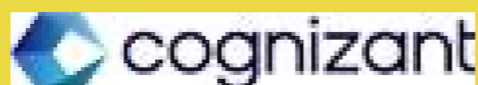




## Placement Opportunities



**TATA ADVANCED SYSTEMS**



### Contact Us

To enroll or for any general information, please contact us:

Email: [hod\\_ap@diat.ac.in](mailto:hod_ap@diat.ac.in)

Tel: 020 2460 4494

Fax: 020 2438 9411

Website: <https://www.diatphys.in>

Address: Department of Applied Physics, Technical Area, Defence Institute of Advanced Technology (D.U.), Pune-411025



## Department of Applied Physics

### Defence Institute of Advanced Technology (D.U.), Pune, MH

An Autonomous organization under the Department of Defence Research & Development,  
Ministry of Defence, Government of India.

#### About Us

The Department came into existence as Faculty of Applied Physics in 1952 and was renamed as Department of Applied Physics in 1979. The Department offers three M. Tech. courses namely, Laser & Electro-Optics, Sensors Technology and Optical Communication & Photonics. We aim to train students for their career in academia as well as in industry in the frontier areas of Science & Technology. All our M Tech Programmes are balance of courses in fundamental science and technology helping students to pursue career opportunities in Academics, Research & Industry as per their interest.

#### Courses

The department of Applied Physics offers Ph.D program in various research fields. We admit students by national fellowships like CSIR,UGC-JRF or other equivalent national level exams and also through various means like institutional fellowship for GATE and NET qualified students. We also cater to MoD sponsored candidates. Ph.D students who joined department undergo a course work for first six months and followed by a comprehensive exam at end of their first year. Clearing this confirms their registration for Ph.D program and they continue to carry their research work in their respective fields. After a satisfactory periodical reviews he/she will propose their work for thesis submission will be evaluated by a panel of examiners. Finally, after successful completion of their open defense, they are awarded a Ph.D degree.

The department of Applied Physics offers Masters of Technology (M.Tech.) in three branches. The M. Tech. programme is of four-semester duration. In each of the first two semesters there are five courses and practicals. The course syllabus is updated periodically to keep pace with the contemporary technological advancement. The department will also be offering M.Sc. (2 year)/M.Sc. Tech.(3 year) in Photonics from academic year 2023-24. The admissions for M. Tech. programmes are through CCMT and M. Sc./M.Sc. Tech. through CCMN.

#### M.Tech. in Sensor Technology

Sensors is one area of science and technology which has witnessed a paradigm shift from conventional bulky components to extremely miniaturized and smart devices. The technological advancements in the area of Electronics, Electrical engineering, along with the interdisciplinary areas of microfluidics, nanotechnology, biotechnology and photonics have been responsible for this concomitant growth in the development of current sensors. The programme intends to educate and train bright fresh students in the field of sensor technology to carry out challenging responsibilities in their future career. This is an interdisciplinary course concerning Electronics, Instrumentation, Sensors, Optics, Electromagnetism, Nanotechnology and Advanced Materials.

#### M.Tech. in Laser and Electro-optics

One of the greatest scientific discoveries of the twentieth century that has led to technological advancement touching all aspects of human life is the LASER. It has enormous applications in our day-today life to futuristic directions in scientific research to industrial, medical, communication, imaging, and defence applications. Hence, an understanding of laser technology is essential for an engineer working in many of the present-day cutting-edge technologies, such as, Lidar, Li-Fi, Laser cooling, non-invasive surgical techniques, etc. The aim of this program is to train the students in the field of lasers, fiber optics, electro-optics, and photonics that would enable them to meet the challenges in this rapidly developing field.

#### M.Tech. in Optical

#### Communication and Photonics

The rapid growth of networks and the internet over the past decade has been enabled by advances in photonics technology. Optical communication networks provide the high capacity ubiquitous connectivity that forms the backbone of global internet. Today, with the advancement of semiconductor industry and fiber optics technology, optical communication facilitates us with ultrafast data transfer, D2H broadcasting in 4G speed that is capable of meeting the exponentially growing demand for our modern society. The programme aims to provide chosen candidates with training in the field of optical networks and associated protocols, preparing them to take on the difficulties in this constantly evolving industry.

# Faculty Members



**Dr. Suwarna Datar**  
 Head of the Department,  
 Associate Professor  
 Research Interests: Probe microscopy, nanomaterials for EMI shielding, plasmon polariton and MEMS based sensors, and Quartz tuning fork-based sensors for gas sensing and breathomics.

**Prof. Sangeeta Kale**  
 Director (Policy and Planning)  
 Research Interests: Nanomaterials for sensing and biomedical applications, Defence research, electromagnetic shielding for Radars, optical sensors for field detections, metamaterials for smart detections.

**Dr. Tejashree Bhawe**  
 Doctoral Research Committee Chairperson  
 Associate Professor  
 Research Interests: Photovoltaics, Microfluidic devices, Nano materials applications for Sensors, Swift heavy ion irradiation



**Dr. Devnath Dhirhe**  
 Associate Professor  
 Research Interests: MiD-IR and THz Quantum Cascade Laser, Integrated Optics and Si-Photonics, Ring Lasers, Fiber Laser, High-Speed Free-Space Optical Communication

**Dr. A.V.R. Murthy**  
 Assistant Professor  
 Research Interests: Biophotonics, Optical Instrumentation, Fluorescence Correlation Spectroscopy, Free Space & Underwater Optical Communication

**Dr. Shyamal Mondal**  
 Assistant Professor  
 Research Interests: Optoelectronics, Ultrafast solid-state and fiber lasers, Optical and Terahertz Spectroscopy, Terahertz Imaging

# Facilities

- Atomic Force Microscope
- Electrochemical Workstation
- Owlstone Vapor Generator
- Spectroscopic Ellipsometer
- X-Ray Diffractometer
- Vector Network Analyser
- Raman Spectrometer
- Spray Pyrolysis Unit
- Contact Angle Measurement System
- Uv-Vis Spectrometer (Reflectance/Transmission Modes)
- Photoluminescence Spectrophotometer
- Pulse Laser Deposition System
- Thermogravimetric Analyser
- Pulse Laser Deposition System
- DC Arc Plasma Unit
- RF/DC Sputter Coating Unit

# Research

The department works on research in Nanotechnology, Lasers, Optics and sensors, Photonics, Material Science, Sensors Technology, and Renewable Energy, and many interdisciplinary areas.

