

JAYPEE UNIVERSITY OF ENGINEERING AND TECHNOLOGY

B. Tech. Electronics and Communication Engineering

FIRST SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	MA101	MATH	Engineering Mathematics	3	1	0	4	4
2.	PH101	PHY	Engineering Physics-1	3	1	0	4	4
3.	HS101	HSS	English	2	1	0	3	3
4.	CS101	CSE	Computer Programming	3	1	0	4	4
5.	PH201	PHY	Engineering Physics Lab-1	0	0	2	2	1
6.	CS201	CSE	Computer Programming Lab	0	0	4	4	2
7.	ME201	MEC	Workshop Practice	0	0	3	3	1.5
8.	HS001	HSS	Value Added Course (Human Values and Professional Ethics)	2	0	0	2	AP
TOTAL							26	19.5

SECOND SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HS104	HSS	Life Skills and Effective Communication	1	1	0	2	2
2.	MA105	MATH	Discrete Mathematics	3	1	0	4	4
3.	PH102	PHY	Engineering Physics-2	3	1	0	4	4
4.	EC101	ECE	Electrical Science	3	1	0	4	4
5.	CS102	CSE	Object Oriented Programming	3	1	0	4	4
6.	PH202	PHY	Engineering Physics Lab-2	0	0	2	2	1
7.	EC203	ECE	Electrical Science Lab	0	0	2	2	1
8.	CS202	CSE	Object Oriented Programming Lab	0	0	2	2	1
9.	ME203	MEC	Engineering Drawing & Design Lab	0	0	3	3	1.5
TOTAL							27	22.5

*EC102- Electrical Circuit Analysis (CE/CHE/ME), EC202- Electrical Circuit Analysis Lab (CE/CHE/ME)

THIRD SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HS103	HSS	Techniques for Decision Making	2	1	0	3	3
2.	CS113	CSE	Data Structures and Algorithms	3	0	0	3	3
3.	EC107	ECE	Signals & Systems	3	1	0	4	4
4.	EC108	ECE	Analogue Electronics	3	1	0	4	4
5.	EC109	ECE	Measurement & Instrumentation	3	0	0	3	3
6.	CS213	CSE	Data Structures and Algorithms Lab	0	0	2	2	1
7.	EC207	ECE	Signals & Systems Lab	0	0	2	2	1
8.	EC208	ECE	Analogue Electronics Lab	0	0	2	2	1
9.	EC209	ECE	Measurement & Instrumentation Lab	0	0	2	2	1
10.	GE001	CHE	Value Added Course (Environmental Science)	2	0	0	2	AP
11.	HS007	HSS	Value Added Course (Career Management and Development)	2	0	0	2	AP
12.	CS001	CSE	Value Added Course (Programming in Python)	0	0	2	2	AP
13.	EC003	ECE	Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	AP
TOTAL							31	21

FOURTH SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HSXXX	HSS	HSS Elective-1	3	0	0	3	3
2.	EC111	ECE	Digital Circuit Design	3	0	0	3	3
3.	EC112	ECE	Analog and Digital Communication	3	1	0	4	4
4.	EC113	ECE	Electromagnetic Field Theory	3	1	0	4	4
5.	EC114	ECE	Control System	3	1	0	4	4
6.	EC211	ECE	Digital Circuit Design Lab	0	0	2	2	1
7.	EC212	ECE	Analog and Digital Communication Lab	0	0	2	2	1
8.	EC213	ECE	Hardware Lab	0	0	2	2	1
TOTAL							24	21

Students will undergo 4 weeks Industrial Training during Summer Vacation after 4th Semester.

FIFTH SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HSXXX	HSS	HSS Elective-2	2	1	0	3	3
2.	MA106	MATH	Probability and Random Processes	3	1	0	4	4
3.	ECXXX	ECE	Discipline Elective -1	3	0	0	3	3
4.	EC302	ECE	Science Elective (Power Science)	3	0	0	3	3
5.	EC115	ECE	Microprocessor and Interfacing	3	0	0	3	3
6.	EC116	ECE	Digital Signal Processing	3	0	0	3	3
7.	EC215	ECE	Microprocessor and Interfacing Lab	0	0	2	2	1
8.	EC216	ECE	Digital Signal Processing Lab	0	0	2	2	1
9.	EC214	ECE	Minor Project – 1	0	0	4	4	2
10.	EC004	ECE	Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	AP
TOTAL							27	23

