SETHU INSTITUTE OF TECHNOLOGY

(An Autonomous Institution | Accredited with 'A' Grade by NAAC)

Pulloor, Kariapatti – 626 115.

B.E. COMPUTER SCIENCE & ENGINEERING

REGULATIONS 2015

CHOICE BASED CREDIT SYSTEM

CURRICULUM & SYLLABUS

(1st SEMESTER To 8th SEMESTER)

Approved in the Academic Council Meeting held on 21.09.2019

Chairperson
Board of Studies
Computer Science & Engineering
Sethu Institute of Technology
Kariapatti - 626 115

CHAIRMAN

ACADEMIC COUNCIL

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

Estd. 1995

SETHU INSTITUTE OF TECHNOLOGY

ISO 9001-2008
FS 70973

Pulloor, Kariapatti – 626 115

B.E. Degree Programme

CBCS CURRICULUM

Regulations 2015

Bachelor of Engineering in Computer Science & Engineering

OVERALL COURSE STRUCTURE

Category	Total No. of Courses	Credits	Percentage
Humanities & Social Sciences	**5**	**11**	**6.5**
Basic Sciences	**11**	**31**	**18.3**
Engineering Sciences	**5**	**12**	**7.1**
Professional Core	**32**	**73**	**43.2**
Professional Elective	**6**	**18**	**10.7**
Open Electives	**3**	**9**	**5.3**
Project Work	**2**	**15**	**8.9**
Mandatory Course	**3**	**-**	**-**
TOTAL	**64**	**169**	**100**

COURSE CREDITS – SEMESTER WISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
CSE	**22**	**21**	**22**	**23**	**22**	**22**	**17**	**20**	**169**

Employability Courses
Skill Development Courses
Entrepreneurship Development Courses
Any two or all of the above

Institute Vision	To promote excellence in technical education and scientific research for the benefit of the society
Institute Mission	• To provide quality technical education to fulfill the aspiration of the student and to meet the needs of the Industry. • To provide holistic learning ambience. • To impart skills leading to employability and entrepreneurship. • To establish effective linkage with industries. • To promote Research and Development activities. • To offer services for the development of society through education and technology. **Core Values** • Quality • Commitment • Innovation • Team work • Courtesy

PROGRAMME	**B.E. COMPUTER SCIENCE AND ENGINEERING**

Department Vision (CSE)	To achieve excellence in technical education and scientific research in the field of Computer Science and Engineering to contribute to the society.
Department Mission (CSE)	• Transforming students into technocrats in Computer Technology confirming the industry expectation. • Imparting holistic learner centric environment. • Cultivating interpersonal traits, problem solving skills, critical and rationale thinking capabilities for the development of students leading to innovators, leaders and entrepreneurs. • Establishing collaboration with the industries for mutual benefits • Promoting Research activities among the students and the faculty to solve problems related to industry and society. • Offering computer applications life skill to society for better living. **Core Values** • Quality • Dedication • Novelty • Team work • Courtesy

PROGRAMME EDUCATIONAL OBJECTIVES	
PEO – 1	Graduates will practice as Competent Computer Engineers by exhibiting the state of the art technical skills to cater to the needs of the industries.
PEO – 2	Graduates will lead the team and function in a team of multi-cultural professionals with effective interpersonal skills.
PEO – 3	Graduates will hone their professional expertise engaging in research and sustained learning activities.

PROGRAMME SPECIFIC OUTCOMES	
PSO – 1 Programming Solutions	Engineering graduates will demonstrate individual expertise in various programming languages to develop applications for static, internet, and mobile domains.
PSO – 2 Database Management	Engineering graduates will demonstrate the knowledge of analyzing, planning, and constructing databases, ability to extract information using queries, and skills to develop programming interfaces to synthesis databases.

PROGRAMME OUTCOMES	
1.	Apply the knowledge of mathematics, basic sciences, engineering fundamentals, and Computer Science and Engineering to the solution of complex engineering problems. **(Engineering Knowledge)**
2.	Identify, formulate, review research literature and analyze complex engineering problems requiring computing solutions to reach substantiated conclusions using first principles of mathematics, basic sciences, and Computer Science and Engineering. **(Problem analysis)**
3.	Design solutions for computer applied 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/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 IT tools including prediction and modeling to computing related 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 computer science and engineering practice. **(The Engineer and society)**
7.	Understand the impact of the professional computer science and 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 computer science and 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 computer science and 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 cost effective projects 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)**

Semester I

Course Code	Course Title	L	T	P	C
THEORY					
15UEN101	Technical English (Common to ALL Branches)	2	0	0	2
15UMA102	Engineering Mathematics – I (Common to ALL Branches)	3	2	0	4
15UPH103	Engineering Physics (Common to ALL Branches)	3	0	0	3
15UCY105	Applied Chemistry (Common to CSE,ECE,EEE,IT& EIE)	3	0	0	3
15UCS107	Computer Programming (Common to ALL Branches)	3	0	0	3
15UME108	Engineering Graphics (Common to ALL Branches)	3	2	0	4
PRACTICAL					
15UCS109	Computer Programming Laboratory (Common to ALL Branches)	0	0	2	1
15UCS111	Engineering Fundamentals Laboratory (Common to CSE, ECE & IT)	0	0	2	1
15UGS112	Basic Sciences Laboratory- I (Common to ALL Branches)	0	0	2	1
	TOTAL	**17**	**4**	**6**	**22**
Total No. of Credits – 22					

