

**B.TECH (FOUR YEAR COURSE) &  
B.TECH (SIX YEAR DOUBLE DEGREE COURSE)**  
(With effect from **2019-2020** admitted batch onwards)  
Under Choice Based Credit System

## Instrument Technology

**B.TECH. 1/4 : SEMESTER-I**

Code Number	Course	L	T	P	Allotment of Marks		Total Marks	Ext. Exam Time	C
		Hours per week			Ses.	Ext.			
ENG1101*	Mathematics -1	3	0	0	30	70	100	3 Hrs	3
ENG1102*	Mathematics -2	3	0	0	30	70	100	3 Hrs	3
ENG1104	Physics	3	1	0	30	70	100	3 Hrs	4
ENG1106	Engineering Graphics	2	0	4	30	70	100	3 Hrs	4
ENG1108	Professional Ethics & Moral Values	2	0	0	30	70	100	3 Hrs	0
ENG1111	Physics Lab	0	0	3	50	50	100	3 Hrs	1.5
ENG1113	Workshop	0	0	3	50	50	100	3 Hrs	1.5
	<b>Total</b>	<b>13</b>	<b>1</b>	<b>10</b>			<b>700</b>		<b>17</b>

L: Lectures; T: Tutorial; P: Practical; Ses: Sessionals; Ext: External; C: Credits

\*Common to both Group-A and Group-B

**B.TECH. 1/4 : SEMESTER-II**

Code Number	Course	L	T	P	Allotment of Marks		Total Marks	Ext. Exam Time	C
		Hours per week			Ses.	Ext.			
ENG1201*	Mathematics -3	3	1	0	30	70	100	3 Hrs	4
ENG1202	Chemistry	3	1	0	30	70	100	3 Hrs	4
ENG1204	Computer Programming using C & Numerical Methods	3	0	0	30	70	100	3 Hrs	3
ENG1206#	Department Subject	3	1	0	30	70	100	3 Hrs	4
ENG1207	Essence of Indian Traditional Knowledge	2	0	0	30	70	100	3 Hrs	0
ENG1209	English	3	0	0	30	70	100	3 Hrs	3
ENG1210	Chemistry Lab	0	0	3	50	50	100	3 Hrs	1.5
ENG1212	Computer Programming using C & Numerical Methods Lab	0	0	3	50	50	100	3 Hrs	1.5
	<b>Total</b>	<b>17</b>	<b>3</b>	<b>6</b>			<b>800</b>		<b>21</b>

Department Subjects with respective codes are given separately at the end.

Department Subject : ENG1206 : Basic electronics and Digital Systems

## B.TECH. 2/4 : SEMESTER-I

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 211	Mathematics-IV	3	--	-	3	3	70	30	100	3
INE 212	Material Science	3	--	-	3	3	70	30	100	3
INE 213	Strength of Materials & Theory of Machines	3	--	-	3	3	70	30	100	3
INE 214	Electrical Machines	3	--	-	3	3	70	30	100	3
INE 215	Sensors and Transducers	3	--	-	3	3	70	30	100	3
INE 216	Humanities- 1	3	--	-	3	3	70	30	100	3
<b>Lab Courses</b>										
INE 217	Basic Electronics Lab	-	-	4	4	3	50	50	100	2
INE 218	Electrical Machines Lab	-	-	4	4	3	50	50	100	2
		18	0	8	26	-	520	280	800	22

## B.TECH. 2/4 : SEMESTER-II

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 221	Environmental Science & Engineering	3	--	-	3	--	--	--	--	--
INE 222	Electrical measurements and Measuring Instruments	3	--	-	3	3	70	30	100	3
INE 223	Operational Amplifiers & Linear IC Applications	3	--	-	3	3	70	30	100	3
INE 224	Signals & Systems	3	--	-	3	3	70	30	100	3
INE 225	Industrial Instrumentation	3	--	-	3	3	70	30	100	3
INE 226	Electronic Instrumentation	3	--	-	3	3	70	30	100	3
<b>Lab Courses</b>										
INE 227	Industrial Instruments Lab -1	-	-	4	4	3	50	50	100	2
INE 228	Digital electronics Lab	-	-	4	4	3	50	50	100	2
		18	--	8	26	-	450	250	700	19

