UNIVERSITY OF JAMMU

(NAAC ACCREDITED A + GRADE UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

NOTIFICATION

(23/Sept/Adp/ 81)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of the revised Syllabi and Courses of Studies in **Bachelor of Technology (B.Tech.) in Electrical Engineering** for Semester III & IV under the **Credit Based System** as per the new **AICTE** Model Curriculum **(as given in the Annexure)** for the candidates of **Govt./Pvt. Engineering Colleges affiliated with the University of Jammu** for the Examinations to be held in the years indicated against each Semester as under:-

Branch	Semester	For the Examination to be held in the years
Electrical	**Semester-III**	**December 2023, 2024, 2025 and 2026**
	Semester-IV	**May 2024, 2025, 2026 and 2027**

The Syllabi of the course are available on the University Website: www.jammuuniversity.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/23/ 9980-9990
Dated: 13/09/2023
Copy for information & necessary action to:-

1. Dean, Faculty of Engineering
2. Principal, GCET/MBSCET/BCET/YCET
3. C.A to the Controller of Examinations
4. Joint/Assistant Registrar (Exams Prof./Evaluation Prof./Confidential)
5. Incharge University Website

Supriya 13/Sept/23

Assistant Registrar (Academic)

13/9/23 Tulya 12/09/23

B.Tech. Electrical Engineering 3rd semester Examination to be held in the year December 2023,2024,2025,2026

Contact hours: 25

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits	% Change
			L	T	P	Internal	External			
EET2301	Professional Core Course	Electrical Machines-I	2	1	0	50	100	150	3	60%
EET2302	Professional Core Course	Electrical Circuit Analysis	2	1	0	50	100	150	3	20%
EET2303	Professional Core Course	Estimation & Costing	2	1	0	50	100	150	3	100%
BST8301	Basic Science Course	Numerical Methods & Transform Calculus	2	1	0	50	100	150	3	5%
ECT1304	Engineering Science Course	Analog Electronics	2	1	0	50	100	150	3	100%
EEP2311	Professional Core Course	Electrical Machine Lab-I	0	0	2	50	-	50	1	0%
EEP2312	Professional Core Course	Electrical Circuit Analysis Lab	0	0	2	50	-	50	1	10%
EEP2313	Professional Core Course	Estimation & Costing Lab	0	0	2	50	-	50	1	100%
MOC2311	Professional Core Course	MOOC	0	0	2	50	-	50	1	100%
NCC2301 / NCC3301	Non-Credit Course	Electrical Safety/ Cyber Ethics & Laws	2	0	0	Satisfactory/unsatisfactory Non credit				100%
Total			**12**	**5**	**8**	**450**	**500**	**950**	**19**	

:ch. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDITS-3**

CLASS: 3rd SEMESTER

COURSE TITLE: ELECTRICAL MACHINES-I

COURSE CODE: EET2301

DURATION OF EXAM.: 3 HOURS

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Impart knowledge about the principle operation of 1 phase transformer.
CO2	Deliver knowledge about working of 3 phase and auto transformer.
CO3	Describe the principle of operation, operating characteristics and testing of D.C. Generator.
CO4	Describe the principle of operation, operating characteristics, starting method and speed control of D.C. Motor.

Detailed syllabus

SECTION-A

Unit-I Transformers

Principle of operation, Construction and emf equation of single-phase transformer, phasor diagram, equivalent circuit, voltage regulation, losses and efficiency, Testing-Polarity Test, Open & short circuit tests, Sumpner's test. Parallel operation of single-phase transformers. **(11 hours)**

Unit-II Three Phase Transformer

Construction, various types of connections and their comparative features. Parallel operation of three-phase transformers, Rating of transformers, Scott connection and Open delta. Cooling of transformers. Construction and working principle of Autotransformers, Comparison with two winding transformers and its applications. **(11 hours)**

SECTION-B

Unit-III: D.C. Generator

Working principle, construction and methods of excitation. Types of Armature Windings-simple lap and wave winding.
Emf equation, Armature reaction, Commutation, Causes of bad commutation, Methods of improvement, Effect of brush shift, Compensating winding. Characteristics of various types of generators, applications. **(11 hours)**

Unit-IV: D.C. Motors

Torque equation, Characteristics of d. c. shunt, Series and compound motors, applications. Starting, braking methods and speed control of d. c. shunt and series motors. Direct and regenerative methods to test dc. machines. **(9 hours)**

RECOMMENDED BOOKS:

1. Performance and design of Direct Current machines — A.E Clayton
2. Electric Machines — Nagrath & Kothari
3. Electrical Machinery — PS Bimbhra
4. Electrical Machines — SK Bhattacharya

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDITS-3**

CLASS: 3rd SEMESTER

COURSE TITLE: ELECTRICAL CIRCUIT ANALYSIS

COURSE CODE: EET2302

DURATION OF EXAM.: 3 HOURS

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Apply the knowledge of basic circuital law, dot convention and topological description of Electrical networks.
CO2	Acquire knowledge about the application of differential equation method and Laplace transform in electrical circuits.
CO3	Understand pole-zero configuration and determine parameters of two port network.
CO4	Understand concept and synthesize circuits using Foster and Cauer forms.

