माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
Deemed to be University
(Declared under Distinct Category by Ministry of Education, Government of India)
NAAC ACCREDITED WITH A++ Grade
Gola Ka Mandir, Gwalior (M.P.)- 474005, INDIA
Ph.:+91-751-2409300, E-mail: director@mitsgwalior.in, Website: www.mitsgwalior.in

Department of Engineering Mathematics and Computing

CO's Attainments

(July- Dec. - 2024)

माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर
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Department of Engineering Mathematics and Computing

Course Outcomes (CO's) for I to VIII Sem

(July- Dec. – 2024 & Jan. – June-2025)

Course & Code	CO's	Course Outcome
Introduction to Computing (25241101)	CO1	Defining core components of computing and linkage between them,
	CO2	Summarizing role of operating system
	CO3	Discuss the role of computing in real world applications
	CO4	Explain Networking aspect of computer engineering and communication,
	CO5	Acquire basic knowledge of database system
Computer Programming (25241102)	CO1	Identify situations where computational methods and computers would be useful.
	CO2	Describe the basic principles of imperative and structural programming.
	CO3	Develop a pseudo-code and flowchart for a given problem.
	CO4	Analyze the problems and choose suitable programming techniques to develop solutions
	CO5	To design, implement, debug and test programs
Advanced Calculus (25241103)	CO1	Determine the solution of function by using one and two variables.
	CO2	Interpret the solution of derivatives concepts using different techniques
	CO3	Acquire the knowledge of integral calculus
	CO4	Obtain the volume and area of surface by using multiple integrals
	CO5	Evaluate the Gamma and Beta Function
Digital Logic Design (25241104)	CO1	Explain different number systems and conversion among them and codes.
	CO2	Simplify the logic expressions using Boolean laws, and map methods and design them by using logic gates.
	CO3	Develop the understanding of combinational circuits and design them.
	CO4	Analyze different types of flip-flops and design a sequential logic circuit.
	CO5	Compare various memories used in computers.
Differential Equations (25241105)	CO1	Determine the analytic solution of ordinary differential equations
	CO2	Interpret the solution of ordinary differential equations with constant and variable coefficients
	CO3	Acquire the knowledge of second and higher order differential equation
	CO4	Formulate the Partial differential equations
	CO5	Evaluate the Partial differential equations of higher order with its application
Obejct oriented Programming & Mythology (25241201)	CO1	Tell the concepts of classes & objects and their significance in real world.
	CO2	Explain the benefits of object oriented design.
	CO3	Build C++ classes using appropriate features of object oriented programming
	CO4	Analyze the utilization of inheritance and polymorphism in the solution of problems.
	CO5	Apply object orient programming concepts for real world problem.
Data Strictures (25241202)	CO1	Describe the basics of algorithms and their performance criteria's
	CO2	Explain the working of linear/Non Linear data structures
	CO3	Detect the appropriate data structure to solve specific problems
	CO4	Analyze the performance of various data structures & their applications
	CO5	Evaluate the time/space complexities of various data structures & their applications
Numerical Techniques (25241203)	CO1	Discuss the concepts of algebraic & transcendental equations
	CO2	Explain the finite difference operators
	CO3	Solve numerical integration and differentiation
	CO4	Find the problems of ordinary differential equation
	CO5	Compute the solution of Partial differential equations
Computer Organization & Architecture (25241204)	CO1	Acquire the knowledge of Computer Architecture
	CO2	Understand the theory and architecture of central process in gun it.
	CO3	Analyze the arithmetic requirements for a problem
	CO4	Learn the concepts of memory organization
	CO5	Acquire in a better way the Input –Output of the system.
ar Al ge br a (2 52 41	CO1	Determine the solution of Matrix

