MAKERERE UNIVERSITY

COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

SCHOOL OF FORESTRY, ENVIRONMENT AND GEOGRAPHICAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

POST-GRADUATE DIPLOMA IN ENVIRONMENTAL IMPACT ASSESSMENT

Submitted to National Council for Higher Education for Accreditation

March, 2011
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1. **TITLE OF THE COURSE**

This course will be known as the Postgraduate Diploma in Environmental Impact Assessment (PGDEIA).

2. **BACKGROUND**

In June 1995, an African High-level Ministerial Conference on Environmental Impact Assessment was organised within the framework of the African Ministerial Conference on the Environment (AMCEN) in Durban, South Africa. The main objective of the Conference was to review the main issues and problems related to the use and application of Environmental Impact Assessment (EIA) as an effective planning tool for sustainable development in Africa and also to map-out measures for addressing these issues and related problems. The meeting identified some priority actions that needed to be undertaken on the issue of capacity-building. These included a call for promotion of EIA Capacity-building with a primary focus on the use of African expertise and institutions.

A follow-up activity organised by the World Conservation Union (IUCN), the World Bank and the United Nations Environmental Programme (UNEP) in 1999 examined the status and needs for EIA capacity in Sub-Saharan Africa. One of the key observations was the lack of adequate human, technical and financial resources in the region. In 1996 UNEP developed an EIA Training Resources Manual and the then MUIENR (now Department of Environmental Management - DEM) participated in its trial by organising several workshops in Uganda in 1997.

Over the past decade, Uganda has made big strides in issues related to environment and natural resources management. According to the National Environment Action Plan for Uganda (MNR 1995), development activities and land use changes can have significant impacts on the environment. The purpose of environmental impact assessment is to assess the potential impact of a planned action that will positively or adversely affect the environment; in the latter case, if such potential is found to exist, to identify actions or alternatives that will eliminate or minimise these adverse impacts. Since the early 1990s, Uganda has seen unprecedented growth in terms of small and large-scale industrial, agricultural and other developmental activities. The National Environmental Statute (1995) requires that all major developmental activities be subjected to Environmental Impact Assessment. From the Environment Statute, EIA guidelines and regulations were formulated in 1997 and 1998 respectively.

3. **JUSTIFICATION**

3.1 **Training for sound environmental management and sustainable development**

Among the strategic issues identified in Uganda's Vision 2025 was the need to ensure that resource use and development activities sustain and enhance environmental quality. EIA was identified as a key requirement for achieving sustainable development. However, one of the weaknesses identified in environment management was the limited application of EIA within the country. There are various reasons for this but one of the major ones is the lack of EIA capacity. The Constitution of Uganda makes it the duty of every citizen to create and protect a clean and healthy environment and empowers parliament to enact laws intended to protect the environment from abuse and to manage it for sustainable development. For this to be possible, there is need for environment management professionals capable of effectively using tools such as EIA, which can enable them to evaluate and predict the possible impacts (and abuses) on the environment. The proposed diploma course will therefore contribute towards provision of such professionals and increase Makerere's contribution to society through the promotion of a clean and healthy environment for the current and future generations.
3.2 Training EIA Practitioners

One of the impending policy changes in EIA practice by NEMA will be accreditation. This will require practitioners to sit and pass certain examinations. There are many practitioners who have had no formal EIA training. This programme offers them the opportunity to enhance their knowledge and skills and seek accreditation with confidence.

3.3 Creating a Centre of Excellence

Institutionalisation of the postgraduate diploma course will not only be contributing to the achievement of AMCEN objectives but establishing DEM as a centre of excellence in EIA training because there is, at the moment, no other institution in the region providing such comprehensive training.

4. RESOURCES

4.1 Funding Sources

Funding for staff remuneration and other teaching costs will accrue from student tuition fees, as this course is intended to be privately-sponsored.

4.2 Physical Facilities

The Department of Environmental management (DEM) buildings together with others in the College of Agricultural and Environmental Sciences have sufficient space to handle the proposed numbers of students.

Computer facilities consist of a Local Area Network (LAN) with over 10 computers, a digitising table, colour printers and plotters in the RS/GIS Lab. Audio-visual equipments are available. There is a "Wet" Lab for wetlands and water resources assessment and monitoring and pollution studies as well as a Postgraduate Room with a number of computers for data analysis and word-processing. Fieldwork equipment is available for water, pollution, molecular biology and ecological research. The National Biodiversity Databank, which is part of the National Environmental Information Network, is an electronic database with data on biodiversity that could be very useful in EIAs. Microbiological and molecular work can be performed in the newly established Molecular Biology Lab., which also has a LAN consisting of five computers. A well-stocked library on environmental issues is available to all DEM students. The DEM also has access to the Internet and can therefore download any new material on EIA for instructional purposes. Outside DEM, we hope to continue having access to facilities in allied departments such as Botany, Chemistry, Geology, Zoology and Physics.

