Sanjay Ghodawat University Kolhapur

School of Engineering and Technology
Department of Electronics and Communication Engineering

B. Tech. Electronics & Communication Engineering

Curriculum Structure (R25)

Semester: I-VIII

Programme Structure for B Tech.: First Year Electronics and Communication Engineering

Semester I: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
USTBS101	Linear Algebra	3	-	1	3	-	1	4
USTBS001	Modern Physics	3	-	-	3	-	-	3
UECPC101	Sensors and Instrumentation	3		-	3	-	-	3
USTVE004	Environmental Science and Sustainability	2	-	-	2	-	-	2
USTBS002	Modern Physics Lab	-	2	-	-	1	-	1
UECPC102	Sensors and Instrumentation lab	-	2			1		1
USTIK001	Indian Science, Engineering and Technology (Past, Present and Future)	2	-	-	2	-	-	2
USTVS102	C++ Programming Lab	-	4	-	-	2	-	2
UISCC0XX	Co-curricular Courses I	-	4	-	-	2	-	2
UHSVE001	Constitution of India	2	-	-	2	-	-	2
UHSVE005	Universal Human Values	-	-	-	-	-	-	Audit Course
Total		**15**	**12**	**1**	**15**	**6**	**1**	**22**

- During the Induction Program, students would get an initial exposure to human values through Universal Human Values-I
- C Programming course of 8hours shall be conducted as bridge course before starting of C++ Programming in curriculum

Semester I: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work / Tutorial	Practical Oral/ POE	
		T1	T2	FET	Total				
USTBS101	Linear Algebra	10	10	5	25	50	25	-	100
USTBS001	Modern Physics	10	10	5	25	50	-	-	75
UECPC101	Sensors and Instrumentation	10	10	5	25	50	-	-	75
USTVE004	Environmental Science and Sustainability	-	10	5	15	35	-	-	50
USTBS002	Modern Physics Lab	-	-	-	-	-	25	-	25
UECPC102	Sensors and Instrumentation lab	-	-	-	-	-	25	-	25
USTIK001	Indian Science, Engineering and Technology (Past, Present and Future)	-	10	5	15	35	-	-	50
USTVS102	C++ Programming Lab	-	-	-	-	-	50	-	50
UISCC0XX	Co-curricular Courses I	-	-	-	-	-	50	-	50
UHSVE001	Constitution of India	-	10	5	15	35	-	-	50
UHSVE005	Universal Human Values	-	-	-	-	-	--	-	Audit course
								Total	**550**

Semester II: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
USTBS202	Calculus and Transforms	3	-	1	3	-	1	4
USTBS003	Applied Chemistry	3	-	-	3	-	-	3
USTES203	Data Science for Engineers	3	-	-	3	-	-	3
USTES003	Design Thinking	2	-	-	2	-	-	2
UHSAE001	Professional Communication	1	2	-	2	-	-	2
USTBS004	Applied Chemistry Lab	-	2	-	-	1	-	1
USTES204	Data Science for Engineers lab	-	2	-	-	1	-	1
USTES004	Design Thinking Lab	-	2	-	-	1	-	1
USTVS203	Python Programming	-	4	-	-	2	-	2
UISCC0XX	Co-curricular courses II	-	4	-	-	2	-	2
Total		**12**	**16**	**1**	**13**	**7**	**1**	**21**

Semester II: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral/POE	
		T1	T2	FET	Total				
USTBS202	Calculus and Transforms	10	10	5	25	50	25	-	100
USTBS003	Applied Chemistry	10	10	5	25	50	-	-	75
USTES203	Data Science for Engineers	10	10	5	25	50	-	-	75
USTES003	Design Thinking	-	10	5	15	35	-	-	50
UHSAE001	Professional Communication	-	10	5	15	35	-	-	50
USTBS004	Applied Chemistry Lab	-	-	-	-	-	25	-	25
USTES204	Data Science for Engineers lab	-	-	-	-	-	25	-	25
USTES004	Design Thinking Lab	-	-	-	-	-	25	-	25
USTVS203	Python Programming	-	-	-	-	-	50	-	50
UISCC0XX	Co-curricular courses II	-	-	-	-	-	50	-	50
								Total	**525**

Exit Option:

- Students will have the flexibility to enter the programme in odd semesters and exit the programme after the successful completion of even semesters as per their future career needs. Students exiting the First-Year program after securing minimum 40 credits will be awarded UG Certificate in the relevant Discipline /Subject provided they secure 8 credits in work-based vocational courses or internship / Apprenticeship offered during summer vacation in addition to 8 credits from skill-based courses earned during the first and second semester.

