

# Government College of Engineering Aurangabad

## Chh.Sambhajinagar

NEP

Compliant Curriculum

w.e.f. 2023-24

Electronics & Telecommunication



Dr. Sunil Hirekhan  
Head E&TC



Dr. Anil Karwankar  
Dean Academics

Approved Updated Curriculum in XXX<sup>th</sup> Academic Council  
Dated: 5<sup>th</sup> July 2025

## GENERAL COURSE STRUCTURE & THEME

### A. Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (P) per week	1 Credit

**B. Total Credits for the completion of B.Tech. in Electronics & Telecommunication Engineering:**

The total number of credits proposed for the four-year B. Tech. Electronics and Telecommunication Engineering (E&TC) with 1 Multidisciplinary minor (Compulsory) degree is 170 as per the structure given below:

Structure of B. Tech. in Electronics and Telecommunication Engineering (E&TC) with minor:

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC	08	08		--	--	--	--	--	16
Engineering Science Course	ESC	07	07		--	--	--	--	--	14
Programme Core Course (PCC)	Program Courses	--	02	12	10	15	11	--		50
Programme Elective Course (PEC)	Program Elective	--	--	--	--	04	08	08	-	20
Multidisciplinary Minor (MD M)	Multidisciplinary Courses		-	04	03	04	03			14
Open Elective (OE) Other than a particular program	OE	--	--	03	03	02	--	--	--	08
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	02	02	--	02	--	02	--	--	08
Ability Enhancement Course (AEC -01, AEC-02)	Humanities Social Science and Management (HSSM)		02	--	02	--	--	--	--	04
Entrepreneurship/Economics/ Management Courses		--		02	02	--	--	--	--	04
Indian Knowledge System (IKS)		02			--	--	--	--	--	02
Value Education Course (VEC)		--	--	02	02	--	--	--	--	04
Research Methodology	Experiential Learning Courses	--	--	--	--	--	--	02	--	02
Comm. Engg. Project (CEP)/Field Project (FP)		--	--	02	--	--	--	--	--	02
Project		--	--	--	--	--	02	04	--	06
Internship/ OJT		--	--	--	--	--	--	--	12	12
Co-curricular Courses (CC)	Liberal Learning Courses	02	02	--	--	--	--	--	--	04
<b>Total Credits (Major)</b>		<b>21</b>	<b>23</b>	<b>25</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>14</b>	<b>12</b>	<b>170</b>

Students can opt for any of the following as per the rules and regulations given by institute:

1. B. Tech with one Minor = Total 170 Credits

2. B. Tech with one Minor and Honor in A.I.M.L. = Total 188 Credits

3. B. Tech with one Minor and Honor by Research = Total 188 Credits

4. B. Tech with two Minors = Total 184 Credits

## Total Credits for the completion of B.Tech. Course with Minor for Direct Second Year admitted students:

The total number of credits proposed for the B.Tech with 1 Multidisciplinary minor (Compulsory) degree is **128** as per the structure given below:

Semester		III	IV	V	VI	VII	VIII	Total Credits
Programme Core Course (PCC)	Program Courses	12+02*	10	15	11	--	--	50
Programme Elective Course (PEC)	Program Elective	--	--	04	08	08	--	20
Multidisciplinary Minor (MD M)	Multidisciplinary Courses	04	03	04	03	--	--	14
Open Elective(OE)Other than a particular program	OE	03	03	02	--	--	--	08
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	--	02	--	02	--	--	04
Ability Enhancement Course (AEC -01, AEC-02)	Humanities Social Science and Management (HSSM)	--	02	--	--	--	--	02
Entrepreneurship/Economics/ Management Courses		02	02	--	--	--	--	04
Indian Knowledge System (IKS)			--	--	--	--	--	-
Value Education Course (VEC)		02	02	--	--	--	--	04
Research Methodology	Experiential Learning Courses	--	--	--	--	02	--	02
Comm. Engg. Project (CEP)/Field Project(FP)		02	--	--	--	--	--	02
Project		--	--	--	02	04	--	06
Internship/OJT		--	--	--	--	--	12	12
Co-curricular Courses(CC)	Liberal Learning Courses	--	--	--	--	--	-	-
Total Credits(Major)		27	24	25	26	14	12	128

\* Bridge Course for DSY students

Students can opt for any of the following as per the rules and regulations given by institute:

1. B. Tech with one Minor = Total 128 Credits

2. B. Tech with one Minor and Honor in A.I.M.L. = Total 146 Credits

3. B. Tech with one Minor and Honor by Research = Total 146Credits

4. B. Tech with two Minors = Total 142 Credits

**Government College of Engineering Aurangabad, Chh. Sambhajinagar**  
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Teaching and Evaluation Scheme from year 2023-2024

**B. Tech. Program in Electronics & Telecommunication Engineering with Minor**

**Semester I**

Course				Teaching Scheme			Continuous Evaluation in terms of Marks					
Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total (100)
1	BSC-01	MABSC1002	Mathematics I (EE and E & TC)	3	1	-	4	15	15	10	60	100
2	BSC-02	CHBSC1001	Electrochemistry, Battery Science & Engineering Materials	3	-	0	3	15	15	10	60	100
3	BSC-03	CHBSC1003	Lab-Chemistry	-	-	2	1	-	-	25	-	25
4	ESC-01	EEESC1011	Basics of Electrical Engineering	2	0	-	2	10	10	-	30	50
5	ESC-02	EEESC1012	Lab- Basics of Electrical Engineering	-	-	2	1	-	-	25	-	25
6	ESC-03	CSESC1001	Programming for Problem Solving	3	-	-	3	15	15	10	60	100
7	ESC-04	CSESC1002	Lab-Programming for problem solving	-	-	2	1	-	-	25	-	25
8	VSEC-01	ETVSE1001	Electronics Workshop I	-	-	4	2	-	25	25	-	50
9	IKS	ETIKS1001	Indian Knowledge Systems	2	0	0	2	10	10	-	30	50
10	CC-01	INCCC1101	Yoga & Meditation	1	0	2	2	-	-	50	-	50
	<b>Total for B. Tech with one minor</b>			14	1	12	21	65	90	180	240	575

**Semester II**

Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total
1	BSC-06	MABSC1004	Engineering Mathematics II (EEP & ETX)	3	1	-	4	15	15	10	60	100
2	BSC-04	PHBSC1002	Optics, Semiconductors & Quantum Mechanics	3	-	0	3	15	15	10	60	100
3	BSC-05	PHBSC1003	Lab- Physics	-	-	2	1	-	-	25	-	25
4	ESC-04	ETESC1001	Electronic Devices and Circuits	3	-	-	3	15	15	10	60	100
5	ESC-05	ETESC1002	Lab Electronic Devices and Circuits	-	-	2	1	-	-	25	-	25
6	Esc-06	MEESC1001	Engineering Graphics	2	-	-	2	10	10	-	30	50
	ESC-07	MEESC1005	Lab Engineering Graphics Skills	-	-	2	1	-	-	25	-	25
7	VSEC-02	ETVSE1002	Engineering Exploration	-	-	4	2	-	25	25	-	50
8	AEC-01	INAEC1001	Communication Skills	2	-	-	2	10	10	-	30	50

9	CC-02	INCCC1002/ INCCC1003/ INCCC1004	NSS/ Sports / Club Activities	-	-	4	2	-	-	50	-	50
10	PCC	ETPCC1001	Sensors and Instruments	2	-	-	2	10	10	-	30	50
Total for B. Tech with one minor				15	1	14	23	75	100	180	270	625

<b>BSC</b>	<b>16</b>	<b>IKS</b>	<b>02</b>	<b>PCC</b>	<b>02</b>	<b>OE</b>	<b>--</b>	<b>MDM-1</b>	<b>--</b>
<b>ESC</b>	<b>14</b>	<b>VEC</b>	<b>--</b>	<b>PEC</b>	<b>--</b>				
<b>CC</b>	<b>04</b>	<b>AEC</b>	<b>02</b>	<b>E.L.</b>	<b>--</b>	<b>Honors</b>	<b>--</b>	<b>MDM-II</b>	<b>--</b>
<b>VSEC</b>	<b>04</b>	<b>HSSM</b>	<b>--</b>						

