“Geo-information is a rapidly growing industry worldwide. Geographical information systems and remote sensing tools can be used for solving real-world problems and complex issues concerning health care, food security, climate, water, urban planning, security and land scarcity.”

TOM VELDKAMP
DEAN
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WHY STUDY AT ITC?

THE FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION OF THE UNIVERSITY OF TWENTE

The University of Twente is a young, entrepreneurial research university with proven excellence in the field of new technologies and their impact on society and humanity. The University develops technologies that shape the future: ICT, biotechnology and nanotechnology. Our researchers are among the world’s leaders in these fields. The University of Twente is unique in its capacity to transcend the boundaries between disciplines.
The Faculty of Geo-Information Science and Earth Observation (ITC) is recognized worldwide for achievements in teaching, research and capacity development in the field of geo-information science and earth observation. We educate our students to be professionals, capable of acquiring knowledge in geo-information science and earth observation and translating this into practical applications for solving real-world problems.

At the heart of ITC’s activities lies capacity building and institutional development, the processes by which individuals, groups and organizations strengthen their ability to carry out their functions and pursue their goals effectively and efficiently.

This dynamic setting offers attractive career perspectives, enabling qualified personnel to put their skills and expertise to excellent use. After completing a study at ITC, you will leave not only with a degree or diploma but also with something more – a thriving network of international contacts.

A FEW OF THE MANY REASONS TO CHOOSE ITC AS YOUR HOME OF STUDY

- In this truly international environment you will meet colleagues from all over the world
- You will gain international experience
- You will leave with a thriving network of international contacts
- You will study in the cultural heartlands of Europe
- Enschede offers a friendly atmosphere in a peaceful setting
- Our achievements in teaching GIS and remote sensing are recognized worldwide
- We offer modern comfortable accommodation
- In most courses you can conduct fieldwork abroad

“What makes studies at ITC unique is the incorporation of case studies and fieldwork in almost all the modules to provide hands-on experience of the theoretical knowledge acquired during the lectures and exercises.”

TITUS KIMUTAI SUTER (KENYA)
ENVIRONMENTAL MODELLING AND MANAGEMENT (2012-2014)
ITC’s degree and diploma programmes facilitate a multidisciplinary approach to problem solving for development purposes. Considerable emphasis is placed on remote sensing and GIS. Remote sensing is the collection and analysis of scientific data about phenomena at, above or below the Earth’s surface without coming into physical contact with them. There are a variety of ways of collecting such data, for example by using conventional aerial photography, radar and airborne electronic scanning devices. And naturally satellites have been playing an increasingly significant role over the last few decades. Such remote sensing techniques and the images they produce can be used, for example, to monitor environmental changes and meteorological disturbances, determine the existence of certain mineral deposits, and detect the build-up of pressure along the faults in the Earth’s crust. The uses are many and various and to some extent have already unobtrusively entered our daily lives.

With such huge quantities of data involved, some help is needed at ground level. And this is where the geographical information systems (GIS) come in. Central to every GIS is the database, which stores the data on which the eventual output depends. The application of these data to real-world problems is a function of the specific software designed to manipulate the data. The software enables the database to be accessed, transformed and manipulated for such purposes as studying trend patterns, examining environmental issues, and simulating the outcomes of project proposals or planning procedures.

Over the years, ITC has developed a wide selection of courses in its degree, diploma and certificate programmes in geo-information science and earth observation. These courses are offered in the Netherlands, online and abroad by ITC itself or by ITC in collaboration with reputable qualified educational organizations (joint courses).
important factors in designing ITC’s training courses, with the emphasis on the application of concepts and skills. Our courses aim at providing in-depth study of a particular set of problems in developing countries and countries in transition. They attract young and mid-career professionals with an interest in development-related issues.

**EDUCATIONAL METHODS**

Workshops, case studies, project assignments and simulations are included to strengthen the practical and scientific nature of the courses.

Excursions form an integral part of some teaching modules and provide you with the opportunity to see relevant applications in the Netherlands, to be instructed in (ground) data acquisition, and to visit companies or government offices involved in geo-information and earth observation.

Fieldwork is an option in most courses and is carried out in areas that reflect problems clearly related to the application domain. During fieldwork, you are responsible for a field data acquisition assignment – usually part of the Postgraduate final assignment, the Master individual final assignment or the MSc research. Besides the direct input into assignments, fieldwork offers participants first-hand insight into current practices, as well as the opportunity to assess through ground verification and validation the impact and value (and limitations) of GIS and remote sensing technology.

**STUDY LOAD AND ECTS**

The European Union (EU) has developed a European Credit Transfer System (ECTS) to allow easy comparison of the study loads of courses within Europe. ITC has adopted this system as a means of improving academic recognition for study abroad. The study load for each course is expressed in credits (ECs). The number of credits applicable is specified in the individual course descriptions. At ITC, 29 hours of study is equivalent to one EC.

**LANGUAGE OF STUDY**

English is the first language for both staff and students at ITC. Thus the language of instruction is English and all courseware is in English. Students are obliged to fulfil the minimum requirements for English as specified in the admission requirements.

**RECOGNITION OF DEGREES**

Higher education in the Netherlands enjoys a worldwide reputation for high quality. This is achieved through a national system of regulation and quality assurance. The Ministry of Education, Culture and Science (OCW) is responsible for legislation pertaining to education. The Master and Master of Science degrees are formally recognized by the Ministry of OCW, based on accreditation of the programmes by the Netherlands-Flemish Accreditation Organisation (NVAO), and are listed in the Central Register of Higher Education Programmes (CROHO).

**DIPLOMA SUPPLEMENT**

The University of Twente issues a Diploma Supplement (DS) for its degree programmes. The Diploma Supplement is issued in a widely spoken European language, and is given automatically and free of charge to every student upon graduation. The Diploma Supplement is an internationally recognized document attached to the diploma.

**CODE OF CONDUCT**

ITC complies with certain minimum conditions that are laid down in a general code of conduct. This code of conduct is an initiative of institutions, independent education-related organizations and the Dutch government, and defines the values guiding those who recruit and educate international students. More information on the code of conduct can be found at www.itc.nl/study.
Geo-information is a rapidly growing industry worldwide. Geographical information systems (GIS) and remote sensing tools can be used for solving real-world problems and complex issues concerning health care, food security, climate, water, urban planning, security and land scarcity. The uses are many and various and to some extent have already unobtrusively entered our daily lives.

Formerly geo-information and GIS techniques were mainly used by governments, ministries, research institutes, provinces and municipalities. In recent years, however, they have expanded into all organizations where spatial information plays an important role – from public service corporations and telecommunications companies to water authorities and retailers.

Skilled personnel with the appropriate expertise are needed to effectively manage the information and opportunities provided by these new technologies. Exciting prospects for those willing to take up the challenge! A degree in geo-information science and earth observation enables you to put your skills and expertise to excellent use – and it offers attractive career perspectives!

A CAREER IN RESEARCH

On completion of your Master’s degree, you can opt for a career in research. Junior researchers studying for a PhD degree at the Faculty ITC are registered in the graduate programme. Each graduate student carries out a PhD project embedded in one of the themes of the research programme under the supervision of one or more ITC professors.

There are around 150 graduate students at ITC. Most graduate students are full-time PhD students aiming to gain their PhD degree at the University of Twente. Depending upon the fellowship, full-time PhD students have between three and four years to complete their thesis. ITC also hosts sandwich PhD students, who spend a considerable time carrying out research in their home countries.

More specific and detailed information on ITC’s graduate programme is available on the research web pages: www.itc.nl/research.
PROGRAMMES IN
GEO-INFORMATION SCIENCE
AND EARTH OBSERVATION

When you are selecting a programme, it is important to find the right level. Whichever programme you decide to take, you will receive full support from our academic staff and access to the best modern resources and information – all within a truly international environment where you will be able to meet colleagues from all over the world.
This 18-month programme (118 ECs) leading to an MSc degree in Geo-information Science and Earth Observation is designed for young and mid-career professionals who perform or aspire to perform tasks predominantly in applied research, or who require academic knowledge and skills to enhance the execution of their work. Successful completion of the MSc degree programme provides you with a qualification that enables you to pursue a doctorate degree, either in the Netherlands or abroad.

