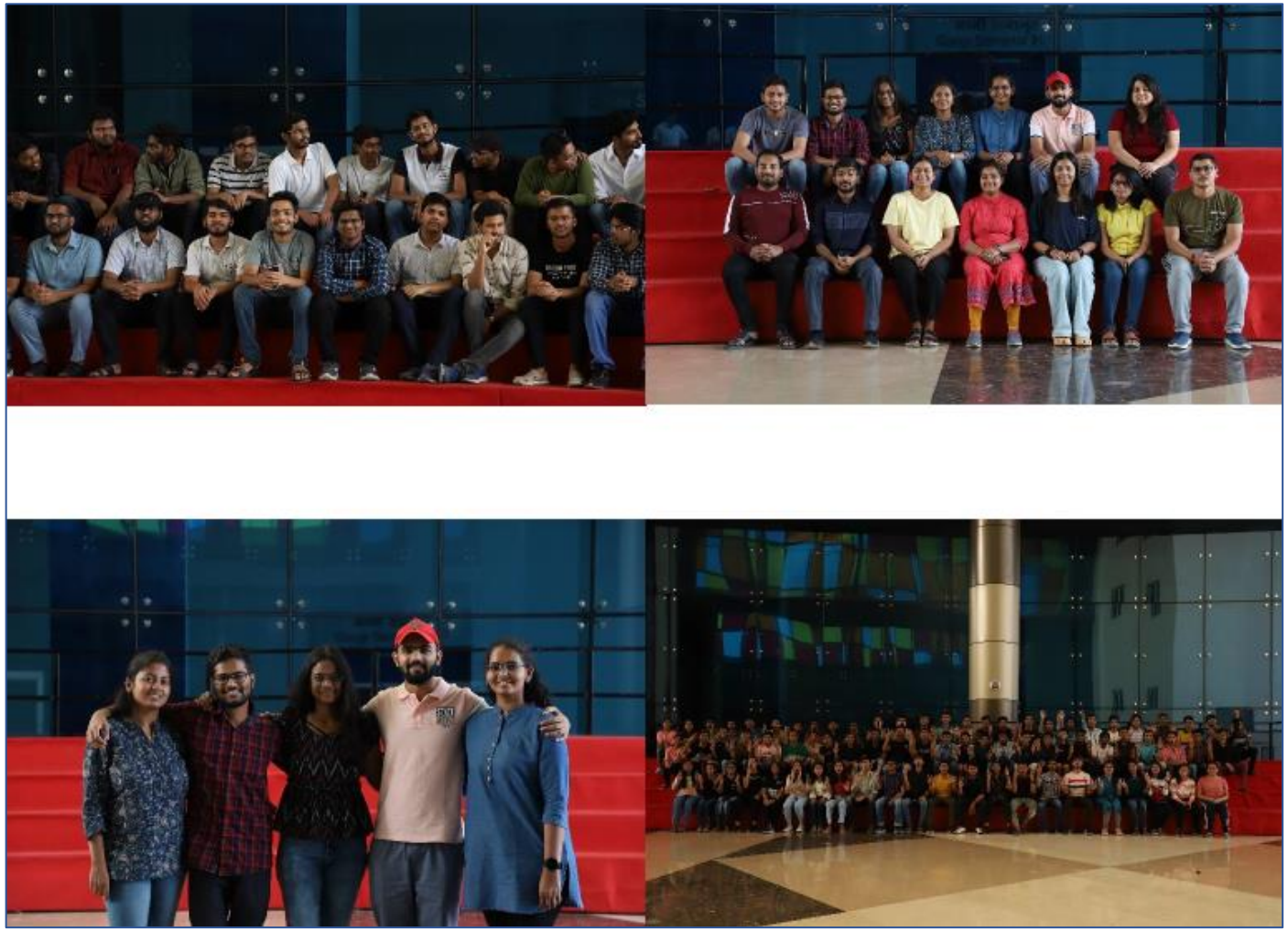
Welcome to the Department of Electrical Engineering @ *IIT INDORE*

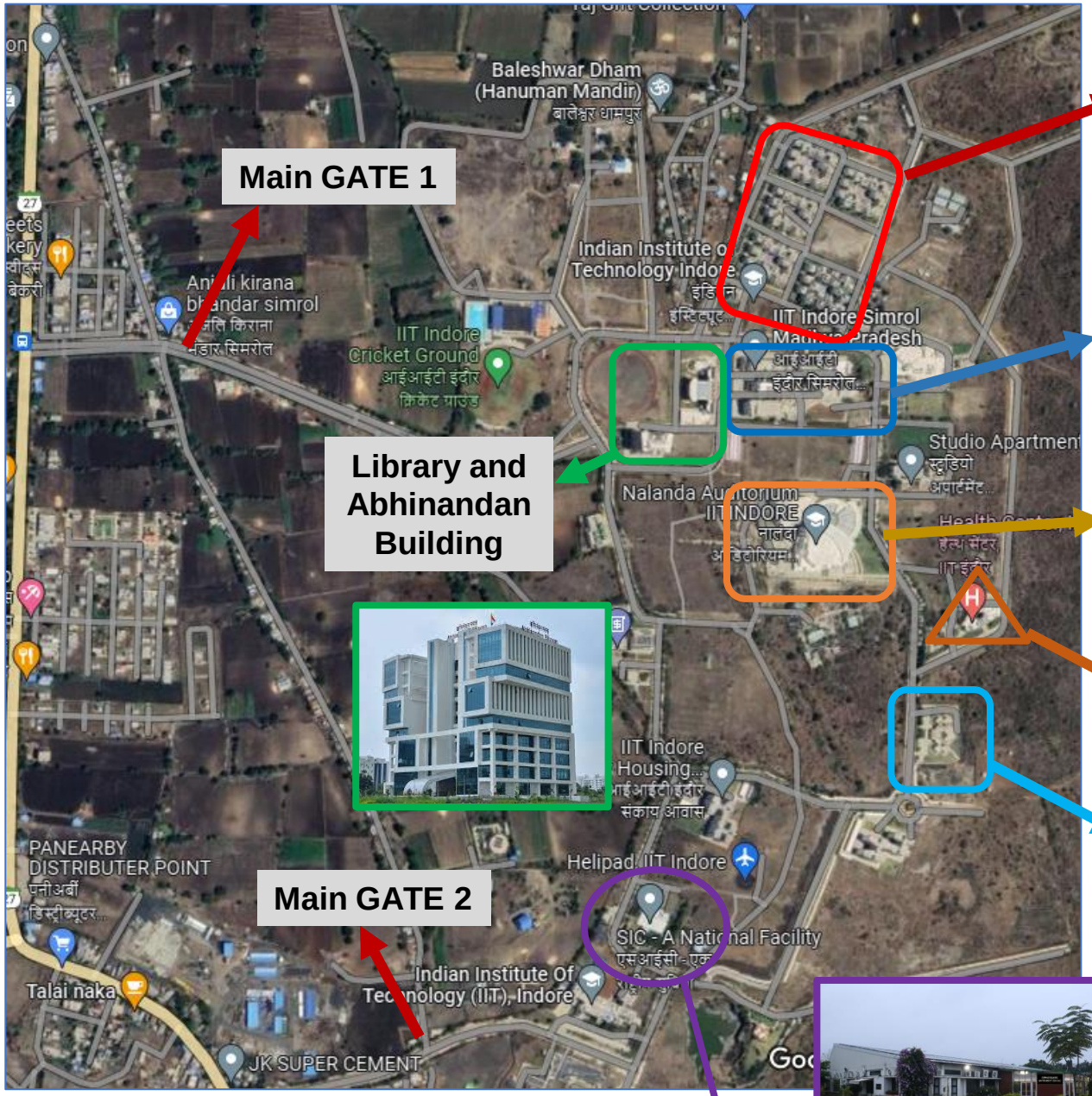
The Faculty Team*

Nalanda Auditorium



UG & PG students

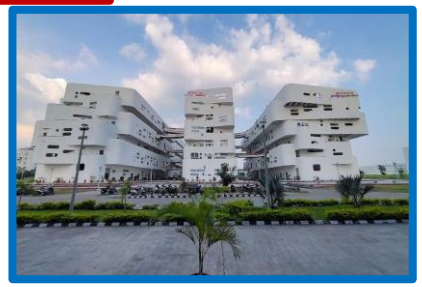
The Department Staff Team



Hostels

501.42 acres

Academic Buildings
(Pods 1)
EE: Mainly Pod 1 A –
Silicon Building



Takshashila Lecture
hall complex
Nalanda Auditorium

Health center

Vindyachal
Guest House

Sophisticated Instrumentation Center

The Campus

We share our campus….

Photo credits: Dr. Rinkee Chopra

The Department

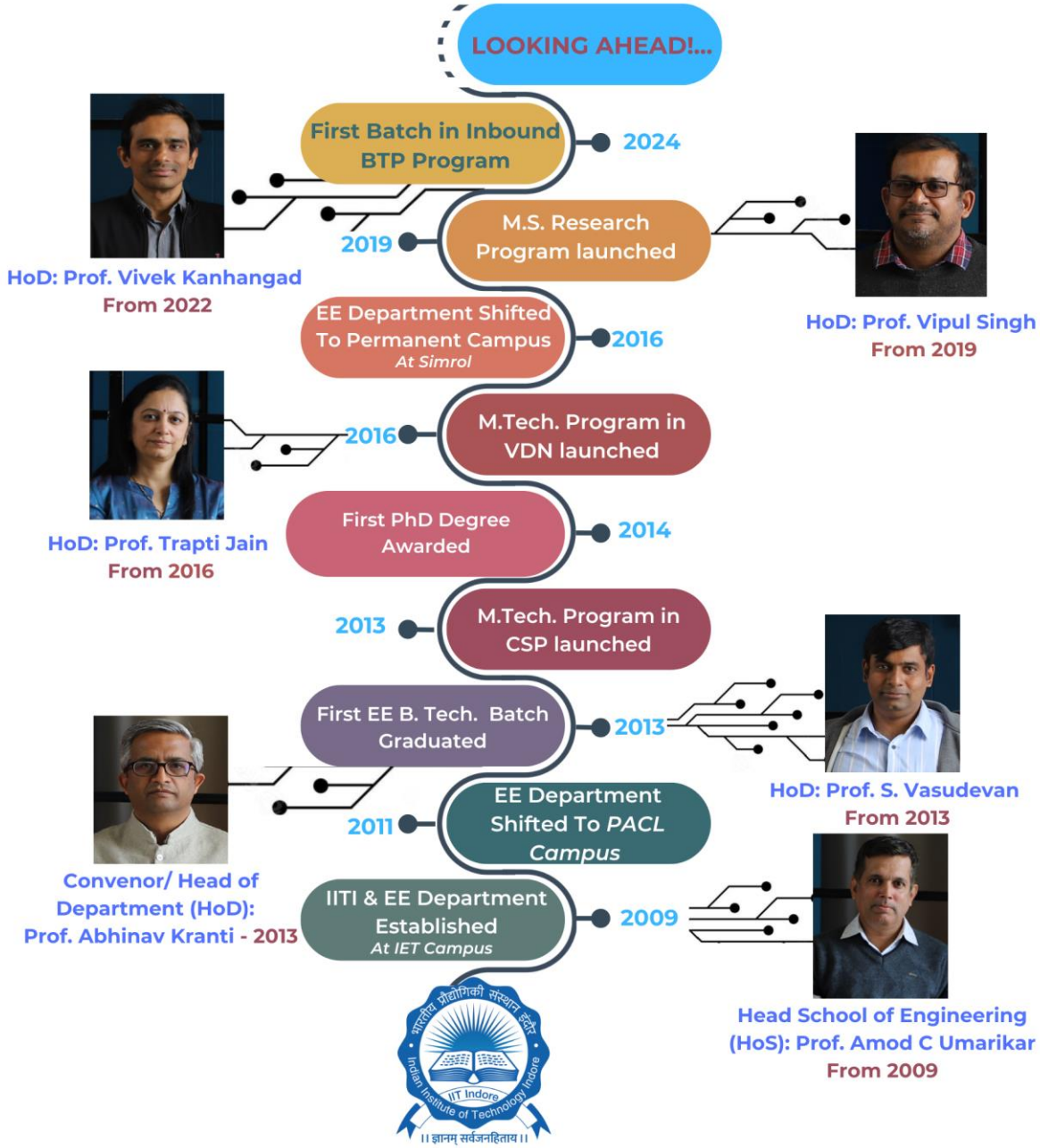
The Department of Electrical Engineering at IIT Indore, established **in 2009**, is one of the ***founding departments*** of the Institute.

The department currently has **23 faculty** members having excellent academic credentials.