Detailed Syllabus

SECTION-A

Unit-I:Conventions for describing networks

Reference directions for currents and voltages, Conventions for Magnetically Coupled Circuits, Circuit Topology. **(7 hours)**

Unit-II: First order differential equation & Laplace Transformations

Differential equations as applied in solving networks, Application of initial conditions, evaluating initial conditions in networks. Laplace Transformations: Solution of network problems with Laplace transformation. **(7 hours)**

Unit-III: Wave Form Analysis & Synthesis

The unit step, ramp, parabolic and impulse functions and their Laplace transforms, Initial and final value theorems, convolution integral, convolution as summation. **(7 hours)**

SECTION-B

Unit-IV: Network Functions-poles and zeroes

Ports or terminal pairs. Network functions for one port and two port networks, Poles and Zeros of network functions, Restriction on pole and Zero locations for driving point and transfer functions. Time domain behavior from pole-Zero plot. **(8 hours)**

Unit-V: Two port parameters

Impedance, Admittance, transmission and hybrid parameters, Relationship between parameter sets, parallel, series & Cascade connection of two port Networks, Characteristics impedance of two-port network. **(7hours)**

Unit-VI: Network Synthesis

Introduction, properties of positive real functions, Hurwitz polynomials properties of RC, LC and RL driving point functions. Foster and Cauer synthesis of LC, RL and RC circuits. **(7 hours)**

RECOMMENDED BOOKS:

1.	Network Analysis	Van Valkenberg
2.	Network Analysis & Synthesis	F.F. Kuo
3.	Introduction to Circuit Synthesis & Design	Temes & La Patra
4.	Fundamentals of Network Analysis & Synthesis	Perikari
5.	Network Theory & Filter Design	V. Atre
6.	Network analysis and Synthesis	Sudhakar ShyamMohan
7.	Circuit Theory analysis and Synthesis	A. Chakrabarti

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDITS- 3**

CLASS: 3rd SEMESTER

COURSE TITLE: ESTIMATION & COSTING

COURSE CODE: EET2303

DURATION OF EXAM: 3 HOURS

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Understand the concept of estimating and costing of electrical material and labor, floating of Tender.
CO2	Understand the electrical wiring systems for residential and commercial consumers, earthing system
CO3	Understand the rating, size and clearance of conductor, poles and towers
CO4	Understand the concept of Substations and equipment used

Detailed Syllabus

SECTION A

Unit I: Elements of Estimating

Introduction, Purpose of Estimating and costing, Essential Elements of Estimating and Costing, Determination of Material and labour cost, Tender, Guidelines for inviting tenders, Quotation, Other important factors of Estimating and Costing. **(9 hours)**

Unit II: Residential and Commercial Electrical Systems

Types of residential and commercial wiring systems, general rules and guidelines for installation, System of distribution of electrical energy, Methods of wiring, distribution board and protection devices, Earthing system, Methods of Earthing, Measurement of Earth resistance, Methods of lighting in house, Conductor size calculation.

(11 hours)

SECTION B

Unit III: Three Phase Four Wire Distribution system

Introduction, Components of distribution overhead line, Current rating of different conductors, Size of conductor for Overhead transmission line, Poles and towers used for transmission & distribution lines, guarding ofoverhead lines, Clearance of conductor from ground, Stay tighter. **(10 hours)**

Unit IV: Estimation of Small substations

Introduction, different classifications of substations, location of substation, steps in the designing of substation, main equipment used in substation, earthing of substations, indoor substation, outdoor substations, considerations for safe operation of substations, symbols for equipment, key diagrams of substation. **(10 hours)**

RECOMMENDED BOOKS:

1. S.L. Uppal and G.C. Garg, "Electrical Wiring, Estimating & Costing", Khanna publishers, 2008.
2. K. B. Raina, "Electrical Design, Estimating & Costing", New age International, 2007.
3. S. Singh and R. D. Singh, "Electrical estimating and costing", Dhanpat Rai and Co., 1997.
4. J.B.Gupta, "Electrical Installation Estimating & Costing".
5. H. Joshi, "Residential Commercial and Industrial Systems", McGraw Hill Education, 2008.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: E&C/ ELECTRICAL ENGINEERING
CLASS: B.E. 3rd SEMESTER
COURSE TITLE: NUMERICAL METHODS &TRANSFORM CALCULUS
COURSE CODE – BST8301
DURATION OF EXAM: 3 HOURS

CREDITS- 3

L	T	P	MARKS	
			Internal	External
2	1	0	50	100

COURSE OUTCOMES:-	
At the end of the semester the student will be able to	
CO1	Develop skills in analyzing the methods of interpolating a given data.
CO2	Find out the real roots of algebraic, transcendental equations and differential equations.
CO3	Determine Laplace transforms and inverse Laplace transforms of various functions.
CO4	Understand the idea of Fourier transform, Fourier sine and cosine transform and their properties.

Detailed Syllabus

Section-A

Unit I: Numerical Methods
Finite and divided difference, Interpolation using Newton's and Lagrange's formulae. Solution of polynomial and transcendental equations – Newton-Raphson method, Iteration method and Regula-Falsi method. Numerical integration: Trapezoidal rule and Simpson's 1/3rd rule. **(12 hours)**

Unit II
Taylor's method, Picard's method, Euler and modified Euler's methods. Runge Kutta method of fourth order for solving first and secondorder equations. **(10 hours)**

Section-B

Unit III: Laplace Transform
Laplace Transform, Properties of Laplace Transform: Linear property, change of scale property, first shifting property, second shifting property, Multiplication & division by t property, convolution property, Laplace transform of periodic functions, Laplace transform of derivatives. Finding inverse Laplace transform by different methods. Evaluation of integrals by Laplace transform, solving differential equations of higher order by Laplace Transform. **(12 hours)**

