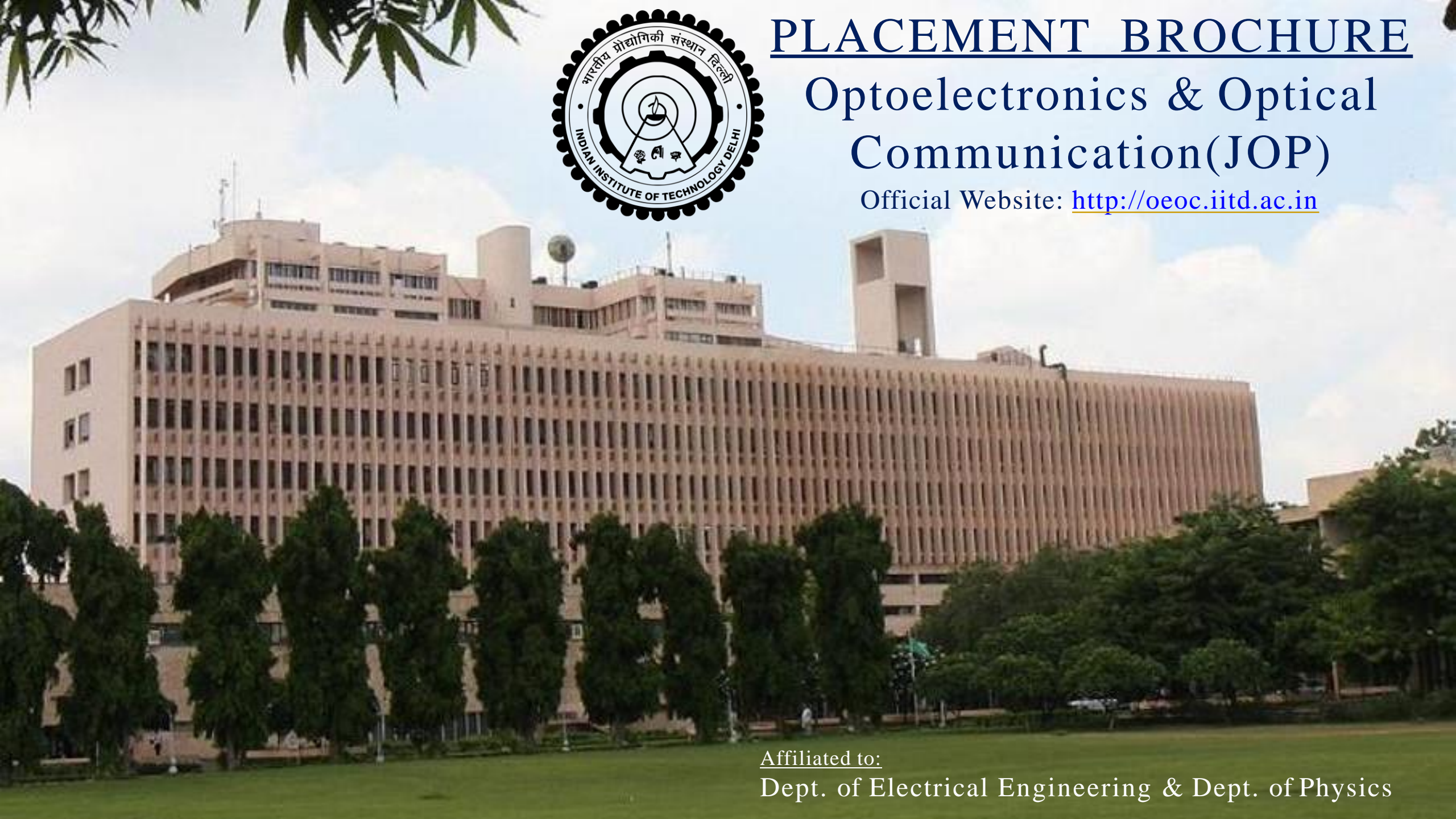




PLACEMENT BROCHURE

Optoelectronics & Optical Communication(JOP)

Official Website: <http://oeoc.iitd.ac.in>



Affiliated to:

Dept. of Electrical Engineering & Dept. of Physics

About Us



Prof. R. K. Varshney
Program Coordinator
IIT Delhi

The interdisciplinary M. Tech. programme in Opto-Electronics and Optical Communication at IIT Delhi is offered jointly by Department of Electrical Engineering and Department of Physics, which has been running since 1980. The programme is open to the students having B. Tech. in Electrical/ Electronics and Communication Engineering or M. Sc. in Physics degree. Graduates from this programme have been playing important roles in various industries like telecom, networking, VLSI, optics, as entrepreneurs, and in research and development organizations such as ISRO, DRDO and C-DOT.

