

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
**(Formerly known as West Bengal University of Technology)**  
**Syllabus of B.Tech in Electronics and Computer Science**  
**Effective from academic session 2023-2024**

**1<sup>st</sup> Semester**

**1<sup>st</sup> year Syllabus - GROUP B**

First year first semester								
Mandatory Induction Program-3 weeks duration								
Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>A.THEORY</b>								
1	Basic Science course	BS-CH101	Chemistry-I(Gr-B)	3	1	0	4	4
2	Basic Science course	BS-M102	Mathematics-IB	3	1	0	4	4
3	Engineering Science Courses	ES-EE101	Basic Electrical Engineering	3	1	0	4	4
	Total Theory			9	3	0	12	12
<b>B. PRACTICAL</b>								
	Basic Science course	BS-CH191	Chemistry-I Laboratory(Gr-B)	0	0	3	3	1.5
	Engineering Science Courses	ES-EE191	Basic Electrical Engineering Laboratory	0	0	2	2	1.0
	Engineering Science Courses	ES-ME191	Engineering Graphics & Design(Gr-B)	1	0	4	5	3
	Total Practical			1	0	9	10	5.5
<b>Total of first semester</b>								<b>17.5</b>

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First year second semester								
Mandatory Induction Program-3 weeks duration								
Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>A.THEORY</b>								
1	Basic Science course	BS-PH201	Physics-I(Gr-B)	3	1	0	4	4
2	Basic Science course	BS-M202	Mathematics-IIB	3	1	0	4	4
3	Engineering Science Courses	ES-CS201	Programing for problem solving	3	0	0	3	3
4	Humanities and Social Sciences including Management courses	HM-HU201	English	2	0	0	0	2
	Total Theory			11	2	0	11	13
<b>B. PRACTICAL</b>								
	Basic Science course	BS-PH291	Physics-I Laboratory (Gr-B)	0	0	3	3	1.5
	Engineering Science Courses	ES-CS291	Programing for Problem Solving	0	0	4	4	2.0
	Engineering Science Courses	ES-ME292	Workshop/Manufacturing Practices(Gr-B)	1	0	4	5	3
	Humanities and Social Sciences including Management courses	HM-HU291	Language Laboratory	0	0	2	2	1
	Total Practical			1	0	13	14	7.5
<b>Total of second semester</b>								<b>20.5</b>

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**3<sup>rd</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>THEORY</b>								
1	Basic Science course	BS-M301	Mathematics-III	3	0	0	3	3
2	Engineering Science Course	ES-EC301	Analog & Digital Electronics	3	0	0	3	3
3	Engineering Science Course	ES-EE302	Circuit theory & Networks	3	0	0	3	3
4	Program core	PC-ECS301	Data structure and Algorithms	3	0	0	3	3
5	Program core	PC-ECS302	Computer Organization	3	0	0	3	3
6	Humanities & Social Sciences including Management Course	HM-HU301	Economics for Engineers	3	0	0	3	3
<b>B. PRACTICAL</b>								
7	Engineering Science Course	ES-EC391	Analog & Digital Electronics lab	0	0	3	3	1.5
8	Engineering Science Course	ES-EE392	Simulation Workshop (MATLAB or equivalent/Python/R)	0	0	3	3	1.5
9	Program core	PC-ECS391	Data structure and Algorithms Lab	0	0	3	3	1.5
10	Program core	PC-ECS392	Computer Organization Lab	0	0	3	3	1.5
<b>C. MANDATORY ACTIVITIES/COURSES</b>								
11	Mandatory course	MC-ES301	Environmental Science	2	0	0	2	0
<b>Total Credit</b>								<b>24</b>

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**4<sup>th</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>A.THEORY</b>								
1	Engineering Science Course	ES-EC401	Electromagnetics and Antenna	3	0	0	3	3
2	Program core	PC-ECS401	Object Oriented Programming	3	0	0	3	3
3	Program core	PC-ECS402	Microprocessor and Microcontrollers	3	0	0	3	3
4	Program core	PC-ECS403	Communication Engineering	3	0	0	3	3
5	Program core	PC-ECS404	Operating Systems	3	0	0	3	3
6	Basic Science course	BS-BIO401	Biology for Engineers	2	0	0	2	2
<b>B. PRACTICAL</b>								
7	Program core	PC-ECS491	Object Oriented Programming Lab	0	0	2	2	1
8	Program core	PC-ECS492	Microprocessor and Microcontrollers Lab	0	0	3	3	1.5
9	Program core	PC-ECS493	Communication Engineering Lab	0	0	3	3	1.5
10	Humanities	HM-HU481	Soft skill and Personality Development Lab	0	0	2	2	1
<b>C. MANDATORY ACTIVITIES/COURSES</b>								
11	Mandatory course	MC-ES401	Indian constitution					0
<b>Total Credit</b>								<b>22</b>