Unit IV: Fourier Transform
Fourier Integrals. Fourier transforms. Fourier integral theorem, Fourier sine and cosine integrals and their inverses. Properties of Fourier transforms. Application of Fourier transform to solve integral equations. Fourier sine and cosine integrals,and their inverses. **(10 hours)**

Books Recommended:

1. N.P. Bali and M. Goyal — A text book of Engineering Mathematics. Laxmi Publications. 2008.
2. B.S. Grewal — Higher Engineering Mathematics, Khanna Publishers, 2010.
3. Dr.Bhopinder Singh — ENGINEERING MATHEMATICS III
4. Dr.Bhopinder Singh — A textbook on Complex analysis and Numerical Methods, Kirti Publications.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selectingat least two questions from each section. Use of Calculator is allowed

R. Kumar

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDITS-3**
CLASS: 3rd SEMESTER
COURSE TITLE: ANALOG ELECTRONICS
COURSE CODE: ECT1304
DURATION OF EXAM: 3 HOURS

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will able to	
CO1	Identify and need of different types of power amplifiers using transistors and monolithic Ic's
CO2	Apply the concept of voltage regulator for practical application
CO3	Design of series, shunt, voltage regulators along with monolithic IC regulators
CO4	Understand the theoretical and the circuit aspects of operational amplifier.

Detailed syllabus

Section A

Unit I: Power amplifiers : General features of power transistor, Difference between power transistor & a voltage amplifier, Need for power amplifier, Classification of power amplifiers with necessary load lines concept & derivations (Efficiency, power dissipation), Class A, B & AB amplifier, their types &analysis, Transformer Coupled Audio Power Amplifier and Push-Pull Amplifier, Cross over distortion & its remedy, Determination of harmonic distortion, Monolithic power amplifier, Tuned amplifier-Introduction, Classification of tuned amplifiers (single tuned & double tuned) with respective analysis. **(10 hours)**

Unit II: Voltage Regulators:
Introduction & necessarily of voltage regulators. Difference between unregulated & regulated power supply, Factor affecting unregulated power supply, Stabilization, Basic representation of voltage regulators Type of voltage regulators-series & shunt voltage regulators, Series voltage regulators using emitter follower & its expressions for Sv& Ro. Pre-regulators, Short circuit protection-simple & fold back current limiting, Monolithic& IC regulators(78XX,79XX,LM317,LM337) and design, Switching Regulator. Numerical Problems **(10 hours)**

Section B

Unit III: OPERATIONAL AMPLIFIERS AND APPLICATIONS: Operational amplifiers, Block diagram characteristics of ideal & practical operational amp, Inverting & non-inverting amplifier configuration, DC & AC Amplifier. AC amplifier with single power supply, Applications of Op-amp as Summing & difference amplifier, Voltage follower, Differential amplifiers using one and two Op-amp, Differenentiator, Integrator, Active filters, comparator ,zero crossing detector, Schmitt trigger, Square wave generator. Triangular wave generator. Digital to Analog (D/A) Converter, Binary Weighted Resistor. R-2R Resistor type D/A Converters, A/D Converters & its types-successive approximation type A/D Converter **(23 hours)**

Books Recommended:

1. Integrated Electronics, MillmanHalkias
2. Electronics Devices, Bolystead
3. Electronics Devices, Malvino Leach
4. Microelectronics Circuits.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDIT-1**

CLASS: 3rd SEMESTER

COURSE TITLE: ELECTRICAL MACHINE LAB.-I

COURSE CODE: EEP2311

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
On completion of course the students will be able to	
CO1	Identify the parts of cut-sectional model of D.C. machines.
CO2	Study the operating characteristics of D.C. machines.
CO3	Determine the voltage regulation and efficiency of Transformer.
CO4	Perform the various tests on single-phase Transformer.

LIST OF EXPERIMENTS:

1. To study the cut-sectional model of D.C. machines.
2. To study the magnetic characteristics of a D.C. Machines at various operating speeds and finds the operating point of D.C. shunt machine from the same.
3. To determine the load characteristics of a D.C. Shunt generator and find its overall efficiency.
4. To determine the Torque speed characteristics of a D.C. Shunt motor and compound motor (Short & long shunt). Also study of these using armature control and field control.
5. To study the torque/speed characteristics of a D.C. series motor using various field tapings.
6. To find the efficiency and study various losses of D.C. Machines using Hopkinson test.
7. To study the starting methods of DC machines.
8. To study a single-phase transformer, its Voltage ratio and turns ratio relationship. Perform open & short circuit test to determine losses, efficiency and voltage regulation and also its various parameters.
9. To perform polarity test on single phase transformers for parallel operation and study the load sharing of two parallel operated transformers.
10. Conversion of three-phase to two-phase using Scott Connection.
11. Determination of losses and efficiency of transformer using Sumpner's test.

NOTE: Each student has to perform at least seven experiments. Additional Practical / Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING **CREDIT-1**

CLASS: 3rd SEMESTER

COURSE TITLE: ELECTRICAL CIRCUIT ANALYSIS LAB.

COURSE CODE: EEP2312

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
On completion of course the students will able to	
CO1	Determine Z, Y, h and ABCD parameters
CO2	Understand the step response of RL, RC and RLC circuits
CO3	Acquire knowledge of driving point and transfer function.

