeuralNetworks Principles, Artificial Neural Networks: Terminology, Models of Neuron, Topology, Basic Learning Laws, Pattern Recognition Problem, Basic Functional Units, Pattern Recognition Tasks by the Functional Units.

UNIT-IV

Feedforward Neural Networks: Introduction, Analysis of pattern AssociationNetworks, Analysis of Pattern Classification Networks, Analysis of pattern storage Networks. Analysis of Pattern Mapping Networks.
Feedback Neural Networks: Introduction, Analysis of Linear Auto-associative FF Networks, Analysis of Pattern Storage Networks.

UNIT-V

Competitive Learning Neural Networks & Complex pattern Recognition: Introduction, Analysis of Pattern Clustering Networks, Analysis of Feature mapping Networks, Associative Memory.

TEXT BOOKS

1. Artificial Intelligence – A Modern Approach. Second Edition, Stuart Russel, Peter Norvig, PHI/ Pearson Education.
2. Artificial Neural Networks B. YagnaNarayana, PHI

REFERENCE BOOKS

1. Artificial Intelligence, 2nd Edition, E.Rich and K.Knight (TMH).
2. Artificial Intelligence and Expert Systems – Patterson PHI.
3. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
4. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.
5. Neural Networks Simon Haykin PHI
6. Artificial Intelligence, 3rd Edition, Patrick Henry Winston., Pearson Edition.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

SEMANTIC WEB AND SOCIAL NETWORKS
(Professional Elective – III)

Course Code: GR15A4094 L:3 T:1 P:0 C:4
IV Year I Semester

UNIT-I

Web Intelligence: Thinking and Intelligent Web Applications, The Information Age ,The World Wide Web, Limitations of Today's Web, The Next Generation Web, Machine Intelligence, Artificial Intelligence, Ontology, Inference engines, Software Agents, Berners-Lee www, Semantic Road Map, Logic on the semantic Web.

UNIT-II

Knowledge Representation for the Semantic Web: Ontologies and their role in the semantic web, Ontologies Languages for the Semantic Web – Resource Description Framework(RDF) / RDF Schema, Ontology Web Language(OWL), UML, XML/XML Schema.

UNIT-III

Ontology Engineering: Ontology Engineering, Constructing Ontology, Ontology Development Tools, Ontology Methods, Ontology Sharing and Merging, Ontology Libraries and Ontology Mapping, Logic, Rule and Inference Engines.

UNIT-IV

Semantic Web Applications, Services and Technology: Semantic Web applications and services, Semantic Search, e-learning, Semantic Bioinformatics, Knowledge Base ,XML Based Web Services, Creating an OWL-S Ontology for Web Services, Semantic Search Technology, Web Search Agents and Semantic Methods,

UNIT-V

Social Network Analysis and semantic web: What is social Networks analysis, development of the social networks analysis, Electronic Sources for Network Analysis – Electronic Discussion networks, Blogs and Online Communities, Web Based Networks. Building Semantic Web Applications with social network features.

TEXT BOOKS

1. Thinking on the Web - Berners Lee, Godel and Turing, Wiley inter science, 2008.
2. Social Networks and the Semantic Web, Peter Mika, Springer, 2007.

REFERENCE BOOKS

1. Semantic Web Technologies, Trends and Research in Ontology Based systems, J.Davies, R.Studer, P.Warren, John Wiley & Sons.
2. Semantic Web and Semantic Web Services -Liyang Lu Chapman and Hall/CRC Publishers,(Taylor & Francis Group)
3. Information Sharing on the semantic Web - HeinerStuckenschmidt; Frank Van Harmelen, Springer Publications.
4. Programming the Semantic Web, T.Segaran, C.Evans, J.Taylor, O'Reilly, SPD.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

SCRIPTING LANGUAGES LAB

Course Code: GR15A4084 L:0 T:0 P:2 C:2
IV Year I Semester

PHP

Week-1

Write a PHP script for the following.

a. Find the biggest of 3 numbers.
b. Find the factorial of a number (while loop)
c. To reverse the digit (Use do while)
d. Find the sum of the digits (Use for loop)
e. Display the Fibonacci series for a particular limit.(Use for loop)
f. Check the given letter is vowel or not.
g. Check whether the given number is Prime or not.

Week-2

a. Write a PHP script to create an associative array with book details and display.
b. Write a PHP script to create an array and try with all array functions.

Week-3

a. Write a PHP script to create Cookie, store a value "Ganesh" in the cookie.
b. Write a PHP script to store, retrieve and delete data using session variables.
c. Write a program for Cinema Ticketing. All the age should be over 12 years, if less than, don't allow to get ticket. (apply the exception handling).

Week-4

a. Write a PHP program to display the contents of a file using fgets, fgetc, fread functions.
b. Write a PHP program to upload a file and display the contents in server.

Week-5

Create a registration form which contains fields name, Roll No, Gender and a submit button. All the details should be displayed in the server page when the user clicks the submit button.

