COURSES FOR UNDERGRADUATE ELECTRICAL AND ELECTRONIC ENGINEERING PROGRAMME

The curriculum for EEE students in this calendar has been approved by BUET Academic Council on 8 February 2016 and effective for the L-1/T-I students of January 2016 term.

Course schedule for the undergraduate students of the Department of Electrical and Electronic Engineering is given below.

The first digit of a course number represents the level, the second digit is for group. Odd number in the third digit signifies a theory course and even number represents a laboratory/sessional course. For all 3 credit theory and 1.5 credit laboratory/sessional courses, contact hour is 3 hours.

The second digit in the course number has the following meaning:

Digit 0 and 1 is for core course

2 for interdisciplinary
3 and 4 for communication
5 and 6 for electronics
7 and 8 for power
9 Reserved

1. Core Courses for EEE Undergraduate Programme

1.1 Core Courses (EEE)

Sl. No	Course Number	Course Name	Credit Hour
1	EEE 101	Electrical Circuits I	3
2	EEE 102	Electrical Circuits I Laboratory	1.5
3	EEE 105	Electrical Circuits II	3
4	EEE 106	Electrical Circuits II Laboratory	1.5
5	EEE 201	Electronic Circuits I	3
6	EEE 202	Electronic Circuits I Laboratory	1.5
7	EEE 203	Energy Conversion I	3
8	EEE 205	Energy Conversion II	3
9	EEE 206	Energy Conversion Laboratory	1.5
10	EEE 207	Electronic Circuits II	3
11	EEE 208	Electronic Circuits II Laboratory	1.5
12	EEE 209	Engineering Electromagnetics	3
13	EEE 211	Continuous Signals and Linear Systems	3
14	EEE 212	Numerical Technique Laboratory	1.5
15	EEE 303	Digital Electronics	3
16	EEE 304	Digital Electronics Laboratory	1.5
17	EEE 305	Power System I	3
18	EEE 306	Power System I Laboratory	1.5
19	EEE 307	Electrical Properties of Materials	3
20	EEE 309	Communication Systems I	3
21	EEE 310	Communication Systems I Laboratory	1.5
22	EEE 311	Digital Signal Processing I	3
23	EEE 312	Digital Signal Processing I Laboratory	1.5

Sl. No	Course Number	Course Name	Credit Hour
24	EEE 313	Solid State Devices	3
25	EEE 315	Power Electronics	3
26	EEE 316	Power Electronics Laboratory	1.5
27	EEE 317	Control System I	3
28	EEE 318	Control System I Laboratory	1.5
29	EEE 414	Electrical Services Design	1.5
30	EEE 415	Microprocessors and Embedded Systems	3
31	EEE 416	Microprocessors and Embedded Systems Laboratory	1.5
32	EEE 439	Communication Systems II	3
33	EEE 400	Project/Thesis	6
		Subtotal	**81**

1.2 Core Courses (Humanities)

Sl. No	Course Number	Course Name	Credit Hour
1	HUM 127	Sociology	3
Or	HUM 137	Professional Ethics	3
Or	HUM 277	Fundamental of Economics	3
2	HUM 135	English	3
3	HUM 272	Developing English Skills Laboratory	1.5
4	HUM 279	Financial and Managerial Accounting	3
		Subtotal	**10.5**

1.3 Core Courses (CSE)

Sl. No	Course Number	Course Name	Credit Hour
1	CSE 109	Computer Programming	3
2	CSE 110	Computer Programming Sessional	1.5
		Subtotal	**4.5**

1.4 Core Courses (Mathematics)

Sl. No	Course Number	Course Name	Credit Hour
1	MATH 157	Calculus I	3
2	MATH 159	Calculus II	3
3	MATH 257	Ordinary and Partial Differential Equations	3
4	MATH 259	Linear Algebra	3
5	MATH 357	Probability and Statistics	3
		Subtotal	**15**

1.5 Core Courses (Physics)

Sl. No	Course Number	Course Name	Credit Hour
1	PHY 121	Waves and Oscillations, Optics and Thermal Physics	3
2	PHY 102	Physics Sessional	1.5
3	PHY 165	Electricity and Magnetism, Modern Physics and Mechanics	3
		Subtotal	**7.5**