Semester II

Course Code	Course Title	L	T	P	C
THEORY					
15UEN201	Business English and Presentation skills (Common to ALL Branches)	3	0	0	3
15UMA202	Engineering Mathematics – II (Common to ALL Branches)	3	2	0	4
15UPH205	Semi Conductor Physics and Opto Electronics (Common to CSE, ECE &IT)	3	0	0	3
15UCY207	Environmental Science (Common to ALL Branches)	3	0	0	3
15UCS208	Digital Principles and System Design (Common to CSE & IT)	3	0	0	3
15UCS209	Programming and Data Structures	3	0	0	3
PRACTICAL					
15UGS210	Basic Sciences Laboratory -II (Common to ALL Branches)	0	0	2	1
15UCS211	Programming and Data Structures Laboratory	0	0	2	1
	TOTAL	**18**	**2**	**4**	**21**
Total No. of Credits – 21					

Semester III

Course Code	Course Title	L	T	P	C
THEORY					
15UMA322	Probability, Statistics and Queueing Systems (Common to CSE & IT)	3	2	0	4
15UCS302	Data Structures	3	0	0	3
15UCS303	Computer Organization and Architecture (Common to CSE & IT)	2	2	0	3
15UCS304	Object Oriented Programming with C++	3	0	0	3
15UIT305	Operating Systems (Common to CSE & IT)	3	0	0	3
15UCS306	Database System Concepts	3	0	0	3
PRACTICAL					
15UCS307	Object Oriented Programming and Data Structures Laboratory	0	0	2	1
15UCS308	Database Systems Laboratory	0	0	2	1
15UIT309	Operating Systems Laboratory (Common to CSE & IT)	0	0	2	1
	TOTAL	**17**	**4**	**6**	**22**
Total No. of Credits – 22					

Semester IV

Course Code	Course Title	L	T	P	C
THEORY					
15UMA421	Discrete Mathematics (Common to CSE & IT)	3	2	0	4
15UCS402	Java Programming (Common to CSE & IT)	3	0	0	3
15UCS403	Design and Analysis of Algorithms	2	2	0	3
15UCS404	Computer Communication and Networks	3	0	0	3
15UCS405	Software Engineering	3	0	0	3
15UEC426	Microprocessors and Microcontrollers	3	0	0	3
15UGS431	Reasoning and Quantitative Aptitude (Common to ALL Branches)	1	0	0	1
PRACTICAL					
15UCS407	Java Programming Laboratory (Common to CSE & IT)	0	0	2	1
15UCS408	Data Communication and Networks Laboratory	0	0	2	1
15UEC429	Digital and Microprocessors Laboratory	0	0	2	1
	TOTAL	**18**	**4**	**6**	**23**
Total No. of Credits – 23					

Semester V

Course Code	Course Title	L	T	P	C
THEORY					
15UCS501	Internet and Web Technology (Common to CSE & IT)	3	0	0	3
15UCS502	Object Oriented Analysis and Design	2	0	0	2
15UIT503	Graphics and Multimedia (Common to CSE & IT)	3	0	0	3
15UCS504	Theory of Computation	3	2	0	4
	Professional Elective – I	3	0	0	3
	Professional Elective – II	3	0	0	3
PRACTICAL					
15UCS507	Internet and Web Technology Laboratory (Common to CSE & IT)	0	0	2	1
15UCS508	Case Tools Laboratory	0	0	2	1
15UIT509	Graphics and Multimedia Laboratory (Common to CSE & IT)	0	0	2	1
15UGS531	Soft Skills and Communication Laboratory (Common to CSE,ECE,EEE & IT)	0	0	2	1
	TOTAL	**17**	**2**	**8**	**22**
Total No. of Credits – 22					

Semester VI

Course Code	Course Title	L	T	P	C
THEORY					
15UCS601	Principles of Compiler Design	2	2	0	3
15UIT602	Mobile Applications Development (Common to CSE & IT)	3	0	0	3
15UCS603	Artificial Intelligence	3	0	0	3
	Professional Elective – III	3	0	0	3
	Professional Elective IV	3	0	0	3
	Open Elective – I	3	0	0	3
PRACTICAL					
15UCS607	Technical Project	0	0	6	3
15UIT608	Mobile Applications Development Laboratory (Common to CSE & IT)	0	0	2	1
	TOTAL	**17**	**2**	**8**	**22**
Total No. of Credits – 22					

