

COURSE STRUCTURE
for
B.TECH. DEGREE
in
ELECTRICAL ENGINEERING

(Applicable from the Academic Session 2024-25)



Dr. B. C. Roy Engineering College, Durgapur
(An Autonomous Institute)

Approved by: All India Council for Technical Education

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 syllabus is unanimously accepted and approved in the first BOS meeting held in the Department of a) Physics, b) Chemistry, c) English, d) Electrical Engineering, e) Mechanical Engineering.

The BOS of Electrical Engineering in its third meeting (held on 20th of May, 2025) has unanimously accepted and approved the four-year course curriculum for B. Tech (EE).


Dr. Shibendu Mahata
Chairman, BOS(EE)

Programme Code: 016

Programme : B.Tech in Electrical Engineering

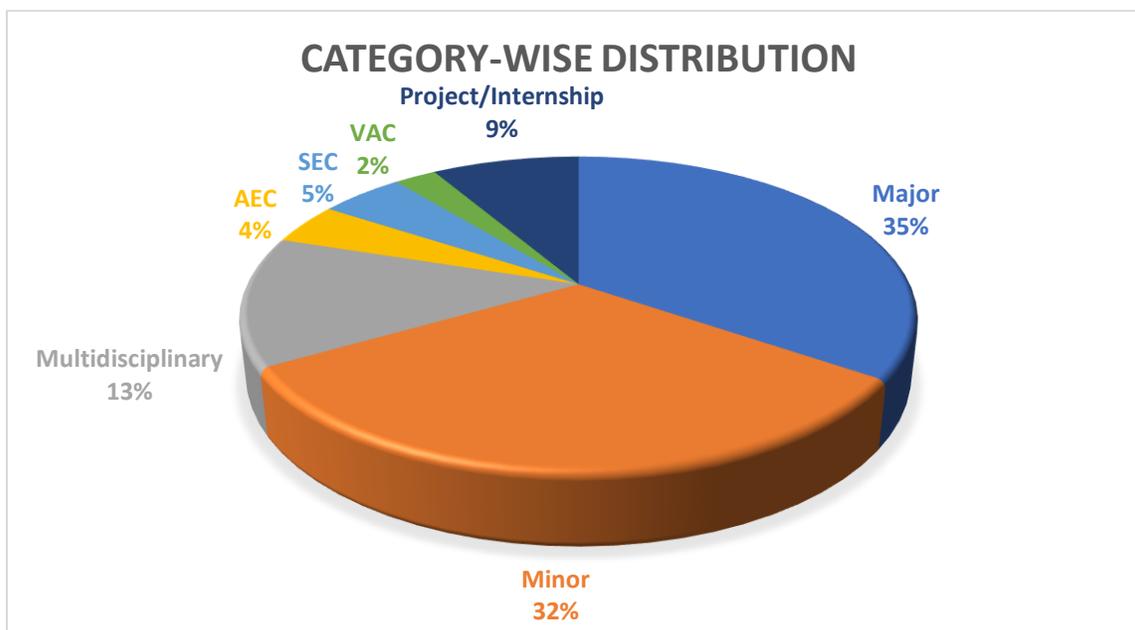
Semester-wise Breakup:

Category	1st Sem	2 nd Sem	3 rd Sem	4 th Sem	5 th Sem	6 th Sem	7 th Sem	8 th Sem	Total Credit (Category Wise)
Major	4	0	7	8	16	15	7	0	57
Minor	0	13	9	15	8	8	0	0	53
Multidisciplinary	9	6	3	0	0	0	4	0	22
AEC	4	0	0	0	0	1	2	0	7
SEC	3	3	0	0	0	1	1	0	8
VAC	0	0	3	1	0	0	0	0	4
Project/Internship	0	0	0	0	0	0	3	11	14
Total Credit (Semester Wise)	20	22	22	24	24	25	17	11	165

AEC: Ability Enhancement Courses

SEC: Skill Enhancement Courses

VAC: Value Added Courses



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Year (Semester) : 1st Year (1st Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	SC	Multidisciplinary	BS-101	Physics	3	0	0	3	3
2	SC	Multidisciplinary	BS-103	Mathematics	3	0	0	3	3
3	HUM	Ability Enhancement Courses	BS-104	English Language and Technical Communication	3	0	0	3	3
4	ENGG	Major	BS-105	Basic Electrical Engineering	3	0	0	3	3
5	SC	Multidisciplinary	BS-106	Engineering Mechanics	3	0	0	3	3
TOTAL Theory					15	0	0	15	15
B. Practical/Sessional									
1	SC	Skill Enhancement Courses	BS-111	Physics Laboratory	0	0	2	2	1
2	HUM	Ability Enhancement Courses	BS-113	Language Laboratory	0	0	2	2	1
3	ENGG	Major	BS-114	Basic Electrical Engineering Laboratory	0	0	2	2	1
4	ENGG	Skill Enhancement Courses	BS-115	Workshop Practices	0	0	4	4	2
5	EC	Value Added Courses	-	NSS	0	0	0	0	0
TOTAL Practical/Sessional					0	0	10	10	5
Total of Semester					15	0	10	25	20

