

Course Structure

BTech. in Electrical and Electronics Engineering

(For Batch 2023 onward)

**ABV-Indian Institute of Information Technology & Management,
Gwalior**

4 Year (8 semester) BTech. in Electrical and Electronics Engineering (Total credits: 168)**Year 1 (Semester 1 and 2)**

Sl	Course Code	Semester 1	Credits	L-T-P
1	EE101	Fundamentals of Electrical and Electronics	4	3-0-2
2	PH101	Engineering Physics	4	3-0-2
3	MA101	Engineering Mathematics	4	3-1-0
4	EE102	Engineering Design Principles	3	2-0-2
5	CS/IT101	Principles of Computer Programming	4	3-0-2
6	HS101	Freshman Skills	2	2-0-0
7	HS102	Sports and Physical Education	2	1-0-2
			23 credits	

Sl	Course Code	Semester 2	Credits	
1	EE103	Digital Electronics	4	3-0-2
2	MA102	Probability and Statistics	4	3-1-0
3	CS/IT102	Data Structures	4	3-0-2
4	EE104	Hardware Workshop	3	1-0-4
5	IT/CS103	Object Oriented Programming	4	3-0-2
6	HS103	Ecology and Environment Sciences	2	2-0-0
7	CS104	Mobile Application Technologies	2	0-1-2
			23 credits	
	MO101	MOOC1 (Optional in Summer)	2/3	

EXIT after Year -1 (46 credits): Certificate in Engineering Sciences**Year 2 (Semester 3 and 4)**

Sl	Course Code	Semester 3	Credits	L-T-P
1	HS201	Indian Culture, Ethics and Moral Values	2	2-0-0
2	EE201	Principles of Communication	4	3-1-0
3	EE202	Network Analysis & Synthesis	4	3-1-0
4	CS/IT202	Computer Organization & Architecture	4	3-0-2
5	EE203	Microelectronics: Devices and Materials	4	3-0-2
6	EE204	Analog Electronics	4	3-0-2
			22 credits	

Sl	Course Code	Semester 4	Credits	L-T-P
1	MS201	Entrepreneurship and Innovation	2	2-0-0
2	EE205	VLSI Design	4	3-0-2
3	EE206	Wireless Communication	4	3-0-2
4	EE207	Signals & Systems	4	3-1-0
5	EE208	Electromagnetic theory	4	3-1-0
6	EE209	Control System	4	3-1-0
			22 credits	
	MO201	MOOC2 (Optional)	2	

EXIT after Year -2 (90 credits) : Diploma in Electrical and Electronics Engineering

Year 3 (Semester 5 and 6)

Sl	Course Code	Semester 5	Credits	L-T-P
1	MS301	Business Economics	3	3-0-0
2		Multidisciplinary Elective/MOOC3	3	3-0-0
3	EE0XX	Department Elective-1	3	3-0-0
4	EE301	Digital Signal Processing	4	3-0-2
5	EE302	System Design using HDL	4	3-0-2
6	EE303	Microprocessor and Interfacing	4	3-0-2
			21 credits	

Sl	Course Code	Semester 6	Credits	L-T-P
1	ENXXX	Art of Engineering Research	2	2-0-0
2		Multidisciplinary/ MOOC4	3	3-0-0
3	EE0XX	Department Elective-2	3	3-0-0
4	EE304	IoT and Applications	4	3-0-2
5	EE305	RF Circuit & Antenna Design	4	3-0-2
6	EE306	Microcontroller and Embedded Systems	4	3-0-2
			20 credits	

EXIT after Year -3 (131 credits): BSc. in Electrical and Electronics Engineering

Year 4 (Semester 7 and 8)

Sl	Course Code	Semester 7	Credits	L-T-P
1		Multidisciplinary Elective- 3/MOOC5	3	3-0-0
2	EE0XX	Department Elective -3	3	3-0-0
3	EE401	Artificial Intelligence and Machine learning	4	3-0-2
4	EE402	Intelligent Transportation Systems	4	3-0-2
5	EE403	Power Electronics	4	3-0-2
6	EE404	IC Technology	3	3-0-0
7	EE498	Colloquium (Based on Summer training)	3	
			24 credits	

