

# **IKG Punjab Technical University**

**Syllabus (3<sup>rd</sup>-8<sup>th</sup> Semester)**

**for**

**Undergraduate Degree Programme**



**Bachelor of Technology**

**ELECTRONICS AND  
COMMUNICATION ENGINEERING**

**Scheme & Syllabus**

**2018 & onwards**

B.Tech Electronics & Communication Engineering (ECE) Study Scheme and Syllabus 2018 & Onwards  
Board of Studies Electronics & Communication Engineering, Affiliated colleges, IKGPTU Kapurthala

Semester III [Second year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hrs	Internal Marks	External Marks	Total	Credits
1	BTEC- 301-18	Electronic Devices	3	0	0	3	40	60	100	3
2	BTEC- 302-18	Digital System Design	3	0	0	3	40	60	100	3
3	BTEC- 303-18	Electromagnetic Waves	3	1	0	4	40	60	100	4
4	BTEC-304-18	Network Theory	3	1	0	4	40	60	100	4
5	BTAMXXX18	Mathematics III	3	1	0	4	40	60	100	4
6	BTEC-311-18	Electronic Devices Laboratory	0	0	2	2	30	20	50	1
7	BTEC-312-18	Digital System Design Laboratory	0	0	2	2	30	20	50	1
8	HSMC101-18 /HSMC102-18*	Foundational Course in Humanities (Development of Societies or Philosophy)	3	0	0	3	40	60	100	3
9	BTEC-321-18	4-Week Institutional Training	0	0	4	3	40	60	100	Non-credit
10	BMPD-331-18	Mentoring and Professional Development	0	0	2	Satisfactory/Un-satisfactory			Non-credit	
<b>Total</b>			<b>18</b>	<b>3</b>	<b>10</b>	<b>25</b>	<b>360</b>	<b>440</b>	<b>800</b>	<b>23</b>

B.Tech Electronics & Communication Engineering (ECE) Study Scheme and Syllabus 2018 & Onwards  
Board of Studies Electronics & Communication Engineering, Affiliated colleges, IKGPTU Kapurthala

Semester IV [Second year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hrs	Internal Marks	External Marks	Total Marks	Credits
1	BTEC-401-18	Analog Circuits	3	1	0	4	40	60	100	4
2	BTEC-402-18	Microprocessors and Microcontrollers	3	0	0	3	40	60	100	3
3	BTCS-301-18	Data Structures & Algorithms	3	0	0	3	40	60	100	3
4	BTEC-403-18	Signals and Systems	3	1	0	4	40	60	100	4
5	HSMC122-18	Universal Human Values – 2: Understanding Harmony	3	0	0	3	40	60	100	3
6	EVS-101-18	Mandatory Course- Environmental Sciences	2	0	0	2	50	0	50	Non-credit
7	BTEC-411-18	Analog Circuits Laboratory	0	0	2	2	30	20	50	1
8	BTEC-412-18	Microprocessors and Microcontrollers Laboratory	0	0	2	2	30	20	50	1
9	BMPD-341-18	Mentoring and Professional Development	0	0	2	Satisfactory/Un-satisfactory			Non-credit	
<b>Total</b>			<b>16</b>	<b>2</b>	<b>6</b>	<b>22</b>	<b>310</b>	<b>340</b>	<b>650</b>	<b>19</b>
Semester V [Third year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hrs.	Internal Marks	External Marks	Total	Credit
1	BTEC-501-18	Analog and Digital Communication	3	0	0	3	40	60	100	3
2	BTCS-602-18	Computer Networks	3	0	0	3	40	60	100	3
3	BTEC-503-18	Linear Integrated Circuits	3	0	0	3	40	60	100	3
4	BTEC-504-18	Control Systems	3	1	0	4	40	60	100	4
5	BTEC-901X-18	Program Elective-1	3	0	0	3	40	60	100	3
6	BTOE-XX1-18	Open Elective-1	3	0	0	3	40	60	100	3
7	BTEC-511-18	Analog and Digital Communication Laboratory	0	0	2	2	30	20	50	1
8	BTEC-512-18	Digital Signal Processing Laboratory	0	0	2	2	30	20	50	1
9	BTEC-513-18	Linear Integrated Circuits Laboratory	0	0	2	2	30	20	50	1
10	BTEC-521-18	4-Weeks Industrial Training-I	0	0	6	6	60	40	100	3
11	BTEC-10X-18	Professional Elective-1 Lab (Optional)	0	0	2	Satisfactory/Un-satisfactory			Non-credit	
12	BMPD-351-18	Mentoring and Professional	0	0	2	Satisfactory/Un-satisfactory			Non-	

B.Tech Electronics & Communication Engineering (ECE) Study Scheme and Syllabus 2018 & Onwards  
Board of Studies Electronics & Communication Engineering, Affiliated colleges, IKGPTU Kapurthala

		Development								credit
		<b>Total</b>	<b>18</b>	<b>2</b>	<b>14</b>	<b>32</b>	<b>390</b>	<b>460</b>	<b>850</b>	<b>25</b>

Semester VI [Third year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hrs	Internal Marks	External Marks	Total	Credits
1	BTEC-601-18	Wireless Communication	3	0	0	3	40	60	100	3
2	BTEC-602-18	Digital Signal Processing	3	1	0	4	40	60	100	4
3	BTEC-603-18	Optical Fibers & Communication	3	0	0	3	40	60	100	3
4	BTEC-604-18	Microwave and Antenna Engineering	3	0	0	3	40	60	100	3
5	BTEC-902X-18	Program Elective-2	3	0	0	3	40	60	100	3
6	BTOE-XX2-18	Open Elective-2	3	0	0	3	40	60	100	3
7	BTEC-611-18	Optical Fibers & Communication Lab	0	0	2	2	30	20	50	1
8	BTEC-612-18	Microwave and Antenna Engineering Laboratory	0	0	2	2	30	20	50	1
9	BTEC-621-18	Electronic Design Automation Laboratory	0	0	4	4	30	20	50	2
11	BTEC-11X-18	Professional Elective-2 Lab (Optional)	0	0	2	Satisfactory/Un-satisfactory				Non-credit
10	BMPD-361-18	Mentoring and Professional Development	0	0	2	Satisfactory/Un-satisfactory				Non-credit
		<b>Total</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>26</b>	<b>330</b>	<b>420</b>	<b>750</b>	<b>23</b>