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Year (Semester) : 1st Year (2nd Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	SC	Multidisciplinary	BS-102	Chemistry	3	0	0	3	3
2	ENGG	Minor	BS-107	Basic Electronics Engineering	3	0	0	3	3
3	ENGG	Minor	BS-108	Introduction to Computer Hardware and Software	3	0	0	3	3
4	SC	Multidisciplinary	BS-109	Mathematics-II	3	0	0	3	3
5	ENGG	Minor	BS-110	Programming for Problem Solving	3	0	0	3	3
TOTAL Theory					15	0	0	15	15
B. Practical									
1	SC	Skill Enhancement Courses	BS-112	Chemistry Laboratory	0	0	2	2	1
2	ENGG	Minor	BS-116	Basic Electronics Engineering Laboratory	0	0	2	2	1
3	ENGG	Minor	BS-117	Introduction to Computer Hardware and Software Laboratory	0	0	2	2	1
4	ENGG	Skill Enhancement Courses	BS-118	Engineering Graphics	0	0	4	4	2
5	ENGG	Minor	BS-119	Programming for Problem Solving Laboratory	0	0	4	4	2
6	SC	Value Added Courses	BS-120	Environmental Science	1	0	0	1	0
TOTAL Practical/Sessional					1	0	14	15	7
Total of Semester					16	0	14	30	22

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Year (Semester) : 2nd Year (3rd Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	ENGG	Major	EE-201	Network Theory	3	0	0	3	3
2	ENGG	Major	EE-202	Electromagnetic Field Theory	3	0	0	3	3
3	ENGG	Minor	EE-203	Digital Electronics	3	0	0	3	3
4	ENGG	Minor	EE-204	Data Structures & Algorithm	3	0	0	3	3
5	SC	Multidisciplinary	EE-205	Advanced Engineering Mathematics	3	0	0	3	3
6	HUM	Value Added Courses	EE-206	Values and Ethics in Profession	2	0	0	2	2
7	ENGG	Value Added Courses	EE-207	Biology for Engineers	2	0	0	2	1
TOTAL Theory					19	0	0	19	18
B. Practical/Sessional									
1	ENGG	Major	EE-208	Network Laboratory	0	0	2	2	1
2	ENGG	Minor	EE-209	Digital Electronics Laboratory	0	0	2	2	1
3	ENGG	Minor	EE-210	Data Structures & Algorithm Laboratory	0	0	2	2	1
4	ENGG	Minor	EE-211	Python Programming Laboratory	0	0	2	2	1
TOTAL Practical/Sessional					0	0	8	8	4
Total of Semester					19	0	8	27	22

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Year (Semester) : 2nd Year (4th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	ENGG	Major	EE-212	Electrical Machines-I	3	0	0	3	3
2	ENGG	Major	EE-213	Electrical and Electronic Measurements	3	0	0	3	3
3	ENGG	Minor	EE-214	Analog Electronics	3	0	0	3	3
4	ENGG	Minor	EE-215	Microprocessor and Microcontroller	3	0	0	3	3
5	ENGG	Minor	EE-216	Power Plant Engineering	3	0	0	3	3
6	ENGG	Minor	EE-217	Object Oriented Programming	3	0	0	3	3
7	HUM	Value Added Courses	EE-218	Indian Constitution	2	0	0	2	1
TOTAL Theory					20	0	0	20	19
B. Practical/Sessional									
1	ENGG	Major	EE-219	Electrical Machines-I Laboratory	0	0	2	2	1
2	ENGG	Major	EE-220	Electrical and Electronic Measurements Laboratory	0	0	2	2	1
3	ENGG	Minor	EE-221	Analog Electronics Laboratory	0	0	2	2	1
4	ENGG	Minor	EE-222	Microprocessor and Microcontroller Laboratory	0	0	2	2	1
5	ENGG	Minor	EE-223	Object Oriented Programming using Java Laboratory	0	0	2	2	1
TOTAL Practical/Sessional					0	0	10	10	5
Total of Semester					20	0	10	30	24

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Programme : B.Tech in Electrical Engineering

