Bachelor of Technology: Electrical Engineering
B.Tech. / B.Tech. (Honours)

Structure of Programmes:

Credits required for graduation: 140

Credits required as essential distribution requirement: 120

Credits free to choose from anywhere (including from programme and specialization beyond minimum): 20

(Subject to meeting the pre-requisites).

Specializations Available

Programme: B.Tech. / B.Tech. (Honours) in Electrical Engineering,

a) with specialization in Smart Grid
b) with specialization in Electric Vehicle Technology
c) with specialization in Biomedical Engineering

University Core:

Minimum number of credits to be completed: 20 credits

List of courses that comprise of University core:

Course Code	Course title	Credits
ENG111	English Language Building Skills	3
ENG121	Communication English	3
ENG211	Soft Skill & Professional Communication Skills	3
HUM311	One course on Humanities	2
HMM411	One course on Management for Engineers	3
HUM411	History of Uzbekistan 1	2
HMM421	Professional Ethics	2
HUM421	History of Uzbekistan 2	2

School Core:

Minimum number of credits to be completed: 44 Credits

List of courses that comprise of School core:

Course Code	Course title	Credits
CSE111	Programming for Problem Solving	2
MTH111	Calculus	4
PHY111	Engineering Physics	4
EEE111	Principles of Electrical Engineering	1.5
ECE111	Basics of Electronics	1.5
EEE112	Principles of Electrical & Electronics Engineering Laboratory	1
EEE113	Introduction to Electrical Engineering	1
CSE121	Object Oriented Programming Using Java	3
MTH122	Linear Algebra and Complex Variable	4
PHY121	Semiconductor Physics	2.5
CHY121	Engineering Chemistry	3.5
MTH211	Differential Equations, Probability and Statistics	4
CSE214	Application based Programming in Python	2
EEE411	Major Project- 1	2
EEE412	Internship Assessment	2
EEE421	Major Project - 2	6

Programme Core:

Minimum number of credits to be completed:40 Credits

List of courses that comprise of Programme core:

Course Code	Course Title	Credits
EEE121	Creativity & Design for Engineers	2

EEE211	Electrical Machines-I	4
EEE212	Analog and Digital Electronics	3
EEE213	Project Based Learning (PBL) -1	1
EEE221	Electrical Machines-II	3.5
EEE222	Power Electronic and Drives	3.5
EEE223	Electrical & Electronic Measurements	3
EEE224	Microprocessor and Microcontroller with Interfacing	3
EEE225	Network Analysis and Synthesis	3
EEE226	Project Based Learning (PBL) -2	1
EEE311	Control System	4
EEE312	Power System-I	3
EEE313	Project Based Learning (PBL) -3	1
EEE321	Power System-II	1.5
EEE322	Switchgear and Protection	2.5
EEE323	Project Based Learning (PBL) -4	1

Specialization Core (For each specialization):

Minimum number of credits to be completed: 12

List of courses that comprise of Specialization core: Electrical Vehicle Technology

Course Code	Course Title	Credits
EEE371	Introduction to electric vehicle technology	3
EEE372	Special Electrical Machines for Electric Vehicle	3
EEE373	Embedded Systems	3
EEE387	Electrical Energy Storage	3

Specialization Core (For each specialization):

Minimum number of credits to be completed: 12

List of courses that comprise of specialization for Smart Grid

Course Code	Course Title	Credits
EEE374	Introduction to smart power grid	3
EEE375	PLC & SCADA	3
EEE376	Smart Microgrid	3
EEE472	Smart Distribution	3

Specialization Core (For each specialization):

Minimum number of credits to be completed: 12

List of courses that comprise of Specialization core: Biomedical Engineering

Course Code	Course Title	Credits
EEE377	Physiology	3
EEE378	Bio Engineering	3
EEE379	Biomedical Instrumentation	3
EEE489	Bio Materials	3

Electives:

Minimum number of elective credits to be completed for this degree: 36 Credits

Minimum number of credit for Program Elective: 24 Credits

List of courses that comprise of Department Electives relevant to this degree:

Course Code	Course Title	Credits
EEE373	Embedded systems	3
EEE379	Biomedical Instrumentation	3
EEE375	PLC and SCADA	3
EEE381	Analog and Digital Communication Techniques	3
EEE382	Wind and Solar Energy Systems	3

EEE383	Power Plant Engineering	3
EEE384	HVDC and FACTS	3
EEE385	Power System Operation and Control	3
EEE386	Power system reliability	3
EEE387	Electrical Energy Storage	3
EEE372	Introduction to Electric Vehicle Technology	3
EEE374	Introduction to smart power grid	3
EEE388	Sustainable Energy	3
EEE389	Mechatronics of Robotics	3
EEE471	Wireless Sensor Networks and Application	3
EEE376	Smart Microgrid	3
EEE472	Smart Distribution	3
EEE473	Substation Automation	3
EEE474	Advanced Metering Infrastructure	3
EEE475	Smart Transmission	3
EEE476	Smart Grid and the retail customer	3
EEE477	Energy Management Systems	3
EEE478	Digital protections of smart grid	3
EEE479	Operation and Control of smart grid	3
EEE372	Special Electrical Machines for Electric Vehicle	3
EEE481	Electric Vehicle Control Systems	3
EEE482	Electric Vehicle Sensor and Data Acquisition	3
EEE483	Plug-in Hybrid electrical Vehicle	3
EEE484	Electric Traction Systems	3
EEE485	Safety, Testing, Regulations, and Standards for Electric Vehicles	3
EEE486	Energy Management Systems in Electric Vehicle	3

EEE487	Battery Charging Technology	3
EEE488	Automotive system	3
EEE377	Physiology	3
EEE378	Bio Engineering	3
EEE489	Bio Materials	3
EEE361	Bio medical transducer	3
EEE362	Biomechanics	3
EEE363	Radiation and Biomedical Applications	3
EEE364	Biomedical Signal and Image Processing	3
EEE365	Rehabilitation Engineering	3
EEE366	Basics of AI and Machine Vision	3
EEE367	Hospital system Management	3
EEE368	Biological Control System Analysis	3
EEE369	Electrical Energy Conservation and Auditing	2
EEE461	Renewable Energy Systems	2
EEE462	Energy Management and Energy Efficient Technology	2
ECE364	Introduction to IoT	2
ECE365	Wireless sensor network	2
	Problem Solving Techniques	2
	Introduction to Biology for Engineers	2

Curriculum Plan B.Tech. in Electrical Engineering for Batch 2019-2023

Semester 1

S. No.	Course Type	Course Code	Course Title	L	T	P	C
1	SC	CSE111	Programming for Problem Solving	0	0	4	**2**
2	SC	MTH111	Calculus	3	1	0	**4**
3	SC	PHY111	Engineering Physics	3	0	2	**4**
4	SC	EEE111	Principles of Electrical Engineering	1.5	0	0	**1.5**
	SC	ECE111	Basics of Electronics	1.5	0	0	**1.5**
5	SC	EEE112	Principles of Electrical & Electronics Engineering Laboratory	0	0	2	**1**
6	SC	EEE113	Introduction to Electrical Engineering	1	0	0	**1**
7	UC	ENG111	English Language Building Skills	3	0	0	**3**
			TOTAL	**13.0**	**1.0**	**8.0**	**18.0**

Semester 2

S. No.	Course Type	Course Code	Course Title	L	T	P	C
1	SC	CSE121	Object Oriented Programming using JAVA	2	0	2	**3**
2	SC	MTH122	Linear Algebra and Complex variables	3	1	0	**4**
3	SC	PHY121	Semiconductor Physics	2	0	1	**2.5**
4	SC	CHY121	Engineering Chemistry	3	0	1	**3.5**
5	PC	EEE121	Creativity & Design for Engineers	2	0	0	**2**
6	UC	ENG121	Communication English	3	0	0	**3**
			TOTAL	**15.0**	**1.0**	**4.0**	**18.0**

