

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEWCOURSE STRUCTURE M.Tech Microwave Engineering- To be effective from academic session 2018- 19
Based on CBCS & OBE model

Recommended scheme of study for M.Tech. in Microwave Engineering

SEMESTER / Session of Study (Recommended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P-Practicals</i>			Total Credits <i>C- Credits</i>	
					L <i>(Periods/week)</i>	T <i>(Periods/week)</i>	P <i>(Periods/week)</i>	C	
FIRST / Monsoon	FIFTH	Programme Core (PC)	EC501	Microwave Semiconductor Devices	3	0	0	3	
			EC503	Antennas and Diversity	3	0	0	3	
			EC505	Advanced Electromagnetic Engineering	3	0	0	3	
		Programme Elective (PE)		PE-I	3	0	0	3	
		Open elective (OE)		OE-I	3	0	0	3	
		LABORATORIES							
		Programme Core (PC)	EC502	Microwave Measurement Lab	0	0	4	2	
	EC504	Antenna Lab.	0	0	4	2			
TOTAL								19	
SECOND / Spring	FIFTH	Programme Core (PC)	EC550	Microwave & Mm-wave Integrated Circuits and Applications	3	0	0	3	
			EC551	RF Circuit Design	3	0	0	3	
			EC553	Numerical Techniques in Electromagnetics	3	0	0	3	
		Programme Elective (PE)		PE-II	3	0	0	3	
		Open elective (OE)		OE-II	3	0	0	3	
		LABORATORIES							
		Programme Core (PC)	EC552	Microwave Integrated Circuit Lab	0	0	4	2	
	EC554	Computational Electromagnetics Lab	0	0	4	2			
TOTAL								19	
TOTAL FOR FIFTH LEVEL								38	
THIRD / Monsoon	SIXTH	Programme Core (PC)	EC600	Thesis (Part I)				8	
			EC602	Microwave Imaging	3	0	0	3	
		Programme Elective (PE)		PE-III	3	0	0	3	
		Massive Open Online Course		MOOC				2	
		TOTAL							
FOURTH / Spring	SIXTH	Programme Core (PC)	EC650	Thesis (Part II)	0	0	16	16	
		TOTAL							
TOTAL FOR SIXTH LEVEL								32	
GRAND TOTAL FOR M.TECH PROGRAMME (38 + 32)								70	

List of Programme Elective (PE)(choose one from each)

PE-I	EC506	Electromagnetic Interference & Electromagnetic Compatibility
	EC507	Electromagnetic and Microwave Applications of Metamaterials
	EC508	Radar Signal Analysis
	EC509	RF Microelectronics Circuit Design
PE-II	EC555	Advanced Array Synthesis
	EC556	RF Micro-Electro-Mechanical System
	EC557	Microwave Photonics
	EC558	Modern Optimization Techniques
	EC559	Mixed Signal VLSI Design
PE-III	EC517	Satellite Based Wireless communication
	EC603	mm wave Wireless Communications
	EC604	Microwave Measurement and Material Characterization

Massive Open Online Course (MOOC)(choose one)

EC615	Basics of Software Defined Radio and practical application
EC616	High Speed Semiconductor Devices
EC617	Nanoelectronic Devices and Materials

DEPARTMENT OF ECE
PROGRAMME ELECTIVES (PE)*
OFFERED FOR LEVEL 5-6 of M. Tech. in Microwave Engineering

PE / Level	Code no.	Name of the PE courses	Prerequisite/Corequisite courses with code	L	T	P	C
PE / Level-5 (MO)	EC506	Electromagnetic Interference & Electromagnetic Compatibility	EC257 Electromagnetic Fields and Waves	3	0	0	3
	EC507	Electromagnetic and Microwave Applications of Metamaterials	EC323 Microwave Theory & Techniques	3	0	0	3
	EC508	Radar Signal Analysis	EC323 Microwave Theory & Techniques, EC365 Radar & Navigation	3	0	0	3
	EC509	RF Microelectronics Circuit Design	EC201 Electronic Devices, EC253 Analog Circuits	3	0	0	3
PE / Level-5 (SP)	EC555	Advanced Array Synthesis	EC325 Antenna and Wave Propagation Theory	3	0	0	3
	EC556	RF Micro-Electro-Mechanical system	EE101 Basics of Electrical Engineering, ME101 Basics of Mechanical Engineer, EC323 Microwave Theory & Techniques	3	0	0	3
	EC557	Microwave Photonics	EC323 Microwave Theory & Techniques, EC201 Electronics Devices, EC425 Optoelectronics Devices	3	0	0	3
	EC558	Modern Optimization Techniques	MA203 Numerical Methods	3	0	0	3
	EC559	Mixed Signal VLSI Design	EC253 Analog Circuits, EC203 Digital system Design	3	0	0	3
PE / Level-6 (MO)	EC517	Satellite Based Wireless communication	EC369 Wireless Networks, EC419 Satellite Communication	3	0	0	3
	EC603	mm wave Wireless Communications	EC323 Microwave Theory & Techniques, EC369 Wireless Networks	3	0	0	3
	EC604	Microwave Measurement and Material Characterization	EC323 Microwave Theory and Techniques, EC313 Electronic Measurements	3	0	0	3

* PROGRAMME ELECTIVES TO BE OPTED ONLY BY THE DEPARTMENT STUDENTS

DEPARTMENT OF ECE
OPEN ELECTIVES (OE)*
OFFERED FOR LEVEL 5-6 of M. Tech. in Microwave Engineering

OE / LEVEL	Code no.	Name of the OE courses	Prerequisites courses with code	L	T	P	C
OE/Level-5 (MO)	EC547	Fundamentals of MEMS		3	0	0	3
OE/Level-5 (SP)	EC597	Fundamentals of Microwaves		3	0	0	3

*** OPEN ELECTIVES TO BE OPTED ONLY BY OTHER DEPARTMENT STUDENTS**