



**JSPM UNIVERSITY PUNE**

Recognized by UGC u/s 2 (f) of UGC Act 1956 and enacted by the  
State Government of Maharashtra - JSPM University Act, 2022 (Mah.IV of 2023)

**JSPM University Pune**  
**Faculty of Science and Technology**  
**School of Mechanical & Manufacturing**  
**Sciences**



**NEP aligned Curriculum Structure**

**for**

**M.Tech (Robotics & Artificial Intelligence)**

**(Effective from AY: 2024-25)**



# JSPM University Pune

FACULTY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MECHANICAL AND MANUFACTURING SCIENCES

FIRST YEAR MASTER OF TECHNOLOGY  
(ROBOTICS AND ARTIFICIAL INTELLIGENCE)

COURSE STRUCTURE  
(NEP 2020 Aligned)

W. E. F

2024-2025

RELEASE DATE

01/07/2024

REVISION NO.

0.0 (NEP)

SEMESTER I (Level 6.5)

TYPE	CODE	COURSE NAME	TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
			Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PSMC	230GMAM02_01	Advanced Numerical Methods	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PSBC	230GRAM01_01	Foundation of Design of Machine Elements	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PCC	230GRAM02_01	Foundations of Robotics	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	231GRAM03_01	Advanced Hydraulics and Pneumatics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
SEC	230GCSM26_01	Python Programming for Engineers	2	-	2	-	-	-	-	-	50	50	50	50	100	3
VSC	230IDCB01_01	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC	230UENM01_01	Communicative English for Professionals	1	-	2	-	30	30	40	50	-	-	-	-	50	2
RMC	230IRMM01_01	Research Methodology	2	-	-	-	30	30	40	50	-	-	-	-	50	2
LC	230GRAM26_01	Advanced Hydraulics and Pneumatics Laboratory	-	-	2	-	-	-	-	-	50	50	-	-	50	1
TOTAL			16	1	8	4									750	22



**Multidisciplinary Minor Course**

Course Code	230GRAM24 01	230VOSM59 01	230GCSM28 01
Course Name	Sensors and Automation	Introduction to Project Management	Introduction to Data Science
Course Code	230GETM16 02	230VDMM02 02	230GCSM29 02
Course Name	IoT Basics and Applications	Customer Relationship Management	Introduction to Artificial Intelligence

*R.S.*

**Dr. R. S. Upadhyay**  
Programme Coordinator, MTech- Robotics  
and Artificial Intelligence

*P.M. Ambad*

**Prof. P. M. Ambad**  
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*B.B. Ahuja*

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## SEMESTER II (Level 6.5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
PCC	230GRAM04_02	Data Analytics and Machine Learning	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
	230GRAM05_02	Embedded Control Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
	230GRAM06_02	Artificial Intelligence and Neural Networks	3	-	-	-	30	30	40	50	-	-	-	-	100	3	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	230GRAM25_02	Programming for Robotics and AI	2	-	2	-	-	-	-	-	50	50	50	50	100	3	
VSC	230IINB02_02	Innovation	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5	
AEC	230UENM02_02	Business Communication	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
RMC	230IRMM02_02	Research Design & Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
LC	230GRAM28_02	Embedded Control Systems Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/FP/CEP	230GRAM29_02	Internship/Field Project/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
TOTAL			14	1	8	4									750	22	



Note: A **Postgraduate Diploma** will be awarded if a student exits after the first year.

For Exit at the end of first year the student must complete: (Total credits = 8)

- a) An internship / OJT of 8 - 10 weeks (4 credits)
- b) Additional Course 1 (4 credits) (Vocational Skill Course (VSC) / Skill Enhancement Course (SEC))

**Multidisciplinary Minor Course**

Course Code	230GRAM24 01	230VOSM59 01	230GCSM28 01
Course Name	Sensors and Automation	Introduction to Project Management	Introduction to Data Science
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Course Name	IoT Basics and Applications	Customer Relationship Management	Introduction to Artificial Intelligence

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2025-2026

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## SEMESTER III (LEVEL 7)

