SCHOOL OF ENGINEERING AND APPLIED SCIENCES

Undergraduate Programs

- Petroleum and Gas Engineering
- Computer Science
- Computer Engineering
- Civil Engineering
- Electronics and Telecommunications
- Chemical Engineering (new, since Fall 2013)
- Bio-medical Engineering (new, since Fall 2013)

Graduate Programs

- Computer Science
- Computer Engineering
- Petroleum and Gas Engineering
- Electronics and Telecommunications (new, since Fall 2013)
- Bio-medical Engineering (new, since Fall 2013)

PhD Programs

- Computer Networking
- Computer Sciences
- Management Information Systems
- Mathematics (Functional analysis, Differential Equations)

The **mission** of the School is to provide educational, research and innovation services in the field of engineering and applied sciences, which are highly demanded and significant for the country's sustainable development.

The **vision** is to become the top school of engineering in the country and the broader region, recognized for its outstanding high-quality education, outreach programs, and innovative research, as well as the character and integrity of its graduates.

Why this school?

- Dynamic academic environment for preparing highly qualified engineers who are capable of assuming professional careers and pursuing graduate and postgraduate studies.
- Outreach degree programs, dissemination of engineering knowledge and facilitation of continuing education through intensive professional courses, workshops, seminars and conferences.
- Research and expanding knowledge in the engineering fields, finding efficient solutions for the problems faced by the engineering society.

Key benefits

- Up-to-date curricula that prepares students for the rapidly changing labor environment
- Distinguished faculty and dedicated staff members
- International student exchange programs with leading universities in the field
- Close links with industries for internship and outstanding career opportunities
- Consistent high level of employers' satisfaction with the graduates of the school

Teaching

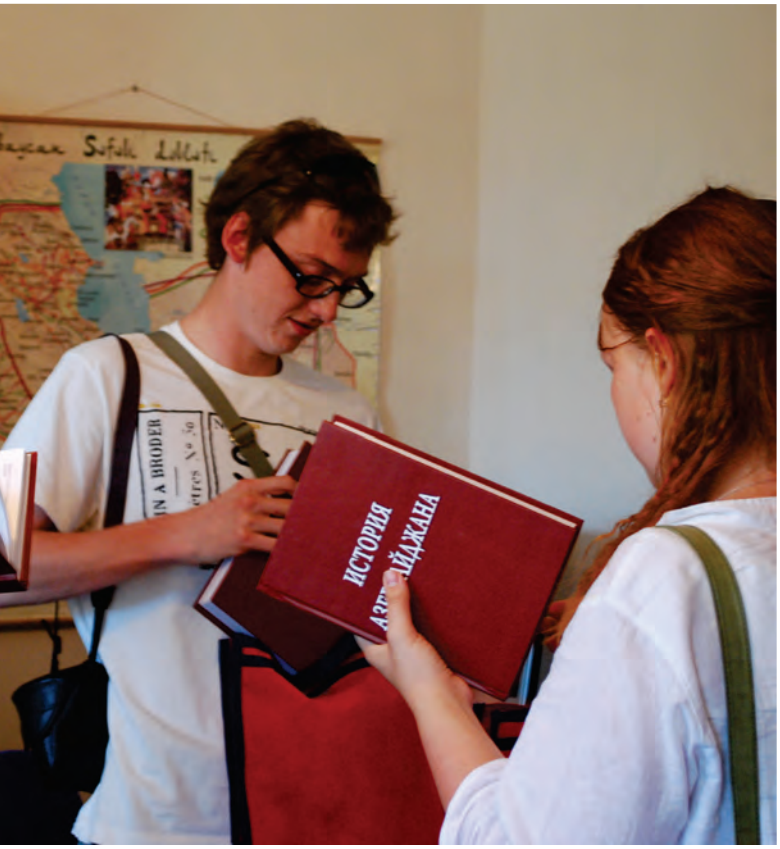
Teaching methods include lectures, discussion of case studies and problem-solving, team-based projects and blended learning, as well as laboratory sessions and field study tours.

