

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



NEP aligned Syllabus
for
M. Tech (Design Engineering)

(Effective from AY: 2024-25)



JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF MECHANICAL AND MANUFACTURING SCIENCES

FIRST YEAR MASTER OF TECHNOLOGY
(Design Engineering)

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)

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 IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER 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	230GDEM01_01	Computer Simulations of Machines	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PCC	230GDEM02_01	Theory of Elasticity	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	230GDEM03_01	Advanced Tribology	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	230GDEM04_01	Numerical Simulations Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
TOTAL			16	1	8	4									750	22



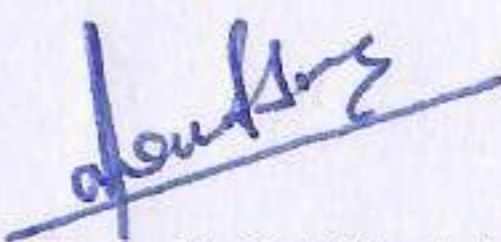
L-Lecture
Format No.: JSPMUni/ACAD/001

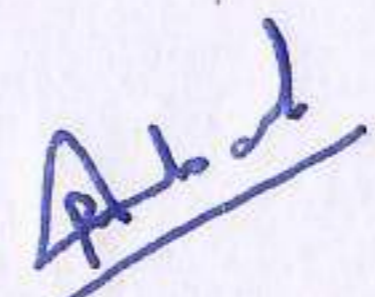
T-Tutorial
Rev. No.:0.0


P-Practical Session (Laboratory)
Rev. Date:01/07/2024

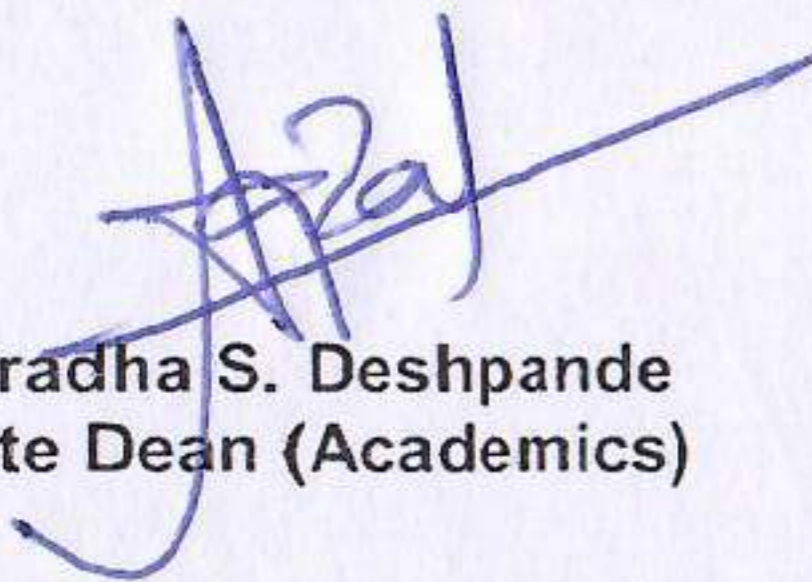
EL-Experiential Learning
Page 1 of 2

Sem.	Multidisciplinary Minor Course			
I	Course Code	230GRAM24_01	230VOSM59_01	230GCSM28_01
	Course Name	Sensors and Automation	Introduction to Project Management	Introduction to Data Science
II	Course Code	230GETM16_02	230VDMM02_02	230GCSM29_02
	Course Name	IoT Basics and Applications	Customer Relationship Management	Introduction to Artificial Intelligence

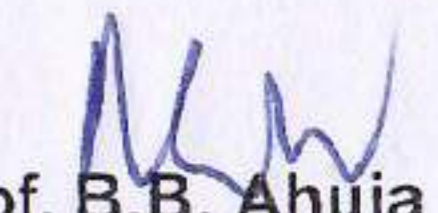

Dr. Sunil S Waddar
 Programme Coordinator


Prof. P. M. Ambad
 Director, School of Mechanical and Manufacturing
 Sciences


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


Dr. Anuradha S. Deshpande
 Associate Dean (Academics)




