

13. Courses of Study and Scheme of Assessment

BE ELECTRICAL AND ELECTRONICS ENGINEERING (SANDWICH) (2019 Regulations) (Minimum credits to be earned: 165)

Course Code	Course Title	Periods / week				Maximum Marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 1									
19E101	Calculus and its Applications	3	1	0	4	50	50	100	BS
19E102	Physics	3	0	0	3	50	50	100	BS
19E103	Chemistry of Electronic Materials	3	0	0	3	50	50	100	BS
19E104	Problem Solving and C Programming	2	0	0	2	50	50	100	ES
19G105	English Language Proficiency	2	1	0	3	50	50	100	HS
19E111	Electrical Engineering Drawing	0	0	4	2	50	50	100	ES
19E112	Problem Solving and C Programming Laboratory	0	0	2	1	50	50	100	ES
19IP15	Induction Programme **	0	0	0	0	-	-	-	MC
19E100	Industrial Training I	0	0	10	5%	100	0	100	EEC
Total 21 periods		13	2	6+10	18+5%	450	350	800	
SEMESTER 2									
19E201	Complex Variables and Transforms	3	1	0	4	50	50	100	BS
19E202	Semiconductor Devices	3	0	0	3	50	50	100	BS
19E203	Applied Electrochemistry	3	0	0	3	50	50	100	BS
19E205	Basics of Mechanical Engineering	3	0	0	3	50	50	100	ES
19G_____	Language Electives	0	0	4	2	100	0	100	HS
19E110	Basic Sciences Laboratory	0	0	4	2	50	50	100	BS
19E200	Industrial Training II	0	0	10	5%	100	0	100	EEC
19E210	Engineering Practices	0	0	2	1	50	50	100	ES
19E215	Activity Point Programme *	-	-	-	Grade	-	-	-	MC
Semester 2- Summer Term									
19E213	Internship €	0	0	0	2 [£]	100	0	100	EEC
Total 23 periods		12	1	10+10	20+5%	600	300	900	

** As per norms

% Will be counted for TGPA computation

* - As per AICTE Norms; Total 60 Hrs; Grade: Completed/Not Completed; Not counted for CGPA

CA Continuous Assessment

FE Final Examination

€ This course will be conducted prior to the commencement of the third semester for a period of 3 weeks

£ For internship, one credit is equivalent to minimum 40 hours of work as per norms

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BE ELECTRICAL AND ELECTRONICS ENGINEERING (SANDWICH)**(2019 Regulations)**

Course Code	Course Title	Periods / week			Maximum Marks				
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 3									
19E204	Electric Circuits	3	1	0	4	50	50	100	ES
19E301	Linear Algebra and Numerical Analysis	3	1	0	4	50	50	100	BS
19E303	Electromagnetic Theory	3	0	0	3	50	50	100	ES
19E305	DC Machines and Transformers	3	0	0	3	50	50	100	PC
19O306	Economics for Engineers	3	0	0	3	50	50	100	HS
19K312	Environmental Science **	2	0	0	0	-	-	-	MC
19E211	Circuits & Devices Laboratory	0	0	4	2	50	50	100	ES
19E311	DC Machines and Transformers Laboratory	0	0	2	1	50	50	100	PC
19E300	Industrial Training III	0	0	10	5%	100	0	100	EEC
19E315	Activity Point Programme *	-	-	-	Grade	-	-	-	MC
Total 25 periods		17	2	6+10	20+5%	450	350	800	
SEMESTER 4									
19E302	Network Theory	2	2	0	4	50	50	100	ES
19E304	Electronic Circuits	3	0	0	3	50	50	100	ES
19E401	Probability and Statistics	2	1	0	3	50	50	100	BS
19E402	Measurements and Instrumentation	3	0	0	3	50	50	100	PC
19E404	Induction and Synchronous Machines	3	0	0	3	50	50	100	PC
19E310	Electronic Circuits Lab	0	0	2	1	50	50	100	ES
19E511	Induction and Synchronous Machines Laboratory	0	0	4	2	50	50	100	PC
19Q413	Soft Skills Development	0	0	2	1	100	0	100	EEC
19E400	Industrial Training IV	0	0	10	5%	100	0	100	EEC
19E415	Activity Point Programme *	-	-	-	Grade	-	-	-	MC
19O412	Indian Constitution **	2	0	0	0	-	-	-	MC
Total 26 periods		15	3	8+10	20+5%	550	350	900	

