

Maulana Azad National Institute of Technology, Bhopal 462003
Proposed SCHEME for B.TECH. in Energy and Electric Vehicles Engineering

Run by Energy Centre
(Jointly with Electrical Engineering Department)

First Semester

(Section A,B,C,D& E)/(Section F, G, H, I & J)

Course Code	Course Name	Periods per week			Credits
		L	T	P	
MC1101	Mathematics 1	3	1	-	4
PY1102/ CY1107	Physics/ Engineering Chemistry	3	-	-	3
CE1103/ EE1108	Engineering Mechanics/ Basic Electrical & Electronics Engineering	3	1	-	4
ME1104/ME1109	Engineering Graphics/ Manufacturing Science	1	-	-	1
CS1105/CY1110	Computer Programming & Problem Solving/ Environmental Science	2	-	-	2
HS1106/BS1111	Communication Skill/Biology for Engineers	1/2	-	-	1/2
CE1121/EE1125	Engineering Mechanics Laboratory / Basic Electrical & Electronics Engineering Laboratory	-	-	2	1
PY1122/CY1126	Physics Laboratory / Engineering Chemistry Laboratory	-	-	2	1
ME1123/ME1127	Engineering Graphics Laboratory / Manufacturing Science Laboratory	-	-	2	1
CS1124/HS1128	Computer Programming Laboratory / Language Laboratory	-	-	2	1
SA1141/ SA1142/ SA1143/ SA1144	(Life Skill Management/ Physical Education)/ (NSS/ Yoga)	-	-	2	1
Total Hours = 25/26		13/14	2	10	20/21
NC1151*	National Cadet Corps I	1	1	-	2

*Not to be counted in SGPA/ CGPA calculations

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Second Semester

(Section A,B,C,D& E)/(Section F, G, H, I & J)

Course Code	Course Name	Periods per week			Credits
		L	T	P	
MC1201	Mathematics II	3	1	-	4
CY1207/PY1202	Engineering Chemistry/Physics	3	-	-	3
EE1208/CE1203	Basic Electrical & Electronics Engineering/ Engineering Mechanics	3	1	-	4
ME1209/ME1204	Manufacturing Science/ Engineering Graphics	1	-	-	1
CY1210/CS1205	Environmental Science /Computer Programming & Problem Solving	2	-	-	2
BS1211/HS1206	Biology for Engineers/ Communication Skill	2/1	-	-	2/1
EE1221/CE1225	Basic Electrical & Electronics Engineering Laboratory / Engineering Mechanics Laboratory				
CY1226/ PY1222	Engineering Chemistry Laboratory / Physics Laboratory	-	-	2	1
ME1227/ME1223	Manufacturing Science Engineering Laboratory /Graphics Laboratory	-	-	2	1
HS1228/CS1224	Language Laboratory/ Computer Programming Laboratory	-	-	2	1
SA1241/ SA1242/ SA1243/ SA1244	(Life Skill Management/ Physical Education)/ (NSS/ Yoga)	-	-	2	1
Total Hours = 26/25		14/13	2	10	21/20
NC1252*	National Cadet Corps II	1	1	-	2

* Not to be counted in SGPA/ CGPA calculations

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THIRD SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MT 2101	Applied Numerical Method	3	1	-	4
HS 2101	Fundamental of Entrepreneurship	3	-	-	3
EN EV 2102	Engineering Thermodynamics	3	-	-	3
EN EV 2103	Electrical Machines	3	-	-	3
EN EV 2104	Alternate Energy Sources	3	-	-	3
EE EV 2105	Measurement and Instrumentation	3	-	-	3
EE EV 2106	Measurement and Instrumentation Lab	-	-	2	1
EN EV 2107	Electrical Machine Lab	-	-	2	1
EN EV 2108	Alternate Energy Lab	-	-	2	1
EN EV 2109	Professional Practices	-	2	-	2
Total Hours=27		18	3	6	24
Total Credits (Cumulative)					65
Additional Subject:-National Cadet Corps(NCC)					
NC 2151	National Cadet Corps III	1		5	7
Total Credits (Cumulative)					11

FOURTH SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
ME 2201	Fundamental of Design Methods	2	1	-	3
MC EV 2202	Advanced Numerical Method				
EN EV 2203	Automobile Engineering	3	-	-	3
CE EV 2204	Fluid Mechanics	3	1	-	4
EE EV 2205	Electronic Devices and Circuits	3	-	-	3
ME EV 2206	Mechanism of Machines	3	-	-	3
CE EV 2207	Fluid Mechanics Lab	-	-	2	1
EN EV 2208	Automobiles and Mechanism Lab	-	-	2	1
EN EV 2209	Open Lab-1	-	-	2	1
Total Hours = 25		17	2	6	22
Total Credits (Cumulative)					87
Additional Subject:-National Cadet Corps (NCC)					
NC 2251	National Cadet Corps IV	2	-	1	3
Total Credits (Cumulative)					14

