1	CURRICULAR ASPECTS	1.3.1

Curriculum Enrichment

(Under Choice Based Credit System)

1.3.1 Curriculum Enrichment

1.3.1 Institution integrates cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum
Response:

The institution offers courses in the curriculum addressing the cross cutting issues relevant to gender, environment and sustainability, human values and ethics. The issues are addressed continuously through the relevant courses and by conducting activities through various administrative and academic committees as well as clubs functioning in the institution. The academic courses addressing the above are listed in the table given below followed by the detailed syllabi.

S. No.	Course Code	Course Title	Factors Addressed
1	A0013193	Biology for Engineers	Gender
2		Technology and Society	
3		Constitution of India	
4	A0010202	Environmental Science	Environment and Sustainable Development
5	A0115155	Environmental Engineering –I	
6	A0121156	Environmental Engineering –II	
7	A0015203	Indian Heritage Culture and Tradition	
8	A0013156	Professional Ethics and soft skills'	Human Values and Professional Ethics
9	A0018194	Corporate Management Skills	
10		Universal Human Values	
11	E0011192	Human Resource Management	
12	E0001191	Management & Organizational Behavior	
13	E0003191	Financial Accounting for Managers	

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(A0010202) ENVIRONMENTAL SCIENCE

For branches: CE, EEE, ME, ECE, CSE, CSE(DS), CSE&BS

COURSE OBJECTIVES:

- Creating the awareness about environmental problems among people.
- Imparting basic knowledge about the environment and its allied problems.
- Developing an attitude of concern for the environment.
- Motivating public to participate in environment protection and environment improvement.
- Acquiring skills to help the concerned individuals in identifying and solving environmental problems.
- Environmental education should have an interdisciplinary approach by including physical, chemical, biological as well as socio-cultural aspects of the environment. It should build a bridge between biology and technology.

COURSE OUTCOMES:

- Understand environmental problems arising due to developmental activities.
- Realize the importance of ecosystem and biodiversity for maintaining ecological balance.
- Identify the natural resources and suitable methods for conservation of environment.
- Identify the environmental pollutants and abatement devices.
- Adopt practices that help in promoting balance in nature by making judicious utilization of recourses.

UNIT I: MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL SCIENCE

Environment -Definition, Scope, Importance and Need for public awareness. Segments of Environment (Atmosphere, Lithosphere, Hydrosphere and Biosphere).

UNIT II: RESOURCES AND UTILIZATION

Renewable and Non-renewable resources.

a) Natural Resources: Soil &Water sources (conflicts of over utilization of water Resources - Hydro power project-problems), forest & mineral resources – Utilization-problems.

b) Non-conventional resources of energy(Solar Energy, wind energy and their applications)

UNIT III:

a) **CONCEPTS OF ECO-SYSTEM**

Structure and functions of an ecosystem: Producers, Consumers and Decomposers- Interaction between biotic and abiotic factors in an ecosystem- Trophic levels- Food chain- Food web – Ecological Pyramid.

b) **TYPES OF ECOSYSTEM**

Understanding the types of ecosystem: (i) Terrestrial (forest)(ii) Aquatic – (Marine)

UNIT IV: BIODIVERSITY

Introduction – Definition – Value of biodiversity- Biodiversity at global, National and Local levels-India as a mega diversity nation-Hot-spots of biodiversity-Threats to biodiversity- IUCN Red data book - Conservation of bio diversity (Insitu and Exsitu conservation methods).

UNIT V: ENVIRONMENTAL POLLUTION

Introduction- Causes, effects and control measures of

a) Air pollution

b) Water pollution

c) Soil pollution

d) Noise pollution
e) Plastic pollution

Disaster management: Floods, Earthquake.

UNIT-VI:

HUMAN POPULATION ISSUES

a) Demography-problems related to Population explosion- Age structure-Family welfare and family planning programme

b) Diseases- AIDS, Malaria, COVID, Cancer.

c) Human rights, Fundamental duties and Value of education.

ENVIRONMENTAL ISSUES

a) Climatic changes

b) Greenhouse effect and global warming.

c) Ozone layer depletion.

d) Acid rain.

TEXT BOOKS:

1) Deswal, S and Deswal A., (2004), A Basic Course in Environmental Studies, DhanpatRai& Co. Delhi.
2) Anubha Kousik and C P Kousik., New age international publishers.

