SETHU INSTITUTE OF TECHNOLOGY

PULLOOR, KARIAPATTI – 626 115.

(AN AUTONOMOUS INSTITUTION)

REGULATION – 2021

B.TECH-Artificial Intelligence and Data Science

BATCH 2021-2025

CURRICULUM

Chairperson
Board of Studies

Chairman
Academic Council

SETHU INSTITUTE OF TECHNOLOGY

Pulloor, Kariapatti – 626115
(An Autonomous Institution)
B.E. Degree Programme CURRICULUM
Regulation 2021 (Revised)

B.TECH-Artificial Intelligence and Data Science

OVERALL COURSE STRUCTURE

S.No	Course Category	Total No. of Courses	Credits	Credit Percentage
1	Humanities and Social Sciences (HS)	5	9	6%
2	Basic Science courses (BS)	11	32	20%
3	Engineering Science courses (ES)	8	18.5	11%
4	Professional Core courses (PC)	24	57.5	36%
5	Professional Elective (PE)	6	18	11%
6	Open Elective (OE)	4	12	7%
7	Project work (PW)	3	13	8%
8	Mandatory Courses (MC)	9	1	1%
	TOTAL	**70**	**161**	**100**

SEMESTER-WISE COURSE STRUCTURE – NUMBER OF COURSES

Semester	HS	BS	ES	PC	PE	OE	PW	MC	TOTAL
I	1	4	4					1	**10**
II	1	3	3					1	**08**
III		1		7				1	**09**
IV		1	1	6				1	**09**
V	1	2		3	1	1	1	1	**10**
VI	1			4	2	1	1	1	**10**
VII	1			4	2	1		2	**10**
VIII					1	1	1	1	**04**
TOTAL	**5**	**11**	**8**	**24**	**6**	**4**	**3**	**9**	**70**

SEMESTER-WISE COURSE STRUCTURE – CREDITS

Semester	HS	BS	ES	PC	PE	OE	P	MC	TOTAL
I	2	11	8						**21**
II	1.5	8	7.5						**17**
III		4		18					**22**
IV		4	3	14					**21**
V	1	5		7	3	3	1	1	**21**
VI	1.5			10.5	6	3	4		**25**
VII	3			8	6	3			**20**
VIII					3	3	8		**14**
TOTAL	**9**	**28**	**24**	**56**	**18**	**12**	**13**	**2**	**161**

Semester I

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UEN101	English for Technical Communication (Common to ALL Branches except CSBS)	2	0	0	2	HSS
21UMA102	Matrix and Calculus (Common to ALL Branches except CSBS)	3	1	0	4	BS
21UPH103	Engineering Physics (Common to ALL Branches except CSBS)	3	0	0	3	BS
21UCY105	Applied Chemistry (Common to CSE, ECE , EEE IT, ,BME,BT,AIDS,CSD)	3	0	0	3	BS
21UCS108	Problem Solving and Python Programming (Common to All Branches Except CSBS)	3	0	0	3	ES
21UEE125	Principles of Electrical Engineering	3	0	0	3	ES
PRACTICAL						
21UCS110	Problem Solving and Python Programming Laboratory (Common to All Branches Except CSBS)	0	0	2	1	ES
21UEE128	Electrical Engineering Laboratory	0	0	2	1	ES
21UGS113	Basic Sciences Laboratory I (Common to All BranchesExcept CSBS)	0	0	2	1	BS
MANDATORY						
21UGM131	Induction Programme (Common to All Branches)	0	3	0	P/F	MC
	TOTAL	**17**	**5**	**6**	**21**	
Total No of Credits - 21						

Semester II

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UEN201	Communication Skills for Professionals (Integrated Course) (Common to All Branches except CSBS)	1	0	1	1.5	HSS
21UMA210	Differential Equations, Fourier series and Transforms(Common to AI&DS,CSD)	3	1	0	4	BS
21UPH205	Physics for Information Science (Common to CSE, IT & EEE ,AIDS,CSD)	3	0	0	3	BS
OTHER THEORY COURSES						
21UAD204	Foundations of Data Science	3	0	0	3	ES
21UAD205	Digital Logic and Design	3	0	0	3	ES
PRACTICAL						
21UGS210	Basic Sciences Laboratory II (Common to All Branches Except CSBS)	0	0	2	1	BS
21UAD211	Data Science using Python Laboratory	0	0	3	1.5	ES
MANDATORY						
21UGM231	Environmental Science (Common to All Branches)	3	0	0	P/F	MC
	TOTAL	**16**	**1**	**6**	**17**	
Total No of Credits - 17						