Prof. B.B. Ahuja
 Vice Chancellor, JSPM University Pune



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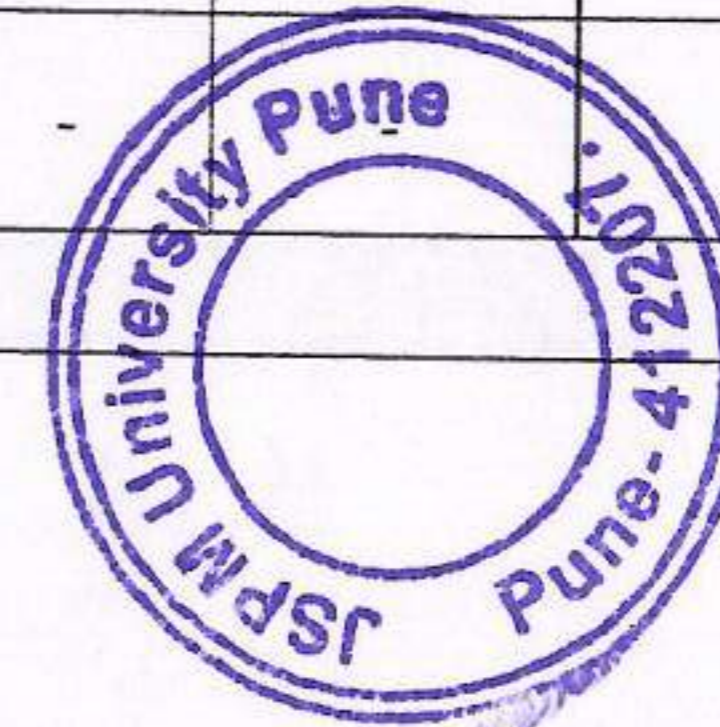
01/07/2024

REVISION NO.

0.0 (NEP)

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 IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)				
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)									
PCC	230GMEM05_02	Vibration and Condition Monitoring	2	1	-	-	30	30	40	100	-	-	-	-	100	3		
	230GMEM06_02	Fracture Mechanics	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5		
	230GMEM07_02	Theory of Plasticity	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2		
SEC	230GMEM08_02	Advanced Finite Element Analysis	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 and Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2		
LC	230GDEM09_02	Advanced Dynamics Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1		
IITP/ FP/ CEP	230GDEM10_02	Internship/Field Project/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2	
TOTAL			14	1	8	4									750	22		



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

T-Tutorial
Rev. No.:0.0

P-Practical Session (Laboratory)
Rev. Date:01/07/2024


EL-Experiential Learning
Page 1 of 2


Multidisciplinary Minor Course				
I	Course Code	230GRAM24_01	230VOSM59_01	230GCSM28_01
	Course Name	Sensors and Automation	Introduction to Project Management	Introduction to Data Science
II	Course Code	230GETM16_02	230VDMM02_02	230GCSM29_02
	Course Name	IoT Basics and Applications	Customer Relationship Management	Introduction to Artificial Intelligence


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

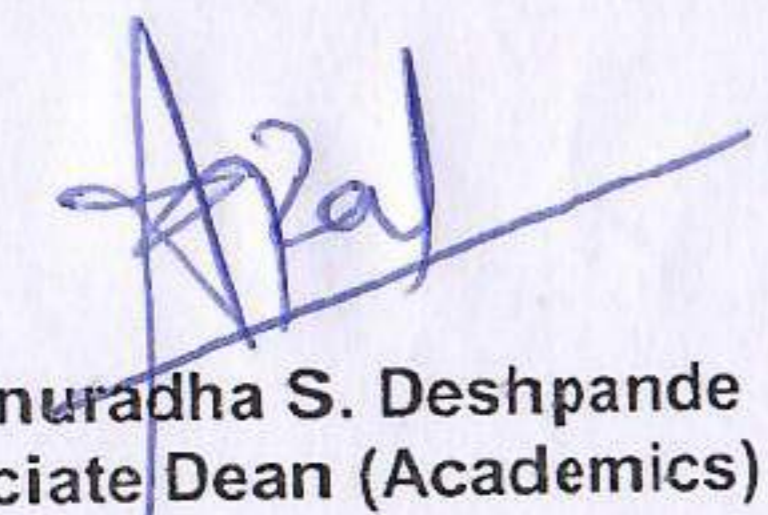
For Exit at the end of first year the student must complete: (Total credits = 8)

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

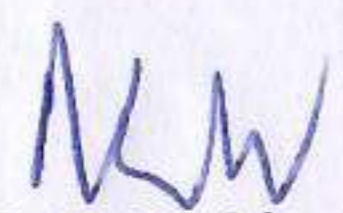

Dr. Sunil S Waddar
 Programme Coordinator


Prof. P. M. Ambad
 Director, School of Mechanical and Manufacturing
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 Dean, Faculty of Science and
 Technology


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 Associate Dean (Academics)




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 Vice Chancellor, JSPM University Pune



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COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

2025-2026

RELEASE DATE

01/07/2025

REVISION NO.

