



Graphic Era (Deemed to be University) B.Tech. in Computer Science and Engineering (AI and DS) Scheme of Teaching and Evaluation 2025 Outcome Based Education (OBE) and Choice Based Credit System (CBCS) as per NEP 2020 (Effective from the academic year 2025-26)												
Semester I												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TPH101/201	Engineering Physics	DSC	BSC	3	3	-	-	3	25	25	50	100
TMA102	Mathematics for AI-I	DSC	BSC	3	2	1	-	3	25	25	50	100
TEE101/201	Basic Electrical Engineering	DSC	ESC	2	2	-	-	2	25	25	50	100
TCS102	Introduction to Python Programming	DSC	ESC	3	3	-	-	3	25	25	50	100
PPH151/251	Physics Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PEE151/251	Electrical Engineering Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS152	Python Programming Lab	DSC	LC	2	-	-	4	4	25	25	50	100
PME151/251	Workshop And Manufacturing Practices	SEC	LC	2	-	-	4	4	25	25	50	100
THU101	Professional Communication	AEC	HSMC	2	2	-	-	2	25	25	50	100
HSMC 101/201	Design Thinking	VAC	HSMC	1	-	-	2	2	25	25	50	100
Total				20								1000

Mandatory Non-Graded Course												
THF101/201	Healthy Living & Fitness	MNG	MC	2	2	-	-	2	-	-	100	100
										Qualified/ Non-Qualified		



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Semester II												
COURSE MODULE Physics/Chemistry Group					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCH101/ 201	Engineering Chemistry	DSC	BSC	3	3	-	-	3	25	25	50	100
TMA203	Mathematics for AI-II	DSC	BSC	3	2	1	-	3	25	25	50	100
TCS202	Programming in C	DSC	ESC	3	3	-	-	3	25	25	50	100
TEC101/ 201	Basic Electronics Engineering	DSC	ESC	2	2	-	-	2	25	25	50	100
TCS203	Fundamentals of AI and ML	DSC	PCC	3	3	-	-	3	25	25	50	100
PCH151 /251	Chemistry Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS252	C Programming Lab	DSC	LC	2	-	-	4	4	25	25	50	100
PEC151/ 251	Electronics Engineering Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PME153 /253	Engineering Graphics and Design Lab	SEC	LC	2	-	-	4	4	25	25	50	100
PCE151/ 251	Basic Civil Engg Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS253	AI and ML Lab using Python	DSC	LC	1	-	-	2	2	25	25	50	100
GP201	General Proficiency-I	SEC	SEC	1	-	-	-	-	100	-	-	100
Total				23								1200

Mandatory Non-Graded Course												
TEV101/201	Environmental Science	MNG	MC	2	2	-	-	2	-	-	100	100
									Qualified/ Non-Qualified			



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Semester III												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCS308	Logic Design and Computer Organization	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS302	Data Structures with C	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS307	Object Oriented Programming with C++	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS368	Advanced Probability for AI	DSC	PCC	3	3	-	-	3	25	25	50	100
	Discipline Specific Elective-I	DSE	PEC	3	3	1	-	4	25	25	50	100
PCS308	Logic Design and Computer Organization Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS302	Data Structures Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS307	OOPS with C++ Lab	DSC	LC	1	-	-	2	2	25	25	50	100
XCS301	Career Skills-I	AEC	AEC	2	2	-	-	2	25	25	50	100
UHV301	UHV-II	VAC	VAC	2	2	-	-	2	25	25	50	100
Total				22								1000



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-I/Specialization-I	3	3	-	-	3	25	25	50	100
** List of minor/ specialization courses is mentioned on page no. 35-39									

DISCIPLINE SPECIFIC ELECTIVE-I

COURSE CODE	COURSE NAME
TCS342	Introduction to Statistical Data Science
TCS392	Introduction to Cryptography
TCS331	Fundamentals of IoT
TCS362	*Statistical Learning For Reliability Analysis (Through Swayam)

NOTE:

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3. *If the mentioned SWAYAM course is unavailable on the SWAYAM platform during the time of offering, the Departmental Committee will review and finalize a suitable alternative course available on the SWAYAM platform.



