

PSN College of Engineering and Technology **(An Autonomous Institution)**



Tirunelveli -627152

Tamil Nadu, India

Department of **Artificial Intelligence and Data Science** **First Board of Studies Meeting** **AY (2025 – 26)**



Curriculum and Syllabi-R2022-UG
CHOICE BASED CREDITSYSTEM

Program Outcomes (POs)

PO's No	KNOWLEDGE	STATEMENTS
1	Engineering Knowledge:	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	Problem Analysis:	Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	Design / Development of Solutions:	Design solutions for 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.
4	Conduct Investigations of Complex Problems:	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.
5	Modern Tool usage:	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an UN 2 of the limitations.
6	The Engineer and Society:	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	Environment and Sustainability:	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	Ethics:	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	Individual and Team Work:	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10	Communication:	Communicate effectively on complex engineering 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.
11	Project Management and Finance:	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 projects and in multidisciplinary environments.
12	Life-long Learning:	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.

Program Educational Objectives (PEOs)

S.No	Topic	PEOs
PEO1	<i>Fundamental Knowledge</i>	Graduates will be able to perform in technical and managerial roles ranging from design, development and problem solving to suit to the industrial needs
PEO2	Career Development	Graduates will be able to successfully pursue higher education and also Graduates will have the ability to adapt, contribute and innovate new technologies in different domains of Computer Science and Engineering
PEO3	Social Identity	Graduates will be ethically and socially responsible engineers in Computer Science and Engineering disciplines

CURRICULUM - B.Tech (AI & DS) - III TO VIII SEMESTER
(Applicable to students those who are admitted from AY 2024-25)

Sl. No	Course code	Course Name	Classification	L	T	P	C
SEMESTER III							
21	IC630017	Numerical Methods and Statistics	IC	3	0	0	3
22	AD630201	Foundations of Data Science(Practical Component)	PC	2	0	2	3
23	CS630202	Data Structure Using C++	PC	3	0	0	3
24	AD630202	Database Design and Management	PC	3	0	0	3
25	AD630203	Introduction to Operating Systems	PC	3	1	0	3
26	CS606105	Software Testing(NPTEL) Professional elective-1	PE	3	0	0	3
27	CS630301	Data Structures Using C++ Laboratory	PC	0	0	3	1.5
28	AD630301	Database Design and	PC	0	0	3	1.5

		Management Laboratory					
29	CS630501	Integrated Aptitude Skills - I (Lower)#	EEC	0	0	1	0.5
30	IM630402	Universal Human Values*	IM	2*	0	0	0
		Total		17	1	8	21
SEMESTER IV							
31	IC640018	Boundary value problems and probability distributions	IC	2	1	0	3
32	EC640907	Digital Electronics and Microprocessor (Practical Component)	PC	2	0	2	3
33	AD640204	Front End Development using HTML & CSS	PC	3	0	0	3
34	AD640205	R Programming	PC	3	0	0	3
35		Professional elective-2	PC	3	0	0	3
36		Institute elective -1	PE	3	0	0	3
37	AD640302	R Programming Laboratory	PC	0	0	3	1.5
38	AD640303	Front End Development using HTML & CSS Laboratory	PC	0	0	3	1.5
39	CS640502	Integrated Aptitude Skills - II (Lower)	EEC	0	0	1	0.5
40		In-plant Training (2 Weeks)	IM	2*	0	0	0
		Total		16	1	8	21
SEMESTER V							
41	AD650207	Python for Data Science	PC	3	0	0	3
42	AD650208	Data Warehousing and Data Mining	PC	3	0	0	3
43	AD650209	Artificial Intelligence (Practical Component)	PC	2	0	2	3
44		Institute elective -2	IE	3	0	0	3
45		Professional elective-3	PE	3	0	0	3
46		Professional elective-4	PE	3	0	0	3
47	AD650304	Python for Data Science Laboratory	PC	0	0	3	1.5
48	AD650305	Data Warehousing and Data Mining Lab	PC	0	0	3	1.5
49	CS650503	Integrated Aptitude Skills - I (Higher)	EEC	0	0	1	0.5
50	AD650801	Optimization Techniques	IM	2*	0	0	0
		Total		17	0	8	21
SEMESTER VI							
51	AD660210	Data Visualization and its Applications	PC	3	0	0	3
52	AD660211	Deep Learning Using Tensor Flow	PC	3	0	0	3

53	AD660212	Mongo DB(Practical Component)	PC	2	0	2	3
54		Institute elective -3	IE	3	0	0	3
55		Professional elective-5	PE	3	0	0	3
56		Professional elective-6	PE	3	0	0	3
57	AD660306	Data Visualization and its Applications laboratory	PC	0	0	3	1.5
58	AD660307	Deep Learning Using Tensor Flow Lab	PC	0	0	3	1.5
59		Training With AI Tools	EEC	0	0	2	1
60	IM660403	Professional Ethics	IM	2*	0	0	0
61		Internship	IM				0
		Total		17	0	8	21
SEMESTER VII							
62	CS670213	Artificial Intelligence and Machine Learning	PC	3	0	0	3
63	AD670213	Deep Learning	PC	3	0	0	3
64	AD670214	UI/UX Design(Practical Component)	PC	2	0	2	3
65		Institute elective -3	IE	3	0	0	3
66		Professional elective-7	PE	3	0	0	3
67		Professional elective-8	PE	3	0	0	3
68	CS670309	Artificial Intelligence and Machine Learning laboratory	PC	0	0	3	1.5
69	AD670308	Deep Learning laboratory	PC	0	0	3	1.5
70	MG670019	Innovation Entrepreneurship and Startups	IC	3	0	0	3
71	AD670505	Advanced career development	EEC	0	0	2	1
		Total		20	0	8	24
SEMESTER VIII							
72	AD680506	Project Work	EEC	0	0	2	10
73		Self-Learning Course(Related to Project work)	EEC				
		Total		0	0	2	10

