



UNDERGRADUATE CURRICULUM (NON-AUTONOMOUS AFFILIATED INSTITUTIONS)

Programme: B.Tech., Artificial Intelligence and Data Science

Regulations: 2025

Abbreviations:

HUM – Humanities (Languages, Management, Heritage, and others)

BS – Basic Science (Mathematics, Physics, Chemistry)

ES – Engineering Science (General (**G**), Programme Core (**PC**), Programme Elective (**PE**) & Emerging Technology (**ET**))

SD – Skill Development

SL – Self Learning

CDP – Capstone Design Project

OE – Open Elective

L – Laboratory Course

T – Theory

LIT – Laboratory Integrated Theory

PW – Project Work

IPW – Internship cum Project Work

DIC – Department Introductory Course

TCP – Total Contact Period(s)

Program Outcomes

1. **Engineering Knowledge:** Apply math, science, and engineering fundamentals to complex problems.
2. **Problem Analysis:** Identify and analyze complex problems using research and sustainability principles.
3. **Design Solutions:** Design systems and processes considering health, safety, cost, culture, and environment.
4. **Investigations:** Use experiments, modelling, and data analysis to reach valid conclusions.
5. **Engineering Tools:** Apply modern tools for modelling and problem-solving, recognizing their limits.
6. **Society & Environment:** Assess societal, legal, and environmental impacts of engineering solutions.
7. **Ethics:** Commit to ethics, human values, diversity, and legal compliance.
8. **Teamwork:** Work effectively as an individual and in multidisciplinary teams.
9. **Communication:** Communicate clearly in reports, presentations, and documentation across diverse groups.
10. **Management & Finance:** Apply management and economic principles in projects and teamwork.

11. **Lifelong Learning:** Engage in continuous learning, adapt to new technologies, and think critically.

Program Specific Outcomes:

1. Design, develop, and deploy intelligent systems for real-world applications.
2. Utilize modern tools for innovative solutions in the field of AI and Data Science.
3. Demonstrate research aptitude, implement ethical practices and collaborate in multidisciplinary teams.

Semester – I							
S. No.	Course Code	Course Name	Course Type	Periods/ Week		Credits	Category
				L-T-P	TCP		
1.	MA25C01	Applied Calculus	T	3-1-0	4	4	BS
2.	EN25C01	English Essentials – I	T	2-0-0	2	2	HUM
3.	UC25H01	தமிழர் மரபு / Heritage of Tamils	T	1-0-0	1	1	HUM
4.	PH25C01	Applied Physics – I	LIT	2-0-2	4	3	BS
5.	CY25C01	Applied Chemistry – I	LIT	2-0-2	4	3	BS
6.	CS25C01	Computer Programming: C	LIT	2-0-2	4	3	ES (PC)
7.	CS25C03	Essentials of Computing	LIT	2-0-2	4	3	ES (PC)-DIC
8.	ME25C04	Makerspace	L	0-0-4	4	2	SD
9.	UC25A01	Life Skills for Engineers – I	---	1-0-2	3	1	HUM
10.	UC25A02	Physical Education – I	---	0-0-4	4	1	HUM
11.		NCC / NSS / NSO / YRC	---	---	---	---	---
Total Credits					34	23	

Semester – II							
S. No.	Course Code	Course Name	Course Type	Periods/ Week		Credits	Category
				L-T-P	TCP		
1.	MA25C02	Linear Algebra	T	3-1-0	4	4	BS
2.	EE25C01	Basic Electrical and Electronics Engineering	T	3-0-0	3	3	ES (G)
3.	CS25C06	Digital Principles and Computer Organization	T	3-1-0	4	4	ES (PC)
4.	UC25H02	தமிழர்களும் தொழில்நுட்பமும் / Tamils and Technology	T	1-0-0	1	1	HUM
5.	PH25C03	Applied Physics (CSIE) – II	T	2-1-0	3	3	BS
6.	AD25201	Python for Data Science	LIT	3-0-2	5	4	ES (PC)
7.	EN25C02	English Essentials – II	LIT	1-0-2	3	2	HUM
8.	ME25C05	Re-Engineering for Innovation	L	0-0-4	4	2	SD
9.	UC25A03	Life Skills for Engineers – II	---	1-0-2	3	1	HUM
10.	UC25A04	Physical Education – II	---	0-0-4	4	1	HUM
11.		Foreign Language^	LIT	1-0-2	3	1	HUM
Total Credits					37	26	

^ Deutsch / Japanese / Korean

Semester – III							
S. No.	Course Code	Course Name	Course Type	Periods/Week		Credits	Category
				L-T- P	TCP		
1.	MA25C08	Discrete Mathematics	T	3-1-0	4	4	BS
2.	CS25C08	Data Structures	LIT	3-0-4	7	5	ES (PC)
3.	CS25C09	Java Programming	LIT	3-0-4	7	5	ES (PC)
4.	AD25C01	Exploratory Data Analysis	LIT	3-0-2	5	4	ES (PC)
5.	CS25C11	Operating Systems	LIT	3-0-2	5	4	ES (PC)
6.		Skill Development Course – I	L	1-0-2	3	2	SD
7.	EN25C03	English Communication Skills Laboratory – I	LIT	0-0-2	2	1	HUM
Total Credits					33	25	

