

SHIFTING TEACHING LEARNING PARADIGMS THROUGH INNOVATIVE PEDAGOGY

*A BRIEF REPORT ON
ONE-WEEK
FACULTY
DEVELOPMENT
PROGRAMME (FDP)*

9-14 DECEMBER 2019

Sponsored by

*IEEE Bombay Section and TEQIP III
and held at Veermata Jijabai
Technological Institute (VJTI),
Matunga, Mumbai.*



A one-week faculty development program was organised during 9th-14th December 2019, in the Department of Electrical Engineering, Veermata Jijabai Technological Institute (VJTI) Mumbai, Maharashtra (India), under the aegis of IEEE Bombay Section and TEQIP III. The program was coordinated by Prof. S. V. Kulkarni (IIT Bombay) and Prof. Saurabh Mehta (Vidyalankar Institute of Technology, Mumbai) representing IEEE Bombay Section, and by Prof. A. N. Cheeran and Dr. C. Thirumurugan, Electrical Department, VJTI. The program was inaugurated by the Chief Guest Dr. Dhiren Patel, Director, VJTI. Total 65 faculty members from various reputed academic institutes of India attended the FDP. The program gave the participants an exposure to recent advancements in innovative pedagogy and related areas. The program included lectures and hands-on sessions on various topics such as technical communication, teaching strategies and evaluation models. The FDP program schedule was as follows:

| Date | Slot 1: 9.30 – 11.00 | Slot 2: 11.15 – 12.45 | Slot 3: 13.45 – 15.15 | Slot 4: 15.30 – 17.00 |
|-----------------------|---|--|--|--|
| 09-12-19 Monday | Technical Communication Prof. S V Kulkarni, IIT Bombay | Idea Generation and Research Formulation Prof. V R Sule, IIT Bombay | Teaching Strategies at UG Level Prof. A M Kulkarni, IIT Bombay | Virtual Lab Prof. S V Kulkarni and Mr. Sairam B., Research Scholar, IIT Bombay |
| 10-12-19 Tuesday | Towards Student Centered Learning Prof. Ashwin Khambadkone, NUS Singapore, Visiting Faculty at IIT Bombay | LaTeX Dr. Rahul Bhat PhD, IIT Bombay | Entrepreneurial Finance (for start-ups in educational institutes) Prof. Rohan Chinchwadkar, IIT Bombay | Freeware for Computations and Technical Presentations Mr. Sairam B., Dr. Rahul Bhat, |
| 11-12-19 Wednesday | Introduction to Bloom's Taxonomy and Reverse Taxonomy 1.Prof. Beena Ballal 2.Prof. Vibha Wali 3.Prof. Ashish Shekhar Vidyalankar Institute of Technology (VIT) | Different Models and Technical Philosophy Dr. Saurabh Mehta VIT | Evaluation Models and Problem based Learning 1.Dr.Saurabh Mehta 2.Prof Atul Oak VIT | |
| 12-12-19 Thursday | Different Teaching Strategies 1.Prof. Beena Ballal 2.Prof. Vibha Wali 3.Prof. Ashish Shekhar VIT | ICT & CAT (Classroom Assessment Techniques) Tools Prof. Beena Ballal Prof. Vibha Wali Prof. Ashish Shekhar VIT | | International Networking for Research and Collaboration – Prof.Anupama Kowli IIT Bombay |
| 13-12-19 Friday | Elements of MOOC and Open Source Tools Dr. Saurabh Mehta VIT | Hands on Workshop on Educational Video Making Prof. Sandeep Wali, Consultant | | |
| 14-12-19 Saturday | Research Opportunities in DAE for National and Societal Impact Dr. D N Badodkar, Raja Ramanna Fellow, DAE | Research Methodology Prof. S S Joshi, IIT Bombay | Metrics for Teachers Mr. Abhay Phansikar, Chairman, IEEE Bombay Section | Valedictory Function and Feedback |



Inaugural address by Dr. Dhiren Patel, Director, VJTI



Prof. S. V. Kulkarni's talk: Technical Communication

Day 1: 9th Dec. 2019

In the inaugural function, Prof. A. N. Cheeran welcomed the guests and participants. Dr. Dhiren Patel, Director, VJTI, requested participants to take maximum advantage of speakers' expertise to upgrade their knowledge. Prof. S. V. Kulkarni from IIT Bombay in his opening remarks briefed the forum about course contents and objectives of the program. Prof. Saurabh Mehta from VIT Mumbai talked about the IEEE Bombay Section activities. TEQIP III Coordinator, Prof. R. N. Awale, VJTI, delivered the vote of thanks.