The department is actively engaged in following research areas:

- Communications
- Image & Signal Processing
- VLSI, Nanoelectronics
- Semiconductor Devices
- RF and Microwave, Photonics
- Biophotonics Instrumentation
- Power Systems, Power Electronics & Electric Machines

Our Journey….


LOOKING AHEAD!...
First Batch in Inbound BTP Program
2024
2019
M.S. Research Program launched
HoD: Prof. Vivek Kanhangad From 2022
HoD: Prof. Vipul Singh From 2019
EE Department Shifted To Permanent Campus At Simrol
2016
2016
M.Tech. Program in VDN launched
HoD: Prof. Trapti Jain From 2016
First PhD Degree Awarded
2014
2013
M.Tech. Program in CSP launched
First EE B. Tech. Batch Graduated
2013
HoD: Prof. S. Vasudevan From 2013
2011
EE Department Shifted To PACL Campus
Convenor/ Head of Department (HoD): Prof. Abhinav Kranti - 2013
IITI & EE Department Established At IET Campus
2009
Head School of Engineering (HoS): Prof. Amod C Umarikar From 2009

Our Vision

Our short to medium term vision is committed to make a significant impact in society through a high value and qualitative research.

In support of this goal, we will focus on the following areas in the future:

- **Next-generation Communication Systems, Smart Antennas, and Human-Centered AI for Signal Processing**
- **Flexible Electronics, Semiconductor Nanofabrication, Electronics-Photonics convergence, Energy efficient systems**
- **Renewable Energy Integration and Smart Grid, Cyber-security aspects, System on Chip Biomedical Devices for diagnostics and therapy**

Upon enhancing our current strengths, we plan to offer M. Tech. programs in thefollowing specializations:

- **Power Electronics and Power Systems**
- **RF and Microwave Engineering**

Research Verticals

COMMUNICATION & SIGNAL PROCESSING

RF and Microwave (RFM)

Group Faculty members (L to R)

- Prof. Vivek Kanhangad
- Dr. Saptarshi Ghosh
- Prof. Vimal Bhatia
- Dr. Appina Balasubramanyam
- Prof. Ram Bilas Pachori
- Dr. Sumit Gautam
- Prof. Prabhat K. Upadhyay
- Dr. Swaminathan R.
- Dr. Rinkee Chopra
- Dr. Dibbendu Roy

Faculty in CSP + RF

Research Verticals

VLSI DESIGN AND NANOELECTRONICS

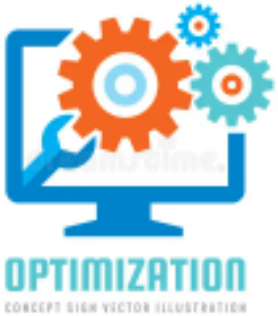
Group Faculty members (L to R)

- Prof. Srivathsan Vasudevan
- Dr. Saptarshi Ghosh
- Prof. Vipul Singh
- Prof. Abhinav Kranti
- Prof. Santosh Kumar Vishvakarma
- Prof. Mukesh Kumar
- Prof. Shaibal Mukherjee

Faculty in VDN

Research Verticals

Power Electronics, Machines and Power Systems (PEPS)



Control Instrumentation And Optimization

Faculty in PEPS + Control

Group Faculty members

- Dr. Sharad Singh
- Dr. Vijay A. S.
- Dr. Subhadeep Paladhi
- Prof. Amod C. Umarikar
- Prof. Trapti Jain
- Dr. Lokesh Kumar
- Dr. Prathap Reddy

PROGRAMS OFFERED

Undergraduate Program

- **Bachelor of Technology: B.Tech.** (Total enrollment each year ≅ 80)

Postgraduate Programs

- **Doctoral Program: Ph.D.** (Total number of enrolled students = 76)
- **Master of Science: M.S. (Research)** (Total enrollment each year =10)
- **Master of Technology: M.Tech.** (Total enrollment each year ≅ 15)
  Specialization in Communication and Signal Processing
- **Master of Technology: M.Tech.** (Total enrollment each year ≅ 15)
  Specialization in VLSI Design and Nanoelectronics

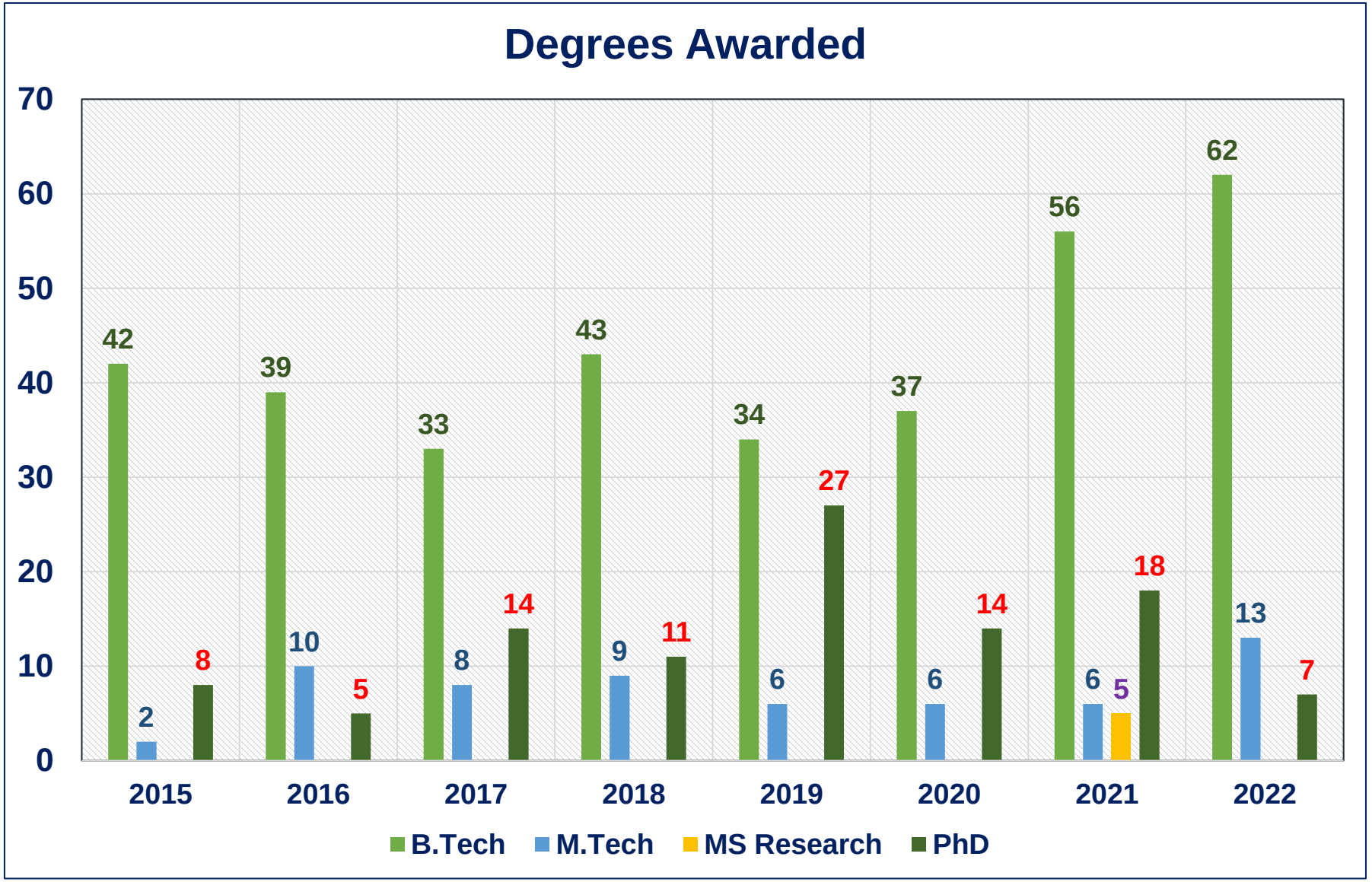
Interdisciplinary Programs

Faculty members of EE contribute to multiple interdisciplinary programs

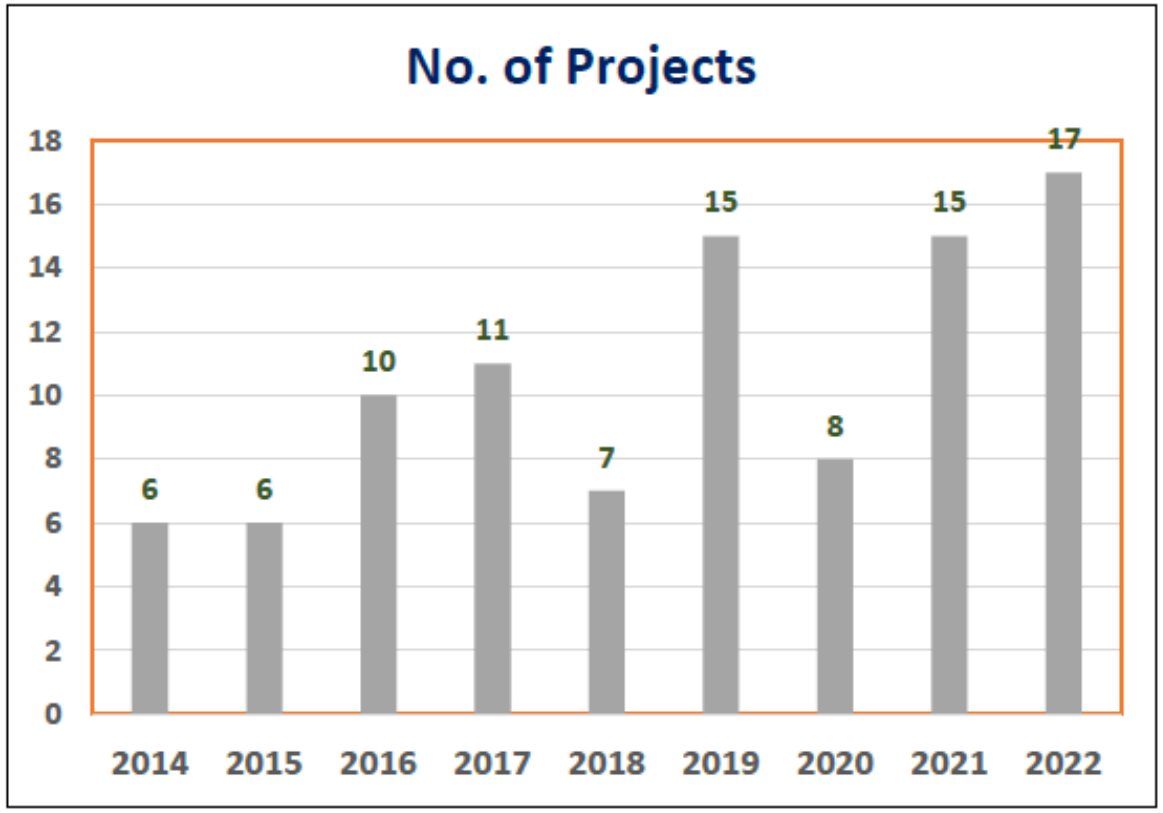
Interdisciplinary Postgraduate Programs

- **Master of Science: M. S.** (IIT Indore – IIM Indore Joint Program)
  Specialization in Data Science and Management
- **Master of Technology: M. Tech.**
  Specialization in Electric Vehicle Technology
- **Master of Technology: M. Tech.** (IIT Indore – RRCAT Joint Program)
  Specialization in Applied Optics and Laser Technology
- **Master of Technology: M. Tech. in Defence Technology**
  Specializations in Signals and Communication, VLSI Design

