Criterion 1 – Curricular Aspects

Key Indicator- 1.3 Curriculum Enrichment

Metric No.	Description
1.3.1 QlM	Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability in transacting the Curriculum

1.3.1 Institution integrates cross-cutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability, and Human Values into the curriculum

Response:

Gender, Environmental sustainability, human values and professional ethics are given wider space in the implementation of curriculum. Institute has vision to maintain healthy environment for all students. The curriculum includes cross cutting issues, inclusion of issues relevant to gender, environment and sustainability and professional ethics as part of curriculum of all the programs offered by the institute. Faculties create general awareness among students about many cross cutting issues during the academic delivery.

The affiliating university the RGPV has various courses in the technical programs where professional ethics, environment sustainability and human values are the integral part. The curriculum of B.Tech. Program incorporates **nine courses** which inculcate values and ethics so that students can fulfil their role towards as an individual and committed citizen of the country. To make students aware of gender equity, a plethora of activities are conducted throughout the academic sessions such as self defence classes for girl

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

TIT(E) BHOPAL

students, celebration International Women's Day, guest lecture by eminent women speaker Awareness of "Beti Bachao Beti Padhao" scheme of the state government, "Nirbhaya" Women Empowerment Program, roads safety program, etc. The Institute is proud to have a dedicated cadet as NCC women.

Prominent emphasis of environment and sustainability can be seen in majority of courses of B.Tech. The government of India sponsored Swach Bharat Abhiyan is implemented with lots of enthusiasm. Cleanliness campaigns, camps, training programs, plantation and rallies are the regular activities undertaken by the students. Professional ethics, Human values, Energy, Environment, Ecology, Rural outreach, English for communication, Chemistry, Language lab and seminar, construction planning and management, Integrated Waste Management, Intellectual property right. These courses inculcate value based learning among the students. Technology with values and ethics can generate a healthy nation. These above mention courses are also supplemented by expert lectures and workshops. There is no course design by the university which directly address the gender issue. Considering the importance of general awareness about gender issue, the institute has conducted many programs workshops, and seminar related to gender issues like women safety and women security.

The table includes all such subjects related to gender, Environment and Sustainability, Human values and Professional Ethics:

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence)
TIT(E)
BHOPAL
Bhopal, (M.P.)

S. No.	Description of Critical Issues	Title of the course	Chapter or Unit No.
1.	Environmental Issues	ES401: Energy, Environment Engineering	Unit 1 to Unit 5
2.	Environmental Issues	BT108: Rural Outreach	Swach Bharat Unnat Bharat
3.	Professional Ethics	BT103: English for Communication	Unit-5: Business communication
4.	Environmental Issues	BT103: Engineering Chemistry	Unit-1: Water and its industrial application
5.	Professional Ethics	BT206: Language Labs and Seminars	Partial
6.	Professional Ethics	CE503: Construction Planning and Management	Unit 1 to Unit 5
7.	Environmental Sustainability	CE702(B): Environmental Engg-II	Unit 1 to Unit 5
8.	Environmental Sustainability	CE-703(C): Integrated Waste Management	Unit 1 to Unit 5
9.	Professional Ethics	IT604: Intellectual Property Right	Unit 1 to Unit 5

File Description

Upload the list and description of the courses which address the Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

An ISO 9001 2008 Institute

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
New Scheme Based On AICTE Flexible Curricula
ES401 Energy Environmental Engineering
Branch- Common to All Discipline

The objective of this Course is to provide an introduction to energy systems and renewable energy resources, with a scientific examination of the energy field and an emphasis on alternative energy sources and their technology and application.

Module 1: Introduction to Energy Science:
Introduction to energy systems and resources; Introduction to Energy, sustainability & the environment; Overview of energy systems, sources, transformations, efficiency, and storage; Fossil fuels (coal, oil, oil-bearing shale and sands, coal gasification) - past, present & future, Remedies & alternatives for fossil fuels - biomass, wind, solar, nuclear, wave, tidal and hydrogen; Sustainability and environmental trade-offs of different energy systems; possibilities for energy storage or regeneration (Ex. Pumped storage hydro power projects, superconductor-based energy storages, high efficiency batteries)

Module2: Ecosystems
Concept of an ecosystem; Structure and function of an ecosystem; Producers, consumers and decomposers; Energy flow in the ecosystem; Ecological succession; Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of the following ecosystem (a.) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Module 3: Biodiversity and its conservation
Introduction – Definition: genetic, species and ecosystem diversity; Bio-geographical classification of India; Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values; Biodiversity at global, National and local levels; India as a mega-diversity nation; Hot-sports of biodiversity; Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; Endangered and endemic species of India; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Module 4: Environmental Pollution
Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards; Solid waste

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence)
TIT(E)
BHOPAL

Management: Causes, effects and control measures of urban and industrial wastes; Role of an individual in prevention of pollution; Pollution case studies; Disaste management: floods, earthquake, cyclone and landslides.

