

Minutes of Meeting Board of Studies

Engineering Mathematics and Computing
(Conducted online on date, *11 November 2023*)



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE,
GWALIOR – 474005

Department of Engineering Mathematics & Computing

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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

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Reference: MAC/2023/

Dated: 29.11.2023

Department of Engineering Mathematics and Computing

Minutes of the Meeting of the Board of Studies held on 29/November/2023

A meeting of the Board of Studies of *Department of Engineering Mathematics and Computing* was held on 29/11/2023 in on line mode at 4.00 PM. The BOS committee constituted the following members:

Name	Affiliation	Stature
Dr. V.P. Shinde	Professor & Head, Engineering Mathematics & Computing	Chairman, BOS
Dr. Aparna Mehra	Professor, Department of Mathematics, IIT, New Delhi	Vice-Chancellor Nominee
Dr. Madhu Jain	Associate Professor, Department of Mathematics, IIT Roorkee,	Subject Expert
Dr. Badam Singh Kushwah	Associate Professor, Department of Mathematics and Computing, IMS Dhanbad	Subject Expert
Dr. D.P. Agrawal	Department of Mathematics, Govt. SMS Science College, Gwalior	Alumnus
Mr. Ankit Mundra	Director plus 91 labs, Gwalior	Industry Expert

Faculty of the Department

Dr. D. K. Jain
Dr. J. K. Muthale
Prof. Prabhakar Sharma
Dr. Minakshi
Dr. Divya Chatuervedi
Dr. Atul Kumar Ray
Dr. D. K. Mishra
Dr. S. K. Bharadwaj
Mr. Ashish Shukla

M. Shinde

J. K. Muthale

D. K. Mishra

(A. K. Ray)

Dr. S. K. Bharadwaj

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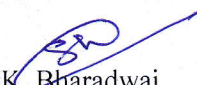
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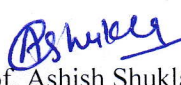
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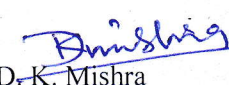
The minutes of the BOS meeting are following:

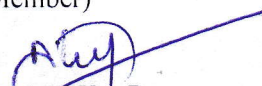
1. The minutes of the previous BOS meeting held on 01.June.2023 have been confirmed.
2. The courses of Engineering Mathematics-I, II and III do not have any changes.
3. The course outcomes attainments have been analyzed with identified Gap thereof action taken report (ATR) has been prepared according to respective courses.
4. Members recommended that the course of theory of computation and simulation modelling and analysis should convert pattern of exam from MCQ mode to PP mode
5. New course of Calculus and Optimization techniques has been proposed for AIR, AIDS and AIML branch in B. Tech. II year(IV semester)
6. The course outcomes of all courses have been discussed in detail
7. The list of various subjects is proposed for Departmental elective, Minor and Honors specialization have been offered
8. Members suggested that the on line references should also incorporated along with recommended books
9. The scheme of B. Tech. programme in Mathematics and Computing Final year (VIII semester) has proposed by the department and approved by the committee
10. New OC & DE courses are proposed for VIII semester
Departmental Elective: (i) Data Analytics using Python, (ii) Reinforcement learning, (iii) Computer aided applied single objective optimization.
Open Course: (i) Mathematical Modelling, (ii) Bio-Mathematics (iii) Queueing Models

Total No of courses	Total number of COs	Number of COs not attained	Percentage of COs not attained	Page No.
14	70	03	4.29	Item No. 15 (pp. 5-7)



Dr. S. K. Bharadwaj
(Member)

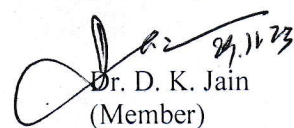

Prof. Ashish Shukla
(Member)



Prof. D. K. Mishra
(Member)

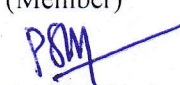

Dr. Atul K. Ray
(Member)

Dr. Minakshi
(Member)


Dr. Divya Chatuervedi
(Member)


Dr. D. K. Jain
(Member)


Dr. J. K. Mathele
(Member)


Prof. Prabhakar Sharma
(Member)