REFERENCES:

1) Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
2) Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd.,
3) Ahmedabad –380 013, India, Email:mapin@icenet.net (R)
4) Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5) Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)

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(A0015203) INDIAN HERITAGE AND CULTURE

INTRODUCTION

Indian Heritage is an ancient facet pertaining to bygone ages. It reflects strong ethical culture and embodiment of nature in life style. It had its deep roots in great Indian epics and Upanishads. It has been transformed and strengthened by many kings and queens. It is revived by erudite writers. The glory of Indian Heritage & culture have been ignored or distorted in wake of western culture. The present generation ought to know their indigenous culture and heritage and apply the wisdom to the current core working aspects.

COURSE OBJECTIVES

- To enable the students to have an insight into and understanding of the great heritage and culture of India.
- To sensitize them towards preservation and progression of the composite culture of India
- To make students learn soft skills and life skills from ancient treatise
- Relevance of architecture & ancient principle to the current engineering scenario

COURSE OUTCOMES

- Equip learners with knowledge of the heritage and culture of India.
- Acquire Leadership & Soft skills from great leaders of India
- Apply the ancient wisdom to become successful professionals
- To make them understand diversity of culture and national integrity

UNIT-I:
Origin of Indian Culture & Heritage –Indus valley Civilization - Time line of Indian empires - Cultural & social conditions of India under Mauryas, Guptas & the Sathavahanas

UNIT-II:
Influence of Islam on Indian Culture - Leadership skills from Akbar the Great & Krishnadeva Raya - World Heritage Sites in India

UNIT-III:
Great Indian Epics – Life skills from Ramayana and Mahabharata – Ethics from Upanishads &-Vedas - Pathanjali Yoga -Principles of Jainism, Buddhism & Sufism

UNIT-IV:
Indian Art Forms –Literature - Rabindranath Tagore - RK.Narayan - Sri Sri - Jashuva – Music - Saint Tyagaraja, Annamayya -Purandhara Das - Kabir Das- Dance Forms of India

UNIT-V:
Social awakening and Social reform movements -Theosophical Society - Emancipation of Women in pre-independent era

UNIT-VI:

Mahatma Gandhi - Non-violence and Satyagraha - Great leaders of Freedom struggle – Subhash Chandra Bose – Bhagath Singh –Moulana Abul Kalam Azad – B.R.Ambedkar - Post Independent Era.

TEXT BOOK

1) Madanlal Malpani & ShamsunderMalpani (2009), ***Indian Heritage and Culture,*** New Delhi: Kalyani Publishers.

REFERENCE BOOKS

1) Romila Thapar (2018) , Indian Cultures as Heritage: Contemporary Pasts, India.
2) Anurag Mathur (2017), Indian Culture & Heritage , Create space independent publishing Platform, 2017.
3) P.R.Rao & P. Raghavendra , Indian Heritage and culture, Sterling Publication Pvt. Ltd.
4) Madhukar kumar Bhagat, Indian Heritage and culture, Access Publications.
5) Dhirendra Singh, Indian Heritage and culture , APH Publications.

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(A0013193) BIOLOGY FOR ENGINEERS

(Life Sciences)

COURSE OBJECTIVES:

- To familiarize about biological components and their applications
- To train the students on the principles and Mechanisms in Biological Chemistry
- To train the concepts of molecular structures of Biomolecules
- To introduce the basic principles of Cell Structures and Functions
- To apply the concepts in the development of biosensors for mankind.

COURSE OUTCOMES:

At the end of the course, the students will be able to

- Explain concept and function of cell and cell organelles
- Develop knowledge about various physiological processes in biological systems
- Explain about biomolecules, their structure and function and their role in living organisms. How biomolecules are useful in industry.
- Understanding about human physiology
- Identify and describe the functions of the skeletal system

UNIT-1

Cell Structure and Function - Cell theory, Ultra structure of eukaryotic cell (Cell wall, Cell membrane, Golgi complex, Endoplasmic Reticulum, Peroxisome, Lysosomes), Semi-autonomous cell Organelles (Mitochondria & Chloroplast) (5 periods)

Learning outcomes:

1) Understand the structure and importance of the cell.
2) Explain the importance of eukaryotic cell.
3) Explain the functions of cell organelles.

