JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2020-21 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA101BS	Mathematics - I	3	1	0	4
2	CH102BS	Chemistry	3	1	0	4
3	EE103ES	Basic Electrical Engineering	3	0	0	3
4	ME105ES	Engineering Workshop	1	0	3	2.5
5	EN105HS	English	2	0	0	2
6	CH106BS	Engineering Chemistry Lab	0	0	3	1.5
7	EN107HS	English Language and Communication Skills Lab	0	0	2	1
8	EE108ES	Basic Electrical Engineering Lab	0	0	2	1
		Induction Programme				
		Total Credits	**12**	**2**	**10**	**19**

I YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA201BS	Mathematics - II	3	1	0	4
2	AP202ES	Applied Physics	3	1	0	4
3	CS203ES	Programming for Problem Solving	3	1	0	4
4	ME204ES	Engineering Graphics	1	0	4	3
5	AP205BS	Applied Physics Lab	0	0	3	1.5
6	CS206ES	Programming for Problem Solving Lab	0	0	3	1.5
7	*MC209ES	Environmental Science	3	0	0	0
		Total Credits	**13**	**3**	**10**	**18**

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2020-21 Admitted Batch

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EE301ES	Engineering Mechanics	3	1	0	4
2	EE302PC	Electrical Circuit Analysis	3	1	0	4
3	EE303PC	Analog Electronics	3	0	0	3
4	EE304PC	Electrical Machines - I	3	1	0	4
5	EE305PC	Electromagnetic Fields	3	0	0	3
6	EE306PC	Electrical Machines Lab - I	0	0	2	1
7	EE307PC	Analog Electronics Lab	0	0	2	1
8	EE308PC	Electrical Circuits Lab	0	0	2	1
9	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	**15**	**3**	**8**	**21**

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA401BS	Laplace Transforms, Numerical Methods & Complex variables	3	1	0	4
2	EE402PC	Electrical Machines – II	3	1	0	4
3	EE403PC	Digital Electronics	3	0	0	3
4	EE404PC	Control Systems	3	1	0	4
5	EE405PC	Power System - I	3	0	0	3
6	EE406PC	Digital Electronics Lab	0	0	2	1
7	EE407PC	Electrical Machines Lab - II	0	0	2	1
8	EE408PC	Control Systems Lab	0	0	2	1
9	*MC409	Constitution of India	3	0	0	0
		Total Credits	**18**	**3**	**6**	**21**

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***MC109ES/*MC209ES: ENVIRONMENTAL SCIENCE**

B.Tech. I Year II Sem.

L	T	P	C
3	0	0	0

Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understanding the environmental policies and regulations

Course Outcomes:

- Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

UNIT-I

Ecosystems: Definition, Scope, and Importance of ecosystem. Classification, structure, and function of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity, Field visits.

UNIT-II

Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III

Biodiversity And Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT-IV

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods. Primary, secondary and Tertiary.
Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-GoI Initiatives.

UNIT-V

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan

(EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

TEXT BOOKS:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
2. Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCE BOOKS:

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y. Anjaneyulu, BS. Publications.

*MC309: GENDER SENSITIZATION LAB

(An Activity-based Course)

B.Tech. II Year I Sem.

L	T/P/D	C
0	0/2/0	0

COURSE DESCRIPTION

This course offers an introduction to Gender Studies, an interdisciplinary field that asks critical questions about the meanings of sex and gender in society. The primary goal of this course is to familiarize students with key issues, questions and debates in Gender Studies, both historical and contemporary. It draws on multiple disciplines – such as literature, history, economics, psychology, sociology, philosophy, political science, anthropology and media studies – to examine cultural assumptions about sex, gender, and sexuality.

This course integrates analysis of current events through student presentations, aiming to increase awareness of contemporary and historical experiences of women, and of the multiple ways that sex and gender interact with race, class, caste, nationality and other social identities. This course also seeks to build an understanding and initiate and strengthen programmes combating gender-based violence and discrimination. The course also features several exercises and reflective activities designed to examine the concepts of gender, gender-based violence, sexuality, and rights. It will further explore the impact of gender-based violence on education, health and development.

Objectives of the Course:

- To develop students' sensibility with regard to issues of gender in contemporary India.
- To provide a critical perspective on the socialization of men and women.
- To introduce students to information about some key biological aspects of genders.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Learning Outcomes:

- Students will have developed a better understanding of important issues related to gender in contemporary India.
- Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
- Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
- Students will acquire insight into the gendered division of labour and its relation to politics and economics.
- Men and women students and professionals will be better equipped to work and live together as equals.
- Students will develop a sense of appreciation of women in all walks of life.
- Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.

UNIT - I: UNDERSTANDING GENDER

Introduction: Definition of Gender-Basic Gender Concepts and Terminology-Exploring Attitudes towards Gender-Construction of Gender-Socialization: Making Women, Making Men

- Preparing for Womanhood. Growing up Male. First lessons in Caste.

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UNIT – II: GENDER ROLES AND RELATIONS

Two or Many? -Struggles with Discrimination-Gender Roles and Relations-Types of Gender Roles-Gender Roles and Relationships Matrix-Missing Women-Sex Selection and Its Consequences-Declining Sex Ratio. Demographic Consequences-Gender Spectrum: Beyond the Binary

UNIT – III: GENDER AND LABOUR

Division and Valuation of Labour-Housework: The Invisible Labor- "My Mother doesn't Work." "Share the Load "-Work: Its Politics and Economics -Fact and Fiction. Unrecognized and Unaccounted work. -Gender Development Issues-Gender, Governance and Sustainable Development-Gender and Human Rights-Gender and Mainstreaming

UNIT – IV: GENDER - BASED VIOLENCE

The Concept of Violence- Types of Gender-based Violence-Gender-based Violence from a Human Rights Perspective-Sexual Harassment: Say No! -Sexual Harassment, not Eve-teasing- Coping with Everyday Harassment- Further Reading: "*Chupulu*".

Domestic Violence: Speaking Outls Home a Safe Place? -When Women Unite [Film]. Rebuilding Lives. Thinking about Sexual Violence Blaming the Victim-"I Fought for my Life…."

UNIT – V: GENDER AND CULTURE

Gender and Film-Gender and Electronic Media-Gender and Advertisement-Gender and Popular Literature- Gender Development Issues-Gender Issues-Gender Sensitive Language-Gender and Popular Literature - Just Relationships: Being Together as Equals

Mary Kom and Onler. Love and Acid just do not Mix. Love Letters. Mothers and Fathers. Rosa Parks-The Brave Heart.

