

**JSPM University Pune**

**Faculty of Science and Technology**

**School of Electrical and Communication Sciences**



**NEP aligned Syllabus Structure  
for**

**Ph.D. (ELECTRONICS AND TELECOMMUNICATION ENGINEERING)**

**(For AY: 2023-24, 2024-25)**



# 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

REVISION NO.

0.0 (NEP)

Doctor of Philosophy  
(ELECTRONICS AND TELECOMMUNICATION)

### SEMESTER I (LEVEL 8)

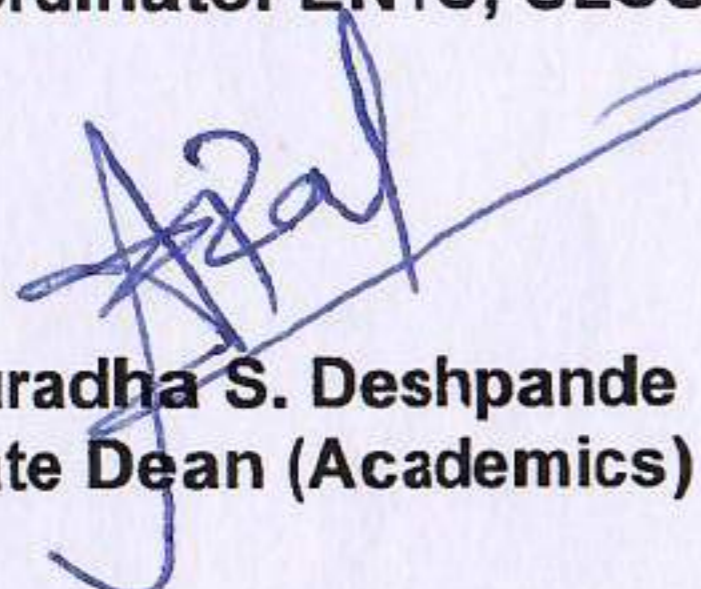
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			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	-	Domain Specific Course-1 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PSMC	230GMAD01	Foundations of Mathematical Modelling and Statistical Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3
RMC	230IRMD01	Research Publication and Ethics	2	-	-	-	30	30	40	100	-	-	-	-	100	2
RMC	230IRMD02	Research Proposal Writing	1	-	-	-	-	-	-	-	-	-	50	50	50	1
RMC	230IRMD03	Literature Review Writing	2	-	-	-	-	-	-	-	-	-	100	100	100	2
SLC	230ISR01	Seminar	-	-	-	8	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>0</b>	<b>8</b>									<b>600</b>	<b>16</b>

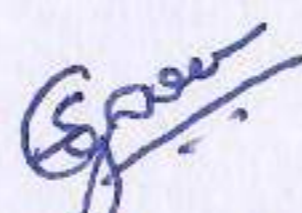


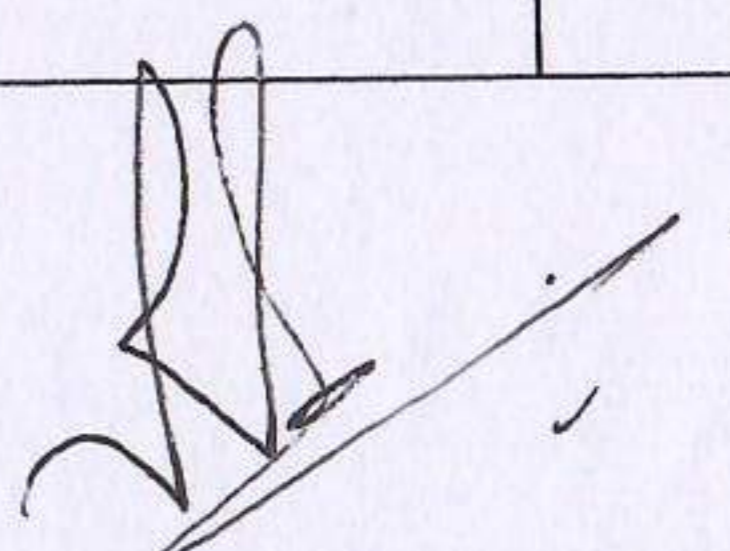
Sem.	PCC (Domain Specific Course-1 / MOOC)	
	Specialization	
III	Course Code	230GETD01
	Course Name	An Introduction to Artificial Intelligence/ MOOC
	Course Code	230GETD06
	Course Name	Fundamentals of Artificial Intelligence/MOOC


