BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEWCOURSE STRUCTURE - To be effective from academic session 2018- 19
Based on CBCS & OBE model
Recommended scheme of study
B.Tech. in Electrical and Electronics Engineering

Semester/ Session of Study (Recomended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits *L-Lecture; T-Tutorial;P-Practicals*			Total Credits *C- Credits*
					L (*Periods/week*)	**T** *(Periods/week)*	**P** *(Periods/week)*	**C**
GRAND TOTAL FOR FIRST YEAR								**43.5**
THIRD Monsoon		**THEORY**						
	FIRST	FS	BE101	Biological Science for Engineers	2	0	0	2
	SECOND	GE	IT 201	Basics of Intelligent Computing	3	0	0	3
		PC	EE201	Electrical Measurement & Instrumentation	3	0	0	3
			EE203	Electrical Energy Generation & Control	3	0	0	3
			EC203	Digital System Design	3	0	0	3
			EE205	Circuit Theory	3	1	0	4
		LABORATORIES						
	FIRST	GE	EE102	Electrical Engineering Laboratory	0	0	3	1.5
	SECOND	MC	MC201/202/ 203/204	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
		PC	EC204	Digital System Design Laboratory	0	0	3	1.5
TOTAL								**22**
FOURTH Spring		**THEORY**						
	SECOND	FS	MA203	Numerical Methods	2	0	0	2
	FIRST	FS	CE101	Environmental Science	2	0	0	2
	SECOND	PC	EE251	DC Machines & Transformers	3	1	0	4
			EE253	Engineering Electromagnetics	3	1	0	4
		Open Elective OE		Open Elective-I	3	0	0	3
		LABORATORIES						
	SECOND	FS	MA204	Numerical Methods Laboratory	0	0	2	1
		GE	IT202	Basic IT Workshop	0	0	2	1
		MC	MC205/206/ 207/208	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
		PC	EE252	Electrical Machine Laboratory ï I	0	0	3	1.5
			EE202	Electrical Measurement & Instrumentation Laboratory	0	0	3	1.5
TOTAL								**21**

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					L (*Periods/week*)	**T** *(Periods/week)*	**P** *(Periods/week)*	**C**
FIFTH Monsoon				**THEORY**				
	THIRD	PC	EE301	AC Rotating Machines	3	0	0	3
			EE303	Introduction to Microprocessors & Microcontrollers	3	0	0	3
			EE305	Digital Signal Processing	3	1	0	4
			EE307	Electrical Power Transmission & Distribution	3	0	0	3
		PE		Program Elective -I	3	0	0	3
		OE		Open Elective -II	3	0	0	3
		LABORATORIES						
	THIRD	PC	EE302	Electrical Machine Laboratory ï II	0	0	3	1.5
			EC304	Microprocessors & Microcontrollers Laboratory	0	0	3	1.5
			EE306	Digital Signal Processing Laboratory	0	0	3	1.5
TOTAL								**23.5**
SIXTH Spring				**THEORY**				
	THIRD	PC	EE351	Control Theory	3	1	0	4
			EE353	Power Electronics	3	1	0	4
			EE355	Power System Analysis	3	0	0	3
		PE		Program Elective-II	3	0	0	3
		OE		Open Elective-III / MOOC-I	3	0	0	3
	FIRST	HSS	MT123	Business Communications	3	0	0	3
	SECOND	HSS	MT204	Constitution of India	2	0	0	0 Non-credit
		LABORATORIES						
	THIRD	PC	EE352	Control System Laboratory	0	0	3	1.5
		PC	EE354	Electrical Workshop	0	0	3	1.5
		MC	MC300	Summer Training -Mandatory				3
TOTAL								**26**
SEVENTH Monsoon				**THEORY**				
	FOURTH	PC	EE401	Switchgear and Protection	3	1	0	4
		HSS	EE403	Professional Practice Law & Ethics	2	0	0	2
		PE		Program Electve-III	3	0	0	3
				Program Electve-IV	3	0	0	3
		OE		Open Elective-IV / MOOC-II	3	0	0	3
		LABORATORIES						
	FOURTH	PC	EE402	Power System Laboratory	0	0	3	1.5
		PC	EE404	Power Electronics Laboratory	0	0	3	1.5
		PC	EE406	Simulation Laboratory	0	0	2	1
TOTAL								**19**
EIGTH Spring	FOURTH	PC	EE400	Research project / Industry Internship				12
GRAND TOTAL								**167**

