SETHU INSTITUTE OF TECHNOLOGY

Pulloor, Kariapatti – 626 115

(AN AUTONOMOUS INSTITUTION)

B.E. Degree Programme

CURRICULUM

Regulations 2019

B.E ELECTRONICS AND COMMUNICATION ENGINEERING

CHOICE BASED CREDIT SYSTEM

CURRICULUM AND SYLLABUS

Chairperson

Board Of Studies

Dr.M.PARISA BEHAM M.E., Ph.D.,
Professor & Head,
DEPARTMENT OF ECE,
Sethu Institute of Technology,
Pulloor, Kariapatti, Virudhunagar-626 115.

Chairman

Academic Council

CHAIRMAN
ACADEMIC COUNCIL
Sethu Institute of Technology
Pulloor, Kariapatti - 625 115

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Bachelor of Engineering in Electronics and Communication Engineering

OVERALL COURSE STRUCTURE

Code	Category	Total No. of Courses	Credits	Percentage
HSS	Humanities & Social Sciences	5	9.5	5.4
BS	Basic Sciences	10	28.5	16.2
ES	Engineering Sciences	4	10	5.7
PC	Professional Core (including Lab courses)	27	82	46.8
PE	Professional Electives	6	18	10.3
OE	Open Electives	4	12	6.8
PW	Project Work, Seminar & Internship	5	15	8.5
MC	Mandatory Courses	5	-	-
	TOTAL	66	175	100

COURSE CREDITS – SEMESTER WISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
ECE	23	20.5	23	23.5	24.5	25	21.5	14	175

Employability Courses

Skill Development Courses

Entrepreneurship Development Courses

Any two or all of the above

PROGRAMME OUTCOMES	
(1)	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **(Engineering knowledge)**
(2)	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **(Problem Analysis)**
(3)	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **(Design and Development of Solutions)**
(4)	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **(Conduct Investigations of Complex Problems)**
(5)	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **(Modern Tool Usage)**
(6)	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **(The Engineer and Society)**
(7)	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **(Environment and Sustainability)**
(8)	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **(Ethics)**
(9)	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **(Individual and Team Work)**
(10)	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **(Communication)**
(11)	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **(Project Management and Finance)**
(12)	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **(Life-long learning)**

PROGRAMME EDUCATIONAL OBJECTIVES	
PEO – I	Possess strong technical knowledge in Electronics and Communication Engineering to address the real world challenges **(Core Competence)**
PEO – II	Demonstrate continual interest to learn new technologies for successful professional career **(Lifelong Learning)**
PEO – III	Exhibit professional skills and practice ethical principles with social consciousness **(Professionalism)**

PROGRAMME SPECIFIC OUTCOMES	
PSO – I	Design and Develop solution in the field of Signal processing and Communication.
PSO – II	Demonstrate competency in the design and development of Embedded / VLSI systems.

Semester I

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UEN101	English for Technical Communication (Common to all Branches)	2	0	0	2	Humanities and Social Science
19UMA102	Engineering Mathematics - I (Common to all Branches)	3	1	0	4	Basic Science
19UPH103	Engineering Physics (Common to all Branches)	3	0	0	3	Basic Science
19UCY105	Applied Chemistry (Common to CSE,ECE,BME,IT,EEE)	3	0	0	3	Basic Science
19UCS108	Problem solving and Python Programming (Common to all Branches)	3	0	0	3	Engineering Science
19UME109	Engineering Graphics (Common to all Branches)	3	1	0	4	Engineering Science
MANDATORY						
19UGM131	Induction program	-	-	-	-	Mandatory Course
PRACTICAL						
19UCS110	Problem solving and Python Programming Lab (Common to all Branches)	0	0	3	1.5	Engineering Science
19UCS112	Engineering Fundamentals Lab (Common to CSE,ECE,IT, BME)	0	0	3	1.5	Engineering Science
19UGS113	Basic Sciences Lab (Common to all Branches)	0	0	2	1	Basic Science
	TOTAL	**17**	**2**	**8**	**23**	

Semester II

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UEN201	Communication skills for professionals (Common to all Branches)	1	0	1	1 .5	Humanities and Social Science
19UMA204	Calculus, complex analysis and numerical methods for Electronics and Communication Engineering	3	1	0	4	Basic Science
19UPH205	Electromagnetic Theory	3	0	0	3	Humanities and Social Science
19UCY204	Environmental Science (Common to all Branches)	3	0	0	3	Humanities and Social Science
19UEC205	Introduction to Electronics and Communication Engineering	3	0	0	3	Professional Core
19UEC206	Electronic Devices	3	0	0	3	Professional Core
PRACTICAL						
19UGS210	Energy and Environmental Science Laboratory (Common to all Branches)	0	0	3	1 .5	Basic Science
19UEC211	Electronic Devices Laboratory	0	0	3	1.5	Professional Core
	TOTAL	**16**	**1**	**7**	**20.5**	

