

**MaulanaAbulKalam Azad University of Technology, West Bengal**  
*(Formerly West Bengal University of Technology)*  
**Syllabus for B. Tech in Instrumentation and Control Engineering (ICE)**  
 (Applicable from the academic session 2018-2019)  
Curriculum Structure

<b>Second Year Third Semester</b>							
Sl. No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Basic science Courses	BS-CS301	Numerical Methods	2	1	0	3
2	Professional Core Courses	PC-IC301	Electric Circuit Theory	3	0	0	3
3	Professional Core Courses	PC-IC302	Analog Integrated circuits	3	0	0	3
4	Professional Core Courses	PC-IC303	Digital Electronic Circuits	3	0	0	3
5	Engineering Science Courses	ES-CS301	Data Structure and algorithm	3	0	0	3
6	Mandatory Courses	MC-ES301	Environmental Science	2	0	0	0
<b>Total Theory</b>							<b>15</b>
<b>Practical</b>							
1	Professional core Courses	PC-IC391	Electric Circuit Lab	0	0	3	1.5
2	Professional core Courses	PC-IC392	Analog circuits Design Lab	0	0	3	1.5
3	Professional core Courses	PC-IC393	Digital Circuits Design Lab	0	0	3	1.5
4	Engineering Science Courses	ES-CS391	Data Structure and algorithm Lab	0	0	3	1.5
<b>Total Practical</b>							<b>6</b>
<b>Total of Third Semester</b>							<b>21</b>
<b>Second Year Fourth Semester</b>							
Sl. No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Professional Core Courses	PC-IC401	Electrical & Electronic Measurement	3	0	0	3
2	Professional Core Courses	PC-IC402	Sensor & Transducer	3	0	0	3
3	Professional Core Courses	PC-IC403	Microprocessor and Microcontroller	3	0	0	3
4	Professional Core Courses	PC-IC404	Electric Field Theory	3	0	0	3
5	Professional Core Courses	PC-IC405	Control system I	3	0	0	3

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6	Humanities and Social Sciences including Management Courses	HM-HU401	Values and Ethics in Profession	2	0	0	2
<b>Total Theory</b>				<b>17</b>			
<b>Practical</b>							
1	Professional core Courses	PC-IC491	Electrical & Electronic Measurement Lab	0	0	3	1.5
2	Professional core Courses	PC-IC492	Sensor & Transducer	0	0	3	1.5
3	Professional core Courses	PC-IC493	Microprocessor and Microcontroller Lab	0	0	3	1.5
4	Professional core Courses	PC-IC494	Control system I Lab	0	0	3	1.5
<b>Total Practical</b>				<b>6</b>			
<b>Total of Fourth Semester</b>				<b>23</b>			

**Third Year Fifth Semester**

Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Professional Core Courses	PC-IC501	Industrial Instrumentation	3	0	0	3
2	Professional Core Courses	PC-IC502	Digital Signal Processing	3	0	0	3
3	Professional Core Courses	PC-IC503	Control System II	3	0	0	3
4	Professional Elective Courses-1	PE-IC501/PE-IC502	Optical Instrumentation/Introduction to MEMS	3	0	0	3
5	Open Elective Courses-1	OE-IC501/OE-IC502	Embedded System/DBMS	3	0	0	3
6	Humanities and Social Sciences including Management Courses	HM-HU501	Economics for Engineers	3	0	0	3
<b>Total Theory</b>				<b>18</b>			
<b>Practical/ Sessional</b>							
1	Professional core Courses	PC-IC591	Industrial Instrumentation Lab	0	0	3	1.5
2	Professional core Courses	PC-IC592	Control System II	0	0	3	1.5
3	Open Elective-1	OE-	Embedded System/DBMS Lab	0	0	3	1.5

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		EI591/OE- EI592					
4	Seminar	IC581	Seminar				1.5
<b>Total Practical</b>				<b>6</b>			
<b>Total of Fifth Semester</b>				<b>24</b>			
<b>Third Year Sixth Semester</b>							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Professional Core Courses	PC-IC601	Process control	3	0	0	3
2	Professional Core Courses	PC-IC602	Data Communication and Telemetry	3	0	0	3
3	Professional Core Courses	PC-IC603	Biomedical Instrumentation	3	0	0	3
4	Professional Elective Courses-2	PE-IC601/PE-IC602	Power Electronics & Drivers/Microelectronics and VLSI Technology	3	0	0	3
5	Open Elective Courses-2	OE-IC601/OE-IC602	IOT/Artificial Intelligence	3	0	0	3
6	Mandatory Courses	MC-ES61	Indian Constitution and culture	1	0	0	
<b>Total Theory</b>				<b>15</b>			
<b>Practical/ Sessional</b>							
1	Professional core Courses	PC-IC691	Process control Lab	0	0	3	1.5
2	Professional core Courses	PC-IC692	Instrumentation system Design Lab	0	0	3	1.5
3	Open Elective 2	OE-IC691/OE-IC692	IOT Lab/AI lab	0	0	3	1.5
<b>Total Practical</b>				<b>4.5</b>			
<b>Total of Sixth Semester</b>				<b>19.5</b>			

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<b>Fourth Year Seventh Semester</b>							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Professional Elective Courses-3	PE-IC701/PE-IC702	Control System Design/Robotics and automation	3	0	0	3
2	Professional Elective Courses-4	PE-IC703/PE-IC704	Analytical Instrumentation/Digital control system	3	0	0	3
3	Open Elective Courses-3	OE-IC701/OE-IC702	Non-Convectional Energy System/Non-destructive testing	3	0	0	3
4	Engineering Courses	ES-CS701	Computer Networks	3	0	0	3
<b>Total Theory</b>				<b>12</b>			
<b>Practical/ Sessional</b>							
1	Project Stage-1	PW-IC791	Project I				4
2	Industrial Training	IC781	Industrial Training Evaluation				1
<b>Total Practical</b>				<b>5</b>			
<b>Total of Seventh Semester</b>				<b>17</b>			
<b>Fourth Year Eighth Semester</b>							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Professional Elective Courses-5	PE-IC801/PE-IC802	Power Plant Instrumentation/Nano Electronics	3	0	0	3
2	Open Elective Courses-4	OE-IC801/OE-IC802	Logic and Distributed control systems /Smart and Wireless instrumentation	3	0	0	3
3	Humanities and Social sciences including Management Courses	HM-HU801	Management Concept and Practice	2	0	0	2
<b>Total Theory</b>				<b>8</b>			
<b>Practical/ Sessional</b>							
1	Project Stage-1	PW-IC891	Project II				8
2	Grand Viva	IC881	Grand Viva-Voce				1.5
<b>Total Practical</b>				<b>9.5</b>			
<b>Total of Eighth Semester</b>				<b>17.5</b>			

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Sl No.	Category	Suggested Breakup of Credits (Dept. of ICE)	Suggested Breakup of Credits (160) (As per AICTE)
1	Humanities and Social sciences including Management Courses	10	12
2	Basic Science course	22	25
3	Engineering Science courses	23.5	24
4	Professional core Courses	55.5	48
5	Professional Elective Courses	15	18
6	Open Elective Courses	18	18
7	Project work Seminar and internship in industry	16	15
8	Mandatory Courses		(NON-CREDIT)
	<b>TOTAL</b>	<b>160</b>	<b>160</b>