Prof. S. V. Kulkarni, IIT Bombay conducted the first session on "Technical Communication". He explained DO's and DONT's while writing a good research paper for journals and conferences, and talked on ethics/ plagiarism issues. He elaborately discussed the following aspects while writing different sections of a technical paper: formatting, language, literature survey, technical contents, quality of figures and illustrations, and referencing style.

In the second technical session of the day, Prof. V. R. Sule talked about idea generation for research. He particularly advised the researchers to go beyond mediocre research to breakthrough research. The third talk was delivered by Prof. A. M. Kulkarni from IIT Bombay on teaching strategies at the undergraduate level. He also shared his laboratory experiences and explained about the Phasor Measurement Unit (PMU) project run by his M. Tech students. The day closed with a demo session conducted by Mr. B. Sairam,

Research Scholar, IIT Bombay, on Virtual Lab developed for better understanding of electromagnetic theory and applications. The Virtual Lab is a collection of electromagnetics visualization experiments contributed by students from IIT Bombay.



Prof. V. R. Sule, IIT B Idea generation for research



Prof. A. M. Kulkarni, IIT B : Teaching strategies at UG level



FDP - Faculty participants



Mr. B. Sairam, IIT B: Practical session on Virtual Lab

Day 2: 10th Dec. 2019

The day began with a presentation - 'Towards Student Centred Learning' by Prof. Ashwin Khambadkone, National University of Singapore (NUS), Singapore. Presently he is a visiting faculty at IIT Bombay. He explained importance of student centric learning and also discussed a new project-based curriculum initiated by him for the first year B. Tech students at NUS, Singapore. In the next session, Dr. Rahul Bhat, IIT Bombay, delivered a seminar on 'LaTeX' - a freeware for document typesetting. He demonstrated the advantages of LaTeX over conventional commercial software. The attendants participated in a hands-on session on generating reports using LaTeX templates.



Prof. A. Khambadkone, NUS: Student centric learning



Prof. R. Chinchwadkar, IIT B: Entrepreneurial Finance

The post lunch session was conducted by Dr. Rohan Chinchwadkar, IIT Bombay. He elaborated on the various funding options available for entrepreneurs, research projects and start-ups, and application processes. It was an eye opener for the participants. The final session was on the use of freeware - SciLab and Inkscape for mathematical computations and technical presentations, by Mr. B. Sairam and Dr. Rahul Bhat. Mr. Sairam demonstrated capabilities of SciLab for matrix computations, graph-plotting and visualization. He showed the various features of Inkscape useful for editing

graphs and drawing different kinds of diagrams such as circuit schematics.

Day 3: 11th Dec. 2019



Prof. B. Ballal, VIT: Lecture on Bloom's Taxonomy

First Session: Mrs. Beena Ballal, Assistant Professor, VIT Mumbai, gave a talk on Bloom's Taxonomy. The merits and demerits of the taxonomy were discussed. She highlighted the benefits of reverse taxonomy. Detailed case-studies with problem handouts were also explained. The post-lunch sessions were conducted by Dr. Saurabh Mehta and Prof. Atul Oak. Different evaluation models and technical philosophy were discussed at length.

Day 4: 12th Dec. 2019

On the fourth day, Prof. Ashish Shekhar, VIT, taught about the flipped classroom teaching method. Later, Profs. Saurabh Mehta and Atul Oak conducted a session on evaluation models and problem-based techniques. In the last session of the day, Prof. Anupama Kowli, IIT Bombay, informed the participants about various funding opportunities for research projects and conference visits. She further discussed about different funding agencies, government departments and application procedures. Different approaches for writing good project proposals were also elaborated upon.



