



SETHU INSTITUTE OF TECHNOLOGY
(An Autonomous Institution | Accredited with 'A++' Grade by NAAC)



Pulloor, Kariapatti – 626 115.

B.E. COMPUTER SCIENCE AND DESIGN

REGULATIONS R2021

CHOICE BASED CREDIT SYSTEM

CURRICULUM & SYLLABUS

(1st SEMESTER To 8th SEMESTER)

BATCH 2023 - 2027

CHAIRPERSON

CHAIRMAN

BOARD OF STUDIES

ACADEMIC COUNCIL

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

REGULATIONS R2021 [Batch 2023-2027]

OVERALL COURSE STRUCTURE

Code	Category	Total No. of Courses	Credits	Percentage
BS	Basic Sciences	9	25	15.52
ES	Engineering Sciences	8	20.5	12.73
HSS	Humanities and Social Sciences	6	11.5	5.59
PC	Professional Core	28	60	37.57
PE	Professional Elective	6	18	11.18
OE	Open Elective	4	12	7.45
PW	Project Work, Seminar & Internship	4	14	8.69
MC	Mandatory Courses	10	2	1.24
	TOTAL	75	163	100

COURSE CREDITS – SEMESTERWISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
CSD	18	18	22	22	23	25	21	14	163

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, AIDS,CSD,AIML,CSBS,CS(IOT),CS(CYBER))	3	0	0	3	BS
R21UCS107	Problem Solving and C Programming (Common to CSE, IT , AIDS,CSD,AIML,CSBS,CS(IOT),CS(CYBER),ECE)	3	0	0	3	ES
OTHER THEORY COURSES						
R21UME110	Engineering Drawing and Design	3	0	0	3	ES
PRACTICAL						
R21UCS111	Problem-Solving and C Programming Laboratory (Common to CSE, IT, AIDS,CSD,AIML,CSBS,CS(IOT),CS(CYBER),ECE)	0	0	2	1	ES
R21UPH113	Physics Laboratory (Common to CSE, IT, AIDS,CSD,AIML,CSBS,CS(IOT),CS(CYBER))	0	0	2	1	BS
MANDATORY						
R21UGM131	Induction Programme (Common to All Branches)	0	3	0	P/F	AC
R21UGT140	Heritage of Tamils (Common to All Branches)	1	0	0	1	MC
	TOTAL	15	4	4	18	
Total No of Credits – 18						

SEMESTER II

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UEN201	Communication Skills for Professionals (Common to All Branches except CSBS)	1	0	1	1.5	HSS
R21UMA210	Differential Equations, Fourier series, and Transforms (Common to AI&DS, CSD)	3	1	0	4	BS
R21UCY205	Applied Chemistry for Engineers (Common to CSE, IT, AIDS, CSD, AIML ,CS(IOT),CS(CYBER))	3	0	0	3	BS
OTHER THEORY COURSES						
R21UIT206	Programming Fundamentals using Python (common to CSE, IT, CSD, AIML ,CS(IOT),CS(CYBER))	3	0	0	3	ES
R21UCD205	Digital and Computer Organization	3	0	0	3	ES
PRACTICAL						
R21UCY213	Applied Chemistry Laboratory (Common to CSE, IT, AIDS, CSD, AIML ,CS(IOT),CS(CYBER))	0	0	2	1	BS
OTHER PRACTICALS						
R21UIT207	Programming Fundamentals using Python Laboratory (common to CSE, IT, CSD, AIML,CS(IOT),CS(CYBER))	0	0	3	1.5	ES
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	AC
	TOTAL	16	1	6	18	
Total No of Credits – 18						