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**Semester – III**

Course				Teaching Scheme			Continuous Evaluation in terms of Marks					
Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total (100)
1	PCC	ETPCC2001	Digital Electronics	3	-	-	3	15	15	10	60	100
2	PCC	ETPCC2002	Lab Digital Electronics	-	-	2	1	-	-	25	25	50
3	PCC	ETPCC2003	Signals & Systems	3	-	-	3	15	15	10	60	100
4	PCC	ETPCC2004	Lab Signals & Systems	-	-	2	1	-	-	25	25	50
5	PCC	ETPCC2005	Network Theory	3	-	-	3	15	15	10	60	100
6	PCC	ETPCC2006	Lab Network Theory	-	-	2	1	-	-	25	25	50
7	*PCC	ETPCC1001	Sensors and Instruments	2	-	-	2	10	10	-	30	50
8	MDM I/ II		MDM-01	3	-	-	3	15	15	10	60	100
9	MDM I/ II		Lab- MDM-01	-	-	2	1	-	-	25	-	25
10	OE	XXOECXXXX	OE-01	3	-	-	3	15	15	10	60	100
11	HSSM	XXEEMXXXX	Entrepreneurship/Economics/ Management Courses	2	-	-	2	10	10	-	30	50
12	VEC	INVEC1001	Universal Human Values – II Understanding Harmony	2	-	-	2	10	10	-	30	50
13	Exp. Learning	ETCEP2001	Community Engineering Project	-	-	4	2	-	25	25	-	50
<b>Total for B. Tech with one minor</b>				19		12	25	95	120	175	435	825

**Semester IV**

Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total
1	PCC	ETPCC2007	Mathematics for AIML	3	-	-	3	15	15	10	60	100
2	PCC	ETPCC2008	Analog & Digital Communication	3	-	-	3	15	15	10	60	100
3	PCC	ETPCC2009	Lab-Analog & Digital Communication	-	-	2	1	-	-	25	25	50
4	PCC	ETPCC2010	Linear Integrated Circuits	3	-	-	3	15	15	10	60	100
5	MDM I/ II		MDM-02	3	-	-	3	15	15	10	60	100
6	OE	XXOECXXXX	OE-II	3	-	-	3	15	15	10	60	100

7	VSEC-03	ETVSE2001	Electronics Workshop – II	-	-	2	1	-	-	25	25	50
8	VSEC-04	ETVSE2002	Lab-Linear Integrated Circuits	-	-	2	1	-	-	25	25	50
9	AEC-02	ETAEC1020	Sanskrit	2	-	-	2	10	10	-	30	50
10	HSSM	ETEEMXXX X**	Entrepreneurship/Economics/ Management Courses**	2	-	-	2	--	--	--	100	100
11	VEC	CEVEC0010	Environmental Science	2	-	-	2	10	10	-	30	50
<b>Total for B. Tech with one minor</b>				21		06	24	95	95	125	535	850

<b>BSC</b>	<b>(16)</b>	<b>IKS</b>	<b>02</b>	<b>PCC</b>	<b>22 (24)</b>	<b>OE</b>	<b>06</b>	<b>MDM-1</b>	<b>07</b>
<b>ESC</b>	<b>(14)</b>	<b>VEC</b>	<b>04 (04)</b>	<b>PEC</b>	<b>--</b>				
<b>CC</b>	<b>(04)</b>	<b>AEC</b>	<b>02 (04)</b>	<b>E.L.</b>	<b>02(02)</b>	<b>Honors</b>	<b>--</b>	<b>MDM-II</b>	<b>07</b>
<b>VSEC</b>	<b>2 (6)</b>	<b>HSSM</b>	<b>04 (04)</b>						

**\*This is a 02 credit Program core course offered as the Bridge course for DSY Students Only.**

**\* \*\*This is a MOOC/NPTEL course. Students have to register and appear for the assignments and examinations conducted by MOOC/NPTEL course only. After submitting the Passing certificate of such a course, students will be awarded the 2 credits by virtue of ‘Transfer of Credits’.**



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Teaching and Evaluation Scheme from year 2025-2026