In 1997, the then MUIENR in association with the Economics, Trade and Environment Unit of the United Nations Environmental Programme tested out the UNEP-developed EIA Training Resource Manual here in Uganda and as a consequence received 40 copies of the manual to be used in future training.

4.3 Academic Staff

Core DEM staff with the assistance of a few adjunct and part-time staff are capable of handling this programme effectively (Appendix I). DEM has also established links with various institutions and individuals within and outside the region, with a special interest in EIA and that could provide technical and other assistance in the running of the programme. These include IUCN-Regional Office, USAID-REDSO, University of Dar es Salaam, Institute of Impact Assessment-UK, UNEP,
5. OBJECTIVES

5.1 General Objective

The general objective of this programme is to build an environmental management capacity with practical orientation needed to conduct different levels of EIA and to ensure sustainable development in Uganda and the region.

5.2 Specific Objectives

Specifically, the programme should produce graduates capable of:

(i) Appreciating the close link between environment and natural resources with development and proficient at
   (a) Planning and undertaking of impact assessments
   (b) Leading multi-disciplinary EIA teams
   (c) Reviewing Environmental Impact Statements
(ii) Preparing Environmental Impact Statements
(iii) Undertaking environmental audits
(iv) Integrating EIA in project planning
(v) Designing environmental management systems

Furthermore, the programme should raise money which is needed for the development of the university and its staff.

6. GENERAL REGULATIONS

The syllabus, examinations and organisation of courses for the Postgraduate Diploma in Environmental Impact Assessment are subject to the general regulations governing post-graduate programmes in Makerere University.

7. ADMISSION REQUIREMENTS

Applicants are required to fulfil the general minimum entrance requirements of Makerere University. Applicants must possess a good honours degree in relevant disciplines from a recognized University/Institution. Though core courses do not assume previous knowledge, elective courses are specialised and may require previous knowledge. Depending on the background, a student may be required to take remedial courses, which shall be specified by the Department.

The program targets both fresh graduates and working professionals with diverse academic backgrounds who wish to improve their careers in environment and natural resource management.

A candidate will be admitted to the Postgraduate Diploma Course if he/she possesses a University degree or its equivalent in the physical, biological, health or social/human sciences from Makerere or any other recognised institution of higher learning.
Application Procedure

The degree program is advertised by the office of The Academic Registrar every year and application forms are obtained from the same office. The completed application forms are considered by the Academic Registrar based on existing entry requirements. The Registrar publishes a list of successful applicants for the program.

8. CURRICULUM
8.1 Duration and Structure of the Programme

(i) The programme shall cover one academic year divided into two semesters, each of 17 weeks and a recess term of ten weeks. Fifteen weeks of the normal semesters are reserved for teaching and two for examinations. Each course will consist of credit units. A credit unit is defined as one contact hour per week per semester. A contact hour is calculated as being equivalent to:
   (a) One lecture hour
   (b) One tutorial/seminar hour
   (c) Two practical/laboratory hours
   (d) Four field study/internship training hours

(ii) Students will be required to have both theoretical and practical experiences in most of the courses.

(iii) During the second semester, each student will be required to participate in the formulation and execution of a project under the supervision of a member of staff. This project will be carried out and finished during the second semester and the results presented.
8.2 Courses to be offered

The programme consists of 14 courses, one of which is a project and four are optional. Candidates are expected to take all ten core courses and two electives. The courses are outlined below:

<table>
<thead>
<tr>
<th>SEMESTER ONE</th>
<th>LH</th>
<th>TH</th>
<th>PH</th>
<th>CH</th>
<th>CU</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL CORE COURSES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIA 611 Computing and Statistics</td>
<td>30</td>
<td>30</td>
<td>45</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EIA 612 Introduction to GIS</td>
<td>30</td>
<td>30</td>
<td>45</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EIA 613 Basic Ecology &amp; Environmental Studies</td>
<td>30</td>
<td>30</td>
<td>45</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EIA 614 Introduction to EIA</td>
<td>20</td>
<td>20</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>EIA 615 EIA Procedures &amp; Methods</td>
<td>40</td>
<td>40</td>
<td>60</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

| SEMESTER TWO (Three cores and two electives) |    |    |    |    |    |
| CORE COURSES |    |    |    |    |    |
| EIA 621 Law, Policy and Institutional Arrangements | 20 | 20 | 30 | 2  |
| EIA 622 Organisational Aspects of EIA | 30 | 60 | 30 | 4  |
| EIA 623 Project |    |    |    |    |    |
| ELECTIVES (to select two) |    |    |    |    |    |
| EIA 624 Socio-economic Impact Assessment | 30 | 60 | 30 | 4  |
| EIA 625 Strategic Environmental Assessment | 30 | 15 | 30 | 4  |
| EIA 626 Health Impact Assessment | 30 | 60 | 30 | 4  |
| EIA 627 Bio-physical Environmental Impact Assessment | 30 | 60 | 30 | 4  |

| RECESS TERM |    |    |    |    |    |
| EIA 631 Environmental Audit | 30 | 30 | 45 | 3  |
| EIA 632 Research Ethics | 20 | 10 | 30 | 2  |

