



JYOTHI ENGINEERING COLLEGE



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

KTU SPONSORED FACULTY DEVELOPMENT PROGRAMME (FDP)

APJ Abdul Kalam Technological University (KTU) Sponsored Faculty Development Programme (FDP) intends to provide financial assistance to facilitate up-gradation of knowledge, skill and intends to provide opportunities for induction training to teachers of KTU affiliated colleges in different of disciplines Engineering & Technology.

A Faculty Development Programme (FDP) to cover areas such as technical education policy, new concepts, methods and techniques, theory and skills development and up gradation of pedagogy educational technology, motivation, communication skills, management and other relevant issues to keep pace with the changing scenario in Technical Education. The scheme is designed to enhance the teaching and other skills of the faculty and make aware about modern teaching tools and methodologies. It provides an opportunity to acquire knowledge about current technological developments in relevant fields. It will not only promote the professional practices relevant to technical education but also motivates the faculty to achieve competitive teaching and learning environment, thus channelizing development with respect to academic qualifications and personal matters. Faculty members of Jyothi Engineering College organized and actively participated in various KTU sponsored FDPs in different disciplines as a part of teaching learning process.

REPORT ON



Jyothi Engineering College
NAAC Accredited College with NBA Accredited Programmes*

Approved by AICTE & affiliated to APJ Abdul Kalam Technological University
A CENTRE OF EXCELLENCE IN SCIENCE & TECHNOLOGY BY THE CATHOLIC ARCHDIOCESE OF TRICHUR
JYOTHI HILLS, VETIKATTIRI P.O., CHERUTHURUTHY, TRISSUR, PIN-679531 PH: +91-4884-259000, 274423 FAX: (04884-274777)
NBA accredited B.Tech Programmes in Computer Science & Engineering, Electronics & Communication Engineering, Electrical & Electronics Engineering and Mechanical Engineering valid for the academic years 2018-2022. NBA accredited B.Tech Programme in Civil Engineering valid for the academic years 2019-2022.



Faculty Development Programme on

'Repair and Rehabilitation of Structures'



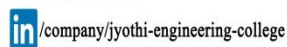
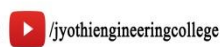
Sponsored by :



AP J Abdul Kalam Technological University

2 - 6
December
2019

Organized by
**Department of
Civil Engineering**
Jyothi Engineering College,
Cheruthuruthy



Day 1

The APJ Abdul Kalam Technological University sponsored five day FDP on “Repair and Rehabilitation of Structures” started on 02/12/2019 in the Insight Hall of Jyothi Engineering College. The FDP commenced with the registration for the participants at 9:00 am and followed by the inaugural session at 9:30 am. The inaugural session began with a prayer song. The Head of Civil Engineering Department, Jyothi Engineering College, Prof. S. Rathish delivered the welcome address which was followed by the presidential address by Rev. Dr. Jose Kananpuzha, Director-Academics, Jyothi Engineering College. The Chief Guest of the day **Dr. N. Ganesan** inaugurated the FDP by lighting the lamp along with all the dignitaries on the dias. The chief guest in his inaugural address mainly highlighted the relevance of the topic “Repair and Rehabilitation of Structures” and appreciated the institute organizers in choosing the same. Fr. Dr. Jaison Paul Mulerikkal CMI, Principal, Jyothi Engineering College delivered the principal’s address. Er. Thomas Mathew, Administrator, Jyothi Engineering College, delivered the felicitation. Finally, Dr. Nidhi M, Coordinator of the FDP proposed the vote of thanks.



Session 1

Time: 10: 10 am to 12:10 pm

Title of topic: Introduction to Repair, Rehabilitation and Retrofitting of RCC Structures

Resource person:Dr. N. Ganesan, Former Professor, NIT Calicut



The speaker started the session by defining the terms repair, rehabilitation and retrofitting. He further elaborated on rehabilitation, objectives of rehabilitation and the processes involved in rehabilitation. The speaker then addressed what are the types of distresses that are to be addressed in concrete structures and what are all the preventive measures we can adopt to prevent them. In further discussion, the speaker discussed in detail various repair techniques that we practice on the site such as column jacketing, stitching, shotcreting, etc. He also elucidated on the difference between shotcreting and guniting. Furthermore the speaker gave an insight to the changes that come in concrete structures due to corrosion and the ways we can adopt to prevent them. The audience cleared their queries by the end of the session.

Session 2

Time: 01: 10 pm to 02:40 pm

Title of topic: Investigation of RCC Structures under Distress Using Non-Destructive Test Methods

Resource person:Dr. N. Ganesan, Former Professor, NIT Calicut



The speaker started the session by explaining the importance of Non-Destructive Testing (NDT) in Civil Engineering structures. He said that in the case of arising any doubt regarding the quality or serviceability of the structure the Engineer can repeat the test on the structure at any point of time, and this is the most important advantage of NDT. Furthermore, the speaker gave an insight to various NDT methods and commonly employed NDT techniques for testing of concrete that are adopted in the field. He further elaborated on methods such as Ultrasonic Pulse Velocity Method, Rebound Hammer Test, WindsorprobeTest,etc.The speaker mentioned that as a country, India has not made much headway in the use of NDT methods in concrete testing beyond the stage of laboratory investigations and has a long way to go in this field. The speaker vehemently suggested that before agreeing upon a contract, Government or private agencies should indicate in their tender that they will carry out NDT periodically during the course of the construction of any important structure. He added that it would make the contractor more cautious about the quality of the structure. The audience also agreed upon his opinion and accepted that it would improve the quality of construction.