Internships

Undergraduate and graduate students have opportunity to apply to the Intern Recruitment Programs for 10-week summer internships as well as other internship programs throughout the academic year. During this internship they may receive competitive salaries and the experience of working together with highly qualified professionals by getting involved in projects and operations.

Scholarships

Since 2003, students of the School have benefitted from BP's scholarship program supporting Petroleum Engineering students during their full four-year undergraduate degree program. Successful beneficiaries of the scholarship have the opportunity to be hired by the sponsoring company. Other scholarship opportunities are also available.



The School offers the following degree programs:

BS

- Petroleum Engineering
- Computer Science
- Computer Engineering
- Civil Engineering
- Electronics and Telecommunications
- Chemical Engineering (new, since Fall 2013)
- Bio-medical Engineering (new, since Fall 2013)

MS

- Computer Science
- Computer Engineering
- Petroleum and Gas Engineering
- Electronics and Telecommunications (new, since Fall 2013)
- Bio-medical Engineering (new, since Fall 2013)

PhD

- Computer Networking
- Computer Sciences
- Management Information Systems
- Mathematics (Functional analysis, Differential Equations)

The School of Engineering and Applied Science, through its degree programs is deeply committed to ensure that all students meet the goals and learning objectives necessary to achieve the highest level of excellence in their future endeavors.

Note: Khazar University constantly continues to develop new degree programs.

BS in Petroleum and Gas Engineering

Area of Studies: Applied Sciences
Length of studies: 256 ECTS credits
Qualification: Bachelor of Science in Petroleum and Gas Engineering

Overview

The program prepares qualified petroleum and gas engineers capable to undertake professional responsibilities for optimal development and prudent management of oil and gas resources. The objective of the program is to enable graduates to apply professional knowledge, skills, and tools suitable for engineering practice.

Career Prospects

The completion of the program in Petroleum and Gas Engineering equips the students with skills and knowledge enabling them to solve future tasks and challenges related to the exploration and production of oil and gas. There are great work opportunities within the traditional as well as the innovative oil and gas industry. Possible workplaces include local and international oil companies, consultancy firms and service providers.

CURRICULUM:

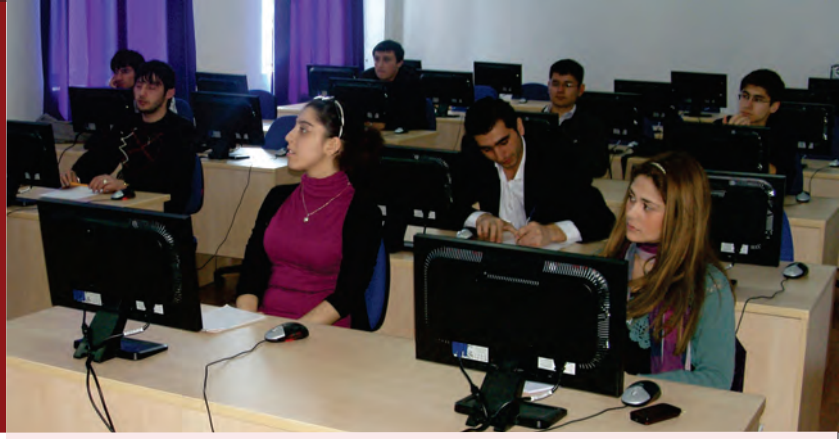
Major Requirements

- Calculus I, II
- Applied Differential Equations
- Physics I, II
- Chemistry I, II
- Engineering Mechanics
- Strength of Materials
- Fluid Mechanics
- Thermodynamics
- Computer Graphics
- General Geology
- Petroleum Geology
- Physics of Oil and Gas Reservoirs
- Drilling Engineering
- Petroleum Reservoir Engineering I, II
- Well Logging
- Petroleum Production Technology
- Health, Safety and Environment
- Management and Organization

Summer Practice

Major Elective Courses

BS in Computer Science



Area of Studies: Applied Sciences
Length of studies: 256 ECTS credits
Qualification: Bachelor of Science in Computer Science

Overview

The program teaches the knowledge of programming languages and logic algorithms as well as the study of cutting-edge computing technologies. The objective of this program is to prepare students for graduate studies or for further employment, with achievement of professional excellence in a wide range of academic, industrial, business, and non-industrial environments.