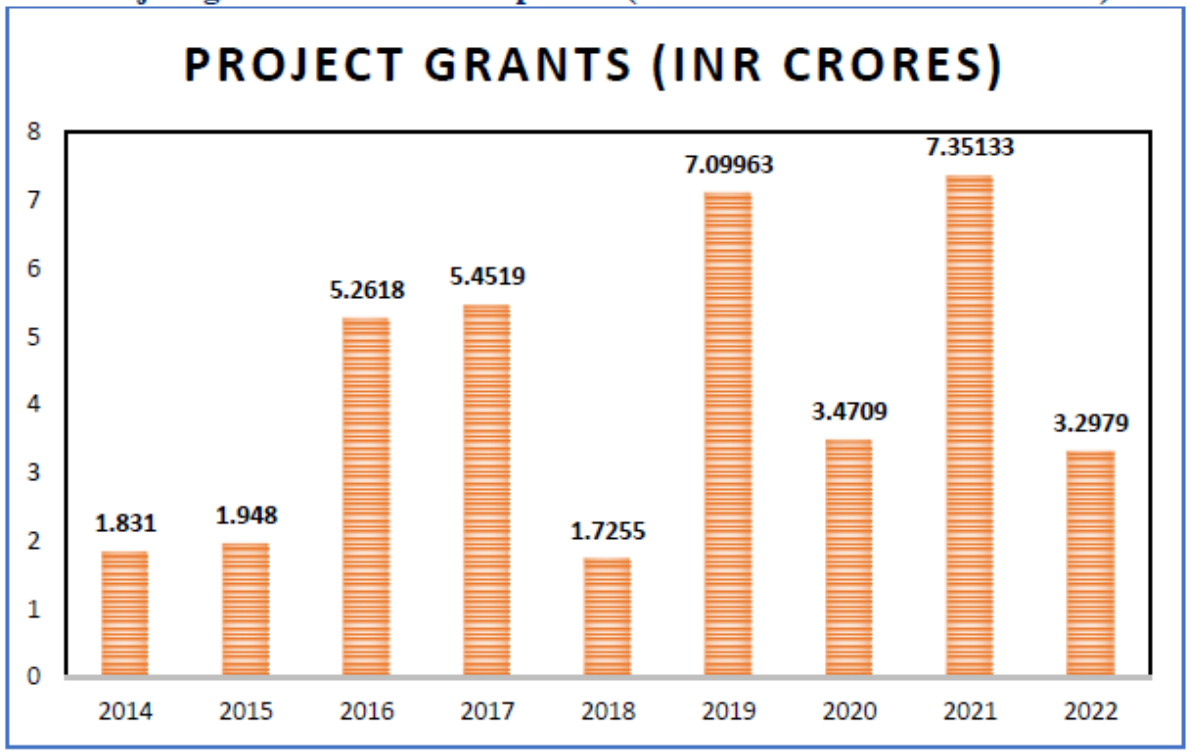
Department Statistics



Research Statistics

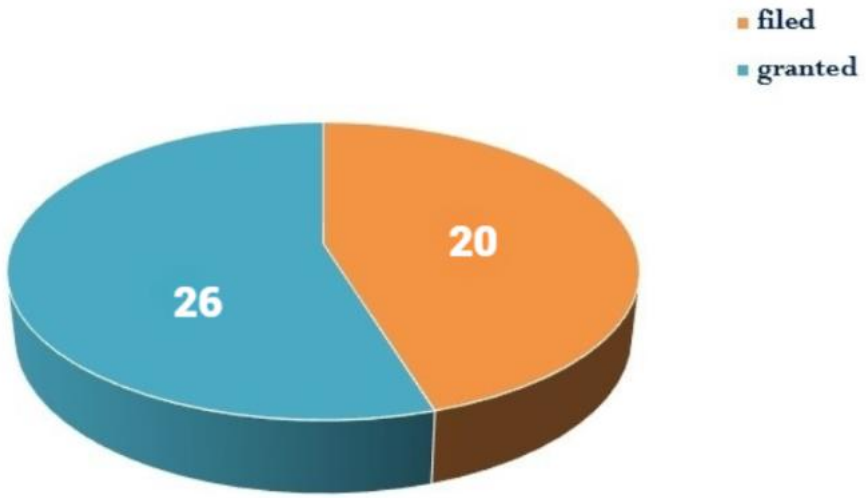


Project grants in the review period (Total amount: ₹ 37.4379 crore)

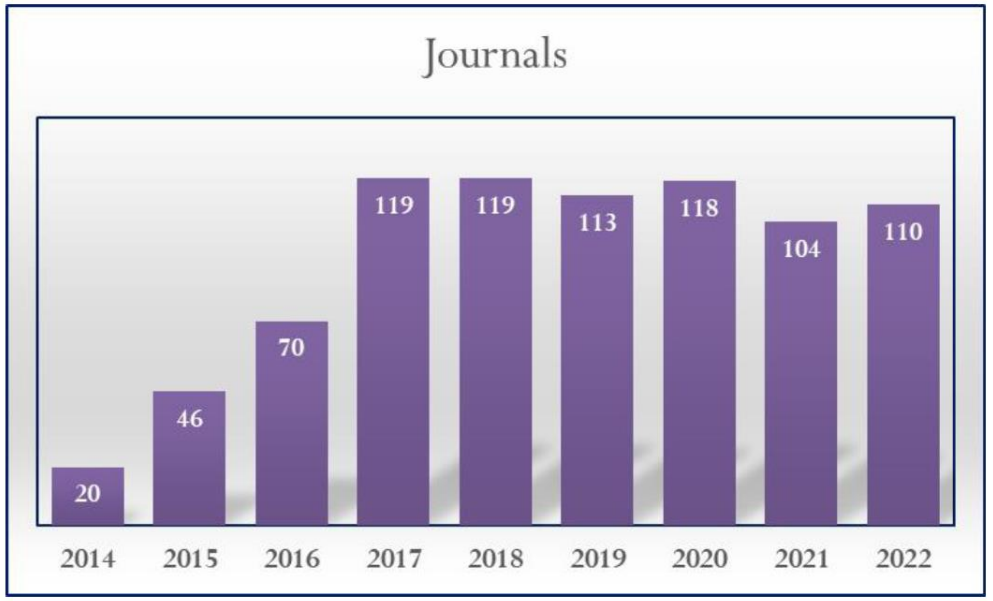


+ From Outreach grants (SPARC, GIAN): ₹ 0.89159 crore

PATENTS DATA



Total: 46 and counting…..



And a combined Google citation count of 45000+….

Number of short-term courses conducted

2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
3	2	1	3	5	7	3	7

Number of Journals published by faculty

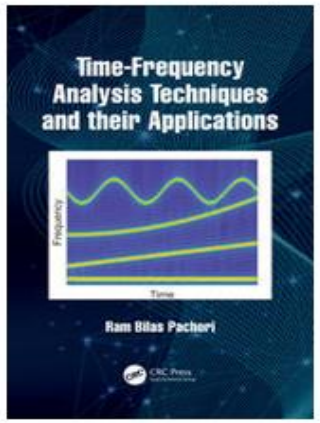
2014	2015	2016	2017	2018	2019	2020	2021	2022
20	46	70	119	119	113	118	104	110

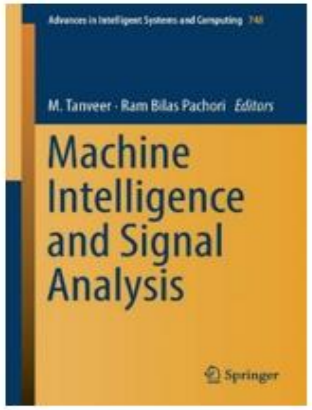
Number of conference proceedings

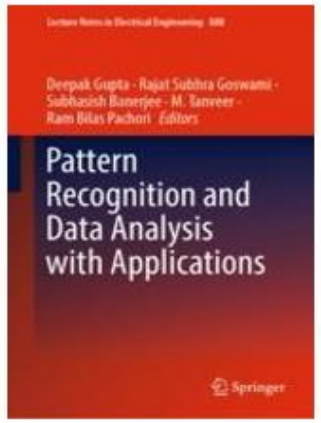
2014	2015	2016	2017	2018	2019	2020	2021	2022
39	47	62	88	81	59	54	52	57

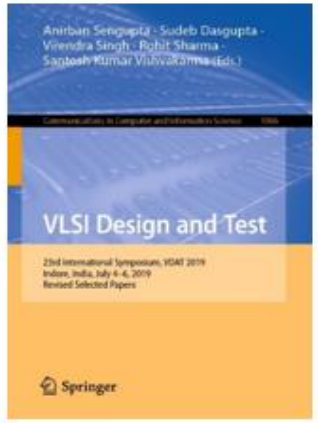
Books Chapters published

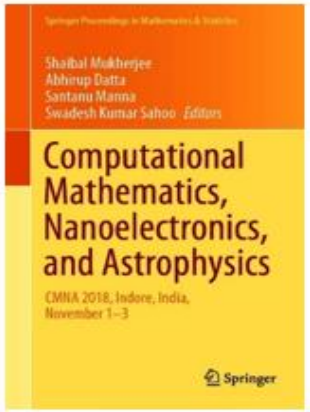
2014	2015	2016	2017	2018	2019	2020	2021	2022
1	4	1	4	10	13	10	14	4

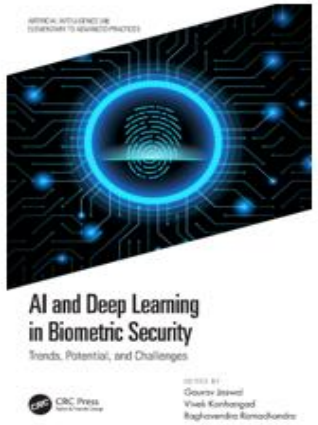


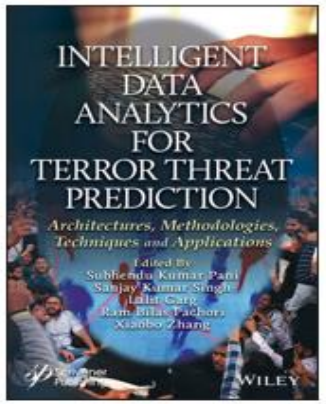


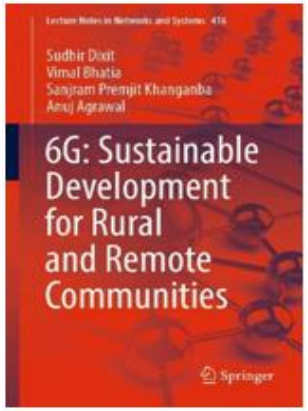


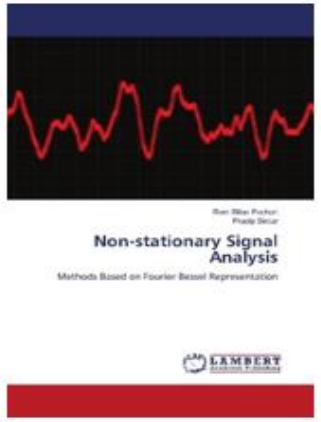


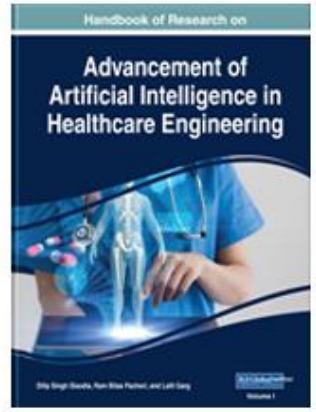












Some books authored by faculty members of EE

PG Courses – M. Tech. (CSP)

1st Year: Semester-I

Course Code	Course Title	Contact hours (L-T-P)	Credits
EE 603	Optimization Techniques	2-1-0	3
EE 641/ EE 441	Advanced Signal Processing	2-1-0	3
EE 643	Detection and Estimation Theory	2-1-0	3
EE 701	Time-Frequency Analysis	2-1-0	3
ZZ XXX	Elective-I	X-X-X	3
Total minimum credits earned during the semester			**15**
Additional course (as per the requirement basis)			
HS 641	English Communication Skills	2-0-2	PP/NP

1st Year: Semester-II

Course Code	Course Title	Contact hours (L-T-P)	Credits
EE 642	Wireless Communication	2-1-0	3
EE 644	Image Processing	2-1-0	3
EE 646 / EE 446	Information and Coding Theory	2-1-0	3
EE 740	Speech Signal Processing	2-1-0	3
ZZ XXX	Elective-II	X-X-X	3
EE 698	PG seminar course	0-2-0	2
Total minimum credits earned during the semester			**17**

PG Courses – M. Tech. (CSP)

2 nd Year: Semester-III

Course Code	Course Title	Contact hours (L-T-P)	Credits
EE 799	M. Tech. Research Project (Stage-I)	0-0-36	18

2 nd Year: Semester-IV

Course Code	Course Title	Contact hours (L-T-P)	Credits
EE 800	M. Tech. Research Project (Stage-II)	0-0-36	18
	Total minimum credits to be earned during the program		**68**

PG Courses – M. Tech. (CSP)

Electrical Engineering Courses for Elective-I @			
Course Code	**Course Title**	**Contact hours (L-T-P)**	**Credits**
EE 625	VLSI Signal Processing	2-1-0	3
EE 645	Mathematical Methods for Signal Processing	2-1-0	3
CS 617 / CS 417	Cryptography & Network Security	2-1-0	3

