



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in Light of NEP-2020
Civil Engineering Department
Generic Elective (Undergraduate Courses)
ODD Sem

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
|-------------|----------|---------------------|------------------------------|---------------|----------------------|-------------------------|----------------------|---|---|---|---------|
| | | | THEORY | | PRACTICAL | | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| BTCE306 | GE | DISASTER MANAGEMENT | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

The subject provides different disasters, tools, and methods for disaster management.

Course Outcomes (COs):

The student will be able to

1. Understand disasters, man-made hazards, and vulnerabilities
2. Understand disaster management mechanism
3. Understand capacity building concepts and planning of disaster managements

Syllabus:

UNIT I

09 Hrs.

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

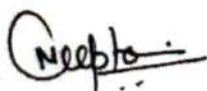
07 Hrs.

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

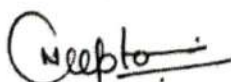
UNIT III

08 Hrs.


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.



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UNIT IV

08 Hrs.

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

08 Hrs.

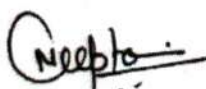
Planning for disaster management: Strategies for disaster management planning - Steps for formulating a disaster risk reduction plan - Disaster management Act and Policy in India - Organizational structure for disaster management in India - Preparation of state and district disaster management plans

Textbooks:

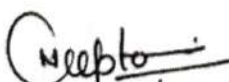
1. Manual on Disaster Management, National Disaster Management, Agency Govt of India.
2. Disaster Management by Mrinalini Pandey Wiley 2014.
3. Disaster Science and Management by T. Bhattacharya, McGraw Hill Education (India) Pvt Ltd Wiley 2015

Reference Books:

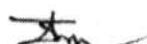
1. Earth and Atmospheric Disasters Management, N. Pandharinath, CK Rajan, BS Publications 2009.
2. National Disaster Management Plan, Ministry of Home affairs, Government of India (<http://www.ndma.gov.in/images/policyplan/dmplan/draftndmp.pdf>)



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| BTCE 307 | GE | Environmental Impact Assessment | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

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Course Educational Objectives (CEOs):

This course will cover various aspects of Environment Impact Assessment methodologies, impact of development activities. Impact on surface water, Air and Biological Environment, Environment legislation Environment.

Course Outcomes (COs):

The student will be able to

1. Identify the environmental attributes to be considered for the EIA study.
2. Formulate objectives of the EIA studies.
3. Identify the suitable methodology and prepare Rapid EIA.
4. Identify and incorporate mitigation measures.

Syllabus:

UNIT I

07 Hrs.

Basic concept of EIA: Initial environmental Examination, Elements of EIA, - factors affecting E-I-A Impact evaluation and analysis, preparation of Environmental Base map, Classification of environmental parameters.

UNIT II

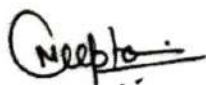
08 Hrs.

EIA Methodologies: introduction, Criteria for the selection of EIA Methodology, E I A methods, Ad-hoc methods, matrix methods, Network method Environmental Media Quality Index method, overlay methods, cost/benefit Analysis.

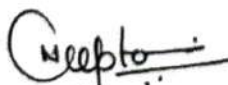
UNIT III

08 Hrs.

Assessment of Impact of development Activities on Vegetation and wildlife, environmental Impact of Deforestation – Causes and effects of deforestation. Procurement of relevant soil quality, Impact prediction, Assessment of Impact significance, Identification, and Incorporation of mitigation measures.



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UNIT IV

09 Hrs.

Environmental Audit & Environmental legislation objectives of Environmental Audit, Types of environmental Audit, Audit protocol, stages of Environmental Audit, onsite activities, evaluation of Audit data and preparation of Audit report, Post Audit activities.

UNIT V

08 Hrs.

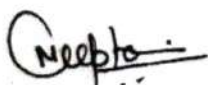
The Environmental Protection Act, The water Act, The Air (Prevention & Control of pollution Act.), Motor Act, Wildlife Act, Case studies and preparation of Environmental Impact assessment statement for various Industries.

Textbooks:

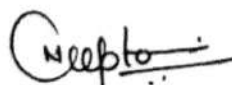
1. Larry Canter – Environmental Impact Assessment, McGraw-Hill Publications.
2. Environmental Impact Assessment, Barthwal, R. R. New Age International Publications

Reference Books:


1. Environmental Pollution by R.K. Khitoliya S. Chand, 2014.
2. Glynn, J. and Gary, W. H. K. - Environmental Science and Engineering, Prentice Hall Publishers
3. Suresh K. Dhaneja - Environmental Science and Engineering, S.K. Kataria & Sons Publication. New Delhi.
4. Bhatia, H. S. - Environmental Pollution and Control, Galgotia Publication (P) Ltd, Delhi.
5. Wathern, P. – Environmental Impact Assessment: Theory & Practice, Publishers Rutledge, London, 1992.



