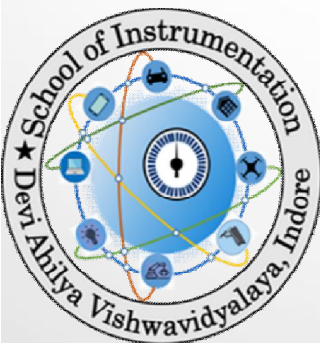




Information Brochure 2024

5-year Integrated (B.Tech+M.Tech.) in Internet of Things (IOT)
2-year M.Tech. in Instrumentation
2-year M.Tech. in IOT
2-year M.Tech. in Instrumentation (Executive)
Ph.D. in Instrumentation



**School of Instrumentation,
Devi Ahilya Vishwavidyalaya Indore(M.P.)
Website: <https://www.instt.dauniv.ac.in>**

THE UNIVERSITY

Devi Ahilya Vishwavidyalaya (DAVV), formerly University of Indore, is a premier University in Central India, has completed 56th years of establishments, educational commitment and services. It is the first state University of Madhya Pradesh, which has been accredited with "A+" grade by **NAAC**. An act of Legislature of Madhya Pradesh established it in 1964. DAVV is an affiliating State University whose jurisdiction includes seven tribal dominated districts of Indore division. It is catering to the educational needs on one hand to the most industrially developed district of MP, Indore and on the other hand to the tribal and rural backward districts of the State. The University serves around 3,00,000 students every year through well qualified human resources, with diversified course structure, inter-disciplinary research and value-based education. The University is committed to following vision and mission which has been derived from its motto "*Dhiyo yonah Prachodayat*".

THE SCHOOL

The University established School of Instrumentation as its University Teaching Department (UTD) in 1991 with an objective to offer academic and research programs in instrumentation and allied areas. Formerly it has been known as University Science and Instrumentation Centre level-II. Presently the School has M.Tech. Program in Instrumentation. Initially, it was named as M.S. (Instrumentation) which was converted in to M.Tech. Program after getting the approval from AICTE, New Delhi. The School also offers Ph.D. program in Instrumentation and in the allied fields. From 2018, the school has commenced a new M.Tech. program in Internet of Things (IOT) which has been approved by AICTE in 2019. The academic programs at the School are designed to educate foresight experts in the field of Automation, Process Control, and Device Fabrication.



MISSION

- *To generate intellectual and socially responsible manpower.*
- *To develop curiosity and thirst of knowledge among students.*
- *To develop not only good scientists but also good human being.*
- *Constant academic excellence.*

VISION

- *To develop globally competent professionals in the field of Instrumentation.*
- *To shape the crude ideas into refined scientific/engineering Approach.*
- *To fulfil the scientific and social needs of the nation.*

THE MESSAGE FROM HEAD

Instrumentation has been a subject of effective interest not only in the beginning of human society but also in the era of modern information communication technology. As a subject, instrumentation has now been taught in graduate programs and a very large fraction of engineering and science graduates are serious for instrument technologies. Modern and commercial equipment's have attracted the engineering graduates but to nurture the knowledge and exposure to make indigenous equipment's have really made them to stand in the competitive scenario. In our school, we aimed at disseminating information on current trends and techniques of instrumentation from mechanical to biomedical discipline and towards smart sensors. Needless to mention that it is tough, but we make sincere efforts to create a pleasant ambience for the students to enjoy their stay. The architecture of several industries demands a sharing of deep sense of knowledge and education of the instruments. Training of students at industries and research and development organizations with effective infrastructure and technical support has made them as effective instrumentation technocrats and suitable for a wide range of jobs.



Prof. (Dr.) Ratnesh Gupta
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5 Year Integrated B.Tech.+M.Tech in IOT

Objective

The programme is designed to educate in the field of Internet of Things (IoT) and industrial Automation due to the availability of extremely low cost and low power hardware platforms in the form of Embedded System boards and within the single chip. The ability of automation through IoT devices enables manufacturers to enhance the visibility and insights into their operations through the effective utilization of data and the tighter integration of dissimilar systems. The top benefits of IoT in industrial automation are to enhanced efficiency, high accuracy and fast process completion. The solution becomes cost-effective. Our main emphasis is to train the students for the development of a new convergence between hardware and software.

Eligibility

Higher Secondary (10+2) with Physics and Mathematics as a subject with at least 50% marks in aggregate or an equivalent grade for General/OBC candidates, and 45% marks in aggregate or an equivalent grade for SC/ST and Differently-abled (DA) category candidates from a recognized Board.

