



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 Electrical and Communication
Sciences



NEP aligned Curriculum Structure

For

M.Tech (VLSI & Embedded Systems)

(Effective from AY: 2023-24)



JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

COURSE STRUCTURE
(NEP 2020 Aligned)

W. E. F

2023-2024

RELEASE DATE

01/07/2023

MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)

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	230GMAM02_01	Advanced Numerical Methods	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	230GETM01_01	Analog CMOS VLSI Design	2	-	-	-	30	30	40	100	-	-	-	-	100	2
PCC	230GETM02_01	Advanced Embedded System	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PCC	230GETM03_01	Low power VLSI Circuit Design	3	-	-	-	30	30	40	100	-	-	-	-	100	3
MMC	230GRAM24_01	Sensors and Automation	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	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	230GETM21_01	Advanced Embedded System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
TOTAL			16	1	8	4									800	22

Alisha
Dr. Alisha Priya
M.Tech. Coordinator, SECS

Sourabh
Prof. Santoshkumar Hampannavar
Director, School of Electrical & Communication Sciences

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

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



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

L-Lecture
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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)								
PSBC	230GETM20_02	Basics of IC Fabrication	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	230GETM04_02	RTL Synthesis and Simulation	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PCC	230GETM05_02	Digital CMOS VLSI Design	2	-	-	-	30	30	40	100	-	-	-	-	100	2	
MMC	230GISM03_02	Cyber Security	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	230GETM19_02	System Design with Embedded Linux	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	230GETM22_02	RTL Synthesis and Simulation Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	230GETM23_02	Digital CMOS VLSI Design Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/F P/CEP	230GETM24_02	Internship/FieldProject/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
TOTAL			13	1	10	4									800	22	

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)

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

Alisha

Dr. Alisha Priya
M.Tech. Coordinator, SECS

Santosh

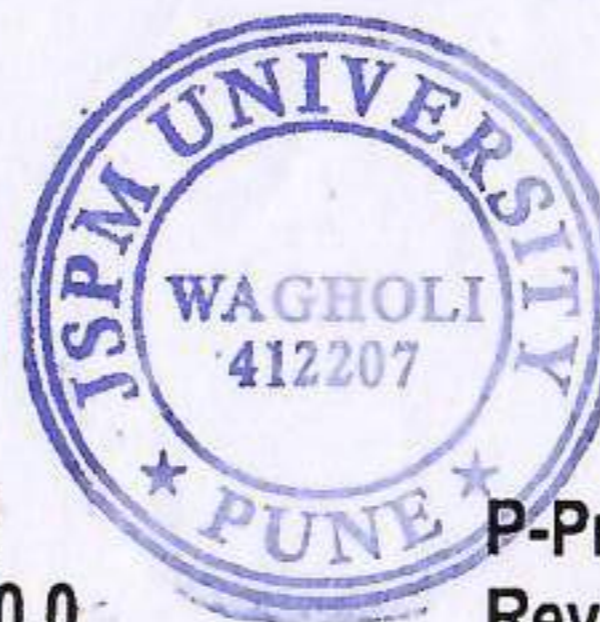
Prof. Santoshkumar Hampannavar
Director, School of Electrical & Communication Sciences