Important academic elements of the programme include developing a critical understanding of appropriate tools; exposure to new methods and techniques; gaining competence in developing tools for the acquisition, processing, transformation, analysis, modelling, storage and presentation of spatial data; using geo-information in identifying and responding to development problems and in drafting development policies; and developing research skills.

The MSc programme consists of four distinct blocks.

<table>
<thead>
<tr>
<th>Block</th>
<th>Modules</th>
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<tbody>
<tr>
<td>1</td>
<td>1-3</td>
</tr>
<tr>
<td>2</td>
<td>4-10</td>
</tr>
<tr>
<td>3</td>
<td>11-15</td>
</tr>
<tr>
<td>4</td>
<td>16-23</td>
</tr>
</tbody>
</table>

- **Block 1:** Geo-information science and earth observation: a process-based approach
  - Geographical information systems (GIS) and earth observation (EO) in relation to *System Earth* and the user
- **Block 2:** Application of geo-information science and earth observation in the domain of interest
  - Learning in the domain
- **Block 3:** Research orientation
  - Research methods, advanced subjects of choice, engagement in a research team, and proposal writing
- **Block 4:** Individual research
  - Executing research and writing an MSc thesis

The MSc degree programme is based on research. The development of research skills is given attention throughout the entire course. You are required to design, undertake and report on research where geo-information science and earth observation is used to develop techniques and/or deal with a specific application problem connected with the field of interest of the course. The precise focus of the research will be determined by you and the supervising staff in dialogue, and will fall within the scope of the research themes of the Faculty.

More information about the ITC research programme can be found on our website at [www.itc.nl/research](http://www.itc.nl/research). Where relevant, MSc research topics are related to the topics of students following other courses. The MSc research phase (six months) concludes with the presentation and defence of the MSc thesis.
There is an option whereby you can spend five months of the six-month thesis period in your home country under distance supervision (the tuition fee for the total programme remains the same). You have to meet the requirements set by the ITC programme management, and candidates are selected on an individual basis.

COURSES IN THE MSC DEGREE PROGRAMME

Six courses are offered in the MSc degree programme in Geo-information Science and Earth Observation:

- Applied Earth Sciences 18-21
- Geoinformatics 22-23
- Land Administration 28-29
- Natural Resources Management 30-31
- Urban Planning and Management 32-33
- Water Resources and Environmental Management 34-35

FACTSHEET

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<tr>
<th>Duration</th>
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<td>End</td>
<td>11 March 2016</td>
</tr>
<tr>
<td>European credits (ECs)</td>
<td>118</td>
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</table>
This 12-month programme (77 ECs) leading to a Master degree in Geo-information Science and Earth Observation is designed for young and mid-career professionals and managers with overall responsibility for projects in the relevant fields of interest. The programme focuses on the application of appropriate existing tools in the planning and execution of problem-driven projects.

The Master programme consists of three distinct blocks.

### Block 1
- Modules 1-3: Geo-information science and earth observation: a process-based approach
  - Geographical information systems (GIS) and earth observation (EO) in relation to System Earth and the user

### Block 2
- Modules 4-12: Application of geo-information science and earth observation in the field of interest
  - Learning in the domain

### Block 3
- Modules 13-15: Individual final assignment
  - Individual project leading to a report

The Master degree programme is based on coursework. The individual final assignment at the end of the Master programme involves working on practical applications related to the chosen field of interest. In this project, participants can demonstrate proficiency in applying the methods and techniques addressed throughout the programme to specific problems encountered in professional practice.

### Factsheet

<table>
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<th>Value</th>
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<tr>
<td>Duration</td>
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<td>European credits (ECs)</td>
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</tbody>
</table>

### Course in the Master Degree Programme

One course is offered in the Master degree programme in Geo-information Science and Earth Observation:

- Geoinformatics
  - Pages 24-25
The nine-month Postgraduate diploma programme (62 ECs) caters for young and mid-career professionals who need to be proficient in applying geo-information science and earth observation in their field of interest, analysing problems, and applying new methods and techniques, as well as managing (multi)disciplinary scientific teams.

Important elements of the programme include developing a critical understanding of appropriate tools; exposure to new methods and techniques; gaining competence in developing tools for the acquisition, processing, transformation, analysis, modelling, storage and presentation of spatial data; and using geo-information in identifying and responding to development problems and in drafting development policies.

The Postgraduate diploma programme consists of three distinct blocks.

### COURSES IN THE POSTGRADUATE DIPLOMA PROGRAMME

Six courses are offered in the Postgraduate diploma programme:

- **Applied Earth Sciences** 18-21
- **Geoinformatics** 22-23
- **Land Administration** 28-29
- **Natural Resources Management** 30-31
- **Urban Planning and Management** 32-33
- **Water Resources and Environmental Management** 34-35

### FACTSHEET

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<th>Duration</th>
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<td>European credits (ECs)</td>
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### FROM DIPLOMA TO MASTER’S DEGREE

The Postgraduate diploma programme will have the same end qualifications as the first part of the Master of Science (MSc) degree programme. Successful completion of the Postgraduate diploma programme (modules 1-12) serves as a basis for entering the second part (modules 11-23) of the MSc programme.
The nine-month Diploma programme is designed for staff at technological level in geo-information production organizations whose prime concern is to execute daily operational tasks, including acquisition, analysis, processing and dissemination of geographical data. These technologists coordinate digital production processes, implement work procedures, and supervise groups of operators.

The programme focuses on the concepts of digital geo-information production and the use of modern tools in the acquisition, processing, storage, visualization and dissemination of spatial information. Participants acquire both practical skills and in-depth knowledge of the technical processes involved.

The Diploma programme consists of three distinct blocks.

<table>
<thead>
<tr>
<th>Block</th>
<th>Modules</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1     | 1-4     | Basic elements of geo-information production  
Introduction to spatial data acquisition, GIS and cartography |
| 2     | 5-8     | Specialization in geoinformatics  
Options: remote sensing and digital image processing or GIS and geo-visualization |
| 3     | 9       | Integrated group project  
A small multidisciplinary team takes on a realistic geo-information production case  
Individual final assignment  
Individual production-oriented project |
The Diploma programme is based on coursework, with an emphasis on the practical application of a number of hardware/software tools that are used for the production, storage, analysis, visualization and dissemination of spatial data and geo-information. The individual final assignment at the end of the Diploma programme involves working on practical applications related to the chosen specialization of interest. In this project, participants can demonstrate skills in applying the tools, methods and techniques addressed throughout the course.

**COURSE IN THE DIPLOMA PROGRAMME**

One course is offered in the Diploma programme:

- Geoinformatics 26-27

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**FACTSHEET**

<table>
<thead>
<tr>
<th>Duration</th>
<th>9 months</th>
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<tbody>
<tr>
<td>Tuition</td>
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RICCARDO SALVINI (ITALY)

PROFESSIONAL MASTER COURSE GEOINFORMATICS (1997-1998)

“Studying and living abroad was an excellent experience, providing the opportunity to get to know other cultures and make good relations that will last for the rest of my life.”
Yuan Zhuang, originally from China, has been living in the Netherlands for eight months. She enrolled in the Master’s programme in Natural Resource Management at the Faculty of Geo-Information Science and Earth Observation (ITC) after earning her Bachelor’s degree in Forestry Engineering at the North East Forestry University at home in China. “Actually, one of the things I’ve discovered in the course of doing the programme is that I don’t want a career focused solely in this field,” says Zhuang.

“As to what she would like to do with the knowledge she has acquired in the Netherlands once she graduates, Zhuang says she is not sure yet. “I want to go back to China and back to my parents, in any event. I’m looking into different possibilities at the moment. A job position, or maybe pursuing a PhD, but that depends partly on what types of grants are available. Maybe I’ll end up taking a lectureship in geo-information science...”

