

**Bot.Sp-10 ENVIRONMENTAL IMPACT ASSESSMENT Credit Hours: 3(2+1)**

**Introduction to the course:**

This course is designed to introduce students to environmental impact assessment and to provide theoretical and practical education in this field. The focus is on the rationale and methodology of integrated environmental impact assessment (EIA), including consideration of the relevant bio-physical, social, cultural, economic and human health aspects of development proposals, programs and policies.

**Course Objectives:**

The course is designed:

1. To identify, predict and evaluate the economic, environmental and social impact of development activities.
2. To provide information on the environmental consequences.
3. To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.

**Course Detail:**

**1. Environment:**

- 1.1. Definitions, Basic Concepts; Environmental Parameters.

**2. Environmental Assessment:**

- 2.1. Historical perspective; The Need for Environmental Assessment
- 2.2. Global and Cross-sectoral Issues in Environmental Review; Social and Cultural Issues in Environmental Review

**3. Environmental Assessment Process:**

- 3.1. Introduction; Resources; Screening; Scoping; Prediction & Mitigation
- 3.2. Management and Monitoring; Auditing; Managing Uncertainty

**4. Environmental Impact Assessment Techniques:**

- 4.1. Baseline studies; The Checklists, Matrices; Network Diagrammes; Overlays, Mathematical Modelling; Expert Techniques; Economic Techniques, Impact Statement.

**5. Sectoral Environmental Impacts:**

- 5.1. Impacts of Irrigation and Drainage Projects
- 5.2. Impacts of Population and Growth; Impacts of Energy Development
- 5.3. Impacts of Natural Environmental Hazards
- 5.4. Human Environmental Disturbances.

**6. Guidelines for Preparation And Review Of Environmental Reports:**

- 6.1. Drafting Style; Main Features of Environment Report; Distribution of Reports, and other Forms of Presentations
- 6.2. Reviewing and Decision Making.

**7. Preparation of Terms of Reference.**

**8. Policies and Procedures for Filing, Review and Approval of Environmental Assessment:**

- 8.1. International Policies
- 8.2. Government of Pakistan Policies (Ordinances and Acts)
- 8.3. Procedure for Filing, Review and Approval of Environmental Assessments

**9. Case Studies.**

**Practicals:**

- Initial Environmental Screening/Scoping of Selected Projects from Different Sectors (Group Tasks).

**Teaching-learning Strategies**

1. Lectures
2. Group Discussion
3. Seminar/ Workshop

**Learning Outcome:**

On successful completion of the course students will be able to:

1. To critically examine assumptions inherent in impact assessment.
2. To provide students with an understanding of the historical evolution of impact assessment in selected parts of the world.
3. To provide students with the knowledge and professional skills necessary to enable them to undertake environmental impact assessment.
4. To identify and explore impact assessment fields and approaches.
5. To familiarize students with a variety of professional tools used in predicting environmental impacts.
6. To enable students to develop skills in critical thinking and professional procedures through various forms of oral and written presentation and individual and group work.

**Assessment Strategies:**

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

**Recommended Readings:**

1. ADB. Environmental Guidelines for Selected Infrastructural Projects. Asian Development Bank, Manila, Philippines.
2. ADB. Environmental Guidelines for Selected Agricultural And Natural Resources Development Projects. Asian Development Bank, Manila, Philippines.
3. ADB. Environmental Assessment Requirements and Environmental Review Procedures. Asian Development Bank, Manila, Philippines.
4. Biswas, A. K. and S.B. C. Agarwal. Environmental Impact Assessment for Developing Countries. Butterworth-Heinemann, Guildford, UK.
5. Dougherty, T. C. and Aw.Hall. Environmental Impact Assessment of Irrigation And Drainage Projects. Irrigation And Drainage Paper No. 53, FAO, Rome, Italy.
6. ERL. Environmental Assessment Procedures in the UN System. Environmental Resources Limited, London, UK.
7. Goodland, R. and H. Daly. Environmental Assessment and Sustainability in the World Bank. World Bank, Washington, DC, USA.
8. GOP. Pakistan Environmental Protection Act, Government of Pakistan, Islamabad.
9. OECF. Environmental Guidelines. Overseas Economic Cooperation Fund, Tokyo, Japan.
10. PEPA. Environmental Impact Assessment Guidelines. Pakistan Environmental Protection Agency, Islamabad.

11. PDC. Guidelines for Environmental Scooping and Screening of Drainage, Irrigation and Water Resources Development Projects. Pakistan Drainage Consultants, National Drainage Programme, Water and Power Development Authority, Lahore.
12. Wathern, P. (Ed). Environmental Impact Assessment: Theory and Practice. Routledge, London.
13. World Bank. Environmental Assessment Source Book, Vol. I, Policies, Procedures and Cross-Sectoral Issues. World Bank Technical Paper No.139. World Bank, Washington, USA
14. World Bank. Environmental Assessment Source Book, Vol. II, Sectoral Guidelines. World Bank Technical Paper No. 140. World Bank, Washington, USA.

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