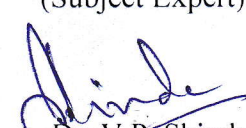
online Attended.
Dr. Badam Singh Kushvah
(Subject Expert)

A
Dr. Madhu Jain
(Subject Expert)

A
Dr. Aparna Mehra
(Subject Expert)

A
Dr. D.P. Agrawal
Alumnus

A
Mr. Ankit Mundra
Industry Expert


Dr. V.P. Shinde
(Professor & Head)

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Agenda of the BoS Meeting

(BoS Meeting Scheduled during 28th Nov 2023-2nd Dec 2023)

Instructions for preparing BoS Proceedings

{All information is to be uploaded on the webpage under suitable heading (such as Board of Studies) and separate links to be provided for each category mentioned below}

Minutes should have a summary/cover page mentioning all the significant changes made in the following given format :

Courses where revision was carried out*

(Course/subject name)	Course Code	Year/Date of introduction	Year/Date of revision	Percentage of content added or replaced	Agenda Item No.	Page No.	Link of relevant documents/minutes
NIL							

Courses focusing on employability/entrepreneurship/ skill development*

(Course/subject name)	Course Code	Activities/contents which have a bearing on increasing skill and employability	Agenda Item No.	Page No.	Link of relevant documents/minutes
Object Oriented Methodology and Programming with C++	250203	This subject enhances the programming skill of the students by enabling them to use the concepts of object-oriented programming. Students are taught to use Classes, Inheritance, and Polymorphic Behaviour by developing middle level projects.	15	4	https://drive.google.com/file/d/3UbihogcO3Px0_Zxrvqgh7GaoVwv1Mki/view?usp=drive_link
Database Management System & SQL	250402	Students are taught to develop collection of interrelated data and a set of software tools and programs which access, process, and manipulate data. They learn to access, retrieval, and use of that data by considering appropriate security measures. This subject is useful for better data integration and security. Students are given mini projects to develop normalized database by using MySQL.	12	2	https://drive.google.com/file/d/3zC2ScdLHs7Elrwl0ut9CL-O_I8VtiqA5/view?usp=drive_link
Project Management & Financing	1000005	This course is very useful for the students which indeed enhance the knowledge, how to complete the project for academic or industry purpose. There are so many things such as effective communication, time management leadership, negotiation, risk management, technical expertise, critical thinking	12	1 - 2	https://drive.google.com/file/d/3OYykg9UwjZo1fdUhdDpZDldioVcu2i1S3/view?usp=drive_link
Computer Graphics	250601	Computer Graphics skills elevate employability by meeting the growing demand for visual content in industries such as gaming, advertising, and virtual reality. Proficiency in graphic design, animation, and 3D modeling showcases adaptability, creativity, and technical prowess, making individuals valuable assets in the evolving job market.	7	1 - 3	https://drive.google.com/file/d/1JwcMTGfng-XIGbUMDq3qww6jsokLoJcs/view?usp=drive_link
Compiler Design	250602	Programmer develop the specifies algorithms in the language as per their need and the compiler must translate it to the target language. Higher-level programming languages are sometimes easier to develop in but they are inefficient, therefore the target applications run slower. Compiler design enhances the knowledge of students through which they analyze the complexity of algorithms and their execution.			
Artificial Intelligence &	250603	It is useful for daily needs such as cyber and homeland security, anti-money laundering, payments, financial markets, biotech,			

1.

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Machine Learning		healthcare, marketing, natural language processing (NLP), computer vision, electrical grids, nuclear power plants, air traffic control			
Block chain and its Applications	NPTEL/ SWAYAM	Its provide transparent, secured, tamper-proof solution for interconnecting different stakeholders in a trust less setup. Block chain is useful in cryptographic Hash and Digital Signature.	8	2 - 6	https://drive.google.com/file/d/1JFWEjOkbC2xHJmHjDTAo66dScrsTibHs/view?usp=drive_link
Cloud Computing	NPTEL/ SWAYAM	The demand for cloud services is increasing so fast and the global cloud computing market is growing at that rate. A large number of organizations and different business sectors are preferring cloud services nowadays as they are getting a list of benefits from cloud computing. Different organizations using cloud computing for different purposes and with respect to that Cloud Service Providers are providing various applications in different fields.			