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Semester IV												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCS408	Programming in Java	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS402	Finite Automata and Formal Languages	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS403	Microprocessors	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS409	Design and Analysis of Algorithms	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS464	Deep Learning	DSC	PCC	3	3	-	-	3	25	25	50	100
	Discipline Specific Elective-II	DSE	PEC	3	3	1	-	4	25	25	50	100
PCS408	Java Programming Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS403	Microprocessors Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS409	DAA Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS464	Deep Learning Lab	DSC	LC	1	-	-	2	2	25	25	50	100
XCS401	Career Skills-II	AEC	AEC	2	2	-	-	2	25	25	50	100
GP401	General Proficiency-II	SEC	SEC	1	-	-	-	-	100	-	-	100
Total				25								1200

Mandatory Non-Graded Course												
HSS203	Constitution of India	MNG	MC	2	2	-	-	2	-	-	100	100
										Qualified/ Non-Qualified		



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-II/Specialization-II	3	3	-	-	3	25	25	50	100
** List of minor/ specialization courses is mentioned on page no. 35-39									

DISCIPLINE SPECIFIC ELECTIVE-II

COURSE CODE	COURSE NAME
TCS462	Introduction to Big Data
TCS471	Statistical Data Analysis with R
TCS451	Virtualization and Cloud Computing
TCS431	Microcontroller and Its Interfacing
TCS433	*Blockchain and its Applications (Through Swayam)
TCS465	*Linear Algebra (Through Swayam)

AUDIT COURSE: TOC 401: COMPETITIVE PROGRAMMING**NOTE:**

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Semester V												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCS572	Exploratory Data Analysis	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS502	Operating Systems	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS503	Database Management Systems	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS511	Computer Networks	DSC	PCC	3	3	-	-	3	25	25	50	100
	Discipline Specific Elective-III	DSE	PEC	3	3	1	-	4	25	25	50	100
PCS572	Data Science Lab-I	DSC	LC	1	-	-	2	2	25	25	50	100
PCS503	DBMS Lab	DSC	LC	1	-	-	2	2	25	25	50	100
PCS511(S)	OS and CN Lab	DSC	LC	1	-	-	2	2	25	25	50	100
XCS501	Career Skills-III	AEC	AEC	2	2	-	-	2	25	25	50	100
Total				20								900

Mandatory Non-Graded Course												
HSS304	Indian Knowledge System	MNG	MC	2	2	0	0	2	-	-	100	100
									Qualified/ Non-Qualified			



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-III/Specialization-III	3	3	-	-	3	25	25	50	100
** List of minor/ specialization courses is mentioned on page no. 35-39									

DISCIPLINE SPECIFIC ELECTIVE- III

COURSE CODE	COURSE NAME
TCS563	Multi-Modal Data Processing and Learning
TCS571	Bigdata Visualization
TCS549	Data Science: Visualization with Tableau Specialization
TCS584	Foundation of Quantum Computing
TCS595	Security and Auditing
TCS552	Cloud Based Application Development and Management
TCS531	Communication models and protocols
TCS597(E)	Computer system security
TCS521	User Interface Design
TMA502	Computer Based Numerical and Statistical Techniques
TCS586	*Parallel Computer Architecture (Through Swayam)

AUDIT COURSE: TOC 501: FOUNDATIONS OF DATA SCIENCE

NOTE:

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Semester VI												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCS601	Compiler Design	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS611	Software Engineering	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS663	Big Data Analytics: Tools and Techniques	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS693	Full Stack Web Development	DSC	PCC	3	3	-	-	3	25	25	50	100
	Discipline Specific Elective-IV	DSE	PEC	3	3	1	-	4	25	25	50	100
PCS601	Compiler Design Lab	DSC	LC	1	-	-	2	2	25	25	50	100
TCS663	Data Science Lab-II	DSC	LC	1	-	-	2	2	25	25	50	100
PCS693	Web Development Lab	DSC	LC	1	-	-	2	2	25	25	50	100
XCS601	Career Skills-IV	AEC	AEC	2	2	-	-	2	25	25	50	100
GP601	General Proficiency-III	SEC	SEC	1	-	-	-	-	100	-	-	100
Total				21								1000



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-IV/Specialization-IV	3	3	-	-	3	25	25	50	100
** List of minor/ specialization courses is mentioned on page no. 35-39									

