

The skills and theory obtained in the above modules will be used during a **research project** that results in an individual Masters of Science thesis. The thesis will be based on fieldwork, typically executed in a tropical environment.

The RLE course deals with sustainable development and environmental conservation in a variety of ecosystems. The course offers three specializations dealing with:

- agricultural ecosystems
- semi natural ecosystems such as rangelands
- natural environment and biodiversity resources

Study topics dealing with one of these specializations are organized in a number of modules as well as during the MSc advanced subjects and thesis work.

Detailed objectives and complete schedules for each module are given in the RLE.2 course calendar, which will be mailed upon request to the Director of Studies, Ir. K. de Bie (E-mail: debie@itc.nl).

ADMISSION REQUIREMENTS AND APPLICATIONS

Applicants should hold a BSc or BA degree from a recognized university in disciplines such as geography, ecology, agricultural science or closely related environmental sciences, or be able to demonstrate an equivalent level of education in the main discipline. Most also have some years of working experience.

Candidates for courses in which interpretation of aerial photographs and satellite images is an important part of the course curriculum, should have both good stereoscopic vision and normal colour vision.

Proficiency in the English language is required. Candidates whose mother tongue is not English should have a minimum TOEFL score of 500 (a British Council score of 6.0 or a Michigan score of 75 is also acceptable).

"Computer literacy" is an advantage.

STARTING AND DURATION

In 1998 the course will start in the first week of September and will last 18 months.

QUALIFICATION AWARDED

After completing the degree course and passing the required examinations and having successfully defended the thesis, participants are awarded a Master of Science degree accompanied by a course record.

ACCOMMODATION

Course participants are accommodated in the DISH Hotel. This is situated in the centre of Enschede, fifteen minutes' walk from the ITC building.

STUDY COSTS

The course fees for the 18 month course are NLG 23.500. Additional costs for the course are NLG 5.400. Subsistence, including accommodation, is estimated at NLG 1.545 per person per month. Please note that international travel expenses are not included.

FELLOWSHIPS

To applicants from selected countries, the Dutch government may award fellowships under the Netherlands Fellowship Programme (NFP). In accordance with Dutch government policy, women are especially encouraged to apply. NFP fellowship applications should be submitted through the appropriate organization in the candidate's home country and with the approval of their employer, to reach the Royal Netherlands Embassy not later than four months prior to the beginning of the course.

Since the number of fellowships is limited, course applicants are advised to try to obtain funding from other donor agencies. Please note that the ITC has no funds of its own, nor does the ITC have any influence on those organizations which grant fellowships.

FURTHER INFORMATION

The International Institute for Aerospace Survey and Earth Sciences (ITC) is the largest institute for international higher education in the Netherlands. The main objectives of ITC are to assist developing countries in human resources development in aerospace surveys, remote sensing applications, the establishment of geographical information systems and the management of geographical information.

To this end ITC concentrates on three main activities: education/training, research and advisory services. In-house expertise covers an extensive range of disciplines in the fields of geoinformatics, land resource and urban sciences and earth resources surveys. More details on ITC, the courses it offers and their cost are available in ITC's Educational Information brochure. This brochure, application forms and other information can be obtained from:

ITC Student Registration Office
Attn. Mrs. A. Scheggetman
P.O. Box 6
7500 AA Enschede
The Netherlands

Phone: +31 (0)53 487 42 05
Fax : +31 (0)53 487 42 38
E-mail: education@itc.nl
WWW : <http://www.itc.nl>

All ITC courses are regularly revised and updated. The information here applies only to the 1998 course. This brochure will be updated each year and new copies can be obtained from the ITC Student Registration Office.



ITC

MSC DEGREE COURSE

RURAL LAND ECOLOGY

AGRICULTURE, CONSERVATION AND ENVIRONMENT

1998



The Master of Science degree course in Rural Land Ecology (RLE) applies geographic information for natural resource management. The course concentrates on the application of remote sensing and geographic information systems for sustainable agricultural development and for conservation of natural environments and biodiversity resources.

INTERNATIONAL INSTITUTE FOR AEROSPACE SURVEY AND EARTH SCIENCES

THE INTERNATIONAL INSTITUTE FOR AEROSPACE SURVEY AND EARTH SCIENCES (ITC) offers an

MSc Degree Programme in Geo-Information for Land Resource Management

INTRODUCTION

This Master of Science Degree Programme is focused on the management of land resources while applying modern information technologies and procedures. It consists of a common block of applied geo-information followed by individual research leading to one of the following five specialized degrees.