Admission procedure

The admission of Indian students will be done as per merit in the common entrance test-2024. For details visit : <https://davv.nta.ac.in>

Program Outcome

- Graduates would have inclusive technical knowledge to provide engineering solutions in a contemporary, global, economic, environmental and societal context for sustainable development in the field of IoT and industrial Automation.
- Graduated would acquire theoretical knowledge as well as experienced practical knowledge through experiments, simulations, programming as well as industrial exposure.
- They would have the aptitude to learn continuously and to adapt continuous development in the related field.
- To train graduates to show professionalism, fulfil the ethical values in their profession and relate engineering issues to benefit the society as well as environment.
- To value the importance of goal-setting and to realize the need for life-long reflective learning.

Program Structure

First Semester

Code	Subject	
CORE COURSES		
IN6A-101	Engineering Mathematics-I	
IN6A-103	Applied Physics-I	
IN6A-105	Engineering Chemistry	
IN6A-107	Workshop	
ABILITY ENHANCEMENT COURSE		
IN6A-111	Communication Skills	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-121	C++ Programming	

Second Semester

Code	Subject	
CORE COURSES		
IN6A-102	Engineering Mathematics-II	
IN6A-104	Applied Physics-II	
IN6A-106	Digital Electronics	
IN6A-108	Analog Electronics	
ABILITY ENHANCEMENT COURSE		
IN6A-112	Humanity (Social Science & Ethics)	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-122	Electrical Engineering	

Third Semester

CORE COURSES		
IN6A-201	Measurement Science	
IN6A-203	Probability and Statistical Methods	
IN6A-205	Digital Computer Organization	
IN6A-207	Python	
ABILITY ENHANCEMENT COURSE		
IN6A-211	Fundamental of Economics	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-221	Engineering Drawing	

Program Structure

Fourth Semester

Code	Subject	
CORE COURSES		
IN6A-202	Smart Sensors and Actuators	
IN6A-204	Numerical Analysis & Design	
IN6A-206	Control Systems	
IN6A-208	Microprocessor and Interfacing	
ABILITY ENHANCEMENT COURSE		
IN6A-212	Data Structure and Algorithms	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-222	Computer Aided Design	

Fifth Semester

CORE COURSES		
IN6A-301	Process Control and Automation	
IN6A-303	Microcontroller Based System Design	
IN6A-305	Data Communication	
IN6A-307	Signal and Systems	
ABILITY ENHANCEMENT COURSE		
IN6A-311	Optimization Algorithms and Techniques	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-321	Analytical Instrumentation-I	

Sixth Semester

CORE COURSES		
IN6A-302	Computer Network and Security	
IN6A-304	Computer Controlled and SCADA Systems	
IN6A-306	Digital Signal Processing	
IN6A-308	Project Management	
ABILITY ENHANCEMENT COURSE		
IN6A-312	Fundamentals of Machine Learning	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-322	Analytical Instrumentation	

Program Structure

Seventh Semester

Code	Subject	
CORE COURSES		
IN6A-401	Wireless sensor protocols and Programming	
IN6A-403	Intelligent Actuators and Mechatronics	
IN6A-405	VLSI and FPGA based Design	
IN6A-407	Minor -Project	
ABILITY ENHANCEMENT COURSE		
IN6A-411	Digital Image Processing	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-421	LINUX Systems and Networking	

Eight Semester

CORE COURSES		
IN6A-402	Mobile and Wireless Computing	
IN6A-404	Cloud Computing	
IN6A-406	IOT Architecture and Protocols	
IN6A-408	Real Time Operating Systems and ARM Embedded Systems	
ABILITY ENHANCEMENT COURSE		
IN6A-412	Embedded Design-Lab-I	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-422	Big Data Analytics	

Ninth Semester

CORE COURSES		
IN6A-501	Communication Technologies for IOT	
IN6A-503	Artificial Intelligence	
IN6A-505	Advanced Machine Learning	
IN6A-507	Embedded Design-Lab-II	
ABILITY ENHANCEMENT COURSE		
IN6A-511	Soft Skill Seminar	
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)		
IN6A-521	IOT: Legal Issue	

Tenth Semester

IN6A-502	Major Project	
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M.Tech. Instrumentation

Objective

The program is designed to educate in the field of Instrumentation. Our strength is in the field of Embedded System, Automation and Signal processing. The program trains students to become professionals who are competent to choose from various methods when facing a particular problem in the field of Instrumentation.

Eligibility

B.E./B. Tech. Degree in Computer Science, Electronics, Electrical, Instrumentation, Chemical, Mechanical Engineering or M.Sc. in Computer Science, Electronics, Instrumentation, or Physics with 55% marks in qualifying examination. Relaxation of 5% marks in eligibility for SC/ST candidates will be provided for the applicants of Madhya Pradesh domicile only.