	CO2	Interpret the Group theory and its properties
	CO3	Express the vector space
	CO4	Acquire the knowledge of Linear transformation
	CO4	Illustrate the concept of Inner product spaces
Stochastic Process & Mathematics Fanniace (3250321)	**CO1**	Define and describe market models, growth and decay curve
	CO2	Analyze free risk assets in financial sector
	CO3	Deal with the market risk measurement and management
	CO4	Employ discrete market models and able to manage portfolio.
	CO5	Explore stochastic differential equations
Discrete Mathematical Structure (3250322)	**CO1**	Acquire Knowledge of set theory
	CO2	Analyse the concept of Lattices
	CO3	Identify the concept of Group Theory
	CO4	Derive the Inferences from Graph theory
	CO5	Illustrate the Discrete numeric function and recursive relation
Operating System Concepts (3250323)	**CO1**	Outline the basic concept of operating systems
	CO2	Analyze the working of operating system
	CO3	Examine the working of various scheduling/allocation approaches
	CO4	Measure the performance of various scheduling/allocation approaches
	CO5	Compare the various operating system problems/issues
Data Structure and Algorithm (3250324)	**CO1**	Outline the basics of Algorithms and their performance criteria's.
	CO2	Explain the working of linear/Non Linear data structures.
	CO3	Identify the appropriate data structure to solve specific problems
	CO4	Analyze the performance of various data structures & their applications
	CO5	Evaluate the time/space complexities of various data structures & their applications.
Numerical Technique (3250325)	**CO1**	Identify the concepts Algebraic & Transcendental Equations
	CO2	Acquire the knowledge of finite difference
	CO3	Describe numerical integration and differentiation
	CO4	Illustrate the problems of ordinary differential equation
	CO5	Analyze the Partial differential equations
Transform and Vector Calculus (250401)	**CO1**	Identify the concepts of Fourier series
	CO2	Analyze the Fourier transforms
	CO3	Describe Laplace Transform
	CO4	Illustrate the problems of Z-transform and Difference Equations
	CO5	Evaluate vector calculus
Database Management Systems and SQL (2250402)	**CO1**	Demonstrate the concepts of different type of data base system.
	CO2	Apply Relational algebra concepts to design data base system.
	CO3	Make use of queries to design and access data base system.
	CO4	Analyze the evaluation of transaction processing and concurrency control.
	CO5	Determine the optimize data base for real world applications.
Theory of Computation (2250403)	**CO1**	Explain the basic concepts of switching and finite automat a theory & languages.
	CO2	Relate practical problems to languages, automat a, computability and complexity.
	CO3	Construct abstract models of computing and check their power to recognize the languages.
	CO4	Analyse the grammar, its types, simplification and normal form.
	CO5	Interpret formal mathematical methods to prove properties of languages, grammars and automata.
Design and Analysis of Algorithms (3250404)	**CO1**	Define the basic properties of algorithm.
	CO2	Analyze the complexity of an algorithm.
	CO3	Apply mathematical preliminaries to analyze and design stages of different types of algorithms.
	CO4	Examine algorithms for a number of important computational problems.
	CO5	Comparedifferentdesigntechniquestodevelopalgorithmsforvariouscomputationalproblems.
Number Theory and Cryptography (3250405)	**CO1**	Acquire the knowledge of number theory and transcendental numbers
	CO2	Describethedivisibilityandrelatedalgorithms,factorizationandquadraticsieve,efficiencyofother
	CO3	Factoring algorithms.
	CO4	Evaluate arithmetical functions, Distribution of primes and Diophantine in equations

	CO5	Apply cryptography tools in various applications
Cyber Security (100009)	**CO1**	Discuss the basic terminologies of cyber security
	CO2	Explain the basic concept of networking and internet
	CO3	Apply various methods used to protect data in the internet environment in the real world situations.
	CO4	Discover the concept of IP security and architecture
	CO5	Compare various types of cyber security threats/vulnerabilities
	CO6	Develop the understanding of cybercrime investigation and IT ACT 2000
Indian Constitution and Traditional Knowledge (1000001)	**CO1**	Know the rich Indian traditions and the Indian constitution
	CO2	Appraise the utility and significance of tradition and its applicability in present times
	CO3	Employ the knowledge of the constitutional norms as laid in the constitution and abide by the practices
	CO4	Create a better society and living standards for themselves as well as for others
	CO5	Recognize the basic concepts of ethics and morality pertaining to Indian culture and tradition
Computer Networks (2250521)	**CO1**	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.
	CO2	Acquire the knowledge of network layers.
	CO3	Specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols
	CO4	Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure
	CO5	Know the issues and solution to access shared medium
Real and Complex Analysis (2250522)	**CO1**	Grasp basic concept of real number system and their applications in engineering problems.
	CO2	Analyse various properties of continuity and uniform continuity and compare them.
	CO3	Apply concepts of Riemann Integral to solve engineering problems.
	CO4	Recognize and Analyse the applications of complex valued function in real world engineering problems.
	CO5	Classify various forms of singularities of complex valued functions and their expansion in valid region of convergence.
Software Engineering (2250523)	**CO1**	Explain the various fundamental concepts of software engineering.
	CO2	Develop the concepts related to software design & analysis.
	CO3	Compare the techniques for software project management & estimation
	CO4	Choose the appropriate model for real life software project.
	CO5	Test the software through different approaches.
Data Science using Python (2250524)	**CO1**	Define different Data Science techniques.
	CO2	Apply different TOOL used for Data Science technique.
	CO3	Apply data visualization techniques to solve real world problems.
	CO4	Build exploratory data analysis for Data Science methods.
	CO5	Build Data Science techniques for solving real world problems.
Optimization Techniques (250505)	**CO1**	Determine the solution of Linear Programming Problem
	CO2	Express the solution of Non- Linear Programming Problem
	CO3	Concepts in information theory and communication processes
	CO4	Acquire the knowledge of Game theory
	CO5	Evaluate the different models of Inventory
Disaster Management (1000006)	**CO1**	Identify disaster prevention and mitigation approaches
	CO2	Classify global and national disasters, their trends and profiles
	CO3	Determine the impacts of various disasters
	CO4	Apply Disaster Risk Reduction in management
	CO5	Infer the linkage between disasters, environment and development
Project Management and Financing (1000005)	**CO1**	Discuss the attributes of project and its different phases
	CO2	Develop the project network based on work breakdown structure and estimation of activity durations
	CO3	Analyze the project network and make decide the various alternates
	CO4	Evaluate the optimum cost of project for assigned deadlines
	CO5	Apply techniques to arrange the finances to complete it within stipulated time
Computer Graphics (250601)	**CO1**	Explain interactive Computer Graphics, arious display devices and explore applications of computer graphics.

