

B. Tech. Degree
in
ELECTRICAL AND ELECTRONICS ENGINEERING



**SYLLABUS
FOR
CREDIT BASED CURRICULUM
(For students admitted in 2013-14)**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 620 015
TAMIL NADU, INDIA**

CURRICULUM

The total minimum credits required for completing the B.Tech. Programme in Electrical and Electronics Engineering is **182** (45 + (137))

SEMESTER III

CODE	COURSE OF STUDY	L	T	P	C
MA205	TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	3	0	0	3
EE201	DC MACHINES AND TRANSFORMERS	3	1	0	4
EE203	CIRCUIT THEORY	3	1	0	4
EE205	ELECTRON DEVICES	3	0	0	3
EE207	DIGITAL ELECTRONICS	3	0	0	3
ME231	THERMODYNAMICS AND MECHANICS OF FLUIDS	4	0	0	4
EE209	DC MACHINES AND TRANSFORMERS LABORATORY	0	0	3	2
EE211	CIRCUITS AND DEVICES LABORATORY	0	0	3	2
TOTAL		19	2	6	25

SEMESTER IV

CODE	COURSE OF STUDY	L	T	P	C
MA202	NUMERICAL METHODS	3	0	0	3
EE202	AC MACHINES	3	1	0	4
EE204	TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY	3	0	0	3
EE206	NETWORKS AND LINEAR SYSTEMS	3	1	0	4
EE208	MEASUREMENTS AND INSTRUMENTATION	3	0	0	3
EE210	ANALOG ELECTRONIC CIRCUITS	3	0	0	3
EE212	SYNCHRONOUS AND INDUCTION MACHINES LABORATORY	0	0	3	2
EE214	ELECTRONIC CIRCUITS LABORATORY	0	0	3	2
TOTAL		18	2	6	24

SEMESTER V

CODE	COURSE OF STUDY	L	T	P	C
EE301	POWER SYSTEM ANALYSIS	3	1	0	4
EE303	CONTROL SYSTEMS	3	0	0	3
EE305	LINEAR INTEGRATED CIRCUITS	3	0	0	3
EE307	DATA STRUCTURES AND ALGORITHMS	3	0	0	3
EC319	COMMUNICATION SYSTEMS	3	0	0	3
--	ELECTIVE 1	3	0	0	3
EE309	INTEGRATED CIRCUITS LABORATORY	0	0	3	2
EE311	DATA STRUCTURES LABORATORY	0	0	3	2
TOTAL		18	1	6	23

SEMESTER VI

CODE	COURSE OF STUDY	L	T	P	C
EE302	POWER ELECTRONICS	3	0	0	3
EE304	POWER SYSTEM PROTECTION AND SWITCHGEAR	3	0	0	3
EE306	MICROPROCESSORS AND MICROCONTROLLERS	3	0	0	3
EE308	VLSI DESIGN	3	0	0	3
--	ELECTIVE 2	3	0	0	3
--	ELECTIVE 3	3	0	0	3
EE310	POWER ELECTRONICS LABORATORY	0	0	3	2
EE312	MICRO-COMPUTING AND VLSI DESIGN LABORATORY	0	0	3	2
--	INDUSTRIAL LECTURES	0	0	0	1
--	INTERNSHIP / INDUSTRIAL TRAINING / ACADEMIC ATTACHMENT # (2 to 3 months duration during summer vacation)	0	0	0	2
TOTAL		18	0	6	25

#To be evaluated at the beginning of VII semester by assessing the report and conducting seminar presentations.

SEMESTER VII

CODE	COURSE OF STUDY	L	T	P	C
MB491	MANAGEMENT CONCEPTS AND PRACTICES	3	0	0	3
EE401	POWER SYSTEM ECONOMICS AND CONTROL TECHNIQUES	3	0	0	3
EE403	WIND AND SOLAR ELECTRICAL SYSTEMS	3	0	0	3
--	ELECTIVE 4	3	0	0	3
--	ELECTIVE 5*	3	0	0	3
EE405	CONTROL AND RENEWABLE ENERGY SYSTEMS LABORATORY	0	0	3	2
EE407	POWER SYSTEMS SIMULATION LABORATORY	0	0	3	2
EE447	COMPREHENSIVE EXAMINATION	-	-	-	3
TOTAL		15	0	6	22

SEMESTER VIII

CODE	COURSE OF STUDY	L	T	P	C
HM402	PROFESSIONAL ETHICS AND VALUES	3	0	0	3
--	ELECTIVE 6	3	0	0	3
--	ELECTIVE 7*	3	0	0	3
--	ELECTIVE 8*	3	0	0	3
EE498	PROJECT WORK	0	0	15	6
TOTAL		12	0	15	18

* GLOBAL ELECTIVES ALSO

(Electives may be grouped under different streams with relevance to the branch of study)