Message from the Programme Coordinator:

For the placement season 2018-19, we would like to invite the industry leaders to recruit the students of our program. This is a unique program which prepares our students to relate the intricate issues from the electrical and physics domain into the software/hardware based concepts of the Engineering Industry. The course work is designed to meet industry standards & students are prepared to tackle various challenges faced by the industry through exposure to various industry oriented projects in our excellent labs.

We believe that our students are highly skilled and will add great value to your organization.

Curriculum

Department of Electrical Engineering

- Optical Communication Systems
- Digital Communication & Information Systems
- Advanced Digital Signal Processing
- Computer Communication Networks
- Broadband Communication Systems
- Access Networks
- Machine Learning
- Data Structures and Algorithm
- MOS VLSI design
- Hardware Modelling of Digital Systems
- Telecommunication Switching and Transmission
- Wireless Optical Communications
- Photonic Switching and Networking
- Internet of Things (SRI Delhi-IITD)

Department of Physics

- Fiber Optics
- Optical Electronics
- Photonic Devices
- Optics and Lasers
- Green Photonics
- Integrated Optics
- Fiber Optic Components and Devices
- Guided Wave Photonic Sensors
- Fourier Optics and Holography
- Biomedical Optics and Bio-Photonics
- Ultra-fast Optics and Applications
- Statistical and Quantum Optics
- Introduction to Plasmonics
- Nano-Photonics and Plasmonics

Labs & Resources

Photonics Lab

Main Research Areas

- Gigabit capable Passive Optical Network (GPON)
- Radio Over Fiber (RoF)
- Visible light Communication
- Free Space Optics
- Optical Fiber based Sensors

Resources

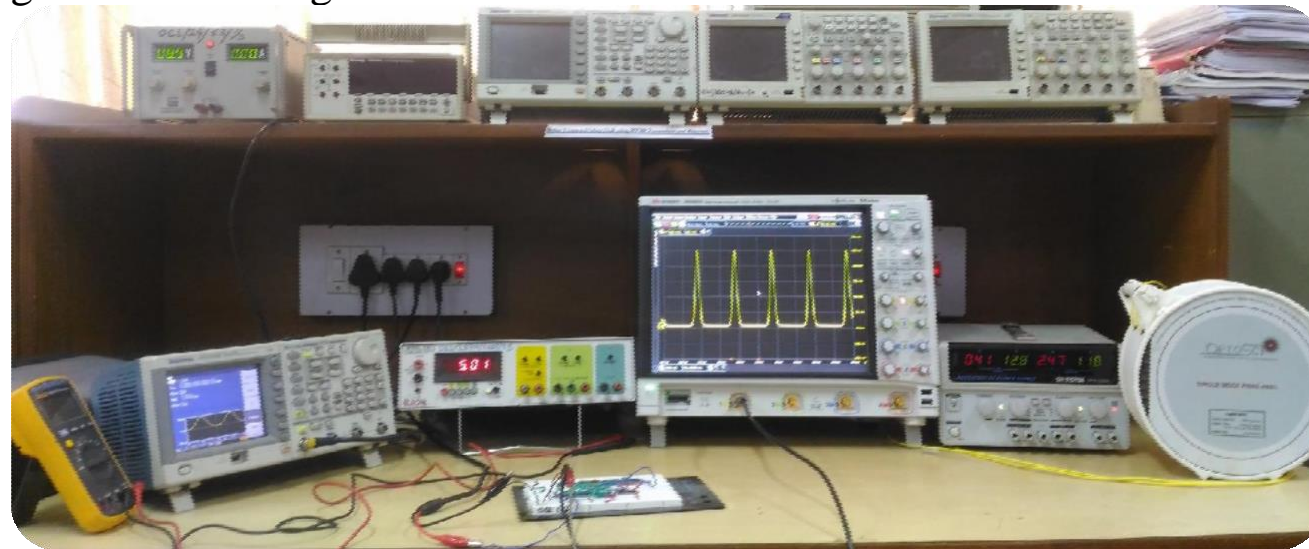
- High Data rate FPGAs
- FPGA controlled MOEMS mirrors for optical beam steering
- Optical Turbulence Generator (OTG)
- 2 Dell T7600 workstations, each equipped with :
 - Intel Xeon E-26502 0 @2 GHz, 8 core CPU x 2
 - 128 GB of RAM
 - 2 TB storage space
 - SPMD architecture based NVIDIA graphics Processing unit (GPU) for massively parallel computing: Tesla C2075 (with 448 processor cores), Quadro 5000 (352 processor cores)
 - Softwares: Xilinx-Vivado/ISE, Artifex, MATLAB, OptSim, Omnet++, Remcom XFDTD, Lumerical, etc.



