Sanjay Ghodawat University Kolhapur



School of Engineering and Technology
Department of Electronics and Communication Engineering

B. Tech. Electronics & Communication Engineering

Curriculum Structure (R23)

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
U01BS101	Applied Mathematics I	3	-	-	3	-	-	3
U01BS001 OR U01BS002	Applied Chemistry OR Applied Physics	3	-	-	3	-	-	3
U01ES001 OR U01ES002	Engineering Mechanics OR Engineering Graphics	2	-	-	2	-	-	2
U01ES003 OR U01ES004	Basic Civil and Mechanical Engineering OR Basic of Electrical and Electronics Engineering	3	-	-	3	-	-	3
U01BS003 OR U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	2	-	-	1	-	1
U01ES005 OR U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	4	-	-	2	-	2
U01ES007 OR U01ES008	Basic Civil and Mechanical Engg Lab OR Basic of Electrical and Electronics Engineering Lab	-	2	-	-	1	-	1
U03AE001 OR U01IK201	Professional Communication OR Indian Knowledge System	2	-	-	2	-	-	2
U01VS001	Workshop Practice-I; C Programming	-	4	-	-	2	-	2
U04CC0XX	Co-curricular courses I	-	4	-	-	2	-	2
U03VE002	Constitution of India	2	-	-	2	-	-	2
	Total	**15**	**16**	**-**	**15**	**8**	**-**	**23**

Out of 2 hours, 1 hour theory shall be taught to entire class followed by 1 hrs. Practical in batches, Th: Theory, Pr: Practical, Tu: Tutorial

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				
U01BS101	Applied Mathematics I	10	10	5	25	50	-	-	75
U01BS001 OR U01BS002	Applied Chemistry OR Applied Physics	10	10	5	25	50	-	-	75
U01ES001 OR U01ES002	Engineering Mechanics OR Engineering Graphics	-	10	5	15	35	-	-	50
U01ES003 OR U01ES004	Basic Civil and Mechanical Engineering OR Basic of Electrical and Electronics Engineering	10	10	5	25	50	-	-	75
U01BS003 OR U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	-	-	-	-	25	-	25
U01ES005 OR U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	-	-	-	-	50	-	50
U01ES007 OR U01ES008	Basic Civil and Mechanical Engg Lab OR Basic of Electrical and Electronics Engineering Lab	-	-	-	-	-	25	-	25
U03AE001 OR U01IK201	Professional Communication OR Indian Knowledge System	-	10	5	15	35	-	-	50
U01VS001	Workshop Practice-I C Programming	-	-	-	-	-	50	-	50
U04CC0XX	Co-curricular courses I	-	-	-	-	-	50	-	50
U03VE002	Constitution of India	-	10	5	15	35	-	-	50
								Total	**575**

Semester II: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
U01BS201	Applied Mathematics II	3	-	-	3	-	-	3
U01BS001 OR U01BS002	Applied Chemistry OR Applied Physics	3	-	-	3	-	-	3
U01ES001 OR U01ES002	Engineering Mechanics OR Engineering Graphics	2	-	-	2	-	-	2
U01ES003 OR U01ES004	Basic Civil and Mechanical Engineering OR Basic Electrical & Electronics Engineering	3	-	-	3	-	-	3
U01BS003 OR U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	2	-	-	1	-	1
U01ES005 OR U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	4	-	-	2	-	2
U01ES007 OR U01ES008	Basic Civil and Mechanical Engg Lab OR Basic of Electrical & Electronics Engg Lab	-	2	-	-	1	-	1
U03AE001 OR U01IK201	Professional Communication OR Indian Knowledge System	2	-	-	2	-	-	2
U01VS201	Workshop Practice-II Basic Engg Practice	-	4	-	-	2	-	2
U04CC0XX	Co-curricular courses II	-	4	-	-	2	-	2
Total		**13**	**16**	**-**	**13**	**8**	**-**	**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				
U01BS201	Applied Mathematics II	10	10	5	25	50	-	-	75
U01BS001 OR U01BS002	Applied Chemistry OR Applied Physics	10	10	5	25	50	-	-	75
U01ES001 OR U01ES002	Engineering Mechanics OR Engineering Graphics #	10	-	5	15	35	-	-	50
U01ES003 OR U01ES004	Basic Civil and Mechanical Engineering OR Basic of Electrical & Electronic Engineering	10	10	5	25	50	-	-	75
U01BS003 OR U01BS004	Applied Chemistry Lab OR Applied Physics Lab	-	-	-	-	-	25	-	25
U01ES005 OR U01ES006	Engineering Mechanics Lab OR Engineering Graphics Lab	-	-	-	-	-	50	-	50
U01ES007 OR U01ES008	Basic Civil and Mechanical Engg Lab OR Basic of Electrical & Electronic Engg Lab	-	-	-	-	-	25	-	25
U03AE001 OR U01IK201	Professional Communication OR Indian Knowledge System	-	10	5	15	35	-	-	50
U01VS201	Workshop Practice-II Basic Engg Practice	-	-	-	-	-	50	-	50
U04CC0XX	Co-curricular courses II	-	-	-	-	-	50	-	50
Total									**525**