**B. Tech. Program in Electronics & Telecommunication Engineering with Minor**

**Semester – V**

Course				Teaching Scheme			Continuous Evaluation in terms of Marks					
Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total (100)
1	PCC	ETPCC3001	Microprocessor & Microcontroller	3	-	-	3	15	15	10	60	100
2	PCC	ETPCC3002	Lab- Microprocessor & Microcontroller	-	-	2	1	-	-	25	25	50
3	PCC	ETPCC3003	Digital Signal Processing	3	-	-	3	15	15	10	60	100
4	PCC	ETPCC3004	Lab-Digital Signal Processing	-	-	2	1	-	-	25	25	50
5	PCC	ETPCC3005 <sup>§</sup>	Electromagnetic Theory <sup>§</sup>	3	-	-	3	-	-	-	100	100
6	PCC	ETPCC3006	Thinking System Applications	3	-	-	3	15	15	10	60	100
7	PCC	ETPCC3007	Lab- Thinking System Applications	-	-	2	1	-	-	25	25	50
8	PEC	ETPEC3001	Lab – Professional Skill Development	-	-	2	1	-	-	25	25	50
9	PEC	ETPECXXXX <sup>§</sup>	PEC I <sup>§</sup>	3	-	-	3	--	--	--	100	100
10	MDM I / II		MDM 03	3	-	-	3	15	15	10	60	100
11	MDM I / II		Lab MDM 03	-	-	2	1	-	-	25		25
12	OE	XXOECXXXX	OE III	2	-	-	2	10	10	-	30	50
<b>Total for B. Tech with one minor</b>				<b>20</b>		<b>10</b>	<b>25</b>	<b>70</b>	<b>70</b>	<b>165</b>	<b>570</b>	<b>875</b>

<sup>§</sup>This is a MOOC/NPTEL course. Students have to register and appear for the assignments and examinations conducted by MOOC/NPTEL course only. After submitting the Passing certificate of such a course, students will be awarded the 3 credits by virtue of 'Transfer of Credits'.

**Semester VI**

Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total
1	PCC	ETPCC3008	Control Systems	3	-	-	3	15	15	10	60	100
2	PCC	ETPCC3009	Lab-Control Systems	-	-	2	1	-	-	25	25	50
3	PCC	ETPCC3010	Embedded Systems	3	-	-	3	15	15	10	60	100
5	PCC	ETPCC3011	Computer Network	3	-	-	3	15	15	10	60	100
6	PCC	ETPCC3012	Lab-Computer Networks	-	-	2	1	-	-	25	25	50

7	PEC	ETPECXXXX	PEC II	3	-	-	3	15	15	10	60	100
8	PEC	ETPECXXXX	Lab PEC II	-	-	2	1	-	-	25	25	50
9	PEC	ETPECXXXX	PEC III	3	-	-	3	15	15	10	60	100
10	PEC	ETPECXXXX	Lab-PEC III	-	-	2	1	-	-	25	25	50
11	MDM I / II		MDM 04	3	-	-	3	15	15	10	60	100
12	VSEC05	ETVSE3001	E-Skill workshop	-	-	2	1	-	-	25	25	50
13	VSEC06	ETVSE3002	Lab-Embedded Systems	-	-	2	1	-	-	25	25	50
14	Experiential Learning Courses	ETPRJ3001	Project Phase I	-	-	4	2	-	-	50	50	100
<b>Total for B. Tech with one minor</b>				<b>18</b>		<b>16</b>	<b>26</b>	<b>90</b>	<b>90</b>	<b>260</b>	<b>560</b>	<b>1000</b>

<b>BSC</b>	<b>(16)</b>	<b>IKS</b>	<b>(02)</b>	<b>PCC</b>	<b>26 (50)</b>	<b>OE</b>	<b>02 (08)</b>	<b>MDM-I</b>	<b>07 (14)</b>
<b>ESC</b>	<b>(14)</b>	<b>VEC</b>	<b>(04)</b>	<b>PEC</b>	<b>12(12)</b>				
<b>CC</b>	<b>(04)</b>	<b>AEC</b>	<b>(04)</b>	<b>E.L.</b>	<b>02(04)</b>	<b>Honors</b>	<b>08</b>	<b>MDM-II</b>	<b>07 (14)</b>
<b>VSEC</b>	<b>2 (08)</b>	<b>HSSM</b>	<b>(04)</b>						

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Teaching and Evaluation Scheme from year 2026-2027

**B. Tech. Program in Electronics & Telecommunication Engineering with Minor  
Semester – VII**

Course				Teaching Scheme			Continuous Evaluation in terms of Marks					
Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total (100)
1	PEC	ETPECXXXX	PEC IV	3	-	-	3	15	15	10	60	100
2	PEC	ETPECXXXX	Lab PEC IV	-	-	2	1	-	-	25	25	50
3	PEC	ETPECXXXX	PEC V	3	-	-	3	15	15	10	60	100
4	PEC	ETPECXXXX	Lab-PEC V	-	-	2	1	-	-	25	25	50
5	Experiential Learning Courses	ETRMC 4001	Research Methodology	2	-	-	2	10	10	-	30	50
6	Experiential Learning Courses	ETPRJ4001	Project Phase II	-	-	8	4	-	-	50	50	100
<b>Total for B. Tech with one minor</b>				10	-	12	14	40	40	130	280	450