Admission procedure

GATE qualified candidates will be preferred for admission. Admissions will be given as per GATE score. However, if seats are vacant due to non-availability of the GATE qualified candidates, then NON-GATE candidates will be admitted as per the merit developed on the basis of % of marks obtained in the qualifying examination.

GATE Scholarship

Scholarship is provided directly to the GATE qualified candidates by AICTE through DBT (Direct Benefit Transfer). Candidates must note that the University/School does not take any responsibility in this regard.

Program Structure

Program Structure (2024-26)

FIRST SEMESTER

SECOND SEMESTER

CORE COURSES

Process Control and Automation	Computer controlled and SCADA Systems
Embedded System Design-I	Embedded system design-II
Industrial Transducer	VLSI Design

ELECTIVE COURSES

Intelligent Actuators and Mechatronics	Bio-Medical Instrumentation
Analytical Instrumentation	Wireless sensor protocols and Programming
Computer Graphics and Computer aided Instrument Design	Digital Signal Processing
Computer Programming and Numerical Technique	Computer Networks
THIRD SEMESTER	FOURTH SEMESTER

PROJECT WORK/ INDUSTRIAL TRAINING

Major Project Dissertation-I/Industry Internship	Major Project Dissertation-II/Industry Internship
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Program Outcome

- Graduates would have inclusive technical knowledge with capability to identify and solve the complex problems with the help of modern tools in Instrumentation and related fields.
- Graduated would acquire soft and writing skill through seminar, project writing and thesis presentation.
- They would have the aptitude to learn continuously and to adapt continuous development in the related field.
- To train graduated to show professionalism, fulfill the ethical values in their profession and relate engineering issues to benefit the society as well as environment.

M.Tech. Instrumentation(Executive)

Objective

- To train and develop in depth understanding in Instrumentation.
- To impart knowledge on various theoretical and practical aspects of Instrumentation.
- To practice problem analysis and decision-making.
- To gain practical, hands-on experience with assembly and programming languages along with smart sensor technology and embedded system..

Eligibility

B.E./B.Tech. Degree in Computer Science, Electronics, Electrical, Instrumentation, Chemical, Mechanical Engineering or M.Sc. in Computer Science, Electronics, Instrumentation, or Physics with 55% marks in qualifying examination. Relaxation of 5% marks in eligibility for SC/ST candidates will be provided for the applicants of Madhya Pradesh domicile only.

The candidates must have minimum two years of working experience after qualifying degree. The candidates have to submit a certificate from the employer on the prescribed Performa.

Admission procedure

The admissions will be made as per the merit developed on the basis of % marks obtained in the following categories:

Category	Weightage of Qualifying examination	Weightage of Service Experience*	Total
Max. Marks	80%	20%	100%

*Service experience - 2 marks per year limited to maximum 20 marks.

Program Structure

Program Structure (2024-26)

FIRST SEMESTER

SECOND SEMESTER

CORE COURSES

Process Control and Automation	Computer controlled and SCADA Systems
Embedded System Design-I	Industrial Transducer and Smart Sensor
Minor Project-I	Minor Project-II

ELECTIVE COURSES

Intelligent Actuators and Mechatronics	Digital Signal Processing
Computer Programming and Numerical Technique	Computer Graphics and Computer Aided Instrument Design

THIRD SEMESTER

FOURTH SEMESTER

CORE COURSES

Embedded Based system Design-II	Computer Networks
VLSI Design	Wireless sensor protocols and Programming
Minor Project-III	Minor Project-IV

ELECTIVE COURSES

Analytical Instrumentation	Bio-Medical Instrumentation
Wireless Sensor Protocols & Programming	Digital Control Systems

Program Outcome

- Fundamental Knowledge in Smart Sensors, Embedded Systems, Process Control and Computer controlled System

M.Tech. Internet of Things (IOT)

Objective

The program is designed to educate in the field of Internet of Things (IOT) due to the availability of extremely low cost and low power hardware platforms in the form of embedded system boards and within the single chip. Our main emphasis is to train the students of a new convergence between hardware and software.

Eligibility

B.E./B. Tech. Degree in Computer Science, Electronics, Electrical, Instrumentation, Chemical, Mechanical Engineering or M.Sc. in Computer Science, Electronics, Instrumentation, or Physics with 55% marks in qualifying examination. Relaxation of 5% marks in eligibility for SC/ST candidates will be provided for the applicants of Madhya Pradesh domicile only.