Programme Structure for B Tech.: Second Year Electronics and Communication Engineering

Semester III: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UECPC301	Analog Circuit Design	3	-	-	3	-	-	3
UECPC302	Signals and Systems	3	-	-	3	-	-	3
UECPC303	Network Analysis and Synthesis	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor I	2	-	-	2	-	-	2
UXXOE01X	Open Elective I	2	-	-	2	-	-	2
UCMEM001	Engineering Economics	2	-	-	2	-	-	2
UECPC304	Analog Circuit Design Lab	-	2	-	-	1	-	1
UECPC305	Network Analysis and Synthesis lab	-	2	-	-	1	-	1
UECPC306	Circuit Simulation I	-	4	-	-	2	-	2
UECFP301	Community/Field Project	-	4	-	-	2	-	2
Total		**15**	**12**	-	**15**	**6**	-	**21**

Semester III: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
UECPC301	Analog Circuit Design	10	10	5	25	50	-	-	75
UECPC302	Signals and Systems	10	10	5	25	50	-	-	75
UECPC303	Network Analysis and Synthesis	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor I	-	10	5	15	35	-	-	50
UXXOE01X	Open Elective I	-	10	5	15	35	-	-	50
UCMEM001	Engineering Economics	-	10	5	15	35	-	-	50
UECPC304	Analog Circuit Design Lab	-	-	-	-	-	25	-	25
UECPC305	Network Analysis and Synthesis lab	-	-	-	-	-	25	-	25
UECPC306	Circuit Simulation I	-	-	-	-	-	25	25	50
UECFP301	Community/Field Project	-	-	-	-	-	25	25	50
								Total	**525**

Programme Structure for B Tech.: Second Year Electronics and Communication Engineering

Semester IV: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UECPC401	Electromagnetic Waves and Antennas	3	-	-	3	-	-	3
UECPC402	Digital Control System	3	-	-	3	-	-	3
UECPC403	Digital Circuit Design	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor-II	2	-	-	2	-	-	2
UXXOE02X	Open Elective II	2	-	-	2	-	-	2
UCMEM003	Project Management	2	-	-	2	-	-	2
UECPC404	Circuit Simulation II	-	4	-	-	2	-	2
UECPC405	Digital Circuit Design Lab	-	2	-	-	1	-	1
UECPC406	Digital Control System Lab	-	2	-	-	1	-	1
UHSAE008	Employability Skills	1	2	-	-	2	-	2
UHSVE005	AI Ethics and Governance	1	-	**1**	1	-	1	2
Total		**17**	**10**	**1**	**16**	**6**	1	**23**

Semester IV: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Ter m wor k	Practical Oral /POE	
		T1	T2	FET	Total				
UECPC401	Electromagnetic Waves and Antennas	10	10	5	25	50	-	-	75
UECPC402	Digital Control System	10	10	5	25	50	-	-	75
UECPC403	Digital Circuit Design	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor-II	-	10	5	15	35	-	-	50
UXXOE02X	Open Elective II	-	10	5	15	35	-	-	50
UCMEM003	Project Management	-	10	5	15	35	-	-	50
UECPC404	Circuit Simulation II	-	-	-	-	-	25	-	25
UECPC405	Digital Circuit Design Lab	-	-	-	-	-	25	25	50
UECPC406	Digital Control System Lab	-	-	-	-	-	25	-	25
UHSAE008	Employability Skills	-	-	-	-	-	25	25	50
UHSVE005	AI Ethics and Governance	10	10	5	25	-	25	-	50
								Total	**575**

Exit Option:

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the Second Year Programme after securing minimum 80 credits will be awarded UG Diploma in the relevant Discipline /Subject provided they secure additional 4-8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc) offered during summer vacation after the second year.