	CO2	Illustrate various line generations, circle generation, curve generation and shape Generation algorithms.
	CO3	Applyvarious2-Dimensional and3-Dimensional transformations and projections on Images.
	CO4	Classify methods of image clipping and various algorithms for Line and Polygon clipping.
	CO5	Choose appropriate filling algorithms, Hidden Surface Elimination algorithm and apply on various images.
Compiler Design (250602	**CO1**	Define the concepts of finite automata and context free grammar
	CO2	Build the concept of working of compiler
	CO3	Examine various parsing techniques and their comparison.
	CO4	Compare various code generation and code optimization techniques.
	CO5	Analyse different tools and techniques for designing a compiler
Artificial Intelligence & Machine Learning (250603	**CO1**	Define basic concepts of Artificial Intelligence & Machine Learning.
	CO2	Illustrate various techniques for search and processing.
	CO3	Identify various types of machine learning problems and techniques.
	CO4	AnalysisvarioustechniquesinArtificialIntelligence, ANN&MachineLearning.
	CO5	Apply AI and ML techniques to solve real world problems.
Intellectual Property Rights (IPR) (1000007)	**CO1**	Imbibe the knowledge of Intellectual Property and its protection through various laws
	CO2	Apply the knowledge of IPR for professional development
	CO3	Develop a platform for protection and compliance of Intellectual Property Rights & knowledge
	CO4	Create awareness amidst academia and industry of IPR and Copyright compliance
	CO5	Deliver the purpose and function of IPR and patenting.
Engineering Reliability (250731)	**CO1**	Determine the reliability of system
	CO2	Evaluation of measure for system reliability
	CO3	Apply Markov process to carried out system reliability
	CO4	Acquire the knowledge of maintainability and availability of system
	CO5	Describe Software reliability growth model
Distributed Computing (250732)	**CO1**	Tell the basic elements and concepts related to distributed system technologies
	CO2	Demonstrate knowledge of the core architectural aspects of distributed systems
	CO3	Identify how the resources in a distributed system are managed by algorithm
	CO4	Examine the concept of distributed file system and distributed shared memory
	CO5	Compare various distributed system algorithms for solving real world problems
Internship/ Project (250801)	**CO 1**	Formulate the real world problems.
	CO 2	Express the technical ideas, strategies & methodologies.
	CO 3	Utilize the new tools, algorithms, techniques to obtain solution of the project.
	CO 4	Test & validate the developed prototype/results.
	CO 5	Write a project report.
	CO 6	Prepare oral demonstrations.
Professional Development (250802)	**CO 1**	Develop intellectual curiosity, competency and skills
	CO 2	Develop critical thinking, creativity and effective communication
	CO 3	Display professionalism and ownership of professional growth and learning

Dr. J. K. Muthele
(OBE- Coordinator)

Dr.DK Jain
(Prof.and Head)

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Department of Engineering Mathematics & Computing
Co Attainment & Gap Analysis
July- Dec. -2024
(I, III, V & VII Sem.)