Session 3

Time:2.50 pm to 4.30 p.m

Title of topic: TREATMENTS FOR BUILDINGS AND BRIDGES- A REVIEW

Resource Person: Prof M Kumaran, Rtd Professor and head of the Civil Engineering Department, GEC, Thrissur



The speaker started the session with the comparison of structures with human body. He also spoke about the existence of various buildings for long years, due to the materials were generously used. The mistakes in design and detailing are still major cause of failure even in modern times. He mentioned about the importance of codal provisions in structures and explained it in detail. The importance of bending moment diagram and shear force diagram was also explained. The stake holders and/ or professionals shared a peculiar blame in any incidences of building collapse depending on the nomenclature or causes. He also discussed the case of Palarivattom Bridge and explained the current issues regarding the bridge. The Deck Continuity Technology was also described in detail during his presentation. The process of retrofitting was also explained with the various cases. The various case studies was also discussed in the section. The audience also interacted with the speaker regarding those case studies which was discussed. The feedback from the audience suggested that the session was very much informative and also gave much more idea regarding retrofitting aspects.

Day 2

Session 1

Time: 9: 00 am to 10:30 am

Title of topic: Repair and Rehabilitation of Water Retaining Structures

Resource Person: Prof. S. Rathish, Head of Civil Engineering Department, JyothiEngineering College, Thrissur



The speaker started the session with an overview on the type of water retaining structures, its design consideration and the causes leading to the need for repair and rehabilitation of water retaining structures. The speaker elaborated on the topic aggressivity of water, the causes, the measuring indices, the consequences and the remedies to be considered in water retaining structures. In his presentation he mentioned in detail the different types of techniques and methods adopted to ensure waterproofing of water retaining structures and also the repair and rehabilitate strategies adopted in water retaining structures. The audience interacted with the speaker on queries related to waterproofing of structures made of ferro-cement and also on the types of coatings and additives available in the market for water proofing of the water retaining structures. The feedback from the audience suggested that the session was fruitful and informative.

Session 2

Time: 10: 40 am to 12:10 pm

Title of topic:Ferrocement as a Construction Material

Resource Person:Er. M. S. Sudhakaran, Managing Director, Paramount Constructions Pvt. Ltd.



The speaker in the initial portion of his presentation defined what ferrocement is and the history of its evolution. A comparison of ferrocement with reinforced concrete was also discussed. The application of ferrocement in construction of boats, structural elements in buildings, water tanks, biogas plants, silos was presented based on his real work in the field. The constituent in ferrocement and its mechanical properties were also discussed in his presentation. The audience interacted with the speaker on his 20 years of experience in the field of construction of structures using ferrocement. The feedback from the audience suggested that the session was very informative and appreciated the versatility of ferrocement in construction of various features. The session was followed by a field visit to three sites where the speaker himself has undertaken the construction using ferrocement.

Session 3

Time: 1:10 pm to 4:30 pm

Title of topic: Site Visit to Construction Projects undertaken by Paramount Constructions Pvt. Ltd.

Resource Person:Er. M. S. Sudhakaran, Managing Director, Paramount Constructions Pvt. Ltd.



The afternoon session for the day was to three sites, wherein the construction was undertaken by Paramount Constructions Pvt. Ltd. The first site was a G+1 storeyed house for which the super structure was constructed entirely using ferrocement. The second site was a top floor (3rd floor) constructed using ferrocement on an existing RCC structure. The major advantage in this floor compared to the bottom floors was that an extra room space could be obtained. This is attributed to the reduction in the wall thickness by about 70% in ferrocement construction compared to the RCC. The third site was a fully constructed and inhabited G+3 apartment. The walls, staircase and roof slab was constructed using ferrocement. A visit to the tank of the biogas-plant and the incinerator made out of ferrocement (outer structure in the case of incinerator) in the premises of the apartment was done. During the visits to these structures, the participants could get a real picture of the advantages in utilizing ferrocement as a construction material. The increase in carpet area, the decrease in self-weight of the superstructure, the integrity of the structure which makes it better resistant to dynamic loading compared to RCC structures and the speed in finishing the construction.

Day 3

Session 1

Time: 09: 00 am to 10:30 am

Title of topic: Concrete Concepts in Rehabilitation

Resource Person:Er. M. Joseph, Aditya Birla Group



The speaker started the session by explaining the significance of concrete as a construction material. Even though we have been using concrete for a long period, attaining durable concrete is a herculean task. The speaker then discussed the importance of right amount of water content in concrete. Further, he discussed in detail about the tests in concrete such as initial setting time, final setting time. The speaker then moved on to hydration process occurring in concrete and the importance of curing during this time period. The speaker also mentioned that hydration is a never ending process. He also discussed the advantages and disadvantages of different curing methods such as water curing, steam curing(in high pressure and normal pressure) and membrane curing. There was a short intermission for tea break at 10:30am.

Session 2

Time: 10:40 am to 12:10 pm

Title of topic: Concrete Concepts in Rehabilitation

Resource Person:Er. M. Joseph, Aditya Birla Group

The speaker resumed the session by 10:40am and explained the importance of low water-cement ratio in concrete with examples. Further he discussed some important highlights of IS:456(2000) such as maximum w/c ratio and minimum grade of concrete for different exposure conditions. Later he explained the significance of coarse aggregate and grading of coarse aggregate for getting concrete of good quality. The speaker concluded the session by giving some tips for leak proofing a building. The audience interacted with the speaker and cleared their doubts by the end of the session.

