

**BACHELOR OF TECHNOLOGY DEGREE PROGRAM IN  
ELECTRONICS AND COMMUNICATION ENGINEERING  
B.Tech (Electronics and Communication Engineering), 2018-2022  
PROGRAM CURRICULUM**

1.1.1 Mandatory Courses and Credits

The B.Tech (Electronics and Communication Engineering) program structure (2018-2022) consists of 61 courses totaling 180 credits.

Table 3.1.1 summarizes the type of Courses, number of Courses under each type and the associated credits that are mandatorily required for the completion of the Degree.

<b>TABLE 3.1.1 B.Tech (Electronics and Communication Engineering) 2018-2022: Mandatory Courses and Credits</b>			
<b>S. No</b>	<b>TYPE OF COURSES</b>	<b>NO. OF COURSES</b>	<b>CREDITS</b>
1	Humanities, Social Sciences and Management Sciences(HS)	4	11
2	Basic Sciences (BS)	9	29
3	Engineering Sciences (ES)	7	21
4	Core (Professional) Course (CC)	28	76
5	Discipline(Professional) Elective (DE)	4	12
6	Open Elective (OE)	2	6
7	Professional Practice (PP) I and II	2	20
8	Personal and Professional Skills (PPS)	4	4
9	University Learning Courses (ULC)	1	1
<b>TOTAL</b>		<b>61</b>	<b>180</b>
<b>The mandatory minimum credits required for the award of the B.Tech (Electronics and Communication Engineering) Degree is 180 Credits</b>			

1.1.2 B.Tech. (Electronics and Communication Engineering) Program Year Wise Structure

First Year		Second Year		Third Year		Fourth Year				
Sem. 1	Sem. 2	Sem. 3	Sem. 4	Sem. 5	Sem. 6	Sem. 7	Sem. 8			
BS-3	BS-4	Summer Term	BS-1	BS-1	Summer Term/PP -I-I-1	CC-5	CC-6	Summer Term	CC-3	DE-1
ES-4	ES-3		CC-7	CC-7		HS-1	HS-1		DE-1	OE-1
HS-1	HS-1		PPS-1	PPS-1		DE-1	DE-1		OE-1	PP-II-1
PPS-1	PPS-1		ULC-1							
<p style="text-align: center;">Mandatory Minimum Credits required for the award of the B.Tech (Electronics and Communication Engineering) Degree: 180</p>										
						DE-1	CC-3		DE-1	OE-1
						OE-1	DE-1		DE-1	OE-1
						PP-II-1	OE-1		OE-1	

**Nomenclature:**

- BS - Basic Sciences
- ES - Engineering Sciences
- HS – Humanities, Social Sciences and Management Sciences
- CC - Core Course
- DE - Discipline/Professional Electives
- OE - Open Electives
- PP-I/PP-II - Professional Practice
- PPS-Personal and Professional Skills
- ULC - University Learning Course

In the entire program, the practical and skill based course component contribute to an extent of approximately 30% out of the total credits of 180 for B.Tech (Electronics and Communication Engineering) program of four years duration.

## 1.2 PROGRAM STRUCTURE

<b>I Sem- PHYSICS CYCLE (Aug-Dec)*</b>						
<b>S. No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>CREDIT STRUCTURE</b>			
			<b>L</b>	<b>T</b>	<b>P</b>	<b>CREDITS</b>
1	MAT 101	Engineering Mathematics – I	3	1	0	4
2	PHY 101	Engineering Physics	4	0	0	4
3	EEE 101	Elements of Electrical Engineering	3	0	0	3
4	CIV 101	Elements of Civil Engineering	3	0	0	3
5	MEC 152	Engineering Graphics	2	0	4	4
6	ENG 103	Technical Written Communication	2	1	0	3
7	PHY 151	Engineering Physics Lab	0	0	2	1
8	MEC 151	Workshop Practice	0	0	2	1
9	PPS 105	Building Self Confidence	0	0	2	1
		<b>TOTAL</b>	<b>17</b>	<b>2</b>	<b>10</b>	<b>24</b>

<b>I Sem - CHEMISTRY CYCLE (Aug-Dec)#</b>						
<b>S. No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>CREDIT STRUCTURE</b>			
			<b>L</b>	<b>T</b>	<b>P</b>	<b>CREDITS</b>
1	MAT 101	Engineering Mathematics – I	3	1	0	4
2	CHE 101	Engineering Chemistry	4	0	0	4
3	ECE 101	Elements of Electronics Engineering	3	0	0	3
4	MEC 101	Elements of Mechanical Engineering	3	0	0	3
5	CIV 102	Environmental Science and Disaster Management	3	0	0	3
6	ENG 104	Technical Spoken Communication	1	0	2	2
7	CSE 151	Computer Programming	2	0	4	4
8	CHE 151	Engineering Chemistry Lab	0	0	2	1
9	PPS 105	Building Self Confidence	0	0	2	1
		<b>TOTAL</b>	<b>19</b>	<b>1</b>	<b>10</b>	<b>25</b>

