



LORDS INSTITUTE OF ENGINEERING AND TECHNOLOGY
(UGC Autonomous)

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Department of CSE-AIML

Course Outcomes & Course Articulation Matrix

ACADEMIC YEAR: 2026-27

Course Outcomes:

Semester No:	III		
Course Title:	Mathematics III (Probability & Statistics)	Course Code:	U24MA301
Course Outcome No.	Description		
MIII. CO1	Determine Probabilities with respect to Random variables in probability distributions		
MIII. CO2	Compute the parameters of some standard discrete probability distribution, Normal distribution s and moments.		
MIII. CO3	Calculate the statistical parameters of uniform and exponential probability distributions		
MIII. CO4	Find the parameters related to correlation, regression and obtain the knowledge of sampling Theory with context to test of hypothesis.		
MIII. CO5	Analyze and check the validity of statement using testing of hypothesis for various parameters and goodness of fit.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
MIII. CO1	3	2	—	—	2	—	—	—	—	—	—	2	2
MIII. CO2	3	3	—	2	2	—	—	—	—	—	—	2	2
MIII. CO3	3	3	—	2	2	—	—	—	—	—	—	2	3
MIII. CO4	3	3	2	3	2	—	—	—	—	—	—	2	3
MIII. CO5	3	3	2	3	2	—	—	2	—	—	—	3	3
Average	3.0	2.8	0.8	2.0	2.0	0.0	0.0	0.4	0.0	0.0	0.0	2.2	2.6

Course Outcomes:

Semester No:	III		
Course Title:	Data Structures	Course Code:	U24CS302
Course Outcome No.	Description		
DS. CO1	Understand the fundamental concepts of data structures such as arrays, stacks, queues and linked lists.		
DS. CO2	Use linear and non-linear data structures for solving computational problems.		
DS. CO3	Analyze and compare the performance of different searching and sorting algorithms.		
DS. CO4	Design and implement various tree and graph data structures for real-world problems		
DS. CO5	Develop efficient programs using data structures and algorithms to optimize time and space complexity.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DS. CO1	3	2	—	—	2	—	—	—	—	—	—	2	2
DS. CO2	3	3	2	—	3	—	—	—	—	—	—	3	3
DS. CO3	3	3	2	2	3	—	—	—	—	—	—	3	3
DS. CO4	3	3	3	3	3	1	—	—	1	—	—	3	3
DS. CO5	3	3	3	3	3	1	—	1	1	1	1	3	3
Average	3.0	2.8	2.0	1.6	2.8	0.4	0.0	0.2	0.4	0.2	0.2	2.8	2.8

Course Outcomes:

Semester No:	III		
Course Title:	Digital Electronics & Computer Organization	Course Code:	U24EC304
Course Outcome No.	Description		
DECO.CO1	Demonstrate the number system conversions and simplify Boolean functions		
DECO.CO2	Analyze and simplify Boolean expressions using Karnaugh-maps, tabulation method and design combinational circuits		
DECO.CO3	Analyze and design various Sequential circuits.		
DECO.CO4	Illustrate the operation of digital computer and to understand its organization		
DECO.CO5	Understand the various memory types.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DECO.CO1	3	2	—	—	2	—	—	—	—	—	—	2	2
DECO.CO2	3	3	2	2	3	—	—	—	—	—	—	3	3
DECO.CO3	3	3	3	2	3	—	—	—	—	—	—	3	3
DECO.CO4	3	3	2	2	2	1	—	—	—	—	—	2	3
DECO.CO5	3	2	—	1	2	—	—	—	—	—	—	2	2
Average	3.0	2.6	1.4	1.4	2.4	0.2	0.0	0.0	0.0	0.0	0.0	2.4	2.6

Course Outcomes:

Semester No:	III		
Course Title:	English For Technical Communication	Course Code:	U24EN301
Course Outcome No.	Description		
ETC. CO1	Apply technical communication skills effectively.		
ETC. CO2	Adapt different types of official correspondence successfully.		
ETC. CO3	Construct report writing productively using various techniques.		
ETC. CO4	Develop the skills of manual writing adequately.		
ETC. CO5	Interpret the information transfer from verbal to non-verbal data and vice-versa completely.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
ETC. CO1	–	–	–	–	–	–	–	1	2	3	–	2	2
ETC. CO2	–	–	–	–	–	1	–	2	2	3	1	2	2
ETC. CO3	–	1	1	–	1	–	–	1	2	3	2	2	2
ETC. CO4	–	–	2	–	1	–	–	1	1	3	2	2	2
ETC. CO5	–	2	1	1	1	–	–	1	2	3	1	2	2
Average	0.0	0.6	0.8	0.2	0.6	0.2	0.0	1.2	1.8	3.0	1.2	2.0	2.0

Course Outcomes:

Semester No:	III		
Course Title:	Database Management Systems	Course Code:	U24IT301
Course Outcome No.	Description		
DBMS. CO1	Understand the role of database management system in an organization and learn the database concepts		
DBMS. CO2	Design databases using data modeling and Logical database design techniques.		
DBMS. CO3	Construct database queries using relational algebra and calculus and SQL		
DBMS. CO4	Understand the concept of a database transaction and related concurrent, recovery facilities.		
DBMS. CO5	Understand the concepts of Triggers and Stored Procedures.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DBMS. CO1	3	2	—	—	2	—	—	—	—	—	—	2	2
DBMS. CO2	3	3	3	2	3	—	—	—	—	—	—	3	3
DBMS. CO3	3	3	3	2	3	—	—	—	—	—	—	3	3
DBMS. CO4	3	3	2	3	2	1	—	—	—	—	—	2	3
DBMS. CO5	3	2	2	2	3	—	—	—	—	—	—	3	3
Average	3.0	2.6	2.0	1.8	2.6	0.2	0.0	0.0	0.0	0.0	0.0	2.6	2.8

Course Outcomes:

Semester No:	III		
Course Title:	Database Management Systems lab	Course Code:	U24IT3L1
Course Outcome No.	Description		
DBMSLAB. CO1	Design database schema for a given application and apply normalization.		
DBMSLAB. CO2	Gather skills in using SQL commands for data definition and data manipulation.		
DBMSLAB. CO3	Demonstrate creation and usage of Views and Stored Procedures using SQL.		
DBMSLAB. CO4	Develop solutions for database applications using procedures, cursors and triggers.		
DBMSLAB. CO5	To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modelling, designing, and implementing a DBMS.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DBMSLAB. CO1	3	3	3	2	3	–	–	–	–	–	–	3	3
DBMSLAB. CO2	3	2	3	2	3	–	–	–	–	–	–	3	3
DBMSLAB. CO3	3	3	3	2	3	–	–	–	–	–	–	3	3
DBMSLAB. CO4	3	3	3	3	3	1	–	–	1	–	–	3	3
DBMSLAB. CO5	3	3	3	3	3	1	–	1	1	1	–	3	3
Average	3.0	2.8	3.0	2.4	3.0	0.4	0.0	0.2	0.4	0.2	0.0	3.0	3.0

Course Outcomes:

Semester No:	III		
Course Title:	Soft Skills & Employability Skills Lab	Course Code:	U24EN3L1
Course Outcome No.	Description		
SS&ESLAB. CO1	Utilize soft skills at professional level effectively.		
SS&ESLAB. CO2	Function efficiently in multidisciplinary settings by using leadership skills.		
SS&ESLAB. CO3	Build confidence through interpersonal skills utterly.		
SS&ESLAB. CO4	Write Resume/CV and cover letter comprehensively.		
SS&ESLAB. CO5	Enhance the skills of group discussion and interview perfectly.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
SS&ESLAB. CO1	–	–	–	–	–	1	–	2	2	3	1	2	2
SS&ESLAB. CO2	–	–	1	–	–	2	–	2	3	3	2	2	2
SS&ESLAB. CO3	–	–	–	–	–	1	–	2	3	3	1	2	2
SS&ESLAB. CO4	–	–	–	–	1	–	–	1	2	3	2	2	2
SS&ESLAB. CO5	–	1	–	–	–	1	–	2	3	3	2	2	2
Average	0.0	0.2	0.2	0.0	0.2	1.0	0.0	1.8	2.6	3.0	1.6	2.0	2.0