** As per norms

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Course Code	Course Title	Periods / week			Maximum Marks				
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 5									
19E403	Digital Electronics	2	2	0	4	50	50	100	PC
19E405	Control Systems	3	0	0	3	50	50	100	PC
19E406	Electrical Power Generation Systems	3	0	0	3	50	50	100	PC
19E505	Power Electronics and Applications	3	1	0	4	50	50	100	PC
19E410	Instrumentation and Control Laboratory	0	0	2	1	50	50	100	PC
19E411	Digital Electronics Laboratory	0	0	2	1	50	50	100	PC
19Q513	Business and Managerial Communications	0	0	2	1	100	0	100	EEC
19E500	Industrial Training V	0	0	10	5%	100	0	100	EEC
19E501	Linear Integrated Circuits	3	0	0	3	50	50	100	PC
19E515	Activity Point Programme *	-	-	-	Grade	-	-	-	MC
Total 23 periods		14	3	6+10	20+5%	550	350	900	
SEMESTER 6									
19E502	Embedded Controllers	3	0	0	3	50	50	100	PC
19E504	Electrical Machine Design	2	2	0	4	50	50	100	PC
19E602	Digital Signal Processing	3	0	0	3	50	50	100	PC
19E603	Transmission and Distribution	3	1	0	4	50	50	100	PC
19E510	Power Electronics and Embedded Controllers Laboratory	0	0	2	1	50	50	100	PC
19E610	Digital Signal Processing and Linear Integrated Circuits Laboratory	0	0	2	1	50	50	100	PC
19Q613	Quantitative and Reasoning Skills	0	0	2	1	100	0	100	EEC
19E600	Industrial Training VI	0	0	10	5%	100	0	100	EEC
19E615	Activity Point Programme *	-	-	-	Grade	-	-	-	MC
Total 20 periods		11	3	6+10	17+5%	500	300	800	

At the end of 6th semester, the students are required to earn the minimum number of activity points from the AICTE mandated ACTIVITY POINT PROGRAMME to qualify for the award of BE/BTech degree (Refer Section 4 (vii) (c) of 2019 Regulations)

% Will be counted for TGPA computation

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CA Continuous Assessment

FE Final Examination

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BE ELECTRICAL AND ELECTRONICS ENGINEERING (SANDWICH)**(2019 Regulations)**

Course Code	Course Title	Periods / week			Maximum Marks				
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 7									
19E503	Computer Architecture	3	0	0	3	50	50	100	PC
19E604	Data Structures using C++	2	2	0	4	50	50	100	PC
19E	Professional Elective - 1	3	0	0	3	50	50	100	PE
19E620	Innovation Practices	0	0	2	1	100	0	100	EEC
19E700	Industrial Training VII	0	0	10	5%	100	0	100	EEC
Total 12 periods		8	2	2+10	11+5%	350	150	500	
SEMESTER 8									
19E601	Electric Drives and Control	3	0	0	3	50	50	100	PC
19E701	Power System Protection and Switchgear	3	0	0	3	50	50	100	PC
19E702	Power System Analysis	2	2	0	4	50	50	100	PC
19E____	Professional Elective II	3	0	0	3	50	50	100	PE
19____	Open Elective I	3	0	0	3	50	50	100	OE
19E611	Electric Drives and Control Laboratory	0	0	2	1	50	50	100	PC
19E710	Power System Laboratory	0	0	2	1	50	50	100	PC
19E800	Industrial Training VIII	0	0	10	5%	100	0	100	EEC
Total 20 periods		14	2	4+10	18+5%	450	350	800	

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FE Final Examination

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BE ELECTRICAL AND ELECTRONICS ENGINEERING (SANDWICH)**(2019 Regulations)**

Course Code	Course Title	Periods / week			Maximum Marks				
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 9									
19E____	Professional Elective III	3	0	0	3	50	50	100	PE
19E____	Professional Elective IV	3	0	0	3	50	50	100	PE
19E____	Professional Elective V	3	0	0	3	50	50	100	PE
19____	Open Elective II	3	0	0	3	50	50	100	OE
19E720	Project Work I	0	0	4	2	100	0	100	EEC
19E900	Industrial Training IX	0	0	10	5%	100	0	100	EEC
Total 16 periods		12	0	4+10	14+5%	400	200	600	
SEMESTER 10									
19E	Professional Elective VI	3	0	0	3	50	50	100	PE
19E820	Project Work II	0	0	8	4	50	50	100	EEC
Total 11 periods		3	0	8	7	100	100	200	

% Will be counted for TGPA computation
CA Continuous Assessment
FE Final Examination