LIST OF EXPERIMENTS:

1. To determine Z parameters of two-port networks.
2. To determine Y parameters of two-port networks.
3. To determine ABCD parameters of two-port networks.
4. To determine h parameters of two-port networks.
5. Determination of transient response of RL circuits with step input voltage.
6. Determination of transient response of RC circuits with step input voltage.
7. Determination of transient response of RLC circuits with step input voltage.
8. Determination of driving point and transfer function of a two-port ladder network.

Note: Each student has to perform atleast six experiments Additional Practical's / Experiments may be performed based on the course content requirement

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING
CLASS: 3rd SEMESTER
COURSE TITLE: ESTIMATION & COSTING LAB.
COURSE CODE: EEP2313

CREDIT-1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
At the end of the semester the student will be able to	
CO1	Understand different types of electrical symbols
CO2	Study different types of wiring.
CO3	Acquire knowledge of different protection techniques.

LIST OF EXPERIMENTS:

1. To study List of electrical symbols.
2. To study different types of Fuses.
3. To study different types of wiring /modules used in buildings.
4. To study fluorescent lamp wiring.
5. Measurement of resistance to earthing of an ele
6. ctrical equipment.
7. To study general guidelines for electrical installations in buildings.
8. Residential house wiring using fuse, switch, indicator, lamp & energymeter.
9. To study transmission line structure.
10. To study various types of MCB's.
11. Design of wiring diagram of a typical distribution scheme in a residential building.

Note: Each student has to perform atleast six experiments. Additional Practical's /Experiments may be performed based on the course content requirement.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING
CLASS: 3rd SEMESTER
COURSE TITLE: MOOC
COURSE CODE: MOC2311

CREDITS-1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

MOOCs: A massive open online course (MOOC) is a model for delivering learning content to any person who wants to take a course by means of the web. It has been incorporated in the 3rd semester.
To evaluate MOOCs course following is the scheme proposed:

Breakup of Marks:

Report file-20 marks
A detailed report of about 20-25 pages has to be submitted to the department at the end of the semester. It should contain details about the course that was undertaken by the student. A copy of the assignments with solutions that have been uploaded on the MOOC platform should also be included in the final report. A copy of the certificate if awarded should also be appended to the report.

Presentation-20 marks
The presentation should be given to the peers/students focusing on the key points of the course with an aim to share the knowledge.

Certification-10 marks
The students awarded with the certificate will be given 10 marks. (Copy to be attached in the report)

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING
CLASS: 3rd SEMESTER
COURSE TITLE: ELECTRICAL SAFETY
COURSE CODE: NCC2301

CREDIT-0

Hours/Week			Marks
L	T	P	Satisfactory/Unsatisfactory
2	0	0	

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Describe electrical hazards and safety equipment.
CO2	Analyze and apply various grounding and bonding techniques.
CO3	Select appropriate safety method for low, medium and high voltage equipment.
CO4	Participate in a safety team & carry out proper maintenance of electrical equipment by understanding various standards.

Detailed Syllabus

SECTION A

Unit I: Primary and secondary hazards

Introduction of electrical safety, need of safety, safety equipment, Arc, blast, shocks causes and effects, flash and thermal protection, head and eye protection, rubber insulating equipment, hot sticks, insulated tools, barriers and signs, safety tags, locking devices, voltage measuring instruments, electrician's safety kit.

Unit II: Grounding and bonding

Grounding of electrical equipment, bonding of electrically conducting materials and other equipment, connection of grounding and bonding equipment, system grounding, purpose of system grounding, grounding electrode system, groundingconductor, grounding of low voltage and high voltage systems.

SECTION B

Unit III: Safety Methods

The six step safety methods, pre job briefings, hot-work decision, tree-safe switching of power system, lockout-tag out- flashhazard calculation and approach distances, calculating the required level of arc protection, safety equipment , procedure for low, medium and high voltage systems, the one minute safety audit

Unit IV: Electrical safety programme and maintenance

Electrical safety programme structure, development- company safety team, safety policy, programme implementation, employee electrical safety teams, safety meetings, safety audit, accident prevention- first aid, rescue techniques, accident investigation, Safety related case for electrical maintenance.

RECOMMENDED BOOKS:

1. John Cadick, Mary Capelli-Schellpfeffer, Dennis Neitzel, Al Winfield ,'Electrical Safety Handbook',McGraw- Hill Education, 4thEdition, 2012.
2. Maxwell Adams.J, 'Electrical Safety- a guide to the causes and prevention of electric hazards', TheInstitution of Electric Engineers, IET 1994.
3. Ray A. Jones, Jane G. Jones, 'Electrical Safety in the Workplace', Jones & Bartlett Learning, 2000.

NOTE: - There will be internal evaluation based on the two sessional tests. The students are required to score at least 40% or above in totality to be considered qualified in the course.

B. Tech. Electrical Engineering 3rd Semester, Examination to held in the Year December 2023,2024,2025,2026

BRANCH: ELECTRICAL ENGINEERING /COMPUTER ENGINEERING/ COMPUTER SCIENCE & ENGINEERING **CREDIT-0**

CLASS: 3rd SEMESTER

COURSE TITLE: CYBER ETHICS & LAWS

COURSE CODE: NCC3301

Hours/Week			Marks
L	T	P	Satisfactory/Unsatisfactory
2	0	0	

COURSE OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Understand the basic concepts of Cyber Ethics &Laws.
CO2	Understand about the constitutional and Human Rights Issues in Cyber space
CO3	Understand Cyber Crimes and Legal Framework
CO4	Understand about the limitations and current issues in the area.

