

IIT PATNA

Communication system Engineering



Professor In-charge:
Dr. Amarnath Hegde
Phone No: +91-612-3028031
Email : ahegde@iitp.ac.in

Address :
Training and Placement Cell,
IIT Patna, Bihta ,Kanpa Road,
Pin : 801103, India.



1. DAAD a German-Indian Scholarship awarded to Students in the past years.
2. Students placed at prestigious Institutions such as ISRO, RAILWAYS Comm. Division.
3. Research papers published at prestigious Conferences such as ICC, NCC , GLOBECOM and journals like IEEE and Springer Wireless.
4. Students selected for Gandhian Young Technological Innovation (GYTI) Award.
5. FIRST INTERNATIONAL SYMPOSIUM ON 5G Jointly Organized By Indian Institute of Technology Patna (IITP) and Center for TeleInfrastruktur, Aalborg University (CTIF).
6. NCV Spring on image processing.
7. Senior IEEE member faculties with publications amongst best journals of the World.

LABORATORIES

- ❑ OPTICAL COMMUNICATION
- ❑ WIRELESS COMMUNICATION
- ❑ RF AND MICROWAVE ENGG.
- ❑ DIGITAL SIGNAL AND IMAGE PROCESSING
- ❑ OPTICAL NETWORKING



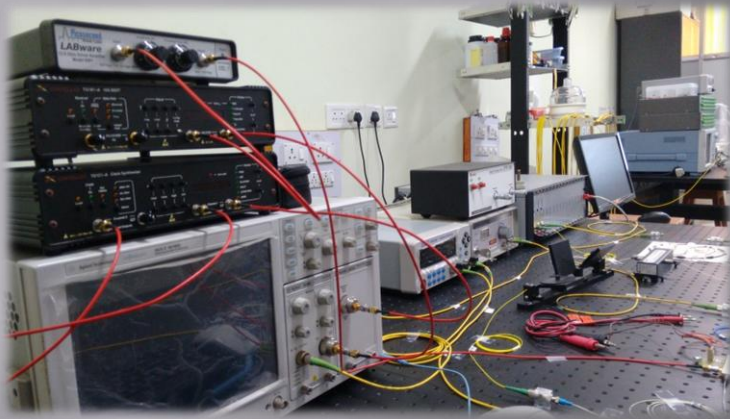
COURSE CURRICULUM

- ❑ ADVANCED DIGITAL COMMUNICATION
- ❑ ADVANCED DIGITAL SIGNAL PROCESSING
- ❑ WIRELESS COMMUNICATION
- ❑ COMMUNICATION NETWORKS
- ❑ RADIO FREQUENCY INTEGRATED CIRCUITS
- ❑ STATISTICAL SIGNAL PROCESSING FOR COMMUNICATIONS
- ❑ OPTICAL COMMUNICATION
- ❑ OPTICAL NETWORK
- ❑ INFORMATION THEORY AND CODING
- ❑ DIGITAL IMAGE PROCESSING
- ❑ INTELLIGENT VIDEO SURVEILLANCE SYSTEMS.



OPTICAL COMMUNICATION LAB

Optical Communication Systems bringing revolution in the way the world communicates. The technology which uses light to enhance data rate beyond Gbps.



Software Used

- ☐ Matlab
- ☐ RSoft Photonics CADD Suit
- ☐ Comsol

Research Areas

- ☐ Active/Passive Silicon Photonic Devices
- ☐ Optical fiber Communication Systems
- ☐ Few Mode Optical Fiber Design
- ☐ Space Division Multiplexing
- ☐ Coherent Optical Communication
- ☐ Free Space Optical Communication