8.3 Examinations

Examinations regulations fall under the general framework of University examinations regulations. The structure of the examination and assessment are done through:

a) Course work/ Progressive Assessment

A combination of at least two continuous assessments in the form of seminar reports, practical reports, course assignments and test essays are used to assess course work. Progressive academic assessment for each course covered in a semester accounts for 40%. The assessment is done within the duration of each course.

b) Written examinations

One three-hour written paper covering all material in courses covered in a semester will be conducted at the end of the semester. Written examinations account for 60% of the course and will be held according to the following schedule:
(a) Semester I: At the end of the first semester, there will be five written papers, each of three hours duration as follows:

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Max. Marks</th>
<th>Weight</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PA</td>
<td>Exam</td>
</tr>
<tr>
<td>611</td>
<td>100</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>612</td>
<td>100</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
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<td>100</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>614</td>
<td>100</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>615</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

(b) Semester II: At the end of the second semester, there will be four written papers; each of three hours duration.

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Max. Marks</th>
<th>Weight</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PA</td>
<td>Exam</td>
</tr>
<tr>
<td>621</td>
<td>100</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>622</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Option I</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Option II</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

(c) Recess Semester: At the end of the recess term, there will be two written papers of three hours duration and presentation of project reports. The project report and its presentation will be marked out of 100%.

<table>
<thead>
<tr>
<th>Course</th>
<th>Max. Marks</th>
<th>Weight</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P.A</td>
<td>Exam</td>
</tr>
<tr>
<td>631</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>623</td>
<td>100</td>
<td>Presentation</td>
<td>Report</td>
</tr>
<tr>
<td>(Project)</td>
<td></td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>632</td>
<td>100</td>
<td>0.4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

8.3.1 Grading

Each course is assessed out of 100 marks apportioned as follows.
Continuing Coursework Assessment 40% or 30%
Written Final Examination 60% or 70%

The marks obtained out of 100 are assigned an appropriate letter grade and grade point average as shown in Table 4;
Table 4: Marks and Grade point for PGD (EIA)

<table>
<thead>
<tr>
<th>Marks (%)</th>
<th>Letter Grades</th>
<th>Grade Points</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 – 100</td>
<td>A+</td>
<td>5.0</td>
<td>Exceptional</td>
</tr>
<tr>
<td>80 - 89</td>
<td>A</td>
<td>5.0</td>
<td>Excellent</td>
</tr>
<tr>
<td>75 - 79.9</td>
<td>B+</td>
<td>4.5</td>
<td>Very Good</td>
</tr>
<tr>
<td>70 - 74.9</td>
<td>B</td>
<td>4.0</td>
<td>Good</td>
</tr>
<tr>
<td>65 - 96.9</td>
<td>C+</td>
<td>3.5</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>60 - 64.9</td>
<td>C</td>
<td>3.0</td>
<td>Fair</td>
</tr>
<tr>
<td>55 - 59.9</td>
<td>D+</td>
<td>2.5</td>
<td>Pass</td>
</tr>
<tr>
<td>50 - 54.9</td>
<td>D</td>
<td>2.0</td>
<td>Marginal Pass</td>
</tr>
<tr>
<td>45 - 49.9</td>
<td>E</td>
<td>1.5</td>
<td>Marginal Fail</td>
</tr>
<tr>
<td>40 - 44.9</td>
<td>E-</td>
<td>1.0</td>
<td>Clear Fail</td>
</tr>
<tr>
<td>Below 40</td>
<td>F</td>
<td>0.5</td>
<td>Bad Fail</td>
</tr>
</tbody>
</table>

The pass grade point per course will be 3.0; i.e. 60%

10. Progression

Progression through the course is of the following categories:

(a) Normal progression: This occurs when a student passes all courses taken.

(b) Probationary: this occurs when:
   (i) A student fails a core course, or
   (ii) A student obtains a grade point average (GPA) for or cumulative grade point average (CGPA) of less than 3.0. Probationary status is removed when either of the conditions (i) and (ii) above no longer holds.

(c) Discontinuation is effected when a student has received two probations on the same course or two consecutive probations based on CGPA.

Retaking a Course

If a student fails a course she / he may retake it when it is offered again. A student may also retake a course to improve his or her GPA. A student who does not wish to retake a failed elective course will be allowed to take a substitute elective course. One can retake a course up to three times.