Electrical Engineering Courses for Elective-II @			
Course Code	**Course Title**	**Contact hours (L-T-P)**	**Credits**
EE 622 / EE 422	Digital Circuit Design	2-1-0	3
EE 628 / EE 428	Advanced Memory Technology	2-1-0	3
EE 648/ EE 448	Antennas and Propagation	2-1-0	3
EE 742	MIMO Wireless Communications	2-1-0	3
ME 644 / ME 444	Robotics	2-1-0	3
CS 601/ CS 401	Soft Computing	2-0-2	3
CS 606 / CS 406	Data Mining and Data Warehousing	2-0-2	3
CS 618 / CS 418	Systems and Usable Security	2-1-0	3

PG Courses – M. Tech. (VDN)

1st Year: Semester-I

Course Code	Course Title	Contact hours (L-T-P)	Credit
EE 621 / EE 421	MOS Devices & Modeling	2-1-0	3
EE 622 / EE 422	Digital Circuit Design	2-1-0	3
EE 635 / EE 435	VLSI Technology	2-1-0	3
EE 651	Digital Circuit Design Laboratory	0-0-4	2
EE 653	Discrete Device Fabrication and Characterization Lab	0-1-4	3
ZZ XXX	Elective-I	2-1-0	3
Total minimum credits earned during the semester			**17**
Additional course (as per the requirement basis)			
HS 641	English Communication Skills	2-0-2	PP/NP

1st Year: Semester-II

Course Code	Course Title	Contact hours (L-T-P)	Credit
EE 629 / EE 429	Nanotechnology and Nanoelectronics	2-1-0	3
EE 638/ EE 438	System on Programmable Chip Design	2-1-0	3
EE 640 / EE 440	Analog and Mixed Signal IC Design	2-1-0	3
EE 652	System on Programmable Chip Design Lab	0-0-4	2
EE 654	Analog and Mixed Signal IC design Lab	0-0-4	2
EE 698	PG Seminar course	0-2-0	2
ZZ XXX	Elective-II	2-1-0	3
Total minimum credits earned during the semester			**18**

PG Courses – M. Tech. (VDN)

2 nd Year: Semester–III

S. No.	Course code	Course Title	L-T-P	Credits
1	EE 799	M. Tech. Research Project (Stage-I)	0-0-36	18
			Total minimum credits to be earned during the semester	**18**

2 nd Year: Semester–IV

S. No.	Course code	Course Title	L-T-P	Credits
1	EE 800	M. Tech. Research Project (Stage-II)	0-0-36	18
			Total minimum credits to be earned during the semester	**18**
			Total minimum credits to be earned during the program	**71**

PG Courses – M. Tech. (VDN)

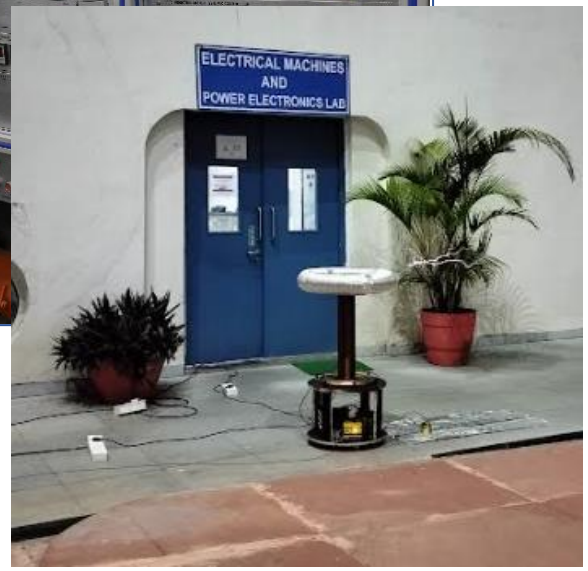
Suggested Electrical Engineering courses for Elective-I @

Course Code	Name of the course	Contact hours (L-T-P)	Credits
EE 605	Nanotechnology	2-1-0	3
EE 625	VLSI Signal Processing	2-1-0	3
EE 631/ EE 431	Organic Electronics	2-1-0	3
EE 641 EE 441	Advanced Signal Processing	2-1-0	3
EE 648/ EE 448	Antennas and Propagation	2-1-0	3
EE 701	Time Frequency Analysis	2-1-0	3
EE 721	Embedded Systems and Computing	2-1-0	3
EE 725	RF-IC Design	2-1-0	3
EE 726	Testing and Verification of VLSI Circuits	2-1-0	3

Suggested Electrical Engineering courses for Elective-II @

Course Code	Name of the course	Contact hours (L-T-P)	Credits
EE 610 / EE 410	Power Electronics Application to Power Transmission	2-1-0	3
EE 624	Interface Effects in Electronic Devices	2-1-0	3
EE 626 / EE 426	MOSFET Reliability Issues	2-1-0	3
EE 628 / EE 428	Advanced Memory Technology	2-1-0	3
EE 634 / EE 434	Semiconductor Based Sensors	2-1-0	3
EE 722	IC Design for IoT System	2-1-0	3
EE 724 / EE 424	Advanced Micro-processes and Nanotechnology	2-1-0	3
EE 728	Architectural Design of ICs	2-1-0	3

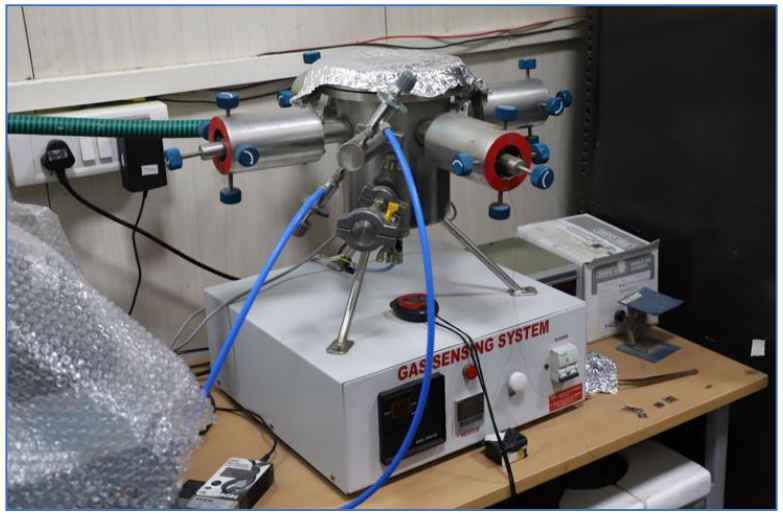
UG Labs: 8 Labs



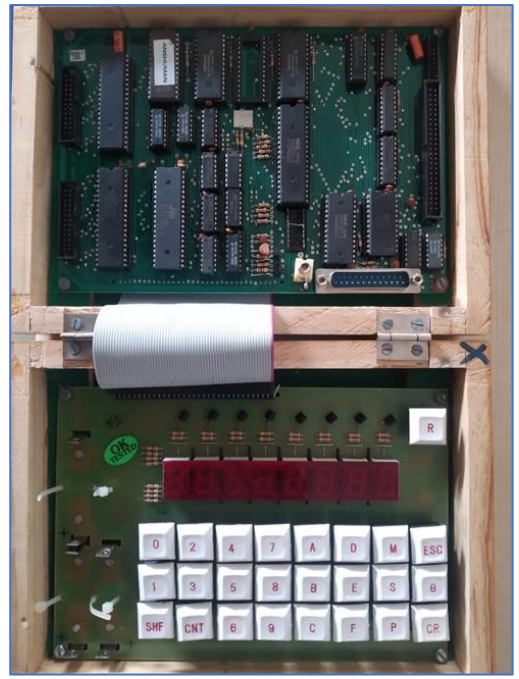
- Electrical Networks Lab
- Electronic Devices Lab
- Analog Circuits Lab
- Electrical Machines and Power Electronics (EMPEL) Lab
- Digital Systems Lab
- Microprocessor and Digital System Design Lab
- Control Systems Lab
- Communications Lab

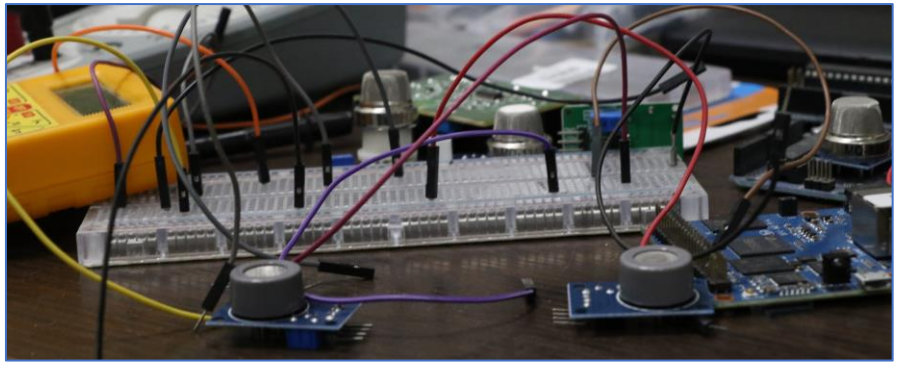
UG Labs

PG Labs: 4 teaching labs



- Digital Circuit Design Laboratory
- Discrete Device Fabrication and Characterization Laboratory
- System on Programmable Chip Design Laboratory
- Analog and Mixed Signal IC design Laboratory



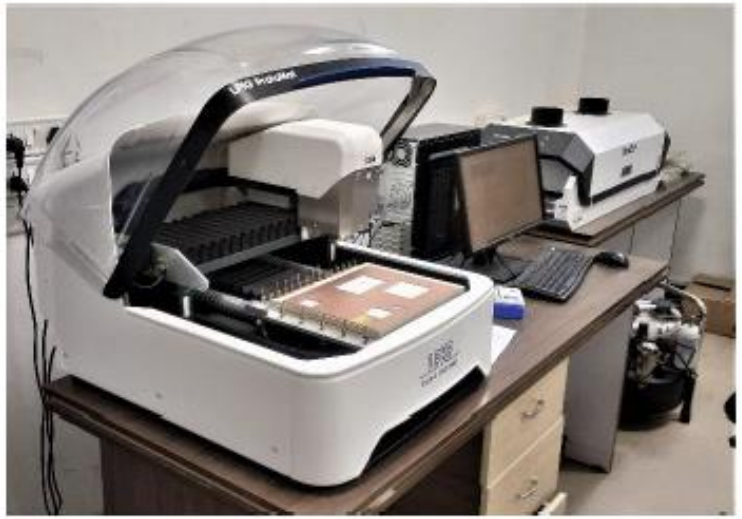


Research Labs

Sl. No.	Lab Name	Faculty In Charge
1.	Low Power Nanoelectronics Research Laboratory	Prof. Abhinav Kranti
2.	Applied Electromagnetic Laboratory (AEL)	Dr. Saptarshi Ghosh
3.	Wireless Communications Research Lab (WiCom)	Prof. Prabhat Kumar Upadhyay
4.	Nanoscale Devices, VLSI Circuit, and System Design Lab	Prof. Santosh Kumar Vishvakarma
5.	Future Generation Communication Systems Lab	Dr. Swaminathan R
6.	Pattern Recognition and Image Analysis Research Lab	Prof. Vivek Kanhangad
7.	Smart Grid Research Laboratory	Prof. Trapti Jain Prof. Amod C Umarikar
8.	Bio-Photonics Laboratory	Prof. Srivathsan Vasudevan
9.	Optoelectronic Nanodevice Research Laboratory	Prof. Mukesh Kumar
10.	Signal Analysis Research Lab (SARAL)	Prof. Ram Bilas Pachori
11.	Hybrid Nanodevice Research Lab	Prof. Shaibal Mukherjee
12.	Wi-STAR : Wireless Communications and Energy Harvesting Solutions Division	Dr. Sumit Gautam
13.	Signals and Software Group (SaSg)	Prof. Vimal Bhatia
14.	Molecular & Nanoelectronics Research Group (MNRG)	Prof. Vipul Singh
15.	Multimedia Engineering and Perceptual Cognitive Analysis Group (MEPCAG)	Dr. Appina Balasubramanyam