<b>II Sem- CHEMISTRY CYCLE (Jan-May)*</b>						
<b>S. No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>CREDIT STRUCTURE</b>			
			<b>L</b>	<b>T</b>	<b>P</b>	<b>CREDITS</b>
1	MAT 102	Engineering Mathematics – II	3	1	0	4
2	CHE 101	Engineering Chemistry	4	0	0	4
3	ECE 101	Elements of Electronics Engineering	3	0	0	3
4	MEC 101	Elements of Mechanical Engineering	3	0	0	3
5	CIV 102	Environmental Science and Disaster Management	3	0	0	3
6	ENG 104	Technical Spoken Communication	1	0	2	2
7	CSE 151	Computer Programming	2	0	4	4
8	CHE 151	Engineering Chemistry Lab	0	0	2	1
9	PPS 106	Effective Communication	0	0	2	1
		<b>TOTAL</b>	<b>19</b>	<b>1</b>	<b>10</b>	<b>25</b>

II Sem -PHYSICS CYCLE (Jan-May) #						
S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	MAT 102	Engineering Mathematics – II	3	1	0	4
2	PHY 101	Engineering Physics	4	0	0	4
3	EEE 101	Elements of Electrical Engineering	3	0	0	3
4	CIV 101	Elements of Civil Engineering	3	0	0	3
5	MEC 152	Engineering Graphics	2	0	4	4
6	ENG 103	Technical Written Communication	2	1	0	3
7	PHY 151	Engineering Physics Lab	0	0	2	1
8	MEC 151	Workshop Practice	0	0	2	1
9	PPS 106	Effective Communication	0	0	2	1
		<b>TOTAL</b>	<b>17</b>	<b>2</b>	<b>10</b>	<b>24</b>

**Note: At the end of the 1<sup>st</sup> year (Common to all B.Tech. Program) the total credits offered is 49.**

The 1<sup>st</sup> year B.Tech. Program structure is executed in two cycles.

\* The students undergoing the “Physics” cycle shall take the courses as indicated.

# The students undergoing the “Chemistry” cycle shall take the courses as indicated.

III SEMESTER						
S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	MAT 103	Engineering Mathematics– III	3	1	0	4
2	ECE 201	Analog Electronics	4	0	0	4
3	ECE 202	Signals and Systems	3	1	0	4
4	CSE 202	Digital Design	3	0	0	3
5	EEE 204	Electromagnetic Theory	4	0	0	4
6	ECE 251	Analog Electronics Lab	0	0	2	1
7	CSE 252	Digital Design Lab	0	0	2	1
8	ECE 253	Signals and Systems Lab with MATLAB	0	0	2	1
9	PPS 107	Design Thinking and Team Building	0	0	2	1
		<b>TOTAL</b>	<b>17</b>	<b>2</b>	<b>8</b>	<b>23</b>

**IV SEMESTER**

S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	MAT 106	Probability and Statistics	3	1	0	4
2	EEE 205	Control Systems	3	1	0	4
3	ECE 206	Linear Integrated Circuits	4	0	0	4
4	ECE 207	Microprocessor Programming and Interfacing	4	0	0	4
5	ECE 213	Digital Signal Processing	3	1	0	4
6	ECE 254	Linear Integrated Circuits Lab	0	0	2	1
7	ECE 260	Digital Signal Processing Lab	0	0	2	1
8	ECE 256	Microprocessor Programming and Interfacing Lab	0	0	2	1
9	PPS 108	Being Corporate Ready	0	0	2	1
		<b>TOTAL</b>	17	3	8	24

\*\*NOTE: Students will undergo Professional Practice – I during the Summer Break between the fourth and the fifth semesters and the credits earned will be accounted for in the fifth semester.

S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	EEE 209	Electrical and Electronic Measurements and Instrumentation	4	0	0	4
2	ECE 210	Analog Communication	4	0	0	4
3	ECE 211	Transmission Lines and Waveguides	3	0	0	3
4	ECE 3XX	Discipline Elective – I	3	0	0	3
5	MGT 112/ MGT 113	Engineering Economics/ Digital Entrepreneurship	3	0	0	3
6	EEE 257	Electrical and Electronic Measurements and Instrumentation Lab	0	0	2	1
7	ECE 258	Analog Communication Lab	0	0	2	1
8	ULC 101	University Learning Course*	0	0	0	1
9	PIP 101	Professional Practice – I **				5
		<b>TOTAL</b>	17	0	4	24/25

\* Student has to register for university learning courses in any one semester 5 / 6 to earn the mandatory credits.