UNIT-2

Human Physiology – Nutrition (Functions of micro & macro nutrients and their role), Respiration (Definition, Types, Respiration in humans), Digestion (Process and digestive organs in humans), Excretion (Definition, Urinary system in humans). (6 Periods)

Learning outcomes:

1) Understand the metabolism in living organism.
2) Explain about the importance of human physiological process.
3) Identify the nutritional values in human body.

UNIT-3

Biomolecules - Proteins (Denaturation of proteins), Nucleic acids (Mechanism of Replication & Transcription), Vitamins (Classification & functions of vitamins in bio-systems). (5 Periods)

Learning outcomes:

1) Describe the denaturation of proteins.
2) Illustrate replication of nucleic acids.
3) Identify the importance of Vitamins in human body.

UNIT-4

Biomaterials - Definition of biomaterials, Requirements of biomaterials, Classification of biomaterials, Physical and Mechanical properties of bio-materials, Comparison of properties of some common biomaterials. (5 Periods)

Learning outcomes

1) Understand the role of biomaterials for humans.

2) Understand the properties of biomaterials for organ substitution.

UNIT-5

Skeletal System-Types of bones, Structure and composition of bone, artificial bone replacements with soft engineering materials. (6 Periods)

Learning outcomes

1) Understand bone structure and composition
2) Able to develop knowledge about bone replacement.

UNIT-6

Applications of Biology- Stem Cells (Sources, Types and its Uses) Cancer Therapy, Basics of bio-sensors and bio-chips for bio-engineering. (5 Periods)

Learning outcomes

1) Understand the role of stem cells in biology.
2) Develop new type of biosensors, biochips etc.

TEXT BOOKS

1) Nelson, D. L. and Cox, M.M. (2008).Lehninger, Principles of Biochemistry, 5th Edition, W.H.Freeman and Company, N.Y., USA.
2) Ross & Wilson, Anatomy and Physiology, Churchill Livigstone publications (2014).

REFERENCE BOOKS

1) Voet, D. and Voet, J.G. (2004). Biochemistry, 3rd Edition, John Wiley & Sons, Inc. USA.
2) Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition, John Wiley & Sons. Inc.
3) De Robertis, E. D. P. and De Robertis R. E. 2009. Cell and Molecular Biology, 8th edition. Lippincott Williams and Wilkins, Philadelphia.
4) Cooper G. M. Hausman R. E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington D. C.; Sinnauer Academic Press.
5) L. Hench & E.C. Ethridge, Biomaterials – An Interfacial approach, Academic Press, 1982.

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(E0001191) MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR

COURSE OBJECTIVES:

- It enables the student to understand the various concepts of management.
- To learn the different techniques of decision making process.
- To learn the techniques of controlling and the organization structure.
- To understand the concept of organizational behavior and its implications.
- To study the theories of motivation and leadership concepts.

COURSE OUTCOMES:

- The student can apply the concepts to the present scenario.
- To apply the different techniques of decision making at the workplace.
- To apply the controlling techniques to effective monitoring at the workplace.
- To correlate the concept of organizational behavior and group dynamics.
- To be able to understand the motivation and leadership concepts from a practical perspective.

UNIT-I

Introduction – Concept – Significance – Functions – Patterns of Management: Scientific – Behavioural – Systems – Contingency – Ethics and Social Responsibilities of Management – Management by Objectives.

UNIT-II

Decision Making – Process – Techniques- Planning – Process – Problems – Components – Making It Effective.

UNIT-III

Controlling - System of Controlling – Controlling Techniques – Making Controlling Effective – Organizing Process – Types of Departmentation – Making Organizing Effective -.

UNIT-IV

Organisational Behaviour – Introduction - Understanding Individual Behaviour – Perception – Learning – Personality Types –Johari window- Transactional Analysis- Functional and Dysfunctional Behaviors.Group Dynamics – Benefits of Groups – Types of Groups – Group Formation and Development – Team Decision Making – Training Groups for Team Work.

UNIT-V

Motivation – Types of Motives – Motivational Theories of Maslow, Herzberg, David Mc Clelland, and Porter and Lawler – Motivating Managers and Workers.

UNIT-VI

Leadership – Traits Theory – Managerial Grid – Transactional Vs Transformational Leadership – Women and Leadership. Organizational Culture and Climate – Change Management – Conflict Management – Organization Development.

