

मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल-462003
MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL – 462003
B.Tech. Scheme of Study (Branch: Electrical Engineering)
Session 2025-26 Onwards

I Semester

Section A,B,C,D & E						Section F, G, H, I & J					
Code	Course Name	Periods per week			Credits	Code	Course Name	Periods per week			Credits
		L	T	P				L	T	P	
MC1101	Mathematics 1	3	1	-	4	MC1101	Mathematics 1	3	1	-	4
PY1102	Physics	3	-	-	3	CY1107	Engineering Chemistry	3	-	-	3
CE1103	Engineering Mechanics	2	1	-	3	EE1108	Basic Electrical & Electronics Engineering	2	1	-	3
ME1104	Engineering Graphics	1	-	-	1	ME1109	Manufacturing Science	1	-	-	1
CS1105	Computer Programming & Problem Solving	2	-	-	2	CY1110	Environmental Science	2	-	-	2
HS1106	Communication Skill	1	-	-	1	BS1111	Biology for Engineers	2	-	-	2
CE1121	Engineering Mechanics Laboratory	-	-	2	1	HS1112	Indian knowledge Systems and Cognitive Well being	-	2	-	2
PY1122	Physics Laboratory	-	-	2	1	EE1125	Basic Electrical & Electronics Engineering Laboratory	-	-	2	1
ME1123	Engineering Graphics Laboratory	-	-	2	1	CY1126	Engineering Chemistry Laboratory	-	-	2	1
CS1124	Computer Programming Laboratory	-	-	2	1	ME1127	Manufacturing Science Laboratory	-	-	2	1
HS1128	Language Laboratory	-	-	2	1	SA1143 or SA1144 or SA1145	NSS or Yoga or Universal Human Values and Professional Ethics	-	-	2	1
SA1141 or SA1142	Life Skill Management or Physical Education	-	-	2	1			13	4	8	21
		12	2	12	20	NC115*	National Cadet Corps I	1	1	-	2
NC115*	National Cadet Corps I	1	1	-	2						

*Not to be counted in SGPA/ CGPA calculations

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II Semester

Section A,B,C,D & E						Section F, G, H, I & J					
Code	Course Name	Periods per week			Credits	Code	Course Name	Periods per week			Credits
		L	T	P				L	T	P	
MC1201	Mathematics II	3	1	-	4	MC1201	Mathematics II	3	1	-	4
CY1207	Engineering Chemistry	3	-	-	3	PY1202	Physics	3	-	-	3
EE1208	Basic Electrical & Electronics Engineering	2	1	-	3	CE1203	Engineering Mechanics	2	1	-	3
ME1209	Manufacturing Science	1	-	-	1	ME1204	Engineering Graphics	1	-	-	1
CY1210	Environmental Science	2	-	-	2	CS1205	Computer Programming & Problem Solving	2	-	-	2
BS1211	Biology for Engineers	2	-	-	2	HS1206	Communication Skill	1	-	-	1
HS1212	Indian knowledge Systems and Cognitive Well being	-	2	-	2	CE1221	Engineering Mechanics Laboratory	-	-	2	1
EE1225	Basic Electrical & Electronics Engineering Laboratory	-	-	2	1	PY1222	Physics Laboratory	-	-	2	1
CY1226	Engineering Chemistry Laboratory	-	-	2	1	ME1223	Engineering Graphics Laboratory	-	-	2	1
ME1227	Manufacturing Science Laboratory	-	-	2	1	CS1224	Computer Programming Laboratory	-	-	2	1
SA1243 or SA1244 or SA1245	NSS or Yoga or Universal Human Values and Professional Ethics	-	-	2	1	HS1228	Language Laboratory	-	-	2	1
		13	4	8	21			12	2	12	20
NC125*	National Cadet Corps I	1	1	-	2	NC125*	National Cadet Corps I	1	1	-	2

