COURSE STRUCTURE

for

B.TECH. DEGREE

in

ELECTRICAL ENGINEERING

(Applicable from the academic session 2024-2025)

DR. B.C. ROY SOCIETY ENGINEERING
AN AUTONOMOUS INSTITUTE

Dr. B. C. Roy Engineering College

An Autonomous Institution

Approved by: All India Council for Technical Education (AICTE)

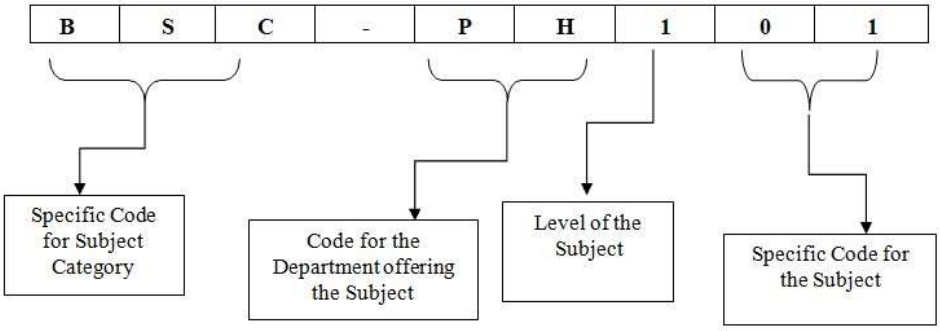
Affiliated to: Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly Known as -WBUT)
Jemua Road, Durgapur, West Bengal, India,713206

The first year course structure (Page 3 and Page 4) is unanimously accepted and approved in the first BoS meeting held in the Department of a) Physics, b) Chemistry, c) Mathematics, d) English, e) Electrical Engineering, f) Electronics and Communication Engineering, g) Computer Science and Engineering, h) Mechanical Engineering
The BoS of EE (Electrical Engineering) in its first meeting (held in the Department of EE (Electrical Engineering) on 6th November,2024 has unanimously accepted and approved the four year course structure of EE (Electrical Engineering).

Signature of the BoS Chairman

Head
Dept. Electrical Engineering
Dr. B. C. Roy Engineering College
Durgapur

Subject Numbering Scheme:



Semester Wise Break Up of Credit (New Autonomous Structure)

Sem1	Sem2	Sem3	Sem4	Sem5	Sem6	Sem7	Sem8	Total
20	22	25	26	25	25	16	16	175

S. No.	Category	Breakup of Credits (Actual) As per Proposed Autonomous Structure
1.	Humanities and Social Sciences including Management courses	13
2.	Basic Science Courses	20
3.	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	35
4.	Professional core course	69
5.	Professional Elective specialization/branch courses relevant to chosen	12
6.	Indian Knowledge System	0
7.	Multidisciplinary Open Electives Courses	15
8.	Project work, seminar and internship in industry or appropriate work place/ academic and research institutions in India/abroad	11
9.	Mandatory Non Credit Courses – Audit Course	0
Total Credits		**175**

B. Tech., 1st Yr (1st Semester)

Theory							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
1	**Mathematics-I**	**BSC-M 101**	**100**	**3**	**0**	**0**	**3**
2	**Physics**	**BSC- PH 101**	**100**	**3**	**0**	**0**	**3**
3	**Basic Electrical Engineering**	**ESC- EE 101**	**100**	**3**	**0**	**0**	**3**
4	**Engineering Mechanics**	**ESC-ME 101**	**100**	**3**	**0**	**0**	**3**
5	**English Language and Technical Communication**	**HS-MC 101**	**100**	**3**	**0**	**0**	**3**
	Total Theory		**500**	**15**	**0**	**0**	**15**
		Practical					
1	**Physics Lab**	**BSC-PH 191**	**100**	**0**	**0**	**2**	**1**
2	**Basic Electrical Engineering Lab**	**ESC-EE 191**	**100**	**0**	**0**	**2**	**1**
3	**Language Lab**	**HS-MC 191**	**100**	**0**	**0**	**2**	**1**
4	**Workshop Practices**	**ESC-ME 192**	**100**	**0**	**0**	**4**	**2**
	Total Practical		**400**	**0**	**0**	**10**	**5**
	Total in 1st Semester		**900**	**15**	**0**	**10**	**20**
Extra Curricular Activity							
1	**NSS**	**EC-NSS 101**	**100**				**0**

B. Tech. 1st Yr (2nd Semester)

Theory							
Sl. No.	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
1	Mathematics-II	BSC-M 201	100	3	0	0	3
2	Chemistry	BSC-CH 201	100	3	0	0	3
3	Basic Electronics Engineering	ESC-EC 201	100	3	0	0	3
4	Introduction to Computer Hardware and Software	ESC-CS 201	100	3	0	0	3
5	Programming for Problem Solving	ESC-CS 202	100	3	0	0	3
	Total Theory		500	15	0	0	15
Practical							
1	Chemistry Lab	BSC-CH 291	100	0	0	2	1
2	Basic Electronics Engineering Lab	ESC-EC 291	100	0	0	2	1
3	Engineering Graphics	ESC-ME 291	100	0	0	4	2
4	Introduction to Computer Hardware and Software Lab	ESC-CS 291	100	0	0	2	1
5	Programming for Problem Solving Lab	ESC-CS 292	100	0	0	4	2
	Total Practical		500	0	0	14	7
	Total of 2nd Semester		1000	15	0	14	22
Mandatory Courses							
1	Environmental Science	MC-ES 201		1	0	0	0

Total Credit in 1st Year: 42

Dr. B C Roy Engineering College, Durgapur
(An Autonomous Institute)
DEPARTMENT OF ELECTRICAL ENGINEERING
Curriculum for B.Tech Course
(Applicable From Academic Year: 2024-25)

