

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
*(Formerly West Bengal University of Technology)*  
**Syllabus for B. Tech in Applied Electronics and Instrumentation Engineering (AEIE)**  
 (Applicable from the academic session 2018-2019)

### Course Structure

<b>Second Year Third Semester</b>								
<b>Theory</b>								
Sl No	Category	Code	Course Title	Contact hrs/wk				Credit Points
				L	T	P	Total	
1	Basic Science Courses	BS-M301	Mathematics –III (Probability, Transformations and Numerical Methods)	2	1	0	3	3
2	Professional Core Courses	PC-EI301	Network Analysis	3	0	0	3	3
3	Professional Core Courses	PC-EI302	Sensors and Transducers	3	0	0	3	3
4	Professional Core Courses	PC-EI303	Analog Integrated Circuit	3	0	0	3	3
5	Professional Core Courses	PC-EI304	Digital Electronic Circuits	3	0	0	3	3
6	Mandatory Courses	MC-ES301	Environmental Science	2	0	0	2	
<b>Total Theory</b>								15
<b>Practical</b>								
1	Professional Core Courses	PC-EI391	Circuits and Network Lab	0	0	3	3	1.5
2	Professional Core Courses	PC-EI392	Sensors and Transducers Lab	0	0	3	3	1.5
3	Professional Core Courses	PC-EI393	Analog Circuits Design Lab	0	0	3	3	1.5
4	Professional Core Courses	PC-EI394	Digital Circuits Design Lab	0	0	3	3	1.5
<b>Total Practical</b>								6
<b>Total of Third Semester</b>								21

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<b>Theory</b>								
SI No	Category	Code	Course Title	Contact hrs/wk				Credit Points
				L	T	P	Total	
1	Professional Core Courses	PC-EI401	Electrical & Electronic Measurement	3	0	0	3	3
2	Professional Core Courses	PC-EI402	Industrial Instrumentation	3	0	0	3	3
3	Professional Core Courses	PC-EI403	Microprocessor and Microcontroller	3	1	0	4	4
4	Engineering Science Courses	ES-CS401	Data Structure and algorithm	3	0	0	3	3
5	Basic Science Courses	BS-BIO401	Biology	3	0	0	3	3
6	Humanities and Social Sciences including Management Courses	HM-HU401	Values and Ethics in Profession	2	0	0	2	2
<b>Total Theory</b>								18
<b>Practical</b>								
1	Professional Core Courses	PC-EI491	Electrical & Electronic Measurement Lab	0	0	3	3	1.5
2	Professional Core Courses	PC-EI492	Microprocessor and Microcontroller Lab	0	0	3	3	1.5
3	Engineering Science Courses	ES-CS491	Data Structure and algorithm Lab	0	0	3	3	1.5
4	Humanities and Social Sciences including Management Courses	HM-HU481	Advanced Language Lab			2	2	1
<b>Total Practical</b>								5.5
<b>Total of Fourth Semester</b>								23.5

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<b>Third Year Fifth Semester</b>								
<b>Theory</b>								
Sl No	Category	Code	Course Title	Contact hrs/wk				Credit Points
				L	T	P	Total	
1	Professional Core Courses	PC-EI501	Control System	3	0	0	3	3
2	Professional Core Courses	PC-EI502	Communication Techniques	3	0	0	3	3
3	Professional Core Courses	PC-EI503	Electromagnetic Theory	3	0	0	3	3
4	Professional Elective Courses-I	PE-EI501/ PE-EI502	Fiber Optic Communication & Instrument/Introduction to MEMS	3	0	0	3	3
5	Open Elective Courses-I	OE-EI501/ OE-EI502	Embedded System/DBMS	3	0	0	3	3
6	Humanities and Social Sciences including Management Courses	HM-HU501	Economics for Engineers	2	0	0	2	2
<b>Total Theory</b>								17
<b>Practical</b>								
1	Professional Core Courses	PC-EI591	Control System Lab	0	0	3	3	1.5
2	Open Elective Courses -I	OE-EI591/OE-EI592	Embedded System Lab/DBMS Lab	0	0	3	3	1.5
3	Professional Core Courses	PC-EI593	Industrial Instrumentation Lab	0	0	3	3	1.5
4	Seminar	EI581	Seminar					2
<b>Total Practical</b>								6.5
<b>Total of Fifth Semester</b>								23.5

