

SANDWICH BE ELECTRICAL AND ELECTRONICS ENGINEERING

(2012 Regulations)

(Minimum credits to be earned: 184)
(Minimum Credits in Industrial Training: 45)

Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 1									
12E101	Calculus and its Applications	3	2	0	4	50	50	100	BS
12E102	Physics	3	0	0	3	50	50	100	BS
12E103	Chemistry	3	0	0	3	50	50	100	BS
12E104	Problem Solving and C Programming	2	1	2	3.5	50	50	100	BS
12E105	Basics of Civil Engineering	2	0	0	2	50	50	100	EAS
12M104	Communication Skills in English	2	0	2	3	50	50	100	HUM
12E211	Physics Laboratory	0	0	3	-				BS
12E212	Chemistry Laboratory								
12E100	Industrial Training I	-	-	10	5%	100	-	100	DC
Total 25 hrs		15	3	7+10	18.5+5	400	300	700	

SEMESTER 2

12E201	Complex Variables and Transforms	3	2	0	4	50	50	100	BS
12E202	Electric Circuits	3	1	0	3.5	50	50	100	DC
12M___	Physics Elective	3	0	0	3	50	50	100	BS
12M___	Chemistry Elective	3	0	0	3	50	50	100	BS
12E110	Engineering Graphics	2	0	3	3.5	100 ^x	-	100	EAS
12E210	Basics of Mechanical Engineering and Practices	2	0	3	3.5	100 ^{&}	-	100	EAS
12E211	Physics Laboratory	0	0	3	1.5	100 ^{#,&}	-	100	BS
12E212	Chemistry Laboratory								
12E200	Industrial Training II	-	-	10	5%	100	-	100	DC
Total 28 hrs		16	3	9+10	23.5+5	700	200	900	

CA - Continuous Assessment

FE - Final Examination

& - Viva voce to be conducted for 15 marks along with an External Examiner, 40 marks for final examination to be scheduled by faculty concerned.

- Evaluation will be done at the end of semester 2 covering the entire syllabus

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

CAT-Category; BS – Basic Science; HUM – Humanities; EAS – Engg., Arts & Science; DC – Dept.Core; DE – Dept. Elective

SANDWICH BE ELECTRICAL AND ELECTRONICS ENGINEERING

(2012 Regulations)

Code No.	Course	Hours / week				Credits	CA	Maximum marks		
		Lecture	Tutorial	Practical				FE	Total	CAT
SEMESTER 2 Summer Term (4 weeks duration)										
12E214	Professional Skills	9	0	11	3.5	100 [€]	-	100	DC	
12E215	Professional Communication	0	0	10	1.5	100 [€]	-	100	HUM	
Total 30 hrs		9	0	21	5	200	-	200		
SEMESTER 3										
12E206	Electronic Devices	3	1	0	3.5	50	50	100	DC	
12E301	Linear Algebra and Numerical Analysis	3	0	2	4	50	50	100	BS	
12E302	Applied Mechanics	3	1	0	3.5	50	50	100	EAS	
12E304	Network Theory	3	1	0	3.5	50	50	100	DC	
12M___	Language Elective	3	0	0	3	50	50	100	HUM	
12E213	Circuits & Devices Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E311	Electric Networks Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E300	Industrial Training III	-	-	10	5 [%]	100	-	100	DC	
Total 26 hrs		15	3	8+10	20.5+5	550	250	800		
SEMESTER 4										
12E303	Digital Electronics	3	1	0	3.5	50	50	100	DC	
12E305	Electronic Circuits	3	1	0	3.5	50	50	100	DC	
12E306	Electro Magnetic Fields	3	0	0	3	50	50	100	DC	
12E401	Probability, Statistics and Random Processes	3	1	0	3.5	50	50	100	BS	
12E404	DC Machines & Transformers	3	1	0	3.5	50	50	100	DC	
12E310	Electronic Circuits & Digital Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E411	DC Machines & Transformers Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E400	Industrial Training IV	-	-	10	5 [%]	100	-	100	DC	
Total 25 hrs		15	4	6+10	20+5	550	250	800		

CA - Continuous Assessment

FE - Final Examination

& - Viva voce to be conducted for 15 marks along with an External Examiner, 40 marks for final examination to be scheduled by faculty concerned.