SIXTH SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HSXXX	HSS	HSS Elective-3	3	0	0	3	3
2.	EC117	ECE	Telecommunication Networks	3	0	0	3	3
3.	EC118	ECE	VLSI Design	3	0	0	3	3
4.	ECXXX	ECE	Discipline Elective – 2	3	0	0	3	3
5.	ECXXX	ECE	Discipline Elective – 3	3	0	0	3	3
6.	EC217	ECE	Telecommunication Networks Lab	0	0	2	2	1
7.	EC218	ECE	VLSI Design Lab	0	0	2	2	1
8.	EC219	ECE	Communication Lab-1	0	0	2	2	1
9.	EC220	ECE	Minor Project-2	0	0	4	4	2
10.	HS004	HSS	Value Added Course (Indian Constitution and Traditional Knowledge)	2	0	0	2	AP
TOTAL							27	20

1. All students will undergo Value Added Course; however it will not count for CGPA calculations and will not be reflected in transcript of those students who fail to qualify.
2. Students will undergo 6 weeks Industrial Training during Summer Vacation after 6th Semester.

SEVENTH SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		All	Open Elective – 1	3	0	0	3	3
2.	ECXXX	ECE	Discipline Elective – 4	3	0	0	3	3
3.	ECXXX	ECE	Discipline Elective– 5	3	0	0	3	3
4.	ECXXX	ECE	Discipline Elective – 6	3	0	0	3	3
5.	EC223	ECE	Major Project Part-I	0	0	8	8	4
6.	EC005	ECE	Internship/Summer Training (6 weeks - 240-270 hours)	-	-	-	-	AP
7.	HS011	HSS	Value Added Course (Legal and Ethical Issues in Business)	2	0	0	2	AP
8.	HS009	HSS	Value Added Course (Introduction to Financial Markets)	2	0	0	2	AP
9.	HS005	HSS	Value Added Course (Academic Research and Paper Writing)	2	0	0	2	AP
TOTAL							22	16

EIGHTH SEMESTER

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		Engg.	Open Elective – 2	3	0	0	3	3
2.	ECXXX	ECE	Discipline Elective– 7	3	0	0	3	3
3.	ECXXX	ECE	Discipline Elective – 8	3	0	0	3	3
4.	EC224	ECE	Major Project Part-II	0	0	16	16	8
TOTAL							25	17

Total Credits for B. Tech. –160.

(Value Added Courses (Audit courses) will not count for CGPA calculations.)

Discipline Elective

S. No.	Course Code	Course Title
1.	EC307	Digital Hardware Design
2.	EC327	FPGA based System Design
3.	EC404	Microwave and Radar System
4.	EC311	AI for Communication System
5.	EC317	Mobile Communication
6.	EC303	Network Synthesis
7.	EC305	Electronic Testing
8.	EC306	Embedded Systems
9.	EC309	Optical Communication
10.	EC310	DSP Processors
11.	EC311	Internet Based Automation
12.	EC312	Linear VLSI IC Design
13.	EC313	Multi-rate Signal Processing and Filter Banks
14.	EC314	Information Theory and Coding
15.	EC315	Advance Control System
16.	EC316	Neural Network
17.	EC318	Stastical Signal Processing
18.	EC319	Image and Video Processing
19.	EC320	Spread Spectrum Communication
20.	EC321	Speech Signal Processing
21.	EC322	Wireless Sensor Networks
22.	EC323	Satellite Communication
23.	EC324	Biomedical Signal Processing
24.	EC325	MIMO Systems
25.	EC326	Instrumentation Engineering for Smart Cities
26.	EC328	Data Compression
27.	EC329	Antenna and Wave Propagation

**Micro-specialization Discipline Elective
VLSI Design**

S.No.	Course Code	Course Title
1.	EC307	Digital Hardware Design
2.	EC327	FPGA Based System Design
3.	EC342	IC Technology
4.	EC343	VLSI Verification and Testing

IOT with Machine Learning

S.No.	Course Code	Course Title
1.	EC308	Internet of Things
2.	EC348	Introduction to Machine Learning
3.	EC405	Artificial Intelligence of Things
4.	ECXXX	Industrial IoT