Session-3

Time: 1:10 pm to 4:20 pm

Title of topic: Non-Destructive Testing methods

Resource Person: Mr. Christy Jain, United NDT Training and Inspection Centre



The session mainly covered most of the non-destructive testing methods used for PCC, RCC as well as steel. The speaker started the session by giving a brief introduction about the non-destructive technique, its advantage over destructive testing methods as well as the reasons for which NDT methods are adopted. Main advantage of NDT methods is that they does not

destroy the usefulness of structure which makes it more useful for repair purposes. A brief explanation regarding the methods as well as videos was shown in the session by the speaker. Primary and basic method started with, was the Visual inspection which is done by simply inspecting the structure. Then other methods such as Rebound hammer test, Ultrasonic pulse velocity test, Impact echo test, resonant frequency test, Penetration test, Pile integrity test, Rebar detector and cover meter test for concrete, Pull out resistance etc. were briefly discussed. It was clear that each method had its own limitations and advantages as well as specific objectives. The speaker also mentioned that a structure is not inspected only by any one method, but will be tested by various methods and with different samples and will be compared for better accuracy. NDT test used for steel were also explained in which, tests mainly used such as Liquid penetrant inspection, Magnetic particle inspection, Radiography testing, Ultrasonic inspection. The session was concluded by discussing the scope of NDT methods in coming future.

Day 4

Session 1

Time: 9: 00 am to 10:30 am

Title of topic: Analytical Evaluation of Distress in Structures

Resource Person:Dr. Anil Joseph, Director of Geostructurals (P) Ltd.



The speaker provided an interactive session on evaluation of distress in structures. He gave an introduction about the necessity of repair and rehabilitation. Definition of distress in structures was clearly defined by him. The participants were able to understand the step by step procedure for evaluation of distressed buildings and their rehabilitation. Four case studies on the evaluation of distress was discussed. The case studies included Commercial building at Kochi (Soil retention failure), IT building at Kakkanad, Four star hotel building at Cherthala and Hotel building at Kottayam. The identification of distress in each of the above buildings along with retrofitting method adopted were clearly explained by the speaker. The selection of retrofitting method depends on the nature of the distress and various other site and building properties. The participants clarified their doubts regarding various various tests conducted for the evaluation of distress and the softwares used. The feedback from the participants suggest that the session was an eye opener and informative.

Session 2

Time: 10:40 am to 12:10 pm

Title of topic: Analytical Evaluation of Distress in Structures: Case Studies

Resource Person:Dr. Anil Joseph, Director of Geostructurals (P) Ltd.

The speaker discussed about the distress in Palarivattombridge and the current scenario. He briefed the various studies conducted in the bridge and the results obtained. The various retrofitting methods which can be adopted for different structures were explained by him. Another topic of discussion was the Controlled implosion for the demolition of structures. The speaker suggested that the damage in the structures should be correctly identified and the cause of the damage needs to be determined. Reliable test results should be obtained and the decision should be made whether the structure needs to be retrofitted or demolished. Queries of participants related to various existing distressed structures were cleared by the speaker. The session was informative and introduced the real field situations to the participants.

Session 3

Time: 1.10 pm to 2.30 p.m

Title of topic: Experimental and Analytical Modeling Techniques in Retrofitting of structures

Resource Person: Dr Shyju P Thadathil, Executive Engineer, Kerala Water Authority



The speaker started the session with the importance of mathematical modeling and its applications in various fields of Engineering. He spoke about the Retrofitting of Structures and Challenges in Modeling and also in Design of structures. He also mentioned the effect of retrofit on global response of frames. He also showed various graphical representation which was experimentally proven. He explained the Moment-Curvature Analysis of Retrofitted Sections of Beams and Columns in detail. The analysis of Ferro cement composite gave an idea regarding the moment curvature analysis. The Comparison of moment-curvature plot for bare & retrofitted column sections in RCC frames also put forward the concept behind the analysis. He also showed the Damage indicators to assess the distress of various structures with different cases. The audience also interacted with the speaker regarding the various case studies in the presentation. The feedback from the audience suggested that the session was very much informative and also gave a beautiful picture regarding the mathematical modeling.

Session: 4

Time: 2:50 pm to 4:30 pm

Title of the topic: 1. Concrete: a sustainable construction material and Causes of RCC deterioration

Resource Person:Er. Shyju Nair, Zonal Head (South) Ambuja Cements Pvt. Ltd.



The speaker started the topic by discussing about the history of concrete. He included about the founder, first RCC building, Hamurabi's law and so on. He further told about the materials used in preparing concrete and the role they impart. Advantages and disadvantages of concrete were also added in his talk. He conducted an in-depth talk on fresh concrete, hard

concrete, its practical aspects and rheology. Speaker explained the essential properties and requirements of concrete. Then he said about enemies of concrete and thus he concluded by saying that steel corrosion is the major source of deterioration in concrete and mitigation measures were also discussed. He also discussed on the causes of RCC deterioration. He explained the causes that lead to RCC building repair. Then had a discussion on what are the do's and don'ts, what are the measure to be taken to reduce repair and he concluded by saying that repairs and renovations are inevitable. It should be done properly otherwise it may cause property as well as life damages.

Day 5

Session 1

Time: 9:00 am to 10:30 am

Title of topic: Introduction to Offshore Structures

Resource Person:Dr.Shashikala A. P., Professor, Dept. of Civil Engineering, NIT Calicut



The speaker commenced her presentation highlighting the need to understand the different types and applications of the offshore structures in prior to understand the types of retrofitting available for offshore structures. With this in view she discussed the various types of offshore structures, namely, floating platforms, fixed platforms and compliant platforms. An overview on the various structural components of the platforms and the design considerations were given in the session. The speaker clearly distinguished between the design aspects involved in offshore and onshore structures. The participants interacted with the speaker on the design

specifications involved in the mooring lines, parameters considered to install an offshore platform and the stability of such structures when subject rough marine environment

Session 2

Time: 10:40 am to 12:10 Pm

Title of topic: Retrofitting of Offshore Structures

Resource Person:Dr.Shashikala A. P., Professor, Dept. of Civil Engineering, NIT Calicut



The causes leading to the retrofitting of offshore structure was discussed initially in the presentation. The speaker pointed out that the need for retrofitting mainly arises due to marine environment corrosion or rough marine environment (viz., high velocity winds and rough waves and undercurrents) or some offshore accidents (viz., hitting of barges on the platforms, fire in the platform etc.). The details of the common techniques used in retrofitting of the offshore platforms, nemely, jacketing, application of corrosion resistant coatings to the members, wrapping using geopolymer, welding stiffeners, and so on. Also, in some specific cases when the structural member is completely deteriorated mandates the replacement of the same. The speaker also elaborated about her research work using carbon fibre wrapping as a retrofitting technique. The participants had an intense discussion with the speaker on the challenges in retrofitting the offshore structures and also the methodology of carbon wrapping the structural elements of offshore platforms.