Classification

The Post-graduate Diploma will be classified as follows, based on the Cumulative Grade Point Average (CGPA).
<table>
<thead>
<tr>
<th>Class</th>
<th>CGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class</td>
<td>4.40 – 5.0</td>
</tr>
<tr>
<td>Second Class (Upper Division)</td>
<td>3.60 – 4.39</td>
</tr>
<tr>
<td>Second Class (Lower Division)</td>
<td>2.80 – 3.59</td>
</tr>
<tr>
<td>Pass</td>
<td>2.00 – 2.79</td>
</tr>
</tbody>
</table>

(vii) **Award**
After satisfactory completion of the programme, candidates will be awarded the Postgraduate Diploma in Environmental Impact Assessment (PGDEIA) of Makerere University.

9. **DETAILED COURSE CONTENT**

**EIA 611: Computing and Statistics** 3 CU

**Course Description**
This course is aimed at introducing students to the origin, purpose and use of computers. This course lays foundation for other courses like GIS and enables students to use computers in their daily requirements like search for information on the internet. This course also introduces students to statistics and data analysis which can help them in their future careers. The course shall also equip students with skills to collect data, prepare and present reports to a given audience.

**Learning Objectives**
By the end of the course students should be able to:
- Explain the origin and history of computers
- Do basic statistical analyses and data management using a computer
- Compare and contrast operating systems and application programs
- Explain the differences between Local Area Networks and Internet and be able to understand their importance in information communication
- Exhibit the ability to enter, store, organize, retrieve data and generate and communicate information generated from them.
- Outline the importance of statistics
- Design experiments for data collection
- Analyse data and report research findings

**Course Outline**
- Components of personal computer, and their functions.
- Operating Systems.
- Application software: Off-shelf packages and user specified programs.
- Introduction to word-processing, Spreadsheets and database programmes.
- Computing in a local area network.
- Introduction to Internet, World wide web search engines.
- Concepts in statistics: distribution, statistical parameters, (e.g. mean, variance and covariance).
- Role of statistics in information management and predicting of environmental impacts and trends.
- Introduction to statistical packages.
Basic Reading List


Methods of Course Delivery

- Lectures
- Reading assignments
- Practical sessions

On-line submission of assignments

Course Evaluation

Coursework constitutes 30% of the total marks and will be based on: a mid-term test, class exercises (practical) involving collecting data and analysing it; and a take home assignment. The final examination given at the end of the course constitutes 70% of the final evaluation.

EIA 612: *Introduction to Geographic Information Systems (GIS)* 3 CU

Course Description

GIS offers basic principles, knowledge and skills required to understand, manage and handle spatial data. The course will be focused on the applications of GIS in Environment and Natural Resources management.

Learning Objectives

By the end of the course students should be able to:

- Explain the basic components of GIS
- Describe the basic characteristics and representation of some of the different data types and products required for GIS applications for Environment and Natural Resources Management
- Relate functions of GIS to other Information systems
- Classify different types of GIS
- Explain major steps of data flow in a GIS
- Explain the basics of databases and database management systems

Course Outline

- Concepts of space and spatial information system.
- Basic spatial operations.
- The conceptual development of Geographic Information System.
- Components of GIS.
- Database model and database design.
- Data Structures: Vector and raster models.
- Data input: sources and techniques of data input.
- Database structures.
- Analytical functions of GIS software.
- Demonstration of GIS capability.
- Object-oriented GIS.
- Applications of GIS in environmental management

**Basic Reading List**


**Methods of Course Delivery**

- Lectures
- Reading assignments
- Practical Sessions

**Course Evaluation**

Coursework constitutes 30% of the total marks and will be based on; a mid-term test, class exercises (practical); and a take home assignment. The final examination given at the end of the course constitutes 70% of the final evaluation.

**EIA 613: Basic Ecology and Environmental Science 3 CU**

**Course Description**

This course introduces students to basic principles of Ecology pertaining to the flow of energy and material cycling on Planet Earth. It emphasizes interactions between abiotic and biotic components and hence the basis for sustainable environmental management. It lays a foundation for understanding the importance of ecosystems and their services to mankind, human-ecosystem interactions and ecological principles.
Learning Objectives
By the end of the course students should be able to:
- Explain the basic principles of ecology in the ecosystem management
- Identify and describe inter-relationships between abiotic and biotic environments
- Explain the energy flow, biogeochemical cycles and balance of nature
- Discuss the major ecosystems of East Africa and their resilience to disturbance
- Design and apply ecosystem conservation methods to the real world

Course Outline
- Basic concepts of ecology.
- Ecosystems, Resources and Ecosystem interactions.
- Energy flow in ecological systems.
- Ecosystem management and monitoring.
- Biogeochemical cycles.
- Ecological Populations and Ecological communities.
- Sample collection and sampling techniques.
- Processing of the information collected.
- Ecosystem Stability, Resilience and Ecosystem values.
- Major Ecosystems of East Africa and their resilience from disturbance
- Pollution and its ecological impact.
- Concept of environment.
- Distribution of environmental resources in Uganda.
- Concept of Ecologically sustainable development.
- Linkage between environment and development.
- Key environmental problems in Uganda.
- Conservation of the environment.
- Millennium ecosystem assessment and development.
- Millennium Development Goals

Basic Reading List
7. Cambridge University Press.