SEMESTER III

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UMA328	Discrete Mathematics (Common To AIDS, CSD)	3	1	0	4	BS
R21UIT302	Data Structures (Common to CSE, IT, AI&DS, CSD,AI ML,CS(IOT),CS(CYBER))	3	0	0	3	PC
R21UCS303	Object Oriented Programming using C++ (Common to CSE, IT, CSBS, CSD, AI ML,CS(IOT),CS(CYBER))	3	0	0	3	PC
R21UIT304	Principles of Operating Systems (Common to CSE, IT, AI&DS, CSD, AI ML)	3	0	0	3	PC
R21UCD305	Design Thinking	3	0	0	3	ES
R21UCD306	Database System Design (Common to CSE, IT, AI&DS, CSD,AI&ML, CS(IOT))	3	0	0	3	PC
PRACTICAL						
R21UIT307	Data Structures Laboratory (Common to CSE, IT, AI&DS, CSD,AI ML,CS(IOT),CS(CYBER))	0	0	2	1	PC
R21UCD308	Database System Design Laboratory (Common to CSE, IT, AI&DS, CSD,AI&ML,CS(IOT))	0	0	2	1	PC
R21UCS309	Object Oriented Programming using C++ Laboratory (Common to CSE, IT, CSBS, CSD, AI ML,CS(IOT),CS(CYBER))	0	0	2	1	PC
MANDATORY						
R21UGM331	Environmental Science (Common to All branches)	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						
R21UMA426	Probability and Statistical Techniques (Common To AIDS & CSD)	3	1	0	4	BS
R21UCS402	Computer Networks (Common to CSE, IT, CSD, CS(CYBER))	3	0	0	3	PC
R21UCS403	Algorithm Analysis (Common to CSE, IT, AI&DS, CSD, AIML,CS(IOT),CS(CYBER))	3	0	0	3	PC
R21UIT404	Java Programming (Common to CSE, IT, CSD,AIML, CS(IOT),CS(CYBER)))	3	0	0	3	PC
R21UCD405	Computer Graphics	3	0	0	3	PC
R21UCD406	Agile Methodologies	3	0	0	3	PC
PRACTICAL						
R21UCS407	Computer Networks Laboratory (Common to CSE, IT, CSD, CS(CYBER))	0	0	2	1	PC
R21UIT408	Java Programming Laboratory (Common to CSE, IT, CSD, AIML, CS(IOT),CS(CYBER))	0	0	2	1	PC
R21UCD409	Computer Graphics Laboratory	0	0	2	1	PC
MANDATORY						
R21UGM431	Gender Equality (Common to all)	1	0	0	P/F	MC
		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, AI&ML, CS(IOT),CS(CYBER))	1	0	0	1	BS
R21UCD501	Interactive Design	3	0	0	3	PC
R21UCD502	Foundations of Machine Learning	3	0	0	3	PC
R21UCD503	Multimedia Technologies	3	0	0	3	PC
R21UGM435	Universal Human Values - II	2	1	0	3	HSS
PE1	Professional Elective–I	3	0	0	3	PE
OE1	Open Elective–I	3	0	0	3	OE
PRACTICAL						
R21UCD507	Creative Thinking and Innovation	0	0	2	1	PW
R21UCD508	Mobile UI Design Laboratory	0	0	2	1	PC
R21UCD509	Interactive Design Laboratory	0	0	2	1	PC
R21UGS532	Soft Skills Laboratory (Common to CSE, IT, CSBS, AIDS, EEE, CSD, AGRI)	0	0	2	1	HSS
	TOTAL	18	1	8	23	
Total No of Credits – 23						

SEMESTER VI

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
R21UCD601	Game Design and Development	3	0	0	3	PC
R21UCD602	IoT Design (Common to CSE, CSD)	3	0	0	3	PC
R21UCD603	Distributed Computing	3	0	0	3	PC
PE-II	Professional Elective–II	3	0	0	3	PE
PE-III	Professional Elective–III	3	0	0	3	PE
OE-II	Open Elective–II	3	0	0	3	OE
PRACTICAL						
R21UCD607	Product Development Project	2	0	4	4	PW
R21UCD608	Game Design and Development Laboratory	0	0	2	1	PC
R21UCD609	IoT Design Laboratory	0	0	2	1	PC
R21UGS633	Interpersonal Skills Development Lab (Common to CSE,EEE, IT,AGRI,CSBS, AIDS)	0	0	2	1	HSS
MANDATORY						
R21UGM631	Indian Constitution (Common to all)	1	0	0	P/F	MC
	TOTAL	21	0	10	25	
Total No of Credits - 25						

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
R21UCD702	Virtual Reality and Augmented Reality	3	0	0	3	PC
R21UCD703	3D Modeling and Animation	3	0	0	3	PC
PE-IV	Professional Elective–IV	3	0	0	3	PE
PE-V	Professional Elective –V	3	0	0	3	PE
OE-III	Open Elective–III	3	0	0	3	OE
PRACTICAL						
R21UCD707	Virtual Reality and Augmented Reality Laboratory	0	0	2	1	PC
R21UCD708	3D Modeling and Animation Laboratory	0	0	2	1	PC
R21UCD785	Internship	-	-	-	1	PW
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	4	21	
Total No of Credits - 21						

