SETHU INSTITUTE OF TECHNOLOGY

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

Pulloor, Kariapatti – 626 115.

B.E. COMPUTER SCIENCE AND DESIGN

REGULATIONS 2021

CHOICE BASED CREDIT SYSTEM

CURRICULUM AND SYLLABUS

(1st SEMESTER To 8th SEMESTER)

APPROVED IN THE ACADEMIC COUNCIL MEETING HELD ON 14.05.2022

CHAIRPERSON

BOARD OF STUDIES

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

SETHU INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

Department Vision

To provide quality education in Computer Science and Design Engineering and research for the betterment of the society.

Department Mission

- Promoting students as computer and design experts to meet the expectations of the industry.
- Offering holistic learning environment.
- Inculcating the skills of the students to make successful engineers and entrepreneurs.
- Establishing relationship with the industries for mutual knowledge transfer.
- Promoting Research activities related to industry and society.
- Offering computing and design services to the society.

Core Values

- Quality
- Loyalty
- Originality
- Unity
- Civility

PROGRAM EDUCATIONAL OBJECTIVES	
PEO – I	Graduates will succeed as Computer and design Engineers through the state of the art infrastructure by adopting high quality academic practices to meet the demands of academia, industry, and nation.
PEO – II	Graduates will work as team leaders and members with professional behavior and ethics.
PEO – III	Graduates will enhance their professional skills through higher studies, employability, and research activities for the benefit of the society.

PROGRAM SPECIFIC OUTCOMES	
PSO – 1 (Programming)	Inculcate comprehensive knowledge in computing paradigm.
PSO – 2 (Design)	Develop applications for new media design in the areas like multimedia, animation, virtual reality, and gaming.

PROGRAM OUTCOMES	
1.	Apply the knowledge of mathematics, basic sciences, engineering fundamentals, and Computer Science and Design 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 Design. **(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 design 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 design 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 design 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)**

SETHU INSTITUTE OF TECHNOLOGY

Pulloor, Kariapatti – 626 115

B.E. Degree Programme

CBCS CURRICULUM

Regulations 2021

Bachelor of Engineering in Computer Science & Design

OVERALL COURSE STRUCTURE

Category	Total No. of Courses	Credits	Percentage
Humanities & Social Sciences	**5**	**9**	**5.63**
Basic Sciences	**10**	**28**	**17.5**
Engineering Sciences	**8**	**20.5**	**12.81**
Professional Core	**23**	**59.5**	**37.19**
Professional Elective	**6**	**18**	**11.25**
Open Electives	**4**	**12**	**7.5**
Project Work	**3**	**13**	**8.13**
Mandatory Course	**9**		
TOTAL	**68**	**160**	**100**

COURSE CREDITS – SEMESTER WISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
CSD	**20**	**17**	**22**	**22**	**20**	**25**	**20**	**14**	**160**

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

SEMESTER I

COURSE CODE	CATEGORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UEN101	HS	English for Technical Communication (Common to ALL, except CSBS)	2	0	0	2
21UMA102	BS	Matrix and Calculus (Common to ALL, except CSBS)	3	1	0	4
21UPH103	BS	Engineering Physics (Common to ALL, except CSBS)	3	0	0	3
21UCY105	BS	Applied Chemistry (Common to CSE, ECE, EEE, IT, BME, BT, AI&DS, CSD, AI&ML)	3	0	0	3
21UCD107 / 21UME110	ES	Aesthetics Design / Engineering Drawing	3	0	0	3
21UCS108 / 21UCS107	ES	Problem Solving and PYTHON programming (Common to ALL, except CSBS) / Problem Solving and C programming (Common to ALL)	3	0	0	3
PRACTICAL COURSES						
21UCS110 / 21UCS111	ES	Problem Solving and PYTHON Programming Laboratory (Common to ALL, except CSBS) / Problem Solving and C Programming Laboratory (Common to ALL)	0	0	2	1
21UGS113	BS	Basic Sciences Laboratory – I (Common to ALL, except CSBS)	0	0	2	1
MANDATORY COURSE						
21UGM131	MC	Induction Programme	0	3	0	0
TOTAL			**17**	**4**	**4**	**20**
Total No. of Credits – 20						