Now almost midway into her 18-month programme, Zhuang says she has enjoyed life in the Netherlands so far. “I like it here. It’s a chance for me to try on the Dutch lifestyle for a while. And Enschede is a great city – not too big, not too small. I live in the ITC hotel. One of the best things about it is that you share a kitchen with other international students. So, while you’re cooking, you can not only meet other students but also get to know about foods from all different countries.”
More than 20,000 students from over 175 countries have followed ITC courses since 1950. With more than 60 years of extensive experience and a dedicated scientific staff with a wide range of expertise, ITC is one of the world’s foremost professional training establishments in the field of geo-information science and earth observation.
Earthquakes, volcanic eruptions and extreme weather events are well-known triggers for natural hazards in many parts of the world. But we are also increasingly affected by the effects of climate change, urbanization, environmental degradation and unsustainable land use practices. Our exposure and vulnerability to landslides, floods, erosion and other natural hazards and the corresponding disaster risk are continuously changing. They also influence the way we try to minimize the possible impact of natural hazards and to reduce risk. For example, what is a good combination of societal adaptation and (geotechnical) mitigation measures?
FOR WHOM IS THE COURSE RELEVANT?
The MSc degree and Postgraduate diploma courses are designed for young and mid-career professionals who want to become experts in applying remote sensing and GIS technology for the modelling and assessment of natural hazards and disaster risk, and the use of this information for risk management and/or engineering solutions. We expect our students to have a background in earth science, geography, engineering or geotechnical environmental science. Our graduates have found positions in research institutes and universities, in national and international agencies dealing with disaster risk mitigation and civil protection, and in the private sector (engineering, consultancy, insurance).

The MSc degree course has a research focus, and is specifically meant for those who wish to pursue an academic career. The Postgraduate diploma course is relevant for those who are interested in the content matter of geo-information technology and natural hazards, risk and engineering but to a lesser extent in the research part and an MSc degree.

WHAT IS THE COURSE CONTENT?
The course will deal with the following topics (among others):
- principles of GIS and remote sensing techniques
- image interpretation and quantitative analysis for earth science studies
- quantitative remote sensing for hazard monitoring and damage mapping
- rock and soil mechanics for site investigation
- spatial-temporal modelling of hydro-meteorological hazards
- assessment of elements at risk and their vulnerability
- disaster risk assessment (elements at risk, vulnerability) and risk reduction planning
- geotechnical modelling of earthquakes and landslides
- disaster preparedness, damage assessment and post-disaster rehabilitation
- climate change impact analysis and the role of geo-information.

WHAT WILL BE ACHIEVED?
Students in both the MSc degree and Postgraduate diploma courses will learn to:
- analyse problems encountered in natural hazards, risk and engineering practice and develop appropriate approaches for studying and/or solving these problems
- apply appropriate methods for spatial data acquisition, verification and quality control
- use geo-information and earth observation technology to generate, integrate, analyse and display spatial data
- evaluate and apply relevant and appropriate methods and models for data analysis and problem solving in the field of natural hazards, risk and engineering.

Students in the MSc degree course will also:
- study advanced topics to support the planned research
- apply research skills in formulating and carrying out an independent MSc research project
- communicate and defend the findings of this research work.

WHY CHOOSE THIS COURSE?
This challenging course is designed to appeal both to people that have an interest in natural hazards and multi-hazard risk assessment and to those that want to focus more on aspects of geotechnical engineering and geological hazards (slope stability, earthquakes). The course offers a mix of theory and practice. More than half of the time is reserved for hands-on training and project work, using real-world hazard, risk and engineering examples that are often linked to international projects.

This applied earth science course offers a unique opportunity to share knowledge and experiences with young scientists and professionals from all over the world.

For more information about courses in the disaster management domain: www.itc.nl/disaster-management
Sustainable use of land and earth resources is a key factor in economic development. We are continually confronted with instances in daily life that have direct links with earth resources and related processes – from the buildings in which we live and the food that we eat to the cars that we drive.

The search for mineral resources relies on the availability of up-to-date geological knowledge bases, conceptual mineral deposit models and modern exploration technologies. This course follows an integrated approach to upgrading geological maps and re-interpreting geological information in a GIS environment, using aerial photographs, satellite imagery and airborne geophysical data. Subsequently, exploration data and deposit concepts are integrated and analysed using GIS and modelling systems to assess mineral resources potential.
MSC AND POSTGRADUATE DIPLOMA COURSES

FOR WHOM IS THE COURSE RELEVANT?
The MSc degree course is designed for academicians who are active in the field of earth resources and who have a specific interest in geological and mineral exploration. They have a specific interest in an academic career, and in applied research concerning the concepts and strategies taught in the course.

The Postgraduate diploma course is designed for practitioners who are active in the field of earth resources and who have a specific interest in geological and mineral exploration. They have a specific interest in the practical application of the concepts and strategies taught in the course.

Participants of both courses are university graduates with a background in earth sciences, and with an interest in applying remote sensing and GIS techniques for exploration purposes.

WHAT WILL BE ACHIEVED?
Participants are trained in upgrading the geological knowledge bases of countries or regions and in the assessment of their mineral potential, using remote sensing and GIS technology.

WHY CHOOSE THIS COURSE?
The strong link between education and research activities at ITC guarantees a modern course that covers state-of-the-art methods and technologies for earth resources exploration. Examples include integrated image analysis for geological mapping, mineral mapping using hyperspectral remote sensing, and quantitative modelling of mineral prospectivity. Participants come from a wide range of countries, and the teaching staff have ample experience in international education and projects.

WHAT IS THE COURSE CONTENT?
The courses will deal with the following topics (among others):
- principles of GIS and remote sensing techniques
- airborne geophysics
- geological remote sensing
- integrated image interpretation
- geological mapping methodology
- mineral deposit geology
- exploration geochemistry
- hyperspectral remote sensing
- mineral prospectivity modelling.

For more information about courses in the geological remote sensing domain: www.itc.nl/geological-remote-sensing

NINO KHELADZE (GEORGIA)
GOVERNANCE AND SPATIAL INFORMATION MANAGEMENT (2011)

“I would encourage any students who are thinking of learning more about the field of geo-information science and earth observation to stop, look no further, and apply to ITC. It is a strong educational faculty that will give them great skills in skills that will assist them in overcoming the professional challenges in their future career.”
Geo-information and earth sciences are relying increasingly on digital spatial data acquired from remotely sensed images, analysed by geographical information systems (GIS), distributed through complex infrastructures, and visualized on the computer screen or on paper for an ever-increasing variety of users. The technologies supporting these processes form the core of geoinformatics. Technological skills alone, however, are not sufficient for organizations involved in the production and management of such geo-information.

Owing to the rapid changes and developments in geo-information acquisition, analysis and dissemination, these organizations require scientific staff that can keep pace with and validate the relevancy of such developments, design new systems and infrastructures, and explore new-edge technology for efficient and effective implementation.
FOR WHOM IS THE COURSE RELEVANT?
The 18-month MSc degree course, which includes a strong research component, leads to an MSc degree. This course is designed for research and development staff at national mapping agencies and other organizations dealing with geo-information, as well as for university staff (Bachelor level) pursuing an academic career.

The nine-month Postgraduate diploma course is relevant for those who are interested in the content matter of geoinformatics technology but have no urgent need to develop research skills.

WHAT IS THE COURSE CONTENT?
The course will deal with the following topics (among others):

- principles of databases
- spatial data quality
- acquisition of geospatial base data
- image processing techniques
- geo-information sharing and distribution
- web technology for GIS and mapping, and visualization.

An important component of the course is the development of programming skills to support the design of new systems and infrastructures and to explore new-edge technology.

WHAT WILL BE ACHIEVED?
The goal of the MSc degree course is to develop a critical understanding of and competence in geo-information science, and to develop capabilities for designing systems and tools for the acquisition, processing, transformation, analysis, storage, presentation and use of geo-information. Participants will thus acquire the skills to design and undertake research and development projects in various fields of geoinformatics, as well as become key players in multidisciplinary research and development projects.

WHY CHOOSE THIS COURSE?
If your interest goes beyond existing technology and you want to know and influence what lies behind it, as well as research and design cutting-edge solutions, this course is for you. The programming and research skills acquired during the course, together with the personal attitude developed, will prepare you for any upcoming challenges in geoinformatics or the geo-information disciplinary field that are likely to confront you in your work.

