**20CEXXO3 – ENVIRONMENTAL IMPACT AND MANAGEMENT**

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| **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 |

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| **Course Outcomes** | CO1 | Carry out scoping and screening of developmental projects for environmental and social assessments. |
| CO2 |  Explain different methodologies for environmental impact prediction and assessment. |
| CO3 |  Explain impact of development activities and land use. |
| CO4 | Plan Environmental impact assessments and environmental management plans. |
| CO5 | Evaluate mitigation and impacts |
| CO6 | Know 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.**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 and 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 ASSESMENT OF IMPACTS OF SOME ATTRIBUTES:** 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****MITIGATION AND IMPACT ASSESMENT:** EIA process and mitigation, elements of mitigation, approaches to mitigation, typical mitigation measures.**UNIT – VI****CASE STUDIES:** Environmental impact of large scale water resources projects – environmental impact of thermal and nuclear power plants and on oil refineries. |
| **Textbooks****and****References** | **TEXTBOOKS:**1. Anji reddy Maredy, *Environmental Impact Assessment*, Butterworth-Heinemann, 2017.
2. R.R. Barthwal, *Environmental Impact Assessment* New Age International Private Limited; 2nd edition, 2012.
3. Shukla, S.K. and Srivastava, P.R., *Concepts in Environmental Impact Analysis*, Commonwealth Publishers, 1992.

**REFERENCES:**1. Dr. N.S. Raman, Dr. Y.R.M Rao, Environmental Impact Assessment, Laxmi Publications Pvt. Ltd., 2017.
2. R.L Canter, *Environmental Impact Assessment*, McGraw Hill Inc., 1977.
3. John G. Rau and David C Hooten, *Environmental Impact Analysis Handbook*, McGraw Hill higher education, 1980.
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**CO-PO Mapping:**3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 2 | 2 | - | - | 1 | - | 2 | - | 1 | - | - | 1 | - | - | - |
| **CO2** | 2 | 1 | - | - | - | 2 | 1 | 1 | 1 | - | - | - | - | - | - |
| **CO3** | 1 | 1 | - | - | - | 2 | 2 | 1 | - | 2 | - | - | - | - | - |
| **CO4** | 2 | 1 | 2 | 1 | 2 | 1 | - | 2 | - | - | - | - | - | - | - |
| **CO5** | 1 | - | - | - | - | - | 2 | 1 | 2 | - | 1 | 1 | - | - | - |
| **CO6** | 2 | 2 | - | 1 | - | - | 2 | - | 2 | - | 1 | 2 | - | - | - |