We have complete test bed for 12.5 Gbps Optical Fiber Communication

Characterization setup of Silicon Photonics Devices

WIRELESS COMMUNICATION LAB

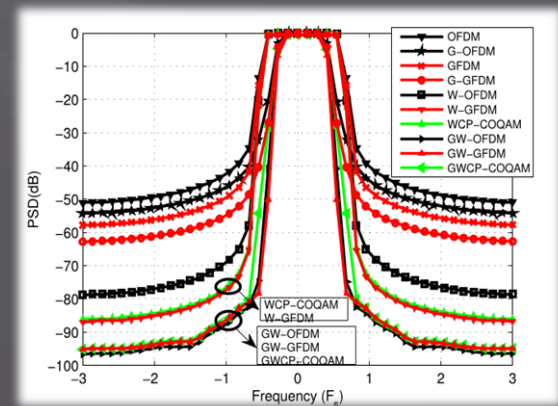
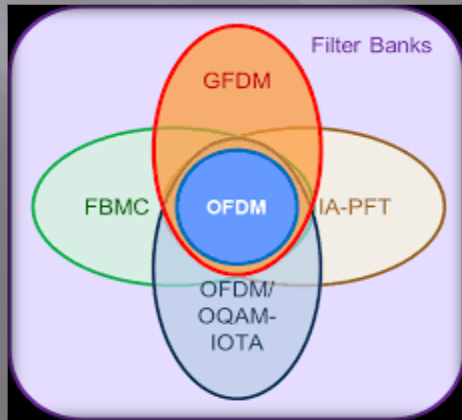
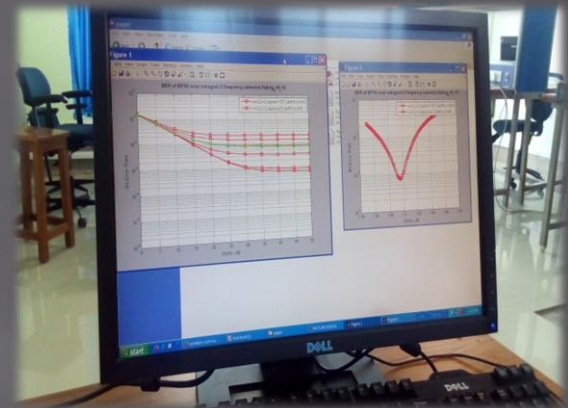
Wireless Communication is amongst technology's biggest contributions to mankind. It is, by any measure, the fastest growing segment of the communications industry.

Research Areas

- ❑ Study of waveform contenders for 5G
- ❑ MC Modulation schemes for Satellite COM
- ❑ Massive MIMO
- ❑ Millimeter wave technology
- ❑ Designing of Transceiver for Cognitive Radio

Software used

- ❑ Matlab, Labview



RF & MICROWAVE LAB

This Laboratory is dedicated for experiment and simulation in the field of any integrated electrical circuit operating in a frequency range suitable for wireless transmission.



Research Areas

- ☐ Different filters like Planar filter, Tunable filter
- ☐ RF MEMS based filter
- ☐ Oscillators, Power Amplifier Design
- ☐ Computational Electromagnetics

M.Tech Projects

- ☐ CMOS Ultra Wide Band LNA, Quadrature VCO, VCO with current reuse.

Software & Toolkits

- ☐ Keysight Advanced Design System, CoventorWare, AnsoftProduct HFSS 3.0
- ☐ Signal Generator, Soldering station, Spectrum Analyzer, DSO, Vector Network Analyzer, Cadence Virtuoso



