

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

Department of Engineering Mathematics and Computing

CO's Attainments (Jan. – June 2023)

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

Subject & Code	CO's	Description of CO's
Computer Organization and Logic Design & 250221	CO1	Understand the theory and architecture of central processing unit.
	CO2	Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation
	CO3	Use appropriate tools to design verify and test the CPU architecture.
	CO4	Learn the concepts of parallel processing, pipelining and inter processor communication.
	CO5	Exemplify in a better way the I/O and memory organization
Differential Equations & 250222	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
Object Oriented Methodology and Programming with C++ & 250223	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.
Linear Algebra & 250224	CO1	Determine the solution of Matrix
	CO2	Find the analytical solution of algebraic structures'
	CO3	Express the vector space
	CO4	Acquire the knowledge of Linear transformation
	CO5	Illustrate the concept of Inner product spaces
Simulation Modeling and Analysis & 250225	CO1	Acquire the knowledge Simulation
	CO2	Analyze the discrete and continuous Simulation Models
	CO3	Evaluate the hypothetical parameters
	CO4	Interpret the model building
	CO5	Determine the input output of system simulation
Transform and Vector Calculus & 250401	CO1	Apply Fourier series and Fourier transform to complex mathematical problems
	CO2	Analyse differential equations using Laplace transform
	CO3	Illustrate the problems of Z- transform & difference equations

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

	CO4	Deconstruct computational problems using wavelet analysis.
	CO5	Apply vector calculus to determine solutions of complex problem
Database Management Systems and SQL & 250402	CO1	Describe the DBMS approach.
	CO2	Apply Relational algebra concepts to design database system.
	CO3	Explain functional dependencies and normalization techniques
	CO4	Evaluate the methods of transaction, concurrency and recovery.
	CO5	Apply DBMS techniques to solve real time problem.
Theory of Computation & 250403	CO1	Identify problems related to languages, automata, computability and complexity.
	CO2	Explain the basic concepts of finite automata theory & languages.
	CO3	Analyse the grammar, its types, simplification and normal form.
	CO4	Recognize the concept of Push down automata
	CO5	Construct abstract models of computing and check their power to recognize the languages.
Design and Analysis of Algorithms & 250404	CO1	Identify 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	Evaluate algorithms for a number of important computational problems.
	CO5	Compare design techniques for algorithm development.
Number Theory and Cryptography & 250405	CO1	Outline the properties of number theory and transcendental numbers
	CO2	Describe the divisibility and related algorithms, factorization and quadratic sieve, efficiency of other factoring algorithms.
	CO3	Determine arithmetical functions, Distribution of primes and Diophantine equations
	CO4	Recognize basics of cryptography techniques
	CO5	Evaluate the Public key cryptosystems
Computer Graphics & 250601	CO1	Explain interactive Computer Graphics, various display devices and explore applications of computer graphics.
	CO2	Illustrate various line generations, circle generation, curve generation and shape Generation algorithms.
	CO3	Apply various 2-Dimensional and 3-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.
	CO6	Discuss various color models, shading methods, animation and Digital Image Processing.

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

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 (AI & ML) & 250604	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	Analysis various techniques in Artificial Intelligence, ANN & Machine Learning.
	CO5	Apply AI and ML techniques to solve real world problems.
	CO6:	Build AI enabled intelligent systems for solving real world problems.



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



Dr. Vikas Shinde
(Professor and Head)

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

Department of Engineering Mathematics & Computing

Co Attainment & Gap Analysis

Jan. – June- 2023

Name of Faculty	Course Name & Code	Course Outcomes	CO Attainment %			CO Attainment %					Result		CO Attainment	
			I- Mid Term	II- Mid Term	End Sem Exam	Direct	InDirect	Overall	Target	Gap in Attainment %	Registered Students	PASS	Status	Action Taken
Prof. Vivek Shejwar	Computer Architecture & Organization (250221)	CO-1	61.25		91.38	76.32	84.00	77.85	70.00	-7.85			Attained	
		CO-2	61.92		90.22	76.07	73.00	75.45	70.00	-5.45			Attained	
		CO-3		74.86	77.84	76.35	74.00	75.88	70.00	-5.88			Attained	
		CO-4		70.83	74.22	72.53	65.00	71.02	70.00	-1.02			Attained	
		CO-5		77.22	86.71	81.97	62.00	77.97	70.00	-7.97			Attained	
Dr. Vikas Shinde	Differential Equations (250222)	CO-1	61.33		91.38	76.36	61.00	73.29	65.00	-8.29			Attained	
		CO-2	60.08		90.22	75.15	59.00	71.92	65.00	-6.92			Attained	
		CO-3		59.79	77.84	68.82	57.00	66.45	65.00	-1.45			Attained	
		CO-4		62.92	74.22	68.57	63.00	67.45	65.00	-2.45			Attained	
		CO-5		64.38	86.71	75.54	60.00	72.43	65.00	-7.43			Attained	
Prof. P. Sharma	Object Oriented Methodology and Programming with C++ (250223)	CO-1	63.03		91.38	77.20	70.00	75.76	70.00	-5.76			Attained	
		CO-2	75.00		90.22	82.61	65.00	79.09	70.00	-9.09			Attained	
		CO-3		69.10	77.84	73.47	60.00	70.78	70.00	-0.78			Attained	
		CO-4		62.50	74.22	68.36	64.00	67.49	70.00	2.51			Not Attained	Doubt Clearing Session to be arranged in Extra Hours To Organize the Remedial Classes, .Give Assignments
		CO-5		61.18	86.71	73.94	65.00	72.16	70.00	-2.16			Attained	