R. S. Deshpande

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

Anuradha

Dr. Anuradha S. Deshpande
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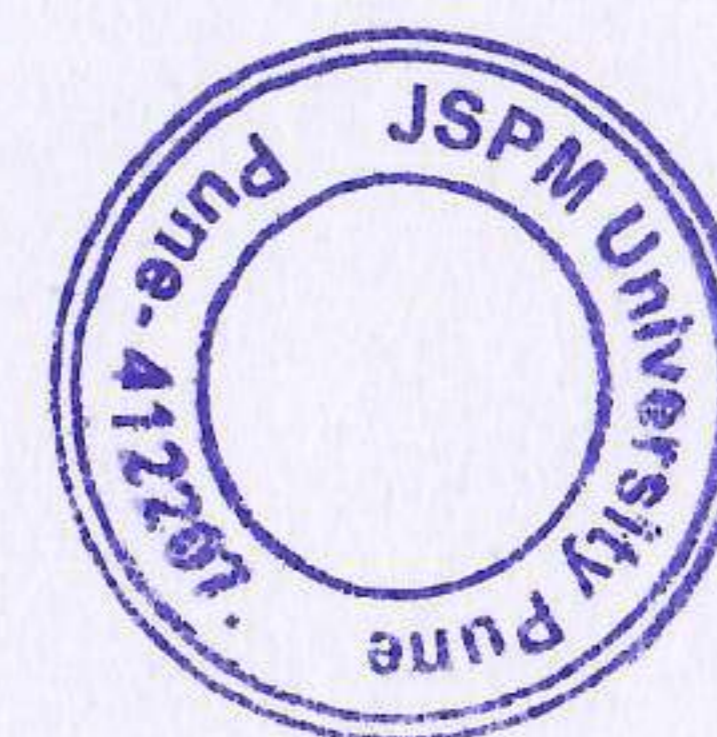
MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)

REVISION NO.

0.0 (NEP)

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 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	---	Program Elective Course -I/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PEC	---	Program Elective Course -II/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
IOC	---	Interdisciplinary Open Elective Course -I	2	-	-	-	30	30	40	100	-	-	-	-	100	2
IOC	---	Interdisciplinary Open Elective Course -II	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VEC (HSM C)	230USYB01_03	Behavioral Science and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
SLC	230GETM25_03	Seminar	-	-	-	8	-	-	-	-	-	-	100	100	100	2
IITP/F P/CEP	230GETM26_03	Internship/Field Project/Community Engagement Programme	-	-	12	-	-	-	-	-	-	-	100	100	100	6
TOTAL			12	0	12	8									650	20



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Sem.	Programme Elective Course (PEC-I)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	230GETM06_03	230GETM07_03	230GETM08_03
	Course Name	VLSI Design Flow: RTL to GDS	VLSI Architectural Design and Implementation	Testing of VLSI Circuits

Sem.	Programme Elective Course (PEC-II)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	230GETM09_03	230GETM10_03	230GETM11_03
	Course Name	Embedded System Integration	System-on-Programmable-Chip Design	Design of Semiconductor Memories

Sem.	Interdisciplinary Open Elective Course -I (IOC-I)			
	Course Code	230VMSM11_03	230GCSB160_03	230VMSM08_03
III	Course Name	Fundamentals of Financial Management	Introduction to Deep Learning	Start up and Entrepreneurship Development

Sem.	Interdisciplinary Open Elective Course -II (IOC-II)			
	Course Code	230GRAM51_03	230GCSM32_03	230GCSM33_03
III	Course Name	Industrial Robotics and Automation	Machine Learning in Practice	Introduction to Python Programming

Alisha

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[Signature]

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SEMESTER IV (LEVEL-7)

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			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 INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	---	Program Elective Course -III / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PEC	---	Program Elective Course -IV/ MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PROJ	230GETM27_04	Project / Internship with Project	-	-	24	-	-	-	-	-	-	-	-	200	200	12
TOTAL			6	0	24	0								200	200	12
MLC#	230UPOB02_04	Introduction to Indian Constitution	1	-	-	-	-	-	-	50	-	-	-	-	50	1

Sem.	Programme Elective Course (PEC-III)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
IV	Course Code	230GETM12_04	230GETM13_04	230GETM14_04
	Course Name	Design and Analysis of VLSI Subsystems	Embedded Systems-Design Verification and Test	Physical Design Automation

Sem.	Programme Elective Course (PEC-IV)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
IV	Course Code	230GETM15_04	230GETM29_04	230GETM32_04
	Course Name	Digital VLSI Testing	VLSI Signal Processing	Machine Learning in VLSI CAD

Alisha

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STAR

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