DIGITAL IMAGE & SIGNAL PROCESSING LAB

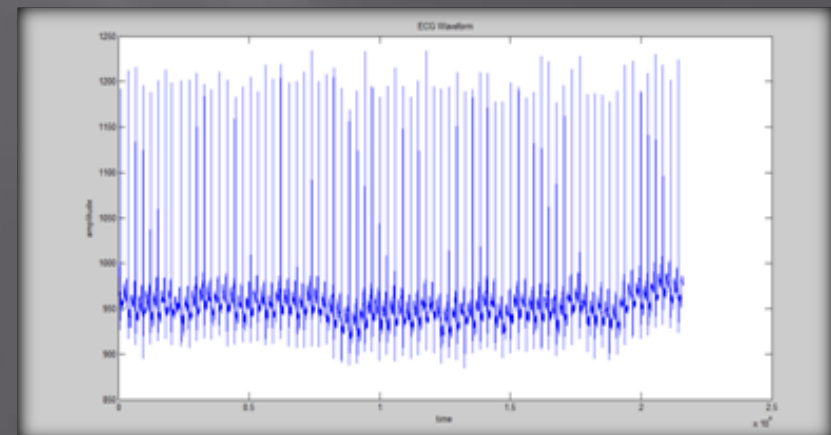
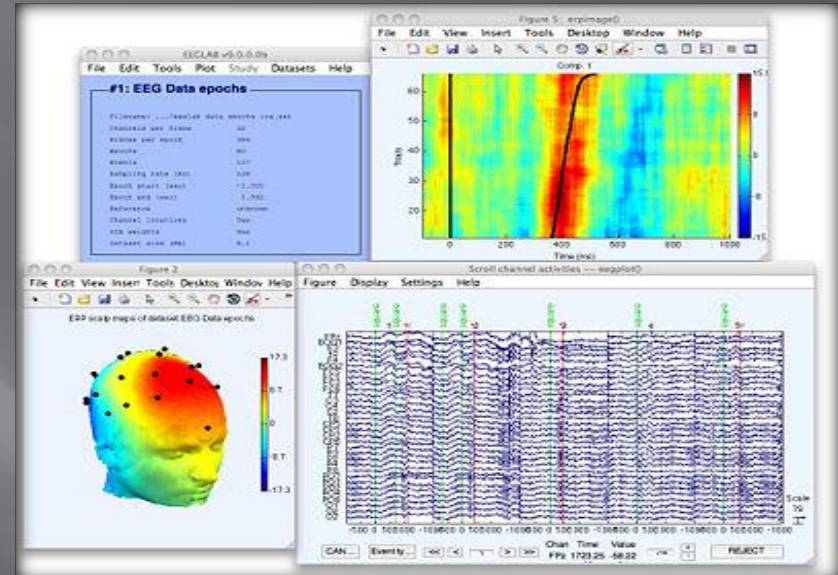
Digital signal and Image processing is to reduce and analyze the amount of digitised data as much as possible . Reduction of digitised data allows improvement of storage capacity in the memory and reduces the cost of transmission.

Research Areas

- ❑ EEG Signal Analysis
- ❑ ECG Signal Analysis
- ❑ Medical Image Segmentation
- ❑ Use of Stochastic Resonance for weak signal detection

Software used for simulation

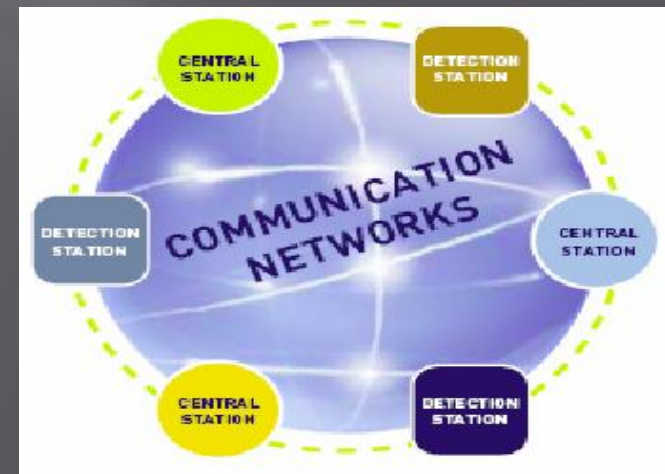
- ❑ MATLAB
- ❑ EEGLAB Toolbox
- ❑ EGI Avatar



OPTICAL NETWORKING LAB

Research Areas

- ❑ Physical layer impairment-aware WDM backbone networks
- ❑ Traffic grooming, energy efficiency in backbone and access networks
- ❑ CapEx and OpEx studies
- ❑ Elastic Optical Network, Next generation PON
- ❑ Hybrid wireless-optical broadband access
- ❑ Software Define Networks
- ❑ Computer communication and networks



CONTACT DETAILS

PROFESSOR-IN-CHARGE



Dr. Amarnath Hegde

Phone No: +91-612-302 8031

Email : ahegde@iitp.ac.in

OFFICE ASSISTANT

Mr. Arvind Prakash

Phone No.: +91-612-3028083

Email: tpc@iitp.ac.in

DEPARTMENT PLACEMENT COORDINATORS



PAWAN KUMAR

PHONE NO.-9716027793

EMAIL: pawan.mtee16@iitp.ac.in



VISHAKHA SINGH

PHONE NO.-8587804260

EMAIL: vishakha.mtee16@iitp.ac.in