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

NAAC Accredited with A++ Grade

Dr. Diyya Chaturvedi	Linear Algebra (250224)	CO-1	73.06		91.38	82.22	69.00	79.57	65.00	-14.57			Attained	
		CO-2	66.72		90.22	78.47	67.00	76.18	65.00	-11.18			Attained	
		CO-3		52.38	77.84	65.11	57.00	63.49	65.00	1.51			Not Attained	Doubt Clearing Session to be arranged in Extra Hours To Organize the Remedial Classes, Give Assignments
		CO-4		65.69	74.22	69.96	66.00	69.17	65.00	-4.17			Attained	
		CO-5		62.70	86.71	74.70	64.00	72.56	65.00	-7.56			Attained	
Dr. A. K. Ray	Simulation Modeling and Analysis (250225)	CO-1	67.06		91.38	79.22	62.00	75.77	60.00	-15.77			Attained	
		CO-2	55.31		90.22	72.76	65.00	71.21	60.00	-11.21			Attained	
		CO-3		51.39	77.84	64.62	55.00	62.69	60.00	-2.69			Attained	
		CO-4		71.94	74.22	73.08	60.00	70.47	60.00	-10.47			Attained	
		CO-5		79.86	86.71	83.28	61.00	78.83	60.00	-18.83			Attained	
Dr. D.K. Jain	Transform and Vector Calculus (250401)	CO-1	71.00		84.76	77.88	84.76	79.26	60.00	-19.26			Attained	
		CO-2	63.59		92.06	77.83	92.06	80.67	60.00	-20.67			Attained	
		CO-3		68.40	75.90	72.15	75.90	72.90	60.00	-12.90			Attained	
		CO-4		63.82	70.83	67.32	70.83	68.02	60.00	-8.02			Attained	
		CO-5		66.39	83.37	74.88	83.37	76.58	60.00	-16.58			Attained	
Prof. P. Sharma	Data Base and Management System & SQL (250402)	CO-1	72.53		91.38	81.95	76.00	80.76	60.00	-20.76			Attained	
		CO-2	74.00		90.22	82.11	74.00	80.49	60.00	-20.49			Attained	
		CO-3		76.67	77.84	77.26	69.00	75.60	60.00	-15.60			Attained	
		CO-4		71.43	74.22	72.82	68.00	71.86	60.00	-11.86			Attained	
		CO-5		75.00	86.71	80.85	61.00	76.88	60.00	-16.88			Attained	
Prof. Vivek Sharma	Theory of Computation (250403)	CO-1	49.22		91.38	70.30	70.00	70.24	60.00	-10.24			Attained	
		CO-2	54.00		90.22	72.11	71.00	71.89	60.00	-11.89			Attained	
		CO-3		77.93	77.84	77.89	59.00	74.11	60.00	-14.11			Attained	
		CO-4		83.19	74.22	78.71	59.00	74.77	60.00	-14.77			Attained	
		CO-5		71.67	86.71	79.19	64.00	76.15	60.00	-16.15			Attained	
Dr. Ashish Soni	Design & Analysis of Algorithm (250404)	CO-1	69.44		91.38	80.41	59.00	76.13	60.00	-16.13			Attained	
		CO-2	68.44		90.22	79.33	60.00	75.46	60.00	-15.46			Attained	
		CO-3		65.63	77.84	71.73	61.00	69.59	60.00	-9.59			Attained	

Department of Engineering Mathematics & Computing

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

(MAC- II, VI & VI Sem.)

Jan. – June- 2023

- 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
- More tutorials including algebra application to signals
- More tutorial including conceptual numerical problems through tutorial sheet should be given.
- Practical exposer through industrial visit, problem solving should be included to creating interest
- More numerical and tutorials are planned in the class
- Numerical on Circuit design problems and limitation
- Provide more numerical problems and assignments to the students
- Extra time will be given on this topic
- Variety of assignments and MCQs
- Animated video lectures may be demonstrated
- More interaction with the students



Dr. Vikas Shinde
(Professor and Head)