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First Year

Total Credits	Lecture	Tutorial	Practical	Hours
41	25	6	20	41

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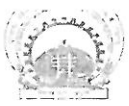
B. Tech. III Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
MCMT2001	Applied Numerical Methods	3	1	-	4
CS2001	Data Structure and Algorithm	2	1	-	3
EE2101	EM Fields and Materials	3	-	-	3
EE2102	Electrical Machines-I	3	-	-	3
EE2103	Network Analysis	3	-	-	3
EE 2104	Measurement and Instrumentation	3	-	-	3
EE2105	Electrical Machines -I Lab	-	-	2	1
EE2106	Network Lab	-	-	2	1
EE 2107	Measurement and Instrumentation Lab	-	-	2	1
EE2108	Professional Practice	-	2	-	2
Total Hours = 27		17	4	6	24
Total Credits (Cumulative)					65
Additional Subject: National Cadet Corps (NCC)					
NC 2151	National Cadet Corps III	1	5	1	7
Total Credits (Cumulative)					11
Minor 1*		3	-	-	3

B. Tech. IV Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
HS2001	Fundamental of Entrepreneurship	3	-	-	3
EE2201	Power System	3	-	-	3
EE2202	Electrical Machines -II	3	-	-	3
EE2203	Electronic Devices & Circuits	3	-	-	3
EE2204	Electrical Power Generation Systems	3	1	-	4
EE2205	Signals and Systems	3	-	-	3
EE2206	Electrical Machines -II Lab	-	-	2	1
EE 2207	Electronic Devices & Circuits Lab	-	-	2	1
EE 2208	Project Based Lab	-	-	2	1
Total Hours = 25		18	1	6	22
Total Credits (Cumulative)					87
Additional Subject: National Cadet Corps (NCC)					
NC2251	National Cadet Corps IV	2	-	1	3
Total Credits (Cumulative)					14
Minor 2*		3	-	-	3

Sanjay



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B. Tech. V Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
EE3101	Power System Protection	3	-	-	3
EE3102	Power Electronics	3	-	-	3
EE3103	Linear Control system	3	-	-	3
EE3104	Electrical Energy Utilization	3	1	-	4
EE3109	Digital Electronics	3	-	-	3
EE3151-3156	Departmental Elective-1 (A)	3	-	-	3
EE3105	Power System Protection Lab	-	-	2	1
EE3106	Power Electronics Lab	-	-	2	1
EE3107	Linear Control System Lab	-	-	2	1
EE3108	Internship/ Industrial Training	-	-	2	1
Total Hours = 27		18	1	8	23
Total Credits (Cumulative)					110
Additional Subject: National Cadet Corps (NCC)					
NC3151	National Cadet Corps V	1	5	1	7
Total Credits (Cumulative)					21
*Optional	[NPTEL/SWAYAM Courses only]	3	-	-	3
	Minor 3*	3	-	-	3

B. Tech. VI Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
EE 3201	Electric Drives	3	-	-	3
EE3202	Microprocessor and Microcontrollers	3	-	-	3
EE3203	Modern Control System	3	-	-	3
EE3208	Electrical Machine Design	3	1	-	4
EE3251-3256	Department Elective-2 (A)	3	-	-	3
EE 3204	Electric Drives Lab	-	-	2	1
EE3205	Microprocessor and Microcontroller Lab	-	-	2	1
EE 3206	Modern Control System Lab	-	-	2	1
EE3207	Mini Project	-	-	2	1
Total Hours = 25		15	1	8	20
Total Credits (Cumulative)					130
Additional Subject: National Cadet Corps (NCC)					
NC3251	National Cadet Corps VI	2	-	1	3
Total Credits (Cumulative)					24
	Minor 4*	3	-	-	3

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B. Tech. VII Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
HS4101	Engineering Economics & IPR	3	-	-	3
EE 4101	Power System Stability and Control	3	1	-	4
EE4151-4156	Department Elective-3 (A)	3	-	-	3
EE4161-4166	Department Elective-4 (A)	3	-	-	3
	Open Elective-1(C)	3	-	-	3
EE 4102	Power System Stability and Control Lab	-	-	2	1
EE 4103	Project-I	-	-	4	2
EE 4104	Industrial/ Field Training	-	-	2	1
Total Hours = 23		15	1	8	20
Total Credits (Cumulative)					150
	Minor 5*	3	-	-	3

B. Tech. VIII Semester

Course Number	Subject	Scheme of Studies Periods per week			Credits
		L	T	P	
EE4251-4256	Department Elective-5(A) [NPTEL/SWAYAM Courses only]	3	-	-	3
EE4261-4266	Department Elective-6(A) [NPTEL/SWAYAM Courses only]	3	-	-	3
EE 4201	Internship/ Project-II #	-	-	16	8
EE4202	General Proficiency	-	-	-	1
Total Hours = 22		6	-	16	15
Cumulative Credits					165

It May be earned by startup activity.