Semester III

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UMA323	Numerical Analysis and Linear Algebra	3	1	0	4	Basic Science
19UEC302	Digital Electronics and Design	3	0	3	4.5	Professional Core
19UEC303	Circuit Theory	3	0	0	3	Professional Core
19UEC304	Basic Electrical and Instrumentation Engineering	3	0	0	3	Professional Core
19UEC305	Analog circuits	3	0	3	4.5	Professional Core
19UIT326	Fundamentals of C Programming	2	0	2	3	Professional Core
PRACTICAL						
19UEC307	Seminar	0	0	2	1	Project work
MANDATORY						
19UGM332	Biology for Engineering Applications	2	-	-	P/F	Mandatory Course
	TOTAL	**19**	**1**	**10**	**23**	

Semester IV

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UMA422	Probability and Statistics	3	1	0	4	Basic Science
19UEC402	Electromagnetic Fields and Transmission Lines	3	0	0	3	Professional Core
19UEC403	Signals and Systems	3	1	0	4	Professional Core
19UEC404	Linear Integrated circuits	2	0	3	3.5	Professional Core
19UEC405	Analog and Digital Communication	3	0	3	4.5	Professional Core
19UIT429	Introduction to data structures and algorithms (Integrated course)	2	0	2	3	Professional Core
PRACTICAL						
19UGS433	Interpersonal Skills Laboratory	0	0	3	1.5	Humanities and Social Science
MANDATORY						
19UGM431	Gender Equality	1	-	-	P/F	Mandatory Course
	TOTAL	**17**	**2**	**11**	**23.5**	

Semester V

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
19UEC501	Digital Signal Processing	3	1	0	4	Professional Core
19UEC502	Microprocessors, Microcontrollers and Applications	3	0	0	3	Professional Core
19UEC503	Data Communication and Networks	3	0	0	3	Professional Core
19UEC504	Antenna and Wave Propagation	3	0	0	3	Professional Core
	Professional Elective I	3	0	0	3	Professional Elective
	Open Elective I	3	0	0	3	Open Elective
19UGS531	Reasoning and Aptitude	1	0	0	1	Basic Engineering
PRACTICALS						
19UEC505	Microprocessors, Microcontrollers and Applications lab	0	0	2	1	Professional Core
19UEC506	Digital Signal Processing lab	0	0	2	1	Professional Core
19UEC507	Creative Thinking and Innovation	0	0	2	1	Project Work
19UGS532	Soft Skills Laboratory	0	0	3	1.5	Humanities and Social Science
	TOTAL	**19**	**1**	**9**	**24.5**	

Semester VI

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UEC601	Wireless Communication	3	0	0	3	Professional Core
19UEC602	VLSI Design	3	0	0	3	Professional Core
19UEC603	Internet of Things	3	0	0	3	Professional Core
	Professional Elective II	3	0	0	3	Professional Elective
	Professional Elective III	3	0	0	3	Professional Elective
	Open Elective II	3	0	0	3	Open Elective
PRACTICAL						
19UEC607	Product development Project	0	0	8	4	Project work
19UEC608	VLSI Design Laboratory	0	0	3	1.5	Professional Core
19UEC609	Networks Laboratory	0	0	3	1.5	Professional Core
MANDATORY						
19UGM632	Indian Constitution	1	-	-	P/F	MandatoryCourse
	TOTAL	**19**	**0**	**14**	**25**	
Total Credits : 25						

SemesterVII

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
19UME701	Project Management and Finance	3	0	0	3	Profession al Core
19UEC702	Optical and Microwave communication	3	0	0	3	Profession al Core
19UEC703	Image processing and Machine learning	3	0	0	3	Profession al Core
	Professional Elective IV	3	0	0	3	Profession al Elective
	Professional Elective V	3	0	0	3	Profession al Elective
	Open Elective III	3	0	0	3	Open Elective
PRACTICAL						
19UEC707	Summer Internship	-	-	-	1	Project work
19UEC708	Optical and Microwave communication laboratory	0	0	2	1	Profession al Core
19UEC709	Image processing laboratory	0	0	3	1.5	Profession al Core
MANDATORY						
19UGM731	Professional Ethics and Human Values (common to all Branches)	2	-	-	P/F	Mandatory Course
	TOTAL	**20**	**0**	**5**	**21.5**	

Semester VIII

Course Code	Course Title	L	T	P	C	Type of course
THEORY						
	Professional Elective VI	3	0	0	3	Professional Elective
	Open Elective IV	3	0	0	3	Open Elective
PRACTICAL						
19UEC801	Project Work	0	0	16	8	Projectwork
	TOTAL	**6**	**0**	**16**	**14**	