Programme Structure for B Tech.: Third Year Electronics and Communication Engineering

Semester V: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
UECPC501	Microcontrollers and Applications	3	-	-	3	-	-	3
UECPC502	Digital Communication	3	-	-	3	-	-	3
UECPC503	Digital Signal Processing	3	-	-	3	-	-	3
UECPE5XX	Program Elective I	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor III	2	-	-	2	-	-	2
UXXOE03X	Open Elective III	2	-	-	2	-	-	2
UECFP502	Mini Project	-	4	-	-	2	-	-
UECPC504	Microcontrollers and Applications Lab	-	2	-	-	1	-	1
UECPC505	Digital Communication Lab	-	2	-	-	1	-	1
UECPC506	Digital Signal Processing Lab	-	2	-	-	1	-	1
Total		**16**	**10**	-	16	**5**	-	21

Semester V: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE			
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UECPC501	Microcontrollers and Applications	10	10	5	25	50	-	-	75
UECPC502	Digital Communication	10	10	5	25	50	-	-	75
UECPC503	Digital Signal Processing	10	10	5	25	50	-	-	75
UECPE5XX	Program Elective I	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor III	-	10	5	15	35			50
UXXOE03X	Open Elective III	-	10	5	15	35	-	-	50
UECFP502	Mini Project	-	-	-	-	-	25	-	25
UECPC504	Microcontrollers and Applications Lab	-	-	-	-	-	25	25	50
UECPC505	Digital Communication Lab	-	-	-	-	-	25	--	25
UECPC506	Digital Signal Processing Lab	-	-	-	-	-	25	--	25
								Total	**525**

Semester VI: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UECPC601	Embedded System Design	3	-	-	3	-	-	3
UECPC602	Mechatronics and Robotics	3	-	-	3	-	-	3
UECPC603	Wireless Communication Engineering	3	-	-	3	-	-	3
UECPE6XX	Program Elective-II	3	-	-	3	-	-	3
UECPE6XX	Program Elective-III	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor IV	2	-	-	2	-	-	2
UECPC604	PLC and SCADA lab	-	4	-	-	2	-	2
UECPC605	Embedded System Design Lab	-	2	-	-	1	-	1
UECPC606	Mechatronics and Robotics Lab	-	2	-	-	1	-	1
Total		**17**	**08**	**-**	**17**	**4**	**-**	**21**

Semester VI: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				SEE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UECPC601	Embedded System Design	10	10	5	25	50	-	-	75
UECPC602	Mechatronics and Robotics	10	10	5	25	50	-	-	75
UECPC603	Wireless Communication Engineering	10	10	5	25	50	-	-	75
UECPE6XX	Program Elective-II	10	10	5	25	50	-	-	75
UECPE6XX	Program Elective-III	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor IV	-	10	5	15	35	-	-	50
UECPC604	PLC and SCADA lab	-	-	-	-	-	25	--	25
UECPC605	Embedded System Design Lab	-	-	-	-	-	25	25	50
UECPC606	Mechatronics and Robotics Lab	-	-	-	-	-	25	--	25
								Total	**525**

Exit Option:

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the 3-year UG program will be awarded B.Voc. in the relevant Discipline /Subject upon securing minimum 120 credits with additional 4-8 credits in skill-based vocational courses (skill-based courses, internship, mini projects etc.) offered during summer vacation after the sixth semester.