Career Prospects:

Computer science graduates are being recruited by local and international IT and business companies of private and public sectors. Students of Khazar University are hired for programming and software development, information systems operation and management, telecommunications and networking, computer science research, web, graphics and multimedia design.

CURRICULUM:

Major Requirements

- Calculus I, II
- Discrete Mathematics
- Applied Linear Algebra
- Probability and Statistics
- Physics I, II

Lower Division

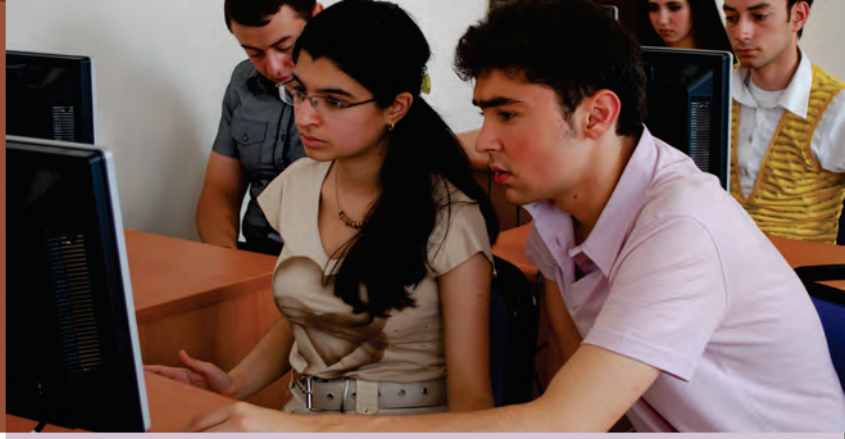
- Fundamentals of Computer Programming
- Computer Applications in Engineering
- C-Programming
- Data Structures and Algorithms
- Management and Organization

Upper Division

- Operating Systems
- Computer Architecture
- Computer Networks and Communications
- Information Management
- Database Management System
- Computer Graphics
- Artificial Intelligence
- Object-Oriented Programming Languages
- Soft Computing
- Software Engineering
- Web Programming
- Decision Science Foundations
- Multimedia Systems

Practicum and Internship

BS in Computer Engineering



Area of Studies: Applied Sciences
Length of studies: 256 ECTS credits
Qualification: Bachelor of Science in Computer Engineering

Overview

Undergraduate program in computer engineering provides education necessary to understand, design, implement and use the software and hardware of computers. Students combine computer engineering studies with pertinent aspects of electrical engineering such as circuit theory, signals and systems, electronic circuits and design, integrated circuits and device utilization.

Career prospects:

A degree in Computer Engineering leads to a wide range of opportunities for successful career. Graduates of the program are employed mainly as engineers, programmers, network and graphic designers, and consultants by the international and local industrial, business, ICT companies, and educational institutions.

CURRICULUM:

Major Requirements

- Calculus I, II
- Discrete Mathematics
- Applied Linear Algebra
- Differential Equations
- Physics I, II