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

€ - These courses will be conducted prior to the commencement of the third semester for a period of 4 weeks during summer term.

CAT-Category; BS – Basic Science; HUM – Humanities; EAS – Engg., Arts & Science; DC – Dept.Core; DE – Dept. Elective

SANDWICH BE ELECTRICAL AND ELECTRONICS ENGINEERING

(2012 Regulations)

Code No.	Course	Hours / week				Credits	CA	Maximum marks		
		Lecture	Tutorial	Practical				FE	Total	CAT
SEMESTER 5										
12E402	Linear Integrated Circuits and Applications	3	1	0	3.5	50	50	100	DC	
12E403	Measurements and Instrumentation	3	0	0	3	50	50	100	DC	
12E405	Microprocessors and Microcontrollers	3	1	2	4.5	50	50	100	DC	
12E505	Control Systems	3	1	0	3.5	50	50	100	DC	
12E406	Environmental Science and Engineering	3	0	0	3	50	50	100	HUM	
12E410	Linear ICs and Measurements Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E510	Instrumentation and Control Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC	
12E500	Industrial Training V	-	-	10	5%	100	-	100	DC	
Total 26 hrs		15	3	8+10	20.5+5	550	250	800		

SEMESTER 6

12E501	Computer Architecture	3	0	0	3	50	50	100	DC
12E502	Data Structures and Algorithms	3	1	2	4.5	50	50	100	DC
12E503	Induction and Synchronous Machines	3	1	0	3.5	50	50	100	DC
12E504	Generation, Transmission and Distribution	3	0	0	3	50	50	100	DC
12M___	Mathematics Elective	3	1	0	3.5	50	50	100	BS
12M070	Economics for Engineers	2	1	0	2.5	50	50	100	HUM
12E511	Induction and Synchronous Machines Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC
12E600	Industrial Training VI	-	-	10	5%	100	-	100	DC
Total 26 hrs		17	4	5+10	21.5+5		500	300	800

CA - Continuous Assessment

FE - Final Examination

& - Viva voce to be conducted for 15 marks along with an External Examiner, 40 marks for final examination to be scheduled by faculty concerned.

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

CAT-Category; BS – Basic Science; HUM – Humanities; EAS – Engg., Arts & Science; DC – Dept.Core; DE – Dept. Elective

SANDWICH BE ELECTRICAL AND ELECTRONICS ENGINEERING

(2012 Regulations)

Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 7									
12E601	Digital Signal Processing	3	1	0	3.5	50	50	100	DC
12E602	Power Electronics	3	1	0	3.5	50	50	100	DC
12E603	Computer-aided Power Systems Analysis	3	0	0	3	50	50	100	DC
12E610	Power Electronics Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC
12E611	Digital Signal Processing Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC
12E520	Industrial Visit Cum Lecture***	0	0	3 [@]	1.5	100	-	100	DC
12E620	Mini Project***	0	0	4 [@]	2	100	-	100	DC
12E700	Industrial Training VII***	0	0	10 [@]	5 [%]	100	-	100	DC
Total 24 hrs		9	2	13+10	16.5+5	650	150	800	

SEMESTER 8

12E604	Power System Protection and Switchgears	4	0	0	4	50	50	100	DC
12E701	Electric Drives and Controls	3	0	0	3	50	50	100	DC
12E702	Electrical Machine Design	3	0	0	3	50	50	100	DC
12E___	Professional Elective I	3	0	0	3	50	50	100	DE
12E710	Power Systems Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC
12E711	Design Laboratory	0	0	3	1.5	100 ^{&}	-	100	DC
12E800	Industrial Training VIII	-	-	10	5 [%]	100	-	100	DC
Total 19 hrs		13	0	6+10	16+5	500	200	700	

CA - Continuous Assessment

FE - Final Examination

& - Viva voce to be conducted for 15 marks along with an External Examiner, 40 marks for final examination to be scheduled by faculty concerned.

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

*** - Students will undergo the course work and /or training in an industry immediately after the 6th semester examinations for a period of 3 months and study the remaining courses of the VII Semester after completing these components.

@ - minimum number of hours in the industry.