**Semester VIII**

Sr No	Category	Course Code	Course Name	TH	T	PR	Credits	ISE I	ISEII	ISEIII	ESE	Total
1	Experiential Learning Courses	ETINT4001	Internship	-	-	24	12	50	50	50	100	250
<b>Total for B. Tech with one minor</b>						24	12	50	50	50	100	250

BSC	(16)	IKS	(02)	PCC	(50)	OE	00 (08)	MDM-1	00 (14)
ESC	(14)	VEC	(04)	PEC	08 (20)				
CC	(04)	AEC	(04)	E.L.	18(22)	Honors	10 (18)	MDM-II	00 (14)
VSEC	(8)	HSSM	(04)			Dissertation	18		

**Bridge Courses for exit:**

<b><u>After First Year:</u></b>	<p><b>The candidate should complete the internship of two months for 8 credits</b></p> <p style="text-align: center;"><b>OR</b></p> <p><b>The candidate should pass the following Two courses of 8 credits to get the certificate</b></p> <ol style="list-style-type: none"><li>1.Consumer Electronic/Radio Engineering /Digital Electronics (<b>Any one course</b>)</li><li>2. Electronics Servicing and Maintenance</li></ol>
<b><u>After Second Year:</u></b>	<p><b>The candidate should complete the internship of two months for 8 credits</b></p> <p style="text-align: center;"><b>OR</b></p> <p><b>The candidate should pass the following Two courses of 8 credits to qualify the Diploma.</b></p> <ol style="list-style-type: none"><li>1. Data Communication and Networking</li><li>2. Electronics Servicing and Maintenance</li></ol>
<b><u>After Third Year:</u></b>	<p><b>The candidate should complete the internship of two months for 8 credits</b></p> <p style="text-align: center;"><b>OR</b></p> <p><b>The candidate should pass the following Two courses of 8 credits to qualify B. Voc. Degree.</b></p> <ol style="list-style-type: none"><li>1. Advanced Mobile Communication</li><li>2. Cyber Security</li></ol>

**Following courses will be offered as Professional Electives:**

**Professional Elective I - Following are the MOOC courses suggested**

Sr. No.	Course Code	Course Name
1.	ETPEC3002	Computer Architecture
2.	ETPEC3003	Operating System Fundamentals
3.	ETPEC3004	Quantum Computing
4.	ETPEC3005	Ethical Hacking
5.	ETPEC3006	Natural Language Processing
6.	ETPEC3007	Artificial Intelligence Search Methods For Problem Solving
7.	ETPEC3008	Data Science for Engineers
8.	ETPEC3009	Introduction to Machine Learning
9.	ETPEC3010	Introduction to Cyber Security
10.	ETPEC3031	Switching Circuits and Logic Design
11.	ETPEC3032	Neural Networks for Signal Processing
12.	ETPEC3033	Introduction to Internet of Things
Students may opt any other MOOC/NPTEL course on current technology with the permission of BoS Chairman as PEC I course.		

**Following is the list of Professional Elective courses offered by the department**

List of Professional Elective Courses:

(Each of the following course is of 3 + 0 + 1 = 4 Credits)

Sr. No.	Course Title	Sr. No.	Course Title
1	VLSI Design & Lab	12	Computer Architecture & lab
2	Radar Communication & lab	13	Operating System Fundamentals & lab
3	Optical Wireless Communication beyond 5G network & lab	14	Quantum Computing & lab
4	Digital VLSI & lab	15	Information Theory and Coding & lab
5	Cyber Security & lab	16	Optical Fiber Communication & lab
6	Robotics & lab	17	Microwave Engineering & lab
7	Automotive Electronics & lab	18	Digital Image Processing & lab
8	Object Oriented Programming & lab	19	Power Electronics & lab
9	Big Data & lab	20	Digital System Design & lab
10	Cloud Computing & lab	21	Industrial Automation & lab
11	Mobile Communication & lab	22	Satellite Communication & lab