Semester III

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UMA328	Discrete Mathematics (Common to AI& DS,CSD)	3	1	0	4	BS
21UIT302	Data Structures (Common to CSE,IT,AIDS&CSD)	3	0	0	3	PC
21UAD303	Object Oriented Programming using Python (Integrated Course)	3	0	2	4	PC
21UIT304	Principles of Operating Systems (Common to CSE ,IT,AIDS&CSD)	3	0	0	3	PC
21UCS305	Computer Organization (Common to CSE ,IT,CSBS &AIDS)	3	0	0	3	PC
21UCD306	Database system Design (Common to CSE,IT, AIDS& CSD)	3	0	0	3	PC
PRACTICAL						
21UIT307	Data Structures Laboratory (Common to CSE,IT, AIDS&CSD	0	0	2	1	PC
21UCD308	Database system Design Laboratory (Common to CSE,IT, AIDS & CSD)	0	0	2	1	PC
MANDATORY						
21UGM331	Biology for Engineers (Common to All except BME & BT)	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						
21UMA426	Probability and Statistical Techniques (Common to AI&DS,CSD)	3	1	0	4	BS
21UAD402	Artificial Intelligence	3	0	0	3	PC
21UCS403	Algorithm Analysis (Common to CSE, IT,AIDS& CSD,AI&ML)	3	0	0	3	PC
21UAD404	Data Warehousing and Data Mining	3	0	0	3	PC
21UAD405	Internet of Things and Sensors	3	0	0	3	PC
21UAD406	Computer Network and Security	3	0	0	3	ES
PRACTICAL						
21UAD407	Data Warehousing and Data Mining Laboratory	0	0	2	1	PC
21UAD408	Artificial Intelligence Laboratory	0	0	2	1	PC
MANDATORY						
21UGM431	Gender Equality (Common to all)	1	0	0	P/F	MC
		19	**1**	**4**	**21**	
Total No of Credits -21						

Semester V

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UMA501	Linear Algebra	3	1	0	4	BS
21UAD502	Formal languages and Computation	3	0	0	3	PC
21UAD503	Machine Learning Techniques	3	0	0	3	PC
PE1	ProfessionalElective–I	3	0	0	3	PE
OE1	Open Elective–III	3	0	0	3	OE
21UGS531	Reasoning and Aptitude (Common to CSE, IT, CSBS, AIDS, CSD)	1	0	0	1	BS
PRACTICAL						
21UGS532	Soft Skills Laboratory (Common to CSE,IT,CSBS,AIDS,EEE,CSD,AGRI)	0	0	2	1	HSS
21UAD507	CreativeThinking and Innovation	0	0	2	1	PW
21UAD508	Machine Learning Techniques Laboratory	0	0	2	1	PC
MANDATORY						
21UGT140	Heritage of Tamil (Common to all)	1	0	0	1	MC
	TOTAL	**17**	**1**	**6**	**21**	
Total No of Credits –21						

Semester VI

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UAD601	Intelligent Computer Vision	3	0	0	3	PC
21UAD602	Deep Learning	3	0	0	3	PC
21UAD603	Thinking in Java	2	0	2	3	PC
PE-II	Professional Elective–II	3	0	0	3	PE
PE-III	Professional Elective–III	3	0	0	3	PE
OE-II	OpenElective–II	3	0	0	3	OE
PRACTICAL						
21UAD606	Deep Learning Laboratory	0	0	3	1.5	PC
21UAD607	Product Development Project	0	0	8	4	PW
21UGS633	Interpersonal Skills Development Lab (Common to CSE,EEE,IT,AGRI,CSBS, AIDS)	0	0	3	1.5	HSS
MANDATORY						
21UGM631	Indian Constitution (Common to all)	1	0	0	P/F	MC
	TOTAL	**18**	**0**	**16**	**25**	
Total No of Credits - 25						