Note: **Since it is Interdisciplinary Course, Resource Persons can be drawn from the fields of English Literature or Sociology or Political Science or any other qualified faculty who has expertise in this field from engineering departments.**

- ***Classes will consist of a combination of activities: dialogue-based lectures, discussions, collaborative learning activities, group work and in-class assignments. Apart from the above prescribed book, Teachers can make use of any authentic materials related to the topics given in the syllabus on "Gender".***

- **ESSENTIAL READING**: The Textbook, "*Towards a World of Equals: A Bilingual Textbook on Gender*" *written* by A.Suneetha, Uma Bhrugubanda, DuggiralaVasanta, Rama Melkote, Vasudha Nagaraj, Asma Rasheed, Gogu Shyamala, Deepa Sreenivas and Susie Tharu **published by Telugu Akademi, Telangana Government in 2015.**

ASSESSMENT AND GRADING:

- Discussion & Classroom Participation: 20%
- Project/Assignment: 30%
- End Term Exam: 50%

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Department Of Electrical & Electronics Engineering

B.TECH II YEAR I-SEM T T ACADEMIC YEAR 2020-21

CLASS TEACHER:Mr.G.Chandra

w.e.f.:15-7-2020

DAY/TIME	09:20AM-10:20AM	10:20AM-11:20AM	11:20AM-12:20PM	12:20PM-01:00PM	01:00PM-02:00PM	02:00PM-03:00PM	03:00PM-04:00PM
MON	ECA	EM-I	EM	LUNCH	EC-LAB(BATCH-I)/EM-I-LAB(BATCH-II)		
TUE	AE	EM-I	EMF		EC-LAB(BATCH-II)/DE-LAB(BATCH-I)		
WED	EM-I	EMF	ECA		AE	EM	ECA(T)
THU	ECA	EMF	AE		EMF	GS	SPORTS
FRI	EM	EM-I	AE		EM-I-LAB(BATCH-I)/DE-LAB(BATCH-II)		
SAT	EM(T)	DA	EMF		GS		LIBRARY

S. NO	SUBJECT	FACULTY NAME
1	ELECTRICAL CIRCUIT ANALYSIS	Mrs.R.Divya
2	Electrical Machines-I	Ms.R.Thanuja
3	ANALOG ELECTRONICS	Mr.K.Saidulu
4	ENGINEERING MECHANICS	Mr.MD Moinddin
5	ELECTROMAGNETIC FIELDS	Mr.K.Saidulu
6	ANALOG ELECTRONICS LAB	Mr.K.Saidulu & Mrs.V.Mounika
7	Electrical Machines Lab-I	Mr.P.Laxman,Mr.Amrutha Raj & Dr.N.Veda Kumar
8	ELECTRICAL CIRCUIT LAB	Mrs.B.R.Divya & Ms.M.Jyothi
9	Gender Sensitization lab	Dr.V.Venkatreddy
10	Departmental Activities	P.Suresh&B.Rajesh

TIME TABLE I/C

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*MC409: CONSTITUTION OF INDIA

B.Tech. II Year II Sem.

L	T/P/D	C
3	0/0/0	0

The Constitution of India is the supreme law of India. Parliament of India cannot make any law which violates the Fundamental Rights enumerated under the Part III of the Constitution. The Parliament of India has been empowered to amend the Constitution under Article 368, however, it cannot use this power to change the "basic structure" of the constitution, which has been ruled and explained by the Supreme Court of India in its historical judgments. The Constitution of India reflects the idea of "Constitutionalism" – a modern and progressive concept historically developed by the thinkers of "liberalism" – an ideology which has been recognized as one of the most popular political ideology and result of historical struggles against arbitrary use of sovereign power by state. The historic revolutions in France, England, America and particularly European Renaissance and Reformation movement have resulted into progressive legal reforms in the form of "constitutionalism" in many countries. The Constitution of India was made by borrowing models and principles from many countries including United Kingdom and America.

The Constitution of India is not only a legal document but it also reflects social, political and economic perspectives of the Indian Society. It reflects India's legacy of "diversity". It has been said that Indian constitution reflects ideals of its freedom movement; however, few critics have argued that it does not truly incorporate our own ancient legal heritage and cultural values. No law can be "static" and therefore the Constitution of India has also been amended more than one hundred times. These amendments reflect political, social and economic developments since the year 1950. The Indian judiciary and particularly the Supreme Court of India has played an historic role as the guardian of people. It has been protecting not only basic ideals of the Constitution but also strengthened the same through progressive interpretations of the text of the Constitution. The judicial activism of the Supreme Court of India and its historic contributions has been recognized throughout the world and it gradually made it "as one of the strongest court in the world".

Course content

1. Meaning of the constitution law and constitutionalism
2. Historical perspective of the Constitution of India
3. Salient features and characteristics of the Constitution of India
4. Scheme of the fundamental rights
5. The scheme of the Fundamental Duties and its legal status
6. The Directive Principles of State Policy – Its importance and implementation
7. Federal structure and distribution of legislative and financial powers between the Union and the States
8. Parliamentary Form of Government in India – The constitution powers and status of the President of India
9. Amendment of the Constitutional Powers and Procedure
10. The historical perspectives of the constitutional amendments in India
11. Emergency Provisions: National Emergency, President Rule, Financial Emergency
12. Local Self Government – Constitutional Scheme in India
13. Scheme of the Fundamental Right to Equality
14. Scheme of the Fundamental Right to certain Freedom under Article 19
15. Scope of the Right to Life and Personal Liberty under Article 21

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Department Of Electrical & Electronics Engineering

B.TECH II YEAR II-SEM T T ACADEMIC YEAR 2020-21

CLASS TEACHER:Mr.G.Chandra

w.e.f. 16-11-2020

DAY/TIME	09:20AM-10:20AM	10:20AM-11:20AM	11:20AM-12:20PM	12:20PM-01:00PM	01:00PM-02:00PM	02:00PM-03:00PM	03:00PM-04:00PM
MON	PS-I	EM-II	CS	LUNCH	CS-LAB(BATCH-I/EM-II LAB(BATCH-II)		
TUE	DE	EM-II	LTNMCV		CS-LAB(BATCH-II/DE-LAB(BATCH-I)		
WED	EM-II	CS	COI		DE	LTNMCV	PS-I(T)
THU	PS-I	CS	LTNMCV		CS(T)	DE	SPORTS
FRI	LTNMCV	COI	DE(T)		EM-II-LAB(BATCH-I/DE-LAB(BATCH-II)		
SAT	COI	PS-I	DA		DE	EM-II(T)	LIBRARY

S.NO	SUBJECT	FACULTY NAME
1	Laplace Transfors, Numerical Methods & Complex Varial	Mrs.B.Sabitha
2	Electrical Machines-II	Ms.R.Thanuja
3	Digital Electronics	Mr.K.Sudulu
4	Cotrol Systems	Mr.B.Sreenivas
5	Power Systems-I	Mr.G.Chandra
6	Digital Electronics Lab	Mr.K.Sudulu & Mrs.V.Mounika
7	Electrical Machines Lab-II	Mr.P.Kumar & Mr.P.Naresh
8	Cotrol Systems Lab	Ms.R.Thanuja & Mr.AmurthRaju
9	Constitution of India	Dr.V.Venkat Reddy
10	Departmental Activites	Dr.NARESH VARMA & Mr.Ushen Kumar

TIME TABLE I/C

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2020-21 Admitted Batch

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EE501PE	Power Electronics	3	1	0	4
2	EE502PE	Power System-II	3	1	0	4
3	EE503PE	Measurements and Instrumentation	3	1	0	4
4		Professional Elective-I	3	0	0	3
5	SM504MS	Business Economics and Financial Analysis	3	0	0	3
6	EE505PC	Power System Simulation Lab	0	0	2	1
7	EE506PC	Power Electronics Lab	0	0	2	1
8	EE507PC	Measurements and Instrumentation Lab	0	0	2	1
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	**18**	**3**	**8**	**22**