Week-6

a. Design a database in MYSQL using PHP. Create table in database.

Store, Update, Delete and Retrieve data from the table. Display the data from the table.

b. Design a PHP application that will provide a form containing fields to fill book detail (Book title, Author, Publication, ISBN, Price and category). Display filled details to the user.

Week-7

Write a PHP script that will demonstrate POSIX regular expressions for validating i)Name ii) Pin Code iii) Date iv) Email-id.

Week-8

Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.

Week-9

Write a PHP script using scalar variables.

i. Find the biggest of 3 numbers.
ii. To check whether a number is positive or negative.
iii. Find the factorial of a number (while loop)
iv. To reverse the digit (Use do while)
v. Find the sum of the digits (Use for loop)
vi. Fibonacci series for a particular limit.(Use for loop)

PHYTHON

Week-10

Write a Python script using basic data types.

a. Find the biggest of 3 numbers.
b. To check whether a number is positive or negative.
c. Find the factorial of a number
d. To reverse the digit
e. Find the sum of the digits
f. Fibonacci series for a particular limit.

Week-11

a. Write a Python script to test built in methods of Strings.
b. Write a Python script to test various functions of List and Tuple.

Week-12

a. Write a Python script to test various functions of Dictionary.
b. Write a Python script to define a function and calling the function by passing arguments. (using pass by value & pass by reference).

TEXT BOOKS

a. Beginning.PHP.and.MySQL.3rd.Edition W. Jason Gilmore-Third Edition Apress publications
b. Python-Standard Library by Frederik Luth- O'Relly
c. Practical Programming in Python by Jeffery Elkener

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIDDLEWARE TECHNOLOGIES LAB

Course Code: GR15A4099 L:0 T:0 P:2 C:2
IV Year I Semester

List of Experiments

1. Create a distributed application to download various files from various servers using RMI.
2. Create a Java Bean to draw various graphical shapes and display it using or without using BDK.
3. Develop an Enterprise Java Bean for student Information System.
4. Develop an Enterprise Java Bean for Library operations.
5. Create an Active-X control for Timetable.
6. Develop a component for converting the currency values using COM/.NET.
7. Develop a component for encryption and decryption using COM/. NET.
8. Develop a component for retrieving information from message box using DCOM/ .NET
9. Develop a middleware component for retrieving Stock Market Exchange information Using CORBA.
10. Develop a middleware component for retrieving Bank Balance using CORBA.
11. Develop a middleware component for retrieving Weather Forecast information using CORBA.
12. Create an application for converting case conversion using IDL.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

ANIMATIONS LAB

Course Code: GR15A4100 L:0 T:0 P:2 C:2
IV Year I Semester

Week 1: An introduction of the various drawing and painting tools and their uses
Week 2: A clean up drawing from a provided pencil sketch tools
Week 3: Design of a character displaying a pose from various perspectives. **Week 4:** Clean up of various poses on multiple layers.
Week 5: Several short animations will be produced using a series of traditional animation procedures.
Week 6: Create a walk cycle animations.
Week 7: A study of traditional animation skills.
Week 8: Create a 360 degree turn around animation of a character's head using traditional pose-to-pose animation principles.
Week 9: Multi-plane and Shape Tweening
Week 10: Create a multi-plane scene with assets provided by the instructor
Week 11: Design assets and successfully create a shape tween.
Week 12: Instruction on the use of bones in animation softwares
Week 13: Introduction to various studio workflows used in the digital animation industry.
Week 14: Create a scene for animation using proper layout procedures.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

GREEN BUILDING TECHNOLOGY

(Open Elective-III)

Course Code: GR15A4161 **L** **T** **P** **C**

IV Year I Semester **2** **1** **0** **3**

UNIT 1

Concept of Green Buildings:

Green building Definition, Features, Necessity, Initiatives, Green buildings in India, Green building Assessment- Green Building Rating Systems (BREEAM,USGBC,LEED,IGBC,TERI-GRIHA, GREEN STAR),Criteria for rating, Energy efficient criteria ,environmental benefits economic benefits, health and social benefits , Major energy efficiency areas for building, Contribution of buildings towards Global Warming. Life cycle cost of buildings, Codes and Certification Programs

UNIT II

Sources of Energy:

Renewable and Non-renewable sources of energy ; Coal, Petroleum, Nuclear, Wind, Solar, Hydro, Geothermal sources; potential of these sources, hazards, pollution; Global scenario with reference to demand and supply in India, Global efforts to reduce carbon emissions, Performance testing (new and existing): Building modeling , Energy analysis, Commissioning, Metering, Monitoring.

Carbon emission: Forecasting, Control of carbon emission, Air quality and its monitoring carbon foot print; Environmental issues, Minimizing carbon emission, Energy retrofits and Green Remodels.