Detailed Syllabus

SECTION-A

Unit I

Ethics in Cyber Space. Core Values and Virtues. Dimensions of Cyber Ethics in Cyber Society. Cyber Ethics by Norms, Laws and Relations, Principle & Significance of Cyber Ethics, Ethics in Information Society.

Unit II

Computer and its impact in Society, Overview of Computer and Web Technology, what are Cyber Laws, Need for Cyber Laws, CyberJurisprudence at International and Indian Level.

SECTION-B

Unit III

Objectives, Importance of Cyber Laws, Right to Access Cyberspace-Access to internet, right to privacy, right to data protection, Advantages and Disadvantages.

Unit IV

Cyber Crime against Individual, Institution and State, Types of Cyber Crimes, Cyber Crimes and Legal Framework

Unit V

Limitations and Current Issues relating Cyber Ethics & Cyber Laws in the Society.

BOOKS RECOMMENDED:

1. Cyber Laws — Justice Yatindra Singh
2. Cyber Laws and Crimes Simplified — Adv. Prasant Mali
3. Cyber Ethics 4.0 — Christoph Stuckelberger and Pavan Duggal

NOTE: This is a Mandatory Non-Credit Course. Two objective papers will be conducted internally by the department.The students are required to score at least 40% or above in totality to be considered qualified in the course

B.Tech. Electrical Engineering 4th Semester Examination to be held in the year May 2024,2025,2026,2027

Contact hours: 30

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits	% change
			L	T	P	Internal	External			
EET2401	Professional Core Course	Electrical Machines -II	2	1	0	50	100	150	3	60%
EET2402	Professional Core Course	Control System	2	1	0	50	100	150	3	20%
EET2403	Professional Core Course	Electrical Measurement and Instruments	2	1	0	50	100	150	3	100%
EET2404	Professional Core Course	Energy Conservation and Auditing	2	1	0	50	100	150	3	100%
ECT1405	Engineering Science Course	Digital Electronics	2	1	0	50	100	150	3	0%
MOC2401	Professional Core Course	SWAYAM/NPTEL	3	0	0	100	-	100	3	100%
EEP2411	Professional Core Course	Electrical Machines- II Lab	0	0	2	50	-	50	1	20%
EEP2412	Professional Core Course	Control System Lab	0	0	2	50	-	50	1	10%
EEP2413	Professional Core Course	Electrical Measurement and Instruments Lab	0	0	2	50	-	50	1	100%
EEP2414	Professional Core Course	MATLAB	0	0	2	50	-	50	1	100%
EEP2416	Professional Core Course	Electrical Workshop	0	0	2	50	-	50	1	100%
NCC7401	Non-Credit Course	Essence of Indian Traditional Knowledge	2	0	0	Satisfactory/ Unsatisfactory Non- Credit				100%
Total			**15**	**5**	**10**	**600**	**500**	**1100**	**23**	

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4th SEMESTER
COURSE TITLE: ELECTRICAL MACHINES-II
COURSE CODE: EET2401
DURATION OF EXAM.: 3 HOURS

CREDIT-3

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Develop equivalent circuit, torque-slip characteristics, starting and speed control of three-phase inductionmotor.
CO2	Discuss double revolving field theory, starting methods and types of single-phase induction motors.
CO3	Impart knowledge on the principle of operation and performance of synchronous machines.
CO4	Impart knowledge about the principle of operation of special machines.

Detailed Syllabus

SECTION-A

UnitI: Three-Phase Induction Motor

Constructional features, principle of operation. Production of Rotating Magnetic Field. Rotor e.m.f., current, power, frequency, equivalent circuit, Phasor diagram of induction motor, Losses and efficiency. Torque- Slip characteristics. No load test and blocked rotor test. Starting, cogging, crawling, Speed control of Induction motors and applications. **(11 hours)**

UnitII: Single-Phase Induction Motors

Constructional features, Principle of working, double revolving field theory, equivalent circuit, determination of parameters, starting methods and types of single-phase induction motors & its applications. Universal Motor. **(9 hours)**

SECTION-B

UnitIII: Synchronous Generator

Construction, principle of working, armature windings, pitch factor, distribution factor, e.m.f. equation, phasor diagram, armature reaction, Voltage regulation: synchronous impedance, M.M.F. and Zero power factor method. Power flow equations, Hunting, and Parallel operation. Two reaction theory, analysis of phasor diagram, power angle characteristics, determination of Xd and Xq. **(11 hours)**

UnitIV: Synchronous Motor

Construction, Operating principle, equivalent circuit and phasor diagrams, power flow equations, V-curves, starting methods of synchronous motors. Synchronous Condenser. **(8 hours)**

UnitV: Special Machines

single-phase Synchronous Motors-Repulsion and Hysteresis motor. Stepper Motor. **(3 hours)**

RECOMMENDED BOOKS:

1. Electrical Machinery — Fitzgerald Umans& Kingsley
2. AC Machines — Alexander S. Langsdorf
3. Electrical machines — Charles S. Siskind
4. Electric Machines — Nagrath & Kothari
5. Electrical Machinery — PS Bhimbra

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL/ ECE ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: CONTROL SYSTEM
COURSE CODE: EET2402
DURATION OF EXAM.: 3 HOURS

CREDITS- 3

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Understand the concept of linear control system and mathematical modeling of physical systems.
CO2	Understand the concept of time domainanalysis and the operational characteristics of various control system components.
CO3	Analyze frequency domain analysis using different stability criterions.
CO4	Design compensation techniques using different plots and understand the concept of Feedback Controllers.