SEMESTER VIII

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
PE-VI	Professional Elective–VI	3	0	0	3	PE
OE-IV	Open Elective–IV	3	0	0	3	OE
PRACTICAL						
R21UCD801	Project Work	0	0	16	8	PW
R21UGE810	Multi Disciplinary Project - II	0	0	16	8	PW
MANDATORY						
R21UGM83 1	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						

LIST OF PROFESSIONAL ELECTIVES

CourseCode	Course Title	L	T	P	C
21CSV505	Digital Marketing	3	0	0	3
21ITV305	Storage Technologies	3	0	0	3
21ITV205	Software Testing and Automation	3	0	0	3
21IT V108	Big Data Analytics	3	0	0	3
21ITV304	Data Warehousing	3	0	0	3
21CSV604	Cyber security	3	0	0	3
21ITV105	Business Analytics	3	0	0	3
21CSV306	Software Defined Networks	3	0	0	3
21CSV407	Network Security	3	0	0	3
21ITV401	Ethical Hacking	3	0	0	3
21CSV708	Ethics and AI	3	0	0	3
21ITV105	Business Analytics	3	0	0	3
21ITV701	Knowledge Engineering	3	0	0	3
21ITV402	Digital And Mobile Forensics	3	0	0	3

LIST OF OPEN ELECTIVES

OPEN ELECTIVES – I

Course Code	Course Title	L	T	P	C
21UME971	Introduction to Industry4.0	3	0	0	3
21UME972	Product Life Cycle Management	3	0	0	3
21UEE971	Drone Technologies	3	0	0	3
21UEE972	Renewable Energy and Technology	3	0	0	3
21UCE971	Developments of Smart cities	3	0	0	3
21UCE972	Remote sensing and GIS Application	3	0	0	3
21UAG971	ICT in Agriculture	3	0	0	3
21UAG972	Integrated Farming System	3	0	0	3
21UCH971	Fire Safety Engineering	3	0	0	3
21UBT971	Bio Nanotechnology	3	0	0	3

Course Code	Course Title	L	T	P	C
21UBT972	Herbal Medicines	3	0	0	3
21UEN972	Speak better write better	3	0	0	3
21UJN975	Japanese for engineers	3	0	0	3
21UFR973	French for engineers	3	0	0	3

OPEN ELECTIVES – II

CourseCode	CourseTitle	L	T	P	C
21UAG973	Business Management in Agriculture	3	0	0	3
21UAG974	Agriculture Automation	3	0	0	3
21UCE973	Disaster Management and Mitigation	3	0	0	3
21UCE974	Air Pollution and Control Engineering	3	0	0	3
21UCH972	Food Safety and Regulations	3	0	0	3
21UME976	Renewable Energy Technologies	3	0	0	3
21UEN971	English ForCompetitiveExam	3	0	0	3
21UGR974	GermanForEngineers	3	0	0	3

OPEN ELECTIVES – III

CourseCode	CourseTitle	L	T	P	C
21UME973	IntroductiontoAdditiveManufacturing	3	0	0	3
21UME974	Basics of Industrial Layout design and Safety	3	0	0	3
21UEE973	Principles of Embedded Computing Sysytem	3	0	0	3
21UEE976	Industrial Automation and Control	3	0	0	3
21UCE975	Environmental and Social Impact Assessment	3	0	0	3
21UCE976	Road Safety	3	0	0	3
21UAG975	Organic Farming Technology	3	0	0	3
21UAG977	Agriculture Water Management	3	0	0	3
21UCH974	Industrial Waste Management	3	0	0	3
21UCH976	Plastic Materials for Engineers	3	0	0	3
21UBT976	Bio Entrepreneurship	3	0	0	3
21UBT977	Food and Diary Technology	3	0	0	3

OPEN ELECTIVES – IV

Course Code	Course Name	L	T	P	C
21UAI972	Integrated Farming System	3	0	0	3
21UBM973	Computer Applications in Medicine	3	0	0	3
21UBM975	Robotics in Health Care	3	0	0	3
21UCE973	Developments of Smart Cities	3	0	0	3
21UCB973	Strategic Management and Leadership	3	0	0	3
21UEC973	Design thinking for innovations	3	0	0	3
21UEC981	Wearable Devices	3	0	0	3
21UEE972	Design of Embedded Systems	3	0	0	3
21UEE974	Drone Technologies	3	0	0	3
21UEE976	Foundation of Robotics	3	0	0	3
21UEE980	Non-Conventional Energy Resources and Applications	3	0	0	3
21UIT973	Cyber Forensics and Malware	3	0	0	3
21UME971	Hydraulics and Pneumatics	3	0	0	3
21UME974	Industry 4.0	3	0	0	3
21UME976	Lean Concepts, Tools and Practices	3	0	0	3
21UME978	Operations Research	3	0	0	3
21UME980	Production Planning and Control	3	0	0	3
21UME982	Reverse Engineering	3	0	0	3