Sem.	PCC (Domain Specific Course-2 / MOOC)				
	Specialization				
III	Course Code	230GETD02	230GETD03	230GETD04	230GETD05
	Course Name	RF Transceiver Design/ MOOC	Biophotonics/ MOOC	Computer Vision and Image Processing/ MOOC	Communication Networks/ MOOC
	Course Code	230GETD07	230GETD08	230GETD09	230GETD10
	Course Name	Microwave Engineering/MOOC	Digital Image Processing/MOOC	Nanobiophotonics: Touching Our Daily Life/MOOC	Analog Communication/MOOC
	Course Code	230GETD11			
	Course Name	5G Wireless Standard Design/MOOC			

  
**Dr. Arjuna Muduli**  
 PhD Coordinator ENTC, SECS

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

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

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

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



**Vice Chancellor**  
**JSPM University**  
**Pune**



# JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY  
SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

## COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

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Doctor of Philosophy  
(ELECTRONICS AND TELECOMMUNICATION)

REVISION NO.

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### SEMESTER I (LEVEL 8)

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	-	Domain Specific Course-1 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PSMC	230GMAD01	Foundations of Mathematical Modelling and Statistical Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3
RMC	231IRMD01	Research Publication and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
RMC	231IRMD02	Research Proposal Writing	1	1	-	-	-	-	-	-	-	-	50	50	50	2
RMC	231IRMD03	Writing Literature Review	2	-	-	-	-	-	-	-	-	-	50	50	50	2
SLC	231ISRD01	Seminar	-	-	-	4	-	-	-	-	-	-	50	50	50	1
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>0</b>	<b>4</b>									<b>500</b>	<b>16</b>



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.	PCC (Domain Specific Course-1 / MOOC)	
	Specialization	
III	Course Code	230GETD01
	Course Name	An Introduction to Artificial Intelligence/ MOOC
	Course Code	230GETD06
	Course Name	Fundamentals of Artificial Intelligence/MOOC
	Course Code	230GETD12
	Course Name	Machine Learning for Engineering and Science Applications/MOOC

Sem.	PCC (Domain Specific Course-2 / MOOC)				
	Specialization				
III	Course Code	230GETD02	230GETD03	230GETD04	230GETD05
	Course Name	RF Transceiver Design/ MOOC	Biophotonics/ MOOC	Computer Vision and Image Processing/ MOOC	Communication Networks/ MOOC
	Course Code	230GETD07	230GETD08	230GETD09	230GETD10
	Course Name	Microwave Engineering/MOOC	Digital Image Processing/MOOC	Nanobiophotonics: Touching Our Daily Life/MOOC	Analog Communication/MOOC
	Course Code	230GETD11	230GETD13	230GETD14	230GETD15
	Course Name	5G Wireless Standard Design/MOOC	Introduction To Internet Of Things/MOOC	Biomedical Signal Processing/MOOC	Computer Vision and Image Processing - Fundamentals and Applications/MOOC

*S.K. Rout*

**Dr. Susanta K. Rout**  
PhD Coordinator ENTG, SECS

*R*

**Prof. R. A. Patil**  
Director, School of Electrical & Communication Sciences

*[Signature]*

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

*[Signature]*

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



*[Signature]*

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

**Vice Chancellor**  
**JSPM University**  
**Pune**



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FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

Doctor of Philosophy  
(ELECTRONICS AND TELECOMMUNICATION)

COURSE STRUCTURE  
(NEP 2020 Aligned)

W. E. F

2025-2026

RELEASE DATE

01/07/2025

REVISION NO.