UNIT III

Green Building Materials: Sustainably managed Materials, Depleting natural resources of building materials; renewable and recyclable resources; energy efficient materials; Embodied Energy of Materials , Green cement, Biodegradable materials, Smart materials, Manufactured Materials, Volatile Organic Compounds (VOC's), Natural Non-Petroleum Based Materials, Recycled materials, Renewable and Indigenous Building Materials, Engineering evaluation of these materials.

Green Building Planning Methods, Energy Conservation Measures in Buildings, Waste &Water management and Recycling in Sustainable Facilities, Heating, Ventilation and Air Conditioning, Passive Solar & Daylight, Plumbing and its Effect on Energy Consumption

UNIT IV

Design of Green Buildings; Sustainable sites, Impact of building on environment, Life cycle assessment, Principles of sustainable development in Building Design ,Design on Bioclimatic **and Specifications:** Environment friendly and cost effective Building Technologies, Integrated Life cycle design of Materials and Structures, Green Strategies for Building Systems, Alternative Construction and solar passive architecture, Considerations of energy consumption, water use, and system reliability, indoor air quality, noise level, comfort, cost efficiency in building design, Advanced Green building technologies and innovations.

UNIT V

Construction of Green Buildings: Energy efficient construction, Practices for thermal efficiency and natural lighting. Eco- friendly water proofing; ECB codes building rating, Maintenance of green buildings, Cost and Performance Comparisons and Benchmarking, Green Project Management Methods and Best Practices, Cost/benefit analysis of green buildings,Life-cycle analysis of green buildings, Case studies of rated buildings (new and existing)

TEXT BOOKS:

1. Alternative Building Materials and Technologies – By K S Jagadeesh, B V Venkatta Rama Reddy & K SNanjunda Rao – New Age International Publishers
2. Integrated Life Cycle Design of Structures – By AskoSarja – SPON Press
3. Non-conventional Energy Resources – By D S Chauhan and S K Sreevasthava – New Age InternationalPublishers
4. Green Buildings (McGraw hill publication): by Gevorkian
5. Emerald Architecture: case studies in green buildings, The Magazine of Sustainable Design
6. Understanding Green Building Guidelines: For Students and Young Professionals, Traci Rose Rider ,W. W. Norton & Company Publisher.

7. Understanding Green Building Materials,Traci Rose Rider, W. W. Norton & Company Publisher.

REFERENCES

1. IGBC reference guide
2. Free abridged versions of LEED reference guides
3. ECBC latest version
4. US GBC's Reference Material:

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

SOFT COMPUTING TECHNIQUES
(Open Elective-III)

Course Code: GR15A4162

	L	T	P	C
IV Year I Sem	2	1	0	3

UNIT I

Neural Networks-I(Introduction & Architecture) Neuron, Nerve structure and synapse, Artificial Neuron and its model, activation functions, Neural network architecture: single layer and multilayer feed forward networks, recurrent networks. Various learning techniques; perception and convergence rule, Auto-associative and hetero-associative memory.

UNIT II

Neural Networks-II (Back propagation networks) Architecture: perceptron model, solution, single layer artificial neural network, multilayer perception model; back propagation learning methods, effect of learning rule co-efficient; back propagation algorithm, factors affecting back propagation training, applications.

UNIT III

Fuzzy Logic-I (Introduction) Basic concepts of fuzzy logic, Fuzzy sets and Crisp sets, Fuzzy set theory and operations, Properties of fuzzy sets, Fuzzy and Crisp relations, Fuzzy to Crisp conversion.

UNIT IV

Fuzzy Logic –II (Fuzzy Membership, Rules) Membership functions, interference in fuzzy logic, fuzzy if-then rules, Fuzzy implications and Fuzzy algorithms, Fuzzyfications & Defuzzificataions, Fuzzy Controller, Industrial applications.

UNIT V

Genetic Algorithm(GA) Basic concepts, working principle, procedures of GA, flow chart of GA, Genetic representations, (encoding) Initialization and selection, Genetic operators, Mutation, Generational Cycle, applications.

TEXT BOOKS:

1. S. Rajsekaran & G.A. Vijayalakshmi Pai, “Neural Networks,Fuzzy Logic and Genetic Algorithm:Synthesis and Applications” Prentice Hall of India.

2. Introduction to Artificial Neural Systems - Jacek M. Zuarda, Jaico Publishing House, 1997.

3. N.P.Padhy,”Artificial Intelligence and Intelligent Systems” Oxford University Press.

REFERENCES

1. Timothy J. Ross, “Fuzzy Logic with Engineering Applications” Wiley India

2. P. Vas: Artificial-Intelligence-Based Electrical Machines and Drives: Application of Fuzzy, Neural, Fuzzy- Neural, and Genetic-Algorithm-Based Techniques, Oxford University Press, 1999.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

OPERATION RESEARCH
(Open Elective-III)

Course Code: GR15A4163 **L T P C**
IV B. Tech I Semester **2 1 0 3**

UNIT I

INTRODUCTION: Development – Definition– Characteristics and Phases of operations Research– Types of models – operation Research models– applications.