Lower Division

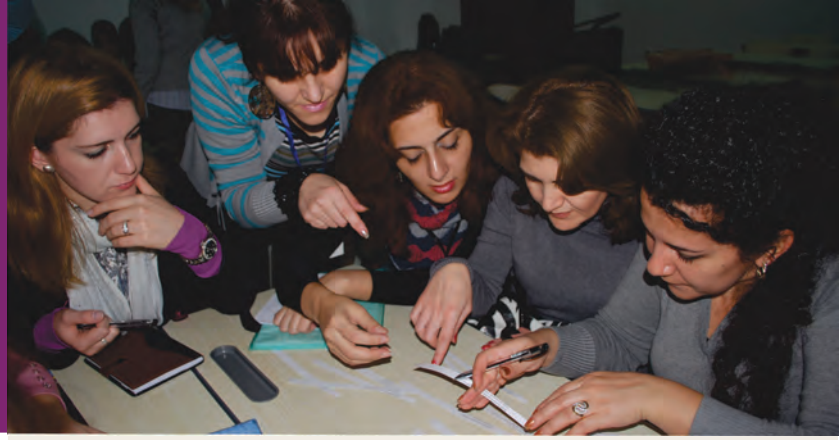
- Computer Applications in Engineering
- C-Programming
- Data Structures and Algorithms
- Circuits Theory
- Management and Organization

Upper Division

- Operating Systems
- Digital Logic
- Computer Architecture
- Computer Networks and Communications
- Database Management System
- Operations Research
- Computer Graphics
- Signals and Systems
- Artificial Intelligence
- Software Engineering
- Engineering Economy
- Computer Engineering Design

Practicum and Internship

BS in Civil Engineering



Area of Studies: Applied Sciences
Length of studies: 256 ECTS credits
Qualification: Bachelor of Science Degree in Civil Engineering

Overview

The program leads to the Bachelor of Science degree with the concentration on Civil Engineering Materials, Construction Engineering and Project Management, Environmental Engineering, Geotechnical Engineering, and Structural Engineering.

The flexible curriculum of undergraduate program provides education in civil engineering and a number of major and non-major electives.

All students have a personal faculty supervisor who helps them to develop an individual study plan and track its progress.

Career Prospects:

Graduates of the program are qualified for a responsible position in the civil engineering industry as engineers, analysts, designers and construction managers. Prospective employers include construction companies, consulting engineers, industrial firms and various government agencies.

CURRICULUM:

Major Requirements

- Calculus I, II
- Applied Linear Algebra
- Applied Statistical Analysis
- Physics I, II
- Chemistry I

Lower Division

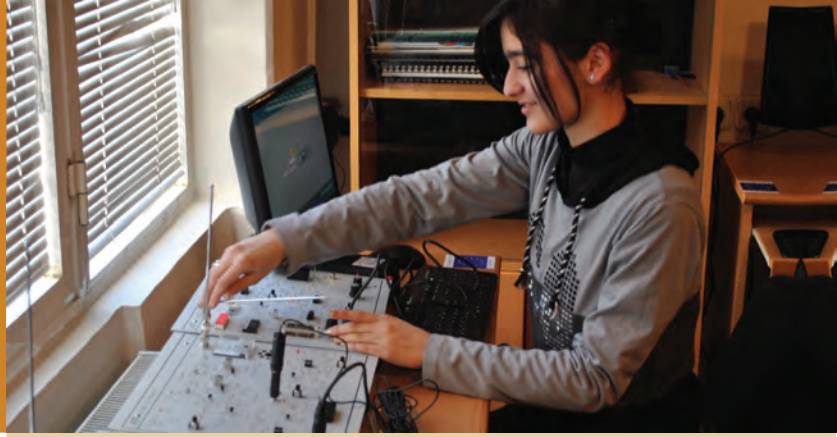
- Engineering Mechanics
- Mechanics of Materials
- Fluid Mechanics
- Chemistry II
- Computer Graphics

Upper Division

- Geology for Civil Engineers
- Civil Engineering Drawings
- Surveying
- Materials of Construction
- Design of Building Structures
- Soil Mechanics
- Foundation Engineering
- Structural Analysis
- Health, Safety and Environment
- Management and Organization

Major elective courses
Summer Practice

BS in Electronics and Telecommunications



Area of Studies: Applied Sciences
Length of studies: 256 ECTS credits
Qualification: Bachelor of Science in Electronics and Telecommunications

Overview

The program is designed in accordance with the high standard curricula of the leading universities in the field and provides professional education for its students in such core disciplines as: Signal processing; Micro-electronics; Communications; Control systems; Radio frequency design; Microprocessors and Power Generation.

