

**GOKARAJU RANGARAJU  
INSTITUTE OF ENGINEERING AND TECHNOLOGY**

**ENVIRONMENTAL IMPACT ASSESSMENT AND LIFE CYCLE ANALYSIS  
(PROFESSIONAL ELECTIVE-1)**

**Course Code: GR18A3008**

**III Year I Semester**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**Course Objectives:** The objectives of this course is to make the student to

1. Learn the purpose and role of EIA in the decision-making process.
2. Provide knowledge on the strengths of EIA in regard to environmental management.
3. Introduce the technical and social/political limitations of EIA.
4. Teach the administration and procedures that apply in the student's jurisdiction.
5. Demonstrate the format of an EIA Report (Environmental Impact Statement, or Environmental Statement)

**Course Outcomes:** After completion of this course, students will be able to

1. Identify elements of community and environment likely to be affected by the proposed developments.
2. Identify the negative impacts and propose the provision of infrastructure or mitigation measures.
3. Develop current EIA methods, assessment methods, environmental monitoring systems and legislation.
4. Assess process of environmental impact modelling and prediction as a design tool.
5. Interact with experts of other fields to assess the impact.

#### **UNIT I**

Introduction: Concepts of EIA methodologies – Sustainable development- Need for Environmental Impact Assessment (EIA) - Environmental Impact Statement (EIS) – Evolution of EIA: Screening and scoping; Rapid EIA and Comprehensive EIA

#### **UNIT II**

Introduction to EIA, Criteria for the selection of EIA Methodology, General Framework for Environmental Impact Assessment, Characterization and site assessment. Environmental Risk Analysis, Definition of Risk, Matrix Method; Checklist method, Mathematical models

#### **UNIT III**

Prediction and Assessment: Public participation Fault tree analysis, Consequence Analysis; Socioeconomic aspects, measures of effectiveness of pollution control activities;

#### **UNIT IV**

Environmental Legislation; Introduction to Environmental Management Systems; Environmental Statement - procedures; Environmental Audit: Cost Benefit Analysis;

## **UNIT V**

Life Cycle Assessment, Resource Balance, Energy Balance & Management Review; Operational Control; Case Studies on EIA

### **TEXTBOOKS**

1. Environmental Impact Assessment Methodologies, by Y. Anjaneyulu, B.S. Publication, Sultan Bazar, Hyderabad.
2. Environmental Science and Engineering, by J. Glynn and Gary W. Hein Ke – Prentice Hall Publishers

### **REFERENCE BOOKS**

1. Environmental Impact Assessment, by Larry Canter, 2nd edition, Mc Graw Hill Publishers
2. Judith Petts, “Handbook of Environmental Impact Assessment Vol. I & II”, Blackwell Science, 1999
3. Environmental Science and Engineering, by Suresh K. Dhaneja – S.K. Katania & Sons Publication., New Delhi.
4. Environmental Pollution and Control, by Dr H.S. Bhatia – Galgotia Publication (P) Ltd, Delhi