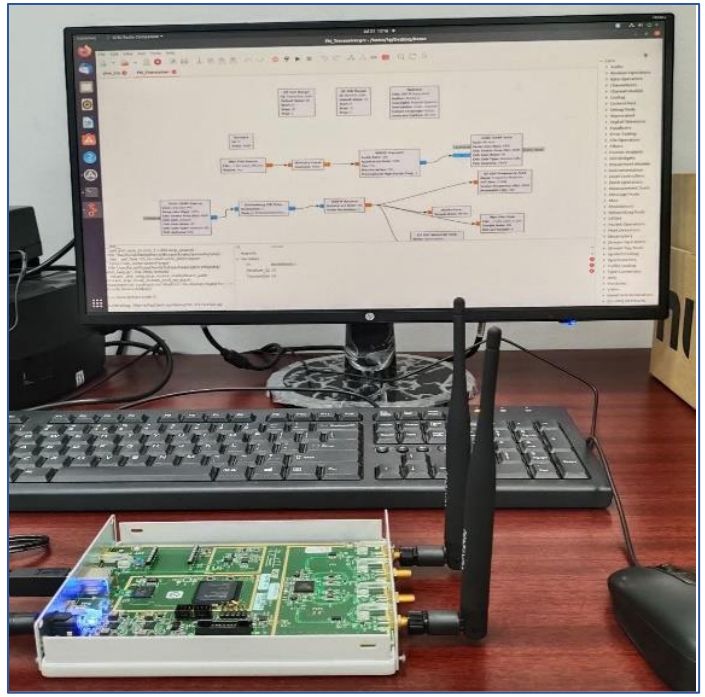
A Glimpse…

Glimpse of Laboratory and Computing Resources



LPKF Protomat S104 RF

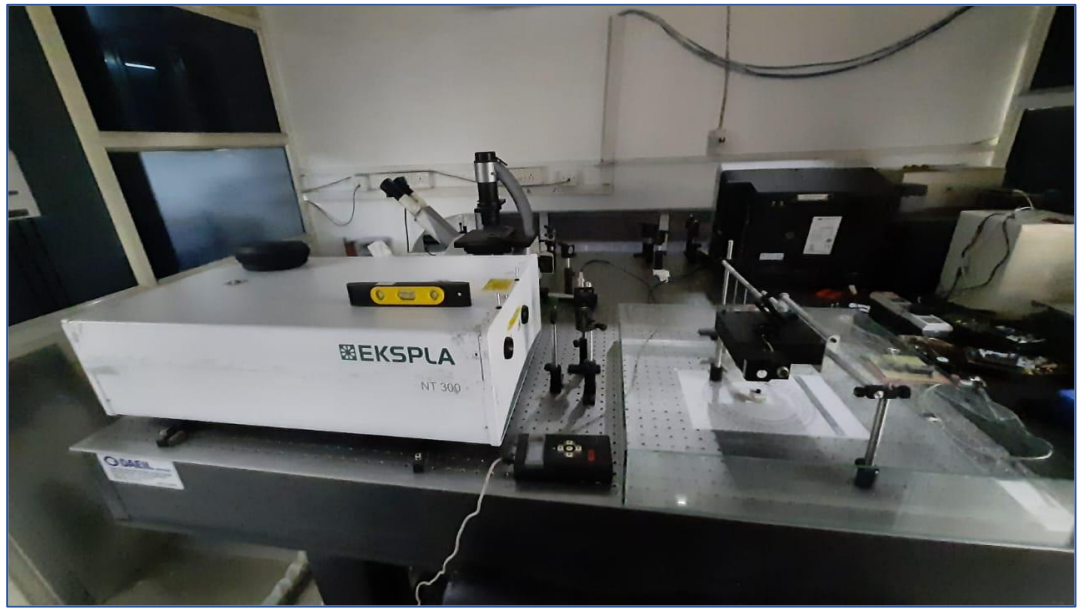
Neoden 3V SMT Pick and Place Machine



Neoden Hot Air Reflow Oven IN6

Anritsu VNA S820E-0740

RTDS
Technologies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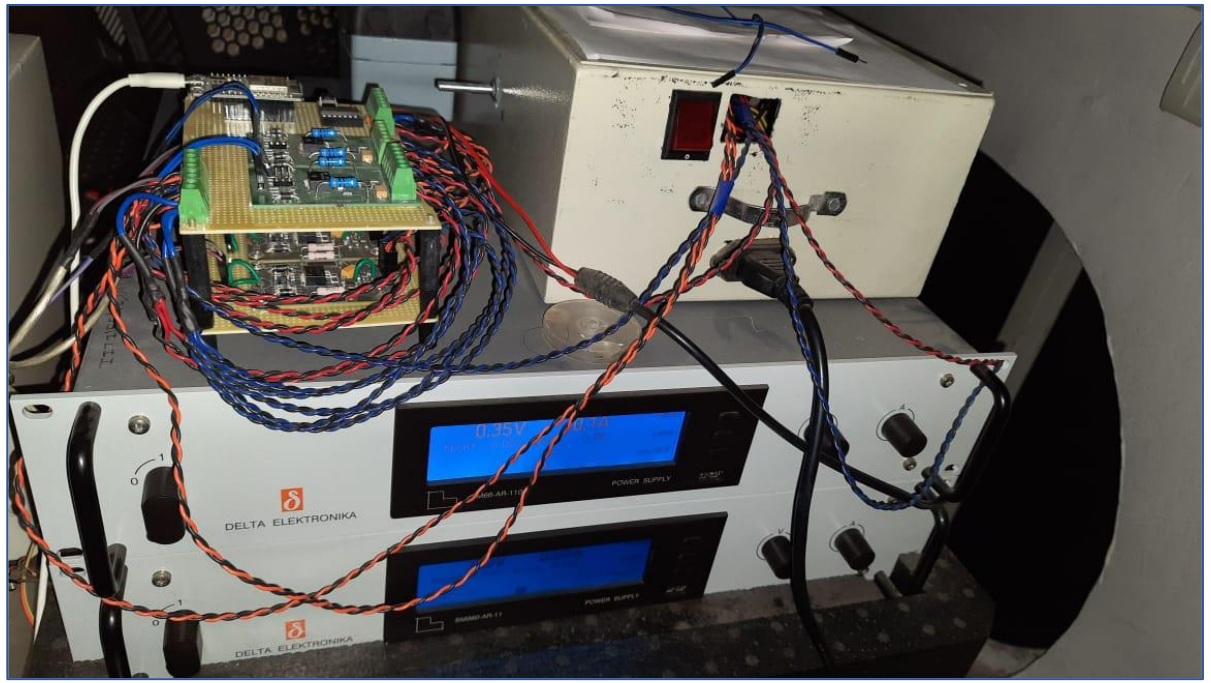
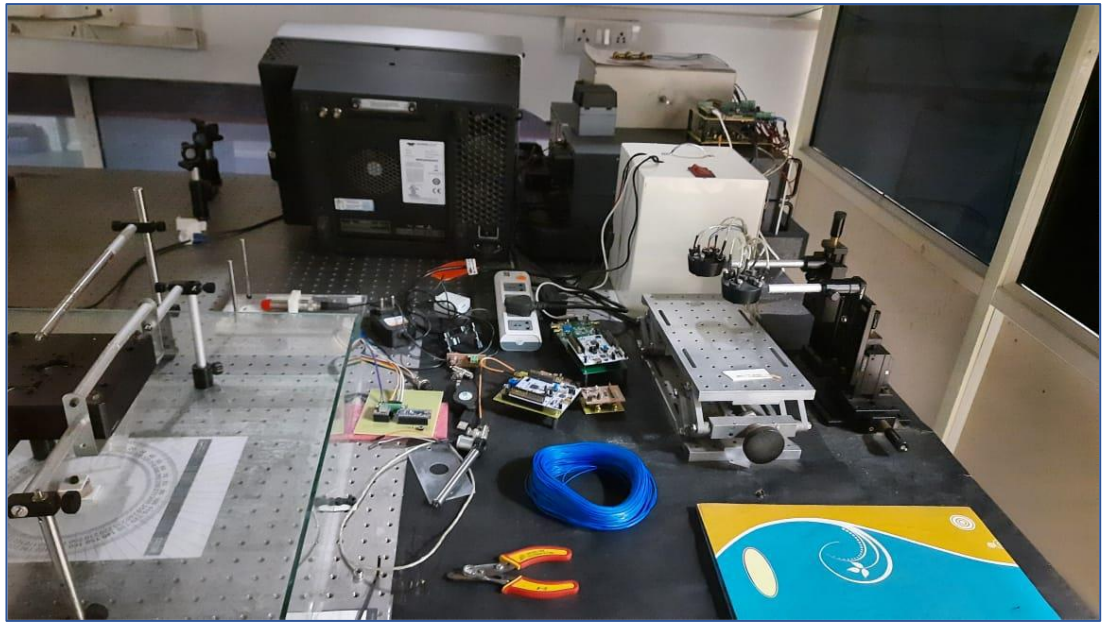
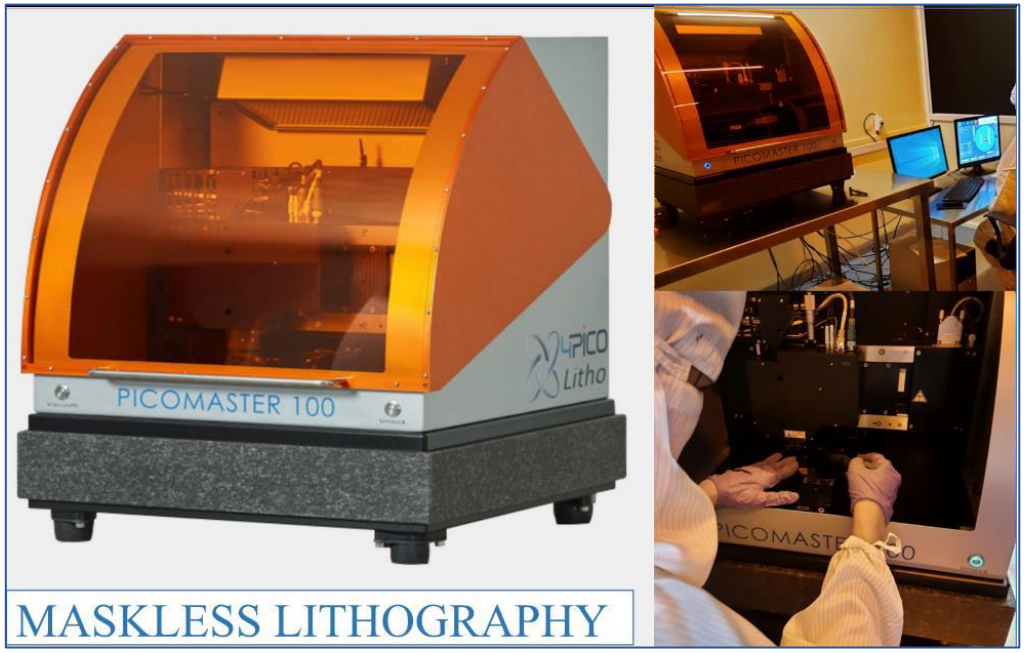
NT 300


DELTA ELEKTRONIKA
DELTA ELEKTRONIKA

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ANODIZATION SYSTEM

RF/DC SPUTTERING

Location of Labs

The UG Labs

Sl No	Lab	Location
1.	Basic Electrical and Electronics Lab	Pod 1B Ground floor
2.	Electrical Machines and Power Electronics Laboratory	Pod 1B Ground floor
3.	Control Systems Laboratory	Pod 1E third floor 1E-405
4.	Digital Systems Lab	
5.	Communications Laboratory	Pod 1E third floor 1E-407
6.	Microprocessors and Digital Systems Design lab	
7.	Analog Circuits Laboratory	Pod 1E third floor 1E-409
8.	Electronics Devices Laboratory	

The PG Labs

Sl No	Lab	Location
1	Digital Circuit Design Laboratory	1E 407
2	System on Programmable Chip Design Lab	1E 407
3	Analog and Mixed Signal IC design Lab	1E 407
4	Discrete Device Fabrication and Characterization Lab	Research Labs

Research Labs

Sl No	Lab	Professor In-charge	Location
1.	Hybrid Nanodevice Research Lab	Prof. Shaibal Mukherjee	Sophisticated Instrumentation Centre
2.	Nanoscale Devices, VLSI Circuit, and System Design Lab	Prof. Santosh Kumar Vishvakarma	Pod 1A Ground floor
3.	Molecular & Nanoelectronics Research Group (MNRG)	Prof. Vipul Singh	Pod 1A Third/ ground floor
4.	Bio-Photonics Laboratory	Prof. Srivathsan Vasudevan	Pod 1B Ground floor
5.	Signals and Software Group (SaSg)	Prof. Vimal Bhatia	Pod 1A Second floor
6.	Signal Analysis Research Lab	Prof. Ram Bilas Pachori	Pod 1A / First floor
7.	Pattern Recognition and Image Analysis Research Lab	Prof. Vivek Kanhangad	Pod 1A Second floor
8.	Smart Grid Research Laboratory	Prof. Amod C Umarikar, Prof. Trapti Jain	Pod 1A Second floor
9.	Optoelectronic Nanodevice Research Laboratory	Prof. Mukesh Kumar	Pod 1A Second floor
10.	Applied Electromagnetic Laboratory (AEL)	Dr. Saptarshi Ghosh	Pod 1D 207
11.	Future Generation Communication Systems Lab	Dr. Swaminathan R	Pod 1A Sixth floor

Faculty awards

- ASEM DUO-Belgium/Wallonia-Brussels mobility fellowship-2022
- INAE Young Engineer Award-2022
- IETE-IRSI (83) Young Scientist Award-2022
- Japan Society for the Promotion of Science (JSPS)
- Materials Research Society of India (MRSI) Medal-2018
- IETE Technomedia Award 2018 for Young Women in Engineering
- IETE-Prof SVC Aiya Memorial Award by IETE-2018, 2021.
- World's Top 2% Scientists and many more……

Faculty Profiles

Vivek Kanhangad, Ph.D.

