Madhav Institute of Technology & Science, Gwalior-474 005

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

Department of Information Technology

Date: 2nd June 2023

Minutes of Meeting of Board of Studies (BoS) in Information Technology

The Meeting of **Board of Studies (BoS)** in **Information Technology** was held on 2nd June, 2023 at 11:30 A.M. onwards **in offline mode / online mode (through video conferencing).** During the meeting, following were present.

1.	Dr. Akhilesh Tiwari, Professor & Head	Chairman
2.	Dr. Surya Prakash Discipline of Computer Science and Engineering, School of Engineering, Indian Institute of Technology Indore Indore-453552, Madhya Pradesh, India	External Member (Academics) *(Nominee of Hon'ble Vice Chancellor RGPV Bhopal)*
3.	Dr. Deepak Garg Vice-Chancellor, SR University, Telangana	External Member (Academics)
4.	Dr. Nisha Chaurasia, Assistant Professor, Department of Information Technology, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar (Punjab)	External Member (Alumnus)
5.	Dr. Vivek Tiwari, Department of Computer Science Engineering, International Institute of Information Technology, Naya Raipur (IIIT-NR)	Invitee Member (Academics)
6.	Dr. Sanjiv Sharma, Assistant Professor	Member
7.	Mr. Vikas Sejwar, Assistant Professor	Member
8.	Mr. Abhilash Sonker, Assistant Professor	Member
9.	Ms. Neha Bhardwaj, Assistant Professor	Member
10.	Dr. Saumil Maheshwari, Assistant Professor	Member
11.	Dr. Vikram Rajpoot, Assistant Professor	Member
12.	Dr. Dhananjay Bisen, Assistant Professor	Member
13.	Dr. Tej Singh, Assistant Professor	Member
14.	Dr. Pawan Dubey, Assistant Professor	Member
15.	Dr. Abhishek Dixit, Assistant Professor	Member
16.	Dr. Bhagat Singh Raghuwansi, Assistant Professor	Member
17.	Dr. Nidhi Saxena, Assistant Professor	Member
18.	Mr. Aditya Dubey, Assistant Professor	Member
19.	Dr. Anshika Srivastava, Assistant Professor	Member
20.	Dr. Kritika Bansal, Assistant Professor	Member
21.	Dr. Sunil Kumar Shukla, Assistant Professor	Member
22.	Dr. Vibha Tiwari, Assistant Professor	Member
23.	Dr. Ashish Soni, Assistant Professor	Member
24.	Dr. Nookala Venu, Assistant Professor	Member
25.	Mr. Mir Sahnawaz Ahmad, Assistant Professor	Member
26.	Ms. Shubha Mishra, Assistant Professor	Member

In addition to above, faculty members under contractual engagement were also present.

The following external and internal members could not attend the meeting.

1.	Dr. Dinesh Kumar Vishwakarma, Professor, Department of Information Technology, Delhi Technological University (DTU), Delhi	External Member (Academics)
2.	Mr. Abhinav Mishra, Co-Founder & CEO at Altysys and Former Sr. Director, Persistent System Limited	External Member (Industry)
3.	Dr. Punit Kumar Johari, Assistant Professor	Internal Member
4.	Mr. Rajeev Kumar Singh, Assistant Professor	Internal Member
5.	Dr. Priyanka Garg, Assistant Professor	Internal Member

The following student members/ representatives were also present in the meeting.

1.	Praveen Singh Bhadouriya (0901IO201049)	B. Tech IoT Fourth Year
2.	Ashutosh kewat Manjhi (0901AI201014)	B. Tech AIR Fourth Year
3.	Harsh Sharma (0901IO211023)	B. Tech IoT Third year
4.	Siddhant (0901IO211059)	B. Tech IoT Third year
5.	Ayush Hurkat (0901IT211013)	B. Tech IT Third year
6.	Rahul Lalwani (0901AM211045)	B. Tech AIML Third year
7.	Kanishka Jain (0901AD211023)	B. Tech AIDS Third year

The following deliberation took place in the meeting:

ITEM IT-1:	To confirm the minutes of previous BoS meeting held in the month of December 2022. **The minutes of previous Board of Studies (BoS) meeting held on 14th December 2022 were presented, discussed and confirmed.**
ITEM IT-2:	To prepare and finalize the scheme structure of B. Tech. VII Semester with the provision of *Three Departmental Electives (DEs)* (in which two Departmental Electives to be offered in online mode with credit transfer) *and one Open Category (OC) Course for the batch admitted in 2020-21.* **The Scheme of B. Tech. VII semester [Information Technology, Internet of Things, Information Technology (Artificial Intelligence and Robotics)] (batch admitted 2020-21), were discussed and recommended. The Scheme is annexed as Annexure-I.**
ITEM IT-3:	To prepare and finalize the scheme structure of B. Tech. VIII Semester with the provision of *One Departmental Elective (DE) and one Open Category (OC) Course* (both DE and OC offered in online mode with credit transfer) *for the batch admitted in 2020-21.* **The scheme structure of B. Tech VIII semester [Information Technology, Internet of Things, Information Technology (Artificial Intelligence and Robotics)] (batch admitted 2020-21), were discussed and recommended. The Scheme is annexed as Annexure-II.**
ITEM IT-4:	To prepare and finalize the syllabus of courses to be offered *(for the batch admitted in 2020-21)* under *Departmental Elective (DE) Course* (in traditional mode) for B. Tech. *VII Semester* along with their COs. **The courses to be offered under Departmental Elective (DE-2) category (in offline mode) for B. Tech VII Semester [Information Technology, Internet of Things, Information Technology (Artificial Intelligence and Robotics)] (under flexible curriculum) were discussed and finalized, as per the following detail. The detailed syllabi (along with their COs) is Annexed as Annexure - III.**

		DE-2 (B. Tech IT): • Optimization Methods in Engineering • Pattern Recognition • Mobile Computing **DE-2 (B. Tech IoT):** • Optimization Methods in Engineering • Smart Grid • Pattern Recognition **DE-2 (B. Tech IT(AIR)):** • Robot Operating System • Humanoid Robotics • Pattern Recognition
ITEM IT-5:		To propose the list of courses which the students can opt from SWAYAM/NPTEL/MOOC based Platforms, to be offered in *online mode under* Departmental Elective (DE) Courses, with credit transfer in the B. Tech. *VII Semester under* the flexible curriculum *(for the batch admitted in 2020-21).* **The list of Departmental Elective (DE-3 & DE-4) courses to be offered from SWAYAM/NPTEL/MOOC based learning platform (in online mode) for B. Tech VII Semester [Information Technology/Internet of Things/ Information Technology (Artificial Intelligence and Robotics)] (under flexible curriculum) were discussed and finalized, as per the following detail**

DE-3 (B. Tech IT):	DE-4 (B. Tech IT):
• Software Testing (12 Weeks) • Google Cloud Computing Foundations (8 Weeks) • Social Network Analysis (12 Weeks)	• Deep Learning (12 Weeks) • Big Data Computing (8 Weeks) • Computer Vision (12 Weeks)

DE-3 (B. Tech IoT):	DE-4 (B. Tech IoT):
• Google Cloud Computing Foundations (8 Weeks) • Computer Graphics (8 Weeks) • Social Network Analysis (12 Weeks)	• Deep Learning (12 Weeks) • Big Data Computing (8 Weeks) • Computer Vision (12 Weeks)

DE-3 (B. Tech IT(AIR)):	DE-4 (B. Tech IT(AIR)):
• Statistical Learning For Reliability Analysis (12 Weeks) • Computer Graphics (8 Weeks) • Google Cloud Computing Foundations (8 Weeks)	• Deep Learning (12 Weeks) • Social Network Analysis (12 Weeks) • Computer Vision (12 Weeks)

In continuation, it is also discussed and recommended that the above mentioned list of Departmental Elective (DE) course may be kept dynamic and newly emerging courses may be inducted in line with the industrial need and emerging developments (as and when desired).