DISCIPLINE SPECIFIC ELECTIVE-IV

COURSE CODE	COURSE NAME
TCS647	Natural Language Processing and Computer Vision
TCS665(E)	Generative Adversarial Networks (GANs)
TCS666(E)	Transformer Models and Applications
TCS645	AI in Creative Fields
TCS688	Quantum Machine Learning
TCS685	Quantum Cryptography
TCS695	Database Security, Identity and Access Management
TCS651	Devops on Cloud
TCS679(E)	Network and System Security
TCS641	*Virtual Reality (Through Swayam)
TCS661	*Computer Graphics (Through Swayam)
TCS631	*Network programming and wireless technologies (Through Swayam)

AUDIT COURSE: TOC601: COMPETITIVE PROGRAMMING

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Semester VII												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
TCS762	NoSQL Database	DSC	PCC	3	3	-	-	3	25	25	50	100
TCS704	Advanced Computer Architecture	DSC	PCC	3	3	-	-	3	25	25	50	100
TRM701	Research Methodology and IPR	DSC	PCC	3	3	-	-	3	25	25	50	100
	Discipline Specific Elective-V	DSE	PEC	3	3	1	-	4	25	25	50	100
	Generic Elective-I	UOE	OEC	3	3	-	-	3	25	25	50	100
SCS701	Seminar on Industrial Interaction	PROJ	PROJ	4	-	-	-	-	-	-	100	100
CSP701	Major Project Phase I	PROJ	PROJ	3	-	-	6	6	50	-	50	100
Total				22								700



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-V/Specialization-V	3	3	-	-	3	25	25	50	100
** List of minor/ specialization courses is mentioned on page no. 35-39									

DISCIPLINE SPECIFIC ELECTIVE-V

Course Code	Course Name
TCS726(E)	Business Intelligence
TCS765(E)	Large Language Models (LLMs)
TCS766(E)	Multimodal AI
TCS745	Advanced Gans
TCS785	Generative AI and Prompt Engineering
TCS737	UI/UX Design
TCS738	Object-Oriented Analysis and Design
TCS763	Social And Web Analytics
TCS731	Computer Forensics
TCS761	Cloud Infrastructure Services
TCS756	Human-Computer Interaction
TCS723	Distributed Systems
TCS799	Software Verification, Validation, And Testing
TCS734	Robotic Process Automation Design and Development
TCS795	Cryptography And Network Security
TCS722	*Data Warehousing and Data Mining (Through Swayam)
TCS732	*Web Mining (Through Swayam)
TCS741	*Reinforcement Learning (Through Swayam)

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Semester VIII												
COURSE MODULE					TEACHING PERIODS				WEIGHTAGE : EVALUATION			
COURSE				Credits	L	T	P	Contact Hr.	CIE	MSE	ESE	Total
Code	Title	NEP Component	AICTE Component									
DM001	Disaster Management	VAC	VAC	2	2	-	-	2	25	25	50	100
	Discipline Specific Elective-VI	DSE	PEC	3	3	1	-	4	25	25	50	100
	Generic Elective-II	UOE	OEC	3	3	-	-	3	25	25	50	100
CSP801	Major Project Phase II	PROJ	PROJ	6	-	-	12	12	-	-	100	100
CSC801	Comprehensive Viva-Voce	PROJ	PROJ	2	-	-	-	-	-	-	100	100
GP801	General Proficiency-IV	SEC	SEC	1	-	-	-	-	100	-	-	100
Total				17								600



Optional									
	Credits	TEACHING PERIODS				WEIGHTAGE: EVALUATION			
		L	T	P	Contact Hr.	CIE	MSE	ESE	Total
**Minor-VI/Specialization-VI	3	3	-	-	3	25	25	50	100
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DISCIPLINE SPECIFIC ELECTIVE - VI

Course Code	Course name
TCS862	FATE in AI
TCS881	Advanced Computer Vision
TCS852	Pattern Recognition
TCS801	Mobile Computing
TCS822	Mobile Applications Development
TCS823	Multimedia Systems and Data Compression
TCS826	Unix Systems Programming
TCS851	Storage Networks
TCS855	Agile Software Engineering
TCS857	Game Theory
TCS821	*Soft Computing (Through Swayam)
TCS825	*Computational Geometry (Through Swayam)

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