**VI SEMESTER**

S.NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	ECE 212	Digital Communication	3	1	0	4
2	ECE 218	Micro Controller Applications	3	0	0	3
3	ECE 214	Antenna And Microwave Engineering	3	1	0	4
4	ECE219	Computer Communication and Networks	3	0	0	3
5	MGT 113/ MGT 112	Digital Entrepreneurship / Engineering Economics	3	0	0	3

6	ECE 3XX	Discipline Elective – II	3	0	0	3
7	ECE 259	Digital Communication Lab	0	0	4	2
8	ECE 263	Micro Controller Applications Lab	0	0	2	1
9	ULC 101	University Learning Course*	0	0	0	1
<b>TOTAL</b>			18	2	6	23/24

S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	ECE 215	VLSI Design	4	0	0	4
2	ECE 216	Information Theory and Coding	4	0	0	4
3	ECE 3XX	Discipline Elective – III	3	0	0	3
4	OPE 4XX	Open Elective-I	3	0	0	3
5	ECE 262	VLSI Design Lab	0	0	2	1
<b>TOTAL</b>			14	0	2	15

VIII SEMESTER						
S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
1	ECE 3XX	Discipline Elective – IV	3	0	0	3
2	OPE 4XX	Open Elective – II	3	0	0	3
3	PIP 102	Professional Practice – II				15
<b>TOTAL</b>			6	0	0	21

TABLE – 3.2.1						
DISCIPLINE ELECTIVE						
S. No	COURSE CODE	COURSE NAME	CREDITS STRUCTURE			
			L	T	P	CREDITS
1	ECE 302	Power Electronics	3	0	0	3
2	ECE 303	Optical Communication	3	0	0	3
3	ECE 304	Mobile Communication	3	0	0	3
4	ECE 305	Satellite Communication	3	0	0	3
5	ECE 306	Speech Signal Processing	3	0	0	3
6	ECE 307	Digital Image Processing	3	0	0	3
7	ECE 308	Embedded System Design Using ARM	3	0	0	3
8	ECE 309	Embedded Real Time Systems	3	0	0	3
9	ECE 310	Fuzzy Logic and Its Engineering Applications	3	0	0	3
10	ECE 311	Wireless Communication and Networks	3	0	0	3
11	ECE312	Radar Engineering	3	0	0	3
12	ECE313	RF Engineering	3	0	0	3

TABLE 3.2.2						
OPEN ELECTIVE						
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			
			L	T	P	CREDITS
<b>Open Elective Courses offered by Department of Civil Engineering, SOE</b>						
1	CIV 401	Geographical Information Systems	3	0	0	3
2	CIV 402	Environmental Impact Assessment	3	0	0	3

3	CIV 403	Sustainable Materials and Green Buildings	3	0	0	3
4	CIV 404	Construction Project Management	3	0	0	3
<b>Open Elective Courses offered by Department of Computer Science and Engineering, SOE</b>						
1	CSE 401	Image Processing	3	0	0	3
2	CSE 402	Data Structures Using C	3	0	0	3
3	CSE 403	Software Testing and Quality Assurance	3	0	0	3
4	CSE 404	Social Network Analytics	3	0	0	3
5	CSE 405	Digital and Mobile Forensics	3	0	0	3
6	CSE 406	Database Management Systems	3	0	0	3
7	CSE 407	Multimedia and Animation	3	0	3	3
<b>Open Elective Courses offered by Department of Electrical and Electronics Engineering, SOE</b>						
1	EEE 401	Artificial Neural Networks	3	0	0	3
2	EEE 405	Energy Audit	3	0	0	3
3	EEE 406	Research Methodology	3	0	0	3
4	EEE 407	Smart Grid Technology	3	0	0	3
5	EEE 408	Professional Ethics in Engineering	3	0	0	3
<b>Open Elective Courses offered by Department of Electronics and Communication Engineering, SOE</b>						
1	ECE 401	Artificial Neural Networks	3	0	0	3
2	ECE 402	Biomedical Instrumentation	3	0	0	3
3	ECE 407	Internet of Things	3	0	0	3
4	ECE 408	Industrial Automation and Control	3	0	0	3
<b>Open Elective Courses offered by Department of Mechanical Engineering, SOE</b>						
1	MEC 401	Automotive Vehicles	3	0	0	3
2	MEC 402	Nanotechnology	3	0	0	3
3	MEC 405	Engineering Optimisation	3	0	0	3
4	MEC 406	Operations Research for Engineers	3	0	0	3
5	MEC 407	Operations Management	3	0	0	3
6	MEC 408	Work Study	3	0	0	3
7	MEC 409	Project Management	3	0	0	3
8	MEC 410	Organizational Behaviour	3	0	0	3
9	MEC 411	Renewable Energy Systems	3	0	0	3
<b>Open Elective Courses offered by Department of Petroleum Engineering, SOE</b>						
1	PET 402	Computational Methods in Chemical Engineering	3	0	0	3
2	PET 403	Computational Fluid Dynamics	3	0	0	3
3	PET 405	Petroleum Corrosion Technology	3	0	0	3
4	PET 406	Polymer Technology	3	0	0	3
5	PET 407	Total Quality Management	3	0	0	3
6	PET 408	Oil and Gas Marketing and Resource Management	3	0	0	3
<b>Open Elective Courses offered by Department of Basic Sciences and Humanities, SOE</b>						
1	PSY401	Social Psychology	3	0	0	3
2	ENG401	Literature Appreciation	3	0	0	3
3	CHE 401	Composite Materials	3	0	0	3
4	CHE 402	Catalysis Technology	3	0	0	3

**Note:** However these are only indicative. Depending upon the need and availability of expertise new electives can be offered.