Method of course delivery
- Lectures
- Reading assignments
- Field trips

Course Evaluation
Coursework constitutes 30% of the total marks and will be based on; a mid-term test, class exercises; and field work report. The final examination given at the end of the course constitutes 70% of the final evaluation.
EIA 614: Introduction to Environmental Impact Assessment (EIA)  
CU  
Course Description  
The course is designed to provide a critical overview of the theory and practice of EIA as operated internationally to those students who need to understand EIA. The aim of the Module is to provide understanding of EIA and confidence with its application and limitations.

Learning Objectives  
By the end of the course students should be able to:

- Explain the role of EIA and the benefits of its adoption into the project planning process;
- Discuss the purpose and role of EIA in the decision-making process;
- Discuss the strengths of EIA in regard to environmental management;
- Explain technical and social/political limitations of EIA;
- Assess environmental and social impacts;
- Explain the purpose of developing follow-up procedures, and the options for designing these procedures.
- Outline the background to the global development of EIA.

Course Outline:

- Economic development, population growth and impact on the environment.
- Introduction to Environmental Impact assessment.
- The history of Environmental Impact assessment (EIA).
- Purpose and aims of EIA.
- EIA administration and practice
- Converging opportunities (i.e. development and environmental protection are complimentary), environmental management and sustainable development.
- EIA in project planning and management.
- The costs and benefits of EIA.
- Introduction to the key principles and elements of EIA, core values (sustainability, integrity, utility).
- EIA guiding principles (e.g. participation, transparency, flexibility, etc).
- Introduction to the main features of the EIA system.
- Role of public participation stages that follow EIA
- Understanding of the strengths and limitations of EIA

Basic Reading List
7. Mauerer WK, McArdle PA. Consent forms, readability, and comprehension: the n
Method of Course Delivery

- Lectures
- Reading assignments
- Class exercises

Course Evaluation

Coursework constitutes 30% of the total marks and will be based on: a mid-term test, class exercises; and take home assignments. The final examination given at the end of the course constitutes 70% of the final evaluation.

EIA 615: EIA Procedures and Methods 4 CU

Course Description

Learning Objectives

On successful completion of this course, student will be able to:

- Explain the basic steps of EIA - screening process, the scoping process and how it is applied, assessing impacts, mitigation and impact management, etc.
- Outline the format of an EIA Report (Environmental Impact Statement, or Environmental Statement);
- discuss the factors that assist, and detract, from the usefulness of the EIA Report

Course Outline

- EIA procedures and methods.
- EIA procedures and methods in Uganda.
- EIA procedures and methods of Donor Agencies.
- Case studies of EIA methods and procedures.
- The relationship of environmental assessment with environmental economics, cost benefit analysis, environmental accounting.
- Introduction of the basic steps (screening, scoping, assessing impacts, mitigation and impact management, etc) of the EIA process.
- Analytical tools (Maps, overlays, interaction matrices, impact network, GIS, checklists, models, expert system, and professional experience).
- Multi-criteria analysis.
- Formulation of alternatives.
- EIA report writing.
- Preparation of EIA workplan.
- Project management cycle and EIA.

Basic Reading List

Method of Course Delivery

- Lectures
- Reading assignments
- Field trips

Course Evaluation

Coursework constitutes 40% of the total marks and will be based on; a mid-term test, class exercises; and field work report. The final examination given at the end of the course constitutes 60% of the final evaluation.

EIA 621: Law, Policy and Institutional Arrangements for EIA Systems 2 CU

Course Description

This course provides insight into the different types of EIA systems, the range of legal, policy and institutional arrangements that can be provided and the directions in which these are developing. It also examines the factors that need to be considered when establishing or modifying a national EIA system.

Learning Objectives

On successful completion of this course, student will be able to:

- Explain purpose, scope and content of EIA policy and legislation
- Document requirements of International Organisations and relevant International Environmental Agreements
- Identify the legal, policy and institutional arrangements and directions which are important.
- State factors which are important when establishing or modifying an EIA system.
- Demonstrate understanding of the legal principles underpinning a functional EIA system
- Show familiarity with duties placed on local authorities and developers
- Explain challenges to compliance with environmental legislation and policy

Course Outline

- Outline of the ways a country can develop a national system for EIA.
- Overview of the legislative and institutional characteristics essential for the support of a national EIA system.
- Factors that help to establish an effective national EIA system.
- Steps involved in establishing and modifying a national EIA system.
- Environmental management in Uganda and legal requirements, National laws.
- The role of NEMA, lead agencies, NGOs, Donor agencies, project proponents and the public.
- The level of public involvement in EIA and the relative advantages and disadvantages they offer.
- Techniques for communicating with the public.
- Consensus building and dispute resolution mechanisms.
• International environmental issues and sustainable development plans.
• International environmental laws and policies of relevance to EIA - Treaties, conventions etc.

