



SETHU INSTITUTE OF TECHNOLOGY
(An Autonomous Institution | Accredited with 'A++' Grade by NAAC
Pulloor, Kariapatti – 626 115.



B.E COMPUTER SCIENCE AND ENGINEERING
(INTERNET OF THINGS)

REGULATIONS 2021

CHOICE BASED CREDIT SYSTEM
CURRICULUM

(1st SEMESTER to 8th SEMESTER)

(FOR THOSE STUDENTS ADMITTED FROM ACADEMIC YEAR 2023 – 2024 ONWARDS)

INSTITUTE VISION

- To Promote Excellence in Technical Education and Scientific Research for the Benefit of the Society

DEPARTMENT VISION

- To achieve excellence in technical education and scientific research by applying the technological advancements of IoT in the field of computer science and engineering to the betterment 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

DEPARTMENT MISSION

- Producing Competent Professionals in IoT based Information and Communication Technologies
- Educating the Students with the State of Art Computing Environment and Pedagogical Innovations
- Encouraging Entrepreneurship and Imparting Skills for Employability
- Establishing Collaboration with IT, IoT and Allied Industries
- Promoting Research in Information and Communication Technology to Improve the Quality of Human Life
- Offering Beneficial Service to the Society by Inculcating Knowledge and Providing IoT based IT Solutions

PROGRAMME EDUCATIONAL OBJECTIVES

After few years of graduation, the Computer Science & Engineering (IoT) graduates will

- **PEO 1:**Exhibit Proficiency in Analyzing, Designing and Developing IoT Based Solutions to Cater to the Business and Societal Needs. **{Technical Competence}**

- **PEO 2:** Provide Professional Expertise to the Industry and Society with Effective Communication and Ethics. **{Professionalism}**
- **PEO 3:** Engage in Lifelong Learning for Professional Development and Research. **{Life-Long Learning}**

PROGRAM OUTCOMES (POs)

- PO1: Apply the knowledge of Mathematics, Basic Science, Computer and communication Fundamentals to solve complex problems in Information Technology. [Engineering Knowledge]
- PO2: Identify, formulate, review research literature and analyze complex problems reaching concrete conclusions using principles of mathematics, Engineering sciences and Information Technology. [Problem Analysis]
- PO3: Design solution for complex information and communication engineering problems and design system components or processes that meet with realistic constraints for public health and safety, cultural, societal and environment considerations. [Design/Development of Solutions]
- PO4: Conduct investigations of complex Information technology related problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data to provide valid conclusions through synthesis of information. [Conduct investigations of complex problems]
- PO5: Create, select and apply appropriate techniques, resources and modern IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. [Modern Tool Usage]
- PO6: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and consequent responsibilities relevant to professional engineering practice. [The Engineer and Society]
- PO7: Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development. [Environment and sustainability]
- PO8: Apply ethical principles and commit to professional ethics and responsibilities through the norms of professional engineering practice. [Ethics]
- PO9: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings. [Individual and Team Work]

- PO10: Communicate effectively with the engineering community and the 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]
- PO11: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member /or leader in a team, to manage projects in multi-disciplinary environment. [Project Management and Finance]
- PO12: Recognize the need for, and have the preparation and ability to engage in independent and Life-long learning in broadest context of technological change. [Life-long Learning]

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSOs are the statements that describe what the graduates of B.E Computer Science & Engineering (IoT) program should be able to do

- PSO 1: Design IoT based Software Solutions Using Programming Skills and Computing Technologies
- PSO 2: Design and Implement Data Communication System Using Various IoT Components



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REGULATIONS 2021[Batch-2023-2027]

OVERALL COURSE STRUCTURE

Code	Category	Total No. of Courses	Credits	Percentage
BS	Basic Sciences	10	28	17
ES	Engineering Sciences	6	17	10.3
HSS	Humanities and Social Sciences	5	9	5.4
PC	Professional Core (Including Lab Courses)	24	64	39
PE	Professional Elective	6	18	11
OE	Open Elective	4	12	7.3
PW	Project Work, Seminar	3	13	8
MC	Mandatory Courses & Internship	9	3	1.8
AC	Audit Course	1	P / F	-
	TOTAL	64	164	100

COURSE CREDITS – SEMESTER WISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
CSE - IOT	21	18	22	22	26	22	19	14	164

