

**BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI**  
**REVISED COURSE STRUCTURE - To be effective from academic session 2021-22**  
**Based on CBCS & OBE Model**  
**Recommended scheme of study for M.Tech Power Electronics**

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
<b>THEORY</b>									
<b>FIRST / Monsoon</b>	<b>Fifth</b>	<b>Programme Core (PC)</b>	EE501	Advanced Digital Signal Processing	3			3	
			EE503	Modern Control Theory	3			3	
			EE507	Advanced Power Electronics	3			3	
			EE557	Power Electronics Application	3			3	
		<b>Programme Elective (PE)</b>		PE 1	3			3	
	<b>LABORATORIES</b>								
		<b>Fifth</b>	<b>Programme Core (PC)</b>	EE502	Advanced Digital Signal Processing Laboratory			4	2
			EE506	Advanced Power Electronics Laboratory			4	2	
<b>TOTAL</b>								<b>19</b>	
<b>SECOND/ Spring</b>	<b>Fifth</b>	<b>Programme Core (PC)</b>	EE561	Embedded Control of Switching Power Converter	3			3	
			EE603	Power Electronics System Design	3			3	
			EE559	Electric Drives	3			3	
			<b>Programme Elective (PE)</b>		PE II	3			3
				PE III	3			3	
	<b>LABORATORIES</b>								
		<b>Fifth</b>	<b>Programme Core (PC)</b>	EE558	Power Converter Simulation and Design Laboratory			4	2
			EE560	Electric drives Laboratory			4	2	
<b>TOTAL</b>								<b>19</b>	
<b>THIRD / Monsoon</b>	<b>Sixth</b>	<b>Programme Core (PC)</b>		Thesis (Part I)				8	
		<b>Open Elective (OE)</b>		OE I / MOOC	3			3	
				OE II / MOOC	3			3	
	<b>TOTAL</b>								<b>14</b>
<b>FOURTH/ Spring</b>	<b>Sixth</b>	<b>Programme Core (PC)</b>		Thesis (Part II)				16	
	<b>TOTAL</b>								<b>16</b>
<b>GRAND TOTAL FOR M.TECH PROGRAMME (38 + 30)</b>								<b>68</b>	

**BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING**

**NEWCOURSE STRUCTURE - To be effective from academic session 2021- 22 Based on CBCS & OBE model**

**List Of Program Electives for M.Tech in Electrical Engineering (Power Electronics)**

Level	Course Code	Courses	Prerequisites courses with code	Mode of delivery & credits L-Lecture; T-Tutorial;P-Practicals			Total Credits C-Credits
				L (Periods/ week )	T (Periods/ week)	P (Periods/ week)	C
<b>Programme Elective - I</b>							
5	EE511	Optimization in Engineering Design		3	0	0	3
	EE521	Dynamic Behaviour of Electrical Machines		3	0	0	3
	EE523	Intelligent Motor Controllers		3	0	0	3
	EE525	Modelling of Power Electronic Systems		3	0	0	3
<b>Programme Elective - II</b>							
5	EE571	Soft Computing Techniques in Electrical Engineering		3	0	0	3
	EE581	Advanced DSP Architecture and Programming		3	0	0	3
	EE583	Renewable Sources of Electrical Energy and Grid Integration		3	0	0	3
	EE573	Embedded System and Applications		3	0	0	3
<b>Programme Elective - III</b>							
6	EE621	Power Quality		3	0	0	3
	EE605	Micro-Grid Operation and Control		3	0	0	3
5	EE 535	HVDC & FACTS		3	0	0	3

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ENGINEERING**

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**LIST OF OPEN ELECTIVES (PG)**

Level of Study	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
5	EE585	Hybrid Electric Vehicle	NIL	3	0	0	3
	EE587	Electromechanical Energy Conversion	NIL	3	0	0	3
	EE589	Power Semiconductor Devices	NIL	3	0	0	3
	EE595	Smart Grid	NIL	3	0	0	3
	EE597	Reliability Engineering	NIL	3	0	0	3
6	EE601	Process Measurement and Control	NIL	3	0	0	3