For more information about courses in the geoinformatics domain:
www.itc.nl/geoinformatics
GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR GEOINFORMATICS

Design spatial data infrastructures for geo-information collection, analysis and dissemination.

There is an increasing need for organizations to efficiently acquire and exploit geo-information. The emphasis is therefore on the integration and reuse of geo-information and the associated production process. Such efforts are the core activity of building spatial data infrastructures (SDIs). To handle the ever-increasing volumes of data storage and data flow between computer systems, the characteristics and functionality of such infrastructures require special attention from different technical perspectives: data acquisition, processing and dissemination.

Understanding the design principles and being able to apply appropriate technology for implementation purposes is of key importance to staff in these organizations. They must effectively carry out data acquisition (from remotely sensed images and other sensors), database management, geo-information processing and visualization techniques to build integrated geo-information applications and SDIs in any geo-information application domain.
FOR WHOM IS THE COURSE RELEVANT?
The Master degree course addresses the needs of geoinformatics engineers who wish to improve their skills in using integrated geo-information production technology. An integral part of the course is the operational management of geo-information production systems, including design, planning, maintenance (execution, quality control) and exploitation. The course is designed for young and mid-career engineering staff at governmental organizations or companies such as mapping agencies that deal with geo-information.

WHAT IS THE COURSE CONTENT?
In this course, the overall theme is the application of technology for SDIs. After a thorough introduction to the principles of databases, remote sensing and GIS, six consecutive modules address specific aspects of the theme:

- the design and development of the component systems of an SDI
- 3D data acquisition
- base mapping from sensor data
- spatial data modelling and spatial database design
- spatial data analysis
- methods and techniques for acquiring and eventually disseminating and visualizing (via the Web) geospatial data
- programming geo-information applications.

The overall aim of the modules, the realistic life case study that runs parallel to all six modules, and the exercises in computer programming is to improve the understanding and engineering skills of the course participants.

WHAT WILL BE ACHIEVED?
On completion of the course, participants will be able to:

- analyse geo-technical problems and design production processes (from acquisition to dissemination) for geospatial data and services for different application fields of geo-information
- support the design of and implement technological and infrastructural components in an organization
- evaluate (intermediate) information products that can be used as building blocks for multilevel SDIs
- evaluate the performance of production and dissemination processes
- work in multidisciplinary teams engaged in production projects that involve spatial data collection, database management and data dissemination
- transfer the acquired knowledge to the home working environment.

WHY CHOOSE THIS COURSE?
The topics covered in this course will provide participants with an in-depth knowledge of geo-information technology that can be readily applied in their home organizations. It will also allow participants to effectively create and handle geo-information and to build and use geo-information applications and SDIs. Moreover, the course has been set up to give participants a clear overview of information integration issues and common solutions to real-life geo-information problems.

For more information about courses in the geoinformatics domain: www.itc.nl/geoinformatics

"After graduation I went back to Italy. I found a job as a GIS analyst in less than one month, because the person who selected me had seen the name ITC on my CV. I am currently employed at ERM in Italy. My group is assisting oil and gas companies in planning, perforations, pipeline routing and plant location, with a focus on environmental, social and health aspects."

MARCO RUSMINI (ITALY)
APPLIED EARTH SCIENCES WITH SPECIALIZATION IN GEO-HAZARDS (2007-2009)
The task of managing land use and the Earth’s resources is becoming increasingly important owing to the rising world population and economic growth. To keep pace with these demands, planners and resources managers now make considerable use of complex and powerful computerized geographical information systems (GIS). GIS users such as land and urban planners, resources managers and application scientists depend on the availability of well-structured up-to-date data.

Digital images from airborne and spaceborne sensors and aerial photographs are often used as data sources, along with modern techniques such as laser altimetry and mobile GIS. Technical means are necessary to extract data from these sources and to georeference the data accurately. Furthermore, systems are required to manipulate the spatial data and present these data in quality maps and other (e.g. web) output. To achieve this, it is essential that an organization is staffed by capable personnel at all levels.
FOR WHOM IS THE COURSE RELEVANT?
The Diploma course is designed for staff at the technological level in map and geo-information production organizations. The prime concern of these technologists is the execution of daily operational tasks. Such tasks demand specialists with both practical skills and in-depth knowledge of the technical processes involved. The function of the technologist is to coordinate production processes, organize and execute operational tasks, implement work procedures, and supervise groups of operators.

WHAT IS THE COURSE CONTENT?
The course itself is composed of core and specialization modules. The core modules give an introduction to the technical aspects of remote sensing data acquisition, GIS and geo-visualization. The specialization modules enable each participant to acquire skills specific to his or her primary professional tasks in the home organization. In all specializations, the emphasis lies on understanding the principles of geo-information production techniques, and there is ample opportunity for hands-on experience with leading commercial software. The specialization modules offered are given below.

Remote Sensing and Digital Image Processing
Appropriate processing of satellite images and aerial photographs for geo-information production requires theoretical and practical training in various aspects of digital image processing, such as image enhancement, orientation and digital image classification.

GIS and Geo-Visualization
This specialization offers methods, techniques and the required theory for spatial data management, spatial analysis, and the visualization and dissemination of geo-products in interactive web applications to serve our mobile and dynamic society.

WHAT WILL BE ACHIEVED?
The aim of the course is to provide participants with:
- theoretical knowledge and practical training designed to contribute to the production of maps and geo-information
- in-depth knowledge of one specific (individually chosen) aspect of the production process. Special attention is given to the implementation of the digital production of geo-information.

WHY CHOOSE THIS COURSE?
Geographical and earth sciences are relying increasingly on digital spatial data, much of which is acquired from remotely sensed images, analysed in GIS, and visualized on computer screens. Course participants will be trained in the modern tools, hardware and software that are used to create and disseminate digital spatial data and information about the world for many applications.

For more information about courses in the geoinformatics domain: www.itc.nl/geoinformatics
Land is at the basis of all societies and land policy regulates the access to land and the management of land. A sound land policy is a critical success factor in economic growth, food security, nature conservation, the protection of vulnerable groups, poverty reduction and housing. Land policy and land policy instruments determine how a government can provide access to land, offer tenure security, regulate the land market, implement land reform, protect the environment, and levy land taxes. Such tasks become even more challenging in post-conflict or post-disaster areas, and where government systems are in transition.

Applying relevant principles of business administration and information technology, the course provides theoretical and practical knowledge and expertise in building a viable land administration organization.
FOR WHOM IS THE COURSE RELEVANT?
The MSc Degree and Postgraduate diploma courses are designed for young and mid-career professionals involved or likely to be involved in developing land administration systems from an academic, managerial, technical and operational perspective. A substantial part of the course is dedicated to information technology and information management for land administration systems and spatial data infrastructures. The ultimate aim is to ensure that participants become respected and valuable land administration experts in their own countries.

WHAT IS THE COURSE CONTENT?
The course will deal with the following topics (among others):
- concepts of land policy and land management and administration
- process design; simulation and management of workflows
- adjudication; cadastral and social tenure mapping
- value assessment and land use classification
- business administration; planning and control; financial management
- modelling of data, processes, stakeholder analysis, community participation
- information system design, development, (re-)engineering
- information management (legal aspects, authentication, pricing, costing)
- SDI concept and application (authentic registers).

WHAT WILL BE ACHIEVED?
On completion of the course, participants will be able to:
- analyse land administration components and land administration systems to serve society
- understand the concepts of land policy and policy instruments regarding access to land, tenure security, land markets, land reform, land use planning and land taxation
- formulate institutional, operational and technological requirements for operating land administration procedures in a transitional environment
- specify and operate (geo-)information technology relevant to the functioning of land administration systems.

WHY CHOOSE THIS COURSE?
The cooperation between ITC and the Netherlands Cadastre provides a unique foundation for the course. The international networks of both institutions afford access to academic developments and the latest policies and guidelines of international donors and UN agencies.

The links to academic and operational environments distinguish this course from education offered elsewhere in the world. The strength of this course lies in the combination of the institutional aspects of land administration and the development of sound information systems operated by viable land administration institutions. If you are interested in developing viable land administration systems within the context of your own country’s land management and legal framework, this is the right course for you.