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			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
U15PC301	Analog Circuit Design	3	-	-	3	-	-	3
U15PC302	Digital Circuit Design	3	-	-	3	-	-	3
U15PC303	Network Analysis and Synthesis	3	-	-	3	-	-	3
U15MM001	Multidisciplinary Minor I	2	-	-	2	-	-	2
U15OE01X	Open Elective I	2	-	-	2	-	-	2
U02EM001	Engineering Economics	2	-	-	2	-	-	2
U15PC304	Analog Circuit Design Lab	-	2	-	-	1	-	1
U15PC305	Digital Circuit Design Lab	-	4	-	-	2	-	2
U01VE003	Environmental Science	2	-	-	2	-	-	2
U15FP001	Field Project I		4	-	-	2	-	2
Total		17	10	-	17	5	-	22

Semester III: Evaluation Scheme

. Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work / Tutorial	Practical Oral/ POE	
		T1	T2	FET	Total				
U15PC301	Analog Circuit Design	10	10	5	25	50	-	-	75
U15PC302	Digital Circuit Design	10	10	5	25	50	-	-	75
U15PC303	Network Analysis and Synthesis	10	10	5	25	50	-	-	75
U15MM001	Multidisciplinary Minor I	-	10	5	15	35	-	-	50
U15OE01X	Open Elective I	-	10	5	15	35	-	-	50
U02EM001	Engineering Economics	-	10	5	15	35	-	-	50
U15PC304	Analog Circuit Design Lab	-	-	-	-	-	25	-	25
U15PC305	Digital Circuit Design Lab	-	-	-	-	-	25	25	50
U01VE003	Environmental Science	-	10	5	15	35	-	-	50
U15FP001	Field Project I	-	-	-	-	-	25	25	50
Total									550

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory , T1, T2, Continuous Assessment Test, Term Work , ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

Sr.No	Course Code	Open Electives I	Credits
1	U15OE0101	Semiconductor Devices	2

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			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
U15PC401	Electromagnetic Theory	3	-	-	3	-	-	3
U15PC402	Microcontrollers	3	-	-	3	-	-	3
U15PC403	Signals and Systems	3	-	-	3	-	-	3
U15MM002	Multidisciplinary Minor II	2	-	-	2	-	-	2
U15OE02XX	Open Elective II	2	-	-	2	-	-	2
U01EM002	Engineering Management	2	-	-	2	-	-	2
U15VS401	Software Proficiency I	- -	4	-	-	2	-	2
U15PC404	Microcontroller Lab	-	2	-	-	1	-	1
U15PC405	Signals and Systems Lab	-	2	-	-	1	-	1
U03AE003 OR U03AE005	Modern Indian Language – Hindi OR Modern Indian Language – Marathi	2	-	-	2	-	-	2
U03VE004	Universal Human Values II	2	-	-	2	-	-	2
		19	8	-	19	4	-	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				
U15PC401	Electromagnetic Theory	10	10	5	25	50	-	-	75
U15PC402	Microcontrollers	10	10	5	25	50	-	-	75
U15PC403	Signals and Systems	10	10	5	25	50	-	-	75
U15MM002	Multidisciplinary Minor II	-	10	5	15	35	-	-	50
U15OE02XX	Open Elective II	-	10	5	15	35	-	-	50
U01EM002	Engineering Management	-	10	5	15	35	-	-	50
U15VS401	Software Proficiency I	-	-	-	-	-	25	25	50
U15PC404	Microcontroller Lab	-	-	-	-	-	25	-	25
U15PC405	Signals and Systems Lab	-	-	-	-	-	25	-	25
U03AE003 OR U03AE005	Modern Indian Language – Hindi OR Modern Indian Language – Marathi	--	10	5	15	35	-	-	50
U03VE004	Universal Human Values II	-	10	5	15	35	-	-	50
								Total	**575**

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory , T1, T2, Continuous Assessment Test, Term Work , ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

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 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
U15PC501	Digital Control System	3	-	-	3	-	-	3
U15PC502	Digital Communication	3	-	-	3	-	-	3
U15PC503	Digital Signal Processing	3	-	-	3	-	-	3
U15PE5XX	Program Elective I	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor III	2	-	-	2	-	-	2
UXXOE03X	Open Elective III	2	-	-	2	-	-	2
U15PC504	Digital Control System Lab	-	2	-	-	1	-	1
U15PC505	Digital Communication Lab	-	4	-	-	2	-	2
U15PC506	Digital Signal Processing Lab	-	4	-	-	2	-	2
		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	
U15PC501	Digital Control System	10	10	5	25	50	-	-	75
U15PC502	Digital Communication	10	10	5	25	50	-	-	75
U15PC503	Digital Signal Processing	10	10	5	25	50	-	-	75
U15PE5XX	Program Elective I	10	10	5	25	50	-	-	75
U15XMM003	Multidisciplinary Minor III	-	10	5	15	35			50
U15OE03XX	Open Elective III	-	10	5	15	35	-	-	50
U15PC504	Digital Control System Lab	-	-	-	-	-	25	-	25
U15PC505	Digital Communication Lab	-	-	-	-		25	25	50
U15PC506	Digital Signal Processing Lab	-	-	-	-	-	25	25	50
								Total	**525**