Session 3

Time: 1:10 am to 3:20 pm

Title of topic: Distress in Foundations

Resource Person:Dr.Vijayan P., Professor, Dept. of Civil Engineering, GEC Thrissur



The session discussed in detail on the causes for distress in foundation mainly due to load transfer failures, forces due to drag and heave, earthquake loads, construction errors, fluctuations in ground water level, landslide and vibration loads. He explained the aforementioned causes using suitable case studies. The preventive measures and remedies that are normally adopted in the field were presented. The foundation distress in loess - collapsible soils was elaborately discussed. Also, the preventive measures favourable that can be practiced in collapsible soils were presented. The foundation distress due to liquefaction of soils was also discussed. The participants interacted with the speaker on the real life instances where retrofitting was done in structures subjected to foundation failures.

Valedictory Function



The APJ Abdul Kalam Technological University sponsored five day FDP on “Repair and Rehabilitation of Structures” concluded on 06/12/2019 with a valedictory function from 3:30 pm to 4:30 pm in the Decennial Hall, Jyothi Engineering College. The function commenced with a silent prayer followed by the welcome address by Prof. S. Rathish, Head of Civil Engineering Department. Rev. Dr. Jose Kannampuzha, Director-Academics, delivered the presidential address followed by distribution of certificates of participation to the participants. Mr.Nandagopan, Assistant Professor, KMCT College of Engineering, Calicut, a representative from the participant shared the feedback on the FDP. Finally, the vote of thanks was proposed by Dr.Jarin T, Head of Electrical and Electronics Engineering Department, Jyothi Engineering College.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

APJ Abdul Kalam Technological University sponsored

Five Day Faculty Development Program on

THEORY AND PRACTICE OF DATA SCIENCE

Program Report

The department of CSE of Jyothi Engineering College conducted five days APJ Abdul Kalam Technological University sponsored faculty development program on theory and practices of data science on 24th to 28th June 2019. The sessions were handled by eminent resource persons from industry and academic research institute. Total 30 faculties from KTU affiliated colleges got benefited

The registration for FDP was started on 20th may 2019 and the information is shared with all KTU affiliated college through online/offline. Total we had 42 registrations from other colleges and 15 registrations form our institute. Since team size is limited to 30 participants, the list is shortlisted based on first come first serve basis. Finally 20 participants from 11 KTU affiliated colleges and 10 participants from our institute got benefited. At the time of registration, the detail program schedule along with welcome kit (Includes File, Notepad & Pen) is given to the participants.

The inauguration ceremony was started at 9.30am on 24th June 2019 and inaugurated by Dr. Fr. Jaison Paul Mullerikal CMI, Principal, Jyothi Engineering College.



The first day sessions was handled by Dr. Vinith R on the topics in Introduction to data science, Linear Algebra and its applications in Data Science and Essential Probability



The second day of FDP was started with the Hands-on Session by Dr. Vinith R on Essential Programming Tools which includes the topics (Core Python, Numpy, Scikit-learn Data Visualization Using Python, Introduction to Jupyter Notebook.) Following the hands-on session, we had a technical session on Basics of Data Analytics Linear & Logistic Regression, Clustering-KMeans and Heirachical Clustering.



On the third day of FDP, Dr. Santosh Kumar Nanda, Lead Architect – Artificial Intelligence at TonkaBI had a session on Need of Artificial Intelligence and Applications of Data science in industry. Following the introductory session, he also gives hands-on session based on ongoing project on his industry.

The fourth day of FDP was handled by Mr. Manu Madavan, research scholar, NIT Calicut on Machine Learning methods and also visualizes the scope of research in the field of data science

APJ Abdul Kalam Technological University sponsored five day faculty development program on
THEORY AND PRACTICE OF DATA SCIENCE



On the Fifth day, the hands-on session in data science programming was handled by Mr. Manu Madavan. Following the hands-on session, Dr. Vinith R had summarized and concluded the technical concepts of theory and practices in data science.



The FDP was concluded with a valedictory ceremony lead by Rev. Fr. Roy Joseph Vadakan, Campus Head & Assistant Manager, Jyothi Engineering College and the participation certificates was distributed to all participants. The participants happily shared their feedbacks and we had a group photo session.



We, the coordinators use this opportunity to thank KTU for sponsoring the FDP and extending our sincere gratitude to our institution management, principal, our department HoD and faculties for whole hearted support. A special thanks to all the participants and their institute heads for all supports.

