ELECTRICAL & ELECTRONICS ENGINEERING YEAR : IV SEMISTER : VIII

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					Credit
THEORY			L	T	P	SESSIONAL EXAM				SUB TOTAL	
						TA	CT	TOT	ESE		
1	EE1811	OPEN ELECTIVE	3	1	-	30	20	50	100	150	4
2	EE1812	PROFESSIONAL ELECTIVE II	3	1	-	30	20	50	100	150	4
3	EE1813	PROFESSIONAL ELECTIVE III	3	1	-	30	20	50	100	150	4
4	EE1814	HIGH VOLTAGE ENGINEERING	3	1	-	30	20	50	100	150	4
5	EE1815	DIGITAL SIGNAL PROCESSING	3	1	-	30	20	50	100	150	4
PRACTICAL/DRAWING/DESIGN											
6	ME1803-P	PROJECT II	-	-	12	100	-	100	100	200	6
7	ME1808-P	GENERAL PROFICIENCY VIII	-	-	-	-	-	50	-	50	2
		TOTAL	15	5	12	-	-	-	-	1000	28

TA-TEACHERS ASSESSMENT **CT-CLASS TEST** **ESE- END SEMESTER EXAMINATION**
TOTAL MARKS: 1000 **TOTAL PERIODS: 32** **TOTAL CREDITS: 28**
Total Credit of All the Four Years

	Sl.No.	Code	Paper
OPEN ELECTIVE I	1	CS2821	IT in Marketing Management
	2	CS2822	IT in HR Management
	3	CS2823	IT in Finance Management
	4	CS2824	project Management & Software Tools
	5	HS2821	Human Values
	6	HS2822	Science Technology and Society
PROFESSIONAL ELECTIVE II	1	EC2821	Data Communication And Design
	2	EC2822	Microprocessor based System Design
	3	EC2823	Advance Topic in Microprocessor & Microcontroller
	4	CS2825	Personnel Computer Systems
	5	EC2825	Biomedical Instrumentation
	6	EE2821	Power Electronics
PROFESSIONAL ELECTIVE III	1	CS2826	System Software
	2	CS2827	Computer Graphics
	3	EC2825	Modeling And Simulation
	4	EC2826	Television Engineering
	5	EC2827	VLSI Design
	6	EE2822	Neural Network & Fuzzy System
	7	CS2828	Computer Network

SEMESTER — VIII

EE 1801 HIGH VOLTAGE ENGINEERING (3—1—0)

Breakdown in Gases

Mechanism of breakdown in gases, various related ionization processes, Townsend's and Steamer theories, Paschen's law, Breakdown in Non-uniform fields; Effect of wave shape of impressed voltage on the breakdown strength, Breakdown of sphere gape and rod gap;

Breakdown in Liquid and Solids

Mechanisms of breakdown in liquids, suspended particle, suspended water, cavitations and bubble and electronic breakdown theories; Mechanisms of breakdown in solids; Intrinsic electro-mechanical, erosion, surface, thermal and streamer; Relation between electric strength of solids and time, intrinsic breakdown strength;

Impulse Generator

Specifications of an impulse voltage wave, standard impulse, reasons for adopting the particular shape, Analysis and control of simple circuit of impulse generator; Multi-stage impulse generator (Marks circuit) circuit working, earthing and tripping; Techniques to observe wave front on C. R. 0.

Generation of High Voltage

Methods of generation of power frequency, high voltage cascade transformers and resonance methods, Generation of high voltage DC, Voltage stabilization, Tesla coil.

Measurement of High Voltage

Potential dividers — resistive, capacitive and mixed dividers for high voltage, sphere gap, construction, mounting, effect of nearby earthed objects, humidity and atmoispheric conditions, effect Gt iiiadiation and polarity; Electrostatic voltniaer — principice and classification, constructional details of an absolute electrostatic voltmeter; Oscilloscopes and their applications in high voltage measurement.

High Voltage Testing

Measurement of insulation resistance of cables; Wet and dry flashover test of insulators, Testing of insulators in simulated polluted conditions; Testing of transformers and rotating machines; Measurement of breakdown strength of oil; Basic techniques of nondestructive testing of insulators; Measurement of loss angle, High Voltage Schering bridge and partial discharge measurement

techniques.

Over Voltage and Insulation Coordination

Lighting Switching and temporary over voltages, BIL, SIL, methods of insulation coordination;

Suggested Books & References:

- Bewley, L. V., *"Traveling Waves on Transmission Systems",* Wiley New York, 2I'd Edition, 1963.
- Nidu, M. S. and Kamaraju, V., *"High Voltage Engineering",* Tata McGraw Hill, 1982.
- Wadhawa, C. L., *"High Voltage Engineering"* Wiley Eastern, 1994.
- Radzevig, D. K., *"High Voltage Engineering"* Khanna Publisher, 1992.

EE 1802 DIGITAL SIGNAL PROCESSING (3 — 1 — 6)

Sampling and Data Reconstruction process, Z-transforms;

Discrete linear systems; Frequency domain design of digital filters;

Quantization effects in digital filters;

Discrete Fourier transform and FFT algorithms.