REFERENCES:

1) Organisational Behaviour, Stephen P. Robbins, Pearson Education
2) Human Behaviour at Work, Keith Davis, Tata McGraw Hill
3) Management and Organisational behaviour, Pierce Gordner, Cengage
4) Principles of Management, Koonz,Weihrich and Aryasri, Tata McGraw Hill,2004.
5) Behaviour in Organizations, Jerald Green Berg & Robert A.Baron, Pearson Education
6) Management and Organisational Behaviour, Subbarao P, Himalaya Publishing House.
7) Organisational Behaviour, Sarma, Jaico Publications,2009
8) Management and Organisational Behaviour, Paul Hersey and Ken Blanchard, PHI

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(E0011192) HUMAN RESOURCES MANAGEMENT

COURSE OBJECTIVES

- To study the evolution of Human resources Management
- To make the students aware of the functions of Human Resource Management
- To understand the process of Perfomance and compensation management
- To study the regulatory mechanism of industrial relations and emerging issues in HRM

COURSE OUTCOMES

- To be able to apply the concept of human resource management at the workplace
- The students are able to understand the functions and correlate to the workplace.
- To be able to develop a performance appraisal model relevant to the industry
- To be able to understand and apply the various aspects of industrial relations at the workplace

UNIT-I

Introduction: Evolution of Human Resource Management ,Human Resource Management vs Strategic Human Resource Management , Functions of HR department, Present HR trends and challenges and its impact on organizational growth, HRIS.

UNIT-II

Manpower Planning, Recruitment & Selection: Job analysis, Manpower Planning, Forecasting techniques of demand and supply of manpower Recruitment – Selection – Traditional and Contemporary techniques of recruitment and selection – Induction –Orientation - Socialization

UNIT -III

Training and Development: Training and Development, Competency based Training and Development, Methods of Training and Development, Evaluation of T& D

UNIT-IV

Performance Appraisal and Compensation management: Performance Appraisal, Performance appraisal methods, Team based performance Appraisal, Job Evaluation- Employees compensation - Laws and Rules Governing Employee Benefits and Welfare.

UNIT-V

Managing Industrial Relations: Regulatory Mechanism - Industrial Relations - Employee Discipline - Suspensions, Dismissal and retrenchment - Employee Grievance Handling - Trade Unionism - Employers' Association - Collective Bargaining - Industrial Conflict Resolution - Workers Participation in Management. Case studies

UNIT-VI

Contemporary Issues in HRM: Diversity management – Whistle blowing policy – Employee Empowerment – Employer branding, Employee engagement, Human Resource analytics, Glass Ceiling

References:

1) Edwin B. Flippo : Personnel Management;
2) Dale Yoder Personnel Management and Industrial Relations;
3) Keith Davis; Human Resource Management;
4) Pigors & Mayers; Personnel Administrations;
5) C.B. Memoria, Personnel Management;

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(E0003191) FINANCIAL ACCOUNTING FOR MANAGERS

COURSE OBJECTIVES

- To make the students gain knowledge about the importance and principles of accounting.
- To introduce the book keeping records.
- To impart knowledge about the types of assets and inventory evaluation.
- To know about the sources of funds and application of funds.
- To be aware of the budgetary control techniques and financial ratios

COURSE OUTCOMES

- The student would be able to understand the fundamentals of accounting.
- To apply the accounting process by creating the book – keeping records.
- To identify and apply the sources of funds.
- To identify problem areas in business and analyse through various techniques of financial statement analysis.
- To study he recent developments in accounting & its relevance.

UNIT-I

Introduction to Accounting: Importance, Objectives and Principles, Accounting Concepts and conventions, and The Generally Accepted Accounting Principles (GAAP).

UNIT-II

The Accounting Process: Overview, Books of Original Record; Journal and Subsidiary books, ledger, Trial Balance, Classification of capital and revenue expenses, Final Accounts with adjustments.

UNIT-III

Valuation of fixed assets: Tangible vs. Intangible assets, depreciation of fixed assets and methods of depreciation.

Inventory Valuation: Methods of inventory valuation and valuation of goodwill, methods of valuation of goodwill.

UNIT-IV

Sources And Application Of Funds: Meaning-objectives- sources of funds-uses of funds-preparation of funds flow statement – differences between funds flow statement and Income statement, Balance sheet – Limitations.