Prepared by

FDP Coordinators

Ms. Aswathy Wilson

Mr. Fepslin Athish Mon S

Date : 01-07-2019

Report on KTU Sponsored Faculty Development Program

Title : **Emerging trends in VLSI, Embedded systems and its application in Biomedical sector**

Date : 10-07-2019 to 12-07-2019

Place : Jyothi Engineering College, Cheruthuruthy, Thrissur

Venue : Insight Hall, East Block

Overview of the course

- The three-day Faculty Development Programme was designed for faculty members of KTU affiliated colleges to provide an insight to the current research trends and future research opportunities in the field of VLSI, Embedded systems and Biomedical technologies.
- The target audience consisted of faculty members from KTU affiliated colleges. The total number of participants were 30 (including 21 external participants) from 10 KTU affiliated colleges including the host institute.
- The inaugural session was conducted on 10th July 2019, from 9.15 AM to 9.45 AM at Insight Hall. Dr. Jose P. Therattil, HoD, ECE Department, welcomed all the respected dignitaries and participants. The presidential address was given by the Secretary and Asst Manager, Rev. Fr. Roy Joseph Vadakkan. The Principal's address was given by Fr. Dr. Jaison Paul Mulerikkal CMI. The formal inauguration was done by lighting the lamp by Dr. Kurian Alappat, Assistant Professor, Department of Orthopaedics, Jubilee Mission Medical College & Research Institute, Thrissur and all other dignitaries. College Administrator Er. Thomas Mathew felicitated the gathering. The session was concluded with vote of thanks by course coordinator Dr. Prajoon P. Assistant. Professor, ECE Department.
- Details of Technical sessions are given below in the order of sequence.

Inauguration Ceremony





DAY 1:

Session 1:	“Additive Manufacturing in Medical Field”
Resource Person:	Dr. Kurian Alappat, Professor, Department of Orthopaedics Jubilee Mission Medical College & Research Institute, Thrissur.
Date: 10-07-2019	Time: 09.45 AM - 11.45PM

The resource person is a Medical doctor with a specialisation in Orthopaedics. He has delivered an excellent topic on additive manufacturing. Importantly, the following topics were discussed: Imaging, Additive Manufacturing, 3D printing, Rapid prototyping, pre surgical planning, conventional surgery, MIMICS software, surgical Guides, Oncology, Anaesthesia, 3Dprinted Implants, CAD Modelling, HIP Replacement, Arthroplasty, 3D Printed Cast and 3D Bioprinting.



Session 2:	Wearable Technologies (Biomedical Solutions: Integrating New Chips, Packages and Modules)
Resource Person:	Dr. D. Nirmal Associate Professor, Karunya Institute Technology and Sciences, Coimbatore.,
Date: 10-07-2019	Time: 11.15AM – 12.45 PM

Dr. D. Nirmal is an associate professor and IEEE EDS Coimbatore chapter chair. Nanoelectronics, microelectronics and VLSI are his major expert areas. He has done an excellent discussion on Wearable Technologies. The main area of focus were; Energy, Health, Food, Challenges in wearable Fabrication and its Applications.
 Nanogenerator, Hybrid energy Generator, Chemical Vapor Deposition (CVD), MBE, Characterisation equipment's- XRD, SEM, TEM, AFM, STM. Flexible Electronics and Bio-degradable Electronics were also discussed.

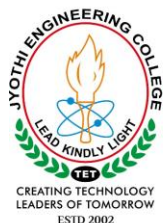


Session 3:	Application of Biomedical Engineering and Nanomedicine”
Resource Person:	Dr. Yuvaraj V. Associate Professor, Sahrdaya College of Engineering and Technology, Thrissur
Date: 10-07-2019	Time: 01.30 PM – 4.30 PM

The resource person Dr. Yuvraj V is an expert in nanomedicine and biomedical engineering. The talk basically concentrated on Bio-Medical Engineering era., The major topics were,

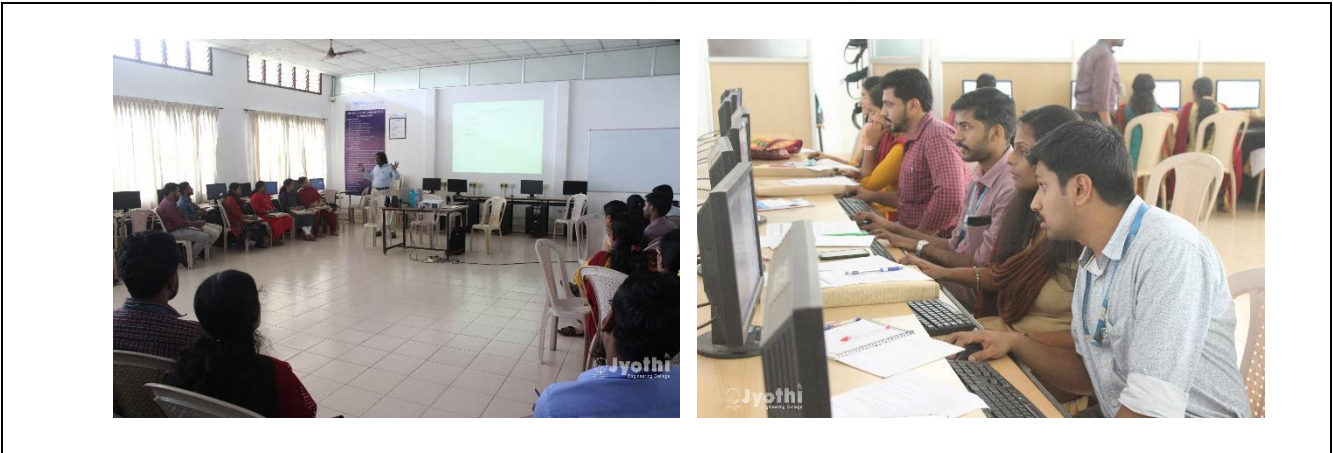
- Healthcare sector, Biomedical engineering, Advanced technologies and Research
- Medical equipments, Diagnostic Equipments, MRI, Computed Tomography, Capsule Endoscopy Ventilators, Pacemakers and Biomedical Sensors were discussed on health care and Biomedical engineering.
- Myoelectric Arm Prosthesis, IOT based healthcare system, bio-MEMS, MEMS, NEMS, Medical Nanotechnology, Opto-Fluidics, Functional MRI, Biomechanics, On-chip 3D printing and Drug-delivery micromachines were the topics in Advance research technologies.





