

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester I of B. Tech. (Instrumentation Engineering) with effect from academic year 2018-19

Option-I

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
SH100AU	Induction Program	Mandatory audit course of three weeks duration as per AICTE model curriculum											AU
SH101U	Differential Calculus	BS	3	1	...	4	30	10	60	...	...	100	4
SH152U	Engineering Physics	BS	3	...	...	3	30	10	60	...	...	100	3
ME151U	Engineering Drawing and Drafting	BE	3	...	...	3	30	10	60	...	...	100	3
CE151U	Engineering Mechanics	BE	3	1	...	4	30	10	60	...	...	100	4
ME152U	General Workshop Practices	BE	...	...	2	2	...	...	...	50	...	50	1
SH153U	Engineering Physics Lab	BS	...	...	2	2	...	...	...	50	...	50	1
ME153U	Engineering Drawing and Drafting Lab	BE	...	...	2	2	...	...	...	50	...	50	1
CE152U	Engineering Mechanics Lab	BE	...	...	2	2	...	...	...	50	...	50	1
Total			<b>12</b>	<b>2</b>	<b>8</b>	<b>22</b>	<b>120</b>	<b>40</b>	<b>240</b>	<b>200</b>	<b>...</b>	<b>600</b>	<b>18</b>

\* Commencement of first semester of UG engineering program is generally delayed by 4 - 5 weeks as compared with higher semesters due to admission procedure. In addition, as per AICTE directives there is Induction Program of three weeks at the beginning of first semester. Thus the effective teaching in first semester may be only for 8 – 9 weeks. Therefore, one hour per week theory / laboratory teaching should be added in the regular load shown in the curriculum structure so that the syllabus can be completed in 8 - 9 weeks available in first semester of UG program.

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical MSE: Mid Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

**1. ESE (TH) duration for ME151U is four hours and that for all other theory courses is three hours.**

**2. MSE (TH) duration for all theory courses is two hours**

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester II of B. Tech. (Instrumentation Engineering) with effect from academic year 2018-19

Option-I

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
SH151U	Integral Calculus	BS	3	1	...	4	30	10	60	...	...	100	4
SH102U	Engineering Chemistry	BS	3	...	...	3	30	10	60	...	...	100	3
EE101U	Elements of Electrical Engineering	BE	2	...	...	2	30	10	60	...	...	100	2
ET151U	Basic Electronics and Measurement Technique	BE	3	...	...	3	30	10	60	...	...	100	3
CO101U	Programming for Problem Solving	BE	3	...	...	3	30	10	60	...	...	100	3
SH104U	Communication Skills	HM	1	...	...	1	15	5	30	...	...	50	1
SH105U	Communication Skills Lab	HM	...	...	2	2	...	...	...	50	...	50	1
ME101U	Mechanical Workshop Practices	BE	...	...	2	2	...	...	...	50	...	50	1
SH103U	Engineering Chemistry Lab	BS	...	...	2	2	...	...	...	50	...	50	1
EE102U	Elements of Electrical Engineering Lab	BE	...	...	2	2	...	...	...	50	...	50	1
ET152U	Basic Electronics and Measurement Technique Lab	BE	...	...	2	2	...	...	...	50	...	50	1
CO102U	Programming for Problem Solving Lab	BE	...	...	2	2	...	...	...	50	...	50	1
SH150AU	Environmental Science	Mandatory audit course in self learning mode equivalent to study of 3 hrs/week						60	...	...	60	AU	
Total			15	1	12	28	165	55	390	300	0	910	22

**L : Lecture**

**T: Tutorial**

**P: Practical**

**MSE: Mid Semester Examination**

**ISA :Internal Sessional Assessment**

**ESE: End Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

1. ESE (TH) duration for SH104U is two hours and that for all other theory courses is three hours.
2. MSE (TH) duration for SH104U is one hours and that for all other theory courses is two hours

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester III of B. Tech. (Instrumentation Engineering) with effect from academic year 2019-20

Option-I

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
SH226U	Engineering Mathematics	BS	3	1	...	4	30	10	60	...	...	100	4
EE231U	Electrical Machines	BE	3	...	...	3	30	10	60	...	...	100	3
IN201U	Analog Electronics	BE	3	...	...	3	30	10	60	...	...	100	3
IN202U	Measurement Techniques	PC	3	...	...	3	30	10	60	...	...	100	3
IN203U	Transducers -I	PC	3	...	...	3	30	10	60	...	...	100	3
EE232U	Electrical Machines Lab	BE	...	...	2	2	...	...	...	25	25	50	1
IN205U	Analog Electronics Lab	BE	...	...	2	2	...	...	...	25	25	50	1
IN206U	Measurement Techniques Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN207U	Transducers-I Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN208U	Computational Environment Lab	BE	1	...	2	3	...	...	...	50	...	50	2
<b>SH200AU</b>	<b>Essence of Indian Traditional Knowledge</b>	<b>HM</b>	...	...	...	...	<b>NA</b>	<b>NA</b>	<b>60</b>	...	...	<b>60</b>	<b>AU</b>
<b>Total</b>			<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>150</b>	<b>50</b>	<b>360</b>	<b>150</b>	<b>100</b>	<b>810</b>	<b>22</b>

