**19CEXXΦ3 – ENVIRONMENTAL IMPACT AND MANAGEMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Category**  | Open Elective | **Credits**  | 3 |
| **Course Type**  | Theory | **Lecture - Tutorial - Practical**  | 3 - 0 - 0 |
| **Prerequisite**  | None | **Sessional Evaluation**  | 40 |
| **Semester End Exam Evaluation**  | 60 |
| **Total Marks**  | 100 |

|  |  |
| --- | --- |
| **Course Objectives** | 1. To infer scope and screening of developmental projects for environmental and social assessments.
2. To explain different methodologies for environmental impact prediction and assessment.
3. To explain impact of development activities and land use.
4. To plan Environmental impact assessments and environmental management plans.
5. To evaluate environmental impact assessment reports.
6. To know the problems related to environment because of industries.
 |
| **Course Outcomes** | CO1 | Carry out scoping and screening of developmental projects for environmental and social assessments. |
| CO2 | Apply different methodologies for environmental impact prediction and assessment. |
| CO3 |  Explain impact of development activities and land use. |
| CO4 | Develop environmental impact assessments and environmental management plans. |
| CO5 | Take part in preparation of environmental impact assessment reports. |
| CO6 | Identify the problems related to environment due to industries. |
| **Course****Content** | **UNIT – I****INTRODUCTION TO EIA:** Environmental ethics – Need of EIA for Engineering projects – Classification of environmental parameters – Purposes of EIA – Goals of EIA – Environmental indices and indicators.**UNIT – II** **EIA METHODOLOGIES:** Introduction – Criteria for the selection of EIA methodology – Categorization of methodologies – Matrix methods – Network method – Environmental Media quality index method – Cost/benefit analysis.**UNIT – III****IMPACT OF DEVELOPMENTAL ACTIVITIES AND LAND USE:** Introduction - methodology for the assessment of soil and ground water – delineation of study area – identification of activities – Procurement of relevant soil quality – Impact prediction – Assessment of impacts.**UNIT – IV****METHODOLOGY FOR THE ASSESSMENT OF IMPACTS:** Surface water – Air and biological environment – Methodology and generalized approach for the assessment of impact of development activities on vegetation and wildlife – Environmental impact of deforestation and incorporation of mitigation measures.**UNIT – V****EIA DOCUMENTATION AND PROCESSES:** Preliminary Stages of EIA (Project screening, Scoping, Consideration of alternatives, Establishing the environmental base line, Impact identification) – Impact on Decisions – Public participation – Requisites for a good EIS – Review of EIA report.**UNIT – VI****CASE STUDIES:** Environmental impact of large scale water resources projects – environmental impact of thermal power plants, nuclear power plants and oil refineries. |
| **Textbooks****and****References** | **TEXTBOOKS:**1. John Glasson, Riki Trivel and Andrew Chadwick *Introduction to Environmental Impact Assessment*, Taylor & Francis , 2007
2. L.W Canter, *Environmental Impact Assessment*, McGraw Hill Inc., 1977.
3. John G. Rau and David C Hooten, *Environmental Impact Analysis Handbook*, McGraw Hill higher education, 1990.

**REFERENCES:**1. Barthwal, R. R. *Environmental Impact Assessment*, New Age International Publications, 2nd edition, 2012
2. Asit K. Biswas and S. B. C. Agarwal, *Environmental Impact Assessment for Developing Countries*, Butterworth Heinemann publishers, 1st edition, 1994
3. Shukla, S.K. And Srivastava, P.R., *Concepts in Environmental Impact Analysis*, Commonwealth Publishers, 1992.
 |

**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | - | - | - | - | 2 | - | 1 | 3 | - | 2 | - | - |
| **CO2** | 3 | 3 | - | 1 | 2 | - | 3 | - | - | 2 | 1 | 1 |
| **CO3** | 1 | 2 | - | 1 | - | 1 | 1 | - | - | 2 | - | - |
| **CO4** | 1 | 1 | - | - | 1 | 1 | 1 | - | - | 2 | 1 | 1 |
| **CO5** | - | 2 | - | 2 | 2 | - | 2 | - | - | 1 | 2 | 1 |
| **CO6** | 1 | 1 | - | - | 1 | 3 | 1 | 1 | - | 2 | 1 | 1 |