SETHU INSTITUTE OF TECHNOLOGY
PROFESSIONAL ELECTIVE COURSES: VERTICALS

Vertical I Data Science	Vertical II Full Stack Development	Vertical III Cloud Computing and Data Center Technologies	Vertical IV Marketing and Management	Vertical V Creative Media and Design	Vertical VI Emerging Technologies	Vertical VII Media Processing
Exploratory DataAnalysis	WebTechnologi es	CloudComputing	Human Resource Management for Entrepreneurs	Visual Effects	Cloud Computing	Image and Video Analytics
Recommender Systems	AppDevelopmen t	Virtualization	Recommender Systems	Metaverse	Robotic Process Automation	Metaverse
Neural Networks and DeepLearning	Cloud Essentials	Cloud Essentials	Supply Chain Management	Multimedia and Animation	Neural Networks and DeepLearning	Multimedia Data Compression and Storage
Text and Speech Analysis	UI and UX Design	DataWarehousing	Marketing and Social Media Web Analytics	Video Creation and Editing	Cybersecurity	UI and UX Design
Business Analytics	SoftwareTesting And Automation	StorageTechnolog ies	Social Data Mining	Digital Audio & Video Production Workflow	Quantum Computing	Streaming Media Tools and Technologies
Image and Video Analytics	Web Application Security	Software DefinedNetworks	Financial Management	Digital Audio and Video Design	Crypto Currency and Block chain Technologies	Digital Audio and Video Design
Computer Vision	DevOps	Stream Processing	Digital Marketing	Digital Marketing	DevOps	Wearable Devices Applications
BigData Analytics	Principles of Programming Languages	Security and Privacy in Cloud	Marketing Research and Marketing Management	Short Film Development	3D Printing and Design	3D Printing and Design

PROFESSIONAL ELECTIVE COURSES: VERTICALS

VERTICAL 1: DATA SCIENCE

Course Code	Course Title	L	T	P	C
21CSV101	Exploratory Data Analysis	3	0	0	3
21CSV102	Recommender Systems	3	0	0	3
21ITV103	Neural Networks and Deep Learning	3	0	0	3
21CSV104	Text and Speech Analysis	3	0	0	3
21ITV105	Business Analytics	3	0	0	3
21ITV106	Image and Video Analytics	3	0	0	3
21CSV107	Computer Vision	3	0	0	3
21ITV108	BigData Analytics	3	0	0	3

VERTICAL 2: FULL STACK DEVELOPMENT

Course Code	Course Title	L	T	P	C
21ITV201	Web Technologies	3	0	0	3
21ITV202	App Development	3	0	0	3
21CSV203	Cloud Essentials	3	0	0	3
21CSV204	UI and UX Design	3	0	0	3
21ITV205	Software Testing and Automation	3	0	0	3
21CSV206	Web Application Security	3	0	0	3
21ITV207	DevOps	3	0	0	3
21CSV208	Principles of Programming Languages	3	0	0	3

VERTICAL 3: CLOUD COMPUTING AND DATA CENTER TECHNOLOGIES

Course Code	Course Title	L	T	P	C
21CSV301	Cloud Computing	3	0	0	3
21CSV302	Virtualization	3	0	0	3
21CSV203	Cloud Essentials	3	0	0	3
21ITV304	Data Warehousing	3	0	0	3
21ITV305	Storage Technologies	3	0	0	3
21CSV306	Software defined networks	3	0	0	3
21ITV307	Stream Processing	3	0	0	3
21ITV308	Security and Privacy in Cloud	3	0	0	3

VERTICAL 4: MARKETING AND MANAGEMENT

Course Code	Course Title	L	T	P	C
21CBV401	Human Resource Management for Entrepreneurs	3	0	0	3
21CSV102	Recommender Systems	3	0	0	3
21CBV403	Financial Management	3	0	0	3
21CSV404	Supply Chain Management	3	0	0	3
21CSV505	Digital Marketing	3	0	0	3
21CBV406	Marketing Research and Marketing Management	3	0	0	3
21CDV407	Social Data Mining	3	0	0	3
21CDV408	Marketing and Social Media Web Analytics	3	0	0	3