ALLOCATION: Linear Programming Problem Formulation – Graphical solution – Simplex method –Artificial variables techniques - Two–phase method, Big-M method – Duality Principle.

UNIT II

TRANSPORTATION MODELS: Formulation – Methods for finding feasible solution, Optimal solution, unbalanced transportation problem –Degeneracy.

ASSIGNMENT MODELS - Formulation – Optimal solution - Variants of Assignment Problem

UNIT III

SEQUENCING: Introduction – Flow **–**Shop sequencing – n jobs through two machines – n jobs through three machines – Job shop sequencing – two jobs through 'm' machines.

INVENTORY : Introduction – Single item – Deterministic models – Purchase inventory models with one price break and multiple price breaks – shortages are not allowed – Stochastic models – demand may be discrete variable or continuous variable – Instantaneous production. Instantaneous demand and continuous demand and no set up cost.

UNIT IV

THEORY OF GAMES: Introduction – Minimax (maximin) – Criterion and optimal strategy – Solution of games with saddle points – Rectangular games without saddle points – 2 X 2 games – dominance principle– m X 2 & 2 X n games -graphical method.

WAITING LINES: Introduction – Single Channel – Poisson arrivals – exponential service times – with infinite population and finite

population models– Multichannel – Poisson arrivals – exponential service times with infinite population single channel Poisson arrivals.

UNIT V

REPLACEMENT: Introduction – Replacement of items that deteriorate with time – when money value is not counted and counted – Replacement of items that fail completely, group replacement.

DYNAMIC PROGRAMMING: Introduction – Bellman's Principle of optimality – Applications of dynamic programming- capital budgeting problem – shortest path problem – linear programming problem.

TEXT BOOKS :

1. Operations Research/ Prem Kumar Gupta,Dr.D.S. Hira
2. Operations Research / S. D.Sharma-Kedarnath
3. Operation Research /J.K.Sharma/MacMilan.

REFERENCES:

1. Operations Research / R.Pannerselvam,PHI Publications.
2. Introduction to O.R /Taha/PHI
3. Operations Research / Wagner/ PHI Publications.
4. Introduction to O.R/Hiller &Libermann (TMH).
5. Operations Research /A.M.Natarajan,P.Balasubramani,A. Tamilarasi/Pearson Education.
6. Operations Research: Methods & Problems / Maurice Saseini, ArhurYaspan& Lawrence Friedman
7. O.R/Wayne L.Winston/Thomson Brooks/cole

Teaching Methodology:

Power point Presentations, Working models, white board & marker

GOKARAJU RANGARAJUINSTITUTE OF ENGINEERING AND TECHNOLOGY

MOBILE COMPUTING AND APPLICATIONS

(Open Elective III)

Course Code: GR15A4164

	L	T	P	C
IV Year I Semester	**2**	**1**	**0**	**3**

UNIT I

Introduction to Mobile Computing: Introduction, applications, simplified referenced model.

Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA, Comparison.

UNIT II

Telecommunication systems: GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT III

Mobility and location-based services: Introduction, Data Acquisition of Location Information, GIS, Location Information Modeling, Location-Based Services Applied, Utilizing Location-Based Services with Mobile Applications, Representing Location with UML, Security and Privacy of Location Information, Localization and Internationalization, Latest Developments in Location-Based Efforts

UNIT IV

The Mobile Development Process: Introduction, Back to the Dimensions of Mobility, Applying the Wisdom Methodology to Mobile Development, UML-Based Development Cycle for Mobile Applications

Architecture, Design, and Technology Selection for Mobile Applications: Introduction, Practical Concerns with Architectures, Architectural Patterns for Mobile Applications

UNIT V

Mobile Application Development Hurdles: Introduction, Voice User Interface Hurdles, Hurdles with Multimodal Applications, Problems with Building Location-Based Applications, Power Use.

Testing Mobile Applications: Introduction, Validating the Mobile Use Cases before Development, The Effect of the Dimensions of Mobility on Software

Testing, Stress Testing and Scalability Issues, Testing Location-Based Functionality.

Support for Mobility: File systems: Consistency, coda, little work, Ficus, Mio-NFS, Rover.

Outlook: Architecture of future networks.

TEXT BOOKS

1. **Jochen Schiller**, "Mobile Communications", Second Edition, Pearson education, 2004. (Unit I-All chapters, Unit II-All chapters, & Unit V: Last two chapters)
2. **Reza B'far, "**Mobile Computing Principles: Designing And Developing Mobile Applications With UML And XML", Cambridge University Press, 2005. (Unit III-All chapters, Unit IV-All chapters and Unit V - First two chapters).