1.6 Core Courses (Chemistry)

Sl. No	Course Number	Course Name	Credit Hour
1	CHEM 101	Chemistry	3
2	CHEM 114	Inorganic, Quantitative Analysis Sessional	1.5
		Subtotal	**4.5**

1.7 Core Courses (ME)

Sl. No	Course Number	Course Name	Credit Hour
1	ME 267	Mechanical Engineering Fundamentals	3
2	ME 268	Mechanical Engineering Fundamentals Sessional	1.5
		Subtotal	**4.5**

1.8 Core Course (CE)

Sl. No	Course Number	Course Name	Credit Hour
1	CE 106	Engineering Drawing	1.5
		Subtotal	**1.5**

1.9 Core Course (IPE)

Sl. No	Course Number	Course Name	Credit Hour
1	IPE 493	Industrial Management	3
		Subtotal	**3**

1.10 Compulsory/Core Course Distribution:

Department	Theory	Lab	Project /Thesis	Credit Hours	Contact Hours per Week
CSE	1	1	-	4.5	6
CE	-	1	-	1.5	3
ME	1	1	-	4.5	6
IPE	1	-	-	3.0	3
Physics	2	1	-	7.5	9
Chemistry	1	1	-	4.5	6
Mathematics	5	-	-	15	15
Humanities	3	1	-	10.5	12
Subtotal	14	6	-	51	60
EEE	18	14	6+6 contact hours = 6 credit Hours	81	108
Total compulsory courses	32	20	6+6 contact Hours = 6 Credit hours	132	168 Contact Hours
Elective courses	7 Elective Theory Courses (21 contact Hours) and 3 Elective Laboratories (9 contact Hours, 4.5 Credit Hours)				
Total of Elective Courses				25.5	30
Total				157.5	198

2 Elective Courses

Rules for distributing major and minor groups and elective courses are as follows:

1. A Student will be assigned one of the three elective group (from Communication and signal processing, electronics and power groups) as major. The criterion for assigning the major group will be student's choice and his/her CGPA up to L-2 T-2. The group will be assigned at the end of L-2 T-2 of a student.
2. There will be maximum 1/3 of total students of a level (excluding old students) in each of the three groups (i.e. communication and signal processing, electronic and power group).
3. A student may take minimum of 5 elective from the major and maximum of 2 elective subjects from any (including major) group for completing the requirements of B. Sc. Engg (EEE) degree (implying that a student may take 7 elective courses from his/her major group).
4. A student will work on his/her B. Sc. Engg (EEE) thesis on a topic of his/her major group under a supervisor assigned to him/her by the department. A faculty may be assigned to supervise student/s of any group if he/she expresses such desire to carry out certain research of his/her interest outside his/her major research area/s. Policy of thesis topic and supervisor assignment to a student of a batch will be set by the BUGS at the beginning of thesis commencement term of the students of a batch.
5. Elective I through Elective VII as per requirement of a term will be decided from the total elective courses of a group by the BUGS of the department at the beginning of a term. No particular course will bear a certain elective course suffix (i.e. Elective I/II/... and so on). This selection will be made as per availability of faculty member in the relevant subject and the availability of the laboratory facility on the subject (in case of a course with a laboratory).

6. If a student fails in an elective theory course that has a sessional, the student may take that theory course again or may take another theory course together with its corresponding sessional.
7. In case of any unforeseen situation or ambiguity, the Departmental BUGS will take an appropriate decision.