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
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LIST OF PROGRAM ELECTIVES (B. Tech.. - EEE)

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**
Programme Elective - I							
3	EE413	Sensors and Transducers	EE201 Electrical Measurement & Instrumentation	3	0	0	3
	EE415	Bio-Instrumentation and Concepts	EE201 Electrical Measurement & Instrumentation	3	0	0	3
	EE357	Electronic Devices and Analog Circuits	EC101 Basics of Electronics & Communication Engineering	3	0	0	3
	EE421	Information Technology		3	0	0	3
	EE427	Soft Computing Techniques	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
	EE449	Artificial Intelligence for Electrical Engineering	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
	EE447	Machine Learning	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
Programme Elective - II							
3	EE417	Fundamentals of Communication System	EC101 Basics of Electronics & Communication Engineering	3	0	0	3
	EE411	Microprocessor Applications	EE303 Introduction to Microprocessors & Microcontrollers	3	0	0	3
	EE419	Special Electrical Machines	EE251 DC Machines and Transformer EE301 AC Rotating Machines	3	0	0	3
	EE443	Utilization of Electrical Power	EE101 Basics of Electrical Engineering EE307 Electrical Power Transmission and Distribution	3	0	0	3
	EE445	Testing and Commissioning of Electric Equipment	EE251 DC Machines and Transformer EE301 AC Rotating Machines	3	0	0	3
	EE425	Robotics	EE351 Control Theory	3	0	0	3
Programme Elective - III							
4	EE423	VLSI Systems	EC101 Basics of Electronics & Communication Engineering	3	0	0	3
	EE573	Embedded System and Applications	EE101 Basics of Electrical Engineering EC101 Basics of Electronics & Communication Engineering	3	0	0	3
	EE531	EHV AC Power Transmission	EE307 Electrical Power Transmission and Distribution EE355 Power System Analysis	3	0	0	3
	EE437	Industrial Drives and Control	EE353 Power Electronics EE351 Control Theory	3	0	0	3
	EE439	Applied Control Theory	EE351 Control Theory	3	0	0	3
	EE597	Reliability Engineering	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
	EE441	Computer Aided Power System Analysis	EE307 Electrical Power Transmission and Distribution EE355 Power System Analysis	3	0	0	3

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LIST OF PROGRAM ELECTIVES (B. Tech.. - EEE)

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**
Programme Elective - IV							
4	EE593	High Voltage Engineering	EE101 Basics of Electrical Engineering EE201 Electrical Measurement & Instrumentation EE253 Engineering Electromagnetics	3	0	0	3
	EE535	HVDC and FACTS	EE307 Electrical Power Transmission and Distribution EE355 Power System Analysis EE353 Power Electronics	3	0	0	3
	EE507	Advanced Power Electronics	EE353 Power Electronics	3	0	0	3
	EE539	Power System Dynamics	EE307 Electrical Power Transmission and Distribution EE355 Power System Analysis	3	0	0	3
	EE585	Hybrid Electric Vehicle	EE251 DC Machines and Transformer EE301 AC Rotating Machines EE353 Power Electronics	3	0	0	3
	EE605	Micro-grid Operation and Control	EE307 Electrical Power Transmission and Distribution EE355 Power System Analysis EE353 Power Electronics	3	0	0	3

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LIST OF OPEN ELECTIVES (UG)