Semester VII

Course Code	Course Title	L	T	P	C
THEORY					
15UME701	Project Management and Finance (Common to ALL Branches)	3	0	0	3
15UCS702	Insight into Cloud Computing (Common to CSE & IT)	3	0	0	3
15UCS703	Data Science	3	0	0	3
	Professional Elective V	3	0	0	3
	Open Elective – II	3	0	0	3
PRACTICAL					
15UCS706	Cloud Computing Laboratory (Common to CSE & IT)	0	0	2	1
15UCS707	Data Science Laboratory	0	0	2	1
	TOTAL	**15**	**0**	**4**	**17**
Total No. of Credits – 17					

Semester VIII

Course Code	Course Title	L	T	P	C
THEORY					
15UME801	Professional Ethics (Common to ALL Branches)	2	0	0	2
	Professional Elective VI	3	0	0	3
	Open Elective – III	3	0	0	3
PRACTICAL					
15UCS804/ 15UGE810	Project Work/ Multidisciplinary Project Phase II	0	0	24	12
	TOTAL	**8**	**0**	**24**	**20**
Total No. of Credits – 20					

TOTAL CREDITS – 169

LIST OF ELECTIVES

Course Code	Course Title	L	T	P	C
15UCS901	Multicore Programming	3	0	0	3
15UCS902	Information Storage Management*	3	0	0	3
15UCS903	Network Analysis and Management	3	0	0	3
15UCS904	Data Mining	3	0	0	3
15UCS905	Distributed Computing	3	0	0	3
15UCS906	Game Programming	3	0	0	3
15UCS907	Knowledge Based Decision Support Systems	3	0	0	3
15UCS908	C# and .NET Framework	2	0	2	3
15UCS909	Natural Language Processing	3	0	0	3
15UCS910	Building Internet of Things	3	0	0	3
15UCS911	Grid Computing	3	0	0	3
15UCS912	Nano Computing	3	0	0	3
15UCS913	Cyber Forensics	3	0	0	3
15UCS914	Quantum Computing	3	0	0	3
15UCS915	Principles of Software Architecture	3	0	0	3
15UCS916	Cryptography	2	0	2	3
15UCS917	Semantic Web Paradigm	3	0	0	3
15UCS918	Information Retrieval	3	0	0	3
15UCS919	Human Computer Interaction	3	0	0	3
15UCS920	Green Computing	3	0	0	3
15UCS921	E-Learning Techniques	3	0	0	3
15UCS922	Neural Networks and its Applications	3	0	0	3
15UCS923	Fuzzy logic	3	0	0	3
15UCS924	Mobile computing	3	0	0	3
15UCS925	Business Intelligence and its applications*	3	0	0	3
15UCS926	Web Services and Service Oriented Architecture	3	0	0	3
15UCS927	Machine Learning Algorithms	3	0	0	3
15UIT910	Building Enterprise Applications*	3	0	0	3

Course Code	Course Title	L	T	P	C
15UIT911	Software Testing*	3	0	0	3
15UIT924	Agile Software Development*	3	0	0	3
15UGE710	Multidisciplinary Project Phase I*	3	0	0	3
INTERDISCIPLINARY COURSES					
15UGM953	Embedded Programming	3	0	0	3
***List of courses designed by the industry**					

OPEN ELECTIVES OFFERED TO OTHER PROGRAMMES

Course Code	Course Title	L	T	P	C
15UCS971	Programming with C++	3	0	0	3
15UCS972	Programming with Java	3	0	0	3
15UCS973	Cloud Architecture and its Services	3	0	0	3
15UCS974	Massive Dataset Analytics	3	0	0	3
15UCS975	Fundamentals of Software Engineering	3	0	0	3
15UCS976	Internet of Things	3	0	0	3

LIST OF ONE CREDIT COURSES DESIGNED BY THE INDUSTRY

Course Code	Course Title	L	T	P	C
15UCS861	Software Project Management	1	0	0	1
15UCS862	Multimedia	1	0	0	1
15UCS863	PYTHON Programming	1	0	0	1
15UCS864	PHP	1	0	0	1
15UCS865	ASP.NET	1	0	0	1
15UCS866	R Programming	1	0	0	1
15UCS867	Windows System Administration	0	0	2	1

COURSES OFFERED TO OTHER PROGRAMMES

Course Code	Course Title	L	T	P	C
B.E. (ECE)					
15UCS429	Programming with C Laboratory	0	0	2	1
B.E. (EEE)					
15UCS627	Problem Solving Using C	0	0	2	1
B.E. (EEE)					
15UCS955	Data Structures and Algorithm Analysis in C	3	0	0	3

MANDATORY COURSES

Category	Courses
Personality and Social Development	Sports
Skills Development	English Proficiency Certificate such as BEC, TOFEL, IELTS
	Foreign Languages
	Soft Skills and Aptitude
	Aptitude Proficiency certificate such as GRE, GMAT, CAT
	Co-Curricular Activities
	Intellectual Property Rights
Value Education	15UGS331-Value Education and Human Rights