Semester – IV							
S. No.	Course Code	Course Name	Course Type	Periods/Week		Credits	Category
				L-T- P	TCP		
1.	MA25C07	Probability and Statistics	T	3-1-0	4	4	BS
2.	CS25C12	Algorithms	T	3-0-0	3	3	ES (PC)
3.	AD25401	Artificial Intelligence Essentials	T	3-0-0	3	3	ES (PC)
4.	AD25402	Data Privacy and Security	T	3-0-0	3	3	ES (PC)
5.	AD25403	Standards in Artificial Intelligence	T	1-0-0	1	1	ES (PC)
6.	CS25C13	Database Management Systems	LIT	3-0-4	7	5	ES (PC)
7.		Skill Development Course – II	LIT	1-0-2	3	2	SD
8.	EN25C04	English Communication Skills Laboratory – II	L	0-0-2	2	1	HUM
Total Credits					26	22	

Semester – V							
S. No.	Course Code	Course Name	Course Type	Periods/Week		Credits	Category
				L-T- P	TCP		
1.		Optimisation Techniques	T	2-0-0	2	2	BS
2.		Natural Language Processing	T	3-0-0	3	3	ES (PC)
3.		Programme Elective – I	T	3-0-0	3	3	ES (PE)
4.		Programme Elective – II	T	3-0-0	3	3	ES (PE)
5.		Machine Learning	LIT	3-0-2	5	4	ES (PC)
6.		Computer Networks	LIT	3-0-2	5	4	ES (PC)
7.		Internet of Things	LIT	2-0-2	4	3	ES (PC)
8.		Skill Development Course – III	LIT	1-0-2	3	2	SD
9.		Industry Oriented Course – I	LIT	1-0-2	3	1	SD
Total Credits					31	25	
For Honours Degree							
1.		Capstone Design Project - Level I	CDP	0-0-12	12	6	SD
OR							
1.		Honours Elective – I	T	3-0-0	3	3	
2.		Honours Elective – II	T	3-0-0	3	3	
For Minor Degree							
1.		Minor Elective – I	T	3-0-0	3	3	
2.		Minor Elective – II	T	3-0-0	3	3	

Semester – VI							
S. No.	Course Code	Course Name	Course Type	Periods/Week		Credits	Category
				L-T- P	TCP		
1.		Compiler Design	T	3-0-0	3	3	ES (PC)
2.		Programme Elective – III	T	3-0-0	3	3	ES (PE)
3.		Open Elective	T	3-0-0	3	3	--
4.		Deep Learning	LIT	3-0-2	5	4	ES (PC)
5.		Image Processing	LIT	2-0-2	4	3	ES (PC)
6.		UI/UX Design and Human Centered Design	LIT	2-0-2	4	3	ES (PC)
7.		Industry Oriented Course - II	LIT	1-0-2	3	1	SD
8.		Full Stack Development Laboratory	L	0-0-4	4	2	ES (PC)
9.		Self-Learning Course	---	0-0-0	-	1	--
Total Credits					29	23	
For Honours Degree							
1.		Capstone Design Project - Level I	CDP	0-0-12	12	6	SD
OR							
1.		Honours Elective – I	T	3-0-0	3	3	
2.		Honours Elective – II	T	3-0-0	3	3	
For Minor Degree							
1.		Minor Elective – I	T	3-0-0	3	3	
2.		Minor Elective – II	T	3-0-0	3	3	

Semester – VII							
S. No.	Course Code	Course Name	Course Type	Periods / Week		Credits	Category
				L-T-P	TCP		
1.		Programme Elective – IV	T	3-0-0	3	3	ES (PE)
2.		Programme Elective – V	T	3-0-0	3	3	ES (PE)
3.		Climate Change and Sustainability	T	2-0-0	2	2	HUM
4.		Ethical Hacking and Penetration Testing	LIT	2-0-2	4	3	ES (PC)
5.		Engineering Entrepreneurship Development	LIT	2-0-2	4	3	HUM
6.		Summer Internship		---	---	1	SD
Total Credits					16	15	

Semester – VII							
S. No.	Course Code	Course Name	Course Type	Periods / Week		Credits	Category
				L-T-P	TCP		
For Honours Degree							
1.		Capstone Design Project – Level III	CDP	0-0-12	12	6	SD
OR							
1.		Honours Elective – V	T	3-0-0	3	3	
2.		Honours Elective – VI	T	3-0-0	3	3	
For Minor Degree							
1.		Minor Elective – V	T	3-0-0	3	3	
2.		Minor Elective – VI	T	3-0-0	3	3	

Semester – VIII							
S. No.	Course Code	Course Name	Course Type	Periods / Week		Credits	Category
				L-T-P	TCP		
1		Project Work / Internship cum Project Work	PW / IPW	0-0-16	16	8	SD
Total Credits				16	8		

Total Credits of the Programme = 167

Programme Electives Courses – Streams

Intelligent Computing	Data Analytics	Robotics	Data Storage and Security	Emerging Technology	Internet of Things and Smart Applications
Reinforcement Learning	Data Curation and Visualization	Robot Operating System	Big Data Frameworks	Quantum Computing	Dynamic Paradigm for IoT
Explainable AI	Stream Data Analytics	Materials Informatics	Cloud Computing	Vibe Coding	Smart IoT Architecture
Computational Neuroscience	Social Network Analytics	Robotics Vision and Sensing	Cyber Security	GPU Programming	Wearable Computing
Generative AI	Bioinformatics	Expert Systems	Cyber Forensics	Real Time Operating Systems	IoT in 5G Networks
MLOps	Edge AI	Multiagent Systems	Quantum Cryptographic Techniques	Hardware Architectures for AI	IoT and Smart Cities