Name of Faculty	Course Name & Code	Branch & Code	Course Outcomes	CO Attainment by Direct Assessment Tools					CO Attainment %					CO Attainment	
				Minor 1	Minor 2	Quiz	Assignment	Major	Direct	Indirect	Overall	Target	Gap in Attainment %	Status	Action Taken for Not Attained COs
Dr. Devapanshu Tiwari	Introduction to Computing	MAC-252411101 (A & B)	CO-1	2.60	2.25	2.68	2.46	2.05	2.06	2.52	2.15	2.20	0.05	Not Attained	1. Remedial Classes, 2. Assignment
			CO-2	2.46	2.85	2.17	2.18	2.21	2.47	2.72	2.52	2.20	-0.32	Attained	Archived
			CO-3	2.01	2.60	2.50	2.76	2.08	2.06	2.83	2.21	2.20	-0.01	Attained	Archived
			CO-4	2.53	2.73	2.20	2.97	2.41	2.79	2.60	2.75	2.20	-0.55	Attained	Archived
			CO-5	2.91	2.52	2.62	2.44	2.53	2.19	2.85	2.32	2.20	-0.12	Attained	Archived
Prof. P. Sharma	Computer Programming	MAC-252411102 (A & B)	CO-1	2.32	2.50	2.95	2.21	2.09	2.20	2.64	2.29	2.20	-0.09	Attained	Archived
			CO-2	2.44	2.17	2.99	2.75	2.50	2.18	2.83	2.31	2.20	-0.11	Attained	Archived
			CO-3	2.77	2.99	2.91	2.36	2.90	2.47	2.82	2.54	2.20	-0.34	Attained	Archived
			CO-4	2.58	2.75	2.12	2.89	2.72	2.49	2.12	2.42	2.20	-0.22	Attained	Archived
			CO-5	2.09	2.52	2.25	2.89	2.19	2.61	2.48	2.58	2.20	-0.38	Attained	Archived
Dr. Minakshi	Advanced Calculus	MAC-252411103(A & B)	CO-1	2.89	2.41	2.63	2.49	2.12	2.42	2.24	2.38	2.20	-0.18	Attained	Archived
			CO-2	2.10	2.10	2.36	2.05	2.63	2.92	2.25	2.79	2.20	-0.59	Attained	Archived
			CO-3	2.12	2.69	2.46	2.04	2.17	2.82	2.62	2.78	2.20	-0.58	Attained	Archived
			CO-4	2.75	2.87	2.65	2.54	2.73	2.21	2.77	2.32	2.20	-0.12	Attained	Archived
			CO-5	2.85	2.74	2.09	2.30	2.88	2.01	2.93	2.19	2.20	0.01	Not Attained	1. Remedial Classes, 2. Assignment
Dr. Abhishek Dixit	Digital Logic Design	MAC-252411104(A & B)	CO-1	2.84	2.50	2.91	2.47	2.98	2.75	2.66	2.73	2.20	-0.53	Attained	Archived
			CO-2	2.89	2.97	2.74	2.12	2.40	2.95	2.81	2.92	2.20	-0.72	Attained	Archived
			CO-3	2.55	2.94	2.62	2.08	2.44	2.49	2.55	2.50	2.20	-0.30	Attained	Archived
			CO-4	2.96	2.61	2.19	2.71	2.86	2.30	2.37	2.31	2.20	-0.11	Attained	Archived
			CO-5	2.17	2.87	2.60	2.13	2.04	2.77	2.48	2.71	2.20	-0.51	Attained	Archived
Dr. JK Muthele	Differential Equation	MAC-252411105 (A & B)	CO-1	2.09	2.78	2.74	2.19	2.87	2.89	2.92	2.90	2.20	-0.70	Attained	Archived
			CO-2	2.60	2.19	2.60	2.68	2.43	2.87	2.67	2.83	2.20	-0.63	Attained	Archived
			CO-3	2.79	2.34	2.53	2.79	2.26	2.74	2.87	2.77	2.20	-0.57	Attained	Archived