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, FEP, Faculty Evaluation for Practical, ESE - End Semester Examination, P/F – Pass/ Fail Course, AU – Audit Course

Sr.No	Course Code	Open Electives III	Credits
1	U15OE0301	MATLAB Programming	2
2	U15OE0302	SCILAB Programming	2

Sr.No	Course Code	Multidisciplinary Minor -III	Credits
1	U15MM003	Sensor Technology	2
Sr.No	Course Code	Program Elective-I	Credits
1	U15PE501	Electromagnetic Field Theory	3
2	U15PE502	Digital Signal Processing	3
3	U15PE503	PLC and industrial Automation	3

Semester VI: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
U15PC601	Embedded System Design	3	-	-	3	-	-	3
U15PC602	Mechatronics and Robotics	3	-	-	3	-	-	3
U15PC603	Wireless Communication	3	-	-	3	-	-	3
U15PE6XX	Program Elective-II	3	-	-	3	-	-	3
U15PE6XX	Program Elective-III	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor IV	2	-	-	2	-	-	2
U15PC604	PLC and SCADA lab	-	4	-	-	2	-	2
U15PC605	Embedded System Design Lab	-	4	-	-	2	-	2
U15PC606	Mechatronics and Robotics Lab	-	2	-	-	1	-	1
Total		**17**	**10**	**-**	**17**	**5**	**-**	**22**

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	50
UECPC605	Embedded System Design Lab	-	-	-	-	-	25	25	50
UECPC606	Mechatronics and Robotics Lab	-	-	-	-	-	25	--	25
								Total	**550**

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 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
U15PC701	Internet of Things System Design	3	-	-	3	-	-	3
U15PC702	Satellite Communication	3	-	-	3	-	-	3
U15PC703	Microwave and Radar Engineering	3	-	-	3	-	-	3
U15PE7XX	Program Elective IV	3	-	-	3	-	-	3
U01RM701	Research Methodology	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor V	2	-	-	2	-	-	2
U15PC704	Internet of Things System Design Lab	-	4	-	-	2	-	2
U15PC705	Microwave and Radar Engineering Lab	-	4	-	-	2	-	2
U15PE7XX	Program Elective IV Lab	-	2	-	-	1	-	1
U01PR701 **OR** U01EP701 **OR** U01RE701	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**	**14**	-	**17**	**7**	-	**24**

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				
U15PC701	Internet of Things System Design	10	10	5	25	50	-	-	75
U15PC702	Satellite Communication	10	10	5	25	50	-	-	75
U15PC703	Microwave and Radar Engineering	10	10	5	25	50	-	-	75
U15PE7XX	Program Elective IV	10	10	5	25	50	-	-	75
U01RM701	Research Methodology	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor V	-	10	5	15	35	-	-	50
U15PC704	Internet of Things System Design Lab	-	-	-	-	-	25	25	50
U15PC705	Microwave and Radar Engineering Lab	-	-	-	-		25	25	50
U15PE7XX	Program Elective IV Lab	-	-	-	-	-	25	-	25
U01PR701 **OR** U01EP701 **OR** U01RE701	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									**600**

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
U15PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U15PR801	Project Phase-II	-	8	-	-	4	-	4
U15OT801	Internship/On job Training	-	24	-	-	12	-	12
Total		**5**	**32**	**-**	**5**	**16**	**-**	**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	
U15PE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U15PR801	Project Phase-II	-	-	-	-	-	50	50	100
U15OT801	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

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
U15PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U15PR801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
U15OT801	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	
U15PE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U15PR801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
U15OT801	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
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
U15PE8XX	Program Elective V	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor VI	2	-	-	2	-	-	2
U15PR801	Online Course in Advanced Technology (domain area)	-	-	-	4	-	-	4
U15OT801	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	
U15PE8XX	Program Elective V	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor VI	-	10	5	15	35	-	-	50
U15PR801	Online Course in Advanced Technology (domain area)	-	-	-	25	75	-	-	100
U15OT801	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	U15PE511	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

Multidisciplinary Minor (MDM) Tracks offered by Department of Electronics & Communication Engineering

Track : 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

Open Electives for B.Tech Programs Excluding E&C Engg.

Sr. No	Code	Course Name	Credits	Semester
1	UECOE01	Open Elective-I Semiconductor Devices	2	III
2	UECOE02	Open Elective-II Sensors & Instrumentation	2	IV
3	UECOE03	Open Elective-III Electronics Instruments & Measurements	2	V

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.