Semester VII [Fourth year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hr	Int Marks	Ext Marks	Total	Credits
1	BTEC-903X-18	Program Elective-3	3	0	0	3	40	60	100	3
2	BTEC-904X-18	Program Elective-4	3	0	0	3	40	60	100	3
3	BTOE-XX3-18	Open Elective-3	3	0	0	3	40	60	100	3
4	BTOE-XX4-18	Open Elective-4	3	0	0	3	40	60	100	3
5	BTMS-YYY18	Project Management & Finance	3	0	0	3	40	60	100	3
6	BTMC-XXX-18	Constitution of India (Mandatory Course)	3	0	0	3	40	60	100	Non-credit
7	BTEC-731-18	Project Stage-I	0	0	4	4	60	40	100	2
8	BTEC-841-18	Seminar	0	0	2	2	100	0	100	1

B.Tech Electronics & Communication Engineering (ECE) Study Scheme and Syllabus 2018 & Onwards  
Board of Studies Electronics & Communication Engineering, Affiliated colleges, IKGPTU Kapurthala

9	BTEC-721-18	4-Week Industrial Training-II	0	0	6	6	60	40	100	3
10	BTEC-12X-18	Professional Elective 3 or 4 Lab (Optional)	0	0	2	Satisfactory/Un-satisfactory				Non-credit
11	BMPD-371-18	Mentoring and Professional Development	0	0	2	Satisfactory/Un-satisfactory				Non-credit
<b>Total</b>			<b>18</b>	<b>0</b>	<b>14</b>	<b>30</b>	<b>460</b>	<b>440</b>	<b>900</b>	<b>21</b>

Semester VIII [Fourth year]										
Branch/Course: Electronics and Communication Engineering										
Sr. No.	Course code	Course Title	L	T	P	Hrs	Internal Marks	External Marks	Total	Credits
1	BTEC- 906X-18	Program Elective-6	3	0	0	3	40	60	100	3
2	BTEC-905X-18	Program Elective-5	3	0	0	3	40	60	100	3
3	BTOE-XY5-18	Open Elective-5	3	0	0	3	40	60	100	3
4	BTOE-XY6-18	Open Elective-6 (Humanities)	3	0	0	3	40	60	100	3
5	BTEC-831-18	Project Stage-II & Report	0	0	12	12	40	60	100	6
6	BTMC-YYY-18	Mandatory Course Essence of Indian Traditional Knowledge	2	0	0	2	40	60	100	Non-credit
7	BTEC-13X-18	Professional Elective 5 or 6 Lab (Optional)	0	0	2	Satisfactory/Un-satisfactory				Non-credit
8	BMPD-381-18	Mentoring and Professional Development	0	0	2	Satisfactory/Un-satisfactory				Non-credit
<b>Total</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>26</b>	<b>240</b>	<b>360</b>	<b>600</b>	<b>18</b>
<b>Grand Total (including 1st Year)</b>							<b>2510</b>	<b>3150</b>	<b>5700</b>	<b>167</b>

\* Student may choose any one of these as foundational course in HUSS group as given in AICTE Model Curriculum 2018.

**Range of credits for Honors Degree -Minimum credits as per scheme are required by a student to be eligible to get Under Graduate degree in Electronics and Communication Engineering.**

1. A student will be eligible to get Under Graduate degree with Honours, if he/she completes an additional 20 credits. These could be acquired through MOOCs and registering in the department.
2. Range of Credits and Courses for Major Degree in B. Tech. (Electronics and Communication Engineering) and Minor Degree in B.Tech. (Other Engineering)
  - (i) A student admitted in B. Tech (ECE) may opt for Major Degree in B. Tech. (ECE) and Minor Degree in B.Tech. (other Engineering) with effect from 3rd semester onwards.
  - (ii) The student must clear his/her previous two semesters.
  - (iii) The student/candidate will require to clear at least five theory subjects for Minor Degree in B.Tech.

## IK Gujral Punjab Technical University Kapurthala

### Subjects for Minor Degree in B.tech Electronics and Communication Engineering (ECE)

Core Subjects:

S.No.	Subject Code	Course Title	Credits
1.	BTEC-305-18	Basic Electronics	3
2.	BTEC-306-18	Digital Electronics	3

Elective Subjects (Odd Semester)

S.No.	Subject Code	Course Title	Credits
1.	BTEC- 301-18	Electronic Devices	4
2.	BTCS-301-18	Data Structures & Algorithms	4
3.	BTEC-504-18	Control Systems	4
4.	BTCS-ZZZ-18	Computer Networks	4
5.	BTEE-403-18	Power Electronics	4
6.	BTEC-	Fuzzy Logic and Systems	4

Elective Subjects (Even Semester)

S.No.	Subject Code	Course Title	Credits
1.	BTEC-401-18	Analog Circuits	4
2.	BTEC-402-18	Microprocessors and Microcontrollers	4
3.	BTEC-602-18	Digital Signal Processing	4
4.	BTEC-PEX	Principles of Communication	4
5.	BTEI-301-18	Electronic Measurements and Measurements	4
6.	BTME-XXX-18	Mechatronics	4