LIST OF ELECTIVES

GROUP 1 (ELECTRICAL POWER STREAM)					
CODE	COURSE OF STUDY	L	T	P	C
EE001	POWER GENERATION SYSTEMS	3	0	0	3
EE002	DESIGN OF ELECTRICAL APPARATUS	3	0	0	3
EE003	STATIC RELAYS	3	0	0	3
EE004	EHV AC AND DC TRANSMISSION	3	0	0	3
EE005	FUNDAMENTALS OF FACTS	3	0	0	3
EE006	UTILIZATION OF ELECTRICAL ENERGY	3	0	0	3
EE007	SPECIAL ELECTRICAL MACHINES	3	0	0	3
EE008	ELECTRICAL SAFETY	3	0	0	3
EE009	COMPUTER RELAYING AND PHASOR MEASUREMENT UNIT	3	0	0	3
EE081	SOLID STATE DRIVES	3	0	0	3
EE082	POWER SYSTEM DYNAMICS	3	0	0	3
EE083	POWER SYSTEM RESTRUCTURING	3	0	0	3
EE084	POWER SWITCHING CONVERTERS	3	0	0	3
EE085	MODERN OPTIMIZATION TECHNIQUES FOR ELECTRIC POWER SYSTEMS	3	0	0	3
EE086	VEHICULAR ELECTRIC POWER SYSTEMS	3	0	0	3
EE087	DISTRIBUTION SYSTEM AUTOMATION	3	0	0	3
GROUP 2 (ELECTRONICS AND COMPUTER STREAM)					
EE021	COMPUTER ARCHITECTURE	3	0	0	3
EE022	COMPUTER NETWORKS	3	0	0	3
EE023	DESIGN WITH PIC MICROCONTROLLERS	3	0	0	3
EE024	EMBEDDED SYSTEM DESIGN	3	0	0	3
EE025	DIGITAL SIGNAL PROCESSING	3	0	0	3
EE026	DIGITAL SYSTEM DESIGN AND HDLS	3	0	0	3
EE027	LOW POWER MICROCONTROLLER	3	0	0	3
EE088	AIRCRAFT ELECTRONIC SYSTEMS	3	0	0	3
EE089	APPLIED SIGNAL PROCESSING	3	0	0	3

GROUP 3 (Common to Group 1 and 2)					
EE041	ARTIFICIAL NEURAL NETWORKS	3	0	0	3
EE042	FUZZY SYSTEMS AND GENETIC ALGORITHMS	3	0	0	3
EE043	INDUSTRIAL AUTOMATION	3	0	0	3
EE044	OPERATION RESEARCH	3	0	0	3
EE090	MODERN CONTROL SYSTEMS	3	0	0	3
EE091	DIGITAL CONTROL SYSTEMS	3	0	0	3
EE092	NON-LINEAR CONTROL SYSTEMS	3	0	0	3

LIST OF ADVANCED LEVEL COURSES FOR B.Tech. HONOURS

- i. For the students with consistent academic record of GPA ≥ 8.5 from I to IV semesters, and applied for B.Tech Honours.
- ii. Can opt to study any 3 of the listed advanced level courses from V semester
- iii. In 7th semester, B.Tech Honours students are permitted to take one M.Tech. (Power Systems/Power Electronics) core course offered during that semester.

LIST OF ADVANCED LEVEL COURSES FOR B.Tech. HONOURS					
CODE	COURSE OF STUDY	L	T	P	C
EE081	SOLID STATE DRIVES	3	0	0	3
EE082	POWER SYSTEM DYNAMICS	3	0	0	3
EE083	POWER SYSTEM RESTRUCTURING	3	0	0	3
EE084	POWER SWITCHING CONVERTERS	3	0	0	3
EE085	MODERN OPTIMIZATION TECHNIQUES FOR ELECTRIC POWER SYSTEMS	3	0	0	3
EE086	VEHICULAR ELECTRIC POWER SYSTEMS	3	0	0	3
EE087	DISTRIBUTION SYSTEM AUTOMATION	3	0	0	3
EE088	AIRCRAFT ELECTRONIC SYSTEMS	3	0	0	3
EE089	APPLIED SIGNAL PROCESSING	3	0	0	3
EE090	MODERN CONTROL SYSTEMS	3	0	0	3
EE091	DIGITAL CONTROL SYSTEMS	3	0	0	3
EE092	NON-LINEAR CONTROL SYSTEMS	3	0	0	3

COURSES OFFERED TO OTHER DEPARTMENTS

DEPT.	CODE	COURSE OF STUDY	L	T	P	C
MECHANICAL	EE223	APPLIED ELECTRICAL ENGINEERING	2	0	1	3
CHEMICAL	EE227	APPLIED ELECTRICAL AND ELECTRONICS ENGINEERING	3	0	0	3
CHEMICAL	EE221	ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY	0	0	2	2
PRODUCTION	EE225	APPLIED ELECTRONICS	3	0	0	3
PRODUCTION	EE242	ELECTRICAL AND CONTROL SYSTEM ENGINEERING	3	0	0	3
PRODUCTION	EE224	ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY	0	0	1	1
MME	EE220	ELECTRICAL TECHNOLOGY	2	0	1	3