Module 5: Social Issues and the Environment

From Unsustainable to Sustainable development; Urban problems related to energy; Water conservation, rain water harvesting, watershed management; Resettlement and rehabilitation of people; its problems and concerns. Case Studies.

Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies Wasteland reclamation; Consumerism and waste products; Environment Protection Act; Air (Prevention and Control of Pollution) Act; Water (Prevention and control of Pollution) Act;

Wildlife Protection Act; Forest Conservation Act; Issues involved in enforcement of environmental legislation; Public awareness.

Module 6: Field work

- Visit to a local area to document environmental assets- river/ forest/ grassland/ hill/ mountain.
- Visit to a local polluted Site-Urban/ Rural/ Industrial/ Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc.

REFERENCE

1. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.
2. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB).
3. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001,Environmental Encyclopedia, Jaico Publ. House, Mumabai.
4. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
5. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliancesand Standards', Vol I and II, Enviro Media (R).
6. Boyle, Godfrey, Bob Everett, and Janet Ramage (Eds.) (2004), Energy Systemsand Sustainability: Power for a Sustainable Future. Oxford University Press.
7. Schaeffer, John (2007), Real Goods Solar Living Sourcebook: The CompleteGuide to Renewable Energy Technologies and Sustainable Living, Gaiam.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

An ISO 9001 2008 Institute

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

BT-108 Rural Outreach

Branch- Common to All Discipline

B. Tech. First Year

The main objective of introducing this course is to sensitize students about the *socio-cultural* aspects of the rural areas parochial to their colleges. Students are expected to observe, investigate and learn about the following aspects of the rural region:

i. Demographics, Literacy, Geographical parameters of the Village
ii. Schemes of government of India and State of Madhya Pradesh in operation in the villages aspects ranging from popular dance forms, music and customs of the concerned village
iii. Social/ Cultural.

- There will be **NO EXAMINATION in BT-108 Rural Outreach**. The grades earmarked will be awarded on the basis of internal Assessment.
- This course shall be done by the students in a self-study mode. Study methodology shall comprise of combining field visits, case studies, analyzing policy documents from different government departments, discussions with field officers, active NGO's and so on.

- The course will not be listed in the time-table and its activities shall be performed by the students *at any time* convenient to them.
- The faculty associated with the course shall evaluate the candidate and grade him.
- For evaluation purpose, students are expected to submit a *hand-written summary* on the government schemes and policies for the socio-cultural development of the mortality, watershed management, portability of water, animal welfare etc. These case studies concerned village. This shall be followed by final submission of two case studies covering broad spectrum of socio-cultural issues ranging from life in slums, infant (handwritten) shall be submitted to the mentor for the final evaluation of the coursework.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

BT-103 English for Communication

Branch- Common to All Discipline

B. Tech. First Year

Unit-I

Identifying Common errors in writing: Articles, Subject-Verb Agreement, Prepositions, Active and Passive Voice, Reported Speech: Direct and Indirect, Sentence Structure.

Unit-II

Vocabulary building and Comprehension: Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives, synonyms, antonyms, Reading comprehension.

Unit-III

Communication: Introduction, Meaning and Significance, Process of Communication, Oral and Written Communication,7 c's of Communication, Barriers to Communication and Ways to overcome them, Importance of Communication for Technical students, nonverbal communication.

Unit-IV

Developing Writing Skills: Planning, Drafting and Editing, Precise Writing, Précis, Technical definition and Technical description. Report Writing: Features of writing a good Report, Structure of a Formal Report, Report of Trouble, Laboratory Report, Progress Report.

Unit-V

Business Correspondence: Importance of Business Letters, Parts and Layout; Application, Contents of good Resume, guidelines for writing Resume, Calling/ Sending Quotation, Order, Complaint, E-mail and Tender.