CAREER PERSPECTIVE
Graduates of the Land Administration courses will be able to work in advisory, operational, technical and executive functions related to land administration and land management. This includes functions such as land information manager, system manager of land databases, land policy analyst, and land registration or land adjudication officer.

For more information about courses in the land administration domain: www.itc.nl/land-administration
GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR NATURAL RESOURCES MANAGEMENT

Sustainable management of the Earth’s natural resources is of concern to us all.

Developments in remote sensing technology have enabled us to observe the Earth’s surface in great detail and almost continuously. Never before has it been so easy to monitor and map our natural environment. Yet to understand the complexity of factors involved in such processes as ensuring food security, combatting deforestation, and monitoring land use change and environmental degradation, environmental managers must not only collect relevant data but also interpret and analyse these data to obtain useful information to support decisions that can lead to more sustainable use of natural resources. In carrying out these tasks, environmental managers collaborate with professionals from a wide range of disciplines. Geo-information technology – in particular modelling and decision support systems – plays an important role in this rewarding, multidisciplinary work.
FOR WHOM IS THE COURSE RELEVANT?
The MSc degree and Postgraduate diploma courses are designed for young and mid-career professionals who work in the field of natural resources management and who wish to develop a critical understanding of and competence in using modern methods of working with spatial data. Participants will normally have a BSc or similar first degree in environmental science or in a discipline related to natural resources management, such as ecology, forestry or agriculture. If you have such a background and a keen interest and motivation to study in an international, multidisciplinary environment, then the MSc degree or the Postgraduate diploma course in Natural Resources Management may be for you.

WHAT IS THE COURSE CONTENT?
The MSc degree and Postgraduate diploma courses not only emphasize the multidisciplinary aspects of natural resources management but also offer you the opportunity to undertake in-depth study in your particular field of interest (e.g. agriculture, forestry, ecology). During the first block of the course, you will acquire knowledge and skills in applying geo-information science and earth observation to natural resources management. After this, in the second block, you will spend five months developing more in-depth knowledge and technical skills in order to analyse problems and identify and structure relevant information in selected aspects of natural resources management, in particular agriculture, forestry, ecology and the environment. Throughout the course, participants have the opportunity to undertake practical work and case studies in the specialized areas of biodiversity, environmental assessment, food security and forest biomass.

Following this period of in-depth study, if you opt for the Postgraduate diploma course, you will complete your studies by carrying out an individual project. Alternatively, if you opt to pursue the MSc degree course, you will continue to develop an understanding of the purpose and use of research in natural resources management and will study advanced topics to support your planned research. In recent years, MSc graduates in Natural Resources Management have carried out their research primarily within the Forest, Agriculture and Environment in the Spatial Sciences (FORAGES) research theme of the Department of Natural Resources, with a focus on biodiversity, food security and forest biomass.

WHAT WILL BE ACHIEVED?
Participants in both courses will learn to:
- analyse a problem encountered in natural resources management practice and develop appropriate methods for studying and/or solving the problem
- apply appropriate methods for spatial data acquisition, verification and quality control
- use geo-information science and earth observation technology to generate, integrate, analyse and display spatial data to support the management of natural resources and the environment
- evaluate and apply relevant and appropriate methods and models for data analysis and problem solving in natural resources management.

If you follow the MSc degree course, you will also:
- carry out in-depth study of two advanced topics that are relevant to your research
- apply research skills in formulating and carrying out an independent research project
- communicate and defend the findings of this research work.

WHY CHOOSE THIS COURSE?
The course offers a unique opportunity to share experiences in natural resources management with young scientists and professionals from all over the world. The teaching staff in the Department of Natural Resources have a wealth of research and practical experience in the application of geo-information science and earth observation for natural resources management in many different environments and in many different countries. You will study and undertake research in a friendly, multicultural and multidisciplinary environment.

CAREER PERSPECTIVE
With their acquired knowledge and skills in the spatial sciences, graduates of the Natural Resources Management courses are well qualified to work in government departments, non-government organizations and commercial companies operating in the fields of forestry, agriculture and the environment. Others return to or obtain teaching positions in institutes for higher education. Approximately one in five MSc graduates undertakes PhD research.

For more information about courses in the natural resources domain: www.itc.nl/natural-resources
GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR URBAN PLANNING AND MANAGEMENT

Understanding urban processes and contributing to sustainable urban developments

The magnitude and dynamics of urbanization place an enormous burden on organizations responsible for the planning and management of urban regions. The core objectives of urban planning and management are seen as understanding dynamic urban processes and developing effective interventions that contribute to the sustainability of urban development. Geo-information and geo-information technology play a vital role in supporting these objectives.

The MSc degree and Postgraduate diploma courses in urban planning and management integrate knowledge of and skills in geo-information technology with current themes in the field, including urban poverty, urban transport, infrastructure and public services, disaster preparedness and mitigation, urban environmental planning, land use and land tenure, participatory GIS, and spatial planning and decision support systems.
FOR WHOM IS THE COURSE RELEVANT?
Any academically oriented professional who is active in urban planning and management and who uses spatial data in planning and management tasks belongs to the target group, for example town and district planners, land (policy) officers, infrastructure and transport engineers, and environmental planners. The course is also highly relevant for staff at universities and non-governmental organizations in the field of urban planning and management who are interested in the use of geo-information technology.

The MSc degree course includes a strong research component and leads to an MSc degree. The Postgraduate diploma course is relevant for those who are interested in the content matter of geo-information technology and urban planning and management but to a lesser extent in the research part and an MSc degree.

WHAT IS THE COURSE CONTENT?
The course addresses contemporary themes in urban planning and management, such as urbanization processes, urban poverty, urban transport, infrastructure and services, and climate change. The course has a dual focus on understanding the nature and dynamics of urban regions and on developing and evaluating interventions using geo-information technology in multi-stakeholder settings.

The course will deal with the following topics (among others):
• urbanization processes
• urban indicators and monitoring
• spatial analytical techniques
• statistics and visualization
• conceptual modelling of urban processes
• data gathering and information supply
• planning, management and governance of urban regions
• urban policy processes and policy instruments
• methods and tools in contemporary planning and management
• collaborative planning and decision support
• scenario development, modelling and scenario analysis.

WHAT WILL BE ACHIEVED?
Both courses aim to improve the knowledge and skills of the course participants in the use of geo-information science for effective task execution and problem solving in urban planning and management.

In addition, the MSc degree course will enable participants to specialize further in current research themes and will give them the opportunity to undertake an independent research project, making effective use of geo-information technology.

WHY CHOOSE THIS COURSE?
In a survey, graduates gave the following reasons for following a course in urban planning and management at ITC:
• advanced expertise in geo-information science and remote sensing
• relevant content and tools, reflecting contemporary urban planning practice
• opportunity to undertake empirical research in Europe or in developing countries
• international environment, with access to Dutch and European experiences.

All in all, ITC offers a unique international academic environment for applying geo-information technology within the context of urban planning and management.

For more information about courses in the urban planning domain: www.itc.nl/urban-planning
Security and sustainable development of our water resources is a key problem of the 21st century. Improved water management can make a significant contribution to achieving the Millennium Development Goals. Current international initiatives such as the Global Earth Observation System of Systems 10-Year Implementation Plan have identified earth observation as the key to helping to solve the world’s water problems. The availability of spatial information on water resources will enable closure of the water budget at river basin scales to the point where effective water management as requested by the EU Water Framework Directive is possible. Floods, droughts, water quality, water-ecosystem and soil-water-climate interactions, and the sustainability of water resources are important issues in water resources management and hydrology.
FOR WHOM IS THE COURSE RELEVANT?
The MSc degree and Postgraduate diploma courses are designed for young and mid-career professionals involved in water resources, agriculture, irrigation, civil engineering, hydrology, (agro-)meteorology and physical geography who are of BSc or MSc level and preferably have some years of professional experience. Most of our alumni work for ministries of water, irrigation departments, meteorological departments, water authorities, universities or international organizations such as IWMI and UNEP.