Programme structure for B. Tech: Final Year Electronics and Communication Engineering
Semester VII: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total Credits
UECPC701	Internet of Things System Design	3	-	-	3	-	-	3
UECPC702	Satellite Communication	3	-	-	3	-	-	3
UECPC703	Microwave and Radar Engineering	3	-	-	3	-	-	3
UECPE7XX	Program Elective IV	3	-	-	3	-	-	3
USTRM701	Research Methodology	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor V	2	-	-	2	-	-	2
UECPC704	Internet of Things System Design Lab	-	2	-	-	1	-	1
UECPC705	Microwave and Radar Engineering Lab	-	2	-	-	1	-	1
UECPE7XX	Program Elective IV Lab	-	2	-	-	1	-	1
UECPR701 **OR** UECEP701 **OR** UECRE701	Project Phase I (Industry Internship with Capstone Project Track) **OR** Entrepreneurship Project Phase I (Entrepreneurship Venture Track) **OR** Research Project Phase I (Higher Opportunity Track)	-	4	-	-	2	-	2
Total		**17**	**10**	-	**17**	**5**	-	**22**

Semester VII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Term work	Practical Oral/POE	
		T1	T2	FET	Total				
UECPC701	Internet of Things System Design	10	10	5	25	50	-	-	75
UECPC702	Satellite Communication	10	10	5	25	50	-	-	75
UECPC703	Microwave and Radar Engineering	10	10	5	25	50	-	-	75
UECPE7XX	Program Elective IV	10	10	5	25	50	-	-	75
USTRM701	Research Methodology	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor V	-	10	5	15	35	-	-	50
UECPC704	Internet of Things System Design Lab	-	-	-	-	-	25	-	25
UECPC705	Microwave and Radar Engineering Lab	-	-	-	-		25	-	25
UECPE7XX	Program Elective IV Lab	-	-	-	-	-	25	-	25
UECPR701 **OR** UECEP701 **OR** UECRE701	Project Phase I (Industry Internship with Capstone Project) **OR** Entrepreneurship Project Phase I (Entrepreneurship Venture Track) **OR** Research Project Phase I (Higher Opportunity Track)	-	-	-	-	-	50	-	50
Total									**550**

Note: The Evaluation of Project Phase I is divided into two parts (Internal Assessment)

a) Preparation and presentation of the proposal of the Project (Motivation/ Relevance, Problem Statement, Literature Survey, Objectives, Methodology and design of the project) for 25marks.

b) Students shall present a seminar on the topic relevant to the Project work for 25 marks.

Programme structure for B. Tech: Final Year Electronics and Communication Engineering (R23)

Track I: Industry Internship with Capstone Project Track

Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UECPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UECPR801	Project Phase-II	-	8	-	-	4	-	4
UECOT801	Internship/On job Training	-	24	-	-	12	-	12
Total		**9**	**24**	**-**	**9**	**12**	**-**	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UECPE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	10	-	5	15	35	-	-	50
UECPR801	Project Phase-II	-	-	-	-	-	50	50	100
UECOT801	Internship/On job Training	-	-	-	-	-	200	100	300
Total									**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.

  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.

  These are additional credits from the same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.

  These are additional credits to be offered in the final year and will be offered as an option to students.

Programme structure for B. Tech: Final Year Electronics and Communication Engineering

(R25) Track II: Entrepreneurship Venture Track

Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UECPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UECEP801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
UECEP802	Entrepreneurship project Phase II	-	24	-	-	12	-	12
Total		**5**	**24**	**-**	**9**	**12**	-	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UECPE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI		10	5	15	35	-	-	50
UECEP801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
UECEP802	Entrepreneurship project Phase II	-	-	-	-	-	200	100	300
								Total	**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from the same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

Programme structure for B. Tech: Final Year Electronics and Communication Engineering
(R25) Track III: Higher Opportunity Track
Semester VIII: Teaching Scheme

Course code	Course name	Teaching scheme			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UECPE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
UECRE801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
UECRE802	Research Project Phase II	-	24	-	-	12	-	12
Total		**5**	**24**	**-**	**9**	**12**	**-**	**21**

Semester VIII: Evaluation Scheme

Course code	Course name	Theory Marks					Practical Marks		Total
		Evaluation (Theory)				ESE	Evaluation (Lab)		
		T1	T2	FET	Total		Term work	Practical Oral/POE	
UECPE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	10	-	5	15	35	-	-	50
UECRE801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
UECRE802	Research Project Phase II	-	-	-	-	-	200	100	300
Total									**525**