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EE3151 - 3156	Departmental Elective-1 (A)
EE3151	Energy Management
EE3152	EV Fundamentals and Components
EE3153	Soft Computing Techniques
EE3154	AI/ML Techniques
EE3155	Modeling and Simulation of Electrical Systems
EE3156	Energy Storage Technologies

EE3251 - 3256	Department Elective-2 (A)
EE3251	Solar PV Technology and Applications
EE3252	IoT in Energy and Industry
EE3253	Smart Grid Technologies
EE3254	Cyber-physical Electrical Systems
EE3255	Special Electrical Machines
EE3256	Fundamental of FACTS

EE4151 - 4156	Department Elective-3 (A)
EE4151	DSP and Its Applications
EE4152	Electrical Machines-III
EE4153	Electrical Power Quality
EE4154	Distributed Energy Resources (DER) Integration
EE4155	Vehicle Dynamics and Control
EE4156	High Voltage Power Electronics Systems

EE4161 - 4166	Department Elective-4 (A)
EE 4161	Reactive Power Control
EE 4162	EV Charging Infrastructure and Grid Integration
EE 4163	Electronic System Design
EE 4164	Variable Renewable Energy (VRE) Integration in HV Grid
EE 4165	Design and Operation of Modern Electricity Markets
EE4166	Advanced Power Electronics

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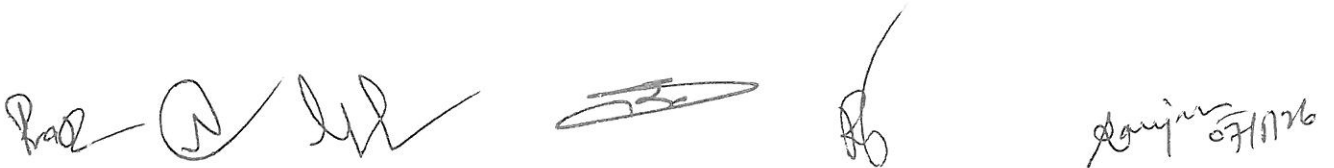
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EE4251 - 4256	Department Elective-5(A) [NPTEL/SWAYAM Courses only]
EE4251	Integrated Energy Systems
EE4252	EV and HEV Technologies
EE4253	Digital Image Processing
EE4254	Industrial Power System Design
EE4255	Power System Restructuring
EE4256	Digital Control of Power Electronics Converters

EE4261 - 4266	Department Elective-6(A) [NPTEL/SWAYAM Courses only]
EE4261	Multilevel Converters
EE4262	Digital System Design
EE4263	Distribution Systems and Micro-grids
EE4264	Bidirectional Converters and Control Techniques
EE4265	Advanced Electrical Drives
EE4266	Optimization Techniques for Electrical Systems



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Table 1: Different category of course in B. Tech. Scheme of study Branch Electrical Engineering

S. No.	Category	I& II Sem	III Sem	IV Sem	V Sem	VI Sem	VII Sem	VIII Sem	Credit Breakup	Credit (%)
1	Humanities and Social Sciences including Management courses	03	03	00	00	00	03	00	09	5.45
2	Basic Science courses	14	04	00	00	00	00	00	18	10.91
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	14	00	03	00	00	00	00	17	10.30
4	Professional core courses	0	12	16	16	13	04	00	61	36.97
5	Departmental Electives Courses relevant to chosen specialization / branch	00	00	00	03	03	06	06	18	10.91
6	Open subjects – Electives from other technical and /or emerging subjects	00	00	00	00	00	03	00	03	1.82
7	Project work, seminar and internship in industry or elsewhere	00	02	00	01	01	03	09	16	9.70
8	Laboratory Courses	10	03	03	03	03	01	00	23	13.94
		41	24	22	23	20	20	15	165	100
NCC		0	7	3	7	3	0	0		

o Definition- ST: EE, CSE, ECE, EN, MDS
 HT: ME, CE, MME, CL

~~It should be replaced by respective Branch code~~

(Handwritten signatures and marks)

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