WHAT IS THE COURSE CONTENT?
The course introduces participants to the use of earth observation and geo-information for quantifying components of the water cycle. Specialization topics and specific modules are offered in three streams. Each stream focuses on a different aspect of water resources and the environment. Participants can also focus on one of these application fields in the MSc research part.

Earth observation techniques can be used for water resources assessment and management. In the course, the concepts related to the acquisition of hydrological data from satellite images are explored. The applications of earth observation in flood, recharge, drought, water quality monitoring and climate studies are demonstrated.

The Groundwater Assessment and Modelling stream focuses on subsurface processes and the use of spatial models for groundwater assessment and management. The Surface Hydrology stream focuses on water quantity aspects (flooding, agricultural water use, climate) from local to regional scale. Participants choosing the Environmental Hydrology stream study freshwater, wetland and coastal zone interactions and the environmental impacts of water resources projects. Important topics include optical remote sensing of water quality and the modelling of hydro-geochemical data. An option exists to take several modules in the field of water engineering and management at the Faculty of Engineering Technology.

WHAT WILL BE ACHieved?
Participants will develop skills in methods and techniques relevant to integrated watershed hydrology, groundwater, surface water and/or environmental hydrology. Case studies and fieldwork play a crucial role, enabling participants to acquire a working knowledge of advanced tools and methods. Through real-life problem-oriented case studies, the course participants will be exposed to problem-solving techniques. Earth observation, GIS and modelling software is provided, so participants will be able to apply their skills in their home organizations.

WHY CHOOSE THIS COURSE?
This course provides a unique opportunity for hydrologists, water resources managers, decision makers and practitioners to combine their experience and (field) knowledge with recent advances in the use of space technology and computational methods for water resources and environmental management. Knowledge gained in the course can directly support activities in the area of water resources management, environmental monitoring, environmental security, disaster management and sustainable development.

For more information about courses in the water resources domain: www.itc.nl/water-resources
Changes in world society have resulted in changes in the demand for ITC’s products and services, particularly education. Client organizations have indicated that mid-career professionals in important decision-making positions, or with the potential to grow into such positions, have difficulty in sparing the time to be away from their work and home for extended periods.
To address the increasing demand for flexibility in courses, ITC has entered into partnerships with reputable qualified educational organizations for the purpose of providing joint courses in several countries. Under this arrangement, a course or part of a course leading to a recognized ITC degree or diploma can be conducted in the student’s home country.

Degree and diploma courses in the joint education programme are offered in China, Europe (Netherlands, Poland, Sweden, United Kingdom), Ghana, India, Indonesia, Iran, Tanzania and Vietnam.

**GEO-INFORMATION SCIENCE AND EARTH OBSERVATION**

**GEO-INFORMATION SCIENCE AND EARTH OBSERVATION**
MSc degree course with College of Earth Sciences and Land Resources of Chang’an University, China
For more information:
E: Professor Ma Zhimin (CHD): zhmma@chd.edu.cn
   Dr U.D. Turdukulov (ITC): u.d.turdukulov@utwente.nl
I:  www.xahu.edu.cn
    www.geography-unu.edu.un

**NATURAL RESOURCES**

**GEO-INFORMATION SCIENCE AND EARTH OBSERVATION WITH APPLICATION IN NATURAL RESOURCE MANAGEMENT**
MSc degree course with Beijing Normal University, China
For more information:
E: Dr Lengxin Liu (BNU): liulx@bnu.edu.cn
   Dr Tiejun Wang (ITC): t.wang@utwente.nl
I:  www.itec.nl/study

**GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR NATURAL RESOURCE MANAGEMENT / URBAN PLANNING AND MANAGEMENT**
MSc degree course with School for Architecture, Planning and Policy Development (SAPPK), Institute of Technology Bandung (ITB), Indonesia
For more information:
E: Dr Wilmar Salim (ITB): wilmarsalim@yahoo.com
   Dr Michael Weir (ITC-NRM): m.j.c.weir@utwente.nl
   Drs Emile Dopheide (ITC-UPM): e.j.m.dopheide@utwente.nl
I:  www.sappk.itb.ac.id/en/
GEOINFORMATICS

GEOINFORMATICS
Diploma course with Ghana School for Survey and Mapping (GSSM), Ghana
For more information:
E: Eric Mensah-Okanty (GSSM): itcgssm@hotmail.com
Drs Ton Mank (ITC): a.m.mank@utwente.nl
I: www.itc.nl/study

GEOINFORMATICS
MSc degree and Postgraduate diploma courses with Indian Institute of Remote Sensing (IIRS) of National Remote Sensing Agency (NRSA), India
For more information:
E: Dr S.K. Srivastave (IIRS): sksrivastave@iirs.gov.in
Dr Nicholas Hamm (ITC): n.hamm@utwente.nl
or esa-education-itc@utwente.nl
I: www.iirs-nrsa.gov.in/msc

GEOINFORMATICS
MSc degree course with Khajeh Nasir-oddin Toosi University of Technology (KNTUT), Iran
For more information:
E: Dr Behzad Vosoghi (KNTUT): vosoghi@kntu.ac.ir
Dr Kourosh Khoshelham: k.khoshelham@utwente.nl
I: www.kntu.ac.ir

GEOGRAPHICAL INFORMATION MANAGEMENT AND APPLICATIONS
MSc degree course with Technical University Delft, Utrecht University and Wageningen UR, the Netherlands
For more information:
E: Dr Corné van Elzakker (ITC): gima@geo.uu.nl
I: www.msc-gima.nl

GEOINFORMATICS
Diploma course with ARDHI University (ARU), Tanzania
For more information:
E: Dr Chaula (ARU): chaula@aru.ac.tz
Drs Ton Mank (ITC): a.m.mank@utwente.nl
I: www.aru.ac.tz

DISASTER MANAGEMENT

GEO-INFORMATION FOR SPATIAL PLANNING AND RISK MANAGEMENT
MSc degree course with Gadjah Mada University (UGM), Yogyakarta, Indonesia
For more information:
E: Professor Dr Junun Sartohadi (UGM):
panyidiksiti@gmail.com
Bart Krol, MSc (ITC): bart.krol@utwente.nl or esa-education-itc@utwente.nl
I: www.itc.nl/study

NATURAL HAZARDS AND DISASTER RISK MANAGEMENT
MSc degree and Postgraduate diploma courses with Indian Institute of Remote Sensing (IIRS), India
For more information:
E: Dr Suresh Kumar (IIRS): suresh_kumar@iirs.gov.in
Dr Nicholas Hamm (ITC): n.hamm@utwente.nl or esa-education-itc@utwente.nl
I: www.iirs-nrsa.gov.in

URBAN PLANNING

GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR NATURAL RESOURCE MANAGEMENT(NRM) / URBAN PLANNING AND MANAGEMENT (UPM)
MSc degree course with School for Architecture, Planning and Policy Development (SAPPK), Institute of Technology Bandung (ITB), Indonesia
For more information:
E: Dr Wilmar Salim (ITB): wilmarsalim@yahoo.com
Dr Michael Weir (ITC-NRM): m.j.c.weir@utwente.nl
Drs Emile Dopheide (ITC-UPM): e.j.m.dopheide@utwente.nl
I: www.sappk.itb.ac.id/en

Note: The websites of our partners give more detailed information on the joint courses. The information in this brochure does not always directly apply to all our joint courses.
ACADEMIC LEVEL AND BACKGROUND

Degree and Postgraduate diploma programmes
Applicants for the MSc and Master degree and Postgraduate diploma programmes should have a Bachelor degree or equivalent from a recognized university in a discipline related to the course, preferably combined with working experience in a relevant field.

Diploma programme
Applicants for the Diploma programme should have completed their secondary education in a discipline related to geoinformatics and have at least three years’ relevant practical experience.

COMPUTER SKILLS
Although basic lessons introducing the specific ITC computer environments are scheduled in the degree and diploma programmes, applicants lacking computer experience are strongly advised to follow basic courses in their home countries.

ENGLISH LANGUAGE
As all courses are given in English, proficiency in the English language is a prerequisite. Those who are nationals of one of the countries listed at www.itc.nl/study are exempted from an English language test. Please note: the requirements when applying for fellowships may vary according to the regulations of the fellowship provider.