Books Recommended:

1. 'Technical Communication: Principles and practice', Meenakshi Raman and Sangeeta Sharma (Oxford)
2. 'Effective Business Communication', Krizan and merrier (Cengage learning)
3. 'Communication Skill, Sanjay Kumar and pushlata, OUP2011

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL

4. "PracticalEnglishUsageMichaelSwanOUP,1995.
5. "Exercises in spoken English Parts I-IIICIEFL, Hyderabad, Oxford University Press.
6. On writing well, William Zinsser, Harper Resource Book2001.
7. Remedial English Grammar, F.T. Wood, Macmillan 2007.

Course Outcomes:

The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.

Communicative Language Laboratory:

Course objective: The language laboratory focuses on the practice of English through audio-visual aids and Computer software. It intends to enable the students to speak English correctly with confidence and intends to help them to overcome their inhibitions and self –

consciousness while speaking in English.

Topics to be covered in the Language laboratory sessions:

1. Listening Comprehension.
2. Pronunciation, Intonation, Rhythm
3. Practicing every day dialogues in English
4. Interviews.
5. Formal Presentation

Final Assessment should be based on assignment, assessment, presentation and interview of each candidate.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

An ISO 9001 2008 Institute

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

BT-101 Engineering Chemistry

Branch- Common to All Discipline

B. Tech. First Year

Course Contents:

(i) Water – Analysis, Treatments and Industrial Applications (4 Lectures)
Sources, Impurities, Hardness & its units, Determination of hardness by EDTA method, Alkalinity & It's determination and related numerical problems.

(ii) Boiler problem & softening methods (4 Lectures)
Boiler troubles (Sludge & Scale, Priming & Foaming, Boiler Corrosion, Caustic Embrittlement), Softening methods (Lime-Soda, Zeolite and Ion Exchange Methods) and related numerical problems.

(iii)Lubricants and Lubrication (4 Lectures)
Introduction, Mechanism of lubrication, Classification of lubricants, significance & determination of Viscosity and Viscosity Index, Flash & Fire Points, Cloud & Pour Points, Aniline Point, Acid Number, Saponification Number, Steam Emulsification Number and related numerical problems.

(iv) Polymer & polymerization (4 Lectures)
Introduction, types of polymerisation, Classification, mechanism of polymerisation (Free radical & Ionic polymerization). Thermoplastic &Thermosetting polymers Elementary idea of Biodegradable polymers, preparation, properties & uses of the following polymers- PVC, PMMA, Teflon, Nylon 6, Nylon 6:6, Polyester phenol formaldehyde, Urea- Formaldehyde, Buna N, Buna S, Vulcanization of Rubber.

(v) Phase equilibrium and Corrosion (5 Lectures
Phase diagram of single component system (Water) Phase diagram of binary Eutectic System (Cu-Ag.) Corrosion: Types, Mechanisms & prevention.

(vi) Spectroscopic techniques and application (6 Lectures)
Principle, Instrumentation & Applications, electronics spectroscopy, Vibrational & Rotational Spectroscopy of diatomic molecules.

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

(vii) Periodic properties (4 Lectures)
Effective Nuclear Charge, Variations: S, P, d & f Orbital energies of atoms in periodic table, Electronics Configuration, atomic & Ionic sizes, electron affinity & electro negativity, Polarizability & Oxidation States.

Course Outcomes
The concepts developed in this course will aid in quantification of several concepts in chemistry that have been introduced at the 10+2 levels in schools. Technology is being increasingly based on the electronic, atomic and molecular level modifications.

Quantum theory is more than 100 years old and to understand phenomena at Nano-meter levels, one has to base the description of all chemical processes at molecular levels. The course will enable the student to:

- Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques
- Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
- List major chemical reactions that are used in the synthesis of molecules.

Practical List
NOTE: At least 8 of the following core experiments must be performed during the session.

1. Water testing
(i) Determination of Total hardness by Complexometric titration method.

(ii) Determination of mixed alkalinity
a) OH & CO3
b) CO3 & HCO3

(iii) Chloride ion estimation by Argentometric method.

2. Fuels & Lubricant testing:
(i) Flash & fire points determination by
a) Pensky Martin Apparatus,
b) Abel's Apparatus
c) Cleveland's open cup Apparatus
d) Calorific value by bomb calorimeter.

(ii) Viscosity and Viscosity index determination by
a) Redwood viscometer No.1

Director
Technocrats Institute of Techno'
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

b) Redwood viscometer No.2

(iii) Proximate analysis of coal
a) Moisture content
b) Ash content
c) Volatile matter content
d) Carbon residue

(iv) Steam emulsification No & Anline point determination

(v) Cloud and Pour point determination of lubricating oil

3. Alloy Analysis

(i) Determination of percentage of Fe in an iron alloy by redox titration using N-Phenyl anthranilic acid as internal indicator.
(ii) Determination of Cu and or Cr in alloy by Iodometric Titration.
(iii) Determination of % purity of Ferrous Ammonium Sulphate & Copper Sulphate.