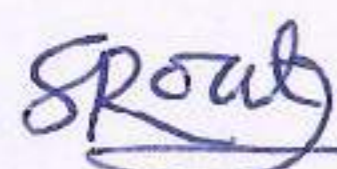
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## SEMESTER I (LEVEL 8)

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	-	Domain Specific Course-1 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PSMC	230GMAD01	Foundations of Mathematical Modelling and Statistical Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3
RMC	231IRMD01	Research Publication and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
RMC	231IRMD02	Research Proposal Writing	1	1	-	-	-	-	-	-	-	-	50	50	50	2
RMC	231IRMD03	Writing Literature Review	2	-	-	-	-	-	-	-	-	-	50	50	50	2
SLC	231ISR01	Seminar	-	-	-	4	-	-	-	-	-	-	50	50	50	1
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>0</b>	<b>4</b>									<b>500</b>	<b>16</b>

Sem.	PCC (Domain Specific Course-1 / MOOC)	
	Specialization	
I	Course Code	230GETD01
	Course Name	An Introduction to Artificial Intelligence/ MOOC
	Course Code	230GETD06
	Course Name	Fundamentals of Artificial Intelligence/MOOC
	Course Code	230GETD12
	Course Name	Machine Learning for Engineering and Science Applications/MOOC

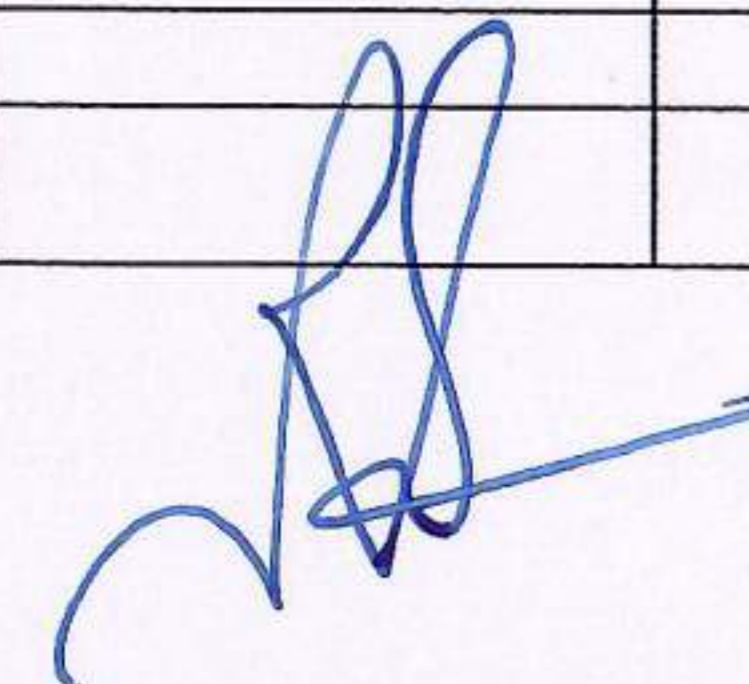
Ser	PCC (Domain Specific Course-2 / MOOC)				
	Specialization				
I	Course Code	230GETD02	230GETD03	230GETD04	230GETD05
	Course Name	RF Transceiver Design/ MOOC	Biophotonics/ MOOC	Computer Vision and Image Processing/ MOOC	Communication Networks/ MOOC
	Course Code	230GETD07	230GETD08	230GETD09	230GETD10
	Course Name	Microwave Engineering/MOOC	Digital Image Processing/MOOC	Nanobiophotonics: Touching Our Daily Life/MOOC	Analog Communication/MOOC
	Course Code	230GETD11	230GETD13	230GETD14	230GETD15
	Course Name	5G Wireless Standard Design/MOOC	Introduction To Internet Of Things/MOOC	Biomedical Signal Processing/MOOC	Computer Vision and Image Processing - Fundamentals and Applications/MOOC
	Course Code	250GETD01	250GETD02	250GETD03	250GETD04
	Course Name	Introduction to Wireless and Cellular Communications/MOOC	Nanophotonics, Plasmonics, and Metamaterials/MOOC	Deep Learning for Computer Vision/MOOC	Deep Learning/MOOC
	Course Code	250GETD05	250GETD06	250GETD07	250GETD08
	Course Name	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning/MOOC	RF and Microwave Networks/MOOC	Mathematical Foundations of Machine Learning/MOOC	Photonic Integrated Circuit/MOOC
	Course Code	250GETD09			
	Course Name	Electromagnetic Waves and 5G Smart Antennas			