UNIT-VI

Budgetary Control: Meaning - nature – objectives - steps for installation- advantages-classification of budgets- differences between fixed and flexible budget-preparation of cash budget-limitations of budgetary control- comparison of standard costing with of budgetary control-Zero based budgeting.

UNIT-VI

Financial Ratios: Analysis and interpretation of financial statements from investor and company point of view, Horizontal Analysis and Vertical Analysis of Company Financial Statements. Liquidity, leverage, solvency and profitability ratios – Du Pont Chart -A Case study on Ratio Analysis.

References:

1) Asish K. Bhattacharyya, Financial Accounting for Business Managers-PHI,2006

2) Ambrish Gupta, Financial Accounting Management An Analytical Perspective, Pearson Education-2007

3) C.Ramagopal,Accounting for Managers –New Age International pvt Ltd.

4) Robert N.Anthony, David F.Hawkins and Kenneth A.Merchant, Accounting –Text and Cases, TMH, 2005.

5) Samuel C. Weaver, J. Fred Weston, Finance and Accounting for Non-financial Managers, Tata McGraw-Hill Publishing Co. Ltd., 2002.

6) Horngreen : Financial Accounting 8/e Pearson Education, 2007.. & Dr.S.N. Maheshwari and Dr.S.K. Maheshwari, Financial Accounting, Vikas Publishing House Pvt. Ltd., 2007.

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(A0018194) CORPORATE MANAGEMENT SKILLS

(Skill Development Course)

Course Objective:

- To educate the students about the importance of communication skills in the corporate sector and personality development with respect to the behavioural aspects of the individuals.

Course Outcomes:

- Able to improve the communication skills.
- Able to obtain confidence of the student with respect to the interpersonal communication.
- Able to cultivate the team culture and teamwork.
- Able to take the challenges of group discussion.
- Able to perform better way in personal interviews and presentations.
- Able to identify the emotions of the people.

UNIT I:

Concept of Communication: Significance-Functions of Communication-Process-Different types of Communication-Essentials of good communication-Channels of communication-Formal and informal communication networks.

UNIT II:

Types of Communication: Oral Communication-Tips to make oral communication effective-Merits and Demerits of oral communication-Written Communication-Steps in Writing-Merits and Demerits of written communication-Nonverbal communication and Different types in it.

UNIT III:

Barriers to Communication: Types of barriers-Technological, Socio psychological-How to overcome the barriers-Different communication styles and models.

UNIT IV:

Interviews: Resume preparation, Interview Process-Types-Common mistakes in interview-Preparation for interviewer- Preparation for interviewee.

UNIT V:

Emotional Intelligence: Felt Vs Displayed emotions-Emotional dimensions- External constraints on emotion-Gender and emotion-Importance of emotional intelligence.

UNIT VI:

Personality and Perception: Determinants of personality-Theories of personality-Components of perception-Factors influencing the perception process-Johari Window

REFERENCE BOOKS:

1) Business communication Meenakshi Raman oxford university prof
2) Business communication Lalitha Ramakrishna
3) Business communication Hudson, 5e,Jaico publication
4) Effective communication Harward Business school, Harward Business review no 1214

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(A0115155) ENVIRONMENTAL ENGINEERING –I

Objectives:

- Civil Engineers must have to meet the basic amenities of public.
- This is one of such course which motivates the students to learn different concepts of public water supply, water quality & quantity and also different methods of purification for the water which is bad in quality for drinking
- They can also learn how to distribute treated water to the communities by maintaining sufficient requirement and also can be able to design it according the standards using different principles of hydraulics

Outcomes:

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

- Forecast the water demand according to population, Analyze characteristics of water, understand and analyze water quality testing and have Knowledge about different sources of water.
- Adopt and design suitable treatment technology to treat the raw water
- Analysis and Design the distribution network using hydraulics
- Identify the characteristics and quality of sewage and have knowledge about waste water collection systems
- Have knowledge about sanitary fittings ,sewer appurtenances and house plumbing network
- Suggest and design suitable treatment methods to treat waste water and sludge based on their quality and suitable methods for effluents disposal.

UNIT – I

INTRODUCTION :- Protected water supply – Population forecasts, design period – water demand – factors affecting – fluctuations – fire demand – water quality and testing – drinking water standards - Waterborne diseases - Comparison from quality and quantity and other considerations – intakes – infiltration galleries.