Course Outcomes:

Semester No:	III		
Course Title:	Data Structures Lab	Course Code:	U24CS3L1
Course Outcome No.	Description		
DSLAB. CO1	Understand and implement basic data structures like arrays, stacks, queues, and linked lists (singly, doubly, and circular).		
DSLAB. CO2	Implement and analyze various sorting and searching algorithms, comparing their efficiency.		
DSLAB. CO3	Implement and manipulate non-linear data structures like trees (especially Binary Search Trees) and graphs.		
DSLAB. CO4	Analyze the performance of algorithms using asymptotic notations and choose appropriate data structures for problem-solving.		
DSLAB. CO5	Apply data structures and algorithms to solve real-world problems and develop efficient solutions.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DSLAB. CO1	3	2	2	1	3	–	–	–	1	–	–	3	3
DSLAB. CO2	3	3	2	2	3	–	–	–	1	–	–	3	3
DSLAB. CO3	3	3	3	2	3	–	–	–	1	–	–	3	3
DSLAB. CO4	3	3	3	3	3	1	–	–	1	–	–	3	3
DSLAB. CO5	3	3	3	3	3	1	–	1	2	1	1	3	3
Average	3.0	2.8	2.6	2.2	3.0	0.4	0.0	0.2	1.2	0.2	0.2	3.0	3.0

Course Outcomes:

Semester No:	V		
Course Title:	Business Economics and Financial Analysis	Course Code:	U23MB501
Course Outcome No.	Description		
BEFA. CO1	Apply the concepts of business and economics during his professional and personal life.		
BEFA. CO2	Understand the elasticity of the demand of the product, different types, and measurement of elasticity of demand and factors influencing on elasticity of demand.		
BEFA. CO3	Recognize the Production function, features of Iso-Quants and Iso-Costs, different types of internal economies, external economies and law of returns with appropriate examples.		
BEFA. CO4	Prepare the financial statements of the firm.		
BEFA. CO5	To Analyze the financial statements using ratio analysis and cash flow techniques.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
BEFA. CO1	2	2	1	—	1	3	2	2	2	1	2	2	2
BEFA. CO2	2	3	2	1	2	3	2	2	2	1	2	2	2
BEFA. CO3	2	3	2	2	2	3	2	2	2	1	2	2	2
BEFA. CO4	2	2	3	3	2	2	1	1	2	2	3	2	2
BEFA. CO5	2	3	3	3	3	2	1	1	2	2	3	2	2
Average	2.0	2.6	2.2	1.8	2.0	2.6	1.6	1.6	2.0	1.4	2.4	2.0	2.0

Course Outcomes:

Semester No:	V		
Course Title:	Design and Analysis of Algorithms (DAA)	Course Code:	U24CM501
Course Outcome No.	Description		
DAA.CO1	Explain algorithm fundamentals, asymptotic notations, and complexity analysis.		
DAA.CO2	Apply divide-and-conquer techniques to solve computational problems.		
DAA.CO3	Design efficient solutions using greedy and dynamic programming techniques.		
DAA.CO4	Analyze computational complexity and classify P, NP, NP-Complete, and NP-Hard problems.		
DAA.CO5	Develop solutions using backtracking and branch-and-bound techniques.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DAA.CO1	3	3	-	2	2	-	-	-	-	2	-	2	2
DAA.CO2	3	3	3	2	3	-	-	-	3	2	-	3	2
DAA.CO3	3	3	3	3	3	-	-	-	3	2	-	3	3
DAA.CO4	3	3	-	3	-	-	-	-	2	2	-	2	2
DAA.CO5	3	3	3	2	3	-	-	-	3	2	-	3	3
Average	3	3	1.8	2.4	2.2	-	-	-	2.2	2.0	-	2.6	2.4