February 4, 2025

3rd Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE301	Network Theory	3	0	0	3	3
2	PC-EE302	Analog Electronics	3	0	0	3	3
3	PC-EE303	Electromagnetic Field Theory	3	0	0	3	3
4	HM-EE301	Engineering Economics	3	0	0	3	3
5	BS-M301	Mathematics-III	3	0	0	3	3
6	BS-EE301	Biology for Engineers	3	0	0	3	3
7	CS-EE301	Data Structures & Algorithm	3	0	0	3	3
Total of Semester						21	21

Practical:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE391	Network Laboratory	0	0	2	2	1
2	PC-EE392	Analog Electronics Laboratory	0	0	2	2	1
3	PC-CS391	Numerical Methods Laboratory	0	0	2	2	1
4	CS-EE391	Data Structures & Algorithm Laboratory	0	0	2	2	1
		Total of Practical/ Sessional				8	4
TOTAL OF SEMESTER:						**29**	**25**

4th Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE401	Electrical Machines-I	3	0	0	3	3
2	PC-EE402	Digital Electronics	3	0	0	3	3
3	PC-EE403	Electrical and Electronic Measurement	3	0	0	3	3
4	PC-EE404	Power System-I	3	0	0	3	3
5	ES-EE401	Power Plant Engineering	3	0	0	3	3
6	CS-EE 401	Programming with Python	3	0	0	3	3
7	HU-EE-401	Values & Ethics in Engineering Profession	3	0	0	3	3
Total of Semester						21	21

Practical:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE491	Electrical Machines-I Laboratory	0	0	2	2	1
2	PC-EE492	Digital Electronics Laboratory	0	0	2	2	1
3	PC-EE493	Electrical and Electronic Measurement Laboratory	0	0	2	2	1
4	PC-EE494	Power System-I Laboratory	0	0	2	2	1
5	CS-EE 491	Python Programming Laboratory	0	0	2	2	1
		Total of Practical/ Sessional				10	5
TOTAL OF SEMESTER:						**31**	**26**

5th Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE501	Electrical Machines-II	3	0	0	3	3
2	PC-EE502	Power System-II	3	0	0	3	3
3	PC-EE503	Control System – I	3	0	0	3	3
4	PC-EE504	Power Electronics	3	0	0	3	3
5	PE-EE501	A. High Voltage Engineering B. Renewable & Nonconventional Energy C. Smart Grid Technology	3	0	0	3	3
6	OE-EE501	A. VLSI Circuits & Systems B. Sensors and Transducers C. Biomedical Instrumentation	3	0	0	3	3
7	OE-EE502	A. Soft computing and Machine Learning Techniques B. Object Oriented Programming C. Digital Signal Processing	3	0	0	3	3
Total of Semester						21	21

Practical:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE591	Electrical Machines-II Laboratory	0	0	2	2	1
2	PC-EE592	Power System-II Laboratory	0	0	2	2	1
3	PC-EE593	Control System – I Laboratory	0	0	2	2	1
4	PC-EE594	Power Electronics Laboratory	0	0	2	2	1
		Total of Practical/ Sessional				8	4
TOTAL OF SEMESTER:						**29**	**25**

6th Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE601	Electrical Drives	3	0	0	3	3
2	PC-EE602	Control System – II	3	0	0	3	3
3	PC-EE603	Microprocessor and Microcontroller	3	0	0	3	3
4	PC-EE604	AI and Data Science in EE	3	0	0	3	3
5	PE-EE601	A. Electric and Hybrid Vehicle B. Power Quality & FACTS C. HVDC Transmission	3	0	0	3	3
6	OE-EE601	A. Digital Image Processing B. Communication Engineering C. Electrical Engineering Materials	3	0	0	3	3
7	OE-EE602	A. Database Management Systems B. Block Chain C. Big Data Analytics	3	0	0	3	3
Total of Semester						21	21

Practical:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE691	Electrical Drives Laboratory	0	0	2	2	1
2	PC-EE692	Control System –II Laboratory	0	0	2	2	1
3	PC-EE693	Microprocessor and Microcontroller Laboratory	0	0	2	2	1
4	PC-EE694	AI and Data Science in EE Laboratory	0	0	2	2	1
		Total of Practical/ Sessional				8	4
TOTAL OF SEMESTER:						**29**	**25**

7th Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE701	Utilization of Electrical Power	3	0	0	3	3
2	PE-EE701	A. Advanced Power Electronics and Drives B. Energy Management & Auditing and Safety C. Power Generation Economics	3	0	0	3	3
3	OE-EE701	A. Internet of Things B. Embedded Systems C. Substation Automation System and SCADA	3	0	0	3	3
4	HM-EE701	Principle of Management	3	0	0	3	3
Total of Semester						12	12

Practical/Sessional:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PW-EE781	Project Stage-I	0	0	2	4	2
2	PW-EE782	Seminar on VT	0	0	2	0	1
3	PC-EE781	Machine Design Laboratory	0	0	2	2	1
		Total of Practical/ Sessional				6	4
TOTAL OF SEMESTER:						**18**	**16**

8th Semester

Theory:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE801	Power system dynamics & control	3	0	0	3	3
2	PE-EE801	A. Condition Monitoring of Electrical Machines B. Industrial Automation and Control C. Battery Management Systems	3	0	0	3	3
Total of Semester						6	6

Practical/Sessional:

Sl. No	Code	Paper	Contact periods per week			Total Contact Hrs	Credits
			L	T	P		
1	PW-EE881	Project Stage-II	0	0	16	16	8
2	PC-EE882	Grand Viva	0	0	0	0	2
		Total of Practical/ Sessional				16	10
TOTAL OF SEMESTER:						**22**	**16**