No: SMVDU/SoME/25/263   Date: 31/07/2025

Subject: Minutes of Meeting of Board of Studies of B. Tech in Robotics and Artificial Intelligence

Reference: Minutes of Meeting of Preparatory meeting for the Board of Studies of B. Tech in Robotics and Artificial Intelligence held on 16/07/2025 notified vide No: SMVDU/SoME/25/220 dated 17.07.2025

Reference: Minutes of meeting (Agenda Item 1) of AAC of SoME held on 18/04/2025 notified vide No: SMVDU/SoME/25/046 dated 24.04.2025

The first Board of Studies meeting of B. Tech in Robotics and Artificial Intelligence held on 22/07/2025 in the Conference Hall of SME.,The meeting held in the Hybrid mode wherein the internal members were present in the offline mode and external member was present in the online mode. Following members were present to deliberate upon the Course structure and course contents of the B. Tech in Robotics and Artificial Intelligence to be offered by the School of Mechanical Engineering.

1.	Dr. Yatheshth Anand, Head, SME	Chairman
2.	Dr. Ashok Kumar Kumawat, Manipal University, Jaipur	External Expert
3.	Prof. Balbir Singh, Dean Academic Affairs	Special Invitee
4.	Dr. Anil Bhardwaj, Head, SoECE	Member
5.	Dr. Sunanda, Head, SoCSE	Member
6.	Dr. Shashi Bhushan Kotwal, Associate Professor, SoECE	Member
7.	Er. Swastik Gupta, Assistant Professor, SoECE	Member
8.	Dr. Ankush Raina, Assistant, Professor, SME	Member
9.	Dr. Vipal Sharma, Assistant Professor, SoCSE	Member
10.	Dr. Parbhu Omer, Assistant Professor, SoEE	Member
11.	Dr. Pradeep Singh, Assistant Professor, SoME	Member Secretary

The meeting started with a formal welcome of all the members and the deliberations were made on the proposed course structure and course contents for the B. Tech. in Robotics and Artificial Intelligence (Annexure A). The following agenda items were discussed:

Agenda Item 1: Deliberations on the inclusion of topics related to semiconductors in the Engineering Physics in the first semester.

Resolution: The matter was discussed with Head, School of Physics, wherein it was agreed upon to discuss the matter in the next AAC of School of Physics followed by the BoS of the concerned school.

Agenda Item 2: Inclusion of topics/contents related to basics of Artificial Intelligence in the course structure.

Resolution: All the members unanimously agreed to include the basics contents of Artificial Intelligence in the Machine Learning course to be offered in the semester 5.

Agenda Item 3: Inclusion of power electronics component in the Drives for Robots course to be offered in the semester 5.

Resolution: All the members unanimously agreed to include the power electronics component in the Drives for Robots.

Agenda Item 4: Inclusion of Augmented Reality and Virtual Reality course in the list of School Electives.

Resolution: The members unanimously agreed to Augmented Reality and Virtual Reality course in the list of School Electives.

Agenda Item 5: Rationalisation of Lab Experiments.

Resolution: Based up on the suggestions of the external member and other experts, it was decided to rationalise the number of experiments for all the Lab courses for B. Tech in Robotics and Artificial Intelligence.

Agenda Item 6: Option for Industrial Internship in the seventh semester.

Resolution: Considering the nature of the B. Tech programme and up on the suggestions of the external member, it was informed in the meeting that such type of discussions have already been made earlier and the policy is being framed at the university level.
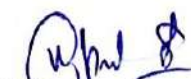
Agenda Item 7: Inclusion of Skill Enhancement Courses (SEC) and other employability courses in B. Tech in Robotics and Artificial Intelligence.

Resolution: All the members agreed to include the SEC courses such as Fabrication Lab, 3D printing technology, internships and other such courses that enhance the skill of the students. Further, the members also agreed to include the courses such as Intelligent Manufacturing, Autonomous Robotics, Mechatronics for Medical systems and other courses from employability perspective.

