



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Bachupally, Kukatpally, Hyderabad- 500090



AICTE Margdarshan Online FDP on Outcome Based Education and Research Methodologies 21 to 27 December 2020

SUMMARY REPORT

GRIET conducted one week AICTE Margdarshan Online FDP on Outcome Based Education and Research Methodologies from 21-12-2020 to 27-12-2020 (6 days). Total there were 313 faculty participated across from various colleges from which 86 participants are from the 13 mentee institutions and 30 from GRIET. There were 13 sessions in total conducted focusing on Need for Outcome Based Education, Accreditation and OBE, Writing PEOs and more insight to Pos, Bio composites in research, Active Learning Strategies, Multidisciplinary Research - Challenges and Opportunities, Art of Formulating Research Proposal, Role of Finite Elements in Research, How to be Innovative in Research, How to Start Research, Achieving Academic Excellence – A case study of NIRF, Assessment and Attainment of Program Outcomes, Research at Indian Railways.



DAY-1 (21-12-2020)

SESSION-1

TOPIC: Need for Outcome based Education

SPEAKER: Dr M G Sethuraman, Director R&D, Gandhigram

Speaker focused on need for outcome based education. Its importance integration and linkage needed for all the stakeholders through government, society, institution, industry, student, parent, alumni, etc. Also, focused on the objectives and outcomes in OBE.

Speaker-1: Dr M G Sethuraman, Director R&D, Gandhigram	
Description	Feedback (4)
How satisfied were you with the session?	3.83
How related and helpful it was for you?	3.80
How satisfied are you with the session content?	3.81
Is the presentation of the speaker being in a clear and organized manner?	3.83



DAY-1 (21-12-2020)

SESSION-2

TOPIC: Accreditation and Outcome Based Education

SPEAKER: Dr J Praveen, Principal, GRIET, Hyderabad

Speaker discussed various innovative teaching methods for engineering education. Also, discussed about NBA Graduate Attributes, OBE, Teaching methods, flipped classroom, peer learning, TPS, case-based learning, experimental learning, project based learning, MOOCS, technological pedagogy, LMS, software, interactive presentation, rubrics, simulation tools, emerging areas and disruptive technologies.

Speaker-2: Dr J Praveen, Principal, GRIET, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.81
How related and helpful it was for you?	3.82
How satisfied are you with the session content?	3.80
Is the presentation of the speaker being in a clear and organized manner?	3.81



DAY-2 (22-12-2020)

SESSION-3

TOPIC: Writing PEOs and more insight to POs

SPEAKER: Prof D S Chalam BMS College of Engineering, Bangalore

Speaker discussed in detail about how to write program educational objectives and programs outcomes. Also focused on graduate attributes, especially on engineering solutions, complex problems, sustainability, etc.

Speaker-3: Prof D S Chalam BMS College of Engineering, Bangalore	
Description	Feedback (4)
How satisfied were you with the session?	3.85
How related and helpful it was for you?	3.81
How satisfied are you with the session content?	3.86
Is the presentation of the speaker being in a clear and organized manner?	3.84



DAY-2 (22-12-2020)

SESSION-4

TOPIC: Bio composites in Research

SPEAKER: Dr Sujan Debnath, Curtin University, Malaysia

Speaker discussed about bio composite in research. Main challenge to enhance interfacial bonding between polymer matrix and natural fibre, moisture absorption affects bio-composite performance, appropriate surface treatment and compatibility between polymer matrix and the fibre can enhance interfacial bonding, uniform dispersion of fibre and nano-particles in matrix can greatly enhance composite performance, hybrid polymer bio composite with appropriate treatment, filler size & shape with nano enhancement, a potential solution.

Speaker-4: Dr Sujan Debnath, Curtin University, Malaysia	
Description	Feedback (4)
How satisfied were you with the session?	3.80
How related and helpful it was for you?	3.73
How satisfied are you with the session content?	3.74
Is the presentation of the speaker being in a clear and organized manner?	3.78



DAY-3 (23-12-2020)

SESSION-5

TOPIC: Active Learning Strategies

SPEAKER: Dr T Sudheer Kumar, IEEE, Vizag Chapter

Speaker explained about activity-based learning and course portfolio. Need is to strengthen thinking and reasoning skills, building self-esteem, encouraging students to take responsibility for their own learning, making independent and self-correcting learners, more exciting classroom experience, increase student participation, retention and engagement. Also, discussed about course portfolio in which course objective, course outcomes and syllabus, preparation of worksheets, introducing flipped classroom at least one topic from each chapter and material of the course must exist.