COURSE		TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										C R E D I T S
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)		T O T A L	
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)							
PEC	-	Programme Elective Course - I	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	-	Programme Elective Course - II	3	-	-	-	30	30	40	100	-	-	-	-	100	3
IOC	-	Interdisciplinary Open Course - I	2	-	-	-	30	30	40	100	-	-	-	-	100	2
	-	Interdisciplinary Open Course -II	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VEC (HSMC)	230USYB01_03	Behavioral Science and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	100	2
SLC	231GRAM30_03	Seminar	-	-	-	8	-	-	-	-	-	-	-	50	2	
PROJ	231GRAM31_03	Field Project	-	-	4	8	-	-	-	-	-	-	50	50	2	
<b>TOTAL</b>			<b>12</b>	<b>0</b>	<b>4</b>	<b>16</b>								<b>100</b>	<b>4</b>	
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	<b>600</b>	<b>18</b>
														50	1	



L-Lecture  
Format No.: JSPMUni/ACAD/001

T-Tutorial  
Rev. No.: 0.0

P-Practical Session (Laboratory)  
Rev. Date: 01/07/2025

EL-Experiential Learning  
Page 1 of 4

Sem.	Programme Elective Course (PEC)				
III (PEC-I)	Course Code	230GRAM07_03	230GRAM08_03	230GRAM09_03	230GRAM10_03
	Course Name	Industry 4.0	Micro-Electromechanical Systems	Intelligent Manufacturing	Mechatronics System Design
III (PEC-II)	Course Code	230GRAM11_03	230GRAM12_03	230GRAM13_03	230GRAM14_03
	Course Name	Data Science and Regenerative AI	Deep Neural Modeling	Automated Language Processing	Robotic Simulation
IV (PEC-III)	Course Code	230GRAM15_04	230GRAM16_04	230GRAM21_04	230GETM31_04
	Course Name	Mobile and Micro-robotics	Recent Advancements in Artificial Intelligence	Autonomous Robotics and Telecherics	Advanced Control System
IV (PEC-IV)	Course Code	230GRAM19_04	230GRAM20_04	230GETM30_04	230GRAM22_04
	Course Name	Industrial Internet of Things	Cyber physical Systems for Robotics	Computer Vision and Image Processing – Fundamentals and Applications	Unmanned Aerial Vehicle

Sem.	Interdisciplinary Open Course (IOC)			
III (IOC-I)	Course Code	230VMSM11_03	230VMSM13_03	230VMSM08_03
	Course Name	Fundamentals of Financial Management	Fundamentals of Operations and Supply Chain Management	Startup and Entrepreneurship Development
III (IOC-II)	Course Code	230GCSM31_03	230GCSM32_03	230GCSB152_03
	Course Name	Artificial Intelligence for all	Machine Learning in Practice	Cyber Security and Laws

Sem.	Mandatory Learning Course (MLC#) Audit Course	
III	Course Code	230GMEB98_03
	Course Name	Advanced Excel
IV	Course Code	230UPOB02_04
	Course Name	Introduction to Indian Constitution

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							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	-	Programme Elective Course -III/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	-	Programme Elective Course -IV/MOOC	3	-	-	-	25			75	-	-	-	-	100	3
PROJ	231GRAM32_04	Project/Internship with Project	-	-	12	24	-	-	-	-	200	200	100	100	300	12
<b>TOTAL</b>			<b>6</b>	<b>-</b>	<b>12</b>	<b>24</b>								<b>500</b>	<b>18</b>	
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1

Sem.	Programme Elective Course (PEC)				
III (PEC-I)	Course Code	230GRAM07_03	230GRAM08_03	230GRAM09_03	230GRAM10_03
	Course Name	Industry 4.0	Micro-Electromechanical Systems	Intelligent Manufacturing	Mechatronics System Design
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Sem.	Mandatory Learning Course (MLC#) Audit Course	
III	Course Code	230GMEB98_03
	Course Name	Advanced Excel
IV	Course Code	230UPOB02_04
	Course Name	Introduction to Indian Constitution

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