

Scheme of Studies

Master of Technology

Electronics and Communication Engineering

2022



Department of EECE

SCHOOL OF ENGINEERING & TECHNOLOGY



THE NORTHCAP UNIVERSITY, GURGAON

(Established under Haryana Govt. Notification No. Leg. 32/2006-HARYANA ACT No.25 of 2009)

Scheme of Studies

M.Tech in Electronics and Communication Engineering

Department of EECE offers the following programs during the academic year 2022-23:

Master of Technology (M.Tech.) in Electronics and Communication Engineering with specialization in

- Communication Engineering
- VLSI Design

There are 3 options for M.Tech program:

- M.Tech Full Time (Course Duration – 2 years)
A well - balanced, industry driven, and research aligned curriculum that ensures integrating theory with real-world applications. Holistic pedagogy and emphasis on development of additional technical skills helps students to head start their career in core industries.
- PG Diploma – Exit option after one year for PG Diploma in relevant specialization
1 year of study in the MTech program followed by an exit of 10 credit bridge courses lasting two months, including a 7-credit job-specific internship/apprenticeship and 3 credit skill based course that would help the graduates acquire job ready competencies required to enter the workforce.
- M.Tech Part Time (Course Duration - 3 years)
A specially designed three years program for working professional with flexible teaching pedagogy and flexible credit-based system to ensure smooth learning along with the routine office work.



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2022

M.Tech full time (2 years)

Sem	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6	L	T	P	Weekly Contact Hours	Credits
I	ECL505 Adv. Digital Communication 3-0-2(4)	ECL523 Digital VLSI Design 3-0-2(4)	Program Elective-1 3-0-2(4)	Program Elective-2 3-0-2 (4)	ECC509 Seminar 0-0-4(2)	ECS501 Community Service	12	0	12	24	18
II	ECL501 Digital Signal Processing 3-0-2(4)	ECL513 Machine Learning 2-0-2(3)	Program Elective-3 3-0-2(4)	Program Elective-4 3-0-2(4)	ECD512 Minor Project 0-0-10(5)	ECS502 Community Service (140 hours = 2 credit)*	11	0	18	19	22
III	MAL616 Research Methodology 2-1-0(3)	Open Elective 2-0-2(3)	ECD605 Dissertation-I 0-0-12(6)	Program Elective-5 3-0-2(4)		ECS601 Community Service	7	1	16	12	16
IV	ECD602 Dissertation-II 0-0-24(12)					ECS602 Community Service (140 hours = 2 credit)*	0	0	24	-	14
TOTAL CREDITS OF THE M.TECH DEGREE PROGRAMME = 70											70

*Students can utilize the summer/winter break period to complete the 140 Community Service hours every year



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PG Diploma with 1 year exit

Sem	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6	L	T	P	Weekly Contact Hours	Credits
I	ECL505 Adv. Digital Communication 3-0-2(4)	ECL523 Digital VLSI Design 3-0-2(4)	Program Elective-1 3-0-2(4)	Program Elective-2 3-0-2 (4)	ECC509 Seminar 0-0-4(2)	ECS501 Community Service	12	0	12	24	18
II	ECL501 Digital Signal Processing 3-0-2(4)	ECL513 Machine Learning 2-0-2(3)	Program Elective-3 3-0-2(4)	Program Elective-4 3-0-2(4)	ECD512 Minor Project 0-0-10(5)	ECS502 Community Service (140 hours = 2 credit)*	11	0	18	19	22
Summer	ECV502 Skill based course (3)	ECT502 Industrial Internship (7)									10
EXIT OPTION: PG DIPLOMA; CREDITS = 50											50

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M.Tech Part time (3 years)

Sem	Subject 1	Subject 2	Subject 3	Subject 4	Subject 6	L	T	P	Weekly Contact Hours	Credits
I	ECL505 Adv. Digital Communication 3-0-2(4)	ECL523 Digital VLSI Design 3-0-2(4)	Program Elective-1 3-0-2(4)		ECS501 Community Service	9	0	6	15	12
II	ECL501 Digital Signal Processing 3-0-2(4)	ECL513 Machine Learning 2-0-2(3)	Program Elective-2 3-0-2 (4)	ECC509 Seminar 0-0-4(2)	ECS502 Community Service (140 hours = 2 credit)*	8	0	10	18	15
III	Program Elective-3 3-0-2(4)	Open Elective 2-0-2(3)	MAL616 Research Methodology 2-1-0(3)		ECS601 Community Service	7	1	4	12	10
IV	Program Elective-4 3-0-2(4)	ECD512 Minor Project 0-0-10(5)			ECS602 Community Service (140 hours = 2 credit)*	3	0	12	5	11
V	Program Elective-5 3-0-2(4)	ECD605 Dissertation-I 0-0-12(6)				3	0	14	5	10
VI	ECD602 Dissertation-II 0-0-24(12)					0	0	24	-	12
TOTAL CREDITS OF THE M.TECH DEGREE PROGRAMME = 70										70

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Program Core					
Adv. Digital Communication		Digital VLSI Design		Digital Signal Processing	
Machine Learning		Research Methodology		Seminar	
Minor Project		Dissertation- I		Dissertation- II	
Program Electives					
TRACK I: Communication Engineering			TRACK II: VLSI Design		
ECL506 Optical Communication	ECL502 Digital Image Processing	ECL621 Statistical Signal Processing	ECL525 Semiconductor device modeling and Technology	ECL530 Computer Aided VLSI Design	ECL631 Design of VLSI systems
ECL517 Information Theory and Coding	ECL504 Modern Telecom Switching	ECL623 Telecom Network Management	ECL527 Digital System Design with Verilog HDL	ECL538 Hardware Software CoDesign	ECL633 Mixed Signal Design
ECL535 Microwave Theory and Circuits	ECL508 Wireless Mobile communication	ECL611 Mobile Computing	ECL531 Design and Analysis of Computer Architecture	ECL540 Real Time Systems and Software	ECL635 Microwave and Optoelectronic Devices
ECL537 Detection and Estimation Theory	ECL562 Millimeter Wave Integrated Circuits	ECL653 Telecom Systems and Technologies	ECL536 VLSI Fabrication and Technology	ECL542 Designing with ASICs	ECL637 VLSI Test and Testability
ECL539 Speech Communication	ECL570 Internet of Things	ECL655 Access Networks	ECL532 Embedded System Design	ECL528 Analog VLSI Design	ECL524 Low Power VLSI Design
ECL532 Embedded System Design	ECL572 Modern Antennas and Arrays	ECL657 Wireless Sensor Networks	ECL542 Special Topics in VLSI Design	ECL570 Internet of Things	ECL625 ASIC Design and Verification with SV
ECL516 Special Topics in Electronics and Communication	ECL578 Broadband Communication	ECL659 Global Navigation Satellite Systems and Applications	ECL534 CMOS RF Circuit Design	ECL629 Cryptography and Crypto Chip Design	ECL627 MEMS
ECL564 Soft Computing	ECL576 Network Security	ECL601 Cloud Computing	ECL582 Data structures & algorithms using C++	ECL529 Linux & Scripting	ECL601 Cloud Computing