New Courses added*

(Course/subject name)	Course Code	Activities/contents which have a bearing on increasing skill and employability	Agenda Item No.	Page No.	Link of relevant documents/minutes
Calculus & Optimization Techniques (AIR/ AIDS/ AIML)	XXXXXX	Calculus and Optimization Techniques enhance employability across engineering, data science, finance, computer science, and research roles, providing essential skills for problem-solving and strategic decision-making.	Point-01	5	https://drive.google.com/file/d/1sUhedmZ7pRLTQvrJFY2vXRz_nKNogJKi/view?usp=drive_link

Feedback on curriculum received from stakeholders: Analysis & ATR*

Stakeholder	Student	Faculty	Alumni	Employer
No. of responses	1540	11	--	---
Link of Analysis	https://drive.google.com/file/d/1xZloP_7lj-OCEMN2jz9Ji0TbwsK1EOIC/view?usp=drive_link	https://drive.google.com/file/d/1NVgO5Es7g0rBQI-bEldWOKAWR_HktZHo/view?usp=drive_link		
ATR Link	https://drive.google.com/file/d/1_INTe4_iJNlr-WNVmTaWMeKfx1puAbb/view?usp=drive_link			
Link showing Excel sheet of Google Form details of stakeholders				

* Separate page(s) for each of the above four points; Agenda point wise minutes to be appended with each point and a separate link to be given in the appropriate column for each point

2. The BoS minutes along with the cover/summary page (under point number 1, above) must be uploaded on the departmental web page and **link for the same must be shared with the office of the Dean Academics.**

The following must be uploaded on the departmental web page and **link for the same must be shared with the office of the Dean Academics.**

- 3.
- The Stakeholder feedback collected & analyzed to find the index out of five
 - Action Taken Report on each feedback
 - Google form showing responses from alumni, employer, student, faculty etc.