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1		Open Elective-I	3	0	0	3
2		Professional Elective-II	3	0	0	3
3	EE601PC	Signals and Systems	2	1	0	3
4	EE602PC	Microprocessors & Microcontrollers	3	0	0	3
5	EE603PC	Power System Protection	3	1	0	4
6	EE604PC	Power System Operation and Control	3	0	0	3
7	EE605PC	Power System Lab	0	0	2	1
8	EE606PC	Microprocessors & Microcontrollers Lab	0	0	2	1
9	EE607PC	Signals and Systems Lab	0	0	2	1
10	*MC609	Environmental Science	3	0	0	0
		Total Credits	**20**	**2**	**6**	**22**

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Department Of Electrical & Electronics Engineering

B.TECH III YEAR I-SEM T T ACADEMIC YEAR 2020-21

CLASS TEACHER:Mr.V.NAGARAJU

w.e.f.:15-7-2020

DAY/TIME	09:20AM-10:20AM	10:20AM-11:20AM	11:20AM-12:20PM	12:20PM-01:00PM	01:00PM-02:00PM	02:00PM-03:00PM	03:00PM-04:00PM
MON	DBMS	PS-II	EMI	LUNCH	BES-LAB(BATCH-I)/EMI-LAB(BATCH-II)		
TUE	EMI	MPMC	DBMS		PS-II	FOM	MPMC(T)
WED	MPMC	FOM	LIBRARY		PS-II	EMI(T)	PE
THU	EMI	PE	DBMS		EMI-LAB(BATCH-II)/MPMC-LAB(BATCH-I)		
FRI	FOM	PS-II(T)	MPMC		MPMC-LAB(BATCH-I)/BES-LAB(BATCH-II)		
SAT	EMI	FOM	SPORTS		MPMC	PS-II	DA

S. NO	SUBJECT	FACULTY NAME
1	ELECTRICAL MEASUREMENTS AND INSTRUMENTATION	Mr.B.Sreenivas
2	POWER SYSTEMS-II	Mr.G.Chandra
3	Database Management Systems	Mrs.D.Divya
4	MICRO PROCESSORS AND MICRO CONTROLLERS	Mr.v.Nagaraju
5	fundamentals of Management	Mrs.M.Manasa
6	ELECTRICAL MEASUREMENTS & INSTRUMENTATION LAB	Ms.R.Thanuja,S.Srinivas & Dr.K.Naresh Varma
7	BASIC ELECTRICAL SIMULATION LAB	Mrs.R.Divya,Mr.Amrutha Raj &Mr.G.Chandra
8	MICRO PROCESSORS AND MICRO CONTROLLERS LAB	Dr.Venkat Reddy & U.shiva kumar.&Mr.P.Suresh
9	Professional Ethics	Dr.CH.Prasad
10	Departmental Activites	Mr.B.Rajesh&P.Suresh&Ms..M.Jyothi

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EE503PE: MEASUREMENTS AND INSTRUMENTATION

B.Tech. III Year I Sem.

L	T	P	C
3	1	0	4

Pre-requisite: Basic Electrical Engineering, Analog Electronics, Electrical Circuit Analysis & Electro Magnetic fields.

Course objectives:

- To introduce the basic principles of all measuring instruments
- To deal with the measurement of voltage, current, Power factor, power, energy and magnetic measurements.
- To understand the basic concepts of smart and digital metering.

Course Outcomes: After completion of this course, the student able to

- Understand different types of measuring instruments, their construction, operation and characteristics
- Identify the instruments suitable for typical measurements
- Apply the knowledge about transducers and instrument transformers to use them effectively.
- Apply the knowledge of smart and digital metering for industrial applications

UNIT - I:

Introduction to Measuring Instruments

Classification – deflecting, control and damping torques – Ammeters and Voltmeters – PMMC, moving iron type instruments – expression for the deflecting torque and control torque – Errors and compensations, extension of range using shunts and series resistance. Electrostatic Voltmeters-electrometer type and attracted disc type – extension of range of E.S. Voltmeters.

UNIT - II:

Potentiometers & Instrument Transformers

Principle and operation of D.C. Crompton's potentiometer – standardization – Measurement of unknown resistance, current, voltage. A.C. Potentiometers: polar and coordinate type's standardization – applications. CT and PT – Ratio and phase angle errors

UNIT - III:

Measurement of Power & Energy

Single phase dynamometer wattmeter, LPF and UPF, Double element and three element dynamometer wattmeter, expression for deflecting and control torques – Extension of range of wattmeter using instrument transformers – Measurement of active and reactive powers in balanced and unbalanced systems. Single phase induction type energy meter – driving and braking torques – errors and compensations – testing by phantom loading using R.S.S. meter. Three phase energy meter – tri-vector meter, maximum demand meters.

UNIT - IV:

DC & AC Bridges

Method of measuring low, medium and high resistance – sensitivity of Wheat-stone's bridge – Carey Foster's bridge, Kelvin's double bridge for measuring low resistance, measurement of high resistance – loss of charge method.

Measurement of inductance- Maxwell's bridge, Hay's bridge, Anderson's bridge - Owen's bridge. Measurement of capacitance and loss angle – Desauty's Bridge - Wien's bridge – Schering Bridge.

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UNIT-V:

Transducers

Definition of transducers, Classification of transducers, Advantages of Electrical transducers, Characteristics and choice of transducers; Principle operation of LVDT and capacitor transducers; LVDT Applications, Strain gauge and its principle of operation, gauge factor, Thermistors, Thermocouples, Piezo electric transducers, photovoltaic, photo conductive cells, and photo diodes.

Introduction to Smart and Digital Metering: Digital Multi-meter, True RMS meters, Clamp-on meters, Digital Storage Oscilloscope

TEXT BOOKS:

1. G. K. Banerjee, "Electrical and Electronic Measurements", PHI Learning Pvt. Ltd., 2nd Edition, 2016
2. S. C. Bhargava, "Electrical Measuring Instruments and Measurements", BS Publications, 2012.

REFERENCES:

1. A. K. Sawhney, "Electrical & Electronic Measurement & Instruments", Dhanpat Rai & Co. Publications, 2005.
2. R. K. Rajput, "Electrical & Electronic Measurement & Instrumentation", S. Chand and Company Ltd., 2007.
3. Buckingham and Price, "Electrical Measurements", Prentice – Hall, 1988.
4. Reissland M. U, "Electrical Measurements: Fundamentals, Concepts, Applications", New Age International (P) Limited Publishers, 1st Edition 2010.
5. E.W. Golding and F. C. Widdis, "Electrical Measurements and measuring Instruments", fifth Edition, Wheeler Publishing, 2011.