Year (Semester) : 3rd Year (5th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	ENGG	Major	EE-301	Electrical Machines-II	3	0	0	3	3
2	ENGG	Major	EE-302	Power System-I	3	0	0	3	3
3	ENGG	Major	EE-303	Control System	3	0	0	3	3
4	ENGG	Major	EE-304	Power Electronics	3	0	0	3	3
5	ENGG	Minor	EE-305	Embedded Systems	3	0	0	3	3
6	ENGG	Minor	EE-306	Artificial Intelligence & Machine Learning	3	0	0	3	3
TOTAL Theory					18	0	0	18	18
B. Practical/Sessional									
1	ENGG	Major	EE-307	Electrical Machines-II Laboratory	0	0	2	2	1
2	ENGG	Major	EE-308	Power System-I Laboratory	0	0	2	2	1
3	ENGG	Major	EE-309	Control System Laboratory	0	0	2	2	1
4	ENGG	Major	EE-310	Power Electronics Laboratory	0	0	2	2	1
5	ENGG	Minor	EE-311	Embedded Systems Laboratory	0	0	2	2	1
6	ENGG	Minor	EE-312	Artificial Intelligence & Machine Learning using Python Laboratory	0	0	2	2	1
TOTAL Practical/Sessional					0	0	12	12	6
Total of Semester					18	0	12	30	24

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Year (Semester) : 3rd Year (6th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	ENGG	Major	EE-313	Power System-II	3	0	0	3	3
2	ENGG	Major	EE-314	Electric Drives	3	0	0	3	3
3	ENGG	Major	EE-315	Non-linear Control and Industrial Automation	3	0	0	3	3
4	ENGG	Minor	EE-316	VLSI and Microelectronics	3	0	0	3	3
5	ENGG	Minor	EE-317	Digital Signal Processing	3	0	0	3	3
6	ENGG	Major	EE-318	Power Quality & FACTS	3	0	0	3	3
			EE-319	Utilization of Electric Power					
			EE-320	Non-Conventional Energy					
			EE-321	Power Generation Economics					
7	HUM	Ability Enhancement Courses	EE-322	Design, Technology and Innovation	2	0	0	2	1
TOTAL Theory					20	0	0	20	19
B. Practical/Sessional									
1	ENGG	Major	EE-323	Power System-II Laboratory	0	0	2	2	1
2	ENGG	Major	EE-324	Electric Drives Laboratory	0	0	2	2	1
3	ENGG	Major	EE-325	Nonlinear Control and Industrial Automation Laboratory	0	0	2	2	1
4	ENGG	Minor	EE-326	VLSI and Microelectronics Laboratory	0	0	2	2	1
5	ENGG	Minor	EE-327	Digital Signal Processing Laboratory	0	0	2	2	1
6	ENGG	Skill Enhancement Courses	EE-328	Modeling, Design and Simulation Laboratory	0	0	2	2	1
TOTAL Practical/Sessional					0	0	12	12	6
TOTAL of Semester					20	0	12	32	25

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Programme : B.Tech in Electrical Engineering

Year (Semester) : 4th Year (7th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	ENGG	Major	EE-401	Electric and Hybrid Vehicles	3	0	0	3	3
2	ENGG	Major	EE-402	High Voltage Engineering	3	0	0	3	3
			EE-403	Energy Management, Auditing & Safety					
			EE-404	Smart Grid Technology					
			EE-405	HVDC Transmission					
3	ENGG	Multidisciplinary	EE-406	Soft Computing	2	0	0	2	2
			EE-407	Digital Image Processing					
			EE-408	Database Management Systems					
			EE-409	Big Data Analytics					
4	ENGG	Multidisciplinary	EE-410	Internet of Things	2	0	0	2	2
			EE-411	Block Chain Technology					
			EE-412	Cloud Computing					
			EE-413	Digital Twin Technology					
5	HUM	Ability Enhancement Courses	EE-414	Principles of Management	2	0	0	2	2
TOTAL Theory					12	0	0	12	12
B. Practical/Sessional									
1	ENGG	Major	EE-415	Electric and Hybrid Vehicles Laboratory	0	0	2	2	1
2	ENGG	Skill Enhancement Courses	EE-416	Android App Development Laboratory	0	0	2	2	1
3	PROJ	Internship*	EE-417	Seminar on Vocational Training/Internship - I	0	0	0	0	1
4	PROJ	Project	EE-418	Major Project - I	0	0	4	4	2
TOTAL Practical/Sessional					0	0	8	8	5
TOTAL of Semester					12	0	8	20	17

* Students have to complete Internship/Vocational Training to earn Credit point subjected to appearance in the Seminar and submission of Certificate(s).

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Year (Semester) : 4th Year (8th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Sessional									
1	PROJ	Internship*	EE-419	Seminar on Vocational Training/Internship - II	0	0	0	0	1
2	PROJ	Project	EE-420	Major Project - II	0	0	16	16	8
3	ENGG	Major	EE-421	Grand Viva	0	0	0	0	2
TOTAL of Semester					0	0	16	16	11

* Students have to complete Internship/Vocational Training to earn Credit point subjected to appearance in the Seminar and submission of Certificate(s).