LIST OF PROFESSIONAL ELECTIVES

Sl. No.	Course Code	Course Name	L	T	P	C
1.	19UEC901	Principles of Artificial Intelligence	3	0	0	3
2.	19UEC902	Principles of Robotics	3	0	0	3
3.	19UEC903	Biomedical Signal and Image Processing	3	0	0	3
4.	19UEC904	Control Engineering	3	0	0	3
5.	19UEC905	5G Technology	3	0	0	3
6.	19UEC906	ARM System Development	3	0	0	3
7.	19UEC907	Real Time System Design	3	0	0	3
8.	19UEC908	Soft Computing Techniques	3	0	0	3
9.	19UEC909	Image Analysis and Video Processing	3	0	0	3
10.	19UEC910	Multimedia Compression and communication	3	0	0	3
11.	19UEC911	IOT Architecture and protocols	3	0	0	3
12.	19UEC912	RF Circuit Design	3	0	0	3
13.	19UEC913	Introduction to MEMS and NEMS	3	0	0	3
14.	19UEC914	AI in VLSI Design Automation	3	0	0	3
15.	19UEC915	Embedded Systems in Medical Devices	3	0	0	3
16.	19UEC916	Satellite Communication Principles and Applications	3	0	0	3
17.	19UEC917	Speech and Audio Signal Processing	3	0	0	3
18.	19UEC918	Remote Sensing and Information system	3	0	0	3
19.	19UEC919	Nano Electronics	3	0	0	3
20.	19UEC920	Adaptive and Smart Antennas	3	0	0	3
21.	19UEC921	Software Defined and Cognitive Radio Networks	3	0	0	3
22.	19UEC922	Biomedical Instrumentation	3	0	0	3
23.	19UEC923	ASIC and FPGA Based Design	3	0	0	3
24.	19UEC924	Cyber Physical System (Industry Designed)	3	0	0	3
25.	19UEC925	Block Chain (Industry Designed)	3	0	0	3
26.	19UEC926	Sensors for IOT	3	0	0	3
27.	19UEC927	Smart sensor networks	3	0	0	3
28.	19UEC928	Tele Medicine	3	0	0	3
29.	19UEC929	Professional readiness for innovation, Employability andEntrepreneurship	0	0	6	3

LIST OF OPEN ELECTIVES

Sl. No.	Course Code	Course Name	L	T	P	C
1.	19UEC951	Consumer Electronics	3	0	0	3
2.	19UEC952	Remote Sensing and its Applications	3	0	0	3
3.	19UEC953	Embedded Systems and Programming	3	0	0	3
4.	19UEC954	Fundamentals of Digital Image Processing	3	0	0	3
5.	19UEC955	Introduction to R programming	3	0	0	3
6.	19UEC956	Anatomy of Smart Phones and Laptops	3	0	0	3
7.	19UEC957	IOT based Automation and Monitoring System	3	0	0	3
8.	19UEC958	Design thinking for innovations	3	0	0	3

LIST OF ONE CREDIT COURSES/VALUE ADDED COURSES

Sl. No.	Course Code	Course Name	Course
1.	19UEC861	PIC Embedded Programming	One Credit
2.	19UEC862	PCB Design	One Credit
3.	19UEC863	Python Programming	One Credit
4.	19UEC864	Android Programming	One Credit
5.	19UEC865	Programming In R	One Credit
6.	19UEC866	Arduino Programming	One Credit
7.	19UEC867	Programming in C++: For Beginners to Expert	One Credit
8.	19UEC868	Java Programming	One Credit
9.	19UEC869	Basics of CCNA Networking	One Credit
10.	19VEC01	Programming in C	Value added Course
11.	19VEC02	Programming in C++	Value added Course
12.	19VEC03	Java Programming for Ece	Value added Course
13.	19VEC04	CCNA Networking	Value added Course

ECE DESIGNED COURSES FOR OTHER DEPARTMENTS

Sl. No.	Course Code	Course Name	Dept	L	T	P	C
1.	19UEC425	Microprocessor And Microcontrollers	CSE	3	0	0	3
2.	19UEC426	Microprocessors And MicrocontrollersLaboratory	CSE	0	0	3	1.5
3.	19UEC621	Digital Signal Processing For ElectricalEngineers	EEE	3	0	0	3
4.	19UEC959	Principles Of Communication	EEE	3	0	0	3
5.	19UEC960	Fiber Optic Communication	EEE	3	0	0	3
6.	19UEC225	Principles of Electronics Engineering	CSBS	3	0	0	3
7.	19UEC227	Electronics and Engineering Laboratory	CSBS	0	0	3	1.5