2.1 Power Group

Sl. No	Course Number	Course Name	Credit Hour
1	EEE 371	Power System II	3.0
2	EEE 372	Power System II Laboratory	1.5
3	EEE 471	Energy Conversion III	3.0
4	EEE 473	Renewable Energy	3.0
5	EEE 475	Power Plant Engineering	3.0
6	EEE 477	Power System Protection	3.0
7	EEE 478	Power System Protection Laboratory	1.5
8	EEE 479	Power System Reliability	3.0
9	EEE 481	Power System Operation and Control	3.0
10	EEE 483	High Voltage Engineering	3.0
11	EEE 484	High Voltage Engineering Laboratory	1.5
12	EEE 485	Power Transmission and Distribution	3.0
13	EEE 487	Nuclear Power Engineering	3.0
14	EEE 489	Smart Grid	3.0

2.2 Electronics Group

Sl. No	Course Number	Course Name	Credit Hour
1	EEE 351	Analog Integrated Circuits and Design	3.0
2	EEE 451	Processing and Fabrication Technology	3.0
3	EEE 453	VLSI Circuits and Design I	3.0
4	EEE 454	VLSI Circuits and Design I Laboratory	1.5
5	EEE 455	Compound Semiconductor Devices	3.0
6	EEE 457	VLSI Circuits and Design II	3.0
7	EEE 458	VLSI Circuits and Design II Laboratory	1.5
8	EEE 459	Optoelectronics	3.0
9	EEE 460	Optoelectronics Laboratory	1.5
10	EEE 461	Semiconductor and Nano Devices	3.0
11	EEE 463	Nano-electronics and Nanotechnology	3.0

2.3 Communication and Signal Processing Group

Sl. No	Course Number	Course Name	Credit Hour
1	EEE 331	Random Signals and Processes	3.0
2	EEE 431	Digital Signal Processing II	3.0
3	EEE 433	Microwave Engineering	3.0
4	EEE 434	Microwave Engineering Laboratory	1.5
5	EEE 435	Optical Communications	3.0
6	EEE 437	Wireless Communications	3.0
7	EEE 438	Wireless Communication Laboratory	1.5
8	EEE 441	Telecommunication Engineering	3.0
9	EEE 443	Radar and Satellite Communication	3.0
10	EEE 445	Multimedia Communications	3.0
11	EEE 447	Introduction to Digital Image Processing	3.0
12	EEE 449	Information and Coding Theory	3.0
13	EEE 491	Introduction to Medical Imaging	3.0

Sl. No	Course Number	Course Name	Credit Hour
14	EEE 493	Digital Filter Design	3.0
15	EEE 495	Speech Communications	3.0
16	EEE 497	Telecommunication Networks (See note below)	3.0
17	EEE 498	Telecommunication Networks Laboratory	1.5
18	EEE 499	Wireless and Mobile Networks (See note below)	3.0

(Note: For total credit hour fulfillment of the degree of B. Sc. Engg (EEE), credits of either EEE497 or EEE499 will be counted but not both.)

2.4 Interdisciplinary Courses

Sl. No	Course Number	Course Name	Credit Hour
1	EEE 421	Control System II	3.0
2	EEE 422	Control System II Laboratory	1.5
3	EEE 425	Biomedical Signals, Instrumentation and Measurement	3.0
4	EEE 426	Biomedical Signals, Instrumentation and Measurement Laboratory	1.5
5	EEE 427	Measurement and Instrumentation	3.0
6	EEE 428	Measurement and Instrumentation Laboratory	1.5
7	CSE 451	Computer Networks	3.0
8	CSE 452	Computer Networks Laboratory	1.5

3 Course Offering

Level-1 Term-I (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 101	Electrical Circuits I	3.0	3.0
2	EEE 102	Electrical Circuits I Laboratory	3.0	1.5
3	CSE 109	Computer Programming	3.0	3.0
4	CSE 110	Computer Programming Laboratory	3.0	1.5
5	CE 106	Engineering Drawing	3.0	1.5
6	PHY 121	Waves and Oscillations, Optics and Thermal Physics	3.0	3.0
7	MATH 157	Calculus I	3.0	3.0
8	MATH 159	Calculus II	3.0	3.0
		Total	**24.0**	**19.5**

Level-1 Term-II (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 105	Electrical Circuits II	3.0	3.0
2	EEE 106	Electrical Circuits II Laboratory	3.0	1.5
3	PHY 165	Electricity and Magnetism, Modern Physics and Mechanics	3.0	3.0
4	PHY 102	Physics Sessional	3.0	1.5
5	CHEM 101	Chemistry	3.0	3.0
6	CHEM 114	Inorganic and Quantitative Analysis Laboratory	3.0	1.5