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**5<sup>th</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>THEORY</b>								
1	Program core	PC-ECS501	Artificial Intelligence	3	0	0	3	3
2	Program core	PC-ECS502	Computer Networks	3	0	0	3	3
3	Program core	PC-ECS503	Database Management Systems	3	0	0	3	3
4	Professional Elective-I	PE-ECS501 A/B/C	Design and Analysis of Algorithms/ Sensors and Transducers/ Embedded Systems	3	0	0	3	3
5	Professional Elective-II	PE-ECS502 A/B/C	Control System Engineering /Solid State Devices /Theory of Computation	3	0	0	3	3
6	Humanities	HM-HU501	Industrial management	3	0	0	3	3
<b>B. PRACTICAL</b>								
7	Program core	PC-ECS591	Software Engineering Lab	0	0	3	3	1.5
8	Program core	PC-ECS592	Computer Networks Lab	0	0	3	3	1.5
9	Program core	PC-ECS593	Database Management Systems Lab	0	0	2	2	1.0
10	Professional Elective-I	PE-ECS591 A/B/C	Design and Analysis of Algorithms Lab / Sensors and Transducers Lab / Embedded Systems Lab	0	0	3	3	1.5
<b>Total Credit</b>								<b>23.5</b>

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**6<sup>th</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>THEORY</b>								
1	Program core	PC-ECS601	Industrial Automation	3	0	0	3	3
2	Program core	PC-ECS602	Machine Learning	3	0	0	3	3
3	Program core	PC-ECS603	Internet of Things	3	0	0	3	3
4	Professional Elective-I	PE-ECS601 A/B/C	Microelectronics & VLSI / Electronic Measurement & Measuring Instruments/ /Industry 5.0	3	0	0	3	3
5	Professional Elective-II	PE-ECS602 A/B	Robotics/ Information Theory and Coding /Web Technology	3	0	0	3	3
6	Professional Elective-III	PE-ECS603 A/B/C	Power Electronics /Virtual Instrumentation / Digital Signal Processing	3	0	0	3	3
<b>B. PRACTICAL</b>								
7	Program core	PC-ECS691	Industrial Automation Lab	0	0	3	3	1.5
8	Program core	PC-ECS692	Machine Learning Lab	0	0	2	2	1
9	Program core	PC-ECS693	Internet of Things Lab	0	0	3	3	1.5
10	Project	ECS 681	Mini project				4	2
<b>Total Credit</b>								<b>24</b>

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**7<sup>th</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>THEORY</b>								
1	Professional Elective-I	PE-ECS701 A/B/C	Cryptography & Cyber Security /Digital Image Processing / Soft Computing	2	0	0	2	2
2	Open Elective-I	OE-ECS701	Optical Communication /Operation research/Economic policies in India	2	0	0	2	2
2	Open Elective-II	OE-ECS702 A/B/C	Quantum Computing /Cloud Computing /Mobile computing	3	0	0	3	3
3	Open Elective-III	OE-ECS703 A/B/C	Equity Stock market/Digital marketing/Multimedia System	2	0	0	2	2
<b>B. PRACTICAL</b>								
4	Training	ECS 781	Industrial Training/Internship	0	0	2	2	1
5	Project	ECS 782	Major Project -I	0	0	12	12	6
<b>Total Credit</b>								<b>16</b>

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**8<sup>th</sup> semester**

Sl No	Category	Course Code	Course Title	Hours per week				Credits
				L	T	P	Total	
<b>THEORY</b>								
1	Open Elective-I	OE-ECS801 A/B/C	MEMS Technology /Biomedical Electronics /Mobile Communication	2	0	0	2	2
2	Open Elective-II	OE-ECS802 A/B/C	Nano Electronics /Microwave Technology /Photonic integrated circuit	2	0	0	2	2
3	Open Elective-III	OE-ECS803 A/B/C	Data Science /Neural network and Deep Learning/Satellite Communication	3	0	0	3	3
<b>B. PRACTICAL</b>								
4	Project	ECS 881	Major Project -I	0	0	12	12	6
5		ECS 882	Grand Viva					1.5
<b>Total Credit</b>								<b>14.5</b>

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**Summary**

<b>Sub</b>	<b>Model credit(AICTE)</b>	<b>Proposed ECS credit</b>
<b>HU</b>	12	10
<b>BS</b>	25	24
<b>ES</b>	24	28
<b>PC</b>	48	51
<b>PE</b>	18	18.5
<b>OE</b>	18	15
<b>Project/Seminar/Internship</b>	15	16.5
<b>Mandatory courses</b>	0	0
<b>Total Credit</b>	160	163