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 Year 2020-2024

PO ATTAINMENT

S.No.	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
1	250101: Introduction to Computing	2.17	2.17	2.19	2.20	2.17		2.13					2.25	2.17	2.17
2	25010: Introduction to Computer Programming	2.53	2.53	2.53						2.50				2.53	
3	250104: Elements of Calculus	2.47	2.61	2.31	2.42	2.39	2.56		2.48	2.37	2.47	2.48	2.68	2.57	2.80
4	250103: Statistical Techniques	2.79	2.79	2.79	2.79		2.79	2.79	2.79	2.79	2.79				2.79
5	100015: Energy, Environment, Ecology & Society.	2.83	2.83	2.83	2.83	2.83	2.77	2.87	2.83	2.83	2.83		2.83	2.81	2.81
6	250201: Computer Organization and Logic Design	2.84	2.82	2.82	2.80		2.80	2.80	2.80	2.80	2.80				2.80
7	250202: Differential Equations	2.17	2.17	2.17	2.17		2.17			2.18				2.17	
8	250203: Linear Algebra							2.81	2.81	2.81	2.81	2.81	2.81		2.81
9	250301: Simulation Modelling and Analysis	2.71	2.71	2.72	2.71	2.64	2.75	2.66	2.73	2.75	2.73	2.75	2.64	2.66	2.73
10	250302: Discrete Mathematical Structures				2.65			2.81	2.61	2.61	2.61	2.65		2.60	
11	250303: Operating System Concepts	2.34	2.40	2.40										2.30	
12	250305: Numerical Techniques						2.82	2.82	2.82					2.82	
13	200XXX: Novel Engaging Courses	2.45	2.45	2.45	2.44	2.46	2.78	2.45	2.45	2.45	2.65		2.68	2.68	2.75
14	250308: Summer Internship Project-I (Institute level evaluation)	1.91	1.91	1.91	1.92	1.91	1.72	1.68	1.93	1.74	1.91	1.45	1.87	1.91	1.73
15	250401: Transform and Vector Calculus	2.12	2.01	2.00	2.17	2.12	2.01	2.13	2.09	2.13	1.92		2.09	2.30	2.30
16	250402: Data Base and Management System & SQL	2.83			2.83	2.83								2.83	
17	250403: Theory of Computation	1.84	1.83	1.72	1.84	1.62	1.90	1.99	2.20		1.82		1.82	1.62	1.63
18	250404: Design & Analysis of Algorithm	2.46	2.46	2.46	2.46	2.46								2.46	2.46
19	250405: Number Theory and Cryptography	1.98	1.98	1.98	1.98	1.98	1.96	1.98		1.98	1.98	1.98	1.98	1.98	1.98
20	200XXX: Novel Engaging Courses	2.72	2.76	2.72	2.74	2.72	2.72	2.71		2.66	2.68	2.79	2.73		2.72
21	100001: Indian Constitution and Traditional Knowledge	2.67	2.73	2.70	2.56			2.68	2.73			2.69		2.72	
22	250501: Computer Networks				2.14		2.56		2.26	2.39	1.36	2.06		1.77	1.91
23	250502: Real and Complex analysis	2.51	2.51	2.51					2.19	2.19	2.19	2.19		2.19	2.19
24	250503: Software Engineering	2.65	2.65	2.65					2.69	2.69	2.69	2.69		2.69	2.69
25	250504: Optimization Techniques	2.27	2.27	2.27					2.11	2.11	2.11	2.11		2.11	2.11
26	OC-1 Advanced Numerical Techniques	1.74	1.39	2.22		0.63	0.89	2.22		0.89	1.59	2.22	0.63		
27	OC-1 Transform Calculus	1.80	2.53			1.43	2.53			2.39	2.39			2.39	2.39
28	OC-1 Computational Fluid Dynamics	2.24	2.27	2.22	2.19	2.23	2.30	2.23		2.25	2.24	2.22	2.23		

29	**250605: Block Chain and its applications**	2.09	2.09		2.09	2.09	2.09			2.09	2.09		2.09	2.09	2.09
30	**250606: Cloud Computing**	2.03	2.03	2.07	1.96	2.17	1.88						1.96	2.03	2.03
31	**250607: GPU Architectures and Programming**	2.79	2.80	2.77	2.79	2.79	2.80	2.79		2.79	2.79	2.79	2.79	2.76	2.79
32	**250601: Computer Graphics**	2.86	2.86	2.86	2.86				2.86	2.86	2.86	2.86	2.86	2.86	2.86
33	**250602: Compiler Design**	2.88	2.88	2.88	2.88	2.88				2.88	2.88	2.88	2.88	2.88	2.88
34	**250603: Artificial Intelligence & Machine Learning (AI & ML)**	2.29	2.29	2.33	2.38	2.40	2.36	2.45	2.33	2.48	2.38	2.54	2.39	2.32	2.33
35	**910213: Advanced Discrete Mathematics**	5.56	8.34		2.78	5.56	5.56	8.34		5.56	5.56	8.34	5.56		5.56
36	**910214: Optimization Techniques**	5.76	5.76	5.76	5.76				8.64	8.64	8.64	8.64	5.76	8.64	8.64
37	**250731: Engineering Reliability**	2.88	2.88	2.88	2.88	2.88				2.88	2.88	2.88	2.88	2.88	2.88
38	**250732: Distributed Computing**								2.48	2.48	2.48	2.48	2.25		2.48