Career Prospects:

Employment opportunities are available in a diverse variety of growing industries, such as renewable energy, radar and remote sensing, biomedical engineering, defense, information security and telecommunications. This includes but is not limited to: telecommunications (operators, engineering companies and consultancy firms, manufacturers), software, electronics and mechanics, aerial companies, radio engineering, recording studios, technology centers.

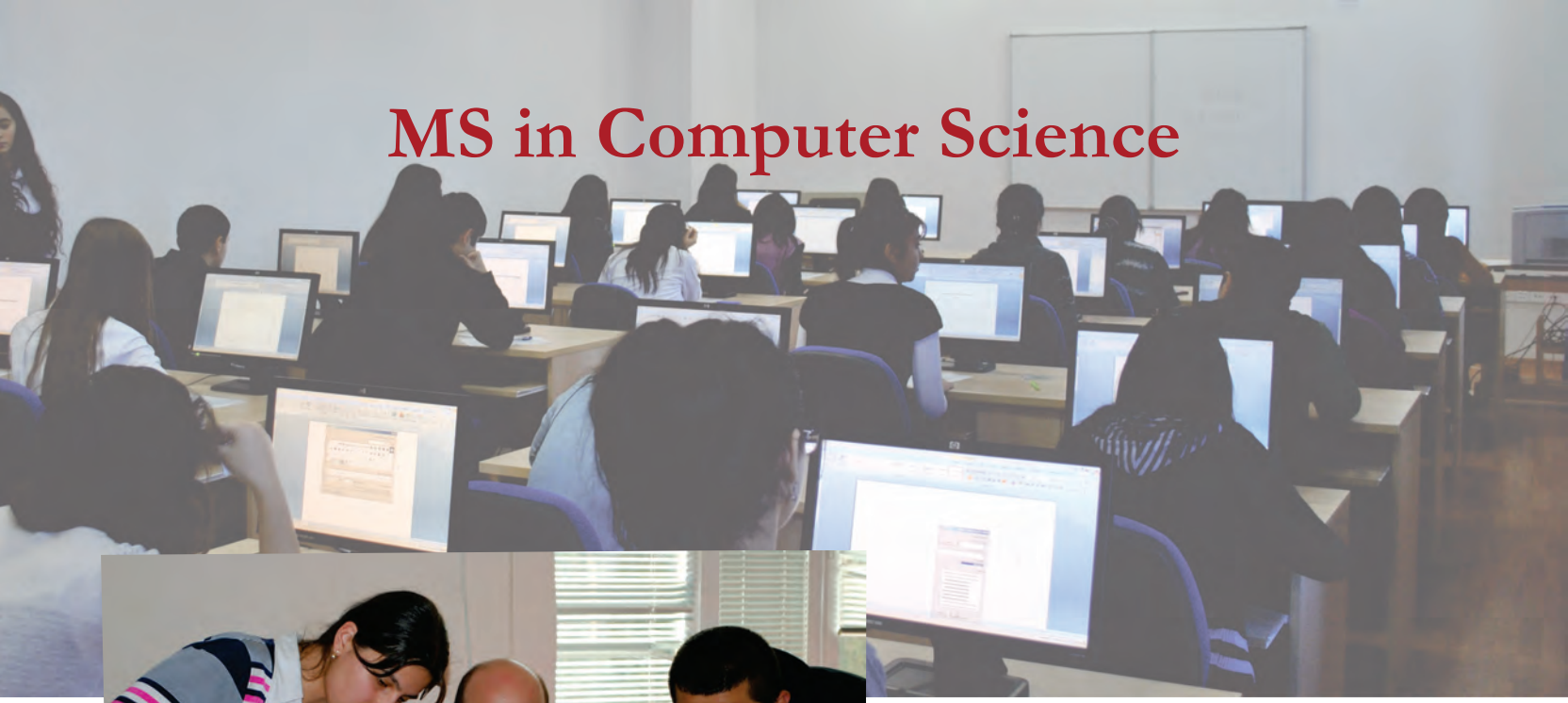
CURRICULUM:

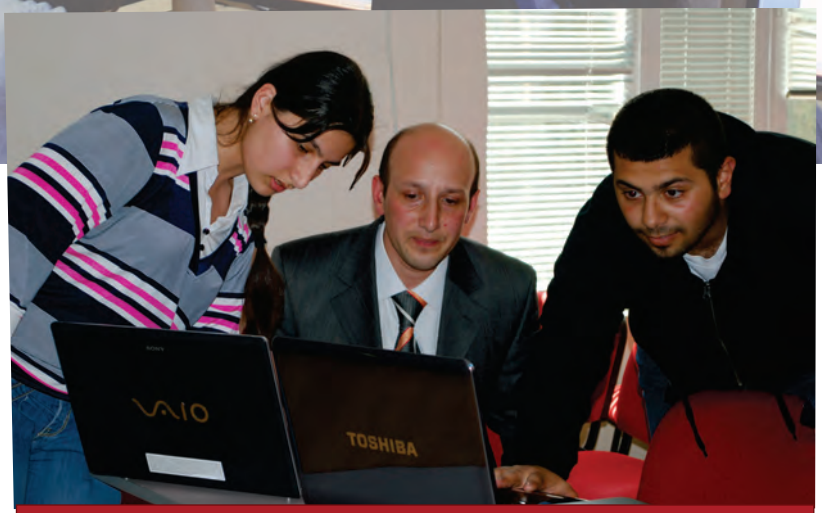
Major Requirements

- Calculus I, II
- Applied Differential Equations
- Physics I, II
- Circuits Theory
- Digital Logic
- Computer Graphics (Fundamentals of Programming)
- Management and Organization
- Semiconductor Devices and Modeling
- Analog Electronics
- Digital Electronics
- Computer Networks and Communications
- Telecommunication Systems
- Telecommunication Networks
- Electromagnetic Theory
- Fundamentals of Radio Engineering
- Radio Engineering Equipment

Major elective courses

MS in Computer Science





CURRICULUM:

- **Basic Prerequisites**
- **Computer Science Prerequisites**
- **Required courses:**

  Intelligent Systems

  Advanced Computer Networks

  Network Programming

  Advanced Database Systems

  Decision Theory
- **Major elective courses**
- **Thesis**

Area of Studies: Applied Sciences
Length of studies: 90 ECTS credits
Qualification: Master of Science in Computer Science