DAY 2:

Session 4:	Introduction to LabVIEW
Resource Person:	Mr. C. Karunakaran Research Associate-ARDB Project/DRDO, School of Mechanical Engineering, Vellore Institute of Technology (VIT), Vellore
Date: 11-07-2019	Time: 09.15 AM - 10.45AM
<p>Started with a brief introduction about LabVIEW and its application in Biomedical systems. The importance of the software in biomedical and embedded system was discussed.</p>	
Session 5:	Hands-on Session “Industry Application of LabVIEW “
Resource Person:	Mr. C. Karunakaran Vellore Institute of Technology (VIT), Vellore
Date: 11-07-2019	Time: 11.00 AM – 12.30 PM
Session 5:Continues	Hands-on Session – Continues “Industry Application of LabVIEW “
Date: 11-07-2019	Time: 01.30 PM – 04.30 PM
<p>Study material and tutorial sheet for the hands-on session of LabVIEW was given to the participants. The tutorial sheet contains 36 questions for different exercise in the software. 24 questions were discussed and participants were insisted to practice and get the result. All the participants were interestingly involved in doing the problem</p>	



DAY 3:

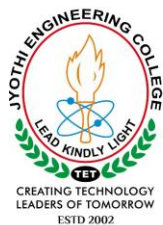
Session 6:	Machine Learning, Image Processing & Medical Image Analysis
Resource Person:	Dr. Vinith R . Associate Professor, Jyothi Engineering College, Cheruthuruthy.
Date: 12-07-2019	Time: 09.15 AM - 12.30 PM

The resource person Dr. Vinith is from department if CSE, Jyothi engineering college. He is an expert in Machine learning and medical Image Computing.

The following topics were discussed:

- Fundamentals of medical imaging,
- Image analysis,
- Image Reconstruction.
- Python programming for image construction and analysis.





Session 6:	Embedded system in Biomedical Applications and demonstration of FABLAB
Resource Person:	Mr. Jinesh K J Asst Professor, Dept. ECE, Jyothi Engineering College, Cheruthuruthy
Date: 12-07-2019	Time: 1.30 PM – 4.30 PM

The last session of the three days FDP was held at Jyothi FABLAB Facility. The participants were given live demo of design and printing of prototypes in 3D printer. Hands-on training on 3D image printing equipments was carried out.

The participants are being trained on following tools and equipment's, Epilog Laser cutter, Shopbot CNC, 3D Printer, Roland Vinyl Cutter, Electronic Work Bench, Sand Blasting Machine and Moulding & Casting machines.



The department has also created a web page for the FDP at https://www.jecc.ac.in/departments/electronics_communication_engineering#tab_news the registration details and brochure were available in the page. The course material and photographs were given to the participants. The certificates were also distributed to the participants on the last day of the FDP, after a brief feedback session.



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5 DAYS FDP ON

MODERN AICTE CURRICULUM BASED ENGINEERING EDUCATION

-PEDAGOGICAL ISSUES AND OUTCOME BASED LEARNING

ORGANIZED BY

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

IN ASSOCIATION WITH

INTERNAL QUALITY ASSURANCE CELL (IQAC), JECC

SPONSORED BY



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

2ND TO 6TH DECEMBER 2019

OR **OUTCOME-BASED**

Program Report

The five days FDP on "Modern AICTE Curriculum Based Engineering Education - Pedagogical Issues and Outcome Based Learning" sponsored by APJ Abdul Kalam Technological University was organized by the department of EEE of Jyothi Engineering College from 2nd to 6th December 2019. Sessions were handled by the eminent resource persons from both academia and industry. The direct beneficiaries of this FDP are 30 faculties from the different colleges affiliated to the university.

The registration for FDP was started on 19th November 2019 and the information is shared with all KTU affiliated college through online [KTU Website]/offline. Since team size is limited to 30 participants, we had 20 registrations from other colleges and 10 registrations from our institute. At the time of registration, the detail program schedule along with welcome kit (Includes File, Notepad, Memory stick & Pen) were given to the participants.

The inauguration ceremony was started at 9:30 AM on 02nd December 2019 and was inaugurated by Dr. H. S. Guruprasad, Professor & Dean (Student Affairs) of BMS College of Engineering, Bangalore.



Following the inauguration, morning and afternoon sessions were handled by Dr. H. S. Guruprasad on the topics NBA and Outcome Based education. Morning session started with the outlines of OBE stating the relevance and its importance in current academic scenario. He also gave an overview of the formulation of NBA and

its need in INDIA. In the afternoon session, he elaborated the process of formulating the vision, mission, PEOs, POs, PSOs and COs.

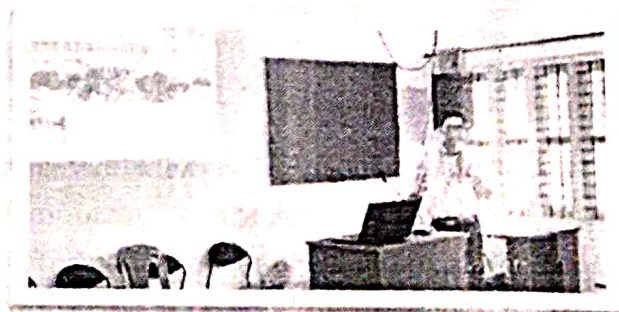
Second day started with the session of Dr. Manoj G Tharian, Associate Professor, Mechanical Engineering Department, Rajagiri School of Engineering & Technology. Session was detailing about how to orient the institutes towards accreditation.

Following that, afternoon session was handled by Fr. Dr. Jaison Paul Mulerikkal CMI, Principal, Jyothi Engineering College. He had detailed the process of NBA Accreditation for various types of institutions and programmes.