UNIT-II

WATER TREATMENT : Layout and general outline of water treatment units – sedimentation – principles – design factors – coagulation-flocculation clarifier design – coagulants – feeding arrangements - Filtration – theory – working of slow and rapid gravity filters – multimedia filters – design of filters – troubles in operation comparison of filters – disinfection – theory of chlorination, chlorine demand, other disinfection practices- Miscellaneous treatment methods.

UNIT-III

WATER DISTRIBUTION NETWORK ANALYSIS : Distribution systems – Requirements, Layout of Water distribution systems - Design procedures- Hardy Cross and equivalent pipe methods service reservoirs – joints, valves such as sluice valves, air valves, scour valves and check valves water meters – laying and testing of pipe lines – pump house.

UNIT IV

WASTE WATER COLLECTION AND CHARACTERSTICS : Conservancy and water carriage systems – sewage and storm water estimation – time of concentration – storm water overflows combined flow – characteristics of sewage – cycles of decay – decomposition of sewage, examination of sewage – B.O.D. – C.O.D. equations.

UNIT V

HOUSE PLUMBING : Design of sewers – shapes and materials – sewer appurtenances manholes – inverted siphon – catch basins – flushing tanks – ejectors, pumps and pump houses – house drainage – components requirements – sanitary fittings-traps – one pipe and two pipe systems of plumbing – ultimate disposal of sewage – sewage farming – dilution.

UNIT – VI

WASTE WATER TREATMENT : Layout and general out line of various units in a waste water treatment plant – primary treatment design of screens – grit chambers – skimming tanks – sedimentation tanks – principles of design – biological treatment – trickling filters – standard and high rate – Construction and design of Oxidation ponds - Sludge digestion – factors effecting – design of Digestion tank – Sludge disposal by drying – septic tanks and Imhoff Tanks working principles and design – soak pits.

TEXT BOOKS:

1. Water supply and sanitary Engineering by G.S. Birdi, Dhanpat Rai & Sons Publishers.
2. Water Supply Engineering, Vol. 1, waste water Engineering, Vol. II, B.C.Punmia, Ashok Jain & Arun Jain, Laxmi Publications Pvt.Ltd, New Delhi
3. Elements of environmental engineering by K.N. Duggal, S. Chand Publishers.
4. Water supply and sanitary Engineering by S.A.Garg,

REFERENCS:

1. Water and Waste Water Technology by Mark J Hammar and Mark J. Hammar Jr.
2. Water and Waste Water Technology by Steel
3. Water and Waste Water Engineering by Fair Geyer and Okun
4. Waste water treatment- concepts and design approach by G.L. Karia and R.A. Christian, Prentice Hall of India

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(A0121156) ENVIRONMENTAL ENGINEERING –II

Objectives:

- Getting acquainted with physical, chemical and biological methods & possibilities of separation, recovery and deformation of various pollutants of gaseous and solid phase; basic processes and engineering equipment of the technology; characteristics of solid wastes, characterisation, collection and treatment, theoretical basics of burning solid wastes, typical equipment, solid waste disposal and recycling.

Outcomes:

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

- Understand human interaction with the Environment and have knowledge about sources of pollution and their effects on(human beings/Plants/ Materials)
- Gain knowledge of controlling methods for Environmental pollution(air/noise/hazardous waste)
- Have knowledge about solid waste and hazardous waste and their collection and disposal.
- Understand various Environmental protection control/acts
- Have knowledge about Theories industrial waste treatment

UNIT – I

INTRODUCTION: Air Pollution – sources of pollution – Classification – effects on human beings, Plants and Materials – Global effects of Air pollution – Air emissions standards.

UNIT – II

AIR POLLUTION CONTROL METHODS AND DEVICES: Air pollution Control Methods – Particulate control devices – General Methods of Controlling Gaseous Emission -Special Treatment Methods – Adsorption – Reverse Osmosis – Defluoridation – Ion exchange – Ultra Filtration.