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| BTCE308 | GE | Sustainable Engineering | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

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Course Educational Objectives (CEOs):

To have an increased awareness among students on issues of sustainability.

Course Outcomes (COs):

At the completion of the course the students will be able

1. Identify the environmental attributes to be considered for the EIA study.
2. Formulate objectives of the EIA studies.
3. Identify the suitable methodology and prepare Rapid EIA.
4. Identify and incorporate mitigation measures.

Syllabus:

UNIT I

08 Hrs.

Sustainability - Introduction, Need and concept of sustainability, Social environmental and economic sustainability concepts. Sustainable development, Nexus between Technology and Sustainable development, Challenges for Sustainable Development. Multilateral environmental agreements and Protocols - Clean Development Mechanism (CDM), Environmental legislations in India - Water Act, Air Act.

UNIT II

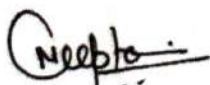
09 Hrs.

Environmental management standards, ISO 14000 series, Life Cycle Analysis (LCA) - Scope and Goal, Bio-mimicking, Environment Impact Assessment (EIA) - Procedures of EIA in India.

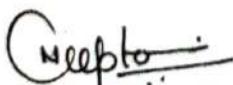
UNIT III

08 Hrs.

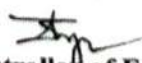
Air Pollution, Effects of Air Pollution; Water pollution- sources, Sustainable wastewater treatment, Solid waste - sources, impacts of solid waste, Zero waste concept, 3 R concept. Global environmental issues- Resource degradation, Climate change, Global warming, Ozone layer depletion, Regional and Local Environmental Issues. Carbon credits and carbon trading, carbon foot print.



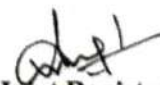
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UNIT IV

07 Hrs.

Basic concepts of sustainable habitat, green buildings, green materials for building construction, material selection for sustainable design, green building certification, Methods for increasing energy efficiency of buildings. Sustainable cities, Sustainable transport.

UNIT V

08 Hrs.

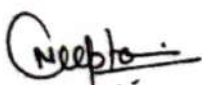
Green Engineering, Sustainable Urbanization, industrialization, and poverty reduction; Social and technological change, Industrial Processes: Material selection, Pollution Prevention, Industrial Ecology, Industrial symbiosis.

Textbooks:

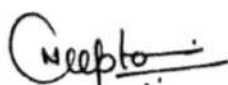
1. Larry Canter – Environmental Impact Assessment, McGraw-Hill Publications.
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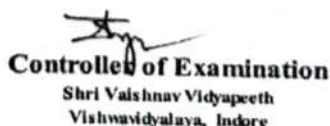
1. Environmental Pollution by R.K. Khitoliya S. Chand, 2014.
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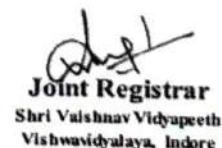


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| BTCE310 | GE | Geoinformatics | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

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Course Objectives:

1. To introduce the concepts of remote sensing, satellite image characteristics and its components.
2. To expose the various remote sensing platforms and sensors and to introduce the concepts of GIS, GPS and GNSS.

Course Outcomes:

The student will be able to

1. The characteristics of Aerial photographic images
2. Remote sensing satellites and Applications of remote sensing.
3. The GIS and its Data models.
4. The Global Navigation Satellite System.

UNIT I

08 Hrs.

Aerial Photographs- Basic terms & Definitions, scales, relief displacements, Flight Planning, Stereoscopy, Characteristics of photographic images, Fundamentals of aerial photointerpretation, Introduction to Digital Photogrammetry.