Prof. A. Kowli, IIT B: Networking for Research and Collaboration

Day 5: 13th Dec. 2019

In the first session, Dr. Saurabh Mehta, Professor, VIT Mumbai, talked about elements of MOOC and open source tools. In the next session, Mr. Sandeep Wali, consultant, elaborated upon various ICT tools for teaching. He arranged a live demo session and made a sample 10-minute video lecture for the faculty members. In that session, he pointed out various steps to be followed in order to make a good education video.



Mr. Sandeep Wali : Demo session on how to make a video lecture

Day 6: 14th Dec. 2019

In the first session, Dr. Badodkar, BARC, Mumbai gave an overview of recent research being conducted at BARC. He enlightened the audience on the current project opportunities at BARC. The talk provided pointers toward new research areas for students and faculty members. In the second session, Prof S. S Joshi, IIT Bombay, explained research methodology and research paper writing. He discussed about research objectives, the ways of conducting research, the challenges faced by research scholars, and highlighted important points to be followed while writing reports and journal papers. In the third session, Mr. Abhay Phansikar, IEEE Bombay Section Chairman, gave a lecture on metrics for teachers and highlighted the audience about qualities of a good teacher.



Dr. A. N. Badodkar : Research Opportunities in DAE



Prof S. S. Joshi, IIT B: Research Methodology



Prof Saurabh Mehta, VIT: MOOC and open source tools



Valedictory Function

Valedictory function:14th Dec. 2019

In the afternoon session, the valedictory function was organized. Dr. M. S. Panse, Former Head, EE dept., VJTI, Mumbai welcomed the Chief Guest of the function, Mr. Abhay Phansikar, Chairman, IEEE Bombay Section, Prof S.V. Kulkarni, IIT Bombay, and Prof. Saurabh Mehta, Chief Educational Officer, VIT Mumbai. All the guests appreciated the efforts put in the organizing of the FDP sponsored by TEQIP III and IEEE. The participants gave oral feedback regarding the FDP. Training completion certificates were presented to the participants. Mrs. Priya Hankare and Dr. Thirumurugan presented the vote of thanks. The coordinators DAE appreciated the support given by TEQIP III, IEEE Bombay Section and VJTI Matunga for the success of this FDP program.



Group photo of FDP - Faculty participants and experts

Total participants list is given below.

| Sr. No | Name | Designation | Institution |
|--------|----------------------------|---------------------|---|
| 1 | Prof. Ulka M. Shirole | Assistant Professor | ACPCE, Kharghar |
| 3 | Dr. Vikram Kumar | Assistant Professor | GCE, Gaya |
| 4 | Prof. Muhammad Aslam | Assistant Professor | GCE, gaya |
| 5 | Dr. Prashant Singh Chauhan | Assistant professor | GCE, gaya |
| 6 | Prof. Danvendrasingh | Assistant professor | GCE, gaya |
| 7 | Prof. Jyoti Naik | Lecturer | Govt. Polytechnic, Thane |
| 8 | Prof. V.G. Mahendra | Lecturer | Govt. Polytechnic, Thane |
| 9 | Dr. R.S.N. Sahai | Associate Professor | ICT, Matunga |
| 10 | Prof. Archana V. Sambhe | Lecturer | K J Somaiya Polytechnic, Vidyavihar |
| 11 | Prof. M B Shirsat | Lecturer | MSBTE, MUMBAI |
| 12 | Prof. A.N. Kinhekar | Lecturer | SBM Polytechnic, Vile Parle |
| 13 | Prof. Rameshwari Bawankar | Lecturer | SBM Polytechnic, Vile Parle |
| 14 | Prof. Harshall S. patil | Lecturer | Shivajirao Jondhale Polytechnic, Asangoan |
| 15 | Prof. D.S. Mukane | Lecturer | Shivajirao Jondhale Polytechnic, Asangoan |
| 16 | Prof. D.T. Pawar | Lecturer | Shivajirao Jondhale Polytechnic, Asangoan |
| 17 | Prof. S.S. Jadhav | Lecturer | Shivajirao Jondhale Polytechnic, Asangoan |
| 19 | Dr. Aarti M Karande | Assistant Professor | SPIT, Mumbai |
| 20 | Prof. Anuprita Gawande | Assistant Professor | SSJCET, Asangaon |
| 21 | Prof. Ashish Bhisare | Assistant Professor | SSJCET, Asangaon |
| 22 | Prof. Vidya Zope | Assistant Professor | VESIT. |
| 23 | Prof. Pooja Shetty | Assistant professor | VESIT. |
| 24 | Dr. Meena S. Panse | Professor | VJTI, Matunga |
| 25 | Prof. Deepanshu Gupta | Assistant Professor | VJTI, Matunga |
| 26 | Dr. Prashant Bhopale | Assistant Professor | VJTI, Matunga |
| 27 | Dr. Shweta G | Assistant Professor | VJTI, Matunga |
| 28 | Prof. Priyanka B | Assistant Professor | VJTI, Matunga |