			CO-4	2.16	2.22	2.49	2.16	2.30	2.68	2.79	2.70	2.20	-0.50	Attained	Archived
			CO-5	2.14	2.21	2.60	2.86	2.16	2.52	2.46	2.51	2.20	-0.31	Attained	Archived
Dr. A. K. Ray	Stochastics Process & Mathematics fanniace	3250321	CO-1	2.10	2.44	2.37	2.56	2.54	2.74	2.61	2.71	2.20	-0.51	Attained	Archived
			CO-2	2.70	2.31	2.87	2.20	2.48	2.18	2.18	2.18	2.20	0.02	Not Attained	1. Remedial Classes, 2. Assignment
			CO-3	2.13	2.71	2.28	2.52	2.76	2.27	2.26	2.27	2.20	-0.07	Attained	Archived
			CO-4	2.58	2.60	2.36	2.76	2.07	2.98	2.46	2.88	2.20	-0.68	Attained	Archived
			CO-5	2.38	2.80	2.42	2.67	2.52	2.81	2.44	2.74	2.20	-0.54	Attained	Archived
Dr. D. K. Jain	Discrete Mathematical Structure	3250322	CO-1	2.62	2.58	2.56	2.29	2.79	2.06	2.81	2.21	2.20	-0.01	Attained	Archived
			CO-2	2.34	2.05	2.65	2.23	2.77	2.44	2.14	2.38	2.20	-0.18	Attained	Archived
			CO-3	2.19	2.75	2.20	2.46	2.21	2.64	2.41	2.59	2.20	-0.39	Attained	Archived
			CO-4	2.49	2.53	2.18	2.80	2.03	2.67	2.13	2.56	2.20	-0.36	Attained	Archived
			CO-5	2.46	2.80	2.21	2.20	2.66	2.17	2.23	2.18	2.20	0.02	Not Attained	1. Remedial Classes, 2. Assignment
Prof. Manali Singh	Operating System Concepts	3250323	CO-1	2.07	2.76	2.66	2.45	2.69	2.10	2.47	2.17	2.20	0.03	Not Attained	1. Remedial Classes, 2. Assignment
			CO-2	2.79	2.62	2.89	2.39	2.58	2.70	2.50	2.66	2.20	-0.46	Attained	Archived
			CO-3	2.38	2.12	2.11	2.06	2.52	2.90	2.60	2.84	2.20	-0.64	Attained	Archived
			CO-4	2.05	2.63	2.23	2.39	2.75	2.47	2.56	2.49	2.20	-0.29	Attained	Archived
			CO-5	2.91	2.18	2.43	2.43	2.15	2.22	2.54	2.28	2.20	-0.08	Attained	Archived
Prof. P. Sharma	Data Structure and Algorithm	3250224	CO-1	2.39	2.35	2.71	2.87	2.46	2.91	2.90	2.91	2.20	-0.71	Attained	Archived
			CO-2	2.65	2.06	2.56	2.15	2.33	2.67	2.36	2.61	2.20	-0.41	Attained	Archived
			CO-3	2.10	2.89	2.87	2.24	2.78	2.99	2.33	2.86	2.20	-0.66	Attained	Archived
			CO-4	2.33	2.29	2.15	2.65	2.15	2.53	2.72	2.57	2.20	-0.37	Attained	Archived
			CO-5	2.62	2.19	2.09	2.28	2.26	2.29	2.41	2.31	2.20	-0.11	Attained	Archived
Dr. J. K. Muthele	Numerical Technique	3250325	CO-1	2.28	2.32	2.49	2.49	2.06	2.26	2.85	2.38	2.20	-0.18	Attained	Archived
			CO-2	2.79	2.78	2.24	2.02	2.95	2.98	2.29	2.84	2.20	-0.64	Attained	Archived
			CO-3	2.83	2.33	2.17	2.79	2.40	2.58	2.18	2.50	2.20	-0.30	Attained	Archived
			CO-4	2.31	2.19	2.98	2.71	2.09	2.28	2.71	2.37	2.20	-0.17	Attained	Archived
			CO-5	2.15	2.16	2.24	2.23	2.28	2.02	2.49	2.11	2.20	0.09	Not Attained	1. Remedial Classes, 2. Assignment
Prof. Utkarsh Sharma	Computer Networks	2250521	CO-1	2.49	2.96	2.26	2.29	2.66	2.65	2.81	2.68	2.20	-0.48	Attained	Archived
			CO-2	2.73	2.91	2.29	2.75	2.12	2.00	2.11	2.02	2.20	0.18	Not Attained	1. Remedial Classes,