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Department Of Electrical & Electronics Engineering

B.TECH III YEAR II-SEM T T ACADEMIC YEAR 2020-21

CLASS TEACHER:Mr.V.NAGARAJU

w.e.f.:16-12-2020

DAY/TIME	09:20AM-10:20AM	10:20AM-11:20AM	11:20AM-12:20PM	12:20PM-01:00PM	01:00PM-02:00PM	02:00PM-03:00PM	03:00PM-04:00PM
MON	JAVA	SGP	EEI	LUNCH	PE-LAB(BATCH-I)/AECS-LAB(BATCH-II)		
TUE	EEI	PSA	JAVA		SGP	PE	PSA
WED	PSA	PE(T)	LIBRARY		SGP	EEI	JAVA
THU	EEI	PE	JAVA(T)		PE-LAB(BATCH-II)/PS-LAB(BATCH-I)		
FRI	PE	SGP(T)	PSA		AECS-LAB(BATCH-I)/PS-LAB(BATCH-II)		
SAT	EEI(T)	PE	SPORTS		JAVA	PSA(T)	DA

S. NO	SUBJECT	FACULTY NAME
1	Electrical & Electronics Instrumentation	Ms.R.Thanuja
2	Power System Analysis	Mr.G.Chandra
3	Power Electronics	Mrs.D.Divya
4	Switch Gear protection	Mr.v.Nagaraju
5	Java Programming	Mrs.M.Manasa
6	Power Systems Lab	Mr.G.Chandra & Mr.Ushivakumar
7	Power electronics Lab	Mr.P.Laxman & Mr.S.Srinivas
8	AECS -Lab	Dr.Venkat Reddy,Mr.U.shiva kumar & Mr.P.Suresh
9	Depatmental activities	Mr.P.Suresh & Dr.K.Naresh Varma

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EE612PE: POWER SEMICONDUCTOR DRIVES (Professional Elective - II)

B.Tech. III Year II Sem.

L	T	P	C
3	0	0	3

Prerequisite: Power Electronics, Electrical Machines – I, Electrical Machines – II

Course Objectives:

- To introduce the drive system and operating modes of drive and its characteristics
- To understand Speed – Torque characteristics of different motor drives by various power converter topologies
- To appreciate the motoring and braking operations of drive
- To differentiate DC and AC drives

Course Outcomes: After completion of this course the student is able to

- Identify the drawbacks of speed control of motor by conventional methods.
- Differentiate Phase controlled and chopper-controlled DC drives speed-torque characteristics merits and demerits
- Understand Ac motor drive speed–torque characteristics using different control strategies its merits and demerits
- Describe Slip power recovery schemes

UNIT - I

Control of DC Motors

Introduction to Thyristor controlled Drives, Single Phase semi and fully controlled converters connected to d.c separately excited and d.c series motors – continuous current operation – output voltage and current waveforms – Speed and Torque expressions – Speed – Torque Characteristics- Problems on Converter fed d.c motors.

Three phase semi and fully controlled converters connected to d.c separately excited and d.c series motors – output voltage and current waveforms – Speed and Torque expressions – Speed – Torque characteristics – Problems.

UNIT - II

Four Quadrant Operation of DC Drives

Introduction to Four quadrant operation – Motoring operations, Electric Braking – Plugging, Dynamic and Regenerative Braking operations. Four quadrant operation of D.C motors by single phase and three phase dual converters – Closed loop operation of DC motor (Block Diagram Only)

Control of DC Motors By Choppers: Single quadrant, Two quadrant and four quadrant chopper fed dc separately excited and series motors – Continuous current operation – Output voltage and current wave forms – Speed and torque expressions – speed-torque characteristics – Problems on Chopper fed D.C Motors – Closed Loop operation (Block Diagram Only)

UNIT - III

Control of Induction Motor

Variable voltage characteristics-Control of Induction Motor by Ac Voltage Controllers – Waveforms – speed torque characteristics.

Variable frequency characteristics-Variable frequency control of induction motor by Voltage source and current source inverter and cyclo converters- PWM control – Comparison of VSI and CSI operations – Speed torque characteristics – numerical problems on induction motor drives – Closed loop operation of induction motor drives (Block Diagram Only)

UNIT - IV

Rotor Side Control of Induction Motor

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Static rotor resistance control – Slip power recovery – Static Scherbius drive – Static Kramer Drive – their performance and speed torque characteristics – advantages, applications, problems.

UNIT - V

Control of Synchronous Motors

Separate control and self-control of synchronous motors – Operation of self-controlled synchronous motors by VSI, CSI and cyclo converters. Load commutated CSI fed Synchronous Motor – Operation – Waveforms – speed torque characteristics – Applications – Advantages and Numerical Problems – Closed Loop control operation of synchronous motor drives (Block Diagram Only), variable frequency control- Cyclo converter, PWM based VSI & CSI.

TEXT BOOKS:

1. "G K Dubey", Fundamentals of Electric Drives, CRC Press, 2002.
2. "Vedam Subramanyam", Thyristor Control of Electric drives, Tata McGraw Hill Publications, 1987.

REFERENCE BOOKS:

1. "S K Pillai", A First course on Electrical Drives, New Age International (P) Ltd. 2nd Edition. 1989
2. "P. C. Sen", Thyristor DC Drives, Wiley-Blackwell, 1981
3. "B. K. Bose", Modern Power Electronics, and AC Drives, Pearson 2015.
4. "R. Krishnan", Electric motor drives - modeling, Analysis and control, Prentice Hall PTR, 2001

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2020-21 Admitted Batch

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS301ES	Analog and Digital Electronics	3	0	0	3
2	CS302PC	Data Structures	3	1	0	4
3	MA303BS	Computer Oriented Statistical Methods	3	1	0	4
4	CS304PC	Computer Organization and Architecture	3	0	0	3
5	CS305PC	Object Oriented Programming using C++	2	0	0	2
6	CS306ES	Analog and Digital Electronics Lab	0	0	2	1
7	CS307PC	Data Structures Lab	0	0	3	1.5
8	CS308PC	IT Workshop Lab	0	0	3	1.5
9	CS309PC	C++ Programming Lab	0	0	2	1
10	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	**14**	**2**	**12**	**21**

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS401PC	Discrete Mathematics	3	0	0	3
2	SM402MS	Business Economics & Financial Analysis	3	0	0	3
3	CS403PC	Operating Systems	3	0	0	3
4	CS404PC	Database Management Systems	3	1	0	4
5	CS405PC	Java Programming	3	1	0	4
6	CS406PC	Operating Systems Lab	0	0	3	1.5
7	CS407PC	Database Management Systems Lab	0	0	3	1.5
8	CS408PC	Java Programming Lab	0	0	2	1
9	*MC409	Constitution of India	3	0	0	0
		Total Credits	**18**	**2**	**8**	**21**

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(Approved by AICTE & Affiliated to JNTUH, Hyderabad)

CSE DEPARTMENT TIME TABLE
ACADEMIC YEAR 2020 – 2021

B-Tech. II Year / I Semester
Branch: CSE-A

W.E.F: 01-09-2020
L.H No: S-201

TIME	9:20 AM - 10:20 AM	10:20 AM - 11:20 AM	11:20 AM - 12:20 AM	12:20 PM - 1:00PM	1:00 PM - 2:00 PM	2:00 PM - 3:00 PM	3:00 PM - 4:00 PM
DAY / PERIOD NO.	1st	2nd	3rd	LUNCH	4th	5th	6th
MON	ADE	C++	COSM		C++ LAB		
TUE	C++	ADE	DS		COSM	COA	C++
WED	ADE LAB/ITWS LAB				COA	DS	COSM
THU	COSM	DS	ADE		ADE LAB/ITWS LAB		
FRI	DS LAB				COA	C++	DS
SAT	DS	ADE	C++		GS LAB		