**Basic Reading List**


**Method of Course Delivery**

• Lectures
• Class discussions and presentations by the students on selected topics

**Course Evaluation**

Coursework constitutes 30% of the total marks and will be based on; a mid-term test, class exercises; and presentation by students on selected topics. The final examination given at the end of the course constitutes 70% of the final evaluation.
EIA 622: Organizational Aspects of EIA

Course description
The course is aimed at introducing to students the process of EIA, how to draw up an EIA work plan and project management. The course will give an overview of the multi-disciplinary nature of EIA projects and the role of different stake holders (public, government and donor agencies e.t.c) in the EIA process.

Learning Objectives
By the end of the course, students should be able to;
- Describe the EIA process
- Explain the role of public, Government, Donor agencies, and Agencies in the EIA process
- Explain alternative analysis and assessment techniques
- Describe techniques of project control
- Discuss effectiveness of EIA IN Uganda

Course outline
- The EIA process: screening, scoping, assessment, impact identification and mitigation, analysis and management, EIA reporting, reviewing, decision-making, monitoring, implementation and auditing process
- EIA work plan and project management.
- The role of the public in the EIA process.
- EIA review processes and decision-making.
- multidisciplinary nature of EIA projects, the role of the public, Government agencies, Donor agencies, NGOs etc.
- Environmental examination and alternative analysis, assessment techniques (e.g. risk assessment), compliance monitoring and environmental inspection.
- The dynamic nature of EIA.
- Land-use and associated environmental problems. EIA as an environmental management tool.
- Methods and techniques for project control.
- The role of budgeting in project management. Responsibility of the project manager in preparing EIA reports.
- The role of database in environmental assessment and environmental management.
- Evaluation of the effectiveness of EIA in Uganda.
- Future direction of EIA.

Basic reading list
Methods of course delivery
- Lectures
- Class discussions and presentations by the students on selected topics

Course Evaluation

Coursework constitutes 40% of the total marks and will be based on; a mid-term test, class exercises; and presentation by students on selected topics. The final examination given at the end of the course constitutes 60% of the final evaluation.

EIA 623: PROJECT 5 CU

Course description
The course is intended to give students practical training in ways to carry out an EIA project and how to write EIA reports. The project will be based on an actual development activity under the guidance of a member of academic staff. The project will involve fieldwork and report preparation.

Learning Objectives
By the end of this course, students should be able to;
- Design an EIA work plan
- Explain the process of scoping screening, assessment, impact identification, mitigation analysis and management
- Write an EIA report
- Present the report to an audience

Methods of course delivery
- Field work
- Presentations

Course Evaluation
Field work active participation will constitute 30% and project research 70%.

EIA 624: SOCIO-ECONOMIC IMPACT ASSESSMENT 4 CU

Course description
The course will give an overview of major problems and issues in the assessment and management of environmental impacts of projects; and gives an introduction to socio-cultural concerns, types of impacts that are considered as well as established methods of carrying out social impact assessment (SIA).

Course objectives
By the end of this course, students should be able to;
- Define social impact assessment and describe the steps in completing a generic social impact assessment
- State the guiding principles of social impact assessment and explain the importance of each one
- Distinguish some of the key features that characterize social impact assessment and make it distinct from others forms of environmental assessment
Course outline

- Simple theoretical basis for understanding human behaviour and/or action
- The relationship between society and the environment.
- Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA), historical links.
- Impacts considered by SIA studies: demographic impacts, socio-economic impacts, institutional impacts, psychological and community impacts. Culture, heritage and aesthetics. Interdisciplinary nature of SIA.
- Basic elements of SIA: scoping, problem identification, formulation of alternatives, profiling, projections, etc.
- SIA established methods; measurement of attitudes, values, meanings, preferences, satisfaction levels, environmental and risks perception. Social distribution of impacts.
- Public participation and communication flows, policy, legislation and laws, regulations. Institutional framework.
- Case studies emphasizing sectorial guidelines for impact analysis.

Basic reading list


Method of Course Delivery

- Lectures
- Reading assignments
- Field trips

Course Evaluation

Coursework constitutes 40% of the total marks and will be based on; a mid-term test, class exercises; and field work report. The final examination given at the end of the course constitutes 60% of the final evaluation.