															2. Assignment
			CO-3	2.95	2.24	2.07	2.89	2.24	2.72	2.70	2.72	2.20	-0.52	Attained	Archived
			CO-4	2.32	2.88	2.54	2.46	2.15	2.02	2.15	2.05	2.20	0.15	Not Attained	1. Remedial Classes, 2. Assignment
			CO-5	2.07	2.76	2.09	2.14	2.29	2.88	2.19	2.74	2.20	-0.54	Attained	Archived
Dr. Divya Charturvedi	Real and Complex Analysis	2250522	CO-1	2.83	2.68	2.18	2.98	2.54	2.19	2.97	2.35	2.20	-0.15	Attained	Archived
			CO-2	2.75	2.88	2.25	2.86	2.61	2.53	2.63	2.55	2.20	-0.35	Attained	Archived
			CO-3	2.05	2.50	2.06	2.62	2.31	2.85	2.88	2.86	2.20	-0.66	Attained	Archived
			CO-4	2.33	2.49	2.42	2.66	2.74	2.54	2.45	2.52	2.20	-0.32	Attained	Archived
			CO-5	2.02	2.02	2.86	2.65	2.07	2.22	2.35	2.25	2.20	-0.05	Attained	Archived
Dr. Saumil Maheshwari	Software Engineering	2250523	CO-1	2.64	2.76	2.77	2.27	2.64	2.33	2.82	2.43	2.20	-0.23	Attained	Archived
			CO-2	2.73	2.10	2.24	2.06	2.62	2.58	2.64	2.59	2.20	-0.39	Attained	Archived
			CO-3	2.07	2.75	2.08	2.67	2.88	2.44	2.57	2.47	2.20	-0.27	Attained	Archived
			CO-4	2.91	2.83	2.18	2.25	2.23	2.93	2.40	2.82	2.20	-0.62	Attained	Archived
			CO-5	2.81	2.91	2.00	2.63	2.06	2.40	2.42	2.40	2.20	-0.20	Attained	Archived
Prof. Manali Singh	Data Science using Python	2250524	CO-1	2.23	2.60	2.97	2.83	2.54	2.51	2.94	2.60	2.20	-0.40	Attained	Archived
			CO-2	2.20	2.12	2.31	2.32	2.82	2.37	2.68	2.43	2.20	-0.23	Attained	Archived
			CO-3	2.05	2.52	2.56	2.38	2.36	2.13	2.72	2.25	2.20	-0.05	Attained	Archived
			CO-4	2.60	2.00	2.92	2.19	2.64	2.86	2.50	2.79	2.20	-0.59	Attained	Archived
			CO-5	2.21	2.88	2.69	2.07	2.88	2.67	2.21	2.58	2.20	-0.38	Attained	Archived
Dr. V.P. Shinde	Optimization Techniques	2250525	CO-1	2.07	2.72	2.39	2.07	2.44	2.77	2.58	2.73	2.20	-0.53	Attained	Archived
			CO-2	2.04	2.57	2.79	2.53	2.83	2.15	2.22	2.16	2.20	0.04	Not Attained	1. Remedial Classes, 2. Assignment
			CO-3	2.13	2.43	2.10	2.85	2.21	2.79	2.16	2.66	2.20	-0.46	Attained	Archived
			CO-4	2.30	2.45	2.69	2.48	2.43	2.66	2.09	2.55	2.20	-0.35	Attained	Archived
			CO-5	2.16	2.95	2.21	2.02	2.65	2.30	2.44	2.33	2.20	-0.13	Attained	Archived
Dr. V.P. Shinde	Engineering Reliability	250731	CO-1	2.12	2.75	2.62	2.84	2.39	2.95	2.74	2.91	2.20	-0.71	Attained	Archived
			CO-2	2.94	2.94	2.91	2.82	2.74	2.72	2.79	2.73	2.20	-0.53	Attained	Archived
			CO-3	2.88	2.53	2.88	2.25	2.89	2.29	2.93	2.42	2.20	-0.22	Attained	Archived
			CO-4	2.50	2.63	2.88	2.85	2.27	2.97	2.91	2.96	2.20	-0.76	Attained	Archived
			CO-5	2.47	2.05	2.58	2.09	2.30	2.35	2.79	2.44	2.20	-0.24	Attained	Archived
Prof. Utkarsh Sharma	Distributed Computing	250732	CO-1	2.79	2.90	2.86	2.32	2.32	2.61	2.79	2.65	2.20	-0.45	Attained	Archived
			CO-2	2.65	2.21	2.46	2.49	2.38	2.43	2.94	2.53	2.20	-0.33	Attained	Archived
			CO-3	2.97	2.24	2.36	2.17	2.89	2.78	2.07	2.64	2.20	-0.44	Attained	Archived

			CO-4	2.90	2.26	2.07	2.55	2.98	2.22	2.55	2.29	2.20	**-0.09**	Attained	Archived
			CO-5	2.95	2.39	2.14	2.07	2.98	2.76	2.48	2.70	2.20	**-0.50**	Attained	Archived

Dr. J. K. Muthele
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Department of Engineering Mathematics & Computing

Co Attainment & Gap Analysis

Jan. – June- 2025

(II, IV, VI & VIII Sem.)