Note:

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work , SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course
- The Program Elective V and Multidisciplinary Minor VI shall be conducted in online mode, by faculty of SGU or other institute/ University. Students can also opt a course from MOOCs platforms such as SWAYAM, NPTEL, Coursera etc. In case there is no assessment and examination conducted by the MOOCs platforms then the assessment and examination will be conducted by SGU.
- Additional Credits for Bachelor's Degree- with Double Minor :12 Credits.
  These are additional credits to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- with Honors: 16-20 Credits.
  These are additional credits from the same domain to be offered from the second year to the final year and will be offered as an option to students.
- Additional Credits for Bachelor's Degree- Honors with Research: Minimum 16-20 Credits.
  These are additional credits to be offered in the final year and will be offered as an option to students.

List of Co-curricular courses I & II	
Course Code	**Course Name**
UISCC011	National Service Scheme
UISCC012	Regular and Special NNS Camp Activity
UISCC021	Indian Music
UISCC022	Fine Arts
UISCC023	Indian Dance
UISCC031	Physical Fitness
UISCC032	Yoga & Meditation

Program Electives (PEs)								
PE	**Course Code**	**Vertical I Signal Processing**	**Course Code**	**Vertical II VLSI**	**Course Code**	**Vertical III Automotive Electronics**	**Course Code**	**Vertical IV Data Science**
I	UECPE511	Digital Image Processing	UECPE521	Digital System Design using VHDL/Verilog	UECPE531	Power Electronics	UECPE541	Fundamentals of AI
II	UECPE611	Adaptive Signal Processing	UECPE621	Mixed-Signal VLSI Design	UECPE631	Industrial buses and drives	UECPE641	Data Warehousing and Mining
III	UEPC612	Computer Vision and Pattern Recognition	UECPE622	CMOS VLSI Design	UECPE632	Auto electronics	UECPE642	Machine Learning
IV	UECPE711	Signal Processing Applications in Communication	UECPE721	Low Power VLSI Design	UECPE731	Electric Vehicles	UECPE741	Augmented Reality (AR) & Virtual Reality (VR) Systems
IV lab	UECPE712	Signal Processing Applications in Communication lab	UECPE722	Low Power VLSI Design Lab	UECPE732	Electric Vehicles lab	UECPE742	Augmented Reality (AR) & Virtual Reality (VR) Systems Lab
V	UECPE811	Speech Processing	UECPE821	System on Chip Design	UECPE831	Electric Vehicle network	UECPE841	Natural Language Processing

Minor Tracks for School of Engineering & Technology (UG)

No.	Minor	School/Department	Credits
1.	Avionics Engineering	Aerospace Engineering	12
2	Space Technology		12
3	Drone Technology		12
4	Data Science	AIML	12
5	Intelligent System and Applications		12
6	Environmental Engineering	Civil Engineering	12
7	Networking	Computer Science and Engineering	12
8	Data Science		12
9	Cyber Security		12
10	Software Development		12
11	Embedded systems & IOT	Electronics and Communication Engineering	12
12	Wireless Communication		12

Note:

- Students are advised to select the minor track from above list.
- Students are not allowed to select the minor track from the same department offering the major courses.
- For the details of the Structure, Syllabus, Teaching and Evaluation Scheme Students should refer the syllabus section of the respective department offering the minor tracks.

