



**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 Computational Sciences**



**NEP aligned Curriculum Structure**

**for**

**M. Tech (Data Science and Artificial Intelligence)**

**(Effective from AY: 2023-24)**



# JSPM University Pune

FACULTY OF SCIENCE AND TECHNOLOGY

SCHOOL OF COMPUTATIONAL SCIENCES

## COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

2023-2024

RELEASE DATE

01/07/2023

FIRST YEAR MASTER OF TECHNOLOGY  
(DATA SCIENCE AND ARTIFICIAL INTELLIGENCE)

REVISION NO.

0.0 (NEP)

### SEMESTER I (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)							
PSMC	230GMAMO2_01	Advanced Numerical Methods	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	230GCSM01_01	Design and Analysis of Algorithms	2	-	-	-	30	30	40	100	-	-	-	-	100	2
PCC	230GCSM02_01	System Modeling and Design	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	230GCSM03_01	Soft Computing	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
MMC	---	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
SEC	230GCSM19_01	R Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3
VSC	230IDCB01_01	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC (HSMC)	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	230GCSM20_01	Design and Analysis of Algorithms Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>800</b>	<b>22</b>



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

T-Tutorial  
Rev. No.:0.0

P-Practical Session (Laboratory)  
Rev. Date:01/07/2023

EL-Experiential Learning  
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Multidisciplinary Minor Course (MMC)		
Course Code	230GRAM24_01	230GETM17_01
Course Name	Sensors and Automation	Embedded System
Course Code	230GETM16_01	230VOSM26_01
Course Name	IoT Basics and Applications	Project Management

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**Dr. Rahul R. Chakre**  
Programme Coordinator, MTech-DSAI

*[Handwritten signature]*

**Dr. Anuradha S. Deshpande**  
Associate Dean (Academics)

*[Handwritten signature]*

**Prof. G. A. Patil**  
Director, School of Computational Sciences

*[Handwritten signature]*

**Prof. R. S. Deshpande**  
Dean, Faculty of Science and Technology

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**Prof. B. B. Ahuja**  
Vice Chancellor, JSPM University Pune  
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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)								
PSMC	230GMAM03_02	Probability and Statistics	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	230GDSM01_02	Artificial Intelligence	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	230GDSM02_02	Data Science	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PCC	230GDSM03_02	Machine Learning	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
MMC	---	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
VSC	230IINB02_02	Innovation	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5	
AEC (HSMC)	230UENM02_02	Business Communication	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
RMC	230IRMM02_02	Research Design and Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
LC	230GDSM04_02	Data Science Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/FP/CEP	230GDSM05_02	Internship/Field Project/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
TOTAL			14	2	6	4									750	22	



Multidisciplinary Minor Course (MMC)		
Course Code	230GRAM24_01	230GETM17_02
Course Name	Sensors and Automation	Embedded System
Course Code	230GETM16_02	230VOSM26_02
Course Name	IoT Basics and Applications	Project Management

**Note:** A Postgraduate Diploma will be awarded if a student exists after first year. For Exit at the end of first year the student must complete: (Total credits = 8)

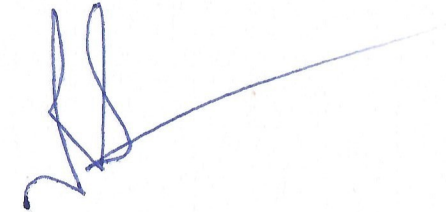
- a) An internship / OJT of 8 - 10 weeks (4 credits)
- b) Additional Course 1 (4 credits) (Vocational Skill Course (VSC) / Skill Enhancement Course (SEC))



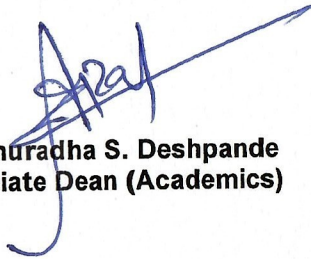
**Dr. Rahul R. Chakre**  
Programme Coordinator, MTech-DSAI



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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)	Assignments (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	-	-	-	-	50	2		
SLC	230GDSM12_03	Seminar	-	-	-	8	-	-	-	-	-	-	100	100	100	2		
IITP/ FP/ CEP	230GDSM13_03	Internship/Field Project/Community Engagement Programme	-	-	12	-	-	-	-	-	-	-	100	100	100	6		
TOTAL			12	-	12	8											650	20



Program Elective Course (PEC)					
Sem.	Specialization	Computer Science and Engineering	Data Science and Artificial Intelligence	Information Security	Cloud Computing
III (PEC-I)	Course Code	230GCSM13_03	230GCSM18_03	230GCSM14_03	230GCSM40_03
	Course Name	High-Performance Computing	Pattern Recognition	Blockchain Technology and Applications	Edge Computing
III (PEC-II)	Course Code	230GCSM09_03	230GCSM16_03	230GISM10_03	230GCSM41_03
	Course Name	Network Management	Deep Learning	Security Standards and Frameworks	Fog Computing

Interdisciplinary Open Course (IOC)				
III (IOC-I)	Course Code	230GETM28_03	230VMMS05_03	230GCEB31_03
	Course Name	IoT and Embedded Systems	Fundamentals of Financial Management	E-Waste Management
III (IOC-II)	Course Code	230GETB33_03	230VBCB14_03	230GCEB40_03
	Course Name	EV Technology	E-Commerce	Smart Transportation System



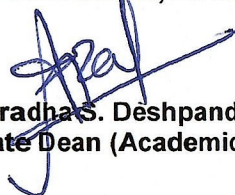
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## SEMESTER IV (LEVEL 7)

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 / 25 Marks)			END SEMESTER EXAMINATION (100 / 75 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
PEC	---	Programme Elective Course - III	3	-	-	-	25			75	-	-	-	-	100	3
PEC	---	Programme Elective Course - IV	3	-	-	-	25			75	-	-	-	-	100	3
PROJ	230GDSM14_04	Project / Internship with Project	-	-	12	24	-	-	-	-	-	-	200	200	200	12
<b>TOTAL</b>			<b>6</b>	<b>-</b>	<b>12</b>	<b>24</b>							<b>200</b>	<b>200</b>	<b>400</b>	<b>18</b>
MLC#	230UPOB02_04	Introduction to Indian Constitution	1	-	-	-	-	-	-	50	-	-	-	-	50	1

Sem.	Specialization	Program Elective Course (PEC)			
	Course Code	Computer Science and Engineering	Data Science and Artificial Intelligence	Information Security	Cloud Computing
IV (PEC-III)	230GCSM08_04	Parallel Computer Architecture (NPTEL MOOC)	Natural Language Processing (NPTEL MOOC)	Foundations of Cryptography (NPTEL MOOC)	Cloud Computing (NPTEL MOOC)
IV (PEC-IV)	230GCSM42_04	Practical High-Performance Computing (NPTEL MOOC)	Introduction to Large Language Models (LLMs) (NPTEL MOOC)	230GISM19_04	230GCSM43_04
				Cryptography and Network Security (NPTEL MOOC)	Secure Computation: Part I (NPTEL MOOC)

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