Course Outcomes:

Semester No:	V		
Course Title:	Design and Analysis of Algorithms Lab (DAA Lab)	Course Code:	U24CM5L1
Course Outcome No.	Description		
DAALab.CO1	Implement fundamental algorithms like sorting, searching, and graph algorithms using a programming language.		
DAALab.CO2	Analyze the time and space complexity of algorithms using Big-O notation.		
DAALab.CO3	Design efficient algorithms using paradigms such as divide and conquer, dynamic programming, and greedy methods.		
DAALab.CO4	Apply algorithmic techniques to solve real-world problems effectively.		
DAALab.CO5	Write algorithms for improved performance, balancing time and space complexity using optimization techniques.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DAALab.CO1	3	2	2	1	3	-	-	1	2	1	2	3	3
DAALab.CO2	3	3	1	2	2	-	-	-	1	-	2	3	3
DAALab.CO3	3	3	3	3	3	1	-	1	2	1	3	3	3
DAALab.CO4	3	3	2	3	3	-	-	2	3	2	2	3	3
DAALab.CO5	3	3	3	3	3	-	-	1	3	3	3	3	3
Average	3.0	2.8	2.2	2.4	2.8	0.2		1.0	2.2	1.4	2.4	3.0	3.0

Course Outcomes:

Semester No:	V		
Course Title:	Machine Learning	Course Code:	U24CM502
Course Outcome No.	Description		
ML.CO1	Explain the concept of machine learning and its types		
ML.CO2	Apply descriptive statistical measures to analyse and summarize datasets		
ML.CO3	Apply regression techniques to build prediction models		
ML.CO4	Analyse classification problems using probabilistic models and interpret metrics.		
ML.CO5	Apply non-parametric, ensemble, and instance-based ML algorithms for real-world problems		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
ML.CO1	3	2	1	-	1	-	—	—	—	—	2	2	1
ML.CO2	3	3	-	2	2	—	—	-	—	—	1	3	2
ML.CO3	3	3	2	2	3	-	—	-	—	—	1	3	3
ML.CO4	3	3	2	3	3	-	—	-	-	-	1	3	3
ML.CO5	3	3	3	2	3	-	—	-	-	-	2	3	3
Average	3.0	2.8	2.0	2.2	2.4	0.0	0.0	0.0	0.0	0.0	1.4	2.8	2.4

Course Outcomes:

Semester No:	V		
Course Title:	Machine Learning Lab	Course Code:	U24CM5L1
Course Outcome No.	Description		
ML.CO1	Apply Python programming concepts and NumPy operations for effective data handling and numerical computation.		
ML.CO2	Perform data pre-processing techniques for machine learning applications.		
ML.CO3	Apply regression techniques to solve prediction problems.		
ML.CO4	Implement classification and clustering algorithms for data analysis.		
ML.CO5	Evaluate machine learning models using performance metrics.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
ML Lab.CO1	3	2	-	-	3	-	—	—	—	—	-	2	2
ML Lab.CO2	2	3	-	2	3	—	—	-	—	—	-	3	2
ML Lab.CO3	3	3	2	-	3	-	—	-	—	—	-	3	3
ML Lab.CO4	3	3	3	-	3	-	—	-	-	-	-	3	3
ML Lab.CO5	2	3	-	3	3	-	—	-	-	-	-	3	3
Average	2.6	2.8	2.5	2.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.6

Course Outcomes:

Semester No:	V		
Course Title:	Software Engineering	Course Code:	U24CM503
Course Outcome No.	Description		
SE.CO1	Explain software engineering fundamentals, software process models, software process improvement, and agile development methodologies.		
SE.CO2	Apply software engineering principles, system engineering concepts, and requirements engineering techniques for software requirement analysis.		
SE.CO3	Analyze software requirements using structured and object-oriented analysis models and develop appropriate software design models.		
SE.CO4	Design software architecture, component-level designs, and user interfaces by applying software design principles, patterns, and best practices.		
SE.CO5	Evaluate software quality using testing strategies, debugging techniques, software metrics, reliability measures, and quality assurance standards.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
SE.CO1	3	2	3	-	2	-	-	-	2	-	-	3	1
SE.CO2	3	3	3	-	2	2	-	-	2	2	-	3	2
SE.CO3	3	2	2	-	2	2	-	-	1	-	2	3	
SE.CO4	3	2	2	3	2	2	-	2	2	2	-	2	3
SE.CO5	3	2	3	2	3	3	-	2	2	2	2	3	3
Average	3.0	2.2	2.6	2.5	2.2	2.3		2.0	1.8	2.0	2.0	2.8	2.3

Course Outcomes:

Semester No:	V		
Course Title:	Data Visualization (DV)	Course Code:	U24CM504
Course Outcome No.	Description		
DV.CO1	To understand the different statistical methods for Data visuvalization		
DV.CO2	To learn the R programming and phython programming		
DV.CO3	Knowledge about the packages like Numpy pandas and matplotlib		
DV.CO4	Discriptive learn about statistics by using pandas		
DV.CO5	To know the functionalities and usage of seaborn		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DV.CO1	2	2	2	2	3	--	--	-	3	3	2	3	2
DV.CO2	2	2	3	1	3	-	-	-	3	2	2	2	2
DV.CO3	2	2	3	2	3	-	-	-	3	2	2	2	3
DV.CO4	3	2	2	-	3	-	-	-	3	2	3	2	3
DV.CO5	3	3	3	2	-	-	-	-	3	2	3	2	2
Average	2.4	2.2	2.6	1.7	3				3.0	2.0	2.4	2.2	2.4

Course Outcomes:

Semester No:	V		
Course Title:	Aptitude and Reasoning Skills lab	Course Code:	U24MA5L1
Course Outcome No.	Description		
A&R.CO1	Acquire the knowledge of Data analysis and its interpretation through percentages and measures of central tendency.		
A&R.CO2	Calculate the problems related to number series and reasoning ability.		
A&R.CO3	Analyze the number system pattern and determine profit and losses.		
A&R.CO4	Evaluate proportions and understand time framework situations.		
A&R.CO5	Compute problems based on combinatorics, clock a calendar.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
A&R.CO1	3	3	-	2	2	-	-	-	-	2	-	2	2
A&R.CO2	3	3	3	2	3	-	-	-	3	2	-	3	2
A&R.CO3	3	3	3	3	3	-	-	-	3	2	-	3	3
A&R.CO4	3	3	-	3	-	-	-	-	2	2	-	2	2
A&R.CO5	3	3	3	2	3	-	-	-	3	2	-	3	3
Average	3	3	1.8	2.4	2.2	-	-	-	2.2	2.0	-	2.6	2.4

Course Outcomes:

Semester No:	VII		
Course Title:	Information Security	Course Code:	U23CM701
Course Outcome No.	Description		
IS.CO1	Describe the steps in Security Systems development life cycle (Sec SDLC).		
IS.CO2	Describe the common threats, legal and ethical issues		
IS.CO3	Identify security and risk management for business needs & use of security frameworks in preparing security blue print for the organization.		
IS.CO4	Use of reactive solutions, firewalls, software and Intrusion Detection techniques.		
IS.CO5	Use ethical hacking tools and secure communication protocols and use of the technical and non-technical security aspects		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
IS.CO1	3	2	2	-	2	-	-	-	-	-	-	-	3
IS.CO2	2	3	-	-	-	3	-	3	-	-	-	-	
IS.CO3	3	2	2	-	2	2	2	2	-	-	2	-	3
IS.CO4	3	3	3	-	3	-	-	-	-	-	-	2	3
IS.CO5	3	3	-	-	3	2	-	3	2	-	-	-	3
Average	2.8	2.6	1.4	-	2.4	1.4	0.4	2.0	0.4	-	0.4	0.4	2.4