VERTICAL 5: CREATIVE MEDIA AND DESIGN

Course Code	Course Title	L	T	P	C
21CSV501	Visual Effects	3	0	0	3
21ITV502	Multimedia and Animation	3	0	0	3
21ITV503	Video Creation and Editing	3	0	0	3

Course Code	Course Title	L	T	P	C
21ITV504	Digital Audio & Video Production Workflow	3	0	0	3
21CSV505	Digital Marketing	3	0	0	3
21ADV706	Metaverse	3	0	0	3
21ITV507	Digital Audio and Video Design	3	0	0	3
21ITV508	Short Film Development	3	0	0	3

VERTICAL 6: EMERGING TECHNOLOGIES

Course Code	Course Title	L	T	P	C
21CSV301	Cloud Computing	3	0	0	3
21CSV602	Robotic Process Automation	3	0	0	3
21ITV103	Neural Networks and DeepLearning	3	0	0	3
21CSV604	Cybersecurity	3	0	0	3
21CSV605	Quantum Computing	3	0	0	3
21ITV406	Crypto currency and Block chain Technologies	3	0	0	3
21ITV207	DevOps	3	0	0	3
21ITV608	3D Printing and Design	3	0	0	3

VERTICAL 7: MEDIA PROCESSING

Course Code	Course Title	L	T	P	C
21ITV501	Metaverse	3	0	0	3
21CDV702	Streaming Media Tools and Technologies	3	0	0	3
21CSV204	UI and UX Design	3	0	0	3
21CDV705	Wearable Devices Applications	3	0	0	3
21ITV106	Image and Video Analytics	3	0	0	3
21ITV507	Digital Audio and Video Design	3	0	0	3
21CSV508	Multimedia Data Compression and Storage	3	0	0	3
21ITV608	3D Printing and Design	3	0	0	3

ENROLLMENT FOR B.E. / B. TECH. (HONOURS) / MINOR DEGREE (OPTIONAL)

A student can also optionally register for additional courses (18 credits) and become eligible for the award of B.E. / B. Tech. (Honours) or Minor Degree. For B.E. / B. Tech. (Honours), a student shall register for the additional courses (18 credits) from semester V onwards. These courses shall be from the same vertical or a combination of different verticals of the same programme of study only. For minor degree, a student shall register for the additional courses (18 credits) from semester V onwards. All these courses have to be in a particular vertical from any one of the other programmes, Moreover, for minor degree the student can register for courses from any one of the following verticals also.

VERTICALS FOR MINOR DEGREE

(In addition to all the verticals of other programmes)

Vertical I Fintech and Block Chain	Vertical II Entrepreneurship	Vertical III Public Administration	Vertical IV Business Data Analytics	Vertical V Environment and Sustainability	Vertical VI Computer Technology	Vertical VII Artificial Intelligence and Data Science
Financial Management	Foundations of Entrepreneurship	Principles of Public Administration	Statistics for Management	Sustainable Infrastructure Development	Object oriented programming using C++	Fundamentals of Data Science
Fundamentals of Investment	Team Building & Leadership Management for Business	Constitution of India	Data mining for Business Intelligence	Sustainable Agriculture and Environmental Management	Algorithms and data structures	Foundation of Artificial Intelligence
Banking, Financial Services and Insurance	Creativity & Innovation in Entrepreneurship	Public Personnel Administration	Human Resource Analytics	Sustainable Bio Materials	Java fundamentals	Data Analytics

Vertical I Fintech and Block Chain	Vertical II Entrepreneurship	Vertical III Public Administration	Vertical IV Business Data Analytics	Vertical V Environment and Sustainability	Vertical VI Computer Technology	Vertical VII Artificial Intelligence and Data Science
Introduction to Block chain and its Applications	Principles of Marketing Management for Business	Administrative Theories	Marketing and Social Media Web Analytics	Materials for Energy Sustainability	Agile Software development	Data and Information Security
Fintech Personal Finance and Payments	Human Resource Management for Entrepreneurs	Indian Administrative System	Operation and Supply Chain Analytics	Green Technology	Database and data analytics	Information Storage and Management
Introduction to Fintech	Financing New Business Ventures	Public Policy Administration	Financial Analytics	Environmental Quality Monitoring and Analysis	Networking and data Communication	Statistical Machine Learning
-	-	-	-	Integrated Energy Planning for Sustainable Development	Applications development (Full Stack)	Human Computer Interaction
-	-	-	-	Energy Efficiency for Sustainable Development	Machine learning	AI in Speech Processing
-	-	-	-	-	Cyber Security	-