UNIT II

08 Hrs.

Remote Sensing: Physics of remote sensing, Remote sensing satellites, and their data products, Sensors and orbital characteristics, Spectral reflectance curves, resolution and multi-concept, FCC

UNIT III

08 Hrs.

Satellite Image - Characteristics and formats, Image histogram, Introduction to Image rectification, Image Enhancement, Land use and land cover classification system, Unsupervised and Supervised Classification, Applications of remote sensing

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UNIT IV

08 Hrs.

Basic concepts of geographic data, GIS and its components, Data models, Topology, Process in GIS: Data capture, data sources, data encoding, geospatial analysis, GIS Applications

UNIT V

09 Hrs.

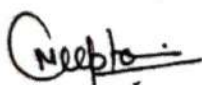
Global Navigation Satellite System (GNSS), GPS, GLONASS, GALILEO, GPS: Space segment, Control segment, User segment, GPS satellite signals, Datum, coordinate system and map projection, Static, Kinematic and Differential GPS, GPS

Text Books:

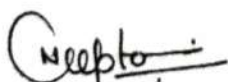
1. Remote Sensing & GIS, BS Publications
2. Higher Surveying by A M Chandra New Age International Publisher
3. Remote Sensing & GIS by B. Bhatta Oxford University Press
4. Introduction to GPS by A. E Rabbany Library of congress cataloging in Publication data

Reference Books:


1. T M Lillesand et al: Remote Sensing & Image Interpretation
2. Higher Surveying by B C Punmia Ashok kr. Jain Laxmi Publications
3. N K Agarwal : Essentials of GPS , Spatial Networks: Hyderabad

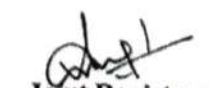


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| BTCE311 | GE | Water Pollution and Its Management | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

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Course Objectives:

To learn the fundamental concepts in the field of water pollution and its management

Course Outcomes:

The student will be able to

1. To know the basics, importance of Water Pollution
2. To study the various Effects of Water pollution
3. To learn the importance of methods of control of Water Pollution
4. To understand the various Water Pollution control Act

UNIT I

08 Hrs.

Sources & Characteristics of Water Pollution - Water Pollution-Sources & types of water pollution –Physical, chemical & biological –Effect of water pollution. Drinking water quality standards waste Water treatment –Primary, secondary, tertiary-water pollution prevention & control act – 1974.

UNIT II

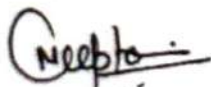
08 Hrs.

Water Quality & Standards - Quality of surface waters, Water quality in flowing waters, Water quality in impounded waters, Groundwater quality, Water quality standard Microbiological quality of drinking water, and d Chemical quality of drinking water.

UNIT III

08 Hrs.

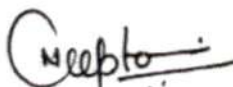
Industrial Activity & Mitigation Measures - Role of water in different industries Effluent discharge characteristics-Discharge Standards for Rivers and Streams-Role of stakeholders, Public NGOS, Government in Protection of Water Bodies-Control Measures-Mitigation Measures for Industrial Water Contamination due to industries.



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Vishwavidyalaya, Indore



Chairperson

Faculty of Studies

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Controller of Examination

Shri Vaishnav Vidyapeeth
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Vishwavidyalaya, Indore



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in Light of NEP-2020
Civil Engineering Department
Generic Elective (Undergraduate Courses)
ODD Sem

| COURSE CODE | CATE-GORY | COURSE NAME | TEACHING &EVALUATION SCHEME | | | | | | | | |
|-------------|-----------|------------------------------------|-----------------------------|---------------|----------------------|-------------------------|----------------------|---|---|---|---------|
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| BTCE311 | GE | Water Pollution and Its Management | 60 | 20 | 20 | 0 | 0 | 3 | 0 | 0 | 3 |

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

UNIT IV

08 Hrs.

Water Pollution Regulations - Administrative regulation under recent legislations in water pollution control. Water (Prevention & control of pollution) Act 1974 as amended by Amendment Act 1988. Water (Prevention & control of pollution) Rules 1975 Water (Prevention & control of pollution) Cess Act. 1977 as amended by Amendment Act 1991

UNIT V

09 Hrs.

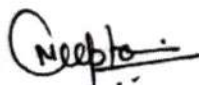
Role of Regulatory Boards - Sustainable Development, Rainwater Harvesting-Methods-Water Pollution-Causes and Effects-Role of Regulatory bodies and Local bodies-CPCB TWAD Board – CMWSSB etc.-Case Studies related to Effective Water Management.

Text Books:

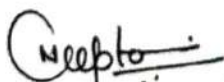
1. Water Pollution: Assessment and Management by Arvind Kumar, Daya Publishing House
2. Fair.G.M, "Water and Wastewater engineering Vol.I & II". John Wiley and sons, New York. 2010.

Reference Books:

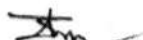
1. Aruna Venkat Environmental Law and Policy", PHI learning private limited New Delhi, 2011.
2. Water Management in India," Concept Publishing Company", New Delhi, 2004.



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