Admission procedure

GATE qualified candidates will be preferred for admission. Admissions will be given as per GATE score. However, if seats are vacant due to non-availability of the GATE qualified candidates, then NON-GATE candidates will be admitted as per the merit developed on the basis of % of marks obtained in the qualifying examination.

GATE Scholarship

Scholarship is provided directly to the GATE qualified candidates by AICTE through DBT (Direct Benefit Transfer). Candidates must note that the University/School does not take any responsibility in this regard.

Program Structure

Program Structure (2024-26)

FIRST SEMESTER

SECOND SEMESTER

CORE COURSES

Fundamentals of Machine Learning	IOT Architecture and Protocols
Wireless Sensor Protocol and Programming	Real Time Operating System and Embedded System
Python for IOT	Communication Technology for IOT

ELECTIVE COURSES

Big Data and Cloud Computing	Advanced Machine Learning
Embedded System Design	Artificial Intelligence
THIRD SEMESTER	FOURTH SEMESTER

PROJECT WORK/ INDUSTRIAL TRAINING

Major Project Dissertation-I/Industry Internship	Major Project Dissertation-II/Industry Internship
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Program Outcome

- Graduates would have inclusive technical knowledge with capability to identify and solve the complex problems with the help of modern tools in Instrumentation and related fields.
- Graduated would acquire soft and writing skill through seminar, project writing and thesis presentation.
- They would have the aptitude to learn continuously and to adapt continuous development in the related field.
- To train graduated to show professionalism, fulfill the ethical values in their profession and relate engineering issues to benefit the society as well as environment.

Ph. D. (Instrumentation)

Eligibility

Master's degree with at least 55% in one of the following subjects

- (i) Instrumentation,
- (ii) Electronics,
- (iii) Material Science,
- (iv) Nano-Technology,
- (v) Physics,

or honours degree in any of the above or equivalent.

Admission procedure

The admission to the Ph.D. program will be done as per merit (min. 50% qualifying marks) in the Doctoral Entrance Test (DET) conducted by the university.

Program Structure for Course-Work

- Research Methodology
- Analytical Instrumentation for Nano-Materials
- Computer Application
- Review of Published Research

Program Outcome

- Developing of analytical skills covering both scientific and technical domains.
- Getting opportunities of higher studies in the area of instrumentation and Nano-technology.
- Demonstrate use of teamwork, leadership skills, decision making and organization theory.
- Engage in independent and life-long activities in the framework of technological advances in the field of Instrumentation and allied fields.

Fee Structure for Academic Year (2024-25)

M.Tech. Programs (Regular)

Semester	Academic Fee	Development and Maintenance Fee	Student's Services Fee		Examination Fee	Total	
			Boys	Girls		Boys	Girls
First	10000	4000	3300	3111	2500	19800	19611
Second	10000	4000	2911	2722	2500	19411	19222
Third	10000	4000	3300	3111	2500	19800	19611
Fourth	10000	4000	2911	2722	2500	19411	19222

Fee Structure for M.Tech. Programs (Sponsored)

Semester	Academic Fee	Development and Maintenance Fee	Student's Services Fee		Examination Fee	Total	
			Boys	Girls		Boys	Girls
First	15000	4000	3300	3111	2500	24800	24611
Second	15000	4000	2911	2722	2500	24411	24222
Third	15000	4000	3300	3111	2500	24800	24611
Fourth	15000	4000	2911	2722	2500	24411	24222

Fee Structure for M.Tech. Program (Executive)

Semester	Academic Fee	Development and Maintenance Fee	Student's Services Fee		Examination Fee	Total	
			Boys	Girls		Boys	Girls
First	15000	12500	3300	3111	2500	33300	33111
Second	15000	12500	2911	2722	2500	32911	32722
Third	15000	12500	3300	3111	2500	33300	33111
Fourth	15000	12500	2911	2722	2500	32911	32722

Fee Structure for Integrated M.TECH. (IOT) (Five Year Program)

GENDE Rti	UNIV. FEES	Academic Fee	Development & Maintenance Fee	EXAMINATION FEE	Caution Money	ALUMI N FEES	TOTAL
BOYS	3630	15000/-	12500/-	2750/-	4000/-	500/-	38380/-
GIRLS	3422	15000/-	12500/-	2750/-	4000/-	500/-	38172/-

Laboratory & Measurement System



Atomic Layer Deposition System



Pulsed Laser Deposition



MOKE

Low Temperature Resistance Measurement System

Plantation in Department



Cultural Activities



Guest Speaker at ICNIB 2017



Contact

(Academics and Administration)

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