High speed convolution and its applications to digital filtering; Multi-rate filtering;

Suggested Books & References:

- Rabiner, L. R. & Gold, B., *"Theory and Application of Digital Signal Processing",* Prentice Hall, 1989.
- Openheim & Schafer, *"Digital Signal Processing",* Prentice Hall, 1995.

PRICTICAL:

1.	**EE 1803-P**	**Project- II**	**(0-0-12)**
2.	**HS 1808-P**	**GENERAL PROFICIENCY VIII**	**(0-0-0)**

LIST **OF PROFESSIONAL & OPEN ELECTIVES**

ELECTIVES	SI.No.	Code	Paper
OPEN ELECTIVE I	01	HS 2721	Enterprise Resource Management.
	02	CS 2721	E-Commerce, Strategic IT
	03	HS 2722	Technology Management.
	04	HS 2723	Decision Support and Executive Information system.
	05	CS 2722	Software Technology.
	06	HS2724	Knowledge Management
PREFESSIONAL ELECTIVES I	01	HS2725	Non Conventional Energy Sources
	02	EE2721	High voltage Engineering
	03	EE2722	Special Electrical Machines
	04	EE2723	HVDC Transmission
	05	EC2721	Microprocessor Based System Design
	06	EC2722	Advanced Topics in Microprocessors and Microcontrollers
	07	EE2724	Computer Aided Design of Electrical Machines.

ELECTIVES	SI.No.	Code	Paper
OPEN ELECTIVE II	07	CS 2821	IT in Marketing Management.
	08	CS 2822	IT in HR Management.
	09	CS2823	IT in Finance Management.
	10	CS **2824**	Project Management and Software Tools.
	11	HS 2821	Human Values
	12	HS 2822	Science Technology & Society
PREFESSIONAL ELECTIVES I I	07	EC 2821	Data Communication And Design
	08	EC 2822	Microprocessor based System Design
	09	EC 2823	Advanced Topics In Microprocessors & Microelectronics
	10	CS 2825	Personnel Computer Systems
	11	EC 2824	Biomedical Instrumentation i
	12	EE2821	Power Electronics
PREFESSIONAL ELECTIVES I I I	17.	C S 2P.2f:	System Software
	14	CS 2827	Computer Graphics
	15	EC 2825	Modeling And Simulation
	16	EC 2826	Television Engineering
	17	EC 2827	V L S I Design
	18	EE 2822	Neural Network & Fuzzy System
	19	CS 2828	Computer Networks

Note: *The Institutions can frame Syllabi of Professional Electives and Open electives to be offered by them in the particular area.*

Open Electives

HUMAN VALUES

The objectives of the course is an exploration of human vales which go into making a 'good' human being, a 'good' human society and a 'good' life. The context is the work life and the personal life of modern Indian professionals. The course has been taught for two years as an elective curse to B. Tech. Part —III students of IT-BIU.

1. The value-crisis in the contemporary Indian Society.
2. The nature of values: The value spectrum for a 'good' life.
3. The Indian system of values.
4. Material development and its values: the challenge of science and technology.
5. Psychological values: integrated personality; mental health.
6. Societal values: the modern search for a 'good' society; justice, democracy, rule of law; values in the Indian constitution.
7. Aesthetic values: perception and enjoyment of beauty.
8. Moral and ethical values; nature of moral judgments; canons of ethics; ethics of virtue; ethics of duty; ethics of responsibility.
9. Work ethics; professional ethics.
10. Spiritual values; different concepts; secular spirituality.
11. Relative and absolute values.
12. Human values: humanism and human values; human rights; human values as freedom, creativity, love and wisdom.
13. Management by values: professional excellence; inter-personal relationships at work place; leadership and team building; conflict resolution and stress management; management of power.

SCIENCE TECHNOLOGY AND SOCIETY

It will be innovative course dealing with social, human and ethical implications of engineering and technology, with special reference to the Indian situation. Its three main components are:

- Social and Cultural history of technology,
- Social and Human critiques of technology,
- Engineering Ethics and Professional Ethics,
- The proposed course structure is as follow:

1. Science, Technology and Engineering, as knowledge and as social and professional activities.
2. Inter-relationship of technology growth and social, economic and cultural growth; historical perspective.
3. Ancient, medieval and modern technology / Industrial revolution and its impact. The Indian Science and Technology.
4. Social and human critiques of technology: Mumford and Ellul.
5. Rapid technological growth and depletion of resources. Reports of the club of Rome. Limits to growth; sustainable development.
6. Energy crisis; renewable energy resources.
7. Environmental degradation and pollution. Eco-friendly technologies. Environmental regulations. Environmental ethics.
8. Technology and the arms race. The nuclear threat.
9. Appropriate technology movement Schumacher; later developments.
10. Technology and the developing nations. Problems of technology transfer. Technology assessment / Impact analysis.
11. Human operator in engineering projects and industries. Problems of man machine interaction. Impact of assembly line and automations. Human centred technology.
12. Industrial hazards and safety. Safety regulations. Safety engineering.