ITEM IT-6:	To prepare and finalize the syllabus of courses to be offered *(for the batch admitted in 2020-21)* under the *Open Category (OC) Courses* (in traditional mode) for B. Tech. *VII semester* students of other departments along with their COs. **The courses to be offered under Open Category (OC) Courses for B. Tech VII Semester (for the students of other departments) under flexible curriculum, were discussed and finalized, as per the following detail**

<table>
<tr><td colspan="3" align="center">OC-2:</td></tr>
<tr><td colspan="3">
• IoT and Its Applications
• Soft Computing
• Software Testing
</td></tr>
</table>

It is further discussed that the Open Category (OC) courses are meant only for the students of other departments; therefore the above list of courses may be kept dynamic (as per the need and demand from other departments). The detailed syllabi (along with their COs) is annexed as Annexure-IV.

ITEM IT-7:	To prepare and finalize the Experiment list/ Lab manual for Departmental Laboratory Course (DLC) to be offered in B. Tech. VII semester *(for the batch admitted in 2020-21).* **The experiment list / lab manual for the Laboratory Courses for B. Tech VII semester [Information Technology, Internet of Things, Information Technology (Artificial Intelligence and Robotics)] were discussed and finalized. The same is annexed as Annexure-V.**

ITEM IT-8:	To propose the list of "Additional Courses" which can be opted for getting an
	   (i) *Honours (for students of the host department)*
	   (ii) *Minor Specialization (for students of other departments)*
	 [These will be offered through SWAYAM/NPTEL/MOOC based Platforms for the B. Tech. VII semester students (for the batch admitted in 2020-21)] and for B. Tech. V semester (for the batch admitted in 2021-22)]
	
	 The courses available on SWAYAM/NPTEL/MOOC based learning platforms for Honours and Minor Specialization were discussed and identified. The details of courses under Honours Specialization (through SWAYAM/NPTEL portal) has been concluded and summarized under Annexure VI. Further, it was decided that the list of honours specialization will remain dynamic (i.e. can be changed as per the demand/need of stakeholders).

B. Tech V Semester IT (2021-22 admitted batch)
Additional Courses for "Minor Specialization" (Other Departments)
• Programming in Java (12 Weeks)
• Introduction to Operating Systems (8 Weeks)
• Computer Graphics (8 Weeks)

B. Tech V Semester IoT (2021-22 admitted batch)
Additional Courses for "Minor Specialization" (Other Departments)
• Introduction to Internet of Things (12 Weeks)
• Introduction to Operating Systems (8 Weeks)
• Computer Graphics (8 Weeks)

B. Tech V Semester IT(AIR) (2021-22 admitted batch)
Additional Courses for "Minor Specialization" (Other Departments)
• Introduction to Operating Systems (8 Weeks)
• Programming, Data Structures and Algorithms in Python (8 Weeks)
• Computer Graphics (8 Weeks)

B. Tech V Semester AI&DS (2021-22 admitted batch)
Additional Courses for "Minor Specialization" (Other Departments)
• Database Management System (8 Weeks)

- Programming, Data Structures and Algorithms in Python (8 Weeks)
- Introduction to Internet of Things (12 Weeks)

B. Tech V Semester AI&ML (2021-22 admitted batch)
Additional Courses for "Minor Specialization" (Other Departments)

- Database Management System (8 Weeks)
- Programming, Data Structures and Algorithms in Python (8 Weeks)
- Introduction to Internet of Things (12 Weeks)

B. Tech VII Semester IT (2020-21 admitted batch)
Additional Courses for "Honours" (Parent Department)

- The Joy of Computing using Python (12 Weeks)
- Reinforcement Learning (12 Weeks)
- Introduction To Haskell Programming (8 Weeks)
- Advanced Distributed Systems (12 Weeks)

Additional Courses for "Minor Specialization" (Other Departments)

- Introduction to Operating Systems (8 Weeks)
- Programming in Java (12 Weeks)
- Programming, Data Structures and Algorithms in Python (8 Weeks)
- Design and analysis of algorithms (8 Weeks)
- Distributed Systems (8 Weeks)
- Introduction To Internet Of Things (12 Weeks)
- Computer Graphics (8 Weeks)