- MSc in Geo-information for Sustainable Soil Resource Management
- MSc in Geo-information for Forest and Tree Resource Management
- MSc in Social Sciences
- MSc in Rural Land Ecology: "Agriculture, Conservation and Environment"
- MSc in Urban Planning and Management

The MSc degree is awarded on the basis of a written thesis.

MSc IN RURAL LAND ECOLOGY: AGRICULTURE, CONSERVATION AND ENVIRONMENT

FOCUS

A rapid change of the vegetation of the earth threatens the provision of mankind's basic needs. Conserving the "green cover" requires adequate information on its state and the way that it is used. Remote sensing and geographical information systems (GIS) allow mapping and monitoring of these resources. Decision-making aimed at sustainable development and environmental conservation frequently requires integration with other geographic information sources. Spatial modeling, quantified land and habitat evaluation and land use planning are techniques used to analyze such land management options.

The Master of Science Degree Course in Rural Land Ecology (RLE.2) deals with the analysis of geographic information and the design of innovative applications of GIS and remote sensing techniques for natural resource management. The course focuses on the application of geo-information for sustainable development of agricultural lands and semi natural systems as well as for conservation of the natural environment and biodiversity resources.

The Agriculture, Conservation and Environment division (ACE) organizes the RLE.2 course. ACE is responsible for education, research and consultation in the fields of mapping, monitoring and spatial modeling of biophysical data on vegetation and land use in agricultural lands and natural environments.

OBJECTIVES

The MSc course educates participants in applied research using remote sensing and GIS for mapping and spatial analysis of vegetation in agricultural and natural areas as well as the utilization of natural and man made vegetation. The course differs from the parallel Professional Masters course (RLE.3) in its emphasis on research on natural resource management problems using geo-information technology. Explicit attention is therefore given to train participants in appropriate research techniques. Upon completion of the course, participants should be able to:

- Identify the geographical information required for sustainable use and management of the rural environment.
 - Design, execute and supervise surveys of vegetation and land use. Participants will be able to analyze data requirements, design surveys, select and apply the appropriate tools and techniques, plan surveys in terms of time and costs, execute surveys and monitor the survey process, evaluate the quality of resulting map products, and report results.
 - Integrate vegetation and land use maps with other geographic information. Participants will be able to assess the potential of land for agriculture or nature conservation and to execute land use plans.
 - Design and execute research with respect to vegetation and land use. Participants will be able to combine a natural resource management problem and appropriate scientific literature into a research question; translate this into a testable research hypothesis; select the appropriate method to collect and analyze field data to verify this hypothesis; report the results. In addition, methods for successfully writing research grant proposals will be taught.
- ### TARGET GROUPS
- The course is designed for mid career professionals with research interests regarding the application of spatial information technology for sustainable rural development or conservation of natural resources. The course draws participants with a professional background in agriculture, nature conservation, rangeland and wetland management, landscape ecology, environmental management or related fields. They may be working in survey departments, nature conservation organizations, rural development organizations and extension services, research institutes, universities and projects.

COURSE STRUCTURE AND CONTENT

The RLE.2 course consists of ten modules each of a 3-week duration, followed by a MSc thesis period of 10 months. The following modules are included:

- **Natural Resource Management** with special emphasis to the "actors" and "factors" involved.
- **Land Ecology** dealing with ecological concepts relevant for sustainable land management.
- **Maps and Geographical Databases** relates to concepts and skills required for working with maps and geographic information.
- **Remote Sensing** deals with the use of aerospace sensors to extract information about the surface of the earth.
- **Mapping Land Cover** deals with mapping of vegetation in agricultural systems and the natural environment.
- **Survey Statistics** provides training in applied statistics for surveying and analysis of geographical data.
- **Mapping Cover related Aspects** teaches participants how to map land attributes associated with vegetation such as land use, environmental factors and biodiversity.
- **Spatial Analysis and Modeling** concentrates on the analysis and modeling of spatial data and digital processing of satellite imagery.
- **Land Evaluation** deals with the assessment of the actual use and the potential of agro-ecosystems and the natural environment.
- **Land Use Planning** provides a multi-sectoral problem oriented approach to planning aspects of natural resource management.

In addition, MSc candidates will follow a number of advanced subjects in preparation of their MSc research. This may include advanced remote sensing/GIS, agro-ecological and/or environmental spatial modeling, geostatistics, land use analysis, yield gap analysis, decision support systems, terrain analysis, habitat evaluation, biodiversity studies etc.