4. Minutes should have footer with department name, page number, and month of meeting.

5. Each page should be signed by all faculty, scanned and then submitted to the Dean Academics office.

BoS Agenda Items

Item 1	To confirm the minutes of previous BoS meeting held in the month of May-June 2023. https://drive.google.com/file/d/1h60b0IZ8HpshzW9CVuy7AaifBQCEfjBu/view?usp=drive_link
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Item 2	<p>The examination committees constituted vide Dean Academics Notice no 1332 dated 20/4/2021 need to be reconstituted this year.</p> <p>https://drive.google.com/file/d/1A6PKW22G6kHpd1AF5Gm5ET8S6NIC9bOa/view?usp=drive_link</p>																																																								
Item 3	<p>To propose the scheme structure of VIII Semester with the provision of ONE DE & ONE OC course to be offered in online mode with credit transfer for the batch admitted in academic year 2020-21. (The total credits from I-VIII semester should not be less than 160 for this batch).</p> <p>https://drive.google.com/file/d/1joPjJv-6r8lfGyteOdJB7eYxOB5lfck/view?usp=drive_link</p>																																																								
Item 4	<p>To propose the list of courses which the students can opt from SWAYAM/NPTEL/ other MOOC Platforms/ Institution (MITS) MOOC, to be offered in online mode under Departmental Elective (DE) category courses (DE-5) and open category (OC3) for credit transfer in the VIII Semester under the flexible curriculum (Batch admitted in academic year 2020-21)</p> <p>https://drive.google.com/file/d/1Fmy_4CGuL6RPvFtCgqijHAnDslCPjIB5/view?usp=drive_link</p>																																																								
Item 5	<p>To propose the list of “Additional Courses” which can be opted for getting an</p> <p style="margin-left: 40px;">(i) Honours (for students of the host department)</p> <p style="margin-left: 40px;">(ii) Minor Specialization (for students of other departments)</p> <p>[These will be offered through SWAYAM/NPTEL/MOOC based Platforms for the B.Tech. VIII semester students (for the batch admitted in 2020-21)] and for B.Tech. VI semester (for the batch admitted in 2021-22)]</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th colspan="6" style="text-align: center;">Honors Specialization</th> </tr> <tr> <th style="width: 5%;">S. No.</th> <th style="width: 10%;">Subject Code</th> <th style="width: 30%;">Subject name</th> <th style="width: 10%;">Time Duration (Weeks)</th> <th style="width: 15%;">Faculty Coordinator</th> <th style="width: 30%;">Mentor Name and Affiliation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td>Getting Started with Competitive Programming</td> <td style="text-align: center;">12</td> <td rowspan="3" style="text-align: center;"><i>Dr. Minakshi Dhaiya/ Dr. A. K. Ray</i></td> <td>Prof. Neeldhara Misra from IIT Gandhinagar</td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td>Advanced Graph Theory</td> <td style="text-align: center;">8</td> <td>Prof. Rajiv Misra from IIT Patna</td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td>Computer Vision & Image Processing Fundamental and Applications</td> <td style="text-align: center;">12</td> <td>Prof. M. K. Bhuyan from IIT Guwahati</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th colspan="6" style="text-align: center;">Minor Specialization</th> </tr> <tr> <th style="width: 5%;">S. No.</th> <th style="width: 10%;">Subject Code</th> <th style="width: 30%;">Subject name</th> <th style="width: 10%;">Time Duration (Weeks)</th> <th style="width: 15%;">Faculty Coordinator</th> <th style="width: 30%;">Mentor Name and Affiliation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td>A Primer to Mathematical Optimization</td> <td style="text-align: center;">12</td> <td rowspan="3" style="text-align: center;"><i>Dr. Minakshi Dhaiya/ Dr. A. K. Ray</i></td> <td>Prof. Debdas Ghosh from IIT (BHU), Varanasi</td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td>Advanced Linear Algebra</td> <td style="text-align: center;">12</td> <td>Prof. Premananda Bera from IIT Roorkee</td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td>Advanced Probability Theory</td> <td style="text-align: center;">12</td> <td>Prof. Niladri Chatterjee from IIT Delhi</td> </tr> </tbody> </table>	Honors Specialization						S. No.	Subject Code	Subject name	Time Duration (Weeks)	Faculty Coordinator	Mentor Name and Affiliation	1		Getting Started with Competitive Programming	12	<i>Dr. Minakshi Dhaiya/ Dr. A. K. Ray</i>	Prof. Neeldhara Misra from IIT Gandhinagar	2		Advanced Graph Theory	8	Prof. Rajiv Misra from IIT Patna	3		Computer Vision & Image Processing Fundamental and Applications	12	Prof. M. K. Bhuyan from IIT Guwahati	Minor Specialization						S. No.	Subject Code	Subject name	Time Duration (Weeks)	Faculty Coordinator	Mentor Name and Affiliation	1		A Primer to Mathematical Optimization	12	<i>Dr. Minakshi Dhaiya/ Dr. A. K. Ray</i>	Prof. Debdas Ghosh from IIT (BHU), Varanasi	2		Advanced Linear Algebra	12	Prof. Premananda Bera from IIT Roorkee	3		Advanced Probability Theory	12	Prof. Niladri Chatterjee from IIT Delhi
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Item 6	<p>To review and finalize the scheme structure of B.Tech VI Semester under the flexible curriculum (Batch admitted in 2021-22)</p> <p>https://drive.google.com/file/d/1ZS7CXqT4a7m1epcDLp8e-823RLF1FNLI/view?usp=drive_link</p>																																																								
Item 7	<p>To review & finalize the syllabi for all Departmental Core Courses (DC) and Mandatory Course (MC) of B. Tech VI Semester (for batch admitted in 2021-22) under the flexible curriculum along with their COs.</p> <p>https://drive.google.com/file/d/1JwcMTGfng-XIGbUMDq3qww6jsoKLoJcs/view?usp=drive_link</p>																																																								
Item 8	<p>To propose the list of courses from SWAYAM/NPTEL/MOOC Platforms to be offered (for batches admitted in 2021-22) in online mode under Departmental Elective (DE-1) Course with credit transfer, in the VI Semester.</p>																																																								