REFERENCES

1. **Adelstein, Frank, Gupta, Sandeep KS, Richard, Golden, Schwiebert, Loren,** "Fundamentals of Mobile and Pervasive Computing", ISBN: 0071412379, McGraw-Hill Professional, 2005.
2. **Hansmann, Merk, Nicklous, Stober**, "Principles of Mobile Computing", Springer, second edition, 2003.
3. **Martyn Mallick,** "Mobile and Wireless Design Essentials", Wiley DreamTech, 2003.

GOKARAJU RANGARAJUINSTITUTE OF ENGINEERING AND TECHNOLOGY

BUSINESS INTELLIGENCE
(Open Elective – III)

Course Code: GR15A4165
L T P C
IV Year I Semester **2**
1 0 3

UNIT I

Business Data and Business Intelligence: An Introduction: What is data? Data and business, Big Data, Information and insight, challenges in data decision, operational and informational data, Data decision challenge, Decision Support System, understanding Business Intelligence, Business Intelligence and its components, Importance of Business Intelligence, Business Intelligence areas, Business Intelligence Implementation, Business Intelligence and Integration Implementation, Overview of IBM Cognos BI.

UNIT II

Data warehouse: An Overview Data warehouse architecture, Data warehouse Modelling and Design, Challenges , Data Modelling requirements, Modelling Techniques; Entity relationship Modelling, Dimensional Modelling, Temporal Modelling, Multidimensional data modelling, ERM Vs MDDM, What is Metadata, Types of metadata, Benefits of metadata, Data Analytics Techniques: OLAP and OLTP systems

UNIT III

Building and Accessing a Data Warehouse: Enterprise data warehouse, Challenges of Building a Warehouse, Data warehouse for decision support system, Data Analytics, Data analytics techniques, Information Mining Vs Data mining, Usage of Data Mining, Information Integration, Data warehouse Master Data Management System, MDM Logical Architecture, DB2 UDB Warehouse

UNIT IV

IBM Cognos BI: IBM Cognos Framework Manager, Connection of Framework Manager to Cognos Business Intelligence, Framework Manager Query Model, Frame work manager Model Types, Enterprise Components, Architecture, Security, Query Modes, Model types, Framework Manager Workflow, Administration Workflow, Cognos Configuration

UNIT V

Query and Reporting: Query and Process flow, Report studio, Generation of different reports such as List, cross tab ,Charts, Prompts etc, Focus reports using prompts and filters, Drilling from one report to another, Report using Relational Data

TEXT BOOKS

1. Chuck Ballard, Dirk Herreman, Don Schau, Rhonda Bell,Data Modeling Techniques for Data Warehousing , IBM [ebook]
2. Business Analytics : Data Analytics & Decision Making by S. Christian Albright and Wayne L. Winston.
3. Analytics at Work by Morisson
4. Competing on Analytics - Davenport
5. IBM Cognos 10 Report Studio : Practical Examples by Philip & Roger
6. IBM Cognos BI 10.2 Administration Essentials by Mehmood Awan Khalid

GOKARAJU RANGARAJUINSTITUTE OF ENGINEERING AND TECHNOLOGY

PRINCIPLES OF SATELLITE COMMUNICATIONS (OPEN ELECTIVE-III)

Course Code: GR15A04166

L T P C

IV Year I Semester

2 1 0 3

UNIT I

Introduction: Origin of satellite communications, Historical background, basic concepts of satellite communications, frequency allocations for satellite services, applications, future trends of satellite communications.

UNIT II

Orbital Mechanics and Launchers: Orbital Mechanics look angle determination, orbital perturbations, orbit determination, launches and launch vehicles, orbital effects in communication systems performance.

UNIT III

Satellite Subsystems: Attitude and orbital control system, Telemetry, Tracking, command and monitoring, power systems, communication subsystems, satellite antenna equipment reliability and space qualification.

UNIT IV

Satellite Link Design: Basic transmission theory, system noise temperature and G/T ratio, design of down links, uplink design, design of satellite links for specified C/N, system design example.

UNIT V

Earth Station Technology: Introduction, transmitters, receivers, Antennas, tracking systems, terrestrial interface, primary power test methods.

Low Earth Orbit and Geo-stationary Satellite Systems: Orbit consideration, coverage and frequency considerations, delay and throughput considerations, system considerations, operational NGSO constellation designs.

TEXT BOOKS

1. Satellite communications-Timothi Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley
Publications, 2nd Edition, 2003.

2. Satellite communications Engineering-Wilbur L.Prichard, Robert A. Nelson & Henry
G. Suyderhoud, 2nd Edition, Pearson Publications, 2003.