EIA 625: STRATEGIC ENVIRONMENTAL ASSESSMENT 4 CU

Course description

The course will give an introduction to Strategic Environmental Assessment (SEA), SEA techniques and the key considerations in choosing them, legal issues and institutional framework. The course will raise awareness about SEA and its importance as well as SEA experiences and good practices.

Course objectives

By the end of this course, students should be able to;
- Describe the sequence of actions within a comprehensive EIA system
- Explain the potential benefits of SEA
- Describe SEA techniques and considerations made while choosing them
- Discuss problems associated with SEA

Course outline
- Introduction to Strategic Environmental Assessment (SEA). Environmental assessment of policies plans and programmes.
- Chronological sequence of actions within a comprehensive EIA system.
- Potential benefits of SEA.
- The direct and indirect impacts of higher order actions (policies and programmes).
- SEA methods: screening, scoping, prediction, consultations, public participation, mitigation and monitoring.
- SEA techniques and the key considerations in choosing them.
- SEA of policies, plans and programmes in relationship to sectoral activities.
- Product life cycle analysis.
- Problems associated with SEA (e.g. methodological, political, attitude, etc).
- Steps in policy appraisal, use of impact matrix etc. Reporting. Potential of SEA use in Uganda.
- Legal issues and institutional framework.
- Case studies emphasizing sectorial guidelines for impact analysis.

Basic reading list

Methods of course delivery
- Lectures
- Reading assignments
- Field trips

Course Evaluation
Coursework constitutes 40% of the total marks and will be based on; a mid-term test, class exercises; and field work report. The final examination given at the end of the course constitutes 60% of the final evaluation.

EIA 626: HEALTH IMPACT ASSESSMENT 4 CU

Course description
The course will give an overview on the concept of public health and students will be introduced to methods, basic components and procedural guidelines that are used in health impact assessment.

Learning Objectives
By the end of this course, students should be able to;
- Explain the concept of public health
- Explain the requirements for the evaluation of impacts on public health
- Describe the procedural guidelines in health impact assessment
Course outline

- Introduction to health impact assessment.
- Requirements for the evaluation of impacts on public health (physical, chemical, social and psychological factors).
- Trans-disciplinary and inter-sectoral HIA. Public participation in HIA. Basic components of a systems approach that are useful for the assessment of impacts on public health.
- Diseases: pollution diseases, stress diseases, nutritional diseases, allergies and developmental anomalies.
- Procedural guidelines in health impact assessment.
- Legal issues and institutional framework.
- Case studies emphasizing sectoral guidelines for impact analysis.

Basic reading list


Methods of course delivery

- Lectures
- Reading assignments
- Class discussions on selected topics

Course Evaluation

Coursework constitutes 40% of the total marks and will be based on; a mid-term test, contribution to class discussions on selected topics; and take home assignments. The final examination given at the end of the course constitutes 60% of the final evaluation.

EIA 627: BIO-PHYSICAL ENVIRONMENTAL IMPACT ASSESSMENT  4 CU

Course description

The course will examine the assessment of biophysical impacts in greater detail, major problems and issues in the assessment and management of environmental impacts of projects, sustainable resource management, resource assessment techniques. The course also examines
cumulative effects (impacts on other natural resources like soil, water, key animal and plant species) and the attempts to incorporate them into environmental assessment.

**Learning Objectives**

By the end of this course, students should be able to;

- Summarize the basic components of sustainable resource management
- Discuss the role of databases in impact assessment
- Define and give examples of cumulative effects
- Explain resource assessment techniques

**Course outline**

- Introduction to ecosystem impact assessment.
- Natural resource conservation and sustainable development. Integrating environmental considerations into natural resources conservation policies plans and programmes at national, regional and local scales.
- Biodiversity and health.
- Long-term population studies.
- The role of databases in impact assessment. Assessment of impacts on other natural resources (e.g. soil, water, wetlands, forests and key animal and plant species).
- Impact assessment as part of framework for sustainable resource management.
- Case studies emphasizing sectoral guidelines for impact analysis.

**Basic reading list**


**Method of Course Delivery**

- Lectures
- Reading assignments
- Field trips

**Course Evaluation**

Coursework constitutes 40% of the total marks and will be based on; a mid-term test, class exercises; and field work report. The final examination given at the end of the course constitutes 60% of the final evaluation.
EIA 631: ENVIRONMENTAL AUDIT

Course description
The course will introduce students to Environmental Audits (EA), policies and legislation that relate to EA, benefits of EA and also role of EA in environmental management.