Speaker-5: Dr T Sudheer Kumar, IEEE, Vizag Bay Chapter	
Description	Feedback (4)
How satisfied were you with the session?	3.87
How related and helpful it was for you?	3.81
How satisfied are you with the session content?	3.84
Is the presentation of the speaker being in a clear and organized manner?	3.85



DAY-3 (23-12-2020)

SESSION-6

TOPIC: Multidisciplinary Research - Challenges & Opportunities

SPEAKER: Dr B Phaneendra Babu, Professor, GRIET, Hyderabad

Speaker focused on multidisciplinary, interdisciplinary and transdisciplinary research and their challenges, research advantages, key strategies to improve with examples and case studies. Also focused on multi/interdisciplinary research funding opportunities in India. Discussed about four key strategies for fostering multi/interdisciplinary research across academic departments like create opportunities to bring people together, offer incentives that encourage people to step out of their comfort zone, remove structural barriers to collaboration, raise the profile of researchers work.

Speaker-6: Dr B Phaneendra Babu, Professor, GRIET, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.78
How related and helpful it was for you?	3.74
How satisfied are you with the session content?	3.74
Is the presentation of the speaker being in a clear and organized manner?	3.77



DAY-4 (24-12-2020)

SESSION-7

TOPIC: Art of Formulating Research Proposal

SPEAKER: Dr Swadesh Kumar Singh, Professor, GRIET, Hyderabad

Speaker focused about writing research papers and projects. Steps for Writing a Research Paper to Choose a topic, Define the work, Access the data, software etc., Literature, Finalize the paper statement and prepare a working outline, Prepare rough draft. Also, focused on how to choose a proper journal to publish your research paper, h-Index - researchers identity, discussed about types of projects. Consultancy Projects and Sponsored Projects. Discussed about components of a typical research project proposal, Year-wise Activities/ Milestones, time schedule and PERT Chart, citations. In details about Peer-review, conveying clearly what the PI wants to achieve (objectives), how (methodology), and novelty (National/International status), Focused Objectives (4-5 points), Literature Survey, Detailed methodology with structure, equation, schemes, diagrams, etc. and realistic budget.

Speaker-7: Dr Swadesh Kumar Singh, Professor, GRIET, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.81
How related and helpful it was for you?	3.76
How satisfied are you with the session content?	3.76
Is the presentation of the speaker being in a clear and organized manner?	3.82



DAY-4 (24-12-2020)

SESSION-8

TOPIC: Role of Finite Elements in Research

SPEAKER: Dr P Ravindra Reddy, Professor, CBIT, Hyderabad

Speaker summarized about finite element analysis. What Is FEA, Partial Differential Equations in FE, Method of Solution, Discretization's, Typical Finite Elements, Two-Dimensional Discretization Refinement. Speaker discussed about applications in Structural/Stress Analysis, Dynamics: Linear and Non-linear, Fluid Flow, Heat Transfer, Electro-Magnetic Fields, Soil Mechanics, Acoustics, Sloshing Coupled field analysis, Fracture, Fatigue and CFD, Electric and Eddy currents, Implicit/Explicit, Bio Mechanics, Material Characterization and Testing Material Modeling, Share Market, etc.

Speaker-8: Dr P Ravindra Reddy, Professor, CBIT, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.70
How related and helpful it was for you?	3.65
How satisfied are you with the session content?	3.65
Is the presentation of the speaker being in a clear and organized manner?	3.67



DAY-5 (26-12-2020)

SESSION-9

TOPIC: How to be Innovative in Research

SPEAKER: Prof Sunil Pandey, IIT Delhi

Speaker focused on how to be innovative in research specific to a domain. Also discussed about considerations to be kept in mind about investment, equipment, consumable, accessories, time schedule, etc. and various applications related to them.

Speaker-9: Prof Sunil Pandey, IIT Delhi	
Description	Feedback (4)
How satisfied were you with the session?	3.80
How related and helpful it was for you?	3.77
How satisfied are you with the session content?	3.80
Is the presentation of the speaker being in a clear and organized manner?	3.81



DAY-5 (26-12-2020)

SESSION-10

TOPIC: How to Start Research

SPEAKER: Dr Manoj Kumar Gupta Institute of Plasma Research, Gandhinagar

Speaker outlined about purpose of research, goal for research to produce new topics or issues to discuss, results which provides the details of various outcomes that are obtained after carrying out the required experiments and theoretical analyses. Also, discussed about time for research, long process, efforts, success and failure concepts.