Reference Books:

1. Chemistry in Engineering and Technology - Vol.1 &2 Kuriacose and Rajaram, McGraw Hill Education.
2. Fundamental of Molecular Spectroscopy C.N. Banwell, McGraw Hill Education.
3. Engineering Chemistry – B.K. Sharma, Krishna Prakashan Media (P) Ltd., Meerut.
4. Basics of Engineering Chemistry – S.S. Dara & A.K. Singh, S. Chand &Company Ltd., Delhi.
5. Applied Chemistry – Theory and Practice, O.P. Viramani, A.K. Narula, New Age International Pvt. Ltd. Publishers, New Delhi.
6. Elementary Spectroscopy, Y.R. Sharma, S. Chand Publishing.
7. Polymer Science, Vasant R. Gowariker, N. V. Viswanathan, Jayadev Sreedhar, New Age International Pvt. Ltd
8. Advanced Inorganic Chemistry, G.R. Chatwal, Goal Publishing house
9. Engineering Chemistry (NPTEL Web-book) B.L. Tembe, Kamaluddin and M.S. Krishna.

***

Director
Technocrats Institute of Techno'
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

BT-206 Language Lab and Seminar

Branch- Common to All Discipline

B. Tech. First Year

Course objective: This course intends to impart practical training in the use of English Language for Communicative purposes and aims to develop students' personality through language Laboratory.

Topics to be covered in the Language laboratory sessions:

1. Introducing oneself, family, social roles.
2. Public Speaking and oral skills with emphasis on conversational practice, extempore speech, JAM (Just a minute sessions), describing objects and situations, giving directions, debate, telephonicetiquette.
3. Reading Comprehension: Intensive reading skills, rapid reading, and reading aloud (Reading materialto be selected by the teacher).
4. To write a book review. Standard text must be selected by the teacher.
5. Role plays: preparation and delivery topic to be selected by teacher/faculty.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence)
TIT(E)
BHOPAL
Bhopal (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Departmental Elective CE- 503 (B) Construction Planning & Management

Branch- Civil Engineering

Semester- V

Unit- I

Preliminary and detailed investigation methods: Methods of construction, form work and centering. Schedule of construction, job layout, principles of construction management, modern management techniques like CPM/PERT with network analysis.

Unit -II

Construction equipments: Factors affecting selection, investment and operating cost, output of various equipment, brief study of equipments required for various jobs such as earth work, dredging, conveyance, concreting, hoisting, pile driving, compaction and grouting.

Unit –III

Contracts: Different types of controls, notice inviting tenders, contract document, departmental method of construction, rate list, security deposit and earnest money, conditions of contract, arbitration, administrative approval, technical sanction.

Unit -IV

Specifications & Public Works Accounts: Importance, types of specifications, specifications for various trades of engineering works. Various forms used in construction works, measurement book, cash book, materials at site account, imprest account, tools and plants, various types of running bills, secured advance, final bill.

Unit-V

Site Organization & Systems Approach to Planning: Accommodation of site staff, contractor's staff, various organization charts and manuals, personnel in construction, welfare facilities, labour laws and human relations, safety engineering. Problem of equipment management, assignment model, transportation model and waiting line modals with their applications, shovel truck performance with waiting line method.

Reference Books: -

1. Construction Equipment by Peurify
2. CPM by L.S. Srinath
3. Construction Management by S. Seetharaman
4. CPM & PERT by Weist & Levy
5. Construction, Management & Accounts by Harpal Singh
6. Tendering & Contracts by T.A. Talpasai.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

An ISO 9001 2008 Institute

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Departmental Elective CE702 (B) Environmental Engg-II

Branch- Civil Engineering

Semester- VII

Course Objectives:

O1: To design waste-water treatment units by giving fundamental knowledge of primary, secondary and advanced wastewater treatment technologies.

O2: To learn fundamental concept of Air pollution, its behavior in atmosphere and introduction of Air-pollution chemistry.

Unit–I: Unit operations for waste-water treatment

Theory and design of preliminary treatment such as screens, grit chamber, sedimentation and chemical clarification, role of micro-organism in biological treatment.