0.0 (NEP)

SECOND YEAR MASTER OF TECHNOLOGY (DESIGN ENGINEERING)

SEMESTER III (Level 7)

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 IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER 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	230GDEM19_03	Seminar	-	-	-	8	-	-	-	-	-	-	50	50	50	2
PROJ	230GDEM20_03	Field Project	-	-	4	8	-	-	-	-	50	50	50	50	100	4
TOTAL			12	-	4	16									600	18
MLC#	-	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1

L-Lecture
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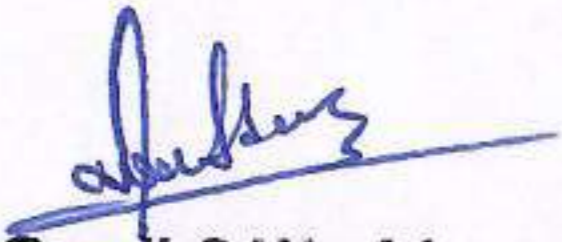



EL-Experiential Learning
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Sem.	Programme Elective Course (PEC)				
III (PEC-I)	Course Code	230GDEM11_03	230GDEM12_03	230GDEM13_03 ✓	230GDEM14_03
	Course Name	Optimization Techniques	Computer Aided Geometric Design	Fatigue and Failure Analysis	Stress Analysis
III (PEC-II)	Course Code	230GDEM15_03 ✓	230GDEM16_03	230GDEM17_03	230GDEM18_03
	Course Name	Mechanics of Composite Materials	Design of Experiment	Sustainability Engineering	Design automation with IoT
IV (PEC-III)	Course Code	230GDEM21_04	230GDEM22_04	230GDEM23_04	230GDEM24_04
	Course Name	Pipping And Pressure Vessels	Reverse Engineering	Optimization Through MATLAB	3D Printing
IV (PEC-IV)	Course Code	230GDEM25_04	230GDEM26_04	230GDEM27_04	230GDEM28_04
	Course Name	Industry 4.0	Automotive Engineering Design	Machine Learning for Designers	Product life cycle management


Sem.	Interdisciplinary Open Course (IOC)			
III (IOC-I)	Course Code	230VMSM05_03	230VMSM07_03 ✓	230VMSM08_03
	Course Name	Fundamentals of Financial Management	Fundamentals of Operations and Supply Chain Management	Start up 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


Dr. Sunil S Waddar
 Programme Coordinator

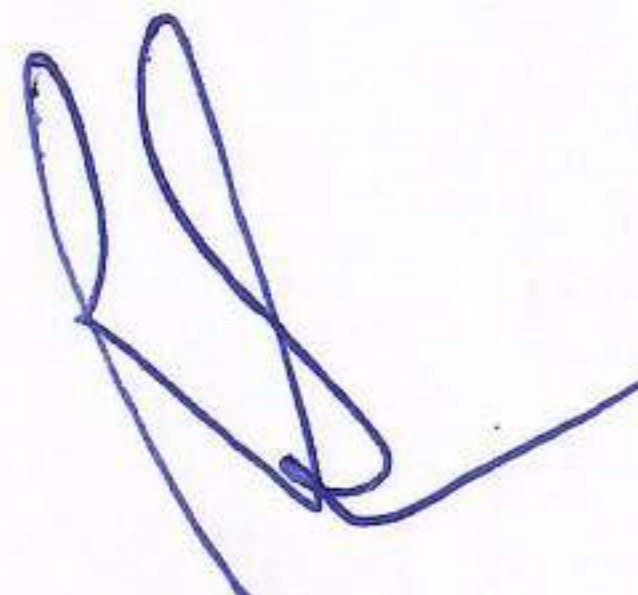

Dr. Anuradha S. Deshpande
 Associate Dean (Academics)


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Prof. P. M. Ambad
 Director, School of Mechanical and Manufacturing Sciences



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Prof. R. S. Deshpande
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 EL-Experiential Learning
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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 IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							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	-	-	-	30	30	40	100	-	-	-	-	100	3
PROJ	230GDEM29_4	Project / Internship with Project	-	-	12	24	-	-	-	-	200	200	100	100	300	3
TOTAL			6	-	12	24	-	-	-	-	200	200	100	100	500	18
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1