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|----|---------------------------|---------------------|---------------|
| 29 | Prof. Dipika Tale | Assistant Professor | VJTI, Matunga |
| 30 | Prof. Abhijeet Pimpale | Assistant Professor | VJTI, Matunga |
| 31 | Dr. Vikas B Varekar | Assistant Professor | VJTI, Matunga |
| 32 | Dr. Sudhir Bhil | Lecturer | VJTI, Matunga |
| 33 | Prof. Bharti B | Assistant Professor | VJTI, Matunga |
| 34 | Dr. Vivek D K | Assistant Professor | VJTI, Matunga |
| 35 | Dr. SushamaR.Wagh | Assistant Professor | VJTI, Matunga |
| 36 | Prof. V. S. Bhangale | Lecturer | VJTI, Matunga |
| 37 | Prof. Tanu Sharma | Assistant Professor | VJTI, Matunga |
| 38 | Prof. Parima Saraswat | Assistant Professor | VJTI, Matunga |
| 39 | Dr. D.P Rathod | Assistant Professor | VJTI, Matunga |
| 40 | Prof. Panchakshari Awaje | Assistant Professor | VJTI, Matunga |
| 41 | Prof. Hemant Badgular | Assistant Professor | VJTI, Matunga |
| 42 | Prof. S. P. Barange | Assistant Professor | VJTI, Matunga |
| 43 | Prof. AartiBaliga | Lecturer | VJTI, Matunga |
| 44 | Prof. Pravin Deshmukh | Lecturer | VJTI, Matunga |
| 45 | Prof. Amutha Jeyakumar | Associate professor | VJTI, Matunga |
| 46 | Prof. Jeyalakshmi Chandle | Associate professor | VJTI, Matunga |
| 47 | Prof. SunilN.Tetambe | Lecturer | VJTI, Matunga |
| 48 | Prof. Mohan Pramod Patil | Assistant professor | VJTI, Matunga |
| 49 | Prof. Madhuri R. Tayade | Assistant professor | VJTI, Matunga |
| 50 | Prof. Dipankar Singh | Assistant professor | VJTI, Matunga |
| 51 | Prof. Joseph Raphel | Assistant professor | VJTI, Matunga |
| 52 | Prof. Akshay A. Jadhav | Assistant professor | VJTI, Matunga |
| 53 | Prof. Sharayu S Kautkar | Assistant professor | VJTI, Matunga |
| 54 | Prof. Rohini Jiwane | Assistant professor | VJTI, Matunga |
| 55 | Prof. Sachin S Barve | Assistant professor | VJTI, Matunga |
| 56 | Prof. Faruk Kazi | Professor | VJTI, Matunga |
| 57 | Prof. S. R. Yadwad | Lecturer | VJTI, Matunga |
| 58 | Prof. R. Kirpane | Lecturer | VJTI, Matunga |

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|----|---------------------------|---------------------|---------------|
| 58 | Prof. Bhalkar Rakesh | Lecturer | VJTI, Matunga |
| 59 | Prof. Mrityunjay Gupta | Lecturer | VJTI, Matunga |
| 60 | Prof. Jyoti Ashok Gondane | Lecturer | VJTI, Matunga |
| 61 | Prof. Shweta Sagole | Lecturer | VJTI, Matunga |
| 62 | Prof. Vibha V. Walekar | Assistant Professor | VJTI, Matunga |
| 63 | Prof. Manasi Kulkarni | Assistant Professor | VJTI, Matunga |
| 64 | Prof. Sowmiya Raksha | Assistant Professor | VJTI, Matunga |
| 65 | Prof. Priyanka B. Pagare | Assistant Professor | VJTI, Matunga |