CAT-Category; BS – Basic Science; HUM – Humanities; EAS – Engg., Arts & Science; DC – Dept.Core; DE – Dept. Elective

SANDWICH BE ELECTRICAL AND ELECTRONICS ENGINEERING

(2012 Regulations)

Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER 9									
12E703	Operating Systems	3	0	0	3	50	50	100	DC
12E___	Professional Elective II	3	0	0	3	50	50	100	DE
12E___	Professional Elective III	3	1	2	4.5	50	50	100	DE
12M___	Humanities Elective	2	1	0	2.5	50	50	100	HUM
12E720	Project Work I	0	0	4	2	100	-	100	DC
12E900	Industrial Training IX	-	-	10	5%	100	-	100	DC
Total 19 hrs		11	2	6+10	15+5	400	200	600	

SEMESTER 10

12E___	Professional Elective IV	3	0	0	3	50	50	100	DE
12E___	Professional Elective V	3	0	0	3	50	50	100	DE
12E820	Project Work II	0	0	12	6	50	50	100	DC
Total 18 hrs		6	0	12	12	150	150	300	

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

CA -Continuous Assessment

FE - Final Examination

CAT-Category; BS – Basic Science; HUM – Humanities; EAS – Engg., Arts & Science; DC – Dept.Core; DE – Dept. Elective

PROFESSIONAL ELECTIVES – I, II, IV, V (With no Laboratory Component)
(A minimum of two electives are to be opted)

ELECTRICAL

12E001	HVDC and Flexible AC Transmission Systems
12E002	Special Machines and Controllers
12E003	Renewable Energy Sources
12E004	Utilization of Electrical Energy
12E005	Advanced Control Systems

ELECTRONICS

12E011	Smart Grid
12E012	VLSI Design
12E013	Communication Systems
12E014	Neural Networks & Fuzzy Systems
12E015	Advanced Microprocessors and Microcontrollers

COMPUTER

12E021	Advanced Data Structures
12E022	Computer Networks
12E023	Software Project Management and Quality Assurance
12E024	Advanced Computer Architecture
12E025	Personal Computer Systems

PROFESSIONAL ELECTIVES – III (With a Laboratory Component)
(One to be opted necessarily)

12E031	PLC and Distributed Control System
12E032	Computer Aided Design of Electrical Machines
12E033	Virtual Instrumentation Systems
12E034	Digital System Design
12E035	Java Programming
12E036	Relational Database Management Systems
12E037	Embedded System Design

ONE CREDIT COURSES

12EK01	LV Switchgears
12EK02	CAD Tools for VLSI Design Automation
12EK03	Digital Design with Verilog HDL
12EK04	Energy Auditing and Conservation Techniques

SCIENCE AND HUMANITIES ELECTIVES
(One elective from each of the following five categories listed below is to be opted)

MATHEMATICS ELECTIVES

12M040	Optimization Techniques
12M041	Stochastic Models
12M042	Graph Theory and its Applications

PHYSICS ELECTIVES

12M050	Science of Materials for Electrical Engineering
12M051	Physics for Solar PV Systems and Solid-state Lighting Systems

CHEMISTRY ELECTIVES

12M060	Electrochemistry for Electrical Sciences
12M061	Energy Storing Devices and Fuel Cells

HUMANITIES ELECTIVES

12M071	Industrial Psychology, Sociology and Global Issues
12M072	Indian Ethos and Values
12M073	Human Resource Management
12M074	Indian Constitution and Society
12M075	Elements of Sociology and Environment
12M076	Principles of Management
12M077	Entrepreneurship

LANGUAGE ELECTIVES

12M080	Professional English
12M081	Basic German
12M082	Basic French
12M083	Basic Japanese

OTHER DEPARTMENT ELECTIVES**

MANAGEMENT ELECTIVES

12M095	Financial and Managerial Accounting
12M096	Managerial Finance
12M097	Applied Business Statistics
12M098	Marketing Systems
12M099	Analysis of Manufacturing and Service Systems

** - A candidate may be permitted to take a maximum of Two electives in lieu of Professional Elective courses I, II, IV & V from the list of elective courses of other departments / branches of BE / BTech degree programmes including the ones listed above with specific permission from the concerned Heads of the Department.