(choice of courses for Minor degree is to be made from any one vertical of other programmes or from anyone of the following verticals)

VERTICAL I: FINTECH AND BLOCKCHAIN

Course Code	Course Title	L	T	P	C
21CBVG11	Financial Management	3	0	0	3
21CBVG12	Fundamentals of Investment	3	0	0	3
21CBVG13	Banking, Financial Services and Insurance	3	0	0	3
21CBVG14	Introduction to Blockchain and its Applications	3	0	0	3
21CBVG15	Fintech Personal Finance and Payments	3	0	0	3
21CBVG16	Introduction to Fintech	3	0	0	3

VERTICAL II: ENTREPRENEURSHIP

Course Code	Course Title	L	T	P	C
21MEVG21	Foundations of Entrepreneurship	3	0	0	3
21MEVG22	Team Building & Leadership Management for Business	3	0	0	3
21MEVG23	Creativity & Innovation in Entrepreneurship	3	0	0	3
21MEVG24	Principles of Marketing Management for Business	3	0	0	3
21MEVG25	Human Resource Management for Entrepreneurs	3	0	0	3
21MEVG26	Financing New Business Ventures	3	0	0	3

VERTICAL III : PUBLIC ADMINISTRATION

CourseCode	Course Title	L	T	P	C
21EEVG31	Principles of Public Administration	3	0	0	3
21EEVG32	Constitution of India	3	0	0	3
21EEVG33	Public Personnel Administration	3	0	0	3
21EEVG34	Administrative Theories	3	0	0	3
21EEVG35	Indian Administrative System	3	0	0	3
21EEVG36	Public Policy Administration	3	0	0	3

VERTICAL IV: BUSINESS DATA ANALYTICS

CourseCode	Course Title	L	T	P	C
21CSVG41	Statistics for Management	3	0	0	3
21CSVG42	Datamining for Business Intelligence	3	0	0	3
21CSVG43	Human Resource Analytics	3	0	0	3
21CSVG44	Marketing and Social Media Web Analytics	3	0	0	3
21CSVG45	Operation and Supply Chain Analytics	3	0	0	3
21CSVG46	Financial Analytics	3	0	0	3

VERTICAL V : ENVIRONMENT AND SUSTAINABILITY

CourseCode	Course Title	L	T	P	C
21CEVG51	Sustainable Infrastructure Development	3	0	0	3
21CEVG52	Sustainable Agriculture and Environmental Managemen	3	0	0	3
21CEVG53	Sustainable Bio Materials	3	0	0	3
21CEVG54	Materials for Energy Sustainability	3	0	0	3
21CEVG55	Green Technology	3	0	0	3
21CEVG56	Environmental Quality Monitoring and Analysis	3	0	0	3
21CEVG57	Integrated Energy Planning for Sustainable Development	3	0	0	3
21CEVG58	Energy Efficiency for Sustainable Development	3	0	0	3

VERTICAL VI :COMPUTER TECHNOLOGY

Course Code	Course Title	L	T	P	C
21UITVG61	Object oriented programming using C++	2	0	2	3
21UITVG62	Algorithms and data structures	3	0	0	3
21UITVG63	Java fundamentals	2	0	2	3
21UITVG64	Agile Software development	3	0	0	3
21UITVG65	Database and data analytics	3	0	0	3

Course Code	Course Title	L	T	P	C
21UITVG66	Networking and Data Communication	3	0	0	3
21UITVG67	Applications development (Full Stack)	2	0	2	3
21UITVG68	Machine learning	3	0	0	3
21UITVG69	Cyber Security Essentials	3	0	0	3

VERTICAL VII ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Course Code	Course Title	L	T	P	C
21ADVG71	Fundamentals of Data Science	3	0	0	3
21ADVG72	Foundation of Artificial Intelligence	3	0	0	3
21ADVG73	Data Analytics	3	0	0	3
21ADVG74	Data and Information Security	3	0	0	3
21ADVG75	Information Storage and Management	3	0	0	3
21ADVG76	Statistical Machine Learning	3	0	0	3
21ADVG77	Human Computer Interaction	3	0	0	3
21ADVG78	AI in Speech Processing	3	0	0	3