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<b>Third Year Sixth Semester</b>									
<b>Theory</b>									
SI No	Category	Code	Course Title	Contact hrs/wk				Credit Points	
				L	T	P	Total		
1	Professional Core Courses	PC-EI601	Process Control	3	0	0	3	3	
2	Professional Core Courses	PC-EI602	Biomedical Instrumentation	3	0	0	3	3	
3	Professional Elective Courses-II	PE-EI601/ PE-EI602	Power Electronics & Drives/Microelectronics and VLSI Technology	3	0	0	3	3	
4	Open Elective Courses-II	OE-EI601/ OE-EI602	IoT/Artificial Intelligence	3	0	0	3	3	
5	Open Elective Courses-III	OE-EI603/ OE-EI604	Digital signal Processing /Smart and Wireless Instrumentation	3	0	0	3	3	
6	Mandatory Courses	MC-ES601	Indian Constitution and Cultures	1	0	0	1		
<b>Total Theory</b>									15
<b>Laboratory</b>									
1	Professional Core Courses	PC-EI691	Process Control Lab	0	0	3	3	1.5	
2	Professional Core Courses	PC-EI692	Instrumentation System design Lab	0	0	3	3	1.5	
3	Open elective -II	OE-EI691/ OE-EI692	IoT Lab/AI Lab	0	0	3	3	1.5	
<b>Total Practical</b>									4.5
<b>Total of Sixth Semester</b>									19.5

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<b>Fourth Year Seventh Semester</b>								
<b>Theory</b>								
Sl No	Category	Code	Course Title	Contact hrs/wk				Credit Points
				L	T	P	Total	
1	Professional Elective Courses-III	PE-EI701/ PE-EI702	Mechatronics/Digital Control System	3	0	0	3	3
2	Professional Elective Courses-IV	PE-EI703/ PE-EI704	Analytical Instrumentation/Robotics & Automation	3	0	0	3	3
3	Open Elective Courses-IV	OE-EI701/ OE-EI702	Non-Conventional Energy System/Non Destructive Testing	3	0	0	3	3
4	Engineering Science Courses	ES-CS701	Computer Networks	3	0	0	3	3
<b>Total Theory</b>								12
<b>Practical</b>								
1	Project Stage-I	PW-EI791	Project I					4
2	Industrial Training	EI781	Industrial Training Evaluation					1
<b>Total Practical</b>								5
<b>Total of Seventh Semester</b>								17

<b>Fourth Year Eighth Semester</b>								
<b>Theory</b>								
Sl No	Category	Code	Course Title	Contact hrs/wk				Credit Points
				L	T	P	Total	
1	Professional Elective Courses-V	PE-EI801/ PE-EI802	Power Plant Instrumentation/Nano Electronics	3	0	0	3	3
2	Open Elective Courses-V	OE-EI801/ OE-EI802	Digital Image Processing /Big Data Analysis	3	0	0	3	3
3	Humanities and Social Sciences including Management Courses	HM- HU801	Management Concept & Practice	2	0	0	2	2
<b>Total Theory</b>								8
<b>Practical</b>								
1	Project Stage-I	PW-EI891	Project II					8
2	Grand Viva	EI881	Grand Viva-Voce					1.5
<b>Total Practical</b>								9.5
<b>Total of Eighth Semester</b>								17.5

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SI No	Category	Suggested Breakup of Credits (total 160)	
		Dept. of AEIE	As per AICTE
1	Humanities and Social Science including Management courses	10	12
2	Basic Science Courses	25	25
3	Engineering Science Courses including workshop, drawing basic of electrical/mechanical/computer etc.	23.5	24
4	Professional Core Courses	52	48
5	Professional Elective Courses relevant to chosen specialization/branch	15	18
6	Open subjects-Elective from other technical or emerging subject	18	18
7	Project work ,seminar and internship in industry or elsewhere	16.5	15
8	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]		(non-credit)
	<b>Total</b>	160	160

❖ Minor variation is allowed as per need of the respective disciplines.