

**SCHOOL OF INSTRUMENTATION**

**Programme Code: IN7C**

**M.Tech. (Instrumentation) for Working Executives:**

There are many industries in and around Indore, where many engineers and executives would like to update the knowledge in the field of Instrumentation and allied fields. This executive program will enable the student to install and maintain various types of control systems and equipment. This particular program contains theory and hands-on training with state-of-the-art instruments, working processes and computerized control systems with the experienced faculty. Executives learn to install, test, calibrate and maintain several types of on-line instruments that measure, indicate and control variables such as pressure, flow, level, density, temperature, force, vibration and chemical composition. It is a need to utilize this field by educating and training the executives to use the field of instrumentation technology and to support the mandate of MAKE IN INDIA concept of Govt. of India.

**Objectives:**

The broad objectives of the programme are as follows:

- 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.

**AGE LIMIT:** As per the directives of Government of Madhya Pradesh, there is no upper age limit for admission in the programme.

**Admission Procedure:**

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

Category	Qualifying examination	Written Test	Interview	Service Experience*	Total
Max.	100	50	30	20	200

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Marks					
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\* Service experience - 2 marks per year limited to max. 20 marks.

**Seats:**

Total Seats: 15 (Reservation as per State Govt. rules)

**Duration:**

Four Semesters (Two Years).

**Fee Structure for Batch 2019-21:**

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			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

- Caution money (Refundable) of Rs. 4000/- will be charged additionally in the first semester.
- Alumni Fee of Rs. 500/- will be charged extra in the first semester.
- If a student repeats a paper(s) in a semester, an additional fee of Rs.500/- per paper shall be payable.
- For NRI/ FN/ PIO Candidates, a fee of US\$ 3500 Per Annum shall be payable on yearly basis. They will have to pay a refundable deposit of US\$ 500 once at the time of admission.
- Hostel Fee and Central Library Fee will be extra.

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- Candidates have to separately bear the fee for registering for MOOC courses.
- For NRI/ FN/ PIO Candidates, a fee of US\$ 3500 Per Annum shall be payable on yearly basis. They will have to pay a refundable deposit of US\$ 500 once at the time of admission.
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## Learning Outcomes and Job Opportunities:

### **Fundamental knowledge in**

Smart Sensors, Embedded System, Process Control and Computer Controlled System.

## Curriculum:

### **First Semester:**

Code	Title	Credits (L-T-P)
<b>CORE COURSES</b>		
ISEx-701	Process Control and Automation	3 (3 0 0)
ISEx-703	Microcontroller Based System Design-I	3 (3 0 0)
ISEx-707	Instrument Technology Lab-I (part-1)	4(0-0-8)
ISEx-761	Comprehensive Viva voce – I	4(0-0-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
ISEx-721	Industrial Electronics	3 (3-0-0)
ISEx-723	Computer Programming and Numerical Technique	3 (3-0-0)
<b>ELECTIVE GENERIC:</b>		
ISEx-751	Minor Project-I	8 (0-0-16)

### **Second Semester:**

Code	Title	Credits (L T P)
<b>CORE COURSES</b>		
ISEx-702	Computer Controlled and SCADA Systems	3(3-0-0)
ISEx-705	Industrial Transducer and Smart Sensor	3 (3 0 0)
ISEx-708	Instrument Technology Lab-I (part-2)	4(0-0-8)
ISEx-762	Comprehensive Viva voce – I	4(0-0-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
ISEx-722	Digital Signal Processing	3 (3-0-0)
ISEx-724	Computer Graphics and Computer aided Instrument design	3 (3-0-0)
<b>ELECTIVE GENERIC:</b>		
ISEx-752	Minor Project-II	8 (0-0-16)

### **Third Semester:**

Code	Title	Credits (L-T-P)
<b>CORE COURSES</b>		
ISEx-711	Microcontroller Based System Design-II	3(3-0-0)
ISEx-713	VLSI Design	3(3-0-0)
ISEx-709	Instrument Technology Lab-II (part-1)	4(0-0-8)
ISEx-763	Comprehensive Viva voce – III	4(0-0-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
ISEx-726	Analytical Instrumentation	3 (3-0-0)
ISEx-728	WIRELESS SENSOR PROTOCOLS & PROGRAMMING	3 (3-0-0)
<b>ELECTIVE GENERIC:</b>		
ISEx-753	Minor Project-III	4 (0-0-8)

### **Fourth Semester:**

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<b>Code</b>	<b>Title</b>	<b>Credits (L T P)</b>
<b>CORE COURSES</b>		
ISEx-722	Computer Networks	3(3-0-0)
ISEx-724	Introduction to Nano-electronics and MEMS/NEMS Devices	3(3-0-0)
ISEx-710	Instrument Technology Lab-II (part-2)	4(0-0-8)
ISEx-764	Comprehensive Viva voce – IV	4(0-0-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
ISEx-712	Bio-Medical Instrumentation	3(3-0-0)
ISEx-726	Digital Control Systems	3(3-0-0)
<b>ELECTIVE GENERIC:</b>		
ISEx-754	Minor Project-IV	4 (0-0-8)

Note: The above course contents can be modified as per requirement from time to time in accordance with University Ordinance No. 14.