Professor

http://people.iiti.ac.in/~kvivek
kvivek@iiti.ac.in

Head (EE)

hodee@iiti.ac.in

Professor in Charge – Center for Advanced Electronics (CAE)

Research Areas

- Machine learning in biometrics and medical diagnostics
- Computer vision, Image and signal analysis

Abhinav Kranti, Ph.D.

Professor

http://people.iiti.ac.in/~akranti/

abhinav@iiti.ac.in

Program Coordinator: M. Tech – VLSI Design & Nanoelectronics (VDN)

pc-vdn@iiti.ac.in

Research Areas

- Solid-State Devices, Circuit Design and Nanotechnology
- Low power circuit design with nanoscale devices
- Design and analysis of GaN and ZnO based HEMTs

Amod Umarikar, Ph.D.

Professor

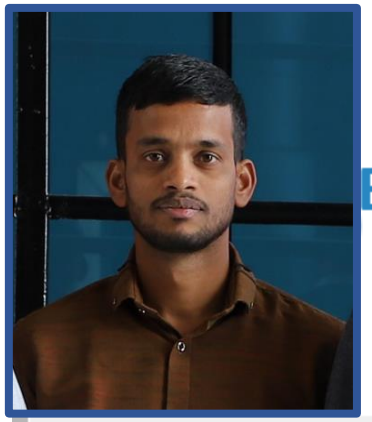
http://people.iiti.ac.in/~umarikar/

umarikar@iiti.ac.in

Associate Dean Faculty Affairs,
Professor in Charge – Center for Electric Vehicle and Intelligent Transport Systems (CEVITS)

Research Areas

- High step-up DC-DC converters
- Integration of Renewable Energy sources to Grid
- Power Quality analysis and monitoring



Appina Balasubramanyam, Ph.D.

Assistant Professor

https://sites.google.com/view/drbalasubramanyamappina/

appina@iiti.ac.in

Research Areas

- Image and video processing
- Multimedia quality assessment
- Display technology

Mukesh Kumar, Ph.D.

Professor

http://people.iiti.ac.in/~mukesh.kr/

mukesh.kr@iiti.ac.in

Research Areas

- Integrated Optoelectronics, Nanophotonics, Semiconductor Optoelectronics
- Nano-scale photonic devices, Optical Interconnects
- Micro/Nano Fabrication Technologies

Vimal Bhatia, Ph.D.

Professor

https://sites.google.com/view/signalsoftware/sas

vbhatia@iiti.ac.in

Research Areas

- Wireless Communications for B5G/6G
- Quantum and Optical Communications
- Artificial Intelligence and Machine Learning
- Signal and Image Processing
- Internet of Things (IoT)

Vipul Singh, Ph.D.

Professor

http://people.iiti.ac.in/~vipul/

vipul@iiti.ac.in

Dean of Academic Affairs *doaa@iiti.ac.in*

Research Areas

- MOSFET based sensors, Low power information processing circuits and RF-SET
- Silicon nanodevices, Single electron devices, Bulk and SOI MOSFETs, Low frequency noise in MOSFETs
- Organic electronic/photonic devices and their applications, Photo luminescence spectroscopy, novel sensors based on organic electronic devices

Prabhat Kumar Upadhyay, Ph.D.

Professor

http://people.iiti.ac.in/~pkupadhyay/
pkupadhyay@iiti.ac.in

Research Areas

- Wireless and Mobile Communications
- Cooperative Relaying Systems
- Cognitive Radio Techniques
- Energy Harvesting and Green ICT
- Molecular Communications

Ram Bilas Pachori, Ph.D.

Professor

http://people.iiti.ac.in/~pachori/
pachori@iiti.ac.in

Research Areas

- Signal and Image Processing
- Biomedical Signal Processing
- Non-stationary Signal Processing
- Speech Signal Processing
- Brain-Computer Interfacing
- Machine Learning
- Artificial Intelligence (AI) and Internet of
- Things (IoT) in Healthcare

Santosh Kumar Vishvakarma, Ph.D.

Professor

https://sites.google.com/site/svishvakarma/

skvishvakarma@iiti.ac.in

Research Areas

- SRAM Design and Architecture
- Reliable, Secure and Energy-Efficient Circuit Design
- Digital ASIC/SoC Design
- In-Memory Computing
- SoC/FPGA based CNN Hardware Accelerators
- NAND Flash Memory Device
- Advanced MOS Devices

Saptarshi Ghosh, Ph.D.

Assistant Professor

http://people.iiti.ac.in/~sghosh/

sghosh@iiti.ac.in

Department PG Committee (DPGC) Convenor *dpgcee@iiti.ac.in*

Research Areas

- Electromagnetics
- Frequency selective surfaces
- Metamaterials
- Microwave absorbers, antennas

Shaibal Mukherjee, Ph.D.

Professor

http://people.iiti.ac.in/~shaibal/
shaibal@iiti.ac.in

Research Areas

- Opto-electronics, organic electronics
- Nano-scale sensors, memory devices and Nanophotonics

Srivathsan Vasudevan, Ph.D.

Professor

http://people.iiti.ac.in/~svasudevan/
svasudevan@iiti.ac.in

Dean of Student Affairs *dosa@iiti.ac.in*

Research Areas

- Photothermal response and photothermal imaging
- Photoacoustic microscopy for biomedical applications and Biophotonics

Sumit Gautam, Ph.D.

Assistant Professor

https://sites.google.com/site/sumitgautamjbp/

sumit.gautam@iiti.ac.in

Program Coordinator: M. Tech – Communications & Signal Processing (CSP)

pc-csp@iiti.ac.in

Research Areas

- Simultaneous Wireless Information and Power Transmission (SWIPT) systems
- Precoding for Wireless Multigroup Multicasting systems
- Wireless Edge-Caching networks
- Intelligent Reflecting Surface (IRS) assisted Wireless Communications
- Cooperative Relaying and/or Backscattering systems

Swaminathan R., Ph.D.

Associate Professor

https://swamiramabadran.wixsite.com/website

swamiramabadran@iiti.ac.in

Head Center for Entrepreneurship Education and Development (CEED)

Research Areas

- Cooperative Relay Systems
- MIMO Wireless Communication
- Hybrid FSO/RF Communication
- Blind Code Parameter Estimation

Trapti Jain, Ph.D.

Professor

http://people.iiti.ac.in/~traptij/

traptij@iiti.ac.in

Associate Dean Research & Development

Program Coordinator: M.S Research *pc-msee@iiti.ac.in*

Research Areas

- Power system security analysis
- Artificial Intelligence Applications to Power Systems and Power Quality
- Electric Vehicles & Smart grid

Vijay A. S., Ph.D.

Assistant Professor

vijay_as@iiti.ac.in

Department UG Committee (DUGC) Convenor *dugcee@iiti.ac.in*

Research Areas

- Microgrids and Distributed generation
- Design and Control of AC, DC and Hybrid Microgrids
- Power electronic Emulation, Real-time simulations
- Power Quality, Power electronic converter control

Rinkee Chopra, Ph.D.

Asistant Professor

https://scholar.google.com/citations?user=J0gqnKAAAAAJ&hl=en

rinkee@iiti.ac.in

Research Areas

- Filtering Antenna and Arrays, High gain and broadband 5G antennas and arrays
- Millimeter wave circuits and antennas, Multiband, broadband, Endfire and circularly polarized antennas
- RF transceiver components- filters, couplers, oscillator etc.

Subhadeep Paladhi, Ph.D.

Assistant Professor

https://sites.google.com/view/subhadeep-paladhi

spaladhi@iiti.ac.in

Research Areas

- Power system protection in the presence of renewable energy sources
- Wide area monitoring of converter-dominated power systems
- Resilience-oriented power system monitoring, protection, and control

Dibbendu Roy, Ph.D.

Assistant Professor

https://dibbend8.github.io/dibbendu/

droy@iiti.ac.in

Research Areas

- 6G Communication Networks, Network Calculus
- Extended Reality and AI, Queuing and Game Theory
- Causal Inference
- Distributed Optimization

Sharad Kumar Singh, Ph.D.

Asistant Professor

https://sites.google.com/iiti.ac.in/sharad-kumar-singh/

sharad@iiti.ac.in

Research Areas

- Game Theory, Control & Robotics
- Optimization Techniques & Operations Research
- Multi-agent Systems

Lokesh Kumar Dewangan, Ph.D.

Assistant Professor

https://sites.google.com/view/lokeshdewangan

lokesh@iiti.ac.in

Research Areas

- Converter interaction analysis,
- Dynamics and control of hybrid AC/DC systems
- Overlay of the HVDC grid
- MMC interconnection to unbalanced and weak systems, Robust controller design for MMC

B. Prathap Reddy, Ph.D.

Assistant Professor

https://sites.google.com/iiti.ac.in/bprathap

bprathap@iiti.ac.in

Research Areas

- Design of Magnet-less Machines,
- Multiphase Machines,
- Pole Phase Modulated Drives ,
- Electric Vehicles & Charging Solutions

Contacts: Faculty Team

Sl No	Faculty Name	Office room no.	Lab room no.	Extn number	Email ID
1	Prof. Amod C. Umarikar	317 Pod 1A	101 Pod 1B	3268	amodu@iiti.ac.in
2	Prof. Ram Bilas Pachori	316 Pod 1A	321,322, 205 Pod 1A	3273	pachori@iiti.ac.in
3	Prof. Santosh Kumar Vishvakarma	320 Pod 1A	101 Pod 1A	3275	skvishvakarma@iiti.ac.in
4	Prof. Shaibal Mukherjee	304 Pod 1A	303 Pod 1A	3262	shaibal@iiti.ac.in
5	Prof. Vipul Singh	204 Pod 1A	401,403, 101 Pod 1A	3274	vipul@iiti.ac.in
6	Prof. Abhinav Kranti	314 Pod 1A	WORKSHOP	3264	akranti@iiti.ac.in
7	Prof. Srivathsan Vasudevan	318 Pod 1A	101 Pod 1B	3269	svasudevan@iiti.ac.in
8	Prof. Prabhat Kumar Upadhyay	312 Pod 1A	207 Pod 1A	3271	pkupadhyay@iiti.ac.in
9	Prof. Trapti Jain	308 Pod 1A	302 Pod 1A	3267	traptij@iiti.ac.in
10	Prof. Vivek Kanhangad	306 Pod 1A	301 Pod 1A	3270	kvivek@iiti.ac.in
11	Prof. Vimal Bhatia	311 Pod 1A	419,315,208 Pod 1A	3272	vbhatia@iiti.ac.in
12	Prof. Mukesh Kumar	309 Pod 1A	305 Pod 1A	3276	mukesh.kr@iiti.ac.in
13	Dr. Saptarshi Ghosh	721 Pod 1A	202 Pod 1D	3346	sghosh@iiti.ac.in
14	Dr. Swaminathan R.	720 Pod 1A	720 Pod 1A	3292	swamiramabadran@iiti.ac.in
15	Dr. Sumit Gautam	719 Pod 1A	719 Pod 1A	3189	sumit.gautam@iiti.ac.in
16	Dr. Vijay A. S.	310 Pod 1A		3484	vijay_as@iiti.ac.in
17	Dr. Appina Balasubramanyam	313 Pod 1A	719 Pod 1A	3173	appina@iiti.ac.in
18	Dr. Subhadeep Paladhi	307 Pod 1A		3307	spaladhi@iiti.ac.in
19	Dr. Rinkee Chopra	205 (B) CITC			rinkee@iiti.ac.in
20	Dr. Dibbendu Roy	LRC - 508	-	-	droy@iiti.ac.in
21	Dr. Sharad Kumar Singh	LRC -	-	-	sharad@iiti.ac.in
22	Dr. Lokesh Kumar Dewangan	LRC -	-	-	lokesh@iiti.ac.in
23	Dr. B Prathap Reddy	LRC -	-	-	bprathap@iiti.ac.in

