Teaching Learning Practice

Title : Advanced Engineering Applications in Physics

Date : 06-May-2024 - 10-May-2024
Time : 10:00 - 17:30
Venue : SMART CLASS ROOM TT513

Discussion Points

- Basics and development of the mathematical understanding of mechanical waves
- Fundamentals of the development of quantum mechanics along with applications
- Basics of electromagnetics and the characteristics of electromagnetic waves
- Fundamentals of laser characteristics theory and instrumentation
- Transmission of signals in optical fiber in relation with optical fiber communications
- Theory and principles of optoelectronic devices

	**Resource Person 1 - Details** **Name :** Sathya Swaroop N.r **Designation :** Professor Grade 2, School of Advanced Sciences **University/ Company :** VIT, Vellore **Address :** India, 632014.
	**Resource Person 2 - Details** **Name :** Ramesh Babu P **Designation :** Professor Higher Academic Grade, School of Advanced Sciences **University/ Company :** VIT, Vellore **Address :** India, 632014.
	**Resource Person 3 - Details** **Name :** Ramesh M Thamankar **Designation :** Associate Professor Sr., Centre for Functional Materials **University/ Company :** VIT, Vellore **Address :** India, 632014.
	**Resource Person 4 - Details** **Name :** Senthilnathan K **Designation :** Professor Grade 2, School of Advanced Sciences **University/ Company :** VIT, Vellore **Address :** India, 632014.
	**Resource Person 5 - Details** **Name :** Prof Shiva Prasad **Designation :** Professor, Department of Physics **University/ Company :** IIT Bombay, Mumbai **Address :** India, 400076.
	**Resource Person 6 - Details** **Name :** Prof K G Suresh **Designation :** Professor, Department of Physics **University/ Company :** IIT Bombay, Mumbai **Address :** India, 400076.
	**Resource Person 7 - Details** **Name :** Prof Vipul Rastogi **Designation :** Professor, Department of Physics **University/ Company :** IIT Roorkee, Roorkee **Address :** India, 247667.
	**Resource Person 8 - Details** **Name :** Prof Sivarama Krishnan **Designation :** Professor, Department of Physics **University/ Company :** IIT Madras, Chennai **Address :** India, 600036.

Resource Person's Profile :

1. Profile of Sathya Swaroop N.r

Prof. N R Sathya Swaroop is fullprofessor indepartment of Phsyics, SAS VIT Vellore. He obtained his PhD from IISc Bangalore in 2005. His areas of specialization are Surface modification techniques (e.g. Laser Shock Peening) and residual stress measurements (X-ray based), Room and high temperature mechanical behaviour of materials
Surface characterization techniques (e.g. Secondary Ion Mass Spectrometry)
Oxygen exchange and diffusion in Solid Oxide Fuel Cell (SOFC) electrolytes.

2. Profile of Ramesh Babu P

Prof. P Ramesh Babu is full professor in department of Phsyics, SAS VIT Vellore. He obtained his PhD from University of Madras in 2006. He has been associated with Department of Phsyics, VIT Vellore for more thanm 20 years. His areas of specializations are
Nonlinear fiber optics
Optical Solitons
Photonic Crystal Fibers
Metamaterials and Fiber sensors

3. Profile of Ramesh M Thamankar

Dr. Ramesh Thamankar is Associate professor in Centre for functional Materials VIT Vellore. He obtained his PhD from Germany in 2004. He has been associated with Department of Phsyics, VIT Vellore since last 7 years. His areas of specializations are
Molecular nanoelectronics, quantum physics, 2-D Materials

4. Profile of Senthilnathan K

Prof. K. Senthilnathan is a full professor inDepartment of Physics, VIT Vellore. He obtained his PhD from Anna University in 2004. He has been associated with Department of Phsyics, VIT Vellore since last 15 years. His areas of specializations are
Optical Solitons
Designing Photonic Devices using Photonic Crystal Fibers
Metamaterials
Fiber sensors
Fiber Lasers

5. Profile of Prof Shiva Prasad

Educational Qualifications
M.Sc.Physics from IIT Delhi in 1973
Ph.D. from University of Delhi in 1978
Post-Doctoral Research
At Laboratoire de Magnetisme, CNRS, Bellevue France as a French Govt. Fellow.
At California Institute of Technology, Pasadena, USA as IBM Research Fellow.
Posts held
Joined IIT Bombay on 03.10.80, Professor since 6.11.90
The Director of Indo-French Centre for the Promotion of Advanced research from 2005-10, while on lien from II

6. Profile of Prof K G Suresh

Prof. K G Suresh joined Department of Physics IIT Bombay, Mumbai in 1998. His areas of interest are Magnetism and Spintronics, Topological matter, Magnetism in intermetallics, Ferromagnetic shape memory materials, Magnetic refrigerant materials. He has published more than 250 research articles in reputed journals.

7. Profile of Prof Vipul Rastogi

Prof. Vipul Rastogi obtained his PhD from IIT Delhi in 1998. His areas of interest are Fiber Optics, Specialty Optical Fibers, Space Division Multiplexing, Orbital Angular Momentum Modes, Optical Fiber Amplifiers, Fiber Sensors, Plasmonic Sensors, Integrated Optics, Liquid Crystal Guided Wave Photonics, Optoelectronics, Light extraction in LED and OLED, Thin film solar cells.

8. Profile of Prof Sivarama Krishnan

Prof. Sivarama Krishnan obtained his PhD from Max Planck Institute Germany. He is a full professor in Department of Phsyics, IIT Madras. His areas of interest are Ultrafast meets ultrasmall, femto- and atto-second light pulses capture the dynamics in nano-scale systems , Nanoscale superfluidics with He nanodroplets, next-gen photolithography, especially EUV and x-ray sources

Engineering Physics is the backbone of the curriculum of the all the undergraduate engineering programmes. The syllabus of the subject is designed in such a way that the understanding of basic physical principles will have a strong impact on the analytical skills, engineering innovation and practices. However, to bring uniformity in teaching methodology and delivery of contents to the students, by the faculty members teaching the subject Engineering Physics, a Five days FDP on Engineering Physics for undergraduate level, has been proposed by the Department of Physics, in association with TLCE, VIT. The proposed FDP will provide an opportunity to the participant faculty members would be exposed to new ways and ideas to disseminate knowledge, and along with recent developments in the field. Experts from IIT-Bombay, IIT- Roorkee, and IIT-Madras will provide insights in the field of quantum mechanics, electromagnetic waves, lasers and optical fibers. Furthermore, internal experts, at the Professor cadre, from the department will provide required methodology and contents on waves and oscillations and optoelectronic devices. As a part of the FDP, details of the syllabus of the Engineering Physics (approved by academic council, VIT) will be the core discussion point, with recent developments. Participations of more than 50 faculty members are expected. Further, this FDP will provide an opportunity to initiate collaborations between the aforementioned IITs professors and our faculty colleagues. At last, the proposed FDP will enrich the knowledge of the participants, who in turn can implement that in their teaching-learning process.

Not applicale

Coordinator's: **Prof. TARUN 15256 - Assistant Professor Grade 1 - SAS**
Prof. SANDEEP CHAKRABORTY 17957 - Assistant Professor Grade 2 - SAS