Semester VII

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
21UME701	Project Management and Finance (Common to All Branches Except CSBS)	3	0	0	3	HSS
21UAD702	Natural Language Processing	3	0	0	3	PC
21UAD603	Big data visualization	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						
21UAD707	Natural Language Processing Lab	0	0	2	1	PC
21UAD708	Intelligence and Analytics lab	0	0	2	1	PC
MANDATORY						
21UGM731	Sports and Social Development (Common to all)	-	-	-	P/F	MC
21UGM732	Skill Development	-	-	-	P/F	MC
	TOTAL	**18**	**0**	**4**	**20**	
Total No of Credits - 20						

Semester VIII

Course Code	Course Title	L	T	P	C	Type of Course
THEORY						
PE-VI	ProfessionalElective–VI	3	0	0	3	PE
OE-IV	OpenElective–IV	3	0	0	3	OE
PRACTICAL						
21UAD801	Projectwork	0	0	16	8	PW
MANDATORY						
21UGM831	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						

Course Code	Course Title	L	T	P	C	Type of Course
21UGM131	Induction Programme (Common to All Branches)	0	3	0	P/F	MC
21UGT140	Heritage of Tamil (Common to All Branches)	1	0	0	1	MC
21UGM331	Biology for Engineers (Common to All except BME & BT)	2	0	0	P/F	MC
21UGT241	Tamil and Technology (Common to All Branches)	1	0	0	1	MC
21UGM231	Environmental Science (Common to All Branches)	3	0	0	P/F	MC
21UGM431	Gender Equality (Common to all)	1	0	0	P/F	MC
21UGM631	Indian Constitution (Common to all)	1	0	0	P/F	MC
21UGM731	Sports and Social Development (Common to all)	-	-	-	P/F	MC
21UGM732	Skill Development	-	-	-	P/F	MC
21UGM831	Professional Ethics and Human values (Common to all branches)	2	0	0	P/F	MC

(Students shall choose the open elective courses, such that the course contents are not similar to anyother course contents/title under other course categories).

CourseCode	Course Title	Dept Offered	L	T	P	C
21UME971	Introduction to Industry 4.0	MECH	3	0	0	3
21UME972	Product Life Cycle Management	MECH	3	0	0	3
21UEE971	Drone Technologies	EEE	3	0	0	3
21UEE972	Renewable Energy Technology	EEE	3	0	0	3
21UCE971	Developments of Smart Cities	CIVIL	3	0	0	3
21UCE972	Remote Sensing and GIS Application	CIVIL	3	0	0	3
21UAG971	ICT in Agriculture	AGRI	3	0	0	3
21UAG972	Integrated Farming System	AGRI	3	0	0	3
21UCH971	Fire safety Engineering	Chemical	3	0	0	3
21UBT971	Bio nanotechnology	BTECH	3	0	0	3
21UBT972	Herbal Medicines	BTECH	3	0	0	3
21UFR973	French For Engineers	ENGLISH	3	0	0	3
21UJN975	Japanese For Engineers	ENGLISH	3	0	0	3
21UEN972	Speak Better,Write Better	ENGLISH	3	0	0	3

Vertical I Intelligent system	Vertical II Full Stack Development	Vertical III Cloud Computing and Data Center Technologies	Vertical IV Cyber Security and Data Privacy	Vertical V Creative Media	Vertical VI Emerging Technologies	Vertical VII Augmented Reality and Virtual Reality
21ITV701-Knowledge Engineering	21CSV201-Web Technologies	21CSV301-Cloud Computing	21ITV401-Ethical Hacking	21CSV501-Augmented Reality/Virtual Reality	21CSV501-Augmented Reality/Virtual Reality	21ADV701-Introduction to AR and VR
21CSV102-Recommender Systems	21ITV202-App Development	21CSV302-Virtualization	21ITV402-Digital and Mobile Forensics	21ITV502-Multimedia and Animation	21CSV602-Robotic Process Automation	21ADV702-Developing AR/VR/MR/XR App
21CSV702-Soft Computing	21CSV203-Cloud Essentials	21CSV203- Cloud Essentials	21CSV403-Social Network Security	21ITV503-Video Creation and Editing	21ITV603-Introduction to Genetic Algorithm	21ADV703-Virtual Reality
21ITV105-Business Analytics	21CSV204-UI and UX Design	21ADV304-Decentralised Applications and Smart Contracts	21CSV404-Modern Cryptography	21CSV204-UI and UX Design	21CSV604-Cyber Security	21ADV704-Virtual Reality and 360 production
21ITV106-Image and video analytics	21ITV205-Software Testing and Automation	21ITV305-Storage Technologies	21ITV405-Engineering Secure Software Systems	21CSV505-Digital marketing	21CSV605-Quantum Computing	21ADV705-3D Modes for Virtual Reality
21ADV107-Data Analytics in Bio Informatics	21CSV206-Web Application Security	21CSV306-Software Defined Networks	21ITV406-Crypto currency and Block chain Technologies	21CSV506-Visual Effects	21ITV406-Crypto currency and Block chain Technologies	21ADV706-Meta Verse
21CSV705-Optimization Techniques	21ITV207-DevOps	21ITV307-Stream Processing	21CSV407-Network Security	21ITV507-Game Development	21ITV507-Game Development	21ADV707-Meta AR Developer
21ADV108-Health Care Analytics	21CSV208-Principles of Programming Languages	21ITV308-Security and Privacy in Cloud	21ITV308-Security and Privacy in Cloud	21ITV508-Multimedia Data Compression and Storage	21ITV608-3D Printing and Design	21ADV708-Web XR Unity & Unreal