Contacts: Staff Team

Sl No	Staff Name	Extn number	Email ID
1	Mr. Raghvendra Hanswal	3599	raghvendra@iiti.ac.in
2	Mr. Ravindra Chauhan	5132	cravindra@iiti.ac.in
3	Mr. Ramkumar	3441	ramkiiti@iiti.ac.in
4	Ms. Sakshi Jain	3463	sakshij@iiti.ac.in
5	Mr. Prateek Rode		prateek.rode@iiti.ac.in
6	Mr. Raju Singh Dawer		rajudawer@iiti.ac.in
7	Mr. Shubam Verma	3463	shubhamv@iiti.ac.in
	EE Office	3463	eeoffice@iiti.ac.in

Emergency Contact Numbers

IIT Indore

Emergency Control room 0731 660 3117 **Mobile :** 9589518290

Quick Response Team (QRT) - 9589518299

Security Control room 0731 660 3470 **Mobile :** 9589518299

Security Supervisor 6265224771

Institute Clinic 0731 660 3187 and 3571

YOUR SAFETY AND SECURITY IS OUR CONCERN

City Emergency call

Security Help Desk: securityhelpdesk@iiti.ac.in

Chief Security Officer (CSO): cso@iiti.ac.in

Department of Electrical Engineering ***IIT INDORE***

Department of Electrical Engineering
IIT INDORE

Grievance Addressal (Academic Matters)

Dean Academic Affairs

doaa@iiti.ac.in

Dean Student Affairs

dosa@iiti.ac.in

Head of EE Department (HoD)

hodee@iiti.ac.in

Department UG Committee (DUGC) Convenor

dugcee@iiti.ac.in

Department PG Committee (DPGC) Convenor

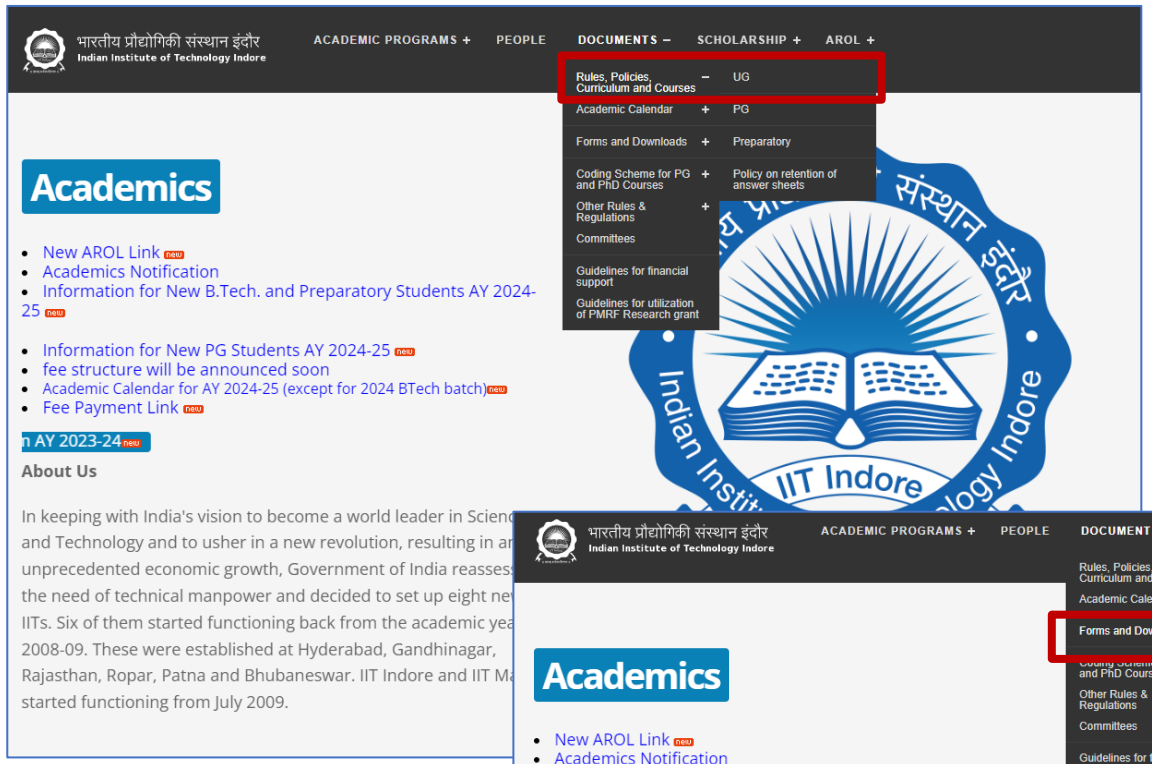
dpgcee@iiti.ac.in

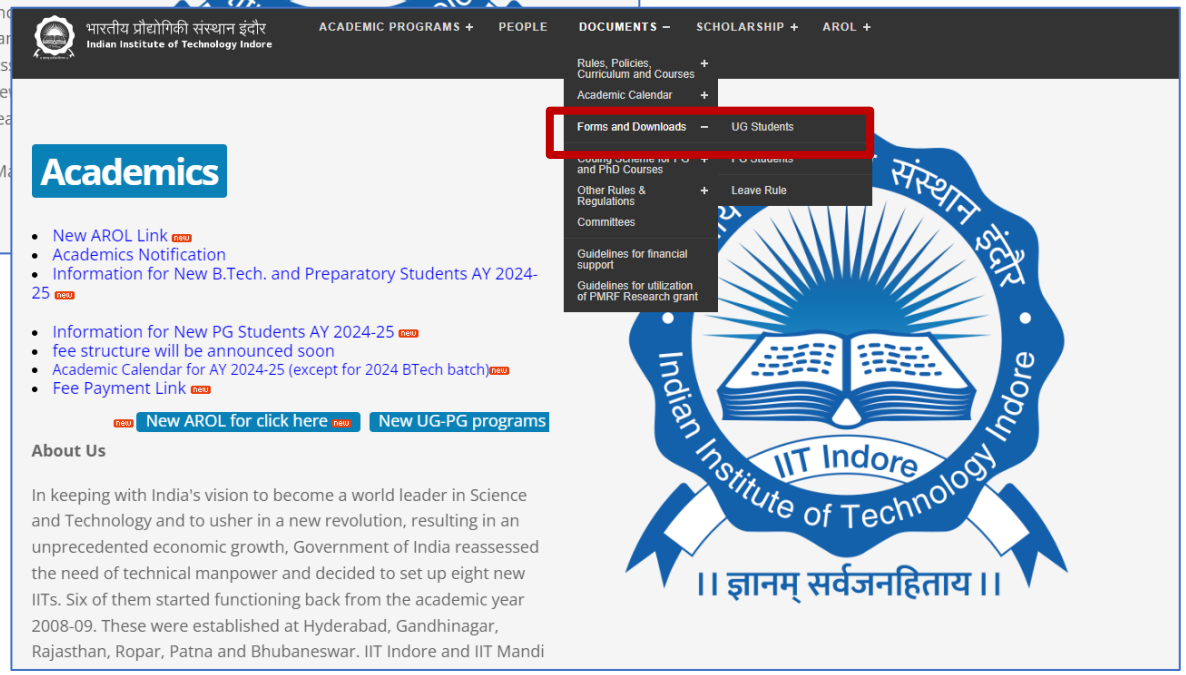
Faculty Advisor / Project supervisor

UG Students

PG Students

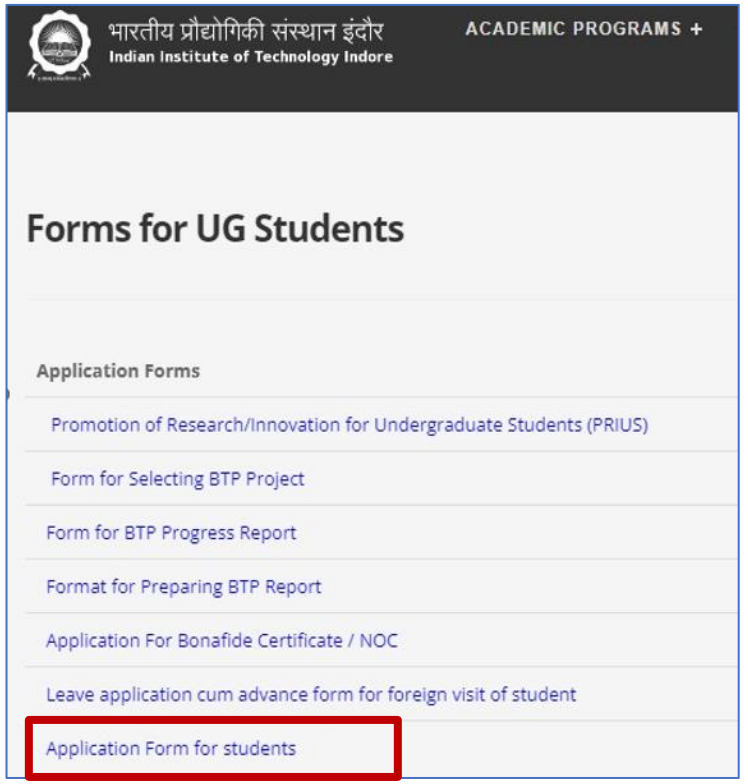
Forms pertaining to Academic Matters





https://academic.iiti.ac.in/

1. Documents >
Rules, Policies, Curriculum, Courses > UG/ PG: For course info
2. Documents >
Forms and Documents > UG Students: For forms
> PG Students: For forms



Forms pertaining to Academic Matters

Indian Institute of Technology Indore
Application Form for Students

Name:..... **Roll Number**.....
Academic Program:.....**Category of Admission(For PG/PhD)**.....
Department/Specialization.....**Contact No**.....

To

AOAA/ Associate Dean of Academic Affairs/ Dean of Academic Affairs
Indian Institute of Technology Indore
Khandwa Road, Simrol
Indore – 453552, India

Through Proper Channel **Date:**

Subject: .....

Respected Sir,

.....
.....
.....
.....
.....
.....
.....
.....

Number of relevant supporting documents attached:

Signature of the student with date

Remarks of the thesis supervisor(s) (For PG and PhD)/ Faculty Advisor /Course Coordinator (for selection/adjustment of elective course) / BTP Supervisor (For BTP and related internship) (For UG):

Name & Signature with date

Remarks of the Convener, DPGC (For PG and PhD)/ DUGC (For UG):

Name & Signature with date

Remarks of the Head:

Name & Signature with date

For use by Academic Office

Remarks of DR/ AO, Academic Affairs:

Fill up all the required details

1. **Faculty Advisor** → **Submit @ EE Department Office**

   BTP supervisor (from 4th year)

Pod 1B 101 (B) Ground floor

2. **DUGC Convener**

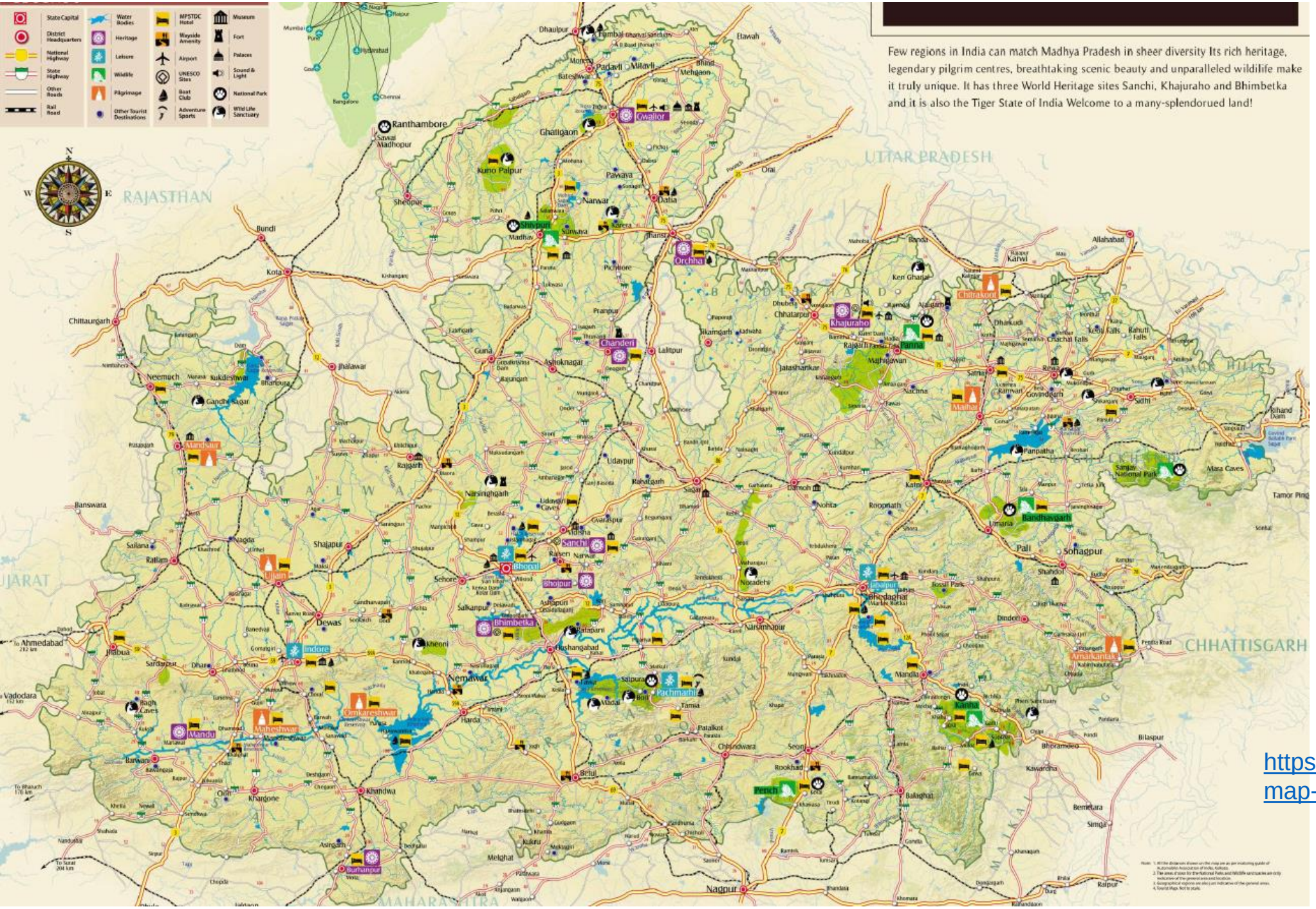
3. **Head of Department** → **4. Acad Office**