Detailed Syllabus
SECTION-A

UnitI: Introduction to Linear Control System

Control Systems, types of control systems, feedback and its effects, mathematical modeling of physical systems. **(5 hours)**

UnitII: System Representation

Block diagrams, transfer functions, signal flow graph **(5 hours)**

UnitIII: Time Domain Analysis

Time domain analysis of first & second order Control systems. Typical test signals for time response of control systems, time domain performance of first and second order control systems (steady state response and transient response). **(9 hours)**

UnitIV: Control Components

AC and DC Servomotors, ac. tachometer, synchro transmitter and receiver, Synchro pair as control transformer, ac and dc position control system, stepper motor, magnetic amplifier and adaptive control. **(5 hours)**

SECTION-B

UnitV: Frequency domain analysis

Stability characteristic equation, stability of linear time invariant systems, Routh-Hurwitz stability, Polar Plot, Nyquist Criterion, Bode plot, Root locus plot. **(11 hours)**

UnitVI: Compensation Techniques

Phase Lead, Lag and Lead-Lag Compensation and their design using bode plot and root locus technique, Introduction to P, PI and PID controllers. **(8 hours)**

RECOMMENDED BOOKS:

1. Modern Control Engineering — K.Ogatta
2. Automatic Control Systems — B.C. Kuo
3. Control System Engineering — Nagrath and Gopal

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator and semi log graph paper are allowed

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

CLASS: B.E. 4th SEMESTER
BRANCH: ELECTRICAL ENGINEERING
COURSE TITLE: ELECTRICAL MEASUREMENT AND INSTRUMENTS
COURSE NO: EET2403
DURATION OF EXAM: 3 HOURS

CREDITS-3

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
At the end of the course the student will be able to	
CO1	Study the various types of errors in Measurement.
CO2	Understand the construction and working of various Measuring Instruments and their applications.
CO3	Measure Power, Energy and Resistance using various methods.
CO4	Understand the construction & working of AC & DC bridges, Potentiometer & its application.

Detailed Syllabus

Section- A

Unit I: Introduction

Definitions of basic terms used in measurements, Errors and their classification. Effects utilized in Measuring Instruments. **(04 hours)**

Unit II: Measuring Instruments

Electro-mechanical Indicating Instruments, basic principle and their classification. Deflection, Controlling & Damping Torque. D' Arsonval Galvanometer- Construction. Working principle. Equation of Motion and Critical Resistance. Ammeters & Voltmeters: Moving coil, Moving Iron. & Electrodynamics type. Electrostatic Voltmeter. Errors in Ammeters & Voltmeters Extension of instrument range: Ammeter Shunts, Voltmeter multipliers. **(12 hours)**

Unit III: Instrument Transformer

Current Transformer and Potential Transformer- Construction, Working, Phasor diagram, Errors, Testing and applications. **(05 hours)**

Section- B

Unit IV: Measurement of Power and Energy

Wattmeter measurement in single phase AC circuits, wattmeter errors. Measurement of power in three-phase AC circuits by using single-phase and three-phase AC circuits. Energy measurement using Induction type meters. Energy Meter testing. **(06 hours)**

Unit V: Measurement of Resistance

Resistance Classification, Measurement of low resistance using Potentiometer method and Kelvin double bridge method. Measurement of medium resistance using Ammeter-Voltmeter methods, substitution method and Wheatstone bridge and its applications. Measurement of high resistance using loss of charge method and meggar method **(08 hours)**

Unit VI: A.C. & DC Bridges and Potentiometer

Measurement of Inductance using: Maxwell's Inductance-Capacitance bridge.Anderson's bridge. Measurement of capacitance using De-Sauty's bridge, Schering bridge. Measurement of frequency using Wein's Bridge. D.C. Potentiometer: Crompton's Potentiometer, Vernier Potentiometer, Uses of DC Potentiometers. A.C. Potentiometer: Drysdale Polar Potentiometer, Uses of A.C. Potentiometers. **(10 hours)**

BOOKS RECOMMENDED:

1. Electrical Measurements & Measuring Instruments - Golding Widdis
2. A Course in Electrical & Electronics Measurement & Instrumentation - A.K. Sawhney

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: ENERGY CONSERVATION & AUDITING
COURSE CODE: EET2404
DURATION OF EXAM.: 3 HOURS

CREDITS- 3

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	Obtain knowledge about energy conservation policy, regulations and business practices.
CO2	Recognize opportunities for enabling rational use of energy audit.
CO3	Develop innovative energy efficiency solutions and demand management strategies.
CO4	Analyze energy systems from a supply and demand perspective.

Detailed Syllabus

Section A

Unit I: Energy Conservation
Introduction. Motivation for Energy Conservation, Principles of Energy Conservation, Energy Conservation Planning and its importance. Classification of Energy, Indian energy scenario, Sectorial energy consumption. Energy intensity, long term energy scenario. Energy security, energy conservation and energy strategy for the future. **(10 hours)**

Unit II: Energy Audit
Aim of Energy Audit, Energy Flow Diagram, Strategy of Energy Audit, Comparison with Standards, Energy Management Team, Considerations in Implementing Energy with Conservation Programmes, Instruments for Energy Audit, Energy Audit of Illumination System, Energy Audit of Electrical System, Energy Audit of Buildings. **(11 hours)**

Section B

Unit III: Demand Side Management
Introduction, Scope of Demand Side Management, Evolution of DSM Concept, DSM Planning and Implementation, Load Management as a DSM Strategy, Applications of Load Control, End use Energy Conservation, Tariff options, Customer Acceptance, Implementation Issues and Strategies, DSM and Environment, International Experience with DSM. **(12 hours)**