SUBJECT	FACULTY NAME
DS	Mrs. K. DEEPTHI
COSM	Mrs. B. SABITHA
COA	Ms. B. RAMYA SREE
OOPS-C++	Mr. SMD.SHAFIULLA
ADE	Ms. SWARNA LATHA
DS-LAB	Mr. P.VENKAT/Ms. V.KEERTHI
ITWS	Mr. K. SRINIVAS / Ms. M.SWETHA
OOPS-C++-LAB	Mr. SMD.SHAFIULLA / Mr. KIRAN
ADE LAB	Ms. SWARNA LATHA
GS LAB	Mrs. SONY GLORY

Commencement of class-work : 01-09-2020

1st Mid Term Examinations : 21-12-2020 to 28-12-2020

2nd Mid Term Examinations : 15-02-2021 to 20-02-2021

Practical Examinations : 01-03-2021 to 06-03-2021

End Semester Examinations (Regular & Supple) : 08-03-2021 to 20-03-2021

CLASS-INCHARGE
(Ms. B. RAMYA SREE)

HOD

Head of the Department CSE
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MC300ES: ENVIRONMENTAL SCIENCE AND TECHNOLOGY

B.Tech. II Year I Sem.

L	T	P	C
3	0	0	0

Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures
- Understanding the environmental policies and regulations

Course Outcomes:

Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

UNIT - I

Ecosystems: Definition, Scope and Importance of ecosystem. Classification, structure, and function of an ecosystem. Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity, Field visits.

UNIT - II

Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT - III

Biodiversity And Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT - IV

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics

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Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-GoI Initiatives.

UNIT-V

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan (EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

TEXT BOOKS:

1 Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
2 Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCE BOOKS:

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
5 Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y. Anjaneyulu, BS.Publications.

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CSE DEPARTMENT TIME TABLE

ACADEMIC YEAR 2020 - 2021

B-Tech. II Year /II Semester

Branch: CSE-A

W.E.F: 22-03-2021

L.H No: S-201

TIME	9:20 AM - 10:20 AM	10:20 AM - 11:20 AM	11:20 AM - 12:20 AM	12:20 PM - 1:00PM	1:00 PM - 2:00 PM	2:00 PM - 3:00 PM	3:00 PM - 4:00 PM
DAY / PERIOD NO.	1st	2nd	3rd	LUNCH	4th	5th	6th
MON	BEFA	JAVA	DBMS		JAVA LAB		
TUE	OS LAB				OS	JAVA	OS
WED	DM	DBMS	OS		BEFA	JAVA	SPORTS
THU	DBMS LAB				BEFA	DM	DM
FRI	BEFA	OS	DBMS		JAVA	DM	LIB
SAT	OS	DM	BEFA		JAVA	DBMS	DBMS

SUBJECT	FACULTY NAME
OS	Mrs. S. NAGA JYOTHI
DM	Ms. B. RAMYA SREE
JAVA	Mr. SMD.SHAFIULLA
DBMS	Mr. V. GOPINATH
BEFA	Mr. G.MARUTHI
OS-LAB	Mrs. S. NAGA JYOTHI / Mr. E. RAJU
JAVA LAB	Mr. P.VENKAT / Mr. NATRAJ
DBMS LAB	Mr. B.JOSEPH / Mr. V.KEERTHI

Commencement of class-work : 22-03-2021
1st Mid Term Examinations : 31-05-2021 to 05-06-2021
2nd Mid Term Examinations : 02-08-2021 to 07-08-2021
Practical Examinations : 09-08-2021 to 14-18-2021
End Semester Examinations (Regular & Supple) : 16-08-2021 to 28-08-2021

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Head of the Department CSE
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MC400HS: GENDER SENSITIZATION LAB

B.Tech. II Year II Sem.

L	T	P	C
0	0	3	0

Course Objectives:

- To develop students' sensibility with regard to issues of gender in contemporary India.
- To provide a critical perspective on the socialization of men and women.
- To introduce students to information about some key biological aspects of genders.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Course Outcomes:

- Students will have developed a better understanding of important issues related to gender in contemporary India.
- Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature, and film.
- Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
- Students will acquire insight into the gendered division of labour and its relation to politics and economics.
- Men and women students and professionals will be better equipped to work and live together as equals.
- Students will develop a sense of appreciation of women in all walks of life.
- Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.

UNIT - I

UNDERSTANDING GENDER

Gender: Why Should We Study It? (*Towards a World of Equals*: Unit -1)

Socialization: Making Women, Making Men (*Towards a World of Equals*: Unit -2)

Introduction. Preparing for Womanhood. Growing up Male. First lessons in Caste. Different Masculinities.

UNIT - II

GENDER AND BIOLOGY:

Missing Women: Sex Selection and Its Consequences (*Towards a World of Equals*: Unit -4)

Declining Sex Ratio. Demographic Consequences.

Gender Spectrum: Beyond the Binary (*Towards a World of Equals*: Unit -10)

Two or Many? Struggles with Discrimination.

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UNIT - III

GENDER AND LABOUR

Housework: the Invisible Labour (*Towards a World of Equals*: Unit -3)

"My Mother doesn't Work." "Share the Load."

Women's Work: Its Politics and Economics (*Towards a World of Equals*: Unit -7)

Fact and Fiction. Unrecognized and Unaccounted work. Additional Reading: Wages and Conditions of Work.

UNIT-IV

ISSUES OF VIOLENCE

Sexual Harassment: Say No! (*Towards a World of Equals*: Unit -6)

Sexual Harassment, not Eve-teasing- Coping with Everyday Harassment- Further Reading: "*Chupulu*".

Domestic Violence: Speaking Out (*Towards a World of Equals*: Unit -8)

Is Home a Safe Place? -When Women Unite [Film]. Rebuilding Lives. Additional Reading: New Forums for Justice.

Thinking about Sexual Violence (*Towards a World of Equals*: Unit -11)

Blaming the Victim-"I Fought for my Life…." - Additional Reading: The Caste Face of Violence.

UNIT - V

GENDER: CO - EXISTENCE

Just Relationships: Being Together as Equals (*Towards a World of Equals*: Unit -12)

Mary Kom and Onler. Love and Acid just do not Mix. Love Letters. Mothers and Fathers. Additional Reading: Rosa Parks-The Brave Heart.

TEXTBOOK

All the five Units in the Textbook, ***"Towards a World of Equals: A Bilingual Textbook on Gender"*** written by A. Suneetha, Uma Bhrugubanda, Duggirala Vasanta, Rama Melkote, Vasudha Nagaraj, Asma Rasheed, Gogu Shyamala, Deepa Sreenivas and Susie Tharu and published by **Telugu Akademi, Hyderabad**, Telangana State in the year **2015**.

Note: Since it is an Interdisciplinary Course, Resource Persons can be drawn from the fields of English Literature or Sociology or Political Science or any other qualified faculty who has expertise in this field from engineering departments.