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**
Open Elective - I							
2	EE203	Electric Energy Generation & Control	EE101 Basics of Electrical Engineering	3	0	0	3
	EE255	Signal and Systems	MA103 Mathematics - I MA107 Mathematics - II EE101 Basics of Electrical Engineering	3	0	0	3
Open Elective - II							
3	EE359	Introduction to Reliability Engineering	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
	EE361	Linear Control Theory	EE101 Basics of Electrical Engineering MA107 Mathematics -I	3	0	0	3
Open Elective - III							
4	EE457	Fundamental of Power System	EE101 Basics of Electrical Engineering MA107 Mathematics -I	3	0	0	3
	EE459	Introduction to Power Electronics	EE101 Basics of Electrical Engineering	3	0	0	3
	EE425	Robotics	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3
Open Elective - IV							
4	EE453	Machine Electronics	EE101 Basics of Electrical Engineering EC101 Basics of Electronics & Communication Engineering	3	0	0	3
	EE427	Soft Computing Techniques	MA103 Mathematics - I MA107 Mathematics - II	3	0	0	3

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI **DEPARTMENT**

OF ELECTRICAL AND ELECTRONICS ENGINEERING

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Minor Courses For Other Department

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**
Minor for CSE & IT							
4	EE421	Power System	EE101 Basic Electrical Engineering EE261 Principle of Electrical Machines	3	0	0	3
2	EE205	Circuit Theory	EE101 Basic Electrical Engineering	3	1	0	4
3	EE331	Fundamental of Power Electronics	EE101 Basic Electrical Engineering	3	0	0	3
2	EE261	Principles of Electrical Machines	EE101 Basic Electrical Engineering	3	1	0	4
3	EE333	Fundamental of Control Theory	EE101 Basic Electrical Engineering	3	0	0	3
4	EE412	Power Electronics and Control Laboratory	EE333 Fundamental of Contro Theory EE 331 Fundamental of Power Electronics	0	0	3	1.5
4	EE414	Electrical Machines and Power System Laboratory	EE261 Principle of Electrical Machines EE421 Power System	0	0	3	1.5
Minor for ECE							
2	EE201	Electrical Measurement and Instrumentation	EE101 Basic Electrical Engineering	3	0	0	3
3	EE353	Power Electronics	EE101 Basic Electrical Engineering	3	1	0	4
2	EE261	Principles of Electrical Machines	EE101 Basic Electrical Engineering	3	1	0	4
4	EE413	Industrial Drives and Control	EE333 Fundamental of Contro Theory EE 331 Fundamental of Power Electronics	3	0	0	3
4	EE421	Power System	EE101 Basic Electrical Engineering EE261 Principle of Electrical Machines	3	0	0	3
4	EE412	Power Electronics and Control Laboratory	EE333 Fundamental of Contro Theory EE 331 Fundamental of Power Electronics	0	0	3	1.5
4	EE414	Electrical Machines and Power System Laboratory	EE261 Principle of Electrical Machines EE421 Power System	0	0	3	1.5
Minor for Non Circuital Branches (Mechanical, Production, Civil, Chemical and Bio-Engineering)							
3	EE331	Fundamental of Power Electronics	EE101 Basic Electrical Engineering	3	0	0	3
2	EE261	Principles of Electrical Machines	EE101 Basic Electrical Engineering	3	1	0	4
2	EE205	Circuit Theory	EE101 Basic Electrical Engineering	3	1	0	4
3	EE333	Fundamental of Control Theory	EE101 Basic Electrical Engineering	3	0	0	3
4	EE421	Power System	EE101 Basic Electrical Engineering EE261 Principle of Electrical Machines	3	0	0	3
4	EE412	Power Electronics and Control Laboratory	EE333 Fundamental of Contro Theory EE 331 Fundamental of Power Electronics	0	0	3	1.5
4	EE414	Electrical Machines and Power System Laboratory	EE261 Principle of Electrical Machines EE421 Power System	0	0	3	1.5