Unit-II: Biological Treatment of waste-water

Methods of Biological Treatment (Theory & Design) –Trickling Filter, Activated Sludge process (ASP), Oxidation ditch, Septic tank & im hoff tank, theory of sludge.

Unit–III: Advanced Waste-water treatment

Diatomaceous earth filters, Ultrafiltration, Adsorption by activated carbon, Phosphorus removal, Nitrogen removal.

UNIT IV: Introduction of Air pollution

Definition, Sources, classification and characterization of air pollutants. Effects of air pollution on health, vegetation & materials, photochemical smog.

UNIT V: Air pollution chemistry

meteorological aspects of air pollution dispersion; temperature lapse rate and stability, wind velocity and turbulence, plume behavior, dispersion of air pollutants, the Gaussian Plume Model.

Course Outcomes:

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

CO1: Carry out municipal waste water treatment system design and operation.

CO2: Analyze and design of biological treatment plant, ponds, and various tanks.

CO3: Apply knowledge of environmental treatment technologies and design processes.

CO4: Apply knowledge of Air pollution and Air-pollution chemistry.

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal (M.P.)

Reference Books:

1. Water Supply & Sanitary Engg. -G. S. Birdie -Dhanpat Rai Publishing Company,
2. (P)Ltd. New Delhi.
3. Waste Water Engg. by B. C. Punmia- Laxmi Publication(P) Ltd. New Delhi.
4. Environmental Engg. -M.L. Davis & D.A. Cornwell- McGraw Hill Company.
5. Chemistry for Environmental Engg. -Sawyer &McCarty-Mc Graw Hill Book Company New Delhi
6. Water &Waste Water Technology- Mark J Hammer- Prentice-Hall of India, New Delhi.
7. Waste Water Engineering-Metcalf & Eddy-Mc Graw Hill Book Company New Delhi.

***

Director
Technocrats Institute of Techn
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence)
TIT(E) BHOPAL
Bhopal (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

An ISO 9001 2008 Institute

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Open Elective CE 703(C) Integrated Waste Management

Branch- Civil Engineering

Semester- VII

Course Objectives:

O1: To Aware about the problems associated with Municipal solid waste(MSW) and their effective management.

O2: To understand the components of Integrated solid waste management system.

O3: To learn about recycling, reuse and reduce, recover of solid wastes and Transfer station.

O4: To examine the operation of a resource recovery facility, waste-to-energy strategies.

O5: To study the design and operation of a municipal solid waste composting and land-filling.

UNIT I: INTRODUCTION OF SOLID WASTES

Definition of solid waste, garbage, Rubbish-Sources and Types of solid wastes. Characteristics of Solid Wastes: Physical, chemical and biological characteristics- Problems occur due to improper disposal of solid wastes.

UNIT II: INTEGRATED SOLID WASTE MANAGEMENT

Definition- Reduction, reuse, recycling and recovery principles of waste management- Functional elements of integrated solid Waste management- Waste generation and handling at Source-Collection of solid wastes- Collection methods and services- guidelines for collection route layout.

UNIT III: INTRODUCTION OF TRANSFER STATION

Transfer Station-Processing and segregation of the solid waste- various methods of material segregation. Importance of Transfer Stations. Site selection of transfer stations.

UNIT IV: PROCESSING AND TRANSFORMATION OF SOLID WASTES

Composting: definition-methods of composting-advantages of composting, Incineration: definition methods of incineration-advantages and disadvantages of incineration.

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal (M.P.)

UNIT V: DISPOSAL OF SOLID WASTE

Volume reduction, Open dumping, land filling techniques. Landfills: Classification-Design and Operation of landfills, Land Farming, Deep well injection.

Course Outcomes:

After studying this course, students will be able to:

CO1: Review the components of solid waste management system as per need of particular locality, town or city.

CO2: Be aware of the significance of recycling, reuse and reduction and recovery of solid wastes.

CO3: Develop an insight into the collection, transfer, and transport of municipal solid waste.

CO4: Understand the importance and operation of a resource recovery facilities like waste-to-energy Technologies-Biochemical and thermo-chemical.

CO5: Understand the design and operation of a municipal solid waste composting and landfilling.

Text Books:

1. George Tchobanoglous, Hilary Theisen and Samuel A Vigil, Integrated Solid Waste management, Tata McGraw Hill.
2. Ramachandra T.V., Management of Municipal Solid Waste, 2009; by The Energy and Resource Institute, TERI.
3. Sasi kumar, K, Gopi Krishna, Sanoop, Solid Waste Management; 2009, PHI.