REFERENCE BOOKS:

1. Menon, Nivedita. Seeing like a Feminist. New Delhi: Zubaan-Penguin Books, 2012
2. Abdulali Sohaila. *"I Fought For My Life…and Won."* Available online at: http://www.thealternative.in/lifestyle/i-fought-for-my-lifeand-won-sohaila-abdulal/

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2020-21 Admitted Batch

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS501PC	Formal Languages & Automata Theory	3	0	0	3
2	CS502PC	Software Engineering	3	0	0	3
3	CS503PC	Computer Networks	3	0	0	3
4	CS504PC	Web Technologies	3	0	0	3
5		Professional Elective-I	3	0	0	3
6		Professional Elective -II	3	0	0	3
7	CS505PC	Software Engineering Lab	0	0	3	1.5
8	CS506PC	Computer Networks & Web Technologies Lab	0	0	3	1.5
9	EN508HS	Advanced Communication Skills Lab	0	0	2	1
10	*MC510	Intellectual Property Rights	3	0	0	0
		Total Credits	**21**	**0**	**8**	**22**

III YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS601PC	Machine Learning	3	1	0	4
2	CS602PC	Compiler Design	3	1	0	4
3	CS603PC	Design and Analysis of Algorithms	3	1	0	4
4		Professional Elective – III	3	0	0	3
5		Open Elective-I	3	0	0	3
6	CS604PC	Machine Learning Lab	0	0	3	1.5
7	CS605PC	Compiler Design Lab	0	0	3	1.5
8		**Professional Elective-III Lab**	0	0	2	1
9	*MC609	Environmental Science	3	0	0	0
		Total Credits	**18**	**3**	**8**	**22**

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CSE DEPARTMENT TIME TABLE

ACADEMIC YEAR 2020 - 2021

B-Tech. III Year / I Semester

Branch: CSE - A

W.E.F: 01-09-2020

L.H No: S-203

TIME	9:20 AM - 10:20 AM	10:20 AM - 11:20 AM	11:20 AM - 12:20 AM	12:20 PM - 1:00PM	1:00 PM - 2:00 PM	2:00 PM - 3:00 PM	3:00 PM - 4:00 PM
DAY / PERIOD NO.	1st	2nd	3rd	LUNCH	4th	5th	6th
MON	ACS LAB				CN	IRS	FLAT
TUE	IRS	CN	WT		SE LAB		
WED	PPL	WT	CN		SE	FLAT	IRS
THU	IRS	PPL	SE		WT & CN LAB		
FRI	CN	FLAT	PPL		SE	IRS	WT
SAT	WT	CN	PPL		FLAT	SE	IPR

SUBJECT	FACULTY NAME
SE	Dr. M. NARENDHAR
CN	Mr. JOSEPH
WT	Mr. V. GOPINATH
FLAT	Mrs. M. MANASA
PPL	Mrs. S. NAGA JYOTHI
IRS	Ms. B. RAMYA SREE
ACS - LAB	Mrs. GLORY
SE-LAB	Mrs. S. NAGA JYOTHI / Mr. N. VENKAT NATRAJ
WT & CN-LAB	Mr. V. GOPINATH / Mr. M. NAVEEN
IPR	Mr. G. MARUTHI RAJU

Commencement of class-work : 01-09-2020
1st Mid Term Examinations : 21-12-2020 to 28-12-2020
2nd Mid Term Examinations : 15-02-2021 to 20-02-2021
Practical Examinations : 01-03-2021 to 06-03-2021
End Semester Examinations (Regular & Supple) : 08-03-2021 to 20-03-2021

CLASS INCHARGE

(Mrs. M. MANASA)

Head of the Department CSE

Scient Institute of Technology

Ibrahimpatnam, R.R. Dist.

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PROFESSIONAL ETHICS

B.Tech. III Year I Sem. — **L T P C**: **3 0 0 0**

Course Code: MC500HS

Course Objective: To enable the students to imbibe and internalize the Values and Ethical Behaviour in the personal and Professional lives.

Course Outcome: The students will understand the importance of Values and Ethics in their personal lives and professional careers. The students will learn the rights and responsibilities as an employee, team member and a global citizen.

UNIT - I

Introduction to Professional Ethics: Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession.

UNIT - II

Basic Theories: Basic Ethical Principles, Moral Developments, Deontology, Utilitarianism, Virtue Theory, Rights Theory, Casuist Theory, Moral Absolution, Moral Rationalism, Moral Pluralism, Ethical Egoism, Feminist Consequentialism, Moral Issues, Moral Dilemmas, Moral Autonomy.

UNIT - III

Professional Practices in Engineering: Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities, Obligations and Moral Values in Professional Ethics, Professional codes of ethics, the limits of predictability and responsibilities of the engineering profession.

Central Responsibilities of Engineers - The Centrality of Responsibilities of Professional Ethics; lessons from 1979 American Airlines DC-10 Crash and Kansas City Hyatt Regency Walk away Collapse.

UNIT - IV

Work Place Rights & Responsibilities, Ethics in changing domains of Research, Engineers and Managers; Organizational Complaint Procedure, difference of Professional Judgment within the Nuclear Regulatory Commission (NRC), the Hanford Nuclear Reservation.

Ethics in changing domains of research - The US government wide definition of research misconduct, research misconduct distinguished from mistakes and errors, recent history of attention to research misconduct, the emerging emphasis on understanding and fostering responsible conduct, responsible authorship, reviewing & editing.

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UNIT - V

Global issues in Professional Ethics: Introduction – Current Scenario, Technology Globalization of MNCs, International Trade, World Summits, Issues, Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Deflection, Pollution, Ethics in Manufacturing and Marketing, Media Ethics; War Ethics; Bio Ethics, Intellectual Property Rights.

TEXT BOOKS:

1. Professional Ethics: R. Subramanian, Oxford University Press, 2015.
2. Ethics in Engineering Practice & Research, Caroline Whitbeck, 2e, Cambridge University Press 2015.

REFERENCES:

1. Engineering Ethics, Concepts Cases: Charles E Harris Jr., Michael S Pritchard, Michael J Rabins, 4e , Cengage learning, 2015.
2. Business Ethics concepts & Cases: Manuel G Velasquez, 6e, PHI, 2008.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

II Year B.Tech. CSE-II Sem	**L**	**T/P/D**	**C**
	4	-/-/-	4

(A40009) ENVIRONMENTAL STUDIES

Objectives:

1. Understanding the importance of ecological balance for sustainable development.
2. Understanding the impacts of developmental activities and mitigation measures.
3. Understanding of environmental policies and regulations

UNIT-I :

Ecosystems: Definition, Scope and Importance of ecosystem. Classification, structure and function of an ecosystem. Food chains, food webs and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity. Field visits.

UNIT-II:

Natural Resources: Classification of Resources: Living and Non-Living resources, water resources: use and over utilization of surface and ground water, floods and droughts. Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III:

Biodiversity and Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation. Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, conservation of biodiversity, In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT-IV:

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, Solid waste: Municipal Solid Waste management, composition and

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characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary. Overview of air pollution control technologies. Concepts of bioremediation. **Global Environmental Problems And Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol and Montreal Protocol.

UNIT-V:

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio economical aspects. Strategies for risk assessment. Concepts of Environmental Management Plan (EMP). **Towards Sustainable Future:** Concept of Sustainable Development, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics. Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

SUGGESTED TEXT BOOKS:

1 Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.

2 Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCE BOOKS:

1 Environmental Science: towards a sustainable future by Richard T.Wright. 2008 PHL Learning Private Ltd. New Delhi.

2 Environmental Engineering and science by Gilbert M.Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.

3. Environmental Science by Daniel B Botkin & Edward A.Keller, Wiley INDIA edition.

4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.