B. Tech VII Semester IoT (2020-21 admitted batch)
Additional Courses for "Honours" (Parent Department)

- Hardware Modeling Using Verilog (8 Weeks)
- Design & Implementation of Human-Computer Interfaces (12 Weeks)
- The Joy of Computing using Python (12 Weeks)
- Introduction To Industry 4.0 And Industrial Internet Of Things (12 Weeks)
- Reinforcement Learning (12 Weeks)
- Advanced Distributed Systems (12 Weeks)
- Introduction To Haskell Programming (8 Weeks)

Additional Courses for "Minor Specialization" (Other Departments)

- Introduction to Internet of Things (12 Weeks)
- Introduction to Operating Systems (8 Weeks)
- Programming, Data Structures and Algorithms in Python (8 Weeks)
- Design and analysis of algorithms (8 Weeks)
- Programming in Modern C++ (12 Weeks)
- Programming in Java (12 Weeks)
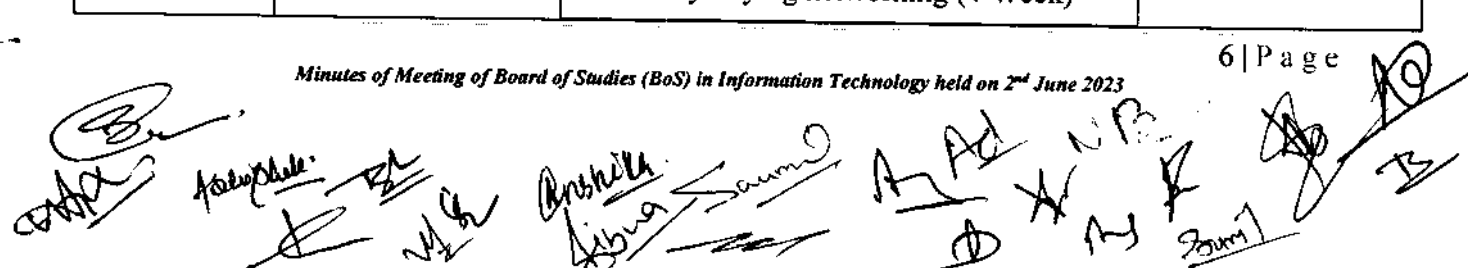- Distributed Systems (8 Weeks)
- Cloud Computing (12 Weeks)

B. Tech VII Semester AIR (2020-21 admitted batch)
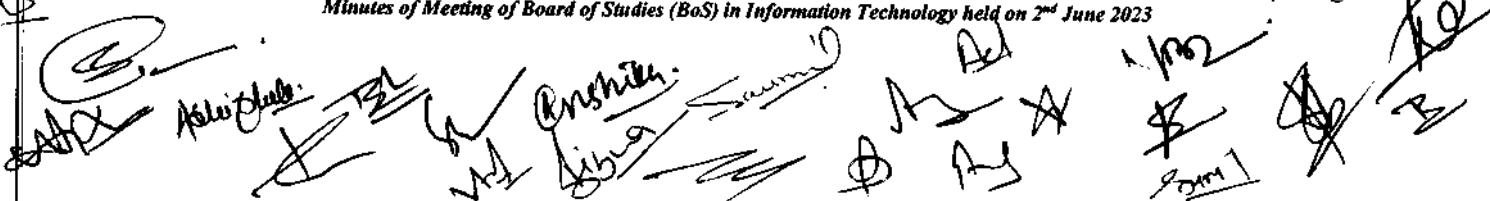### Additional Courses for "Honours" (Parent Department)

- Machine Learning for Earth System Sciences (8 Weeks)
- Design & Implementation of Human-Computer Interfaces (12 Weeks)
- The Joy of Computing using Python (12 Weeks)
- Applied Accelerated Artificial Intelligence (12 Weeks)
- Advanced Distributed Systems (12 Weeks)

