ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT

II Semester

Course Code: 19CE2106	L	P	C
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Prerequisites: Environmental Engineering

Course Outcomes:

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

CO1 Discuss about the likely impacts of the project on individual, society and environment.

CO2 Analyse the various indicators to assess the state of health, economy and standard of life either prospering or deteriorating.

CO3 Assess the impacts on water bodies and land use related to construction and execution of projects.

CO4 Elaborate the statement of 'A smoke tube belching out smoke is a symbol of prosperity' by considering pros and cons.

CO5 Identify the different methodologies of EIA and conditions under which a particular method can be adopted

UNIT-I: (10 Lectures)

INTRODUCTION :

Environment and its interaction with human activities-Environment Imbalances- Attributes, impacts, Indicators, and measurements- Concept of Environmental Impact assessment (EIA) Environmental Impact Statement, Objectives of EIA, Advantages and limitations of EIA.

Learning outcomes:

1. Illustrates the Environment and its interaction with human Activities. (L4)

2. Explains about the objectives, Advantages and Limitations of EI (L2)
3. Illustrate the concept of Environmental Impact Assessment (L4)

UNIT-II: (10 Lectures)

ENVIRONMENTAL INDICATORS:

Indicators for climate-Indicators for terrestrial subsystems-Indicators for aquatic subsystems-Selection of indicators-Socio-economic indicators-Basic information-Indicators for economy-Social indicators-indicators for health and nutrition-Cultural indicators-Selection of indicators

Learning outcomes:

1.Identifies the various indicators to assess the state of Environment.(L1)
2. Explains the process of selection of Indicators (L2)
3. Compare the indicators for various systems (L6)

UNIT-III: (10 Lectures)

ENVIRONMENTAL ISSUES IN WATER RESOURCE DEVELOPMENT :

Land use-soil erosion and their short and long term effects-Disturbance and long term impacts-Changes in quantity and quality of flow- sedimentation Environmental Impact assessment of water resource development structures-Case studies -water quality impact assessment – attributes, water quality impact assessment of water resources projects-data requirements of water quality impact assessment for dams impacts of dams on environment-case studies

Learning outcomes:

1. Illustrates Environmental Issues in Water Resource Development (L4)

2.Describes various Case Studies related to Environmental Issues of WRE (L2)

3. Illustrate the data water quality impact assessment (L4)

UNIT-IV: (10 Lectures)

ENVIRONMENTAL ISSUES DUE TO INDUSTRIAL DEVELOPMENT:

On site and off site impacts during various stages of industrial development , long term climatic changes, green house effect, industrial effluents and their impact cycle, Environment Impact of high ways, mining and energy development.

Learning outcomes:

1. Illustrates Environmental Issues related to Industrial Development (L4)
2. Discusses about Environmental Impact of Highways, Mining and Energy Development (L2)
3. Illustrate long term climatic changes on industrial development (L4)

UNIT-V: (10 Lectures)

METHODOLOGIES FOR CARRYING ENVIRONMENTAL IMPACT ASSESSMENT:

Overview of methodologies, Adhoc, Checklist, Matrix, Network, Overlays, Benefit cost analysis, Choosing a methodology, review criteria.

Learning outcomes:

1. Analyse Benefit Cost methodology in view of Environment (L2)

2. Explain the checklist for carrying environmental impact assessment (L2)
3. Illustrates methodologies for Carrying EIA (L4)

Text Books:

1. CANTER L.W, *Environmental Impact Assessment*, Mcgraw Hill Pub.Co. New York, 1996.
2. Jain, R.K. Urban L.V.Stracy, G.S. *Environmental Impact Analysis*, 2nd Edition, Vau Nostrand Reinhold Co, 2004.

References:

1. Anjaneyulu, Vall Manickam, *Environmental Impact Assessment Methodologie*, 2nd Edition , B.S.Publications, 2007.
2. Ran, J.G. & Wooten, D.C., *Environmental Impact Assessment*, 2nd Edition, Mc Graw Hill Pub. Co. Ltd, 2008.
3. UNESCO, *Methodologies, Guidelines for the Integrated Environmental Evaluation of Water Resources Development*, UNESCO/UNEP, Paris, 1987.