Semester 3

S. No.	Course Type	Course Code	Course Title	L	T	P	C
1	PC	EEE211	Electrical Machines-I	3	0	2	**4**
2	SC	MTH211	Differential equation, Probability and Statistics	3	1	0	**4**
3	PC	EEE212	Analog and Digital Electronics	3	0	0	**3**
4	UC	ENG211	Soft Skill & Professional Communication Skills	3	0	0	**3**
5	SC	CSE214	Application based Programming in Python	0	0	4	**2**
6	PC	EEE213	Project Based Learning (PBL) -1	0	0	2	**1**
			TOTAL	**12**	**1**	**8**	**17**

Semester 4

S. No.	Course Type	Course code	Course Title	L	T	P	C
1	PC	EEE221	Electrical Machines-II	3	0	1	**3.5**
2	PC	EEE222	Power electronic and drives	3	0	1	**3.5**
3	PC	EEE223	Electrical & Electronic Measurements	3	0	0	**3**
4	PC	EEE224	Microprocessor and Microcontroller with Interfacing	2	0	2	**3**
5	PC	EEE225	Network analysis and synthesis	2	1	0	**3**
6	PC	EEE226	Project Based Learning (PBL) -2	0	0	2	**1**
			TOTAL	**14**	**1**	**6**	**17**

Semester 5

S. No.	Course Type	Course Code	Course Title	L	T	P	C
1	PC	EEE311	Control System	2	0	2	**3**
2	PC	EEE312	Power System-I	3	0	0	**3**
3	PE		Program Elective-1	3	0	0	**3**
4	PE		Program Elective-2	3	0	0	**3**
5	OE		Elective – 1	2	0	0	**2**
6	PC	EEE313	Project Based Learning (PBL) -3	0	0	2	**1**
7	UC	HMM311	One Course on Humanities	3	0	0	**3**
			TOTAL	**16**	**0**	**4**	**18**

Semester 6

S.No.	Course Type	Course Code	Course Title	L	T	P	C
1	PC	EEE321	Power System-II	1.5	0	0	**1.5**
2	PC	EEE322	Switchgear and Protection	1.5	0	2	**2.5**
3	PE		Program Elective-3	3	0	0	**3**
4	PE		Program Elective-4	3	0	0	**3**
5	PE		Program Elective-5	3	0	0	**3**
6	OE		Elective – 2	2	0	0	**2**
7	OE		Elective – 3	2	0	0	**2**
8	PC	EEE323	Project Based Learning (PBL) - 4	0	0	2	**1**
			Total	**16**	**0**	**4**	**18**

Semester 7

S.No.	Course Type	Course Code	Course Title	L	T	P	C
1	PE		Program Elective-6	3	0	0	3
2	PE		Program Elective-7	3	0	0	3
3	OE		Elective - 4	2	0	0	2
4	SC	EEE411	Major Project- 1	0	0	4	2
5	SC	EEE412	Internship Assessment	0	0	4	2
6	UC	HMM411	One course on Management for Engineers	3	0	0	3
7	UC	HUM411	History of Uzbekistan 1	2	0	0	2
			TOTAL	**13**	**0**	**8**	**17**

Semester 8

S. No.	Course Type	Course code	Course Title	L	T	P	C
1	SC	EEE421	Major Project - 2	0	0	10	6
2	PE		Program Elective-8	3	0	0	3
3	OE		Elective - 5	2	0	0	2
4	UC	HMM421	Professional Ethics	2	0	0	**2**
5	UC	HUM421	History of Uzbekistan 2	2	0	0	2
6	OE		Elective -6	2	0	0	**2**
			TOTAL				**17**