5. Text book of Environmental Science and Technology- Dr. M. Anji Reddy 2007, BS Publications.

Outcomes:

Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which inturn helps in sustainable development.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

III Year B.Tech. CSE-I Sem	L	T/P/D	C
	4	-/-/-	4

(A50018) HUMAN VALUES AND PROFESSIONAL ETHICS

(Open Elective)

Objectives: This introductory course input is intended

a. To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings

b. To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Value based living in a natural way

c. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with Nature.

Unit I:

Course Introduction - Need, Basic Guidelines, Content and Process for Value Education: Understanding the need, basic guidelines, content and process for Value Education: Self Exploration- what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration. Continuous Happiness and Prosperity: A look at basic Human Aspirations: Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario. Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

Unit II:

Understanding Harmony in the Human Being - Harmony in Myself!: Understanding human being as a co-existence of the sentient 'I' and the material 'Body'. Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer). Understanding the characteristics and activities of 'I' and harmony in 'I'. Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail. Programs to ensure Sanyam and Swasthya.

Unit III:

Understanding Harmony in the Family and Society- Harmony in Human

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- **Human Relationship** : Understanding harmony in the Family- the basic unit of human interaction. Understanding values in human-human relationship; meaning of Nyaya and program for its fulfilment to ensure Ubhay-tripti; **Trust (Vishwas) and Respect (Samman) as the foundational values of relationship.** Understanding the meaning of Vishwas; Difference between intention and competence. Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship. Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals. Visualizing a universal harmonious order in society- Undivided Society (Akhand Samaj), Universal Order (Sarvabhaum Vyawastha) - from family to world family!

Unit IV:

Understanding Harmony in the Nature and Existence - Whole existence as Co-existence : Understanding the harmony in the Nature. Interconnectedness and mutual fulfilment among the four orders of nature- recyclability and self regulation in nature. Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space. Holistic perception of harmony at all levels of existence.

Unit V.

Implications of the above Holistic Understanding of Harmony on Professional Ethics : Natural acceptance of human values. Definitiveness of Ethical Human Conduct. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order. Competence in professional ethics

a) Ability to utilize the professional competence for augmenting universal human order

b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems.

c) Ability to identify and develop appropriate technologies and management patterns for above production systems.

Case studies of typical holistic technologies, management models and production systems. Strategy for transition from the present state to Universal Human Order

a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers

b) At the level of society: as mutually enriching institutions and organizations

TEXT BOOKS

1. R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in

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Human Values and Professional Ethics.

2. Prof. KV Subba Raju, 2013, Success Secrets for Engineering Students, Smart Student Publications,3rd Edition.

REFERENCE BOOKS

1. Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins, USA
2. E F Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain
3. A Nagraj, 1998, Jeevan Vidya ek Parichay, Divya Path Sansthan, Amarkantak
4. Sussan George, 1976, How the Other Half Dies, Penguin Press, Reprinted 1986, 1991
5. PL Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Purblishers.
6. A.N. Tripathy, 2003, Human Values, New Age International Publishers.
7. Subhas Palekar, 2000, How to practice Natural Farming, Pracheen(Vaidik) Krishi Tantra Shodh, Amravati
8. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972. Limits to Growth – Club of Rome's report, Universe Books.
9. E G Seebauer & Robert L. Berry, 2000, Fundamentals of Ethics for Scientists & Engineers, Oxford University Press
10. M Govindrajran, S Natrajan & V.S. Senthil Kumar, Engineering Ethichs (including Human Values), Eastern Economy Edition, Prentice Hall of India Ltd.

Relevant CDs, Movies, Documentaries & Other Literature:

1. Value Education website, http://www.uptu.ac.in
2. Story of Stuff, http://www.storyofstuff.com
3. Al Gore, An Inconvenient Truth, Paramount Classics, USA
4. Charlie Chaplin, Modern Times, United Artists, USA
5. IIT Delhi, Modern Technology – the Untold Story

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B.TECH. CIVIL ENGINEERING
DISASTER MANAGEMENT
(Open Elective - I)

	L	T/P/D	C
B.Tech. III Year I Sem			
Course Code: CE511OE	**3**	**0/0/0**	**3**

Course Objectives: The subject provide different disasters, tools and methods for disaster management

Course Outcomes: At the end of the course, the student will be able to:

- Understanding Disasters, man-made Hazards and Vulnerabilities
- Understanding disaster management mechanism
- Understanding capacity building concepts and planning of disaster managements

UNIT - I

Understanding Disaster: Concept of Disaster - Different approaches- Concept of Risk - Levels of Disasters - Disaster Phenomena and Events (Global, national and regional)

Hazards and Vulnerabilities: Natural and man-made hazards; response time, frequency and forewarning levels of different hazards - Characteristics and damage potential of natural hazards; hazard assessment - Dimensions of vulnerability factors; vulnerability assessment - Vulnerability and disaster risk - Vulnerabilities to flood and earthquake hazards

UNIT - II

Disaster Management Mechanism: Concepts of risk management and crisis managements - Disaster Management Cycle - Response and Recovery - Development, Prevention, Mitigation and Preparedness - Planning for Relief

UNIT - III

Capacity Building: Capacity Building: Concept - Structural and Nonstructural Measures Capacity Assessment: Strengthening Capacity for Reducing Risk - Counter-Disaster Resources and their utility in Disaster Management - Legislative Support at the state and national levels

UNIT - IV

Coping with Disaster: Coping Strategies; alternative adjustment processes - Changing Concepts of disaster management - Industrial Safety Plan; Safety norms and survival kits - Mass media and disaster management

UNIT - V

Planning for disaster management: Strategies for disaster management planning - Steps for formulating a disaster risk reduction plan - Disaster management Act and Policy in India -

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Organizational structure for disaster management in India - Preparation of state and district disaster management plans

TEXT BOOKS:

4. Manual on Disaster Management, National Disaster Management, Agency Govt of India.
5. Disaster Management by Mrinalini Pandey Wiley 2014.
6. Disaster Science and Management by T. Bhattacharya, McGraw Hill Education (India) Pvt Ltd Wiley 2015

REFERENCES:

3. Earth and Atmospheric Disasters Management, N. Pandharinath, CK Rajan, BS Publications 2009.
4. National Disaster Management Plan, Ministry of Home affairs, Government of India (http://www.ndma.gov.in/images/policyplan/dmplan/draftndmp.pdf)

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Gender Equality:

Gender equality and equal opportunity for women are necessary in the institution. Every activity and program of the circular of the institute should provide equal opportunity for the development of the girl students and the female staff. For maintaining the equality among the staff and students the Women development cell and Anti ragging cell are active. These committees take utmost care and provide support to girl students and the female staff. Meetings are conducted on regular basis and issues are discussed over to find solution for making a better environment for the women. Women development seminars also conducted which includes teaching them self-defense and riffle shooting.

Workshop in SCIENT Institute of Tech, by Sakshi (regd. NGO 1992) with NSS Volunteers about POCSO (2012) & Child Sexual Abuse

The Ministry of Youth Affairs, has agreed for Sakshi (regd. NGO, 1992)to deliver capacity building workshops in partnership with Directorate of NSS with the NSS volunteers to strengthen Youth as powerful enablers for creating a Constitutional Rights Based Enabled Environment in the context of Gender Equality with a focus on building awareness about POCSOA 2012. (Copy of the circular enclosed)

I take this opportunity to introduce Sakshi, (regd. 1992). Sākshi's work over the last 27 years has focused on strengthening systemic mechanisms, and enabling preventive interventions for the practice of Everyday Equality.