Course Outcomes:

Semester No:	VII		
Course Title:	Information Security Lab	Course Code:	U23CM7L1
Course Outcome No.	Description		
IS Lab.CO1	Implement classical cryptographic techniques (Caesar, Playfair, Hill, Vigenere, Rail Fence).		
IS Lab.CO2	Implement DES, RSA, Diffie-Hellman, MD5 and SHA-1 algorithms.		
IS Lab.CO3	Demonstrate Digital Signature, GnuPG and secure data transmission/storage.		
IS Lab.CO4	Apply network security tools such as KF Sensor and analyze security in real-world scenarios.		
IS Lab.CO5	Perform security experiments, identify vulnerabilities and recommend appropriate security solutions.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
ISL.CO1	3	2	—	—	2	—	—	—	—	—	—	2	3
ISL.CO2	3	3	2	2	3	—	—	—	—	—	—	2	3
ISL.CO3	3	3	3	2	3	—	—	2	—	—	—	2	3
ISL.CO4	3	3	3	3	3	2	—	2	2	1	—	3	3
ISL.CO5	3	3	3	3	3	2	—	2	2	2	1	3	3
Average	3.0	2.8	2.2	2.0	2.8	0.8	0.0	1.2	0.8	0.6	0.2	2.4	3.0

Course Outcomes:

Semester No:	VII		
Course Title:	Deep Learning: (DL)	Course Code:	U24CM702
Course Outcome No.	Description		
DL.CO1	To understand the fundamentals of deep learning		
DL.CO2	To be able to understand deep learning algorithms and design neural network		
DL.CO3	To be able to train and implement a neural network		
DL.CO4	To be able to have knowledge about convolutional neural networks		
DL.CO5	To be able to apply neural networks in various fields		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DL.CO1	2	2	2	2	3	-	-	-	3	3	-	3	2
DL.CO2	2	2	3	1	3	-	-	-	3	2	-	2	2
DL.CO3	2	2	3	2	3	-	-	-	3	2	-	2	2
DL.CO4	3	2	2	-	3	-	-	-	3	2	-	2	3
DL.CO5	3	3	3	2	-	-	-	-	3	2	-	3	2
Average	2.4	2.2	2.6	1.7	3	-	-	-	3.0	2.0	-	2.4	2.2

Course Outcomes:

Semester No:	VII		
Course Title:	Deep learning Lab: (DL Lab)	Course Code:	U23CM7L2
Course Outcome No.	Description		
DL Lab.CO1	Develop ANN without using Machine Learning/Deep learning libraries.		
DL Lab.CO2	Understand the Training ANN model with back propagation.		
DL Lab.CO3	Develop model for sequence learning using RNN.		
DL Lab.CO4	Develop image classification model using ANN and CNN.		
DL Lab.CO5	Generate a new image with auto-encoder and GAN.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
DL Lab.CO1	3	2	3	2	3	–	–	–	1	–	–	3	3
DL Lab.CO2	3	3	3	3	3	–	–	–	1	–	–	3	3
DL Lab.CO3	3	3	3	3	3	–	–	–	2	–	–	3	3
DL Lab.CO4	3	3	3	3	3	1	–	–	2	1	–	3	3
DL Lab.CO5	3	3	3	3	3	1	–	1	2	1	1	3	3
Average	3.0	2.8	3.0	2.8	3.0	0.4	0.0	0.2	1.6	0.4	0.2	3.0	3.0

Course Outcomes:

Semester No:	VII		
Course Title:	Mobile computing	Course Code:	U23CM704
Course Outcome No.	Description		
MC.CO1	Infer knowledge about mobile communication and its services		
MC.CO2	Identify several communication accessing techniques		
MC CO3	Determine the functionality of MAC, Network layer identifying a routing protocol for given Adhoc Networks		
MC.CO4	Identify database issues using hoarding techniques		
MC.CO5	Solve database issues using hoarding techniques		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
MC.CO1	3	2	3	2	3	–	–	–	1	–	–	3	3
MC.CO2	3	3	3	3	3	–	–	–	1	–	–	3	3
MC CO3	3	3	3	3	3	–	–	–	2	–	–	3	3
MC.CO4	3	3	3	3	3	1	–	–	2	1	–	3	3
MC.CO5	3	3	3	3	3	1	–	1	2	1	1	3	3
Average	3.0	2.8	3.0	2.8	3.0	0.4	0.0	0.2	1.6	0.4	0.2	3.0	3.0

Course Outcomes:

Semester No:	VII		
Course Title:	Privacy and Security in Online Social Media	Course Code:	U23CM709
Course Outcome No.	Description		
PSOSM.CO1	Explain the concepts, architecture, and working principles of Online Social Networks (OSNs) and identify their security challenges.		
PSOSM.CO2	Describe privacy policies, trust models, reputation systems, and common threats such as phishing, identity theft, and fraudulent accounts in online social media.		
PSOSM.CO3	Analyze access control mechanisms, relationship-based access control (ReBAC), and controlled information sharing techniques in online social networks.		
PSOSM.CO4	Apply identity management principles and evaluate digital identity protection techniques to enhance privacy and security in online social networks.		
PSOSM.CO5	Compare and evaluate privacy and security issues in popular social media platforms and recommend appropriate security solutions and best practices.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
PSOSM.CO1	3	2	—	—	2	—	—	—	—	—	—	1	3
PSOSM.CO2	3	3	—	2	2	2	—	3	—	—	—	1	3
PSOSM.CO3	2	3	3	2	3	—	—	2	—	—	—	1	2
PSOSM.CO4	2	2	3	2	3	2	—	3	—	—	—	2	2
PSOSM.CO5	2	3	2	3	2	3	—	3	2	2	—	2	2
Average	2.4	2.6	1.6	1.8	2.4	1.4	0.0	2.2	0.4	1.6	1.8	2.4	1.4

Course Outcomes:

Semester No:	VII		
Course Title:	Management of Startups	Course Code:	U23MB703
Course Outcome No.	Description		
MoS.CO1	Understand Indian Industrial Environment, Entrepreneurship and Economic growth Small and Large Industries, Types and forms of enterprises.		
MoS.CO2	Identify the characteristics of entrepreneurs, Emergence of first generation entrepreneurs, Conception and evaluation of ideas and their sources.		
MoS.CO3	Practice the principles of project formulation, Analysis of market demand, Financial and profitability analysis and Technical analysis.		
MoS.CO4	Understand the concept of Intellectual Property Rights and Patents.		
MoS.CO5	Comprehend the aspects of Start-Ups.		

Course Articulation Matrix:

Mapping of Course Outcomes (CO) with Program Outcomes (PO's) and Program Specific Outcomes (PSO's):

Course Outcomes (CO's)	Program Outcomes (PO)											Program Specific Outcomes (PSO's)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
MoS.CO1	2	2	1	1	2	–	–	–	1	–	–	3	3
MoS.CO2	3	3	2	2	3	–	–	–	1	–	–	3	3
MoS.CO3	3	3	3	3	3	–	–	–	2	–	–	3	3
MoS.CO4	3	3	3	2	3	1	–	–	2	–	–	3	3
MoS.CO5	3	3	3	3	3	1	–	1	2	1	1	3	3
Average	2.8	2.8	2.4	2.2	2.8	0.4	0.0	0.2	1.6	0.2	0.2	3.0	3.0