Advance Communication Technologies

S.No.	Course Code	Course Title
1.	ECXXX	Emerging Technologies- Beyond 5 G
2.	ECXXX	Machine Learning for Communication Systems
3.	ECXXX	Green Communication Technologies
4.	ECXXX	Data Analytics for 5 G

Science Elective

S.No.	Course Code	Course Title
1.	EC302	Power Science
2.	EC341	Science of Semiconductors
3.	PH302	Nano Science
4.	PH303	Material Science and Applications
5.	CH303	Biochemistry
6.	PH301	Introduction to Quantum Computing

Open Elective

S.No.	Course Code	Course Title
1.	EC330	Sensors and Transducers
2.	ECXXX	Introduction to Microprocessors and Micro-controllers
3.	ECXXX	Introduction to Neural Network
4.	ECXXX	Introduction to Robotics

Value Added Courses

S.No.	Course Code	Course Title
1.	HS001	Value Added Course-1 (Human Values and Professional Ethics)
2.	HS007	Value Added Course-2 (Career Management and Development)
3.	CS001	Value Added Course-3 (Programming in Python)
4.	HS004	Value Added Course-4 (Indian Constitution and Traditional Knowledge)
5.	HS011	Value Added Course (Legal and Ethical Issues in Business)
6.	HS009	Value Added Course (Introduction to Financial Markets)
7.	HS005	Value Added Course (Academic Research and Paper Writing)

Minor Specializations

S. No.	Minor Specialization Offered by ECE dept.	Credits	
1	Embedded System	20	
2	Internet of Robotics Things	20	

Minor Specialization-1: Embedded System

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits	Sem.
				L	T	P	Total		
1.	EC333	ECE	Electronic Circuit Design	3	0	0	3	3	III
2.	EC334	ECE	Transducers Engineering	3	0	0	3	3	IV
3.	EC401	ECE	Transducers Engineering Lab	0	0	2	2	1	IV
4.	EC335	ECE	Digital Control System	3	0	0	3	3	V
5.	EC336	ECE	Microcontroller and Embedded System	3	0	0	3	3	VI
6.	EC402	ECE	Microcontroller and Embedded System lab	0	0	2	2	1	VI
7.	EC337	ECE	Embedded Control System	3	0	0	3	3	VII/V III
8.	EC338	ECE	Real Time Embedded System Design	3	0	0	3	3	VII/V III
			Total				22	20	

Minor Specialization-2 offered by ECE dept. with CSE dept. : Internet of Robotics Things for ECE and CSE students)

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits	Sem.
				L	T	P	Total		
1.	EC105/ EC335	ECE	Measurement & Instrumentation (for CSE)/ Digital Control System (for ECE)	3	0	0	3	3	V
2.	EC338	ECE	Sensors, Actuators & Signal Processing	3	0	0	3	3	IV
3.	18B11CI916	CSE	Statistical Methods and Data Analysis	3	0	0	3	3	III
4.	18B17CI976	CSE	Statistical Methods and Data Analysis Lab	0	0	2	2	1	III
5.	EC339	ECE/ CSE	Robotics & Machine Vision	3	0	0	3	3	VII/V III
6.	EC403	ECE	Robotics Programming Lab	0		2	2	1	VII/V III
7.	18B17CI997	CSE	Internet of Things Lab	0	0	2	2	1	VII/V III
8.	18B11CI937	CSE	Internet of Things Technology and Applications	2	0	0	2	2	VII/V III
9.	18B11CI918	CSE	Machine Learning	3	0	0	3	3	VI
			Total				23	20	

*Students of ECE will be registered in course of 'Introduction to Artificial Intelligence' as prerequisite of 'Artificial Intelligence and Applications'.

