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# Department of Land, Water and Environment

###### Environmental Impact Assessment (634731)

#### **Syllabus**

1- Definition of environment? What is EIA?

-Impact Prediction and Evaluation-An Overview

 - Introduction and definitions

 - The predictive process

 - The baseline survey

 - Predictive techniques

 - Evaluation

 - Formalized evaluation methods

 - Evaluation of individual impacts

 - Cost-benefit analysis

 - Risk assessment

 - The RA process

 - RA for waste facilities

 - RA and decision-making

 - Hazard assessment by structured checklist

 - Uncertainty

 - Mitigation

2- Geology and Soils

 - Introduction

 - Geology

 - Soils

 - Scoping impacts on geology and soils

 - Physical disturbance

 - Pollutant effects

 - Baseline geological and soil surveys

 - Geology and physical characteristics of soil

 - Soil sensitivity and chemical characteristics

 - Prediction and evaluation of geological and soil impacts

 - Physical disturbance

 - Pollutant effects

 - Evaluation of the significance of existing ground

 contamination - Mitigation

 - Mitigation of physical disturbance of geology and soils

 - Soil pollution mitigation

3- Ground and Surface Water

 - Introduction

 - Groundwater

 - Surface waters

 - Water quality assessment and control

 - Scoping water impacts

 - Leachate

 - Baseline hydrology and water quality

 - Prediction of impacts on groundwater and surface water

 - Predicting the impact of leaching to groundwater

 - Predicting the impact of discharges to surface waters

 - Prediction of other water impacts

 - Evaluation of predicted water impacts

 - Mitigation of water impacts

 - Leachate management

4- Air Quality and Climate

 - Introduction

 - Definitions and issues

 - Scale of impacts

 - Scoping of air pollution impacts

 - Types of air pollutants

 - Sources of release

 - Types of impacts

 - Baseline conditions and survey

 - Sources of air quality data

 - Sampling strategies

 - Prediction of impacts

 - Characterization of emissions

 - Dispersion modeling

 - Impact evaluation

 - Human health

 - Loss of amenity

 - Fauna and flora

 - Climate

 - Mitigation of impacts

5- Public Health

 - Introduction

 - The issues

 - Epidemiological studies

 - Scoping of impacts

 - Public health prediction and evaluation

 - Hazard identification

 - Hazard analysis

 - Risk estimation

 - Risk evaluation

 - Mitigation of impacts

6- Landscape and Visual Amenity

 - Introduction and definitions

 - Scoping landscape impacts

 - Baseline conditions and survey

 - Landscape character

 - Extent of visibility

 - Prediction and evaluation of impacts

 - Landscape impact evaluation

 - Mitigation

7- Noise and Vibration

 - Introduction and definitions

 - Scoping noise and vibration impacts

 - Baseline conditions and survey

 - Prediction of noise and vibration levels and evaluation of impacts

 - Traffic

 - Construction

 - Operation

 - Noise and vibration mitigation

8- Transport

 - Waste facility transport issues

 - Scoping transport impacts

 - Sources of impacts

 - Nature of transport impacts

 - Baseline traffic survey

 - Prediction and evaluation of transport impacts

 - Mitigation of transport impacts

9- Social and Economic Impacts

 - Introduction and definitions

 - Scoping social and economic impacts

 - Baseline social and economic conditions

 - Prediction and evaluation of impacts

 - Mitigation

10- Land-use and Heritage

 - Introduction and definitions

 - Scoping land-use impacts

 - Baseline conditions

 - Prediction and evaluation of impacts

 - Mitigation

11- Accidental and Sudden Occurrences

 - Introduction

 - Scoping of impacts

 - Impact prediction and evaluation

 - Hazard identification

 - Hazard analysis

 - Estimation of risk

 - Risk evaluation

 - Mitigation of impacts

12- Landfill Gas

 - Introduction

 - Gas generation, composition and migration

 - Gas control measures

 - Scoping impacts of LFG

 - Baseline survey

 - Mitigation

13- Residuals

 - Introduction

 - Scoping impacts

 - Prediction and evaluation of impacts

 - Solid residues

 - Liquid residues

 - Mitigation

14- Monitoring, Auditing, and EA

 - Issues and definitions

 - Compliance and process monitoring

 - Issues

 - Authorizations

 - Waste management licenses

 - Discharge consents

 - Quality assurance and monitoring

 - Environmental management auditing

 - Background

 - UK and EC environmental audit schemes

 - EA auditing

 - Cause-effect assessment and monitoring

 - Issues

 - Water quality effects

 - Air quality

 - Public health monitoring

 - Conclusions - integration of monitoring and auditing functions

15- Quality Management and the Environmental Statement

 - Introduction and quality problems

 - EA project management

 - General requirements

 - Procedural management

 - Technical management

 - Contract management

 - Content and presentation of the ES

 - Issues

 - Content of the ES

 - Presentation of the ES

 - Review of the ES

16- Dealing with Sitting Disputes-the Role of Communication in EA

 - Introduction

 - Characteristics of sitting disputes over waste facilities

 - NIMBY as a psychological and cultural phenomenon

 - NIMBY as a problem of trust

 - NIMBY as a problem of information

 - NIMBY as a problem of flawed decision processes

 - Risk communication

 - Risk communication requirements

 - Public participation methods

 - Conflict management

 - Improving communication in EA

 - The communications plan and use of techniques

 17**- References:**

 - Selected articles of interest to Environmental Impact Assessment.

 - Recommended text:

 Environmental Impact Assessment for Waste Treatment and Disposal

 Facilities. J. Petts and G. Ed Uljee. 1994. John Wiley and sons.