Open Elective I				
No.	**Course Code**	**Course**	**Faculty/School /Department**	**Credits**
1	UAEOE011	Basic Aeronautical Engineering	Department of Aerospace Engg.	2
2	UAIOE011	Software Models	Department of AIML	2
3	UCEOE011	Advanced Building Materials	Department of Civil Engg.	2
4	UCSOE011	Introduction to Latex	Department of Comp. Sc. & Engg.	2
5	UECOE011	Semiconductor Devices	Department of Elect. & Comm. Engg.	2
6	UCAOE012	Python Programming	School of Computer Applications	2
7	UPHOE011	World of Nano Science	School of Physical & Chemical Sciences	2
8	UFSOE012	Basics of Food Processing	Department of Food Science & Technology	2
9	UDCOE011	Selling Skills	Department of Commerce	2
10	UBAOE011	Basics of Marketing	Department of Management	2
11	UAROE011	Introduction To GIS	Department of Social Sciences	2
12	UAROE012	Applied Communicative English	Department of Social Sciences	2
13	UBTOE011	Introduction to Biotechnology	Department of Bio Technology	2
Open Elective II				
1	UAEOE021	Aircraft Systems and Instruments	Department of Aerospace Engg.	2
2	UAIOE021	Introduction to Python	Department of AIML	2
3	UCEOE021	Green Building	Department of Civil Engg.	2
4	UCSOE021	Advance Microsoft Office	Department of Comp. Sc. & Engg.	2
5	UECOE021	Fundamentals of Communication Engineering	Department of Elect. & Comm. Engg.	2
6	UCAOE022	Data Analytics Tools	School of Computer Applications	2
7	UPHOE021	Wonders in Nanotechnology	School of Physical & Chemical Sciences	2
8	UFSOE022	Bakery and Confectionary Skills	Department of Food Science & Technology	2
9	UDCOE021	Financial Literacy	Department of Commerce	2
10	UBAOE021	Export- Import Documentation and Procedures	Department of Management	2
11	UAROE021	Tourism & Travel Management	Department of Social Sciences	2
12	UAROE022	Language Analytics	Department of Social Sciences	2
13	UBTOE021	Basics in Bioinformatics	Department of Bio Technology	2
Open Elective III				
1	UAEOE031	Unmanned Aerial Vehicle	Department of Aerospace Engg.	2
2	UAIOE031	Introduction to Data Analytics	Department of AIML	2
3	UCEOE031	Disaster Management & Mitigation	Department of Civil Engg.	2
4	UCSOE031	Fundamental of C Programming	Department of Comp. Sc. & Engg.	2
5	UECOE031	Automotive Electronics	Department of Elect. & Comm. Engg.	2
6	UCAOE032	Data Visualization Techniques using Tableau	School of Computer Applications	2
7	UCHOE031	Green Chemistry & Sustainability	School of Physical & Chemical Sciences	2
8	UFSOE032	Basics of Food Adulteration	Department of Food Science & Technology	2
9	UDCOE031	Personal Financial Planning	Department of Commerce	2
10	UBAOE031	Event Management	Department of Management	2
11	UAROE031	English for Competitive Examinations	Department of Social Sciences	2
12	UAIOE032	Agentic AI	Department of AIML	2
13	UBTOE031	Microbial World and Its Applications	Department of Bio Technology	2

Note: For details of Syllabus, Teaching and Evaluation scheme, please refer to the structure and syllabus of respective departments.

Multidisciplinary Minor Offered by Department of Electronics & Communication Engineering

Track 1: Minor in Embedded System and IoT				
Sr.No	**Code**	**Title of the Course**	**Credits**	**Semester**
1.	UECMM011	Digital Electronics and Microprocessor	2	III
2.	UECMM012	Microcontroller Architecture & Programming	2	IV
3.	UECMM013	Embedded System Design using ARM	2	V
4.	UECMM014	Embedded Networking & Communication Protocols	2	VI
5.	UECMM015	Real Time Operating Systems	2	VII
6	UECMM016	Internet of Things (IoT) and applications	2	VIII

Track 2: Minor in Wireless Communication				
Sr.No	**Code**	**Title of the Course**	**Credits**	**Semester**
1.	UECMM021	Electronic Communication Systems	2	III
2.	UECMM022	Electromagnetic Waves and Antennas	2	IV
3.	UECMM023	Digital Communication Fundamentals	2	V
4.	UECMM024	Wireless and Mobile Communication	2	VI
5.	UECMM025	Satellite Communication	2	VII
6	UECMM026	Next Generation Communication Network	2	VIII