Name of faculty	Subject & Code	CO's	CO Attainment by Direct Assessment Tools					Direct CO Attainment	Indirect CO Attainment	Total CO Attainment	Target	Gap	Action Taken for Not Attained COs
			Minor 1	Minor 2	Quiz	Assignment	Major						
Dr. Devanshu Tiwari	Object Oriented Programming & Methodology & (25241201)	CO1	2.10		2.39	2.78	2.31	2.40	2.71	2.46	2.3	-	
		CO2	2.91		2.29	2.56	2.54	2.58	2.06	2.47	2.3	-	
		CO3		2.18	2.13	2.73	2.65	2.42	2.93	2.52	2.3	-	
		CO4		2.72	2.25	2.45	2.67	2.52	2.06	2.43	2.3	-	
		CO5			2.45	2.44	2.74	2.54	2.86	2.61	2.3	-	
Dr. Monica Chauhan Bhadoriya	Data Structures (25241202)	CO1	2.94		2.10	2.58	2.57	2.55	2.55	2.55	2.3	-	
		CO2	2.32		2.39	2.65	2.95	2.58	2.86	2.63	2.3	-	
		CO3		2.87	2.76	2.99	2.73	2.84	2.20	2.71	2.3	-	
		CO4		2.53	2.10	2.04	2.81	2.37	2.55	2.41	2.3	-	
		CO5			2.83	2.34	2.72	2.63	2.60	2.62	2.3	-	
Dr. JK Muthele	Numerical Techniques (25241203)	CO1	2.27		2.15	2.59	2.06	2.27	2.22	2.26	2.3	0.04	1. Remedial Classes, 2. Assignment
		CO2	2.89		2.24	2.34	2.84	2.58	2.89	2.64	2.3	-	
		CO3		2.63	2.52	2.50	2.58	2.56	2.28	2.50	2.3	-	
		CO4		2.18	2.63	2.88	2.77	2.62	2.87	2.67	2.3	-	
		CO5			2.33	2.78	2.39	2.50	2.34	2.47	2.3	-	
Dr. Charu Goyal	Computer Organization & Architecture (25241204)	CO1	2.17		2.42	2.22	2.00	2.20	2.33	2.23	2.3	0.07	1. Remedial Classes, 2. Assignment
		CO2	2.02		2.98	2.58	2.81	2.60	2.57	2.59	2.3	-	
		CO3		2.55	2.07	2.51	2.31	2.36	2.74	2.44	2.3	-	
		CO4		2.13	2.26	2.84	2.85	2.52	2.98	2.61	2.3	-	
		CO5			2.17	2.87	2.88	2.64	2.00	2.51	2.3	-	
Vyacha	Algebra (25241)	CO1	2.32		2.40	2.93	2.70	2.59	2.67	2.60	2.3	-	

