

**Instrumentation & Electronics Engineering**

**UG Course Curriculum**

**Effective from Session 2018-19**

### First Year, First Semester

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	BS/MTH/T111	Mathematics I	BS	B	3-1-0	4	
2.	ES/BE/T102B	Basic Electronics	ES	B	3-1-0	4	
3.	ES/EE/T101A	Basic Electrical Engineering	ES	B	3-1-0	4	
4.	ES/CM/TP104A	Computer Prog. & Numerical Methods	ES	B	4-0-3	5.5	
5.	ES/EL/P105B	Electrical & Electronics Laboratory	ES	B	0-0-3	1.5	
6.	ES/ED/P106A	Engineering Drawing	ES	B	0-0-4	2	
<b>TOTAL:</b>					<b>13-3-10</b>	<b>21</b>	

### First Year, Second Semester

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	BS/MTH/T122	Mathematics II	BS	B	3-1-0	4	
2.	ES/EM/T103A	Engineering Mechanics	ES	B	3-1-0	4	
3.	BS/PH/TP104	Physics	BS	B	3-0-2	4	
4.	BS/CH/TP103	Chemistry	BS	B	3-0-2	4	
5.	HSMC/HS/T101	Humanities & Sociology	HS	B	3-0-0	3	
6.	MC/TS/P101	Technical English	MC	B	3-0-0	0	
7.	ES/WS/P107A	Workshop	ES	B	0-0-3	1.5	
<b>TOTAL:</b>					<b>18-2-7</b>	<b>20.5</b>	

### Second Year, First Semester

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	FET/BS/B/Math/T/211	Mathematics III	BS	B	3-0-0	3	100
2.	IEE/PC/B/T/212	Circuit Theory	PC	B	3-1-0	4	100
3.	IEE/PC/B/T/213	Fundamentals of Instrumentation	PC	B	3-0-0	3	100
4.	IEE/PC/B/T/214	Electronic Circuits	PC	B	3-1-0	4	100
5.	IEE/PC/B/T/215	Digital Electronics	PC	B	3-1-0	4	100
6.	IEE/ES/B/T/216	Applied Fluid Mechanics	ES	B	3-0-0	3	100
7.	IEE/PC/B/S/211	Digital Circuits Lab	PC	B	0-0-3	1.5	100
8.	IEE/PC/B/S/212	Electronic & Instrument Workshop	PC	B	0-0-3	1.5	100
9.	IEE/PS/B/S/213	Seminar	PS	B	0-0-3	1.5	100
<b>TOTAL:</b>					<b>18-3-9</b>	<b>25.5</b>	<b>900</b>

### Second Year, Second Semester

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	IEE/PC/B/IT/T/221	Data Structure, Algorithms & OOPs	PC	B	3-0-0	3	100
2.	IEE/PC/B/T/222	Analog Integrated Circuit	PC	B	3-1-0	4	100
3.	IEE/PC/B/T/223	Industrial Instrumentation	PC	B	3-1-0	4	100
4.	IEE/PC/B/T/224	Linear Control Systems	PC	B	3-1-0	4	100
5.	IEE/PC/B/T/225	Digital Signal Processing	PC	B	3-0-0	3	100
6.	IEE/PC/B/T/226	Measurements & Electronic Instrumentation	PC	B	3-0-0	3	100
7.	IEE/PC/B/S/221	Analog Electronics Laboratory	PC	B	0-0-3	1.5	100
8.	IEE/PC/B/S/222	Computing Software Laboratory	PC	B	0-0-3	1.5	100
<b>TOTAL:</b>					<b>18-3-6</b>	<b>24</b>	<b>800</b>

**Third Year, First Semester**

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	IEE/PC/B/ T/311	Analytical Instrumentation	PC	B	3-0-0	3	100
2.	IEE/PC/B/IT/T/312	Comp Organization, Architecture & Networking	PC	B	3-0-0	3	100
3.	IEE/PC/H/T/313	Process Instrumentation	PC	H	3-1-0	4	100
4.	IEE/PC/H/T/314	Microcontrollers	PC	H	3-1-0	4	100
5.	IEE/PC/H/T/315	Process Dynamics and Control	PC	H	3-1-0	4	100
6.	IEE/PC/B/T/316	Signal Transmission & Communication Systems	PC	B	3-0-0	3	100
7.	IEE/PC/B/S/311	Control Systems Laboratory	PC	B	0-0-3	1.5	100
8.	IEE/PC/B/S/312	Sensor & Signal Conditioning Laboratory	PC	B	0-0-3	1.5	100
9.	IEE/PS/B/S/313	Mini Project (Electronic Design Laboratory)	PS	B	0-0-3	1.5	100
<b>TOTAL:</b>					<b>18-3-9</b>	<b>25.5</b>	<b>900</b>