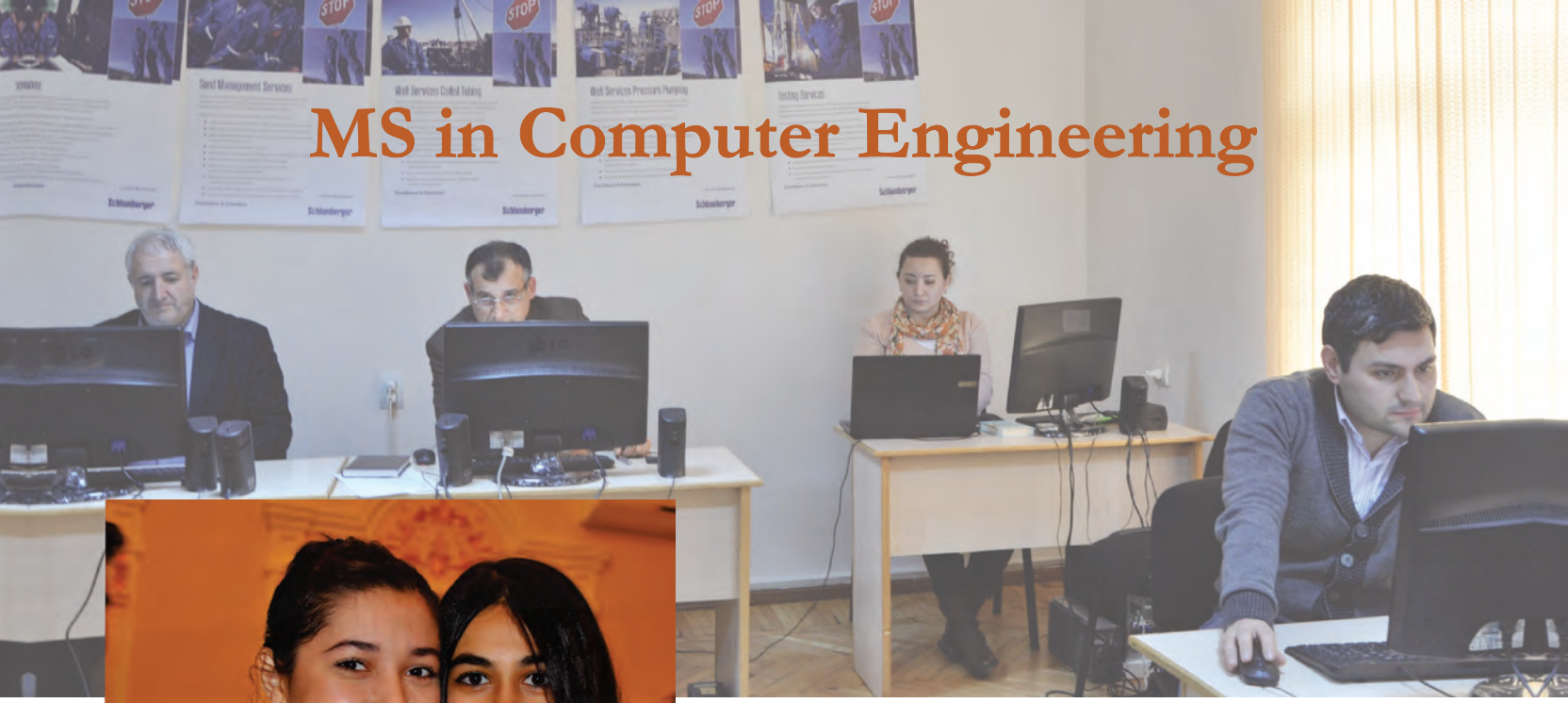
Overview

The MS degree program gives students the opportunity for further education at the advanced level in Computer Science.

Career Prospects

There is a high market demand for the highly qualified specialists of computer science in different corporations, companies, organizations, and firms. Almost 90% of our graduates are employed within the first three months after graduation and most MS students have part-time job during their study period.

MS in Computer Engineering



Area of Studies: Applied Sciences
Length of studies: 90 ECTS credits
Qualification: Master of Science in Computer Engineering

Overview

The program gives qualified students the opportunity for further education at the advanced level in Computer Engineering. Graduate students are specialized in Computer Graphics, Multimedia Systems and other areas of Computer Engineering.