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FIFTH SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits	
		L	T	P		
ME 3101	Engineering Management	3	-	-	3	
EN EV 3102	Heat Transfer	3	1	-	4	
EE EV 3103	Power Electronics	3	-	-	3	
EN EV 3104	Energy Storage and Battery management	3	-	-	3	
EE EV 3105	Linear Control Systems	3	-	-	3	
EN EV 3151-3159	Departmental Elective-1(A)	3	-	-	3	
EN EV 3106	Heat Transfer Lab	-	-	2	1	
EE EV 3107	Power Electronics Lab	-	-	2	1	
EN EV 3108	Linear Control Lab	-	-	2	1	
EN EV 3109	Internship/Industrial Training	-	-	2	1	
Total Hours=27		18	1	8	23	
Total Credits (Cumulative)					110	
Additional Subject:-National Cadet Corps (NCC)						
NC 3151	National Cadet Corps V	1		5	1	7
Total Credits (Cumulative)					21	

SIXTH SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits	
		L	T	P		
CS 3201	Data Structures and Algorithms	3	1	-	4	
EN EV 3202	Electric Vehicles	3	-	-	3	
EN EV 3203	Solar Energy	3	1	-	4	
EN EV 3204	Energy Audit and Conservation	3	-	-	3	
EN EV 3251-3259	Departmental Elective-2(A)	3	-	-	3	
EN EV 3205	Electric Vehicles Lab	-	-	2	1	
EN EV 3206	Energy Audit Lab	-	-	2	1	
EN EV 3207	Solar Energy Lab	-	-	2	1	
EN EV 3208	Mini Project	-	-	2	1	
Total Hours=25		15	2	8	21	
Total Credits(Cumulative)					131	
Additional Subject:-National Cadet Corps (NCC)						
NC 3251	National Cadet Corps VI	2		-	1	3
Total Credits(Cumulative)					24	

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SEVENTH SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
HS 4101	Engineering Economics and IPR	3	-	-	3
EE EV 4102	Electric Vehicle Propulsion System	3	-	-	3
EN EV 4151-4159	Department Elective-3(A)	3	-	-	3
EN EV 4161-4169	Department Elective-4(A)	3	-	-	3
EN EV 4181-4199	Open Elective-1(C)	3	-	-	3
EN EV 4103	Simulation Lab	-	-	2	1
EN EV 4104	Project-1	-	-	4	2
EN EV 4105	Industrial/Field Training	-	-	2	1
Total Hours = 23		15	-	8	19
Total Credits(Cumulative)					150

EIGHTH SEMESTER

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
EN EV 4251-4259	Department Elective-5(A) (NPTEL/SWAYAM Courses Only)	3	-	-	3
EN EV 4261-4269	Department Elective-6(A) (NPTEL/SWAYAM Courses Only)	3	-	-	3
EN EV 4201	Project-2/Internship	-	-	16	8
EN EV 4202	General Proficiency	-	-	-	1
Total Hours=22		6	-	16	15
Total Credits (Cumulative)					165

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DEPARTMENTALELECTIVES(1A)-FIFTHSEMESTER		
S.No.	Course Code	Course Name
1	EN EV 3151	Electro-Chemistry of Fuel Cells
2	EN EV 3152	Artificial Intelligence and Machine Learning
3	MM EV 3154	Energy Efficient Materials

DEPARTMENTELELECTIVES(2A)-SIXTHSEMESTER		
S.No.	Course Code	Course Name
1	EE EV 3251	Electric Power Systems
2	EN EV 3252	Integrated Energy Systems
3	EN EV 3253	Wind Energy Systems
4	EN EV 3254	Energy Policy

DEPARTMENTELELECTIVES(3A)-SEVENTHSEMESTER		
S.No.	Course Code	Course Name
1	EN EV 4151	Hydrogen Energy
2	EN EV 4152	Microprocessors and Embedded Systems
3	EN EV 4153	Refrigeration and Air Conditioning
4	EN EV 4154	Green Buildings

DEPARTMENTELELECTIVES(4A)-SEVENTHSEMESTER		
S.No.	Course Code	Course Name
1	EN EV 4161	Mini Micro Hydro Systems
2	EN EV 4162	Hybrid Electric Vehicles
3	EN EV 4163	Industrial Engineering
4	EN EV 4164	Smart Grid technologies

OPENELECTIVES(1C)-SEVENTHSEMESTER		
S.No.	Course Code	Course Name
1	EN 4181	Renewable Energy (to be opted by other Departments)

PROGRAMMEELECTIVES(5A)-EIGHTH SEMESTER		
S.No.	Course Code	Course Name
1	EN EV 4251	Nuclear Energy
2	EE EV 4252	Decentralized Energy Systems
3	EE EV 4253	Data Acquisition for Energy Systems
4	EN EV 4254	Power Semiconductor Drives

PROGRAMMEELECTIVES(6A)-EIGHTHSEMESTER		
S.No.	Course Code	Course Name
1	EN EV 4261	Testing and Certification of Electric Vehicles
2	EN EV 4262	Geothermal Energy
3	EE EV 4263	Utilization of Electrical Energy
4	ME EV 4264	Advanced Mechanics of Solids