Unit IV: Economics
Importance and role of energy management, Energy economics, Payback period, Tariff, Energy needs of growing economy, Energy pricing, Internal rate of return, life cycle costing. **(10 hours)**

BOOKS RECOMMENDED:

1. Gupta B. R.: Generation of Electrical Energy, Eurasia Publishing House Pvt. Ltd., New Delhi, 2001 IV Edition.
2. Durgesh Chandra &: Energy Scope, South Asian Publishers Pvt. Ltd, New Delhi.
3. M.V. Deshpande: Electrical Power System, Tata McGraw-Hill Publishing Company Limited, New Delhi.
4. J. Nanda and D.P. Kothari: Recent Trends in Electric Energy Systems, Prentice Hall of India Pvt. Ltd, New.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024, 2025, 2026, 2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: DIGITAL ELECTRONICS
COURSE CODE: ECT1405
DURATION OF EXAM: 3 HOURS

CREDITS- 3

Hours/Week			Marks	
L	T	P	Internal	External
2	1	0	50	100

COURSE OUTCOMES	
On completion of course the students will be able to	
CO1	**Understand and examine various number systems to be used in digital design.**
CO2	**Minimize the expressions using Karnaugh map and implement them using Logic Gates in different logic families.**
CO3	**Analyze and design various combinational circuits.**
CO4	**Analyze and design various sequential circuits.**

DETAILED SYLLABUS

SECTION- A

Unit I:

Number System, Radix conversion. Arithmetic with base other than ten, Binary codes – weighted/Non weighted codes, Error detecting and correcting code (Hamming code) alphanumeric code. Subtraction of signed/unsigned number. **(10 hours)**

Unit II:

Logic Gates, Boolean algebra, Simplification of Boolean expressions, Minimization techniques. Karnaugh map (up to five variables), Quine Mc-Clusky method. Simplification of Logic families – RTL, DTL, TTL, ECL &MOS families and their characteristics.**(11 hours)**

SECTION- B

Unit III:

Combinational logic circuits: Half and Full Adders, Subtractors, BCD Adder, Comparators, Multiplexer, Realization of function using MUX, Demultiplexer, Decoder, Encoder, Code converters, General problems, PLA, Design of combinational circuit using PLA & PAL. **(11 hours)**

Unit IV:

Introduction to sequential logic circuits, Synchronous and Asynchronous operation. Flip-Flops– R-S, J-K, D, T & Master-Slave flip-flop, Conversion of flip-flops, Shift registers. Analysis of asynchronous & synchronous sequential counter. **(12 hours)**

RECOMMENDED BOOKS:

01.	Digital Electronics	By R.P Jain
02.	Digital Electronics & Microcomputer	By R.K. Gaur
03.	Computer System Architecture	By M.M. Mano
04.	Digital Electronics	By Jamini& K.M. Backward

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of calculator is allowed.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: SWAYAM/NPTEL
COURSE CODE: MOC2401

CREDITS- 3

Hours/Week			Marks	
L	T	P	Internal	External
3	0	0	100	-

The students shall register for 12 weeks SWAYAM/NPTEL course offered by IIT Madras, out of list of courses floated by SWAYAM around the time of commencement of the semester. However, the selected NPTEL course should not be similar to the regular courses offered as apart of department curriculum. The choice of the course needs to be duly endorsed by the department academic committee.

The overall moditoring of the NPTEL course will be under the supervision of the teacher in charge of the department.

The NPTEL/SWAYAM certification course comprises of Assignments (25%) and Proctor Examination (Online examination MCQ's based= 75%) conducted at the end of the semester by IIT Madras as per the schedule.

The marks obtained by the student in the SWAYAM/NPTEL certification course will be tabulated by the concerned department.

Note: In case the student does not pass the certification, examination or remains absent in the proctor examination, no certificate will be given to the candidate by the NPTEL and the student will be deemed to have failed in the course. The students will have to register again for the next semester NPTEL course and pass the examination along with the certificate.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: ELECTRICAL MACHINES-II LAB.
COURSE CODE: EEP2411

CREDIT- 1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
On completion of course the students will be able to	
CO1	Familiarize with different cut-sectional model of AC Machines.
CO2	Determine the voltage regulation3-phase Synchronous Generator by various methods.
CO3	Understand the characteristics of Synchronous Machines and Induction Motor.
CO4	Perform the various tests on Induction Motor.

LIST OF EXPERIMENTS:

1. To Study the cut-sectional model of AC Machines.
2. Determination of voltage regulation of a 3-phase synchronous generator/alternator by E.M.F. and M.M.F. method (Non-Salient Pole type).
3. Determination of positive, negative and zero sequence Reactance of 3-phase synchronous machine.
4. Determination of V curves of a 3- phase synchronous Motor.
5. Power Angle characteristics of a 3-phase synchronous machine.
6. Study of parallel operation & synchronization of 3-phase synchronous generators.
7. Speed control of 3-phase Induction motor by varying supply frequency. of 3-phase slip Ring Induction motor by Resistance & pole changing method.
8. Determination of complete Torque/Slip or Torque/Speed characteristics of a 3-phase Induction-motor.
9. Starting of 3-phase Induction Motor.
10. Determination of parameters of Induction Motor using No-load and Blocked Rotor Test.
11. Brake test of Induction Motor.