Reference Books:

1. Manual on Solid Waste Management, prepared by The Central Public Health and Environmental Engineering Organization(CPHEEO), India.
2. MSW Management Rules 2016, Govt. of India, available online at CPCB website.

***

Director
Technocrats Institute of Technol...
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

TECHNOCRATS INSTITUTE OF TECHNOLOGY (EXCELLENCE)
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved By AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated To Rajeev Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar Post Piplani, BHEL, Bhopal-21, Ph. No.- 0755-2751801 Fax- 0755-2751679 website:www.titexcellene.net

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Open Elective IT 604(A) Intellectual Property Rights

Branch- Information Technology

Semester- VI

Course Objectives:

1. To enable Students to understand Primary forms of IPR
2. To enable Students to understand what is infringement of copyright and its consequences
3. To introduce criteria and procedure for obtaining patents
4. To enable Students to understand the registration procedures related to IPR.
5. To expose Students to contemporary issues and enforcement policies in IPR.

UNIT I Introduction

Introduction and Justifications of IPR, Nature of IP, Major forms of IP- Copyright, Patent, Trade Marks Designs, Geographic indication, layout design of Semi conductors, Plant varieties, Concept & Meaning of Intellectual Property. Major international documents relating to the protection of IP - Berne Convention, Paris Convention, TRIPS. The World Intellectual Property Organization(WIPO).

UNIT II Copyright

Meaning and historical development of copyright, Subject matter, Ownership of copyright, Term of copyright, Rights of owner, Economic Rights, Moral Rights. Assignment and license of rights, Infringement of copyright, Exceptions of infringement, Remedies, Civil, Criminal, Administrative, Registration Procedure.

UNIT III Patents

Meaning and historical development, Criteria for obtaining patents, Non patentable inventions, Procedure for registration, Term of patent, Rights of patentee, Compulsory license, Revocation, Infringement of patents, Exceptions to infringement, Remedies, Patent office and Appellate Board.

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL Bhopal, (M.P.)

UNIT IV – Trade Marks, Designs & GI

Trade Marks: Functions of marks, Procedure for registration, Rights of holder, Assignment and licensing of marks, Infringement, Trade Marks Registry and Appellate Board.

Designs: Meaning and evolution of design protection, Registration, Term of protection, Rights of holder, unregistered designs.

Geographical Indication: Meaning and evolution of GI, Difference between GI and Trade Marks, Registration, Rights, Authorized user.

UNIT V Contemporary Issues & Enforcement of IPR

IPR & sustainable development, The Impact of Internet on IPR. IPR Issues in biotechnology, Ecommerce and IPR issues, Licensing and enforcing IPR, Case studies in IPR.

References:

1. P. Narayanan, Intellectual Property Law, Eastern Law House
2. Neeraj Pandey and Khushdeep[Dharni, Intellectual Property Rights, PHI, 2014
3. N.S Gopalakrishnan and T.G. Agitha, Principles of Intellectual Property, Eastern Book Co.
4. Lucknow, 2009.
5. Anand Padmanabhan, Enforcement of Intellectual Property, Lexis Nexis Butterworths, Nagpur, 2012.
6. Managing Intellectual Property, The Strategic Imperative, Vinod V. Sople, PHI.
7. Prabuddha Ganguli, "Intellectual Property Rights" Mcgraw Hill Education, 2016.

Course Outcome:

Upon completion of this course, students will be able to:

1. Understand Primary forms of IPR
2. Assess and critique some basic theoretical justification for major forms of IP Protection
3. Compare and contrast the different forms of IPR in terms of key differences and similarities.
4. Understand the registration procedures related to IPR.
5. Have exposure to contemporary issues and enforcement policies in IPR.

***

Director
Technocrats Institute of Technology
(Excellence)
Anand Nagar, Bhopal

Technocrats Institute of Technology (Excellence) TIT(E) BHOPAL

Technocrats Institute of Technology (Excellence), Bhopal
(Run by Chandravadani Mahila Shiksha Samiti, Bhopal)
Approved by AICTE New Delhi & Govt. of Madhya Pradesh
Affiliated to Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Anand Nagar , Post Piplani, BHEL, Bhopal-21, Ph. No.-0755-2751801, Fax-0755-2751679, website: www.tiitexcellence.net

Document File

For

NAAC under Criterion 1

Criterion 1 – Curricular Aspects Key Indicator- 1.3 Curriculum Enrichment	
1.3.1 Q_lM	Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability in transacting the Curriculum