Speaker-10: Dr Manoj Kumar Gupta Institute of Plasma Research, Gandhinagar	
Description	Feedback (4)
How satisfied were you with the session?	3.83
How related and helpful it was for you?	3.80
How satisfied are you with the session content?	3.80
Is the presentation of the speaker being in a clear and organized manner?	3.82



DAY-6 (27-12-2020)

SESSION-11

TOPIC: Assessment and Attainment of Program Outcomes

SPEAKER: Dr C Lavanya, Dean FDP, GRIET, Hyderabad

Speaker focused on program outcomes (PO), course outcomes (COs), blooms taxonomy, mapping COs & POs, methodology to find the attainment of COs, validation of CO attainment, process of calculating PO attainment, validation of PO attainment. Also focused on continuous improvement in teaching learning and in OBE system.

Speaker-11: Dr C Lavanya, Dean FDP, GRIET, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.87
How related and helpful it was for you?	3.83
How satisfied are you with the session content?	3.87
Is the presentation of the speaker being in a clear and organized manner?	3.88



DAY-6 (27-12-2020)

SESSION-12

TOPIC: Achieving Academic Excellence – A case study of NIRF

SPEAKER: Prof P Gopala Krishna, Dean Publicity, GRIET, Hyderabad

Speaker discussed about accreditation and ranking system, genesis of National Institutional Ranking Framework (NIRF), preparation and its categories. Also discussed about NIRF methodology in various parameters like teaching learning resources, research and professional practice, graduate outcomes, outreach and inclusivity and perception.

Speaker-12: Prof P Gopala Krishna, Dean Publicity, GRIET, Hyderabad	
Description	Feedback (4)
How satisfied were you with the session?	3.86
How related and helpful it was for you?	3.82
How satisfied are you with the session content?	3.85
Is the presentation of the speaker being in a clear and organized manner?	3.88



DAY-6 (27-12-2020)

SESSION-13

TOPIC: Research at Indian Railways

SPEAKER: Gyanesh Tripathi IES, DLW Varanasi

Speaker discussed about research work that can be carried through various areas in railways. The areas can be from civil engineering, mechanical engineering, electronics and communication engineering, electrical engineering, etc. Also, focused on various new technologies where research can be done in railways like IOT in locomotives, etc.

Speaker-13: Gyanesh Tripathi IES, DLW Varanasi	
Description	Feedback (4)
How satisfied were you with the session?	3.88
How related and helpful it was for you?	3.83
How satisfied are you with the session content?	3.87
Is the presentation of the speaker being in a clear and organized manner?	3.87

STAKEHOLDERS

- STUDENT (The Major product)
- INDUSTRY (Researcher/Inventor)
- GOVERNMENT (Regulator, funding, etc)
- CIVIL SOCIETY (Ethical beneficiaries / ultimate sufferers)
- EDU INSTITUTION (Means and builds skills)
- INTEGRATION AND LINKAGES NEEDED

NBA Graduate Attributes

- Engineering Knowledge
- Problem Analysis
- Design/Development of Solutions
- Conduct Investigations of Complex Problems
- Modern Tool Usage
- Engineer and Society
- Individual and Teamwork
- Communication
- Environment and Sustainability
- Ethics
- Project management and Finance
- Life Long Learning

MULTIDISCIPLINARY, INTERDISCIPLINARY AND TRANSDISCIPLINARY APPROACH

Examples of different research approaches:

- Monodisciplinary
- Interdisciplinary
- Multidisciplinary
- Transdisciplinary
- Transdisciplinary

Examples of different research approaches:

- Interdisciplinary
- Transdisciplinary
- Transdisciplinary
- Transdisciplinary

Research

- Research : Re + Search (i.e. Searching the phenomenon which is already searched)
- There are two major reasons
 - Systematic study of the phenomenon, which already existing in the nature to solve the future problem of the society / need of society. e.g. Fusion Energy already existing on the sun.
 - To investigate the different phenomenon for finding the unknowns of the universe. e.g. Black hole investigations (LIGO), life of universe, different nature's law etc.
- The goal of the research is to produce new knowledge or deepen understanding of a topic or issue.
- Important point: Takes a lot of time, long process, Efforts, success / failure, requires patience and truthfulness etc.

IoT connected devices in rail systems

IoT has become a necessity in Rail systems