Learning Objectives
By the end of this course, students should be able to;
- Define EA and describe the different types of EAs
- Explain the benefits of EA
- Describe the role of EA in sustainable development
- Describe the EA guidelines and regulations for Uganda
- Explain the relationship between EA and EIA

Course outline
- Definition of Environmental Audit (EA).
- Types of environmental audits.
- Policies and legislation relating to environmental audits. Conducting an audit. Audit reports.
- Relationship between an environmental audit and an EIA.
- The benefits of EA. Guidelines for EAs (General Principles, Criteria, evidence and findings, Reporting).
- EA objectives, roles and responsibility.
- EA work plans
- EA Guidelines for Uganda and EA Regulations.
- EA as environmental management tool for small scale and large scale enterprises.
- EA and sustainable development.
- Responsibilities in conducting EAs.
- The benefits of database in EAs.
- Future Direction of EA

Basic reading list

Methods of course delivery
- Lectures
- Reading assignments
- Class exercises
Course Evaluation

Coursework constitutes 30% of the total marks and will be based on; a mid-term test, class exercises; and take home assignments. The final examination given at the end of the course constitutes 70% of the final evaluation.

EIA 632: Research Ethics 2 CU

Course Description
The course is intended to equip students with knowledge about the importance of research and research integrity and how professional ethics is related to the practice of Environmental Impact Assessment (EIA).

Learning Objectives
By the end of the course, students should be able to:
- Explain the importance of research
- Identify and apply research ethics in the field/EIA projects
- Describe the feasibility of Research Ethics Committees

Course outline
- Introduction to ethics. Professional ethics in relation to the practice of EIA.
- Definition of research integrity and research misconduct (distinguishing a research mistake from a research wrong-doing, the case of scientific fraud, plagiarism, “cooking data” and similar deceptions).
- The ethics of research supervisors and supervisees. The ethics of researchers in a foreign country.
- The feasibility of Research Ethics Committees.

Basic reading list

Methods of course delivery
- Lectures
- Reading assignments
- Class exercises

Course Evaluation
Coursework constitutes 30% of the total marks and will be based on; a mid-term test, class exercises; and take home assignments. The final examination given at the end of the course constitutes 70% of the final evaluation.
### APPENDIX I: PERSONNEL

#### (a) Teaching Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Areas of Specialisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr E. M. Kateyo (Sen. Lecturer)</td>
<td>Aquatic and Terrestrial Biodiversity, Biometry and Research Methods, Environmental Education</td>
</tr>
<tr>
<td>Dr Vincent Muwanika (Sen. Lecturer)</td>
<td>Conservation Biology/Biodiversity</td>
</tr>
<tr>
<td>Dr J. Okot-Okumu (Sen. Lecturer)</td>
<td>Environmental Impact Assessment, Water Resources, and Waste Management</td>
</tr>
<tr>
<td>Dr J. M. Majaliwa</td>
<td>Remote Sensing and GIS Applications for Natural Resource Management</td>
</tr>
<tr>
<td>Prof F Kansiime</td>
<td>Environmental Ecotechnology/Microbiology: Water and resources assessment and monitoring, Pollution, Research Methods and Computing</td>
</tr>
<tr>
<td>Dr B. Nakileza</td>
<td>Urban environment assessment, geomorphology</td>
</tr>
<tr>
<td>Dr P. Musali</td>
<td>Wetlands and water resources assessment, rural urban environment management, Strategic Environmental impact Assessment</td>
</tr>
</tbody>
</table>

#### (b) Adjunct Staff from other departments and outside Mak

<table>
<thead>
<tr>
<th>Name</th>
<th>Areas of Specialisation</th>
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</thead>
<tbody>
<tr>
<td>Dr G. Basuta, Department of Biology, Mak</td>
<td>Vertebrate Ecology/EIA</td>
</tr>
<tr>
<td>Mr E. Waiswa (NEMA)</td>
<td>Environmental Studies/EIA</td>
</tr>
<tr>
<td>Prof. M. Buyinza</td>
<td>Forestry/Ecological Economics</td>
</tr>
<tr>
<td>Dr. P. Nyeko (Associate Professor)</td>
<td>Vertebrate Resources/Forest Ecology</td>
</tr>
<tr>
<td>Dr. G. Eiku (Associate Professor)</td>
<td>Forest Ecology/Resources</td>
</tr>
<tr>
<td>Dr J. Mugisha, Department of Agricultural Production (Ass. Professor)</td>
<td>Environment and Resource Assessment</td>
</tr>
<tr>
<td>Dr. J. Waswa, Department of Chemistry, Mak (Lecturer)</td>
<td>Environmental Chemistry and Impact assessment</td>
</tr>
<tr>
<td>Dr E. Kasimbazia, Faulty of Law (Ass. Professor)</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>Dr J. Sempelwa; School of Public Health (Senior Lecturer)</td>
<td>Environmental Health</td>
</tr>
<tr>
<td>Dr R. Kabumbuli; College of Humanities and Social Sciences (Senior Lecturer)</td>
<td>Sociology/ Rural and Urban planning</td>
</tr>
</tbody>
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