English language tests: minimum requirements

<table>
<thead>
<tr>
<th></th>
<th>Degree and Postgraduate diploma programmes</th>
<th>Diploma programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOEFL Paper-based Test (PBT)</td>
<td>550</td>
<td>500</td>
</tr>
<tr>
<td>TOEFL Internet-based Test</td>
<td>79-80</td>
<td>61</td>
</tr>
<tr>
<td>British Council/IELTS</td>
<td>6.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Cambridge</td>
<td>CPE/CAE</td>
<td>CPE/CAE</td>
</tr>
</tbody>
</table>

Only internationally recognized test results are accepted.
APPLICATION AND REGISTRATION

PROCEDURE
Your application starts by filling in our online application form, and here you will need the following documents:

- official college/university transcripts (degree and postgraduate diploma)
- official secondary education transcripts (diploma)
- result of internationally recognized English language test
- valid passport or national ID card.

You will also be asked to supply information about your:

- educational and employment background
- motivation for attending the course.

Make sure that you meet all the requirements and submit all additional documents as soon as possible and before the following deadlines.

APPLICATION DEADLINES
It should be noted that candidates who intend to apply for some form of sponsorship (e.g. Netherlands Fellowship Programme, Joint Japan/World Bank Scholarship Programme, International Fellowship Programme of the Ford Foundation, STUNED, European Union) will be required to adhere to the deadlines imposed by the sponsor, which may be as early as nine months before course commencement.

“Early bird” deadline
Seven months before the starting date of the course:
For applicants who wish to apply for fellowships and thus need early notification of admission.

Main deadlines
Two and a half months before the starting date of the course:
For applicants who need a visa to enter the Netherlands.

Six weeks before the starting date of the course:
For applicants who wish to apply for a certificate course.

Late deadline
Four weeks before the starting date of the course:
For applicants who do not need a visa and/or do not wish to apply for a fellowship.

NOTICE OF ADMISSION
Once you have been accepted academically, you will receive a Letter of Acceptance and Pro forma invoice. Your Letter of Acceptance remains valid for three years.

Upon confirmation of full payment/financial sponsorship, accepted candidates will receive a Letter of Admission, general arrival information and housing forms.

POSTPONEMENT OR WITHDRAWAL
If there are insufficient enrolled candidates, ITC is entitled to call off the course. The placed candidate receives written notification to this effect at least three months before the start of the course. Any payment already made to ITC for tuition fee and additional costs is refunded. Participation in another ITC course can be arranged in consultation.

Applicants wishing to postpone participation in a course or wishing to withdraw from a course must notify the Student Registration Office as soon as possible, and no later than three months before the commencement of the course.

In such cases, the fees paid can be refunded, or credited for attendance at a later date by the same or a different person. If an applicant withdraws at a later date, part of the course fee will be charged in accordance with the Admission and Enrolment policy available on the ITC website.
FINANCIAL MATTERS

TUITION FEES AND ADDITIONAL COSTS

<table>
<thead>
<tr>
<th>Programme</th>
<th>Duration</th>
<th>Tuition fee</th>
<th>Residence permit</th>
<th>Insurance cover</th>
<th>Minimum living allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc degree</td>
<td>18 months</td>
<td>€ 19,839</td>
<td>€ 300</td>
<td>€ 730</td>
<td>€ 14,850</td>
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<tr>
<td>Master degree</td>
<td>12 months</td>
<td>€ 13,226</td>
<td>€ 300</td>
<td>€ 490</td>
<td>€ 9,900</td>
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<td>Postgraduate diploma</td>
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<td>€ 9,920</td>
<td>€ 300</td>
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<tr>
<td>Diploma</td>
<td>9 months</td>
<td>€ 9,920</td>
<td>€ 300</td>
<td>€ 370</td>
<td>€ 7,500</td>
</tr>
</tbody>
</table>

Note: Fees are in euros and are subject to revision.

1 Tuition fee
The tuition fee includes all expenses necessary to offer our students a comprehensive educational experience from start to end of the selected course. These include registration fees, course materials, course excursions and access to research data and equipment. Fieldwork is paid for out of general resources, as well as student personal funds, and varies per course and research theme.

ADDITIONAL COSTS
Additional costs might include cost of a residence permit, living allowance and insurance costs. See www.itc.nl/study for additional information.

PAYMENT CONDITIONS
The tuition fee and additional costs are to be fully paid in advance to cover the total duration of the course. Applicants for the MSc, Master, Postgraduate or Diploma courses can pay their tuition expenses in two instalments, as set out below.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Payment one</th>
<th>Due date</th>
<th>Payment two</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc degree</td>
<td>€ 9,919.50</td>
<td>1 September</td>
<td>€ 9,919.50</td>
<td>1 May</td>
</tr>
<tr>
<td>Master degree</td>
<td>€ 6,613</td>
<td>1 September</td>
<td>€ 6,613</td>
<td>1 February</td>
</tr>
<tr>
<td>Postgraduate diploma</td>
<td>€ 4,960</td>
<td>1 September</td>
<td>€ 4,960</td>
<td>1 February</td>
</tr>
<tr>
<td>Diploma</td>
<td>€ 4,960</td>
<td>1 January</td>
<td>€ 4,960</td>
<td>1 May</td>
</tr>
</tbody>
</table>
SCHOLARSHIPS

After admission, you need to secure funding. We have listed the most important scholarship programmes on our website (www.itc.nl/fellowships).

It is advisable to send out multiple funding applications as soon as possible. Application for a scholarship is a procedure totally separate from the application for course entry and is entirely your own responsibility. ITC plays no part in the process of securing a scholarship.

Start by enquiring at your own Ministry of Education or Department of Education as they may have details of scholarship or bursary opportunities for students wishing to study overseas. NUFFIC can provide you with a basic guide for possible sources of funding for international students who want to study in the Netherlands. Visit www.studyin.nl/scholarships.

Most scholarships require you to complete your application procedures before applying for the scholarship. Because of strict deadlines, make sure you apply for admission at least two months before the scholarship deadline.

**ITC SCHOLARSHIPS**
The faculty ITC offers a limited number of partial scholarships to excellent students applying for an MSc degree course. If you are unable to pay the full tuition fee there might be a chance that ITC grants you a partial scholarship that will cover some of the tuition fee. In order to be eligible for a partial scholarship you will be asked to submit documentation for your specific needs for a partial scholarship. As the partial scholarships are limited you cannot be sure to be a recipient of such, and scholarships will always be granted on a case by case basis.
AFTER ADMISSION

Once you have been admitted to a programme, several of our services will work towards ensuring that your arrival and stay at the University of Twente will be smooth. Sources of practical information about studying at ITC and in the Netherlands can be found at www.itc.nl/study and www.studyinholland.nl.

ENTRY VISA AND RESIDENCE PERMIT
To enter the Netherlands for study purposes, you might need a visa and/or a residence permit. Whether or not you need a visa depends on:
• your nationality (as stated in your passport)
• the duration of your stay (shorter or longer than three months)
• the purpose of your stay.

Student Affairs assists all students requiring applications or extensions for (entry) visas, residence permits and/or change of purposes.

HEALTH AND LIABILITY INSURANCES
You need to make sure that you are properly insured during your stay. By law, you have to have healthcare insurance. However, it is also recommended that you take out a liability insurance.

NOTEBOOK
Participants who embark on a course in the MSc, Master or Diploma programme are expected to have a notebook computer at their disposal on arrival at ITC. This notebook computer should meet UT standards, and detailed specifications can be found at www.itc.nl/study.

HARI KRISHNA DHONJU (NEPAL)
GEOINFORMATICS (2010-2012)

“Having an ITC degree made it very easy for me to find a job, as ITC is known to produce competent and independent junior researchers. Currently I am working as a GIS application developer at ICIMOD, Khumaltar, Lalitpur, Nepal.”
LIVING IN THE NETHERLANDS

The Netherlands is situated in Western Europe and is often referred to as the “gateway to Europe”. Many European capitals are within easy reach and just a few hours away.