	INDIRECT PO ATTAINMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
Survey 1	**(Exit Survey)**	1.84	1.87	1.79	1.88	1.85	1.87	1.92	1.98	1.93	2.01	1.95	1.94	1.89	1.91
Survey 2	**(Alumni Survey)**	2.10	2.10	2.06	2.14	2.01	2.08	2.06	2.12	2.14	2.19	2.26	2.23	2.15	2.10
Survey 3	**(Employer Survey)**	1.84	1.93	1.90	1.74	1.61	1.66	1.87	1.89	1.82	1.90	1.68	1.31	1.66	1.58
	Indirect PO Attainment	1.93	1.97	1.92	1.92	1.82	1.87	1.95	2.00	1.97	2.03	1.96	1.83	1.90	1.86

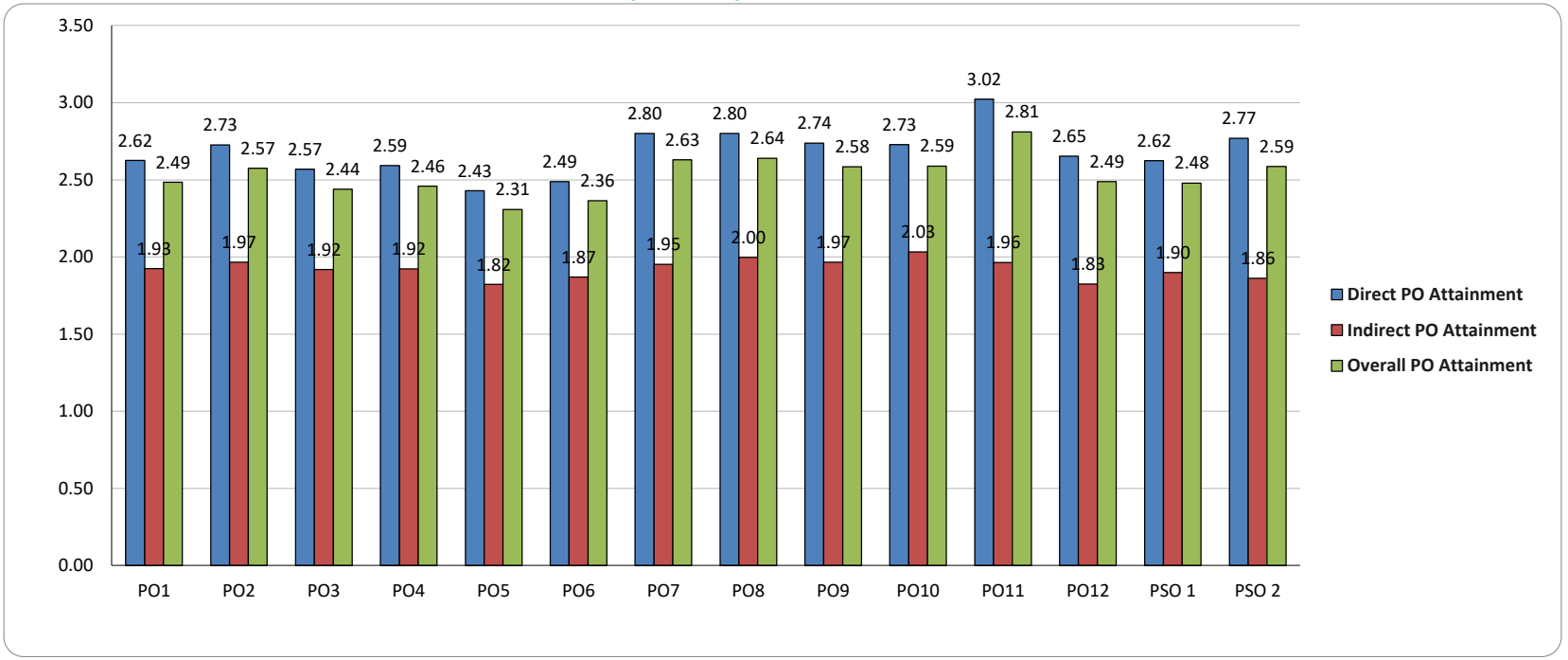
Department : Department of Engineering Mathematics and Computing **Year** **2020-2024**

