

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI

PG COURSE STRUCTURE - Effective from academic session-2026-27

Based on NEP/PIC-2020

Recommended scheme of study for

M.Tech (Electrical 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 (Periods/week)	T (Periods/week)	P (Periods/week)	
FIRST / Monsoon	Fifth	Programme Core(PC)		THEORY				
			EE26501	Advanced Digital Signal Processing	3	0	0	3
			EE26503	Modern Control Theory	3	0	0	3
			EE26505	Advanced Power Electronics	3	0	0	3
			EE26507	Soft Computing Techniques in Electrical Engineering	3	0	0	3
			EE26509	Advanced Power System Analysis	3	0	0	3
		Skill Development Course-I		LABORATORIES				
			EE26502	Advanced Digital Signal Processing Laboratory	0	0	4	1.5
			EE26508	Advanced Simulation Laboratory	0	0	4	1.5
			EE26500	Intellectual property Rights and Technical Writing	0	0	3	2
				TOTAL				20
SECOND/ Spring	Fifth	Programme Elective (PE)		Programme Electives (A, B and C)	5*3	0	0	5*3
				LABORATORIES				
			EE26590	Industry-Oriented Embedded Systems, PCB Prototyping and Engineering Software Tools	0	0	3	2
			EE26534	Smart Grid Laboratory	0	0	4	1.5
			EE26510	Advanced Power System Laboratory	0	0	4	1.5
			EE26504	Control System Design Laboratory	0	0	4	1.5
			EE26550	AI based Advanced Control System Laboratory	0	0	4	1.5
			EE26506	Power Converter Design Laboratory	0	0	4	1.5
			EE26572	Electric Drives Laboratory	0	0	4	1.5
				TOTAL				20
THIRD / Monsoon	Sixth	Programme Core (PC)	EE26600	Research Project-I/Internship				14
				Open Elective (OE)	OE I / MOOC			3
					OE II / MOOC			3
FOURTH/ Spring	Sixth	Programme Core (PC)	EE26650	Research Project-II/Internship				20
				TOTAL				20
				TOTAL				80

Programme Elective A (POWER SYSTEM BASKET)						
PE-A	EE26521	Renewable Sources of Electrical Energy and Grid Integration	3	0	0	3
	EE26523	Digital Power System Protection	3	0	0	3
	EE26525	Power System Dynamics	3	0	0	3
	EE26527	Micro- grid Operation and Control	3	0	0	3
	EE26529	Wide Area Monitoring System	3	0	0	3
	EE26531	Modern Power System Planning and Reliability	3	0	0	3
	EE26533	Smart Grid Technologies	3	0	0	3
	EE26535	Power System Operation and Control	3	0	0	3
	EE26537	Power System Deregulation	3	0	0	3
	EE26539	Condition Monitoring of Power Equipment	3	0	0	3
	EE26541	Power Quality and Control	3	0	0	3
	EE26543	Industrial Instrumentation and Control	3	0	0	3
	EE26577	FACTS	3	0	0	3
Programme Elective B (CONTROL SYSTEM BASKET)						
PE-B	EE26545	System Identification and Adaptive Control	3	0	0	3
	EE26547	Nonlinear Control System	3	0	0	3
	EE26549	Control System Design	3	0	0	3
	EE26551	Process Measurement and Control	3	0	0	3
	EE26553	Optimal Control Theory	3	0	0	3
	EE26555	Statistical Control Theory	3	0	0	3
	EE26557	Industrial Instrumentation and Control	3	0	0	3
	EE26559	Robotics and Automation	3	0	0	3
	EE26561	Robust Control	3	0	0	3
	EE26563	Electric Vehicle	3	0	0	3
	EE26535	Power System Operation and Control	3	0	0	3
	EE26565	Physiological Control System	3	0	0	3
Programme Elective C (POWER ELECTRONICS SYSTEM BASKET)						
PE-C	EE26567	Embedded Control of Switching Power Converters	3	0	0	3
	EE26569	Switched Mode Power Conversion	3	0	0	3
	EE26571	Control of Electric Drives	3	0	0	3
	EE26563	Electric Vehicles	3	0	0	3
	EE26521	Renewable Sources of Electrical Energy and Grid Integration	3	0	0	3
	EE26573	Battery Management System	3	0	0	3
	EE26575	EMI & EMC	3	0	0	3
	EE26577	FACTS	3	0	0	3

LIST OF OPEN ELECTIVES (OE)

	Course Code	Courses	Pre-requisites	Mode of delivery & credits L-Lecture; T-Tutorial; P-Practicals			Total Credits C- Credits
				L (Periods/ week)	T (Periods/ week)	P (Periods/ week)	C
OE-I	EE26601	Hybrid Electric Vehicle	NIL	3	0	0	3
	EE2603	Electromechanical Energy Conversion	NIL	3	0	0	3
	EE52605	Power Semiconductor Devices	NIL	3	0	0	3
OE-II							
	EE26609	Reliability Engineering	NIL	3	0	0	3
	EE26551	Process Measurement and Control	NIL	3	0	0	3