M.TECH. PROGRAMME

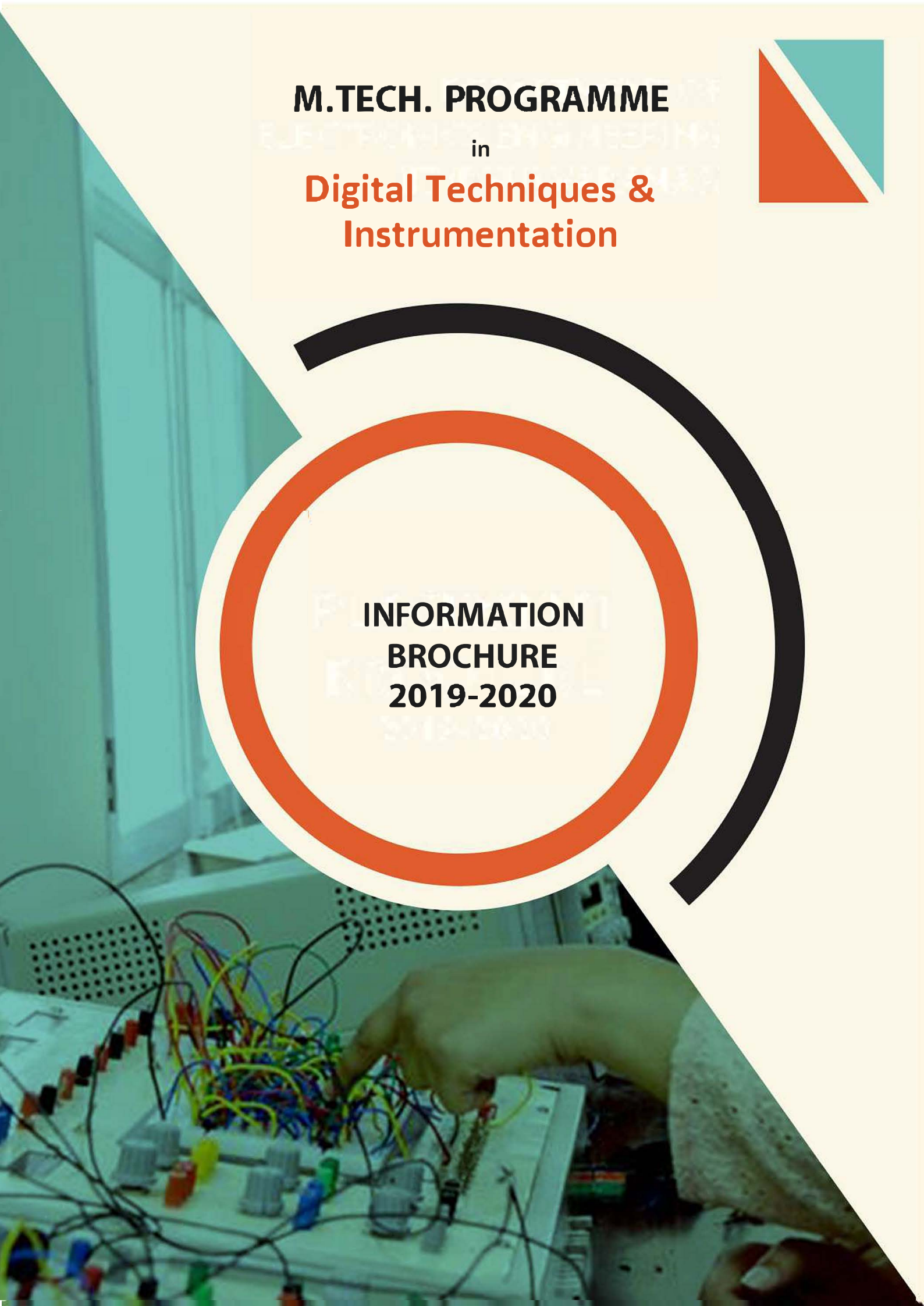## in

Digital Techniques & Instrumentation

INFORMATION BROCHURE 2019-2020

ABOUT US

Digital Techniques and Instrumentation (DTI) specialization of the Department was started in the academic year 1974 with the aim to train the manpower and conduct the R&D activities in the erstwhile emerging areas of Microprocessors and Microcomputer based Digital System Design, Intelligent Instrumentation, High Speed Computing Circuits and Automated Control Systems. Since its inception this has been a preferred area for PG and PhD students interested in Microprocessor based systems, fault detection and fault tolerant design, virtual and intelligent instrumentation systems and intelligent controllers. Over the past more than four decades of its teaching and research activities DTI specialization has completed large number of sponsored projects funded by Ministry of HRD and AICTE and produced nearly 20 Ph.D. theses. The faculty members of DTI specialization have so far published over 200 research papers in the reputed international/national journals and conferences. Published book entitled 'Medical Image Marking: Techniques and Applications,' Springer 2017.