	• Introduction To Haskell Programming (8 Weeks)
	Additional Courses for "Minor Specialization" (Other Departments)
	• Introduction to Operating Systems (8 Weeks) • Design and analysis of algorithms (8 Weeks) • Programming, Data Structures and Algorithms in Python (8 Weeks) • Artificial Intelligence: Search Methods For Problem Solving (12 Weeks) • Distributed Systems (8 Weeks) • Cloud Computing (12 Weeks)
ITEM IT-9:	To prepare and recommend the *scheme structure of B. Tech. V Semester under* the flexible curriculum (for the *Batch admitted in 2021-22).* The Scheme of B. Tech. V semester [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning] (batch admitted 2021-22), were discussed and recommended. The Scheme is annexed as Annexure-VII.
ITEM IT-10:	To prepare and recommend the syllabi for all *Departmental Core (DC) Courses* of B. Tech. *V Semester (for the b*atch admitted in 2021-22) under the flexible curriculum along with their COs. *The Syllabi (along with the Course Outcomes) of B. Tech. V* [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning] *(batch admitted 2021-22), were discussed and finalized.* The same is annexed as Annexure- VIII.
ITEM IT-11:	To prepare and recommend the suggestive Experiment list/ Lab manual and list of projects which can be assigned under the 'Skill based mini-project' category in various laboratory component based courses to be offered in B. Tech. V Semester *(for the batch admitted in 2021-22).* The experiment list / lab manual and list of projects for the laboratory courses for B. Tech V semester [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning] were discussed and finalized. The same is annexed as Annexure-IX.
ITEM IT-12:	To propose the list of courses from SWAYAM/NPTEL/MOOC Platforms to be offered *(for the batch admitted in 2021-22)* in online mode under *Self-Learning/ Presentation,* in the B. Tech. *V Semester.* The courses to be offered under Self-Learning/ Presentation through SWAYAM / NPTEL based learning platform for B. Tech. V semester (2021-22 admitted batch) [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning], under flexible curriculum were discussed and finalized, as per the following **B. Tech. V Semester** • Python for Data Science (4 Week) • Demystifying networking (4 Week)

	To promote the self-learning, it is mandatory to register for one online course (as per above list) from the SWAYAM / NPTEL platform under the Seminar / Self Study Course. Further, the evaluation will be based on attendance, assignments and presentations, etc
ITEM IT-13:	To review, prepare, finalize and recommend the *Scheme & Syllabi (along with the Course Outcomes) of III semester* B. Tech. programmes (for the batch admitted 2022-23 Session) **The Scheme & Syllabi** *(along with the Course Outcomes)* **of B. Tech. programmes [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning] III semester** *(batch admitted 2022-23)* **were discussed and finalized. The scheme & detailed syllabi is annexed as Annexure-X.**
ITEM IT-14:	To review, prepare, finalize and recommend the list of experiments/ Lab manual and skill based mini projects for various laboratory courses to be offered in III Semester *(for the batch admitted in 2022-23).* **The experiment list / lab manual and skill based mini project for the Laboratory Courses for B. Tech III semester [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning] were discussed and finalized. The same is annexed as Annexure-XI.** *The list of "skill based mini project" for the Laboratory Courses must be treated as dynamic and more projects can be added by the course faculty.*
ITEM IT-15:	To propose the list of courses from SWAYAM/NPTEL/MOOC Platforms to be offered *(for the batch admitted in 2022-23)* in online mode under *Self-Learning/ Presentation*, in the *III Semester*. **The courses to be offered under Self-Learning/ Presentation through SWAYAM / NPTEL based learning platform for B. Tech. III semester (2022-23 admitted batch) [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and Machine Learning], under flexible curriculum were discussed and finalized, as per the following**

> **B. Tech. III Semester**
> - Programming, Data Structures And Algorithms Using Python (8 Week)
> - Getting Started with Competitive Programming (12 Week)