The meeting ended with the vote of thanks

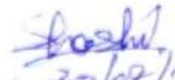Dr. Pradeep Singh,
Assistant Professor, SoME

Dr. Parbhu Omer,
Assistant Professor, SoEE

Dr. Vipal Sharma,
Assistant Professor, SoCSE

Dr. Ankush Raina,
Assistant Professor, SME

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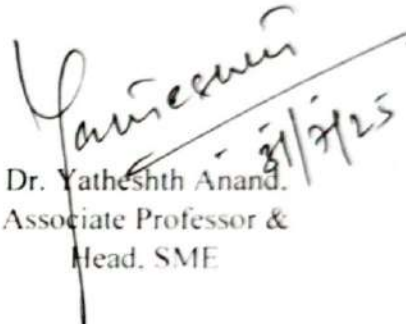
Dr. Shashi Bhushan Kotwal,
Associate Professor, SoECE

Dr. Anil Bhardwaj,
Associate Professor &
Head, SoECE

Dr. Sunanda,
Associate Professor &
Head, SoCSE

Prof. Balbir Singh, Dean
Academic Affairs (Special
Invitee)

Dr. Ashok Kumar Kumawat,
Manipal University Jaipur,
Jaipur (External Expert)

Dr. Yatheshth Anand,
Associate Professor &
Head, SME

Copy to:
1. Registrar, SMVDU for kind information.
2. PS to VC for kind information of Hon'ble Vice Chancellor.
3. Dean AA, for information.
4. Dean FoE, for information.
5. All the members of BoS for information and their records.
6. Head, SoP
7. Head, SoM
8. Head, SoEE
9. Record/ Office file.

Courses of Study

(Detailed Course Contents)

B.Tech in Robotics and Artificial Intelligence

(2025 onwards)

Shri Mata Vaishno Devi University

Kakryal, Katra 182320 Jammu & Kashmir

VISION

Establishment of a Scientific & Technical University of Excellence to nurture young and talented human resources for the service of Indian Society & world at large and preserving the integrity and sanctity of human values

MISSION

The mission of the University is the pursuit of Education, Scholarship and Research at the highest international level of excellence.

OBJECTIVES

- Provide education and training of excellent quality, both at undergraduate and postgraduate level.
- Ensure that the University achieves and maintains an international standing in both teaching and research
- Promote study and research in new and emerging areas and encourage academic interaction of the faculty and the students at national and international levels.
- Encourage close collaboration with industry and facilitate the application of research for commercial use and for the benefit of society.

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B. Tech. (Robotics and Artificial Intelligence)
Course Structure

Semester I

BSC 1	MTL BS101	Engineering Mathematics – I	3	1	0	4
BSC 2	PHL BS101	Engineering Physics	3	0	0	3
BSC 2	PHP BS101	Engineering Physics Lab	0	0	2	1
ESC 1	CSL ES101	Introduction to C Programming	3	0	0	3
ESC 1	CSP ES101	Introduction to C Programming Lab	0	0	2	1
ESC 2	EEL ES103	Foundation course in Electrical and Electronics Engineering	3	0	0	3
ESC 2	EEP ES103	Electrical and Electronics Engineering Lab.	0	0	2	1
SEC 1	MEM SE107	Fabrication Lab.	1	0	2	2
AEC 1 / VAC 1	MEM VA103	MATLAB for Engineers	1	0	2	2
		Cumulative Credits	**20**			**20**

Semester II

BSC 3	MTL BS102	Engineering Mathematics – II	3	1	0	4
BSC 4	MTL DC205	Probability and Statistics	3	0	0	3
DCC 1	MEL DC106	Basics of Mechanical Engineering	3	1	0	4
DCC 2	ECL DC108	Digital Electronics	3	0	0	3
DCC 2	ECP DC108	Digital Electronics Lab	0	0	2	1
SEC 2	MEM S102	Engineering Graphics with CAD	1	0	2	2
AEC 2	XXX AEXXX	Ability Enhancement Course				2
VAC 2	XXX VAXXX	Value Added course				2
MAC 1	PCN MA102	Universal Human Values-II	2	0	0	0
		Cumulative Credits	**42**			**22**