PO ATTAINMENT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
Direct PO Attainment	2.62	2.73	2.57	2.59	2.43	2.49	2.80	2.80	2.74	2.73	3.02	2.65	2.62	2.77
Indirect PO Attainment	1.93	1.97	1.92	1.92	1.82	1.87	1.95	2.00	1.97	2.03	1.96	1.83	1.90	1.86
Overall PO Attainment	2.49	2.57	2.44	2.46	2.31	2.36	2.63	2.64	2.58	2.59	2.81	2.49	2.48	2.59

Deparment of Engineering Mathematics and Computing

Session - 2020-2024

Graphical Representaion of OP Attainment (2020-2024)



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Department of Engineering Mathematics and Computing

Assessment & Action Taken Report of Overall Program Outcomes (Session -2020-2024)

PO's	Description	Direct PO Attainment	Indirect PO Attainment	Overall PO Attainment	Target	Gap	Status of PO Attainment	Action Taken Report
PO1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of real world problems.	2.62	1.93	2.49	2.3	-0.19	Attained	Highlighted the significance of foundational sciences in the Information Technology field through virtual tours of domain-specific labs.
PO2	Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	2.73	1.97	2.57	2.3	-0.27	Attained	Importance of conducting a literature survey was underscored for the students. Hackathon events are conducted, where the students are exposed to latest technologies.
PO3	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	2.57	1.92	2.44	2.3	-0.14	Attained	Students are motivated to develop mini-projects focusing on real world problems. Organized Expert Lectures from leading R & D organizations.
PO4	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.	2.59	1.92	2.46	2.3	-0.16	Attained	Leveraging the Industry Institute labs, students were shown practical solutions to engineering problems. Additionally, students were tasked with self-study projects, break down in various levels.
PO5	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 understanding of the limitations.	2.43	1.82	2.31	2.3	-0.01	Attained	Students are exposed to different open source software during their lab sessions and students do projects using modern tools like Android programming, Internet of things in design & Thinking lab sessions.
PO6	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.	2.49	1.87	2.36	2.3	-0.06	Attained	Students are motivated to be part different chapters & Institute level clubs. Students are also motivated to be the part of BoS and different departmental & Institute level bodies.
PO7	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.	2.80	1.95	2.63	2.3	-0.33	Attained	The e- waste management and disposal were outlined through videos. The awareness of the role of IT in ecological sustainability was created through eco club.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	2.80	2.00	2.64	2.3	-0.34	Attained	The molding of an individual's personality traits by engineers, guided by ethics, is crucial for instilling discipline in students and fostering responsible citizenship. This principle is underscored by both the Constitution of India and the curriculum on business ethics.
PO9	Individual and team work: Function effectively as an individual, as a member, or as a leader in diverse teams in multidisciplinary format.	2.74	1.97	2.58	2.3	-0.28	Attained	As a component of the self-study assessment, students were tasked with small group projects. Collaborating in these groups allowed them to grasp the complexities of teamwork and the decision-making process.
PO10	Communication: Communicate technical information effectively by preparing and designing documents, writing technical reports and through presentations.	2.73	2.03	2.59	2.3	-0.29	Attained	Effectively communicate intricate engineering activities within the engineering community and society at large. This includes the ability to comprehend and compose effective reports and design documentation, deliver compelling presentations, and provide and receive clear instructions.
PO11	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.	3.02	1.96	2.81	2.3	-0.51	Attained	Actively participating in curricular, co-curricular and technical clubs gives students practical experience on small group tasks and management of related finances. Technically also, students were assigned small projects in groups as part of self- study assessment, which taught them the nuances of project management.
PO12	Life-long learning: Identify the need for preparation and ability to employ in independent and life-long learning leading to technological changes for societal and industrial environment.	2.65	1.83	2.49	2.3	-0.19	Attained	Establishing a Centre for Soft Skills and Life Long Learning for conduction of various activities.
PSO1	Graduate will be able to exhibit analytical and logical skills and apply knowledge of mathematics and computational techniques in engineering and scientific context.	2.62	1.90	2.48	2.3	-0.18	Attained	More focus is required on problem solving methods for solving existing problem of IT industry.
PSO2	Graduate will be able to identify, formulate and resolve societal as well as real world problems using recent computational techniques.	2.77	1.86	2.59	2.3	-0.29	Attained	Conduction of industrial /professional training/ internship for the students