Electrical Engineering Students Association (EESA)

EESA
IIT INDORE

Visit our department website (new version) for more info….
https://eefront.profiles.iiti.ac.in/#/

भारतीय प्रौद्योगिकी संस्थान इंदौर
INDIAN INSTITUTE OF TECHNOLOGY INDORE



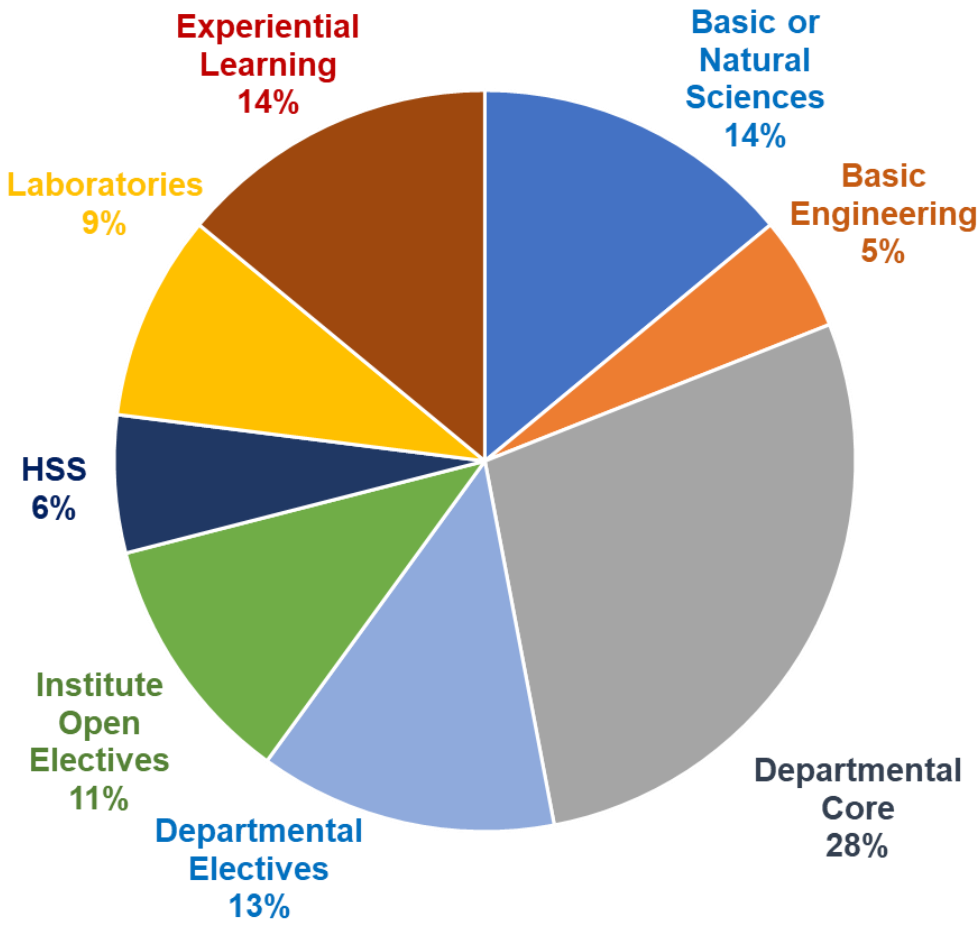
https://www.mptourism.co/tourist-map-of-madhya-pradesh/

UG Courses

Tentative Program Structrue in EE Department

		Basic Sciences (BS)				Basic Engineering (BE)			Basic Engineering modules (Flexible), Any two from the below			Labs (BS+BE)		Hands on	HSS			Department			Institute open elective	Number of credits	Credit bank	
		M	P	C	B	ME	EE	CS	Electronics	Thermo	Materials	Sci	CS	MS	English	Economics	Flexible	DC	DE	DL			Students can accumulate credits into the credit bank by doing small 1 or 2 credit institute open elective courses offered by sciences, engineering, humanities, and centers.	
1st year	1st Sem	1(4)	1(3)	1(3)		1(2)	1(2)					1(1)+1(1)			1(2)		1(1)					19		
	2nd Sem	1(3)			1(3)			1(2)	1(1)	1(1)	1(1)		1(1.5)	1(4)		1(2)	1(1)					18.5		
2nd year	3rd Sem	1(4)																4 (12)	1 (3)	3 (3)	0	22		
	4th Sem	1(3)																3 (9)	1 (3)	2 (3)	1 (3)	21	Immersion program	1(1)
3rd year	5th Sem																ENV 1(3)	4 (12)	1 (3)	1 (1)	1 (3)	22	Internship - 1	1(1)
	6th Sem																	4 (12)	2 (6)	2 (2)	1 (3)	23	Internship - 2	1(1)
4th year	7th Sem	BTP (16) + Internship-1 (1) + Internship-2 (1)																				18	Enterprenuership	1(2)
	8th Sem																	0	2 (6)		3 (9)	15	Desing thinking	1 (2)
	Number courses	4	1	1	1	1	1	1	1	0	1	1	1	1	1	1	3	15	7	8	6			
	Credits	14	3	3	3	2	2	2	1	0	1	2	1.5	4	2	2	5	45	21	9	18	158.5		
		8.83%	1.89%	1.89%	1.89%							1.26%						28.39%	13.25%	5.68%	11.36%			
		15.77%																						

Total: 159 credits



UG Courses

SEMESTER III

Course Code	Course Title	Weekly contact hours (L-T-P)	Credits
ZZ 2XX	Course-I for Minor Program	X – X - X	3
MA 205	Complex Analysis	3 - 1- 0 (Half Semester)	2
MA 207	Differential Equations - II	3 - 1- 0 (Half Semester)	2
EE 201	Network Theory	2 - 1- 0	3
EE 203	Electronic Devices	2 – 1 - 0	3
EE 207	Electric Machines	2 – 1 - 0	3
EE 209	Digital Systems	2 – 1 - 0	3
EE 253N	Electronic Devices Lab	0 – 0 - 2	1
EE 259	Digital Systems Lab	0 – 0 - 2	1
EE 251	Electrical Networks Lab	0 – 0 - 2	1
EE 2XX	Department Elective – I	X – X - X	3
	TOTAL		22/25

SEMESTER IV

Course Code	Course Title	Weekly contact hours (L-T-P)	Credits
ZZ 2XX	Course-II for Minor Program	X – X - X	3
MA 204N	Numerical Methods	2 – 0 - 2	3
EE 202N	Signals and Systems	2 – 1 - 0	3
EE 204	Analog Circuits	2 – 1 - 0	3
EE 212	Power Electronics	2 – 1 - 0	3
EE 254	Analog Circuits Lab	0 – 0 - 3	1.5
EE 252	Electric Machines and Power Electronics Lab	0 – 0 - 3	1.5
EE 2XX	Department Elective – II	X – X - X	3
ZZ 2XX	Institute Open Elective – I	X – X - X	3
	TOTAL		21/24

UG Courses

SEMESTER V

Course Code	Course Title	Weekly contact hours (L-T-P)	Credits
ZZ 3XX	Course – III for Minor Program	X – X - X	3
EE 301N	Microprocessors and Digital Systems Design	2 – 1 - 0	3
EE 313	Communication Systems Theory	2 – 1 - 0	3
EE 305	Electromagnetic Waves	2 – 1 - 0	3
EE 315	Power Systems	2 – 1 - 0	3
EE 317	Digital Signal Processing	2 – 1 - 0	3
EE 351N	Microprocessors and Digital Systems Design Lab	0 – 0 - 2	1
EE 3XX	Department Elective – III	X – X - X	3
ZZ 3XX	Institute Open Elective – II	X – X - X	3
	TOTAL		22/ 25

SEMESTER VI

Course code	Course title	Weekly contact hours (L-T-P)	Credits
ZZ 3XX	Course – IV for Minor Program	X – X - X	3
EE 302	Control Systems	2 – 1 - 0	3
EE 306	Digital Communications	2 – 1 - 0	3
EE 310	VLSI Systems and Technology	2 – 0 - 2	3
EE 352N	Control Systems Lab	0 – 0 - 3	1.5
EE 356N	Communications Lab	0 – 0 - 2	1
EE 3XX	Department Elective – IV	X – X - X	3
EE 3XX	Department Elective – V	X – X - X	3
ZZ 3XX	Institute Open Elective – III	X – X - X	3
	TOTAL		20.5/23.5

UG Courses

SEMESTER VII

Course Code	Course Title	Weekly contact hours (L-T-P)	Credits
ZZ 4XX	Course - V for Minor Program	X – X - X	2
ZZ XXX	Internship I / II	X – X - X	2
EE 4XX	B.Tech. Project (BTP)	0 – 0 - 32	16
	TOTAL		18/20

SEMESTER VIII

Course Code	Course Title	Weekly contact hours (L-T-P)	Credits
EE 4XX	Department Elective - VI	X – X - X	3
EE 4XX	Department Elective - VII	X – X - X	3
ZZ 4XX	Institute Open Elective – IV	X – X - X	3
ZZ 4XX	Institute Open Elective – V	X – X - X	3
ZZ 4XX	Institute Open Elective – VI	X – X - X	3
	TOTAL		15

Departmental Electives

SEMESTER III

Course Code	Course Title	Credit Structure (L-T-P-C)
EE 211	Applied Probability for Communication Engineering	2-1-0-3
EE 213	Optimization Fundamentals for Electrical Engineering	2-1-0-3

SEMESTER IV

Course Code	Course Title	Credit Structure (L-T-P-C)
EE 214	Electronic Instrumentation	2-1-0-3
EE 216	Machine Learning for Signal Processing	2-1-0-3

Departmental Electives

SEMESTER V

Course Code	Course Title	Credit Structure (L-T-P-C)
EE 319	Design and Analysis of Communication Networks	2-1-0-3
EE 321	Design of Photovoltaic Systems	2-1-0-3

SEMESTER VI

Course Code	Course Title	Credit Structure (L-T-P-C)
EE 312	Microwave and Satellite Communication	2-1-0-3
EE 314	Restructured Power Systems	2-1-0-3
EE 316	RF Devices for Guided and Wireless Transmission	2-1-0-3

Departmental Electives

VIII SEMESTER

Course Code	Course Title	Credit Structure (L-T-P-C)
EE 410/ EE 610	Power Electronics Applications to Power Transmission	2-1-0-3
EE 422/622	Digital Circuit Design	2-1-0-3
EE 426/626	MOSFET Reliability Issues	2-1-0-3
EE 428/628	Advanced Memory Technology	2-1-0-3
EE 434/634	Semiconductor Based Sensors	2-1-0-3
EE 438/638	System on Programmable Chip Design	2-0-2-3
EE 440/640	Analog and Mixed Signal IC Design	2-1-0-3
EE 446 / EE 646	Information and Coding Theory	2-1-0-3
EE 447/647	Advanced Photonics	2-1-0-3
EE 448 / 648	Antennas and Propagation	3-0-0-3
EE 450N/650N	IoT Communication Networks	2-1-0-3