**Third Year, Second Semester**

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	IEE/PC/H/T/321	Advanced Process Control	PC	H	3-1-0	4	100
2.	IEE/PC/H/T/322	Power Electronics	PC	H	3-1-0	4	100
3. & 4.		Program Elective Course 1 and 2. Students to opt for any two of the courses listed below, as Program Elective course 1 & 2					
	IEE/PE/B/T/32A	Artificial Intelligence & Machine Learning	PE	B	3-0-0	3	100
	IEE/PE/B/T/32B	Bio Medical Instrumentation	PE	B	3-0-0	3	100
	IEE/PE/B/T/32C	Industrial Networking	PE	B	3-0-0	3	100
	IEE/PE/B/T/32D	Functional Safety & Safety Instrumented System	PE	B	3-0-0	3	100
	IEE/PE/B/T/32E	Analog MOS Circuit Design	PE	B	3-0-0	3	100
5.	IEE/PC/B/S/321	Digital Signal Processing Laboratory	PC	B	0-0-3	1.5	100
6.	IEE/PC/B/S/322	Process Control Laboratory	PC	B	0-0-3	1.5	100
7.	IEE/PS/B/S/323	Mini Project (Microcontroller Laboratory)	PS	B	0-0-3	1.5	100
8.	IEE/PS/B/S/324	Mini Project (Automation Laboratory)	PS	B	0-0-6	3	200
9.	IEE/PS/B/S/325	Mini Project (FPGA Laboratory)	PS	B	0-0-3	1.5	100
<b>TOTAL:</b>					<b>12-2-18</b>	<b>23</b>	<b>1000</b>

**Fourth Year, First Semester**

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1.	IEE/PC/B/ T/411	Telemetry and Remote Control	PC	B	3-0-0	3	100
2.	IEE/HS/B/Eco/T/412	Economics	HS	B	3-0-0	3	100
3. & 4.		Program Elective Course 3 and 4 Students to opt for any two of the courses listed below, as Program Elective course 3&4					
	IEE/PE/B/T/41A	Intelligent Control Systems	PE	B	3-0-0	3	100
	IEE/PE/B/T/41B	Power Plant Instrumentation	PE	B	3-0-0	3	100
	IEE/PE/B/T/41C	MEMS Micro-machining	PE	B	3-0-0	3	100
	IEE/PE/B/T/41D	Embedded Systems	PE	B	3-0-0	3	100
	IEE/PE/B/T/41E	VLSI Design	PE	B	3-0-0	3	100
	IEE/PE/B/T/41F	Digital Image Processing	PE	B	3-0-0	3	100
5.		Open Elective Course 1	OE	B	3-0-0	3	100
6.	IEE/PC/B/S/411	Power Electronics Laboratory	PC	B	0-0-3	1.5	100
7.	IEE/PC/B/S/412	Telemetry & Remote Control Laboratory	PC	B	0-0-3	1.5	100
8.	IEE/PS/B/S/413	Project	PS	B	0-0-6	3	200
<b>TOTAL:</b>					<b>15-0-12</b>	<b>21</b>	<b>900</b>

**Fourth Year, Second Semester**

Sl. No.	Subject Code	Subject Name	Category	Type	Contact L-T-P	Credit	Marks
1. & 2.		Program Elective Course 5 and 6 Students to opt for any two of the courses listed below, as Program Elective course 5 & 6					
	IEE/PE/B/T/42A	Instrumentation in Space Technology	PE	B	3-0-0	3	100
	IEE/PE/B/T/42B	Industrial Internet of Things	PE	B	3-0-0	3	100
	IEE/PE/B/T/42C	Electric Drives	PE	B	3-0-0	3	100
	IEE/PE/B/T/42D	Electromagnetic Theory	PE	B	3-0-0	3	100
	IEE/PE/B/T/42E	Data Analysis for Instrumentation System	PE	B	3-0-0	3	100
	IEE/PE/B/T/42F	Electronic Olfaction & Taste Sensing	PE	B	3-0-0	3	100
3.		Open Elective Course 2	OE	B	3-0-0	3	100
4.		Open Elective Course 3	OE	B	3-0-0	3	100
5.	IEE/HS/B/Prod/T/425	Industrial Management	HS	B	3-0-0	3	100
6.	IEE/PS/B/S/421	Project	PS	B	0-0-9	4.5	300
<b>TOTAL:</b>					<b>15-0-9</b>	<b>19.5</b>	<b>800</b>

### Credit Summary

Year	Basic							Honours	Total
	HS	BS	ES	PC	PE	PS	OE		
1 <sup>st</sup> Year, 1 <sup>st</sup> Semester	--	4	17	--	--	--	--	--	21
1 <sup>st</sup> Year, 2 <sup>nd</sup> Semester	3	12	5.5	--	--	--	--	--	20.5
2 <sup>nd</sup> Year, 1 <sup>st</sup> Semester	--	3	3	18	--	1.5	--	--	25.5
2 <sup>nd</sup> Year, 2 <sup>nd</sup> Semester	--	--	--	24	--	--	--	--	24
3 <sup>rd</sup> Year, 1 <sup>st</sup> Semester				12		1.5		12	25.5
3 <sup>rd</sup> Year, 2 <sup>nd</sup> Semester				3	6	6		8	23
4 <sup>th</sup> Year, 1 <sup>st</sup> Semester	3			6	6	3	3		21.0
4 <sup>th</sup> Year, 2 <sup>nd</sup> Semester	3				6	4.5	6		19.5
<b>Total</b>	<b>9</b>	<b>19</b>	<b>25.5</b>	<b>63</b>	<b>18</b>	<b>16.5</b>	<b>9</b>	<b>20</b>	<b>180</b>