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	https://drive.google.com/file/d/1-fyI0DeTxUD6_vOFRU4H9bLTBhVW5BZ4/view?usp=drive_link
Item 9	To review and finalize the courses & syllabi to be offered (for batch admitted in 2021-22) under the Open Category (OC) Courses (in traditional mode) for VI semester students of other departments along with their COs. https://drive.google.com/file/d/1WkSZa8vqB001hu88W0GiqnSznQZOaq4O/view?usp=drive_link
Item 10	To review and finalize the Experiment list/ Lab manual for all the Laboratory Courses to be offered in B.Tech.VI semester (for batch admitted in 2021-22). https://drive.google.com/file/d/1zXF-jkI95wjv6mwpLEYq6LJiF4gr-Y5_/view?usp=drive_link
Item 11	To review and finalize the suggestive list of projects which can be offered under the 'Skill based mini-project' category in various laboratory components based courses to be offered in B.Tech. VI Semester (for the batch admitted in 2021-22). https://drive.google.com/file/d/1skfhIhoW1I-qE_B0p6xu4RfhDVJXiQUT/view?usp=drive_link
Item 12	To review and finalize the scheme and syllabi of B. Tech. IV Semester (for batch admitted in 2022-23) under the flexible curriculum along with their Cos. https://drive.google.com/file/d/1fzWz3ndi6lRxntObnOO4a8jK_uuLVfN/view?usp=drive_link
Item 13	To review and finalize the Experiment list/ Lab manual for all the Laboratory Courses to be offered in Batch IV semester (for batch admitted in 2022-23) https://drive.google.com/file/d/1YBTTE00AivswlsjgeO9dEeN5hAPgQYa/view?usp=drive_link
Item 14	To review and finalize the suggestive list of projects which can be offered under the 'Skill based mini-project' category in various laboratory components based courses to be offered in B. Tech IV Semester (for the batch admitted in 2022-23). https://drive.google.com/file/d/125voq4N7v8ZdRDMRe7uEuTVAjV_6GAwR/view?usp=drive_link
Item 15	To review and finalize the scheme and syllabi of B. Tech. II Semester (for batch admitted in 2023-24) under the flexible curriculum along with their COs. https://drive.google.com/file/d/15FAxIe53hpgrVlel3ed2X4DIES223TLi/view?usp=drive_link
Item 16	To review and finalize the Experiment list/ Lab manual for all the Laboratory Courses to be offered in Batch II semester (for batch admitted in 2023-24) https://drive.google.com/file/d/1m4q0HukphtaVIF8JdJ8_q2K4OFMDyZJh/view?usp=drive_link
Item 17	To review and finalize the suggestive list of projects which can be offered under the 'Skill based mini-project' category in various laboratory components based courses to be offered in B. Tech II Semester (for the batch admitted in 2023-24). https://drive.google.com/file/d/1qQ1-g7OiyYnBRbXnopcarG8vSigEqHaB/view?usp=drive_link
Item 18	To review the CO attainments, identify gaps and suggest corrective measures for the improvement in the CO attainment levels for the courses taught in Jan-June 2023 Session . https://drive.google.com/file/d/1vtdmsUlM6zioV8reBoBGDkW5UIVjK0Hp/view?usp=drive_link https://drive.google.com/file/d/1pqO4QmAUT1VCq73bWaIwiiH56sHf1qWu/view?usp=drive_link
Item 19	To review the PO attainment, CO-PO mapping matrix and action to be taken to improve PO attainment level. https://web.mitsgwalior.in/pos-peos-psos-emc NA
Item 20	To review curricula feedback from various stakeholders, its analysis and impact. https://drive.google.com/file/d/1xZloP_71j-OCeMN2jz9Ji0TbwsK1EOIC/view?usp=drive_link
Item 21	To discuss and recommend the scheme structure & syllabi of PG Programme (M.E./M.Tech./MCA/MBA) along with their Course Outcomes (COs) NA
Item 22	To recommend the scheme structure and Syllabus of Ph.D. Course Work (specific to Doctoral Research Scholars, if any) https://drive.google.com/file/d/1VSxiG1OnzUkv-7MMIDAK97emA6sU9jB/view?usp=drive_link
Item 23	Any other matter.