Semester III

BSC 5	MTL DC203	Integral Transforms and Complex Analysis	3	1	0	4
ESC 3	CSL ES205	Introduction to C++ Programming	3	0	0	3
ESC 3	CSP ES205	C++ Programming Lab	0	0	2	1
DCC 3	CSL DC205	Data Science & Analytics	3	0	0	3
DCC3	CSP DC205	Data Science & Analytics Lab	0	0	2	1
DCC 4	MEL DC207	Kinematics of Robots	3	1	0	4
DCC 5	MEL DC209	Robotics & Applications	3	0	0	3
DCC 5	MEP DC209	Robotics Lab	0	0	2	1
SEC 3	XXX SEXXX	Skill Enhancement Course	2	0	0	2
PR	MEI PR203	Summer Internship – I				1
VAC 3	XXX VA XXX	Value Added Course				2
		Cumulative Credits	**66**			**24**

School of Mechanical Engineering, SMVDU

Semester IV

DCC 6	MEL DC212	CAD for Robotics	3	0	0	3
DCC 6	MEP DC212	CAD for Robotics Lab.	0	0	2	1
DCC 7	EEL ES202	Electrical Machines for Robotics	3	0	0	3
DCC 7	EEP ES202	Electrical Machines Lab for Robotics	0	0	2	1
DCC 8	ECL DC208	Control System	3	0	0	3
DCC 8	ECP DC208	Control System Lab	0	0	2	1
DCC 9	MEL DC214	Sensors and Actuators for Robotics	3	1	0	4
DCC 10	MEL DC216	Robot Dynamics	3	0	0	3
DCC 10	MEP DC216	Robot Dynamics Lab	0	0	2	1
VAC 4	BTL VA202	Environmental Science & Education	2	0	0	2
		Cumulative Credits	88			22

Semester V

DCC 11	ECL DC307	Embedded System and Microcontroller	3	0	0	3
DCC 11	ECP DC307	Embedded System and Microcontroller Lab	0	0	2	1
DCC 12	MEL DC307	Drives for Robots	3	0	0	3
DCC 12	MEP DC307	Drives for Robots Lab	0	0	2	1
DCC 13	CSL DC305	Machine Learning	3	0	0	3
DCC 13	CSP DC305	Machine Learning Lab	0	0	2	1
DEC 1	XXL DE3XX	School Elective – I	3	1/0	0/2	4
DEC 2 / GEC 1	XXL GE3XX	School Elective – II/Generic Elective – I	3	1/0	0/2	4
PR	MEI PR303	Summer Internship-II				1
DCC	MED PD303	Project Work -1				2
		Cumulative Credits	111			23

Semester VI

DCC 14	CSL DC302	Deep Learning	3	0	0	3
DCC 14	CSP DC302	Deep Learning Lab.	0	0	2	1
DCC 15	CSL DC306	Image Processing & Computer Vision	3	0	0	3
DCC 15	CSP DC306	Image Processing & Computer Vision Lab	0	0	2	1
DEC 3	MEL DE3XX	School Elective – III	3	1/0	0/2	4
DEC 4 / GEC 2	XXL GE3XX	School Elective – IV/Generic Elective -II	3	1/0	0/2	4
AEC	XXX AEXXX	Management / Entrepreneurship/Economy	3	0	0	3
DCC	MED PR304	Project Work- II				2
MAC 2	PCN MA302	Indian Knowledge System	2	0	0	NC
		Cumulative Credits	132			21