REFERENCES

1. Satellite communications: Design principles-M. Richharia, BS publications, 2nd Edition,
2003.
2. Fundamentals of Satellite communications-K.N.Rajarao, PHI, 2004.
3. Satellite communications-Dennis Roddy, McGraw Hill, 2nd Edition, 1996.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOBILE APPLICATION DEVELOPMENT

Course Code: GR15A4082 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT I

Java Concepts: OOPs Concepts, Inheritance in detail, Exception handling, Packages & interfaces o JVM & .jar file extension, Multi threading (Thread class & Runnable Interface), SQL-DML and DDL Queries.
Introduction to Android: What is Android? Setting up development environment, Dalvik Virtual Machine & .apk file extension, Fundamentals: a. Basic Building blocks - Activities, Services, Broadcast Receivers & Content providers b. UI Components - Views & notifications c. Components for communication -Intents & Intent Filters , Android API levels (versions & version names).

UNIT II

Application Structure(in detail): Android Manifest. xml, uses-permission & uses-sdk, Resources & R.java , Assets , Layouts & Drawable Resources ,Activities and Activity lifecycle , First sample Application
Emulator-Android Virtual Device: Launching emulator , Editing emulator settings, Emulator shortcuts , Log cat usage , Introduction to DDMS, Basic UI design, Preferences, Menu, Intents, UI design, Tabs and Tab Activity, Styles & Themes , Examples.

UNIT III

Content Providers: SQLite Programming , SQLite OpenHelper ,SQLite Databse, Cursor , Reading and updating Contacts, Reading bookmarks, Examples.

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UNIT IV

Android Debug Bridge (adb) tool : Linkify- Web URLs, Email address, text,map address, phone numbers , MatchFilter & TransformFilter , Adapters and Widgtes- Adapters:-ArrayAdapters, Base Adapters, ListView and ListActivity ,Custom listview GridView using adapters , Gallery using adapters ,Notifications, Examples.
Custom components: Custom Tabs, Custom animated popup panels, Other components, Examples.

UNIT V

Threads: Threads running on UI thread (runOnUiThread) , Worker thread ,Handlers & Runnable ,AsynTask (in detail) ,Examples.

Advanced Concept: Live Folders ,Using sdcards , XML Parsing , JSON Parsing, Maps, GPS, Location based Services ,Accessing Phone services (Call, SMS, MMS) , Network connectivity services ,Sensors.

TEXT BOOKS

1. Android How to Program with an Introduction to Java, Deitel, Deitel and Deitel, Prentice Hall, ISBN 978-0-13-299054-7.
2. Android for Programmers: An App-Driven Approach, Deitel, Deitel, Deitel, and Morgano, Prentice Hall, ISBN 978-0-13-2121361.

REFERENCE BOOKS

1. Java JDK 6 or later, Eclipse 3.6.2 or later, Android SDK – latest version, Android ADT plugin for Eclipse.
2. Andriod Studio Development Essentials, CreateSpace Independent Publishing Platform; 1 edition - Neil Smyth.
3. Andriod Apps for Absolute Beginners, Aprèss, Wallace Jackson.
4. Andriod Apps with Eclipse,Apress,Onur Cinar.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

SOFTWARE PROJECT MANAGEMENT
(Professional Elective – IV)

Course Code: GR15A4101 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT - I

Conventional Software Management: The waterfall model, conventional software Management performance.
Evolution of Software Economics: Software Economics, pragmatic software cost estimation.
Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

UNIT - II

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.
Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.
Model based software architectures : A Management perspective and technical perspective.

UNIT-III

Work Flows of the process : Software process workflows, Iteration workflows, Checkpoints of the process :Major mile stones, Minor Milestones, Periodic status assessments.

UNIT - IV

Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning. Project Organizations and Responsibilities :Line-of-Business Organizations, Project Organizations, evolution of Organizations.

UNIT-V

Process Automation :Automation Building blocks, The Project Environment. Project Control and Process instrumentation :The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

TEXT BOOK

1. Software Project Management, Walker Royce: Pearson Education, 2005.

REFERENCE BOOKS

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw- Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, PankajJalote, Pearson Education.2005.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

CLOUD COMPUTING
(Professional Elective – IV)

Course Code: GR15A4079 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT-I

Cloud Architecture and Models: Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models:- Characteristics – Cloud Services – Cloud models (IaaS, PaaS, SaaS) – Public vs Private Cloud –Cloud Solutions - Cloud ecosystem – Service management – Computing on demand.

UNIT-II

Virtualization: Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data-center Automation.

UNIT-III

Cloud Infrastructure: Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development – Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Global Exchange of Cloud Resources.

UNIT-IV

Programming Model: Parallel and Distributed Programming Paradigms – MapReduce, Twister and Iterative Map Reduce – Hadoop Library from Apache – Mapping Applications - Programming Support - Google App Engine,
Amazon AWS - Cloud Software Environments -Eucalyptus, Open Nebula, OpenStack, Aneka, CloudSim

UNIT-V

Security in the Cloud: Security Overview – Cloud Security Challenges and Risks – Software-as-a-Service Security – Security Governance – Risk Management – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security - Identity Management and Access Control – Autonomic Security.