Minor Specialization offered by Mechanical Engg. dept. with ECE dept. (for ECE and MEC students):

Industrial Automation

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits	Sem.
				L	T	P	Total		
1	EC334	ECE	Transducers Engineering	3	0	0	3	3	IV
2	EC401	ECE	Transducers Engineering Lab	0	0	2	2	1	IV
3	18B11ME911	MEC	Robotics	3	0	0	3	3	V
4	EC335/ EC340	ECE	Digital Control System (for ECE students) /Microprocessors based Control System (For MEC students)	3	0	0	3	3	V
5	18B17ME971	MEC	Robotics/CIM Lab	0	0	2	2	1	V
6	18B11ME913	MEC	Industrial Automation	3	0	0	3	3	VI
7	18B11ME914	MEC	Control of Industrial Automation	3	0	0	3	3	VI
8	18B11ME912	MEC	Special Purpose Vehicle	3	0	0	3	3	VII
			Total				22	20	

Minor Specialization offered by Mechanical Engg. dept. with ECE dept. (for ECE and MEC students):

Mechatronics

S. No.	Course Code	Dept.	Title of Course	Contact Hours				Credits	Sem.
				L	T	P	Total		
1	EC334	ECE	Transducers Engineering	3	0	0	3	3	IV
2	EC401	ECE	Transducers Engineering Lab	0	0	2	2	1	IV
3	18B11ME917	MEC	Vehicle Dynamics	3	0	0	3	3	V
4	18B11ME915	MEC	Computer Integrated Manufacturing	3	0	0	3	3	V
5	18B17ME975	MEC	CIM Lab	0	0	2	2	1	V
6	18B11ME918	MEC	Control of Mechanical System	3	0	0	3	3	VI
7	EC335	ECE	Micro-controller and Embedded System	3	0	0	3	3	VI
8	18B11ME916	MEC	Automated Guided Vehicles	3	0	0	3	3	VII
			Total				22	20	

Minor Specialization-1: Human Resource Management (offered by HSS dept.)								
S. No.	Course Code	Dept.	Title of Course	L	T	P	Contact Hours	Credits
1	18B11HS911	HSS	Human Resource Management	3	0	0	3	3
2	18B11HS912	HSS	Team Building and Leadership	3	0	0	3	3
3	18B11HS913	HSS	Performance Management	3	0	0	3	3
4	18B11HS914	HSS	Training & Development	3	0	0	3	3
5	18B11HS915	HSS	Organizational Change	3	0	0	3	3
6	18B11HS916	HSS	Negotiation & Counselling	3	0	0	3	3
7	18B17HS971	HSS	Minor Project	0	0	4	4	2
Total							22	20

Minor Specialization-2: Financial Management (offered by HSS dept.)								
S. No.	Course Code	Dept.	Title of Course	L	T	P	Contact Hours	Credits
1	18B11HS918	HSS	Fundamentals of Accounting	3	0	0	3	3
2	18B11HS919	HSS	Financial Management	3	0	0	3	3
3	18B11HS920	HSS	Financial Modelling	3	0	0	3	3
4	18B11HS921	HSS	Fundamentals of Financial Markets	3	0	0	3	3
5	18B11HS922	HSS	Security Analysis & Investment Management	3	0	0	3	3
6	18B11HS923	HSS	International Financial Management	3	0	0	3	3
7	18B17HS972	HSS	Minor Project	0	0	4	4	2
Total							22	20

Minor Specialization-3: Digital Marketing (offered by HSS dept.)								
S. No.	Course Code	Dept.	Title of Course	L	T	P	Contact Hours	Credits
1	18B11HS925	HSS	Consumer Behaviour	3	0	0	3	3
2	18B11HS926	HSS	Ethics, IPR and Cyber laws	3	0	0	3	3
3	18B11HS927	HSS	Digital Marketing research	3	0	0	3	3
4	18B11HS928	HSS	Introduction to Social Media Marketing	3	0	0	3	3
5	18B11HS929	HSS	Digital Marketing	3	0	0	3	3
6	18B11HS930	HSS	Digital Marketing Analytics	3	0	0	3	3
7	18B17HS973	HSS	Minor Project	0	0	4	4	2
Total							22	20

Minor Specialization-4: Marketing (offered by HSS dept.)								
S. No.	Course Code	Dept.	Title of Course	L	T	P	Contact Hours	Credits
1	18B11HS932	HSS	Consumer Behaviour	3	0	0	3	3
2	18B11HS933	HSS	Marketing Management	3	0	0	3	3
3	18B11HS934	HSS	Marketing Research	3	0	0	3	3
4	18B11HS935	HSS	Services Marketing	3	0	0	3	3
5	18B11HS936	HSS	Brand Management	3	0	0	3	3
6	18B11HS937	HSS	Sales and Distribution Management	3	0	0	3	3
7	18B17HS974	HSS	Minor Project	0	0	4	4	2
Total							22	20