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PROFESSIONAL ELECTIVES

Group A: Electrical/Power

- 19E001 Flexible AC Transmission Systems
- 19E002 Special Machines and Controllers
- 19E003 Utilization and Conservation of Electrical Energy
- 19E004 Advanced Control Systems
- 19E005 Smart Grid
- 19E006 Industrial Automation
- 19E007 HVDC Transmission
- 19E008 Power Quality Management
- 19E009 Power System Operations and Control
- 19E010 Hybrid Electric Vehicles
- 19E011 High Voltage Engineering

Group B: Electronics / Embedded

- 19E012 Embedded Systems and Internet of Things
- 19E013 System Design using FPGA
- 19E014 VLSI Design
- 19E015 Mixed Signal VLSI Design
- 19E016 Virtual Instrumentation
- 19E017 Communication Systems
- 19E018 Automotive Electrical and Electronics Systems
- 19E019 Wearable Electronics
- 19E020 Electronic Product Design
- 19E021 Digital Image Processing

Group C : Computer

- 19E022 Advanced Data Structures
- 19E023 Computer Networks
- 19E024 Software Project Management and Quality Assurance
- 19E025 Advanced Computer Architecture
- 19E026 Internetworking and Applications
- 19E027 Java Programming
- 19E028 Relational Database Management Systems
- 19E029 Operating systems
- 19E030 Neural Networks and Fuzzy Systems
- 19E031 Linux Architecture
- 19E032 Total Quality Management

ONE-CREDIT COURSES

- 19EF01 LV Switchgears
- 19EF02 Energy Auditing and Conservation Techniques
- 19EF03 Electrical Safety Standards and Practices
- 19EF04 Automotive Electrical Systems
- 19EF05 CAD Tools for VLSI DesignAutomation
- 19EF06 Digital Design with Verilog HDL
- 19EF07 Graphical Programming
- 19EF08 Advanced Graphical Programming
- 19EF09 Low Power Microcontrollers and Applications
- 19EF10 Controller Design and Simualtion Using Dspace
- 19EF11 Solar PV Systems Design Simulation Monitoring and Control
- 19EF12 Power Electronics in More-Electric Aircraft
- 19EF13 Field Programmable Analog Array for Analog System Design
- 19EF14 Systems Engineering for Automotive Applications
- 19EF15 Electrical Vehicles
- 19EF16 Phasor Measurement Units and Applications
- 19EF17 Industrial Drives for Automation
- 19EF18 Data Science and Analytics for Electrical Engineers
- 19EF19 Electrical Power on-board War Vessels and Aircraft
- 19EF20 Aerospace Avionics
- 19EF21 1-D Model Based System Design for Control System Applications
- 19EF22 Printed Circuit Board Design and its Fabrication
- 19EF23 Digital System Design and Verification Using System Verilog
- 19EF24 Metrology for Electrical Engineers
- 19EF25 Embedded Linux
- 19EF26 Internet of Things using CC3200

- 19EF27 Power Generation and Distribution on War Machines
- 19EF28 Cable Technology
- 19EF29 High Performance Computing with Data Science

LANGUAGE ELECTIVES

- 19G001 Communication Skills for Engineers
- 19G002 German- Level A1.1
- 19G003 French Language Level 1
- 19G004 Basic Japanese

ENGLISH

- 19GF01 Interpersonal and Organizational Communication
- 19GF02 Human Values Through Literature

HUMANITIES

- 19OFA1 Export – Import Practices
- 19OFA2 Insurance - Concepts and Practices
- 19OFA3 Public Finance
- 19OFA4 Security Analysis and Portfolio Management
- 19OFA5 Social Entrepreneurship

Summary of Credit Distribution

BE ELECTRICAL AND ELECTRONICS ENGINEERING (SANDWICH)												
S. No	Course Category	Credits Per Semester										Total Credits
		1	2	3	4	5	6	7	8	9	10	
1	HS	3	2	3	0	0	0	0	0	0	0	8
2	BS	10	12	4	3	0	0	0	0	0	0	29
3	ES	5	4	9	8	0	0	0	0	0	0	26
4	PC	0	0	4	8	19	16	7	12	0	0	66
5	PE	0	0	0	0	0	0	3	3	9	3	18
6	OE	0	0	0	0	0	0	0	3	3	0	6
7	EEC	0+5%	0+2+5%	0+5%	1+5%	1+5%	1+5%	1+5%	0+5%	2+5%	4	12
8	MC	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	18+5%	18+2+5%	20+5%	20+5%	20+5%	17+5%	11+5%	18+5%	14+5%	7	165

% Will be counted for TGPA (Training Grade Point Average) computation

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