Third day started with session of Dr. Shijoh V., Associate Professor, Department of Electrical & Electronics Engineering, Jyothi Engineering College. Session was on the topic OBE - Assessment Tools and Procedures. He explained in detail the various steps in the assessment process and the tools that can be used for the same.

Afternoon session was handled by Dr. Biju C. V., Associate Professor, department of Mechanical Engineering, Jyothi Engineering College. He was explaining efficient teaching learning process and also best practices carried out by various institutes.



Fourth day morning session was handled by Rev. Dr. Jose Kannampuzha, Director, Jyothi Engineering College. The session was intended to motivate the faculties towards the teaching pedagogy intended for new-gen students.

Afternoon session was handled by Dr. Sreekanth M., CEO, Kabani Tech. The session was about bridging the gap between academia and industry.

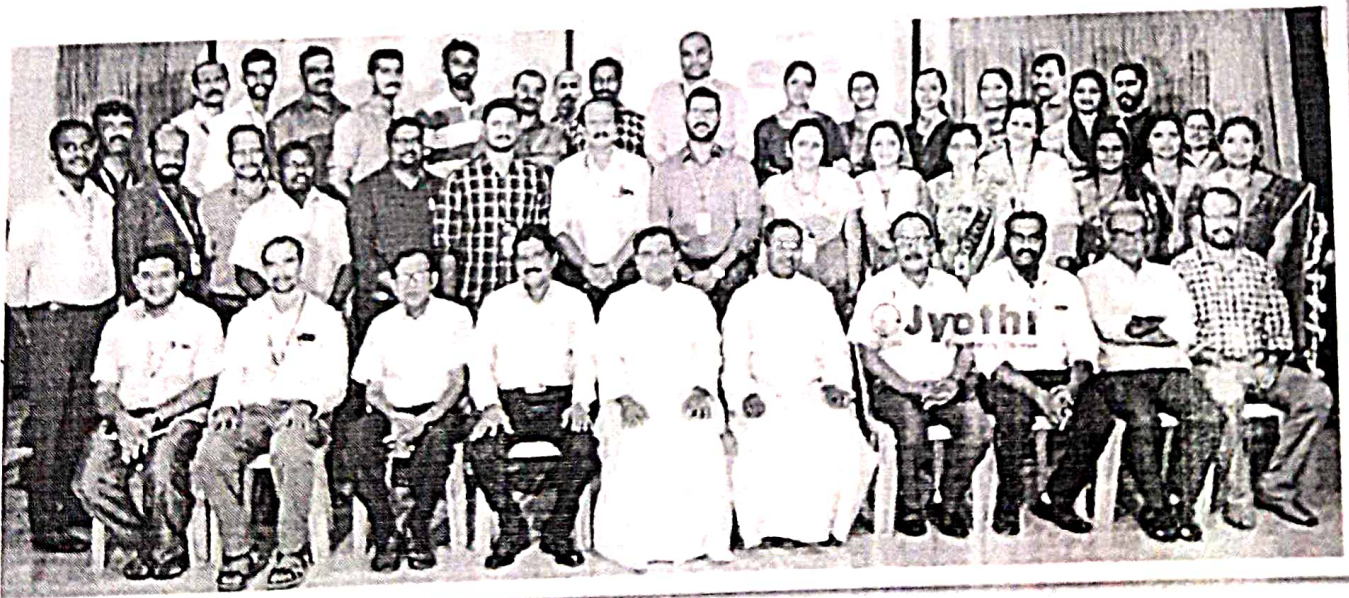
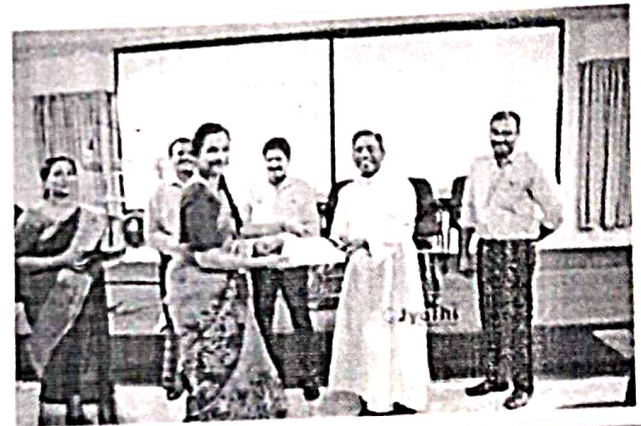
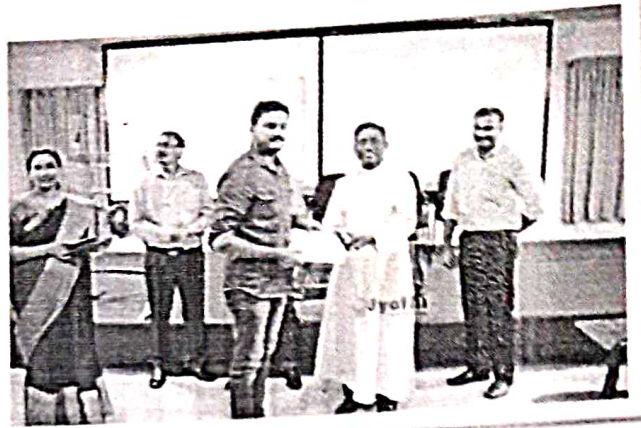


Fifth day morning session was handled by Dr. Praveen A., Department of Civil Engineering, RIT Kottayam on the topic "Examination Reforms". He had delivered the session in the perspective of setting question papers in correlation with course outcomes and blooms taxonomy as per the guidelines of AICTE and APJ Abdul Kalam Technological University.

Afternoon session was handled by Dr. N.M. Jothi Swaroopan, Professor, Dept. of EEE, R.M.K. Engineering College. The session was about the Internal Quality Assurance Cell (IQAC) formation, organizing, planning, implementing and continuous monitoring of academic activities.