TEXT BOOKS

1. George Reese, “Cloud Application Architectures: Building Applications and Infrastructure in the Cloud” O'Reilly
2. Kumar Saurabh, “ Cloud Computing – insights into New-Era Infrastructure”, Wiley India,2011
3. RajkumarBuyya, Christian Vecchiola, S.TamaraiSelvi, ‘Mastering Cloud Computing”, TMGH,2013.

REFERENCE BOOKS

1. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, “Distributed and Cloud Computing, From Parallel Processing to the Internet of Things”, Morgan Kaufmann Publishers, 2012.
2. John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
3. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
4. Ronald L. Krutz, Russell Dean Vines, “Cloud Security – A comprehensive Guide to Secure Cloud Computing”, Wiley – India, 2010.
5. Nick Antonopoulos, Cloud computing, Springer Publications, 2010

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

E-COMMERCE
(Professional Elective – IV)

Course Code: GR15A4091 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT - I

Electronic Commerce-Frame work, anatomy of E-Commerce applications, E- commerce

Consumer applications, E-Commerce organization applications. Consumer
Oriented Electronic commerce - Mercantile Process models.

UNIT - II

Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in

Electronic Payment systems. Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT - III

Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

Corporate Digital Library - Document Library, digital Document types, corporate
Data Warehouses.

UNIT- IV

Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research.

Consumer Search and Resource Discovery - Information search and

Retrieval, Commerce Catalogues, Information Filtering.

UNIT - V

Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processing's, Desktop video conferencing.

TEXT BOOK :

1. Frontiers of electronic commerce – Kalakata, Whinston, Pearson.

REFERENCES :

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, TharamDillon, Ellizabeth Chang, John Wiley.
2. E-Commerce, S.Jaiswal – Galgotia.
3. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.
4. Electronic Commerce – Gary P.Schneider – Ce yngage Learning..
5. E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver.
6. Electronic Commerce,B.Bhaskar,3rd edition,TMH.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

DESIGN PATTERNS
(Professional Elective – V)

Course Code: GR15A4090 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT-I

Introduction: What Is a Design Pattern?, Design Patterns in Smalltalk MVC,Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns solve Design Problems, How to Select a Design Pattern, How to Use a Design Pattern.

UNIT-II

A Case Study: Designing a Document Editor: Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation, Summary.

UNIT-III

Creational Patterns: Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.
Structural Pattern Part-I: Adapter, Bridge, Composite.

UNIT-IV

Structural Pattern Part-II: Decorator, Façade, Flyweight, Proxy.
Behavioral Patterns Part-I: Chain of Responsibility, Command, Interpreter, Iterator.

UNIT-V

Behavioral Patterns Part-II: Mediator, Memento, Observer, State, Strategy, Template Method Visitor, Discussion of Behavioral Patterns. What to Expect from Design Patterns, A Brief History, The Pattern Community An Invitation, A Parting Thought.

TEXT BOOKS

1. Design Patterns by Erich Gamma, Pearson Education

REFERENCE BOOKS

1. Pattern's in JAVA Vol-I by Mark Grand,Wiley DreamTech.
2. Pattern's in JAVA Vol-II by Mark Grand,Wiley DreamTech.
3. JAVA Enterprise Design Patterns Vol-III by Mark Grand,Wiley DreamTech.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

AD-HOC SENSOR NETWORKS
(Professional Elective – V)

Course Code: GR15A4102 L:3 T:1 P:0 C:4
IV Year II Semester

UNIT-I

ADHOC NETWORKS FUNDAMENTALS AND MAC PROTOCOLS: Fundamentals Of WLANS -IEEE 802.11 Architecture -Self Configuration And Auto Configuration-Issues In Ad-Hoc Wireless Networks –MAC Protocols For Ad-Hoc Wireless Networks – Contention Based Protocols -TCP Over Ad-Hoc Networks-TCP Protocol Overview -TCP And MANETs –Solutions For TCP Over Ad-Hoc Networks

UNIT-II

ADHOC NETWORK ROUTING AND MANAGEMENT: Routing in Ad-HocNetworks-Introduction -Topology based versus Position based Approaches - Proactive, Reactive, Hybrid Routing Approach -Principles and issues –Location services -DREAM –Quorums based Location Service –Grid – Forwarding Strategies –Greedy Packet Forwarding –Restricted Directional Flooding-Hierarchical Routing-Other Routing Protocols.

UNIT- III

SENSOR NETWORK COMMUNICATION PROTOCOLS: Introduction – Architecture -Single Node Architecture –Sensor Network Design Considerations –Energy Efficient Design Principles for WSNs –Protocols for WSN –Physical Layer –Transceiver Design Considerations –MAC Layer Protocols – IEEE 802.15.4 Zigbee –Link Layer and Error Control Issues - Routing Protocols –Mobile Nodes and Mobile Robots -Data Centric &Contention Based Networking –Transport Protocols &QoS –Congestion Control Issues – Application Layer Support.