Semester VII

DCC 16	MEL DC403	Smart Manufacturing	3	0	0	3
DCC 16	MEP DC403	Smart Manufacturing Lab	0	0	2	1
DEC 5	MEL DE4XX	School Elective – V	3	1/0	0/2	4
DEC 6 / GEC 3	XXL GE4XX	School Elective – VI/ Generic Elective – III	3	1/0	0/2	4
PR	MEI PR403	Summer Internship –III				2
DCC/PR	MED PR403	Minor Project				4
		Cumulative Credits	150			18

Semester VIII

DCC/PR		Major Project / Internship (Industrial or In-house Project)				10
	MED PR404/MEI PR404	**Cumulative Credits**	160			10

LIST OF SKILL ENHANCEMENT COURSES

Course Code	Course Title	L-T-P	Credits
MEM SE101/ MEM SE104	Engineering Workshop	1-0-2	2
MEM SE102/ MEM SE103	Engineering Graphics with CAD	1-0-2	2
MEM SE105	3D Printing Technology	1-0-2	2

LIST OF ABILITY ENHANCEMENT COURSES

Course Code	Course Title	L-T-P	Credits
MEM AE101	Presentation Skills and Technical Writing	1-0-2	2

LIST OF VALUE-ADDED COURSES

Course Code	Course Title	L-T-P	Credits
MELVA102	Introduction to Sustainability	2-0-0	2
MEL VA101	Introduction to Product Design	2-0-0	2
MEM VA103	MATLAB for Engineers	1-0-2	2

List of Departmental/School Elective Courses (DEC)

Departmental Elective –I

S. No.	Course Code	Course Title	L-T-P	Credits
1	MEL DE325	Mobile and Micro Robotics	3-1-0	4
2	MEL DE327	Intelligent Manufacturing	3-1-0	4
3	EEE DE324	Power Electronics Controlled Drives	3-1-0	4
4	CSL DE335	Fuzzy logic	3-1-0	4
5	CSM DE337	Programming using Python	3-0-2	4

Departmental Elective –II

S. No.	Course Code	Course Title	L-T-P	Credits
1	MEL DE329	Autonomous Robotics	3-1-0	4
2	MEL DE331	Mechatronics System Design	3-1-0	4
3	ECL DE390	Microcontrollers Architecture and Programming	3-1-0	4
4	CSL DE327	Augmented Reality & Virtual Reality	3-1-0	4
5	EEE DE304	Advanced Control System	3-1-0	4

Departmental Elective –III

S. No.	Course Code	Course Title	L-T-P	Credits
1	CSL DE340	Advanced Artificial Intelligence	3-1-0	4
2	MEL DE328	Stochastic Processes & Random Variables	3-1-0	4

Departmental Elective –IV

S. No.	Course Code	Course Title	L-T-P	Credits
1	CSL DE342	Internet of Things for Robotics	3-1-0	4
2	MEL DE330	Advanced Mechatronics	3-1-0	4
3	EEE DE318	Digital Control System	3-1-0	4

Departmental Elective –V

S. No.	Course Code	Course Title	L-T-P	Credits
1	MEL DE417	Agricultural Robotics	3-1-0	4
2	MEL DE419	Mechatronics for Agriculture	3-1-0	4
3	MEL DE421	Agricultural Plant & Device Control	3-1-0	4

Departmental Elective –VI

S. No.	Course Code	Course Title	L-T-P	Credits
1	MEL DE425	Mechatronics for Medical Applications	3-1-0	4
2	EEE DE416	Fuzzy Logic and Neural Networks	3-1-0	4
3	CSL DE421	Reinforcement Learning	3-1-0	4

SMVDU

List of Generic Elective Courses (GEC)

S. No.	Course Code	Course Title	L-T-P	Credits
1	MEL DE327	Intelligent Manufacturing	3-1-0	4
2	CSL DE342	Internet of Things for Robotics	3-1-0	4
3	MEL DE417	Agricultural Robotics	3-1-0	4
4	MEL DE419	Mechatronics for Agriculture	3-1-0	4
5	MEL DE421	Agricultural Plant & Device Control	3-1-0	4
6	MEL DE425	Mechatronics for Medical Applications	3-1-0	4