Sl	Course Code	Semester 8	Credits	L-T-P
1	EE499	BTech Project/Internship	12	
2		Department Elective/MOOC - 4	3	3-0-0

		Total credits		170
--	--	----------------------	--	------------

Final Exit after Year -4 (170 credits): BTech. in Electrical and Electronics Engineering

List of Electives

VLSI and Embedded System					
SI	Code	Course Name	Prerequisite	Credits	L-T-P
1	EE001	VLSI Architecture	EE205, 302	3	3-0-0
2	EE002	Quantum Electronics	EE203, 204	3	3-0-0
3	EE003	Introduction to MEMS	EE304	3	3-0-0
4	EE004	VLSI Signal Processing	EE205, 201	3	3-0-0
5	EE005	FPGA-based System Design	EE205	3	3-0-0
6	EE006	Design Verification and Testing	EE205	3	3-0-0
7	EE007	Device and Interconnect Modelling	EE205	3	3-0-0
8	EE008	CAD for VLSI	EE205	3	3-0-0
9	EE009	Memory Devices and Circuits	EE205	3	3-0-0
10	EE010	Embedded Software	EE306	3	3-0-0
11	EE011	Organic Semiconductors	EE204	3	3-0-0
12	EE012	Solar cells-Fundamental & Applications	EE204	3	3-0-0
13	EE013	Energy Storage Materials	EE203	3	3-0-0

Communication and Signal Processing					
SI	Code	Course Name	Prerequisite	Credits	L-T-P
1	EE014	Communication Networks and Switching	EE303	3	3-0-0
2	EE015	Information Theory and coding	AS102, AS103	3	3-0-0
3	EE016	High-Performance Computing	EE401	3	3-0-0
4	EE017	Biomedical Signal Processing	EE301	3	3-0-0
5	EE018	Neuromorphic Computing	EE401	3	3-0-0
6	EE019	Advance Signal Processing	EE301	3	3-0-0
7	EE020	Optical Communication	EE207	3	3-0-0
8	EE021	Advanced Communication Engineering	EE207	3	3-0-0
9	EE022	Speech and Audio Signal Processing	EE301	3	3-0-0

Autonomous and Intelligent Transportation					
SI	Code	Course Name	Prerequisite	Credits	L-T-P
1	EE023	Sensors for Autonomous Systems	EE304	3	3-0-0
2	EE024	Power Systems	EE403	3	3-0-0
3	EE025	Power Electronic Converters for Renewable Energy	EE403	3	3-0-0
4	EE026	Smart Grid Technology	EE403	3	3-0-0
5	EE027	Electromechanics	EE403	3	3-0-0
6	EE028	Drone Technology and Robotics	EE304	3	3-0-0
7	EE029	Intelligent Control System	EE209	3	3-0-0

Courses for the Minor in EEE (Total Credit Required: 24)

SI	Code	Course Name	Prerequisite	Credits	L-T-P
1	EE207	Signals & Systems	NA	4	3-1-0
2	EE204	Analog Electronics	NA	4	3-0-2
3	EE205	VLSI Design	NA	4	3-0-2
4	EE303	Microprocessor and Interfacing	NA	4	3-0-2

5	EE304	IoT and Applications	NA	4	3-0-2
6	EE201	Principles of Communication	NA	4	3-1-0
			Total credits	24	

NOTE: A Minor in Electrical and Electronics Engineering is open to student(s) from other discipline subject to successful completion of the prescribed credits with a minimum of 6 CGPA. A student can opt for the courses depending on the convenience. For example: EE205 and EE207 are offered in 4th semester. A student can opt for these courses along with his regular courses in 4th semester OR he can take one of the two courses in 4th semester and the other in the 6th semester. This reduces the credit load in a particular semester. In addition, if a given course is floated in summer semester, the student can opt for the same in summer semester.