Sub Areas :

- Digital waveform synthesis
- High speed digital design
- Microprocessor and microcontroller based systems
- Fault detection and tolerant systems design
- Intelligent instrumentation
- Image Processing, Watermarking, Steganography

COURSE STRUCTURE

Core Courses

- Microprocessor Applications & Engineering
- Introduction to Neural Networks
- Fault Tolerant Digital System Design
- Digital System Design with HDL
- Switching Theory & Logic Design

Departmental Electives

- Solid State Devices
- IC Technology
- Digital Signal Processing
- Information Theory & Coding
- Computer Networks
- LSI/VLSI Design
- Heterojunction Devices & Technology
- Detection & Estimation Theory
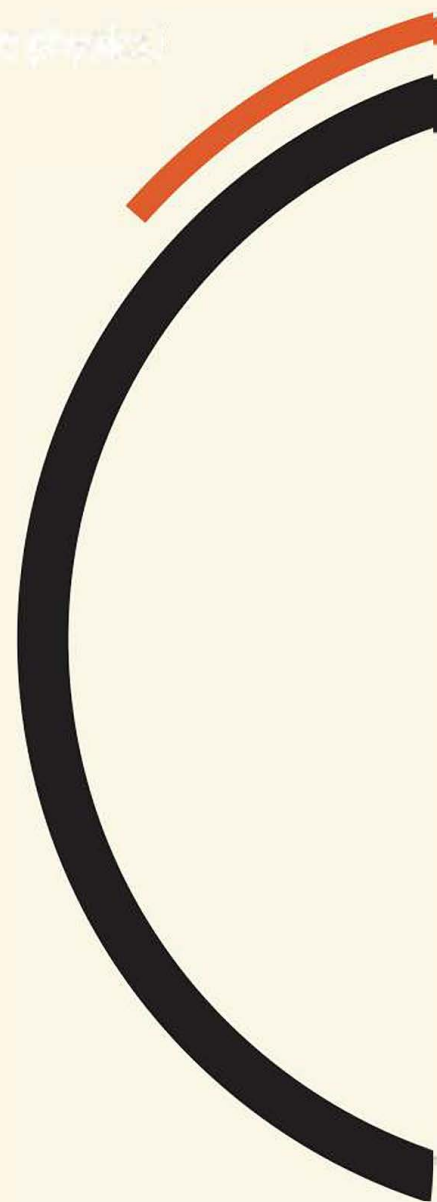
INFRASTRUCTURE/ LAB FACILITIES

The labs are focused toward the sensors based systems design using digital techniques and instrumentation. Variety of tools and development boards are available for implementing various experiments based on Sensors, Sensor Networks, Internet of Things (IoT), Digital System Architecture Design, VLSI Backend Design and Robotics.

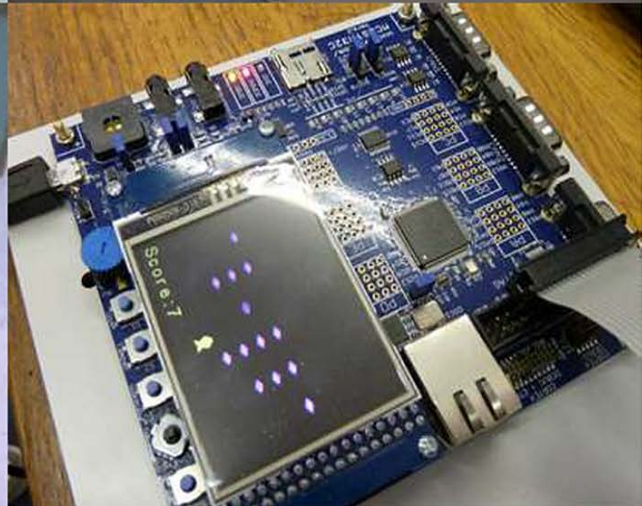The list of facilities available in the labs are given below:

- Microcontroller Kit (8051 Trainer Kit)
- Microprocessor Kit (8086/8088 Training Kit &Amp; 8063 Microprocessor)
- Vpl : Embedded Trainer
- Cadence EDA Tools
- Xilinx VIVADO Suites
- Xilinx SDSoc
- Mentor EDA Tools
- BASYS 3, NEXYS 4DDR, SPARTAN Boards (Gateways to Vivado Design Suite)
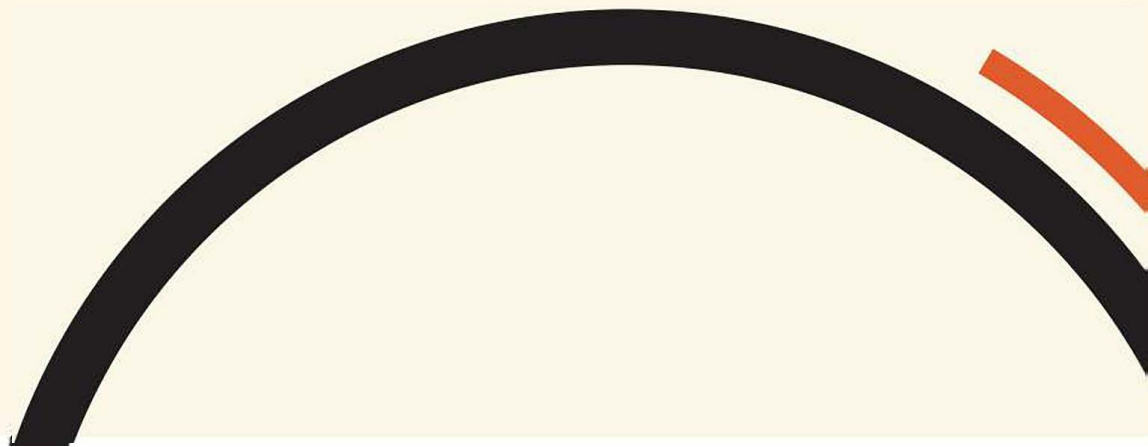
1.VLSI CAD Laboratory (SMDP-C2SD)
2.Microprocessor Laboratory
3.Centre For Research In Microprocessor Applications (CRMA)
4.DTI Laboratory (Sensor Systems Laboratory)

FACULTY PROFILE

Mohan Anand

Qualification: M.Tech., Ph.D.
Area of Interest: Digital Hardware, Microprocessor Engg. & Instrumentation

Rajput N. S.

Qualification: M.Tech., Ph.D.
Area of Interest: Data Analysis and Pattern Recognition using Neural Networks, Digital Image Processing, Communication & Sensor Networks

Sarawadekar Kishor P.

Qualification: M.Tech., Ph. D. (IIT Kharagpur)
Area of Interest: Algorithms and architectures for image/video signal processing, image coding systems, biomedical image processing and VLSI based signal processing

MESSAGE FROM PROF. INCHARGE

It gives me immense pleasure to extend you a most cordial invitation to participate in the Campus Recruitment Programme of the Indian Institute of Technology (BHU), Varanasi. With an increasing thrust being placed on Institute-Industry Interaction, it is my sincere belief that your esteemed organization and IIT (BHU) Varanasi will stand to gain immensely from this symbiotic relationship.

Our Institute holds the pride of place being pioneer in the field of engineering and technical education in this country and has a glorious heritage. We have been continuously ranked amongst the elite by all peers and stakeholders. Our constant pursuit of excellence has made our institute a focal point in technical education for students and faculty members alike. Admissions to the institute take place through the reputed Joint Entrance Examination (JEE) and Graduate Aptitude Test in Engineering (GATE).

At this institute, we take utmost care to groom our students according to the needs of the industry. We seek to open frontiers of knowledge and reveal new horizons of change to broaden mindset and to create positive attitude in our students. Our students receive industrial exposure by their frequent industrial visits. Besides, our undergraduate students undergo an eight-week training during summer vacation in reputed industries/institutions/organizations (in India as well as abroad) as part of their academic requirements.

We would be most delighted to host you for campus recruitment and beyond. I am looking forward to a mutually beneficial relationship.

Professor Anil Kumar Agrawal
Training & Placement Officer, IIT (BHU) Varanasi

PAST RECRUITERS

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PLACEMENT TEAM

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