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical**

**ICA : Internal Continuous Assessment**

**MSE: Mid Semester Examination**

**Note:**

- 1. ESE (TH) duration for all theory courses is three hours.**
- 2. MSE (TH) duration for all theory courses is two hours**

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester IV of B. Tech. (Instrumentation Engineering) with effect from academic year 2019-20

Option-I

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
IN251U	Automatic Control Systems	PC	3	...	...	3	30	10	60	...	...	100	3
IN252U	Network Theory	BE	3	1	...	4	30	10	60	...	...	100	4
IN253U	Electronic Instrumentation	PC	3	...	...	3	30	10	60	...	...	100	3
IN254U	Transducers - II	PC	3	...	...	3	30	10	60	...	...	100	3
IN255U	Digital Circuits Design	BE	3	1	...	4	30	10	60	...	...	100	4
IN256U	Automatic Control Systems Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN257U	Electronic Instrumentation Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN258U	Transducers - II Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN259U	Digital Circuits Design Lab	BE	...	...	2	2	...	...	...	25	25	50	1
SH299U	Effective Technical Communication	HM	...	...	2	2	...	...	...	25	25	50	1
<b>SH250AU</b>	<b>Introduction to the Constitution of India</b>	<b>HM</b>	...	...	...	...	<b>NA</b>	<b>NA</b>	<b>60</b>	...	...	<b>60</b>	<b>AU</b>
<b>Total</b>			<b>15</b>	<b>2</b>	<b>10</b>	<b>27</b>	<b>150</b>	<b>50</b>	<b>360</b>	<b>125</b>	<b>125</b>	<b>810</b>	<b>22</b>

**L : Lecture**

**T: Tutorial**

**P: Practical MSE: Mid Semester Examination**

**ISA :Internal Sessional Assessment**

**ESE: End Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

**1. ESE (TH) duration is three hours and MSE (TH) duration is two hours for all theory courses .**

**2. Student should go for Profesional internship during vacations after IV th sem to VIIIth sem which will be assessed in VIIIth semester.**

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester V of B. Tech. (Instrumentation Engineering) with effect from academic year 2020-21

Option-I

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
IN301U	Control System Components	PC	3	...	...	3	30	10	60	...	...	100	3
IN302U	Microcontroller and Applications	PC	3	...	...	3	30	10	60	...	...	100	3
IN303U	Signals and Systems	PE	3	...	...	3	30	10	60	...	...	100	3
IN304U	Professional Elective- I	PE	3	...	...	3	30	10	60	...	...	100	3
IN305U	Open Elective-I	OE	3	...	...	3	30	10	60	...	...	100	3
IN306U	Control System Components Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN307U	Microcontroller and Applications Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN308U	Virtual Instrumentation Lab	PC	1	...	2	3	...	...	...	25	25	50	2
IN309U	Professional Elective- I Lab	PE	...	...	2	2	...	...	...	25	25	50	1
IN310U	Industrial Visit / Enterpreunership Development Program (EDP) / Case Studies	PS	...	...	...	...	...	...	...	50	...	50	2
<b>Total</b>			<b>16</b>	<b>0</b>	<b>8</b>	<b>24</b>	<b>150</b>	<b>50</b>	<b>300</b>	<b>150</b>	<b>100</b>	<b>750</b>	<b>22</b>

**Professional Elective-I**

- A. Power Electronics and Drives
- B. Power Plant Instrumentation
- C. BioMedical Engineering
- D. Navigational Instrumentation

**Open Elective-I**

- A. Virtual Instrumentation
- B. Network Control System (PLC and DCS)
- C. Introduction to BioMedical Engineering
- D. Operations Research

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical**

**MSE: Mid Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

1. ESE (TH) duration for all theory courses is three hours.
2. MSE (TH) duration for all theory courses is two hours

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester VI of B. Tech. (Instrumentation Engineering) with effect from academic year 2020-21

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
IN351U	Process Instrumentation	PC	3	...	...	3	30	10	60	...	...	100	3
IN352U	Distributed Control System	PC	3	...	...	3	30	10	60	...	...	100	3
IN353U	Control System Design	PC	3	1	...	4	30	10	60	...	...	100	4
IN354U	Professional Elective- II	PE	3	...	...	3	30	10	60	...	...	100	3
IN355U	Open Elective-II	OE	3	...	...	3	30	10	60	...	...	100	3
IN356U	Process Instrumentation Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN357U	Distributed Control System Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN358U	Control System Design Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN359U	Professional Elective- II Lab	PE	...	...	2	2	...	...	...	25	25	50	1
IN360U	Miniproject	PS	...	...	4	4	...	...	...	25	25	50	2
Total			<b>15</b>	<b>1</b>	<b>12</b>	<b>28</b>	<b>150</b>	<b>50</b>	<b>300</b>	<b>125</b>	<b>125</b>	<b>750</b>	<b>22</b>