		CO2	2.26		2.51	2.74	2.38	2.47	2.30	2.44	2.3	-	
		CO3		2.75	2.63	2.29	2.05	2.43	2.55	2.45	2.3	-	
		CO4		2.72	2.68	2.46	2.58	2.61	2.57	2.60	2.3	-	
		CO5			2.21	2.23	2.96	2.47	2.46	2.47	2.3	-	
Dr. D. K. Jain	Transform and Vector Calculus (3250401)	CO1	2.88		2.73	2.59	2.42	2.66	2.67	2.66	2.3	-	
		CO2	2.46		2.26	2.00	2.94	2.42	2.51	2.43	2.3	-	
		CO3		2.25	2.60	2.61	2.67	2.53	2.99	2.62	2.3	-	
		CO4		2.21	2.22	2.61	2.64	2.42	2.96	2.53	2.3	-	
		CO5			2.24	2.14	2.26	2.21	2.65	2.30	2.3	-	
Prof. P. Sharma	Database Management Systems and SQL(3250402)	CO1	2.69		2.56	2.02	2.76	2.51	2.07	2.42	2.3	-	
		CO2	2.71		2.81	2.21	2.08	2.45	2.87	2.54	2.3	-	
		CO3		2.44	2.05	2.80	2.63	2.48	2.78	2.54	2.3	-	
		CO4		2.99	2.50	2.43	2.69	2.65	2.87	2.70	2.3	-	
		CO5			2.90	2.55	2.82	2.76	2.34	2.67	2.3	-	
Dr. Abhishek Dixit	Theory of Computation (3250403)	CO1	2.73		2.71	2.76	2.99	2.80	2.92	2.82	2.3	-	
		CO2	2.46		2.21	2.73	2.72	2.53	2.81	2.59	2.3	-	
		CO3		2.19	2.83	2.45	2.76	2.56	2.27	2.50	2.3	-	
		CO4		2.55	2.60	2.49	2.52	2.54	2.26	2.48	2.3	-	
		CO5			2.77	2.41	2.83	2.67	2.72	2.68	2.3	-	
Prof. Utkarsh Sharma	Design and Analysis of Algorithms (3250404)	CO1	2.76		2.15	2.68	2.39	2.50	2.39	2.47	2.3	-	
		CO2	2.36		2.27	2.11	2.99	2.43	2.18	2.38	2.3	-	
		CO3		2.10	2.20	2.09	2.28	2.17	2.40	2.21	2.3	0.09	1. Remedial Classes, 2. Assignment
		CO4		2.91	2.34	2.12	2.77	2.54	2.28	2.48	2.3	-	
		CO5			2.33	2.81	2.30	2.48	2.31	2.45	2.3	-	
Dr. A. K.Ray	Number Theory and Cryptography (3250405)	CO1	2.03		2.25	2.73	2.28	2.32	2.83	2.42	2.3	-	
		CO2	2.67		2.31	2.85	2.04	2.47	2.03	2.38	2.3	-	
		CO3		2.79	2.46	2.20	2.50	2.49	2.75	2.54	2.3	-	
		CO4		2.37	2.46	2.76	2.27	2.47	2.00	2.37	2.3	-	
		CO5			2.47	2.13	2.71	2.44	2.14	2.38	2.3	-	
Dr. Charu Goyal	Computer Graphics (2250601)	CO1	2.43		2.30	2.13	2.57	2.36	2.85	2.46	2.3	-	
		CO2	2.25		2.39	2.46	2.02	2.28	2.92	2.41	2.3	-	
		CO3		2.12	2.19	2.92	2.98	2.55	2.38	2.52	2.3	-	
		CO4		2.15	2.56	2.67	2.10	2.37	2.85	2.47	2.3	-	

		CO5			2.80	2.45	2.28	2.51	2.59	2.53	2.3	-	
Prof. Manali Singh	Compiler Design (2250602)	CO1	2.72		2.52	2.35	2.66	2.56	2.18	2.49	2.3	-	
		CO2	2.87		2.91	2.31	2.67	2.69	2.00	2.55	2.3	-	
		CO3		2.51	2.94	2.18	2.74	2.59	2.17	2.51	2.3	-	
		CO4		2.25	2.55	2.30	2.89	2.50	2.50	2.50	2.3	-	
		CO5			2.18	2.00	2.37	2.18	2.74	2.29	2.3	0.01	1. Remedial Classes, 2. Assignment
Prof. Utkarsh Sharma	Artificial Intelligence & Machine Learning (2250603)	CO1	2.74		2.88	2.06	2.41	2.52	2.34	2.49	2.3	-	
		CO2	2.01		2.26	2.72	2.79	2.45	2.89	2.53	2.3	-	
		CO3		2.68	2.74	2.99	2.96	2.84	2.36	2.75	2.3	-	
		CO4		2.18	2.94	2.19	2.65	2.49	2.83	2.56	2.3	-	
		CO5			2.50	2.67	2.90	2.69	2.58	2.67	2.3	-	

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Department of Engineering Mathematics & Computing

Action Taken Report Based on Course Outcomes (CO's)

July- Dec. -2024(I,III, V, & VII- Sem.)

- More assignment & tutorial classes should be conducted
- To support the CO, more numerical questions should be solved in tutorial classes
- Animations and videos are planned to demonstrate clear understanding
- If necessary, additional classes to be conducted
- More questions through assignments
- Provide various numerical problems through tutorial sheet
- Extra time will be given on this topic
- Variety of assignments and MCQs
- More interaction with the students

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