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
7	MATH 257	Ordinary and Partial Differential Equations	3.0	3.0
8	HUM 127/ HUM277/ HUM137	Sociology/ Fundamentals of Economics/ Professional Ethics	3.0	3.0
		Total	**24.0**	**19.5**

Level-2 Term-I (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 201	Electronic Circuits I	3.0	3.0
2	EEE 202	Electronic Circuits I Laboratory	3.0	1.5
3	EEE 203	Energy Conversion I	3.0	3.0
4	EEE 211	Continuous Signals and Linear Systems	3.0	3.0
5	EEE 212	Numerical Technique Laboratory	3.0	1.5
6	MATH 259	Linear Algebra	3.0	3.0
7	HUM 135	English	3.0	3.0
8	HUM 272	Developing English Skills Laboratory	3.0	1.5
		Total	**24**	**19.5**

Level-2 Term-II (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 205	Energy Conversion II	3.0	3.0
2	EEE 206	Energy Conversion laboratory	3.0	1.5
3	EEE 207	Electronic Circuits II	3.0	3.0
4	EEE 208	Electronic Circuits II Laboratory	3.0	1.5
5	EEE 209	Engineering Electromagnetics	3.0	3.0
6	ME 267	Mechanical Engineering Fundamentals	3.0	3.0
7	ME 268	Mechanical Engineering Fundamentals Sessional	3.0	1.5
8	MATH 357	Probability and Statistics	3.0	3.0
		Total	**24.0**	**19.5**

Level-3 Term-I (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 305	Power System I	3.0	3.0
2	EEE 306	Power System I Laboratory	3.0	1.5
3	EEE 307	Electrical Properties of Materials	3.0	3.0
4	EEE 309	Communication Systems I	3.0	3.0
5	EEE 310	Communication Systems I Laboratory	3.0	1.5
6	EEE 311	Digital Signal Processing I	3.0	3.0
7	EEE 312	Digital Signal Processing I Laboratory	3.0	1.5
8	HUM 279	Financial and Managerial Accounting	3.0	3.0
		Total	**24.0**	**19.5**

Level-3 Term-II (Common to all)

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 303	Digital Electronics	3.0	3.0
2	EEE 304	Digital Electronics Laboratory	3.0	1.5
3	EEE 313	Solid State Devices	3.0	3.0
4	EEE 315	Power Electronics	3.0	3.0
5	EEE 316	Power Electronics Laboratory	3.0	1.5
6	EEE 317	Control Systems I	3.0	3.0
7	EEE 318	Control Systems I Laboratory	3.0	1.5
8	IPE 493	Industrial Management	3.0	3.0
		Total	**24.0**	**19.5**

Level-4 Term-I

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 400	Project/Thesis	6.0	3.0
2	EEE 415	Microprocessors and Embedded Systems	3.0	3.0
3	EEE 416	Microprocessors and Embedded Systems Laboratory	3.0	1.5
4	EEE 439	Communication Systems II	3.0	3.0
5	EEE XXX	Elective I	3.0	3.0
6	EEE XXX	Elective II	3.0	3.0
7	EEE XXX	Elective II Laboratory	3.0	1.5
8	EEE XXX	Elective III	3.0	3.0
		Total	**30.0**	**21**

Level-4 Term-II

Sl. No	Course Number	Course Name	Contact Hours per Week	Credit Hour
1	EEE 400	Project/Thesis	6.0	3.0
2	EEE 414	Electrical Services Design	3.0	1.5
3	EEE XXX	Elective IV	3.0	3.0
4	EEE XXX	Elective IV Laboratory	3.0	1.5
5	EEE XXX	Elective V	3.0	3.0
6	EEE XXX	Elective VI	3.0	3.0
7	EEEXXX	Elective VI Laboratory	3.0	1.5
8	EEEXXX	Elective VII	3.0	3.0
		Total	**27.0**	**19.5**