The FDP was concluded with a valedictory ceremony lead by Rev. Fr. Dr. Jose Kannampuzha, Director - Academics, Jyothi Engineering College and the participation certificates was distributed to all participants. The participants happily shared their feedbacks and we had a group photo session.



We, the coordinators use this opportunity to thank KTU for sponsoring the FDP and extending our sincere gratitude to our institution Management, Principal, our Department HoD and faculties for whole hearted support. A special thanks to all the participants and their institute heads for all supports.

Prepared by

FDP Coordinators

Ms. Anu Sunny

Mr. Jenson Jose

Date : 18-12-2019

***Report of the Faculty Development Programme (FDP) conducted by
Mechanical Engineering Department during 6th to 10th of Jan. 2020.***

The faculty Development Program (FDP) on the title “Renewable Energy Sources: Conversion, Storage & Applications” Sponsored by APJ Abdul Kalam Technological University conducted during 6th to 10th Jan. 2020. In addition to the formal inauguration session nine more technical sessions with participants’ active interactions made the programme extremely attractive to the academic and research community.

The inaugural function was chaired by Fr. Dr. Jose Kannampuzha. Dr. Biju P.L. Head of Mechanical engineering Department delivered the welcome speech. The chief guest of the function Dr. K.K. Ramachandran highlighted the importance of the topic. All together 36 participants from 8 colleges attended the function. The resource person from reputed academic institutions and industry balanced the theoretical and practical aspects of the topic.



On the Day-1 6th Jan. 2020 forenoon session was handled by Dr. K.K. Ramachandran, Associate Professor, Mechanical Engineering Department at Government Engineering College, Thrissur. The presentation was focused on the latest research developments, applications, scope and future potential in fuel cells technology. The presentation on Hydrogen fuel cells for automobiles was one of the brain storming sessions in the programme.



The afternoon session handled by Dr. Saji Vazhappilly, Scientist – E, HoD (CFD&AUV), DRDO-Naval Science & Technological Laboratory (NSTL), Vishakapattanam was an eye opening to the Engineering Faculty to know about the importance of CFD applications in renewable energy. The latest developments in the simulation of fluid and thermal systems, physical significance of various governing equations used in the CFD, etc. were the limelight of the presentation.



Dr. M Mubarak, MEA College, Malappuram who is an expert in the area of Algae based biofuels, delivered an excellent session on 7th, Jan. 2020. The development of experimental support and quantitative and qualitative measurement the bio fuel produced in the process etc. were the burning topics in the non conventional energy domain.



The second session on Day-2, started at 1.30pm. The international personality- Dr. S Kumaravel, from National Institute of Technology Calicut, who is an icon of the practicing the concept the micro-grid and distributed generators enlightened the participants about the advantage of distributed generators over the centralized power generation systems.



Third day on 8th Jan. 2020, Dr. Deepanraj B, Associate Professor in Mechanical Engineering Department at Jyothi Engineering College, Cheruthuruthy presented the latest development in the anaerobic digestion process. The resource person having large number of the high impact factor publications, illustrated about the various technical aspects of anaerobic process based on the prolific research conducted by him and explained the scope and the state of the art facilities to carry out excellent research in the area of anaerobic digestion process.



To have an real time experience on production, testing and storage of bio energy which is included as part of waste management program of the university, all the participants of the FDP, visited Kerala Veterinary and Animal Sciences University, Thrissur. The Dr. Deepak Mathew, Assistant Professor of the Agricultural University demonstrated various activities associated in the bio energy formation process. The specification of the different equipments and instruments used, safety measures etc were well explained to the participants.



On the fourth day of the programme, 9th Jan. 2020, both forenoon and afternoon session were handled by eminent industrialist, Mr. Sreenivas, KST Wind Engineering, Tirupur. The focus of the forenoon session was the current practice, scope, challenges and future potential of harnessing non-conventional energy from wind. The strategy followed in foreign countries

to harness wind energy, the challenges behind the technologies to harvest wind, the quality and storage of energy etc. were discussed in detail. The afternoon session dealt with storage technologies for renewable energy. Technical aspects, potential and future challenges of pumped hydroelectric, compressed air, wind driven, battery, liquid air, hydrogen, supercapacitors superconducting magnetic energy storage etc. were clearly illustrated and explained.

In the concluding day 10th Jan 2020, the subject of focus was solar heat pumps and nuclear fusion energy. The forenoon session was handled by Dr. Mohanraj, Professor from Hindustan College of Technology, Coimbatore. In the presentation, he highlighted the latest technical developments in the solar photovoltaic thermal (PV-T) hybrid heat pumps. In his presentation, different energy efficient configurations of PV-T hybrid heat pumps for drying crops were demonstrated. The optimization of the efficiency of PV-T hybrid heat pumps by using thermodynamic modeling was also discussed. The recent research in the area of PV-Tevaporators, efficiency analysis etc. were also shared in the forenoon session.



The afternoon session started with the importance of nuclear energy, which is widely used in submarines, space technologies etc. The chronological developments in the area and the steps taken to ensure safety of both the operators and the society in the nearby area are also explained with proper examples. The challenges to deal nuclear waste, and the strategies adopted by the pioneers in this domain were beautifully presented in the last session of the FDP.



At 3.00 pm, the valedictory function of the FDP was started at “INSIGHT” hall. The coordinator of the programmer Dr. George Raphael presented the short report of the program. All the 31 participants shared their five days experience in the valedictory function. They unanimously appreciated the selection of the resource person and the conduct of the programme. After the distribution of certificates to the participants, Coordinator Dr. Deepanraj B delivered vote of thanks and the five days faculty development programme was concluded by National Anthem.

Participant Feedbacks



Certificate Distribution