Since 1969, National Service Scheme has been a beacon of upholding the values of democracy through active citizenship and service to individuals and the nation as a collective to fight against Child Sexual Abuse - one of the most dangerous & prevalent yet under-reported crimes in our country. According to 2014 Report, National Crime Bureau, 1 in 2children is survivors of CSA.

Under the Equality Umbrella, the workshop with the NSS volunteers will include

1. Awareness Sessions on rights and responsibilities for Gender Equality
2. Orientations and Capacity Building for compliance of POCSOA 2012
3. Experiential activities and exercises to capture the imagination of the Youth to encourage proactive participation.

In the spirit of active citizenship, these informed NSS volunteers—Champions of Change— in keeping with their Constitutional Right to Equality, will be enabled to practice their role and responsibility as an informed active citizen versus the apathy of an ignorant, passive bystander.

At the end of these sessions, the **NSS POCSOA** Champions will be equipped with

1. The capacity to prevent, prohibit and intervene in instances of Sexual offences against children.

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F.No.P.32/1/2018/NSS/DTE/2487-2497

Government of India
Ministry of Youth Affairs & Sports
Department of Youth Affairs
Directorate of National Service Scheme
12/11, Jamnagar House, New Delhi-110011

Dated 29th June, 2018

To

The Regional Directors,
All the NSS Regional Directorates.

Sub: ***Making NSS Volunteers POCSOA Champions.***

Sir/Madam,

I am directed to refer to the subject and to say that Sakshi is a capacity building organization that began as a rights initiative NGO with a specific focus on sexual violence against women and children. They have approached the Ministry, seeking partnership of NSS for making NSS volunteers POCSOA (Protection of Children from Sexual Offences Act) Champions. Their roll out plan will begin from August, 2018, which is as under:-

Step 1

1) A three hour workshop with students from the age group 16+.
2) The three hour workshop to be organized by NSS as part of their regular interactions with the Educational Institutes.
3) During this workshop the students will be taken through the content detailed in the concept note through a Talk and experiential exercises including role plays and films.
4) Each student participating in the workshop will be given access to a link for updates and continued capacity building through films, quizzes etc.

Step 2

1) A repeat interaction will be encouraged in the scheduling so as to go back to invite sharing on the actions that the students have taken, and the communication that they have done in their own forums on the subject matter.

In this context, you are requested to arrange the 3 hours' workshop in the universities/colleges under your jurisdiction on the convenient dates as part of Regular Activities, in which the Resource Persons will be provided by Sakshi. You are further advised to be in touch with Ms. Smita Bharti, President, Sakshi (Mobile No.09899382226) in this regard.

Yours faithfully,

(Sunil Kumar Basumatary)
Asstt. Prog. Adviser

Copy for information to:-

Ms. Smita Bharti, President, Sakshi, 168, Arravalli Apartments, Alaknanda, New Delhi.

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Sakshi

NSS VOLUNTEERS AS POCSOA CHAMPIONS:
A PROGRAMME WITH THE MINISTRY OF YOUTH AFFAIRS IN PARTNERSHIP WITH NSS

Programme Brief

The Ministry of Youth Affairs, has directed Sakshi to deliver capacity building workshops in partnership with NSS with their volunteers to strengthen **Youth as powerful enablers** for creating a Constitutional Rights Based Enabled Environment in the context of Gender Equality with a focus on building awareness about POCSOA 2012.

Under the Equality Umbrella, the workshop with the NSS volunteers will include (1) Awareness Sessions on rights and responsibilities for Gender Equality, & (2) Orientations and Capacity Building for compliance of POCSOA 2012. In the spirit of active citizenship, these informed NSS volunteers, Champions of Change, in keeping with their Constitutional Right to Equality, will be enabled to practice their role and responsibility as an informed active citizen versus the apathy of an ignorant, passive bystander.

At the end of these sessions, the NSS POCSOA Champions will be equipped with 1) the capacity to prevent, prohibit and intervene in instances of sexual offences against children. 2) If any of them have been subjected personally, they will be guided towards tools that resolve and heal the residue PTSD. 3) These Champions will be sufficiently exposed to the punitive actions ensuing to the offence, as well as the impact of sexual offences on the victims in order to create a prohibitive mindset towards any probable offence.

Mandatory Action: Offline Training programme will be rolled out in the 20 Regions in which the NSS is operative in 40,000 institutions, touching 40 Lakh students every two years.

Proposed Action: After the offline workshop, the students will be shared a link to a landing page with messages from iconic leaders and influencers. There will be an enquiry board, where the students will be encouraged to continue the conversation through creative rendition of their thoughts. It could be films, avs, songs, stories, graphics, posters, comic strips. These entries will be filtered by a skilled team. The cleaned entries with a digital credit to the student who has created it, will be pushed back to the app which the students would have downloaded. The students will be given access to legal, counselling and creative therapy for resolution. With a key focus on mental health, The Rakshin Project will address the emergence of the deep seated traumas from past experiences of sexual violations that individuals might have faced in the past by providing outlets and positive channels to express and process the experiences.

Sākshi registered in 1993 under the Societies Registration Act of 1860 as S-23513, has worked over the last 25 years with a focus on strengthening systemic mechanisms, and enabling preventive interventions for the practice of Everyday Equality. The PIL, *'Vishakha vs St of Rajasthan'*, which got us the binding *Vishakha Directions* in 1997, the judge made law on Prevention of Workplace Sexual Harassment which led to the formulation of the legislation/ ACT in 2013 is evidence of the same. The PIL, *Sakshi vs Union of India*, through its recommendations has provided the bedrock for the subsequent ACTs on Sexual Assault, Juvenile Justice, and recommended procedures for cases of Child Sexual Abuse, as collated in the 172nd Law Reform. Judicial education on Gender Equality through the *Asia Pacific Advisory Forum* across the five countries in the Region under the aegis of the then Chief Justice of India, Hon'Justice A M Ahmadi, is another evidence of our focus. Mainstreaming the rights based narrative for prevention of gender based violence through relevant creative mediums, (documentaries on responsible sexuality, telecast on national television, *'Mirror Mirror on the Wall, Who Am I After All'*, and National award winning plays like *'Jug Jug Jiyo'*) is a continuation of our efforts to create a culture of accountability.

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Category	Name of the course	Relevance
Gender	Gender Sensitization Lab	The course emphasizes the basic value system of Indian culture, instills in the young minds, not only gender equity but also the traditional honor and pride bestowed on women in accordance to Indian Ethos, and develops a sense of appreciation of women in all walks of Life.
		Apart from this course, the institution upholds gender equity by providing equal opportunities for both the genders in terms of admission, training programs, co-curricular and extra-curricular Activities. The institution provides equal opportunities for women faculty to become members in various forums and encourages them to participate in women empowerment Events. The Institution has formulated Women Empowerment and Anti-Sexual Harassment Cell which is focused on promoting social respect, safety, dignity, rights, comfort in the workplace and overall development of women students and Faculty.
Environmental and Sustainability	• Environmental studies	

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