THE NETHERLANDS: SMALL COUNTRY, BIG OPPORTUNITIES
- A relatively small area of just over 41,000 square kilometres
- Home to over 16.7 million people
- A safe country by international standards
- Well-organized, with a dense, safe public transport network
- The country’s number one mode of transport: the bicycle
- 87% of the population speaks English
- Hosts great events and festivals throughout the year
- A rich history and a tolerant society

The website Study in Holland (www.studyin.nl) is the most comprehensive source of information on living and studying in the Netherlands. The website provides information on finance (funding, living expenses), the Dutch education system, the Netherlands, food, climate and cultural issues.

CITY LIFE
The city of Enschede is buzzing with student life and home to about 20,000 students. Its immediate surroundings offer some remarkable spots of natural beauty and tranquility.

The city is modern and lively and has a rich industrial heritage, which is evident in the many well-preserved historic buildings. Large-scale urban renewal has also given Enschede a new skyline, featuring eye-catching contemporary architecture.

Besides the familiar large department stores, a number of specialist shops can be found downtown. Every Tuesday and Saturday is market day. On Saturday, the busiest day, there are no less than 160 market stalls selling quality goods: not only fresh fruit, vegetables, meat and fish, but also leatherware, clothes, music and Mediterranean delicacies.

On the website Study in Enschede (www.studyinschede.com), you will find more detailed information about life as a student in Enschede – from enjoyable cafés to the large market, from fun student houses to sports clubs and cultural associations. Discover it yourself!

UNIVERSITY LIFE
Students have access to an exceptional range of facilities, services and leisure activities, including a restaurant. Academic facilities include a library and a geoscience laboratory. Everyone has access to advanced computer resources, and specialized offices address almost every need – from medical attention to residence permits.

An elected Student Association Board (SAB) represents the student body on academic and non-academic issues, and organizes social activities.

Outside study hours, course participants can relax together in the Schermerhorn Lounge at the ITC International Hotel (IIH), enjoy regular social events and exchange cultural experiences. Excursions are arranged to major tourist attractions in the Netherlands and neighbouring countries.
Three yearly events that attract considerable interest and are a great deal of fun are the international cultural evening, when course participants perform traditional musical and dance routines from their home countries; the annual sports day, which brings together competitors from all the international education institutes throughout the Netherlands; and the international food festival, when course participants prepare traditional gourmet dishes for anyone within the ITC community to try.

Close to the ITC building the beautiful green park-like campus of the University of Twente offers top facilities for sports and culture. There are over 50 sports and cultural associations active on the campus.

**ACCOMMODATION**

ITC provides accommodation in well-furnished rooms at the ITC International Hotel as an integral component of a study at ITC.

- Located in downtown Enschede
- Close to the ITC main building, the railway station, the main shopping centres, the open-air market and the post office
- 24-hour reception
- Self-service laundry
- A bar operated by the student union, and other recreation areas
- Rooms with internet connection
- An internet café
STUDENT SERVICES

We have an extensive range of facilities and support services for students.

STATE-OF-THE-ART COMPUTER FACILITIES
Computers play an essential role in ITC’s courses. Most courses also include modules on GIS, remote sensing and modelling, where the use of computers is indispensable. ITC’s high-speed network (wired and wireless) ensures that accessing the ITC network and internet is easy and convenient. All course participants are issued with their own lifelong @itc.nl e-mail account.

ITC NOTEBOOK PROGRAMME
Are you considering the possibility of buying a notebook for your study at ITC and do you want to know what to buy? The answer is easy – a state-of-the-art notebook at a very competitive price from the ITC Notebook Programme! ITC has taken the guesswork out of purchasing a notebook computer for study purposes with the ITC Notebook Programme.

MEALS
From Monday to Friday, a variety of moderately priced meals and snacks are available at lunchtime from the self-service restaurant on the ground floor of the ITC building. Course participants living at the International Hotel can make use of common kitchens.

LIBRARY
The ITC faculty library supports the primary processes of the Faculty by ensuring adequate provision of and efficient end-use access to useful scientific material. The ITC faculty library creates an environment (digital) in which course participants can learn how to study and conduct research in an independent way. World-renowned databases such as Web of Science and Scopus, in combination with large online journal platforms, offer a solid knowledge base for ITC’s staff and students. The library also helps staff and students to clearly present their expertise in the form of academic publications, including MSc theses, on the ITC faculty library web pages.

Through literacy lectures and workshops, the library provides course participants with a body of knowledge, practice and experience in the optimal exploitation of the library and its information resource applications and tools. Information literacy competencies include recognizing the need for information, accessing information from appropriate sources, developing skills in using information technologies, critically analysing and evaluating information, organizing and processing information,
applying information for effective and creative decision making, and generating and effectively communicating information and knowledge.

Next to the growing virtual site of the library, some basic facilities are available: individual and group study areas with and without multimedia PCs, and convenient opening hours for course participants. Language courses to improve English language skills are also part of our collection. We invite you to visit our digital library or connect with us through social media (Blog, LinkedIn and Twitter). For more information: www.itc.nl/library.

**GEOSCIENCE LABORATORY**

The GeoScience laboratory at ITC provides services in the field of education and research activities. The laboratory is equipped with a wide range of instrumentation for the spectrometric infrared determination of minerals, soils and vegetation; for inorganic geochemical water and soil analysis; for sample preparation; as well as for the determination of soil properties such as particle size distribution, hydraulic conductivity and bulk density.

In the laboratory, ITC students can receive hands-on training in analytical determination to help them to understand analytical procedures and the quality of their analytical data, and thus help them to optimize sample collection methods and sample analysis by their team workers in the field or laboratory. This will allow them to choose appropriate analytical instrumentation and procedures for their research. Within ITC’s research activities, the GeoScience laboratory can also be used to validate existing analytical datasets and generate additional analytical data.

For more information: www.itc.nl/geoscience_laboratory, where under Current activities and projects a number of illustrated reports will provide a good idea of the possibilities offered by the GeoScience laboratory.

**MEDICAL FACILITIES**

A general practitioner group is on hand to offer initial medical counselling.

**STUDENT AFFAIRS**

Student Affairs is the first port of call for course participants when questions arise. The Student Affairs offices support course participants during their stay at ITC and offer a comprehensive service, covering such matters as residence permits, social and cultural matters, emergencies at home, consular affairs and general student information.
ITC ALUMNI: A WORLDWIDE NETWORK

It may be one, 10 or even 60 years since they left, but ITC’s former students still have a strong bond with the Faculty, Enschede and the Netherlands, and still keep in touch with ITC and friends from their student days.

ITC alumni belong to a worldwide community of over 20,000 individuals, who together form an extensive network of international contacts, a network that includes United Nations organizations, universities, research groups, resources survey and map production services, and various international professional associations.

There are many reasons for alumni to stay in touch with ITC and fellow alumni, and the opportunities to do so are many and various:

• ITC provides alumni with opportunities to expand their knowledge base and to access refresher courses and short tailor-made training
• contact details of alumni can be found on the secure ITC website
• social and business events are organized throughout the world
• in many countries there are ITC alumni associations that organize all kinds of professional and social activities
• alumni have (limited) access to the ITC (digital) library and the services of the library staff
• free personal e-mail accounts are offered by ITC for life
• an alumni community is active on several popular online social media networks, including LinkedIn, Facebook and Twitter
• e-mail accounts and social media networks serve as a means of facilitating communication between alumni and ITC.

For more information about the ITC alumni network, visit www.itc.nl/alumni.
While every effort has been made to ensure that the information contained in this prospectus is accurate at the date of publication (October 2013), all matters covered may be subject to change from time to time, both before and after a student has registered.

Prospective students are strongly advised to check our website (www.itc.nl/study) for any revisions to this prospectus.
INFORMATION ON STUDYING AT ITC
Faculty ITC - Student Registration
Office hours: 9:00 am - 17:00 pm (Central European Time) Monday to Friday
T: +31 (0)53 487 44 44
F: +31 (0)53 487 44 00
E: education-itc@utwente.nl

More detailed information about studying at ITC can be found on our web pages at:

www.itc.nl/study