## B.TECH. 3/4 : SEMESTER-1

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 311	Control Systems	3	--	-	3	3	70	30	100	3
INE 312	Microprocessors and Micro Controllers	3	--	-	3	3	70	30	100	3
INE 313	Industrial Electronics	3	--	-	3	3	70	30	100	3
INE 314	Analytical Instrumentation	3	--	-	3	3	70	30	100	3
INE 315	Advanced Sensors	3	--	-	3	3	70	30	100	3
INE 316	<b>Elective - I</b>	3	--	-	3	3	70	30	100	3
	a) Computer Organization & OS b) Analog Signal Processing c) Virtual Instrumentation									
INE 317	Constitution of India/ Essence of Indian traditional Knowledge	--	--	--	--	--	--	--	--	--
<b>Lab Courses</b>										
INE 318	Industrial Instruments Lab – II	-	-	4	4	3	50	50	100	2
INE 319	Control Systems Lab	-	-	4	4	3	50	50	100	2
Total		18	--	8	26	-	520	280	800	22

## B.TECH. 3/4 : SEMESTER-II

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 321	Digital Signal Processing	3	--	-	3	3	70	30	100	3
INE 322	Process Control and Control Components	3	--	-	3	3	70	30	100	3
INE 323	<b>Elective - II</b>	3	--	-	3	3	70	30	100	3
	a) Power Plant Instrumentation b) Nondestructive Testing c) Fundamentals of Nano Sensors									
INE 324	<b>Elective - III</b>	3	--	-	3	3	70	30	100	3
	a) Advanced Control Theory b) Advanced Sensing Techniques c) Design of Instrument Systems									
INE 325	<b>Open Elective</b> Humanities and Management course	3	--	-	3	3	70	30	100	3
INE 326	<b>Project - I</b>			4	4		50	50	100	2
<b>Lab Courses</b>										
INE 327	Micro Processors Lab	-	-	4	4	3	50	50	100	2
INE 328	Virtual Instrumentation Lab	-	-	4	4	3	50	50	100	2
Total		15	--	8	23	-	520	280	800	21

## B.TECH. 4/4 : SEMESTER-I

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 411	<b>Elective-IV</b>	3	1	-	4	3	70	30	100	3
	a) Instrument Data Networks b) Digital Image Processing c) Micro and Nano Sensors									
INE 412	<b>Elective - V</b>	3	1	-	4	3	70	30	100	3
	a) Telemetry b) Artificial Intelligence c) Fiber optics & Sensors									
	<b>Lab Courses</b>									
INE 413	Open Elective – 2	3	1	-	4	3	70	30	100	3
INE 414	Biomedical Instrumentation	3	1	-	4	3	70	30	100	3
INE 415	Project -2				12	3	50	50		6
	<b>Lab Courses</b>									
INE 416	Bio Medical Instrumentation Lab	-	-	3	3	3	50	50	100	2
INE 417	Process control Lab	-	-	3	3	3	50	50	100	2
	Total	18	6	6	30		520	280	800	22

### 413 . Open Elective- 2 : IoT Sensors and Devices

## B.TECH. 4/4 : SEMESTER-II

Code	Title	L	T	P	Tot. Hrs.	University Examinations				No. of Credits
						Hrs	Mrks	Ses. Marks	Total Marks	
INE 421	<b>Elective – VI</b>	3	1	-	4	3	70	30	100	3
	a) Steel Plant Instrumentation b) Industrial Safety Instruments c) Robots & Computer control of Machine parts									
INE 422	Open elective – 3	3	1	-	4	3	70	30	100	3
INE 423	Open elective – I4	3	1	-	4	3	70	30	100	3
INE 424	Project - 3	--	--		12		50	50	100	6
	Lab course									
INE 425	DCS & PLC lab	-	-	3	3	3	50	50	100	2
	Total									17

INE 422 Open elective- III : **Programmable Control Systems**

INE 422 Open elective- IV : **VLSI**

<b>Course Total Credits</b>	<b>161</b>
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