Optical Communication Lab

In this lab, students get hands on experience in design and analysis of optical communication systems. The experiments performed as part of this lab are in the following areas:

- Intensity Modulation/Direct Detection Optical Communication Link
- Free Space Optics Link
- Dense Wavelength Division Multiplexing
- Optical Signal Processing



Resources:

- Optical Spectrum Analyser
- Optical Time Domain Reflectometer (OTDR)
- Frequency Spectrum Analyser
- Dense WDM Kit(4 Channel)
- SDH Analyser

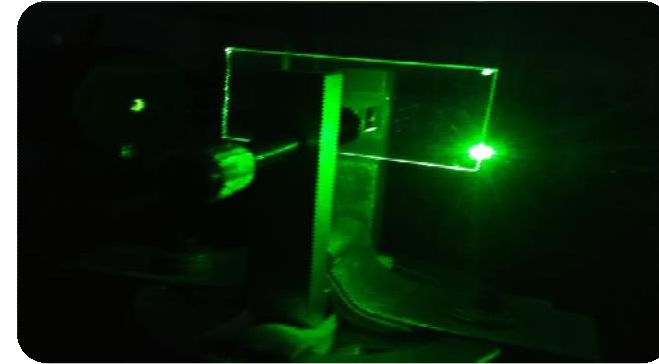
Fiber Optics Lab

Primary objective of this lab is to train students in the latest fiber optics technologies. Experiments are focused on analysis and design of various fiber optics components.



Resources:

- Super Continuum Source
- Lasers: Diode, He-Ne, Nd-YAG
- Semiconductor Optical Amplifier (SOA)
- Erbium Doped Fiber Amplifier (EDFA)
- Splicing Machine
- Dual Channel Optical Power & Energy Meter
- Tunable Laser Source
- Fiber Polishing Machine
- Variable Optical Attenuator
- Acousto Optic Modulator



Applications:

- Beat Length Measurement
- Fused Fiber Coupler Fabrication
- Fiber Loss Measurement
- Splice Loss Measurement
- Refractive Index Profile Measurement

M.Tech. Projects (2018-19)

The program offers opportunity to explore the application of optics in diverse domains. The ongoing M.Tech. projects of 2017-19 batch are listed below:

Department of Electrical Engineering

- Implementation of RoF MAC protocol (in FPGA/USRP)
- FPGA implementation of Energy saving dynamic bandwidth allocation algorithm for TWDM-PON
- Study of Machine Learning Techniques in Free Space Optical Communication System
- Non-orthogonal multiple access technique in Visible Light Communication
- Diversity systems in Free Space Optical Communication
- Design of correlated FSO-MIMO system to achieve improved performance of Space Shift Keying (SSK) modulation via opportunistic power allocation/reconfigurable antenna
- Modulation schemes for visible light communication systems
- Flex grid System
- Impairments in WDM systems

Department of Physics

- Silicon nano-waveguides for quantum communication
- Design of specialty fibers for THz applications
- Studies on low threshold Perovskite laser
- Studies on modal interferometers using dielectric loaded surface plasmon polariton (DLSPP) waveguides for sensing applications
- Optically-pumped Semiconductor Lasers
- Surface Enhanced Raman Scattering (SERS) based chemical Sensors.
- SPR based chemical sensors
- Studies on Silicon Photonics based devices

Collaboration with universities and industries:

In the past, we have collaboration with the following universities:

Universities

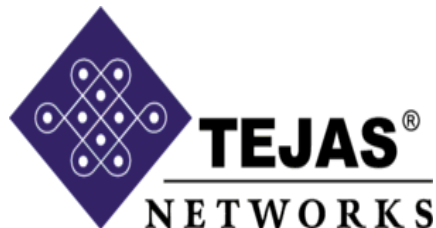
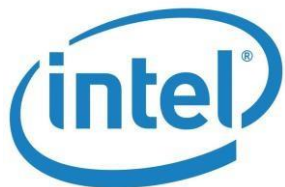
- Ghent University, Belgium
- University of Applied Sciences, Dusseldorf, Germany
- Heriot Watt University, Edinburgh, UK
- Russian Academy of Sciences, Russia
- University of Strathclyde, Glasgow, UK
- Southampton University, Southampton, UK
- City University, London, UK
- University of Nice, France
- University of Jeans Monnet, France
- University of Limoges, France

Some of the projects, which have been done in conjunction with the industries are:

Industries

- Real Time Fiber Optic Local Area Network (HBR NIFE Power System Ltd and MHRD)
- Implementation of SoC Interface for the system of Reflective Light Sensors (DRDO)
- Design of the OC-12 High Speed Optical Link with Tributary Multiplexing (AICTE)
- Mid Stage Acces in EDFA (DIT, Optiwave Photonics)
- Fiber Grating (DIT)
- Development of IO Power Splitters/Combiners (MHRD, C-DoT)
- Fiber Optic Chemical Sensors (DIT)
- R&D on Optical Fiber pH Sensors by using Sol-Gel Technology (CSIR)
- Design and Development of Array-of-Array MOEM based Free Space Optical Link for Ground to Satellite Communication
- Simulation and Analysis of System Design Requirement for Ground to Satellite and Intersatellite Free Space Optical

Top Recruiters



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