Semester I

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UEN101	English for Technical Communication (Common to all branches except CSBS)	2	0	0	2	HSS
R21UMA102	Matrix and calculus (Common to all branches except CSBS)	3	1	0	4	BS
R21UPH103	Physics for Information Science (Common to CSE, IT, CSBS, AIDS, CSD, AIML, CYBER SECURITY, IOT)	3	0	0	3	BS
R21UCS107	Problem solving and C Programming Common to CSE, ECE, IT, CSBS, AIDS, CSD, AIML, CYBER SECURITY, IOT)	3	0	0	3	ES
R21UME109	Engineering Graphics(Common to all branches except CSBS, AIDS,CSD, AIML)	1	3	0	4	ES
R21UEE130	Fundamentals of Electrical and Electronics Engineering(Common to CYBER SECURITY, IOT)	2	0	0	2	ES
PRACTICAL						
R21UCS111	Problem solving and C Programming Laboratory (Common to CSE, ECE, IT, CSBS, AIDS, CSD, AIML, CYBER SECURITY, IOT)	0	0	2	1	ES
R21UPH113	Physics Laboratory (Common to CSE, IT, CSBS, AIDS, CSD, AIML, CYBER SECURITY, IOT)	0	0	2	1	BS
MANDATORY						
R21UGM131	Induction Programme (Common to all branches)	0	3	0	P/F	MC
R21UGT140	Heritage of Tamils (Common to all branches)	1	0	0	1	MC
	TOTAL	15	7	4	21	
Total No of Credits - 21						

Semester II

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UEN201	Communication Skills for Professionals(Integrated Course) (Common to all branches except CSBS)	1	0	1	1.5	HSS
R21UMA203	Differential Equations and Complex Analysis (Common to CSE, IT, CYBER SECURITY, IOT)	3	1	0	4	BS
R21UIO204	Digital System Design	3	0	0	3	ES
R21UCY205	Applied Chemistry for Engineers (Common to CSE, IT, AIDS, AIML, CSD, CYBER SECURITY, IOT)	3	0	0	3	BS
R21UIT206	Programming Fundamentals using Python (Common to CSE, IT, CSD, AIML, CYBER SECURITY, IOT)	3	0	0	3	ES
PRACTICAL						
R21UIT207	Programming Fundamentals using Python Laboratory (Common to CSE, IT, CSD, AIML, CYBER SECURITY, IOT)	0	0	3	1.5	ES
R21UCY213	Applied Chemistry Laboratory (Common to CSE, IT, AIDS, CSD, AIML,CYBER SECURITY, IOT)	0	0	2	1	BS
MANDATORY						
R21UGT241	Tamils and Technology (Common to all branches)	1	0	0	1	MC
R21UAC231	Biology for Engineers (Common to all except BME, BT)	2	0	0	P/F	MC
	TOTAL	16	1	6	18	
Total No of Credits - 18						

Semester III

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UMA322	Probability, Queueing Theory and Numerical Methods (Common to CSE, IT, CYBER SECURITY, IOT)	3	1	0	4	BS
R21UIT302	Data Structures (Common to CSE, IT, AIDS, CSD, AIML, CYBER SECURITY, IOT)	3	0	0	3	PC
R21UCS303	Object Oriented Programming using C++ (Common to CSE, IT, CSBS, CSD, AIML, CYBER SECURITY, IOT)	3	0	0	3	PC
R21UIO304	Fundamentals of IOT	3	0	0	3	PC
R21UIO305	Computer Organization and Architecture	3	0	0	3	PC
R21UCD306	Database system Design(Common to CSE, IT, AIDS, CSD, AIML, IOT)	3	0	0	3	PC
PRACTICAL						
R21UIT307	Data Structures Laboratory (Common to CSE, IT, AIDS, CSD, AIML, CYBER SECURITY, IOT)	0	0	2	1	PC
R21UCD308	Database system Design Laboratory (Common to CSE, IT, AIDS, CSD, AIML, IOT)	0	0	2	1	PC
R21UCS309	Object Oriented Programming using c++ Laboratory (Common to CSE, IT, CSBS, CSD, AIML, CYBER SECURITY, IOT)	0	0	2	1	PC
MANDATORY						
R21UGM331	Environmental Science	2	0	0	P/F	MC
	TOTAL	20	1	6	22	
Total No of Credits - 22						