Vertical I - Intelligent system

Course Code	Course Title	L	T	P	C
21ITV701	Knowledge Engineering	3	0	0	3
21CSV102	Recommender Systems	3	0	0	3
21CSV702	Soft Computing	3	0	0	3
21ITV105	Business Analytics	3	0	0	3
21ITV106	Image and video analytics	3	0	0	3
21ADV107	Data Analytics in Bio Informatics	3	0	0	3
21CSV705	Optimization Techniques	3	0	0	3
21ADV108	Health Care Analytics	3	0	0	3

Vertical II - Full Stack Development for IT

Course Code	Course Title	L	T	P	C
21CSV201	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 III - 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
21ADV304	Decentralised Applications and Smart Contracts	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 IV - Cyber Security and Data Privacy

Course Code	Course Title	L	T	P	C
21ITV401	Ethical Hacking	3	0	0	3
21ITV402	Digital and Mobile Forensics	3	0	0	3
21CSV403	Social Network Security	3	0	0	3
21CSV404	Modern Cryptography	3	0	0	3
21ITV405	Engineering Secure Software Systems	3	0	0	3
21ITV406	Crypto currency and Block chain Technologies	3	0	0	3
21CSV407	Network Security	3	0	0	3
21ITV308	Security and Privacy in Cloud	3	0	0	3

Vertical V - Creative Media

Course Code	Course Title	L	T	P	C
21CSV501	Augmented Reality/Virtual Reality	3	0	0	3
21ITV502	Multimedia and Animation	3	0	0	3
21ITV503	Video Creation and Editing	3	0	0	3
21CSV204	UI and UX Design	3	0	0	3
21CSV505	Digital marketing	3	0	0	3
21CSV506	Visual Effects	3	0	0	3
21ITV507	Game Development	3	0	0	3
21ITV508	Multimedia Data Compression and Storage	3	0	0	3

Vertical VI - Emerging Technologies

Course Code	Course Title	L	T	P	C
21CSV501	Augmented Reality/Virtual Reality	3	0	0	3
21CSV602	Developing AR/VR/MR/XR App	3	0	0	3
21ITV603	Introduction to Genetic Algorithm	3	0	0	3
21CSV604	Cyber Security	3	0	0	3
21CSV605	Quantum Computing	3	0	0	3
21ITV406	Crypto currency and Block chain Technologies	3	0	0	3
21ITV507	Game Development	3	0	0	3
21ITV608	3D Printing and Design	3	0	0	3

Vertical VII – Augmented Reality and Virtual Reality

Course Code	Course Title	L	T	P	C
21ADV701	Introduction to AR and VR	2	0	2	3
21ADV702	Developing AR/VR/MR/XR App	2	0	2	3
21ADV703	Virtual Reality	2	0	2	3
21ADV704	Virtual Reality and 360 production	2	0	2	3
21ADV705	3D Modes for Virtual Reality	2	0	2	3
21ADV706	Meta Verse	2	0	2	3
21ADV707	Meta AR Developer	2	0	2	3
21ADV708	Web XR Unity & Unreal	2	0	2	3