Dr. Susanta K. Rout  
Ph.D. Coordinator ENTC, SECS



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Associate Dean (Academics)  
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Vice Chancellor, JSPM University Pune



# 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)

Date: 17-03-2026

To,  
The Honorable Vice Chancellor,  
JSPM University Pune.

Subject: Details of NPETL courses offered for Ph.D. coursework of academic year 2025-26, for batch-V and VI.

Respected Sir,

In alignment with the National Education Policy 2020 and to enhance flexible learning, we propose to introduce the following courses in the current curriculum structure with equivalent MOOC / NPTEL online certification courses for the academic year 2025-26.

Name of Programme: Electronics and Telecommunication Engineering

Semester: I

Sr. No.	Suggested Domain Specific Course-2 / MOOC			
	Course Code	Course Name	Credits	MOOC Duration in Weeks
1	250GETD01	Introduction to Wireless and Cellular Communications	3	12
2	250GETD02	Nanophotonics, Plasmonics, and Metamaterials	3	12
3	250GETD03	Deep Learning for Computer Vision	3	12
4	250GETD04	Deep Learning	3	12
5	250GETD05	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning	3	12
6	250GETD06	RF and Microwave Networks	3	12
7	250GETD07	Mathematical Foundations of Machine Learning	3	12
8	250GETD08	Photonic Integrated Circuit	3	12



# JSPM UNIVERSITY PUNE

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The teaching and evaluation scheme for the suggested MOOC courses is as follows.

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/ 25 Marks)			END SEMESTER EXAMINATION (100 / 50/ 75 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 (25 Marks)							
MOOC Course																
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	-	-	25	75	-	-	-	-	100	3

We kindly request your approval for the proposed courses.

Dr. Susanta K. Rout  
Ph.D. Coordinator ENTC, SECS

Prof. R. A. Patil  
Director, SECS, FST, JSPM University Pune

Prof. R. S. Deshpande  
Dean, FST, JSPM University Pune

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Associate Dean (Academics), JSPM University Pune



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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)

To,  
The Honorable Vice Chancellor,  
JSPM University Pune.

Date: 17-03-2026

Subject: Details of newly added course offered for Ph.D. coursework of academic year 2025-26, for batch-VI.

Respected Sir,

In alignment with the National Education Policy 2020 and to enhance flexible learning, we propose to introduce the following course in the current curriculum structure for the academic year 2025-26, for batch-VI.

Name of Programme: Electronics and Telecommunication Engineering

Semester: I

Sr. No.	Suggested Domain Specific Course-2 / MOOC			
	Course Code	Course Name	Credits	MOOC Duration in Weeks
1	250GETD09	Electromagnetic Waves and 5G Smart Antennas	3	12



# JSPM UNIVERSITY PUNE

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The teaching and evaluation scheme for the suggested course is as follows.

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/ 25 Marks)			END SEMESTER EXAMINATI ON (100 / 50/ 75 Marks)	CONTINUO US INSEMEST ER EVALUATI ON (50 Marks)	END SEMESTER EXAMINATI ON (50 Marks)	CONTINUOU S INSEMESTER EVALUATION (50 Marks)			END SEMESTE R EXAMINA TION (50 Marks)
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)							
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
MOOC Course																

We kindly request your approval for the proposed course.

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