SEMESTER II

COURSE CODE	CATE GORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UEN201	HS	Communication Skills for Professionals (Common to ALL, except CSBS)	1	0	1	1.5
21UMA210	BS	Differential Equations, Fourier Series and Transforms (Common to AI & DS,CSD)	3	1	0	4
21UPH205	BS	Physics for Information Science (Common to CSE, EEE, IT, AI&DS, CSD)	3	0	0	3
21UCS204 / 21UCS203	ES	Programming Using C (Common to CSE, CSD) / Programming Using Python (Common to CSE, CSD)	3	0	0	3
21UCD205	ES	Digital and Computer Organization	3	0	0	3
PRACTICAL COURSES						
21UGS210	BS	Basic Sciences Laboratory – II (Common to CSE, CSD)	0	0	2	1
21UCS211 / 21UCS212	ES	C Programming Laboratory (Common to CSE, CSD) / Python Programming Laboratory (Common to CSE, CSD)	0	0	3	1.5
MANDATORY COURSE						
21UGM231	MC	Environmental Science	3	0	0	P/F
TOTAL			**16**	**1**	**6**	**17**
Total No. of Credits – 17						

SEMESTER III

COURSE CODE	CATE GORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UMA328	BS	Discrete Mathematics (Common to AI& DS,CSD)	3	1	0	4
21UIT302	PC	Data Structures (Common to CSE, IT, AI&DS, CSD)	3	0	0	3
21UCS303	PC	Object Oriented Programming using C++ (Common to CSE, IT, CSBS, CSD)	3	0	2	4
21UIT304	PC	Principles of Operating Systems (Common to CSE, IT, AI&DS, CSD)	3	0	0	3
21UCD305	ES	Design Thinking	3	0	0	3
21UCD306	PC	Database System Design (Common to CSE, IT, AI&DS, CSD)	3	0	0	3
PRACTICAL COURSES						
21UIT307	PC	Data Structures Laboratory (Common to CSE, IT, AI&DS, CSD)	0	0	2	1
21UCD308	PC	Database System Design Laboratory (Common to CSE, IT, AI&DS, CSD)	0	0	2	1
MANDATORY COURSE						
21UGM331	MC	Biology for Engineers	2	0	0	P/F
TOTAL			**20**	**1**	**6**	**22**
Total No. of Credits – 22						

SEMESTER IV

COURSE CODE	CATE GORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UMA426	BS	Probability and Statistical Techniques (Common to AI & DS,CSD)	3	1	0	4
21UCS402	PC	Computer Networks (Common to CSE, IT, CSD)	3	0	0	3
21UCS403	PC	Algorithm Analysis (Common to CSE, IT, AI&DS, CSD)	3	0	0	3
21UIT404	PC	Java Programming (Common to CSE, IT, CSD)	3	0	2	4
21UCD405	PC	Computer Graphics	3	0	0	3
21UCD406	ES	Agile Methodologies	3	0	0	3
PRACTICAL COURSES						
21UCS407	PC	Computer Networks Laboratory (Common to CSE, IT, CSD)	0	0	2	1
21UCD408	PC	Computer Graphics Laboratory	0	0	2	1
MANDATORY COURSE						
21UGM431	MC	Gender Equality	1	0	0	P/F
			19	**1**	**6**	**22**
Total No. of Credits – 22						

SEMESTER V

COURSE CODE	CATEGORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UIT501	PC	Internet and Web Technology (Common to CSE, IT, CSD)	3	0	2	4
21UCD502	PC	Mobile Interactive Design	2	0	2	3
21UCS503	PC	Theory of Computation (Common to CSE, CSD)	3	1	0	3
	PE	Professional Elective – I	3	0	0	3
	OE	Open Elective – I	3	0	0	3
21UGS531	BS	Reasoning and Aptitude (Common to CSE, ECE, IT, CSBS, AI&DS, CSD, AI&ML)	1	0	0	1
PRACTICAL COURSES						
21UCD507	PW	Creative Thinking and Innovation	0	0	2	1
21UGS532	HS	Soft Skills Laboratory (Common to CSE, EEE, IT, AGRI, CSBS, AI&DS, CSD)	0	0	2	1
MANDATORY COURSE						
21UGM531	MC	Tamil Literature, Culture, and Civilization through Archeology	1	0	0	P/F
		TOTAL	**16**	**1**	**8**	**20**
Total No. of Credits – 20						