Semester IV

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UMA421	Transforms and Discrete Mathematics (Common to CSE, IT, AIML, IOT)	3	1	0	4	BS
R21UIO402	Microprocessor and Embedded Systems	3	0	0	3	PC
R21UCS403	Algorithm Analysis (Common to CSE, IT, AIDS, CSD, AIML, IOT)	3	0	0	3	PC
R21UIT404	Java Programming (Common to CSE, IT, CSD, AIML, IOT)	3	0	0	3	PC
R21UIT405	Software Engineering Methodology (Common to CSE, IT, IOT)	3	0	0	3	PC
R21UIO406	Programming Languages for IOT	3	0	0	3	PC
PRACTICAL						
R21UIO407	Microprocessor and Embedded Systems Laboratory	0	0	2	1	PC
R21UIT408	Java Programming Laboratory (Common to CSE, IT, CSD, AIML, IOT)	0	0	2	1	PC
R21UIT409	Programming Languages for IOT Laboratory	0	0	2	1	PC
MANDATORY						
R21UGM431	Gender Equality (Common to all branches)	1	0	0	P/F	MC
	TOTAL	19	1	6	22	
Total No of Credits - 22						

Semester V

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UGS531	Reasoning and Aptitude (Common to CSE, IT, CSBS, AIDS, CSD, AIML,IOT)	1	0	0	1	BS
R21UIO502	IoT Communication Protocols	3	0	0	3	PC
R21UIO503	Web and Mobile Application Development	3	0	0	3	PC
R21UIO504	Operating Systems for IOT	3	0	0	3	PC
R21UIO505	Sensors and Actuators for IoT	3	0	0	3	PC
	Professional Elective I	3	0	0	3	PE
	Open Elective I	3	0	0	3	OE
PRACTICAL						
R21UIO507	Creative Thinking and Innovation	0	0	2	1	PW
R21UIO508	IoT Communication Protocols Laboratory	0	0	2	1	PC
R21UIO509	Web and Mobile Application Development	0	0	2	1	PC
R21UGS532	Soft Skills Laboratory	0	0	2	1	HSS
MANDATORY						
	Universal Human Values and Ethics	2	1	0	3	MC
	TOTAL	21	1	8	26	
Total No of Credits – 26						

NOTE: Any One of the Six Professional Elective Courses should be replaced by the equivalent NPTEL Course.

Semester VI

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UIO601	Artificial Intelligence for IOT	3	0	0	3	PC
R21UIO602	Designing IoT applications	3	0	0	3	PC
	Professional Elective II	3	0	0	3	PE
	Professional Elective III	3	0	0	3	PE
	Open Elective II	3	0	0	3	OE
PRACTICAL						
R21UGS633	Interpersonal Skills Development Laboratory	0	0	2	1	HSS
R21UIO607	Product Development Project	0	0	8	4	PW
R21UIO608	Artificial Intelligence for IOT	0	0	2	1	PC
R21UIO609	Designing IoT applications Laboratory	0	0	2	1	PC
MANDATORY						
R21UGM631	Indian Constitution	1	0	0	P/F	MC
	TOTAL	16	0	14	22	
Total No of Credits - 22						

NOTE: Any One of the Six Professional Elective Courses should be replaced by the equivalent NPTEL Course.

Semester VII

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UME701	Project Management and Finance (Common to all branches except CSBS)	3	0	0	3	HSS
R21UCS702	Essentials of Cloud Computing	3	0	0	3	PC
R21UIO703	Analytics for the Internet of Things	3	0	0	3	PC
	Professional Elective IV	3	0	0	3	PE
	Professional Elective V	3	0	0	3	PE
	Open Elective III	3	0	0	3	OE
PRACTICAL						
R21UIO707	Analytics for the Internet of Things Laboratory	0	0	2	1	PC
R21UGE710	Multi-Disciplinary Project-I	0	0	6	3	PW
MANDATORY						
R21UGM731	Sports and social development	-	-	-	P/F	MC
R21UGM732	Skill development	-	-	-	P/F	MC
	TOTAL	18	0	2	19	
Total No of Credits – 19						

NOTE: Any One of the Six Professional Elective Courses should be replaced by the equivalent NPTEL Course.

Semester VIII

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
	Professional Elective VI	3	0	0	3	PE
	Open Elective IV	3	0	0	3	OE
PRACTICAL						
R21UIO801	Project Work	0	0	16	8	PW
R21UGE810	Multi-Disciplinary Project-II	0	0	6	3	PW
MANDATORY						
R21UGM831	Professional Ethics and Human Values (Common to all branches)	2	0	0	P/F	MC
	TOTAL	8	0	16	14	
Total No of Credits – 14						