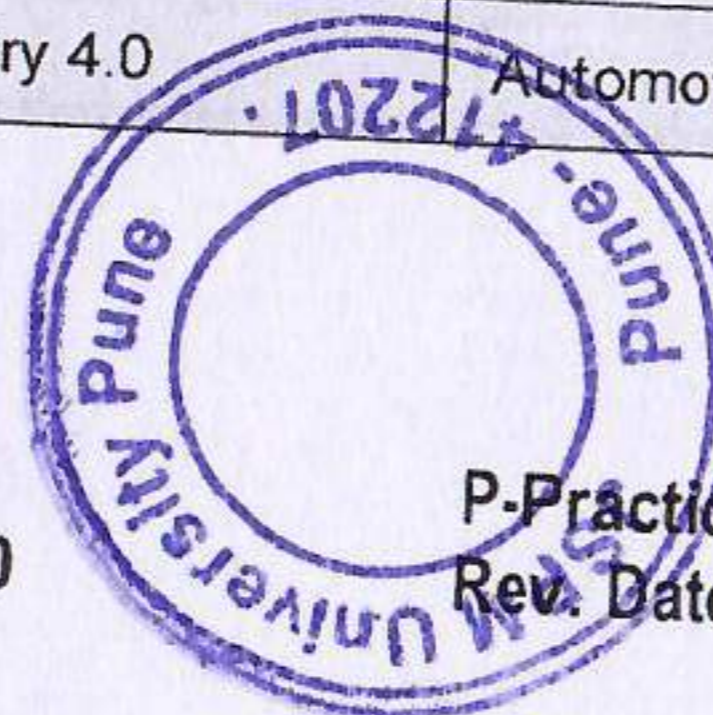
Sem.	Course Code	Course Name	Course Code	Course Name	Course Code	Course Name	Course Code	Course Name
III (PEC-I)	230GDEM11_03	Optimization Techniques	230GDEM12_03	Computer Aided Geometric Design	230GDEM13_03	Fatigue and Failure Analysis	230GDEM14_03	Stress Analysis
	230GDEM15_03	Mechanics of Composite Materials	230GDEM16_03	Design of Experiment	230GDEM17_03	Sustainability Engineering	230GDEM18_03	Design automation with IoT
IV (PEC-III)	230GDEM21_04	Pipping And Pressure Vessels	230GDEM22_04	Reverse Engineering	230GDEM23_04	Optimization Through MATLAB	230GDEM24_04	3D Printing
	230GDEM25_04	Industry 4.0	230GDEM26_04	Automotive Engineering Design	230GDEM27_04	Machine Learning for Designers	230GDEM28_04	Product life cycle management

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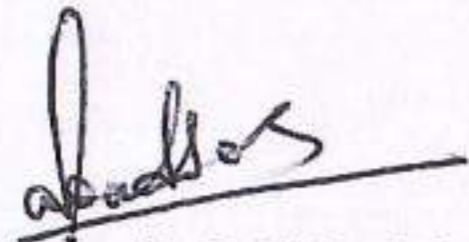
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EL-Experiential Learning
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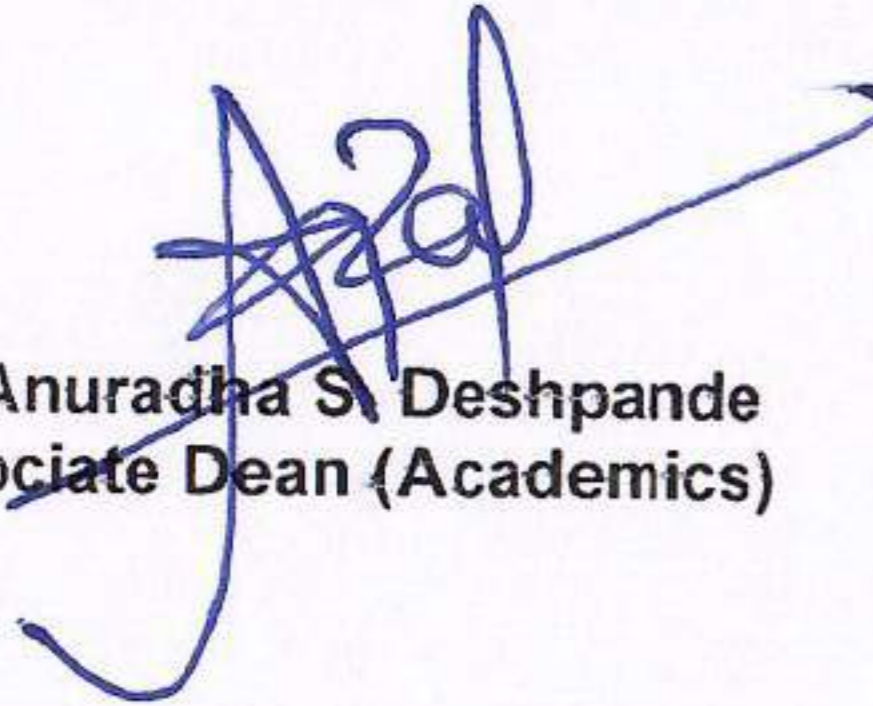


Sem.	Mandatory Learning Course (MLC#) Audit Course	
III	Course Code	230GMEB98_03
	Course Name	Advanced Excel
IV	Course Code	230UPOB02_04
	Course Name	Introduction to Indian Constitution

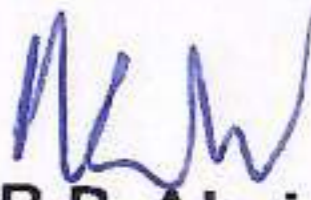

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