Note: Each student has to perform at least seven experiments. Additional Practicals/ Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: CONTROL SYSTEM LAB.
COURSE CODE: EEP2412

CREDIT- 1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
On completion of course the students will be able to	
CO1	Study of characteristics of synchro transmitter and receiver pair operation.
CO2	Calculate the response of open loop and closed loop system of DC motor.
CO3	Study the design of compensating networks.
CO4	Study the torque/speed characteristics of servo motors.

LIST OF EXPERIMENTS:

1. To study the characteristics of the synchro transmitter and receiver.
2. To study the torque synchro pair operation.
3. To study the performance of various types of controllers used to control the temperature of an oven.
4. To study the open loop system and its subsystems of dc motor.
5. To study the closed loop system and its subsystems of dc motor.
6. To study the bode plot of a plant.
7. To study lag network design.
8. To study lead network design.
9. To study low frequency response of a motor.
10. To study characteristics of small ac servo motor & determine its transfer functions.

Note: Each student has to perform at least six experiments. Additional Practicals /Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: ELECTRICAL MEASUREMENT AND INSTRUMENTS LAB.
COURSE CODE: EEP2413

CREDIT- 1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
At the end of the course the student will be able to: -	
CO1	Understand various measuring instruments like multimeters, M.C, M.I and dynamometer type instruments.
CO2	study conversion of galvanometer to voltmeter and ammeter.
CO3	experimentally calibrate energy meter
CO4	Perform experiments to determine the value of R, L, C and frequency using different bridges.

LIST OF EXPERIMENTS:

1. To study various types of Multi meters
2. Demonstration of M.C, M.I and Dynamometer type instruments.
3. Conversion of galvanometer to voltmeter
4. Conversion of galvanometer to ammeter
5. Calibration of single-phase energy meter (direct loading).
6. Calibration of single-phase energy meter (Phantom loading).
7. Measurement of resistance using Kelvin's bridge.
8. Measurement of resistance using Wheatstone bridge.
9. Measurement of inductance using Andersons Bridge.
10. Measurement of capacitance using Schering Bridge.
11. Measurement of frequency using Weins Bridge.
12. Measurement of unknown self-inductance using Maxwell Inductance Bridge.

NOTE: Each student has to perform at least seven experiments. Additional Practicals/ Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: MATLAB
COURSE CODE: EEP2414

CREDIT- 1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
On completion of course the students will able to	
CO1	Study the MATLAB fundamentals
CO2	Study the characteristic of Plotting Commands
CO3	Study and measure the analysis of Direct Current and transient analysis

LIST OF EXPERIMENTS:

1. To study the Matrix operations
2. To study the Array operations
3. To study the Complex numbers
4. To study the Graph functions
5. To study the X-Y plots and 3D plots annotations
6. To study the Logarithmic and polar plots
7. To study the Nodal analysis
8. To study the Loop analysis
9. To study the Maximum power transfer
10. To study the differentiation and integration.
11. To study the sorting algorithms.
12. To study the RC, RL, RLC Circuit

NOTE: Each student has to perform at least seven experiments. Additional Practicals/ Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: ELECTRICAL WORKSHOP
COURSE CODE: EEP2416

CREDIT- 1

Hours/Week			Marks	
L	T	P	Internal	External
0	0	2	50	-

LABORATORY OUTCOMES	
At the end of the semester the student will be able to	
CO1	Familiarize with different types of wirings and joints.
CO2	Study different types of connections.
CO3	Understand and apply the basic lab rules.
CO4	Analyse different electrical components.

List of Experiments:

1. Study of various type of wiring.
2. Study of various joints of Wires & Cables.
3. Control of series connection of the lamp
4. Control of parallel connection of the lamp
5. Electrical shock precautions & treatment.
6. Identification of components.
7. Soldering of Joints.
8. Wiring practices in PVC, Conduit system of wiring.

BOOK RECOMMENDED:

1.	Electrical Wiring & Estimation	S.I. Uppal
2.	Lab. Manual for Electric Circuits	David A. Bell
3.	Textbook of Practicals in Electrical Engineering	Dr. N.K. Jain
4.	Electrical Installation & Costing	J.B. Gupta

NOTE: Each student has to perform at least six experiments. Additional Practicals/ Experiments may be performed based on the course content requirements.

B. Tech. Electrical Engineering 4TH Semester, Examination to held in the Year May 2024,2025,2026,2027

BRANCH: ELECTRICAL ENGINEERING
CLASS: 4TH SEMESTER
COURSE TITLE: ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE
COURSE CODE: NCC7401

CREDIT-0

L	T	P	MARKS
2	0	0	Satisfactory/Unsatisfactory

COURSE OUTCOMES	
On completion of course the students will able to	
CO1	Know about the Vedic philosophy in detail and its relevance in present scenario.
CO2	Strengthen their mind and body through the knowledge of yoga.

Detailed Syllabus

SECTION – A

Vedic Philosophy: Concept of Vedas. Ethics & Values. Educational system, Knowledge of science. trade/commerce & medicines as per Vedas, Environmental ethics: Preservation & Purification, Harnessing of natural resources in alienation with nature as per Vedas.

SECTION – B

Yoga Philosophy: Parts of Yoga, Importance of Yam and Niyam, Stress management through yoga, Purification of mind and body through yoga.

Note for Teacher: The course should aim at enlightening students with the importance of ancient traditional knowledge.

Evaluation of the course: There will be internal evaluation based on the two sessional tests. The students are required to score at least 40% or above in totality to be considered qualified in the course.