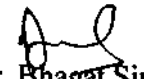|	
	To promote the self learning, it is mandatory to register for one online course (as per above list) from the SWAYAM / NPTEL platform under the Seminar / Self Study Course. Further, the evaluation will be based on attendance, assignments and presentations, etc.
ITEM IT-16:	To review, prepare and recommend the scheme structure, Syllabi (along with the Course Outcomes), list of experiments/ Lab manual and skill based mini projects for various laboratory courses of *I & II semester* B. Tech. programmes (for the batch admitted in 2023-24 Session) **The Scheme, Syllabi** *(along with the Course Outcomes)*, **list of experiments/ Lab manual and skill based mini projects of B. Tech. programmes [Information Technology, Internet of Things (IoT), Information Technology (Artificial Intelligence and Robotics), Artificial Intelligence and Data Science, Artificial Intelligence and**
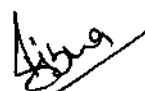
	Machine Learning] III semester (*batch admitted 2022-23*) were discussed and finalized. The same is annexed as Annexure-XII.
ITEM IT-17:	To review the CO attainments, to identify gaps and to suggest corrective measures for the improvement in the CO attainment levels for July-Dec 2022. **The attainment levels of Course Outcomes (COs) for all the courses pertaining to July-December 2022 semester were presented and reviewed. The house appreciated the same and observed the achievement of target attainment levels for almost all the courses. The same is enclosed as Annexure-XIII.**
ITEM IT-18:	To review PO attainment of 2018-2022 batch, CO-PO mapping matrix with attainments and gap analysis. **The Programme Outcome (PO) attainment, CO-PO mapping matrix with attainments and gap analysis for 2018-2022 passout batch were discussed and reviewed. The same is annexed as Annexure-XIV.**
ITEM IT-19:	To review curricula feedback from various stakeholders, its analysis and impact. **The summarized report of curricula feedback from various stakeholders (students, faculty members and alumni etc.) (Nov. 2022 to March 2023 (I Semester)) was presented and discussed. This was based on various considered parameters. Further, the house has reviewed the feedback & its summarized report and efforts made where appreciated. The report is annexed as Annexure-XV.**
ITEM IT-20:	To review the Course Outcomes (COs) feedback of various courses, its analysis, and ATR (for July –Dec. 2022 semester) **The detailed analysis and impact report of Course Outcomes (COs) feedback of various courses from students [for Jul- Dec 2022 (II & III Year)] was presented and discussed. The same is enclosed as Annexure –XVI.**
ITEM IT-21:	To discuss and recommend the scheme structure & syllabi of PG Programme (M. Tech.) along with their Course Outcomes (COs). **The existing Scheme/curriculum of M. Tech. [Information Technology] was reviewed and there is no change in the same.**

Suggestions by External Experts / Members:

- It was suggested to include some content related to robot memory in the course of Humanoid Robotics for the AI and Robotics programme under Departmental Elective courses.

The meeting ended with the vote of thanks to all the members.

Ms. Bulbul Agrawal   Ms. Shubha Mishra   Mr. Mir Shahnawaz Ahmad   Dr. Nookala Venu

Dr. Ashish Soni   Dr. Vibha Tiwari   Dr. Sunil Kumar Shukla   Dr. Kritika Bansal

Dr. Anshika Srivastava   Mr. Aditya Dubey   Dr. Nidhi Saxena   Dr. Bhagat Singh Raghuwansi

Dr. Abhishek Dixit

Dr. Pawan Dubey

Dr. Tej Singh

Dr. Dhananjay Bisen

Dr. Vikram Rajpoot

Dr. Saumil Maheshwari

Ms. Neha Bhardwaj

Mr. Abhilash Sonkar

Mr. Vikas Sejwar

Dr. Sanjiv Sharma

ABSENT

Mr. Abhinav Mishra
Co-Founder & CEO at Altysys
and Former Sr. Director, Persistent
System Limited

Attended online

Dr. Nisha Chaurasia
Assistant Professor,
Department of Information
Technology, Dr. B. R.
Ambedkar National Institute
of Technology,
Jalandhar (Punjab)

Attended online

Dr. Vivek Tiwari
Assistant Professor,
Department of Computer
Science Engineering,
International Institute of
Information Technology,
Naya Raipur (IIIT-NR)

Absent

Dr. Dinesh Kumar Vishwakarma
Professor,
Department of Information
Technology,
Delhi Technological University
(DTU), Delhi

Attended online

Dr. Deepak Garg
Vice-Chancellor,
SR University, Telangana

Attended online.

Dr. Surya Prakash
Professor,
Discipline of Computer
Science and
Engineering, School of
Engineering,
Indian Institute of Technology
Indore

02-06-23

(Dr. Akhilesh Tiwari)
Professor & Head,
Department of IT,
MITS Gwalior
[Chairman, BoS]

03|05|2023

DEAN (ACADEMICS)
M.I.T.S
GWALIOR