SEMESTER VI

COURSE CODE	CATEGORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UCD601	PC	Game Design and Development	3	0	0	3
21UCD602	PC	IoT Design (Common to CSE, CSD)	2	0	3	3.5
21UCD603	PC	Multimedia Technologies	3	0	0	3
	PE	Professional Elective – II	3	0	0	3
	PE	Professional Elective – III	3	0	0	3
	OE	Open Elective – II	3	0	0	3
PRACTICAL COURSES						
21UCD606	PC	Game programming Laboratory	0	0	2	1
21UCD607	PW	Product Development Project	0	0	8	4
21UGS633	HS	Interpersonal Skills Development Laboratory (Common to CSE, EEE, IT, AGRI, CSBS, AI&DS, CSD)	0	0	3	1.5
MANDATORY COURSE						
21UGM631	MC	Indian Constitution (Common to ALL)	1	0	0	P/F
		TOTAL	**18**	**0**	**16**	**25**
Total No. of Credits – 25						

SEMESTER VII

COURSE CODE	CATEGORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
21UME701	HS	Project Management and Finance (Common to ALL except CSBS)	3	0	0	3
21UCD702	PC	Virtual Reality and Augmented Reality	3	0	0	3
21UCD703	PC	3D Modeling and Animation	3	0	0	3
	PE	Professional Elective – IV	3	0	0	3
	PE	Professional Elective – V	3	0	0	3
	OE	Open Elective – III	3	0	0	3
PRACTICAL COURSES						
21UCD707	PC	Virtual Reality and Augmented Reality Laboratory	0	0	2	1
21UCD708	PC	3D Modeling and Animation Laboratory	0	0	2	1
MANDATORY COURSES						
21UGM731	MC	Sports and Social Development	0	0	0	P/F
21UGM732	MC	Skill Development	0	0	0	P/F
		TOTAL	**18**	**0**	**4**	**20**
Total No. of Credits – 20						

SEMESTER VIII

COURSE CODE	CATEGORY	COURSE TITLE	L	T	P	C
THEORY COURSES						
	PE	Professional Elective – VI	3	0	0	3
	OE	Open Elective – IV	3	0	0	3
PRACTICAL COURSE						
21UCD801	PW	Project Work	0	0	16	8
MANDATORY COURSE						
21UGM831	MC	Professional Ethics and human values (Common to ALL)	2	0	0	0
		TOTAL	**8**	**0**	**16**	**14**
Total No. of Credits – 14						

TOTAL CREDITS – 160

LIST OF ELECTIVES

S.No.	Course Code	Course Name	L	T	P	C
1.	21UCD901	Digital Marketing Strategy	3	0	0	3
2.	21UCD902	Wearable Applications, Research, Design, and Interactions	3	0	0	3
3.	21UCD903	Non Linear Editing	3	0	0	3
4.	21UCD904	Robotic Process Automation	3	0	0	3
5.	21UCD905	GPU Computing	3	0	0	3
6.	21UCD906	Digital Audio Design and Synthesis	3	0	0	3
7.	21UCD907	Spatial Explorations in Interaction Design	3	0	0	3
8.	21UCD908	Image Processing Techniques for Computer vision	3	0	0	3
9.	21UCD909	Artificial intelligence for games	3	0	0	3
10.	21UCD910	Machine Learning Algorithms	3	0	0	3
11.	21UCD911	Robotics	3	0	0	3
12.	21UCD912	Cloud Computing Techniques	3	0	0	3
13.	21UCD913	Data Science and Analytics	3	0	0	3
14.	21UCD914	Compiler Design tools and techniques	3	0	0	3
15.	21UCD915	Crypto Currency	3	0	0	3
16.	21UCD916	Visualization Analysis Techniques	3	0	0	3
17.	21UCD917	Cryptography Algorithms for Network Security	3	0	0	3
18.	21UCD918	Information retrieval Mechanisms	3	0	0	3
19.	21UCD919	Mobile Computing	3	0	0	3
20.	21UCD920	C# and .NET Programming	2	0	2	3
21.	21UCD921	Usability Studies and Evaluation	3	0	0	3

Open Electives (OE)						
S.No.	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1.	21UCD971	Applied Design Thinking	3	0	0	3
2.	21UCD972	Digital Media and Society	3	0	0	3
3.	21UCD973	Mixed Reality	3	0	0	3
4.	21UCD974	Visual Design	3	0	0	3

Industry Designed Courses						
S.No.	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1.	21UCD861	NodeJS	1	0	0	1
2.	21UCD862	Design Tools	1	0	0	1
3.	21UCD863	OpenGL	1	0	0	1
4.	21UCD864	Hadoop	1	0	0	1