PROGRAMME ELECTIVES

Sl. No	Subject Code	Subject Name	L	T	P	C	Classification
VERTICAL –I(Full Stack Development)							
1	CS606108	Principles of Programming	3	0	0	3	Theory

		Languages					
2	CS606101	Design And Analysis of Algorithms (NPTEL)	3	0	0	3	Theory
3	AD606102	App Development	3	0	0	4	Theory with Project
4	CS606105	Software Testing (NPTEL)	3	0	0	3	Theory
5	CS606106	Web Application Security	3	0	0	3	Theory
6	CS606107	Dev-ops	3	0	0	3	Theory with Project
7	CS606109	Social Networks (NPTEL)	3	0	0	3	Theory
8	CS606110	Multimedia Technology	3	0	0	3	Theory

VERTICAL –II (Cloud and Data Science)

1	CS606201	Cloud Computing (NPTEL)	3	0	0	3	Theory
2	CS606202	Virtualization	3	0	0	3	Theory
3	CS606203	Cloud Computing And Distributed Systems (NPTEL)	3	0	0	3	Theory
4	AD606204	Data Warehousing	3	0	0	4	Theory with Project
5	CS606205	Storage Technologies	3	0	0	3	Theory
6	CS606206	Software Defined Networks	3	0	0	3	Theory
7	CS606207	Grid Computing	3	0	0	3	Theory
8	CS606208	Security and Privacy in Cloud	3	0	0	3	Theory

VERTICAL –III (Cyber Security)

1	CS606301	Ethical Hacking (NPTEL)	3	0	0	3	Theory
2	CS606302	Digital and Mobile Forensics	3	0	0	3	Theory
3	AD606303	Systems And Usable Security (NPTEL)	3	0	0	3	Theory
4	CS606304	Modern Cryptography	3	0	0	3	Theory
5	CS606305	Engineering Secure software systems	3	0	0	3	Theory
6	CS606306	Crypto currency and Block chain Technologies	3	0	0	3	Theory
7	AD606307	Cryptography And	3	0	0	3	Theory

		Network Security (NPTEL)					
8	AD606308	Network Management	3	0	0	4	Theory with Project

VERTICAL –IV(Internet Of Things)

1	CS606401	Introduction To Internet Of Things (NPTEL)	3	0	0	3	Theory
2	CS606402	IoT Architecture and Framework	3	0	0	3	Theory
3	CS606403	Communication Protocols For IoT	3	0	0	3	Theory
4	CS606404	Cloud Services for IoT	3	0	0	4	Theory with Project
5	CS606405	Computer Networks And Internet Protocol (NPTEL)	3	0	0	3	Theory
6	CS606406	Privacy and Security In IoT	3	0	0	3	Theory
7	AD606407	IoT Platform for Smart City Planning	3	0	0	3	Theory
8	CS606408	IoT for Smart Grids	3	0	0	3	Theory

VERTICAL –V(Block chain)

1	CS606501	Foundations Of Cryptography (NPTEL)	3	0	0	3	Theory
2	CS606502	Block chain And Its Applications (NPTEL)	3	0	0	3	Theory
3	CS606503	Block chain Technologies	3	0	0	3	Theory
4	CS606504	Block chain Architecture Design And Use Cases (NPTEL)	3	0	0	3	Theory
5	CS606505	Block chain Platforms	3	0	0	3	Theory
6	CS606506	Block chain Forensics	3	0	0	3	Theory
7	AD606507	Robot Manipulator Control	3	0	0	4	Theory with Project
8	CS606508	Computer Vision With Open cv	3	0	0	3	Theory

VERTICAL –VI (Diversified Courses)

1	AD606601	Hardware Security (NPTEL)	3	0	0	3	Theory
2	CS606602	Problem Solving Using Python	3	0	0	3	Theory

3	AD606603	Model Checking (NPTEL)	3	0	0	3	Theory
4	AD606604	Database Design (NPTEL)	3	0	0	4	Theory
5	CS606605	Mat lab Programming For Engineers	3	0	0	3	Theory with Project
6	CS606606	Robotics And Its Applications	3	0	0	3	Theory
7	CS606607	Adhoc Networks	3	0	0	3	Theory
8	CS606608	Principles of Distributed Systems	3	0	0	3	Theory

VERTICAL –VII(Deep Learning)

1	AD606701	NLP Tools And Applications(NPTEL)	3	0	0	3	Theory
2	AD606702	Neural Networks and Deep Learning	3	0	0	3	Theory
3	AD606703	Text and Speech Analysis	3	0	0	3	Theory
4	AD606704	Autonomous Drones	3	0	0	4	Theory with Project
5	AD606705	Image and video analytics	3	0	0	3	Theory
6	AD606706	Big Data Analytics(NPTEL)	3	0	0	3	Theory
7	AD606707	Data Mining Using R	3	0	0	3	Theory
8	AD606708	Machine Learning for Robotics	3	0	0	3	Theory