UNIT-IV

SENSOR NETWORK MANAGEMENT AND PROGRAMMING: Sensor Management - Topology Control Protocols and Sensing Mode Selection Protocols –Time Synchronization -Localization and Positioning – Operating Systems and Sensor Network Programming –Sensor Network Simulators.

UNIT- V

ADHOC AND SENSOR NETWORK SECURITY: Security in Ad-Hoc and Sensor Networks – KeyDistribution and Management –Software based AntitamperTechniques –Water Marking techniques –Defense against Routing

Protocols –Broadcast Authentication WSN Protocols – TESLA –Biba –Sensor Network Security Protocols – SPINS

TEXT BOOK:

1. C. Siva Ram Murthy, and B. S. Manoj, “Ad Hoc Wireless Networks: Architectures and Protocols “, Prentice Hall Professional Technical Reference, 2008. .

REFERENCES:

1. Carlos De Morais Cordeiro, Dharma Prakash Agrawal “Ad Hoc & Sensor Networks: Theory and Applications”, World Scientific Publishing Company, 2006.
2. Feng Zhao and Leonides Guibas, “Wireless Sensor Networks”, Elsevier Publication – 2002.
3. Holger Karl and Andreas Willig “Protocols and Architectures for Wireless Sensor Networks”, Wiley, 2005
4. Kazem Sohraby, Daniel Minoli, & Taieb Znati, “Wireless Sensor Networks-Technology, Protocols, and Applications”, John Wiley, 2007.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

NETWORK PROGRAMMING
(Professional Elective –V)

Course Code: GR15A4098 L:3 T:1 P:0 C:4
IV Year IISemester

UNIT-I

Introduction to Network Programming: OSI model, Unix standards, TCP andUDP & TCP connection establishment and Format, Buffer sizes and limitation, standard internet services, Protocol usage by common internet application.
Sockets: Address structures, value – result arguments, Byte ordering andmanipulation function and related functions Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function.

UNIT-II

TCP client server: Introduction, TCP Echo server functions, Normal startup,terminate and signal handling server process termination, Crashing and Rebooting of server host shutdown of server host.

UNIT-III

I/O Multiplexing and socket options: I/O Models, select function, Batch input,shutdown function, poll function, TCP Echo server, getsockopt and setsockopt functions. Socket states, Generic socket option IPV6 socket option ICMPV6 socket option IPV6 socket option and TCP socket options.

UNIT-IV

Elementary UDP sockets: Introduction UDP Echo server function, lostdatagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP.

UNIT-V

Elementary name and Address conversions: DNS, gethostbyname function, Resolver option, Function and IPV6 support, uname function, other networking information. Remote Login: Terminal line disciplines, Pseudo-Terminals, Terminal modes, Control Terminals, rlogin Overview, RPC Transparency Issues.

TEXT BOOK

1. UNIX Network Programming, Vol. I, Sockets API, 2nd Edition. - W.Richard Stevens, Pearson Edn. Asia.
2. UNIX Network Programming, 1st Edition, - W.Richard Stevens. PHI.

REFERENCE BOOKS

1. UNIX SYSTEMS PROGRAMMING USING C++ T CHAN, PHI.
2. UNIX for programmers and Users, 3RD Edition, GRAHAM GLASS, KING ABLES, Pearson Education.
3. Advanced UNIX programming, 2nd edition, M J Rochkindpearson education.

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOBILE APPLICATION DEVELOPMENT LAB

Course Code: GR15A4105 L:0 T:0 P:2 C:2
IV Year II Semester

Task - 1: Installation of Android SDK.

1. Installing jdk1.6 above version.
2. Installing the Android Studio IDE.
3. Installing Android SDK.
4. Installing Android Development Tools
5. Choosing which Android version to use
6. Creating and starting an android emulator.

Task –2: Create anAndroid app to demonstrate the application Lifecycle.

Task– 3: Create anAndroid application to create a simple Registration form using the following UI elements.

1. TextView
2. EditText
3. Radio Button
4. CheckBoxes
5. Button

Task – 4: Create an Android application which implements different Layouts and widget controls such as Text controls, Button controls , Toggle buttons, and to display Images.

Task – 5: Create an Android application to display a slideshow of images which scroll automatically after a certain period of time.

Task – 6: Create an Android application using Intents for the Registration form in Task -3. The application must send form data from first activity to another and display the details in the second activity.

Task – 7: Create an Android application to implement a custom ListView which displays a list of students names along with their roll number and picture.

Task – 8: Create an Android application to implement custom GridView which displays all the B.Tech branch logos along with their branch name.

Task – 9: Create an Android application for working with Dialogs and Toast messages.

Task – 10: Create an Android application for working with Tabs and Fragments.

Task – 11: Using SQLite in Android create an application for retrieving the time table of a class by taking the year and section as inputs from the user.

Task – 12: Create an Android application for displaying and controlling music playback.

Task – 13: Create an Android application for implementing a basic Android Service Class and its lifecycle.

Task – 14: Create an Android application to find the current location using Google Maps API and GPS services.