**Professional Elective-II**

- A. Digital Signal Processing
- B. Industrial Internet of Things (IIoT)
- C. Instrumentation in Unit Operations
- D. BioMedical Signal Processing

**Open Elective-II**

- A. Automotive Instrumentation
- B. Industrial Measurement
- C. Analytical Instrumentation
- D. Pollution Control and Management

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical**

**ICA : Internal Continuous Assessment**

**MSE: Mid Semester Examination**

**Note:**

1. ESE (TH) duration for all theory courses is three hours.
2. MSE (TH) duration for all theory courses is two hours

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester VII of B. Tech. (Instrumentation Engineering) with effect from academic year 2021-22

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
IN401U	Machine Learning and Data Analytics	PC	3	...	...	3	30	10	60	...	...	100	3
IN402U	Instrumentation Project Management	HM	3	...	...	3	30	10	60	...	...	100	3
IN403U	Professional Elective- III	PE	3	...	...	3	30	10	60	...	...	100	3
IN404U	Professional Elective- IV	PE	3	...	...	3	30	10	60	...	...	100	3
IN405U	Open Elective-III	OE	3	...	...	3	30	10	60	...	...	100	3
IN406U	Industrial Lecture	PS	1	...	...	1	...	...	...	25	...	25	1
IN407U	Machine Learning and Data Analytics Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN408U	Instrumentation Project Management Lab	HM	...	...	2	2	...	...	...	25	25	50	1
IN409U	Professional Elective- III Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN410U	Professional Elective- IV Lab	PE	---	...	2	2	...	...	...	50	25	75	1
IN411U	Project Phase I	PS	...	...	2	2	...	...	...	50	50	100	2
Total			16	0	10	26	150	50	300	200	150	850	22

**Professional Elective-III**

- A. Neural Network and Fuzzy based
- B. Instrumentation System Design
- C. Wireless Sensor Networks
- D. Nonlinear Control System

**Professional Elective-IV**

- A. Automotive Instrumentation
- B. Robotics
- C. Digital Image Processing
- D. Digital Control

**Open Elective-III**

- A. Building Automation
- B. Agricultural Instrumentation
- C. MEMS and NanoInstrumentation
- D. Sensor and Transducers

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical**

**MSE: Mid Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

1. ESE (TH) duration for all theory courses is three hours.
2. MSE (TH) duration for all theory courses is two hours

**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**Department of Instrumentation Engineering**

Scheme for Semester VIII of B. Tech. (Instrumentation Engineering) with effect from academic year 2021-22

Course Code	Name of the Course	Group	Teaching Scheme				Evaluation Scheme						Credit
							Theory			Practical		Total	
			L	T	P	Total	MSE	ISA	ESE	ICA	ESE		
SH481U	Accounts and Finance for Entrepreneurs	HM	2	...	...	2	30	10	60	...	...	100	2
IN451U	Biomedical Instrumentation	PC	3	...	...	3	30	10	60	...	...	100	3
IN452U	Analytical Instrumentation	PC	2	...	...	2	30	10	60	...	...	100	2
IN453U	Professional Elective - V	PE	3	...	...	3	30	10	60	...	...	100	3
IN454U	Professional Elective- VI	HM	3	...	...	3	30	10	60	...	...	100	3
IN455U	Biomedical Instrumentation Lab	PC	...	...	2	2	...	...	...	25	25	50	1
IN456U	Professional Elective-V Lab	PE	...	...	2	2	...	...	...	25	25	50	1
IN457U	Seminar	PS	...	...	2	2	...	...	...	50	...	50	1
IN458U	Professional Internship	PC	...	...	...	...	...	...	...	75	...	75	2
IN459U	Project Phase II	PS	...	...	4	4	...	...	...	50	100	150	4
Total			13	...	10	23	150	50	300	225	150	875	22

**Professional Elective-V**

- A. Embedded System
- B. Fiber Optics & Laser Instrumentation
- C. Artificial Intelligence
- D. Human Ergonomics

**Professional Elective-VI**

- A. Industrial Pollution Control and Management
- B. Industrial Safety and Hazards Management
- C. Entrepreneurship and Business Management
- D. Industrial Psychology

**L : Lecture**

**ISA :Internal Sessional Assessment**

**T: Tutorial**

**ESE: End Semester Examination**

**P: Practical**

**MSE: Mid Semester Examination**

**ICA : Internal Continuous Assessment**

**Note:**

1. ESE (TH) duration for all theory courses is three hours.
2. MSE (TH) duration for all theory courses is two hours