UNIT –III

THEORIES INDUSTRIAL WATE TREATMENT: Theories industrial waste treatment – Volume reduction – strength reduction – Neutralization – Equalization – Proportioning – Nitrification and Denitrification – Removal of Phosphates – Effluent standards

UNIT – IV

SOLID WATE MANAGEMENT : Solid waste Management – sources, composition and properties of solid waste – collection and handling – separation and processing - Solid waste disposal methods – Land filling and Composting – Incineration.

UNIT – V

HAZARDOUS WASTE : Hazardous Waste – Nuclear waste – Biomedical wastes – chemical wastes – Effluent – disposal and Control methods.

UNIT – VI

NOISE POLLUTION : Noise Pollution – effects of noise and control methods – Environmental Audit – ISO – 14000, Water (prevention and control) Act, Air (prevention and control) Act.

TEXT BOOKS:

1. Environmental Science and Engineering by J.G.Henry and G.W.Heinke –Person Education.
2. Environmental Engineering and Management – Dr.Suresh K.Dhameja – S.K.Kartarai & Sons 2nd Edition 2005.
3. Environmental Engineering by Basak, Tata Mc.Graw Hill Edition, New Delhi.
4. Environmental Pollution Control Engineering by C.S Rao

REFERENCES:

1. Physico – Chemical process for waster quality control by Weber
2. Solid Waste Engineering by Paarne Vesilind, Willaiam, Cengage Publications, New Delhi.
3. Air Pollution and Control by MN Rao & H.N.Rao.
4. Environmental Engineering by Gerard Kiely, Tata Mc.Graw Hill Edition, New Delhi.
5. Air Quality by Thod godish, Levis Publishers, Special India Edition, New Delhi.
6. Introduction to Environmental Engineering by Mackenzie.L.Davis, Devid.A.Cornwell, Tata Mc.Graw Hill Edition, New Delhi.

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(A0013156) PROFESSIONAL ETHICS AND SOFT SKILLS

(Common to all Branches)

OBJECTIVES:

- The main objective of Engineering Ethics is to increase the awareness in engineering failures. Engineering decisions can impact public health, safety, business practices and politics .Engineering ethics is the field of applied ethics and system of moral principles that apply to the practice of engineering. The field examines and sets the obligations by engineers to society, to their clients, and to the profession. Engineering ethics in academic institutions has been undertaken by the directives of Supreme Court for creating awareness interactively among engineering students of all disciplines. By studying engineering ethics, the students develop awareness and assessment skill of the likely impact of their future decisions on moral and ethical grounds.

COURSE OUTCOMES:

The student would be able to

1. To apply Ethical theories and Moral Reasoning to a good professional
2. Understand the professional behavior and implementation of process of communication
3. To approach of corporate communication problem solving techniques
4. To have a practical orientation of Interpersonal Communication
5. Aware of Intellectual Property Rights

Unit I

Nature and Scope of Engineering Ethics: Definition, Nature, Scope – Moral Dilemmas – Moral Autonomy – Kohlberg's theory – Gilligan's theory- Moral Reasoning and Ethical theories – Theories of Right Action-Self –Utilitarianism interest- Use of ethical Theories- case study.

Unit II

Professional Etiquettes : Professional Etiquettes **–** Mobile Etiquettes – Email Etiquettes -Kinesics – Proxemics - Chronemics – Chromatics – Olfacts - Haptics – Case study.

Unit III

Corporate Communication: Communication Models- Types of Communication – Downward and Upward Communication- Business Deliberations – Meetings – Negotiation Skills - Case Study.

Unit IV

Soft Skills: Interpersonal Communication – Johari Window – Interpersonal conflict resolutions- Daniel Goleman's Emotional Intelligence.

Unit V

Global Issues: Multinational Corporations – Corporate Governance - Corporate Social Responsibility Environmental Ethics – case study.

Unit VI

Introduction to Intellectual Property: Meaning and Types of Intellectual Property – Recent developments of the copy right act –Trademark Protection – Patent Law - Plagiarism.

Text books:

1. Professional Ethics by R.Subramanian, OXFORD
2. Business Communication , P.D. Chaturvedi, Mukesh Chaturvedi

References:

- The ACE of Soft Skills(Attitude, Communication and Etiquette for success) by – Gopalaswamy Ramesh & Mahadevan Ramesh, Pearson 2010.
- Essentials of Business Communication, Rajendra Pal, JS.Korlahhi, S.Chand
- Intellectual Property Right , Deborah E. BouchouxS, Cengage, 2005

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