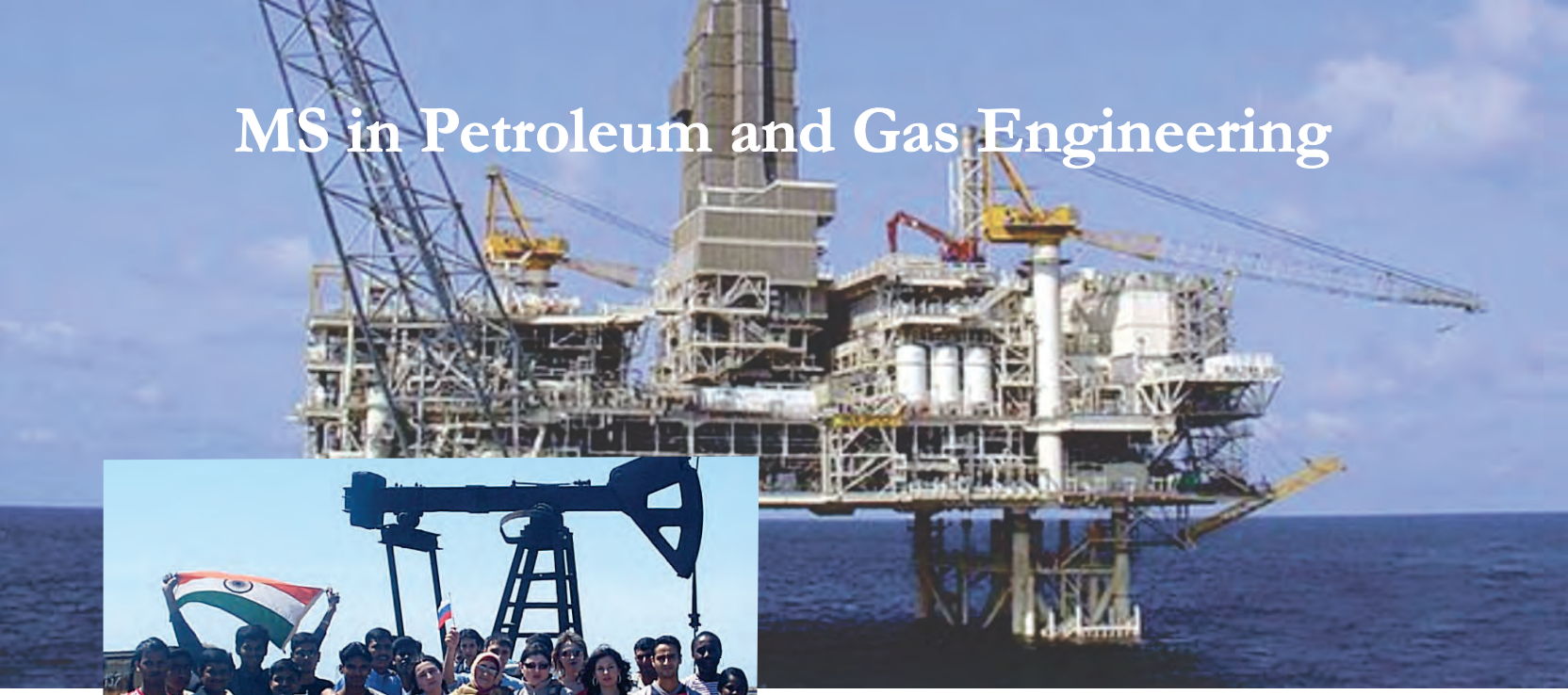
Career prospects:

Graduates of the program find employment in areas such as hardware engineering, IT consultancy, system programming, system engineering/analysis, software engineering, test engineering, etc. The main industries interested in employing Khazar students and graduates are the consumer electronics industry, video-game industry, telecommunication industry, IT consulting firms.

CURRICULUM:

- **Basic Prerequisites**
- **Computer Engineering Prerequisites**
- **Required courses:**
  Advanced Computer Architecture
  Knowledge Engineering
  Advanced Computer Graphics
  Digital Signal Processing
  Software Engineering Systems
- **Major elective courses**
- **Thesis**

MS in Petroleum and Gas Engineering



CURRICULUM:

- **Basic Prerequisites**
- **Petroleum Engineering Prerequisites:**
  Physics of Oil and Gas Reservoirs
  Drilling Engineering
  Petroleum Reservoir Engineering
  Petroleum Production Technology
- **Required courses:**
  Petroleum Geosciences
  Enhanced Oil Recovery Methods
  Non-Newtonian Systems
  Application in Petroleum Production
  Offshore Reservoir Engineering
  Petroleum Engineering Design and Development
  Operations Management
- **Thesis**
- **Major Elective Courses**

Area of Studies: Applied Sciences
Length of studies: 90 ECTS credits
Qualification: Master of Science in Computer Science

Overview

The graduate program provides specialization in various fields of Petroleum and Gas Engineering and develops skills of analysis and synthesis necessary for initiating and conducting research. The program is designed to provide in-depth theoretical and applied training needed to function successfully as professionals.

Career prospects:

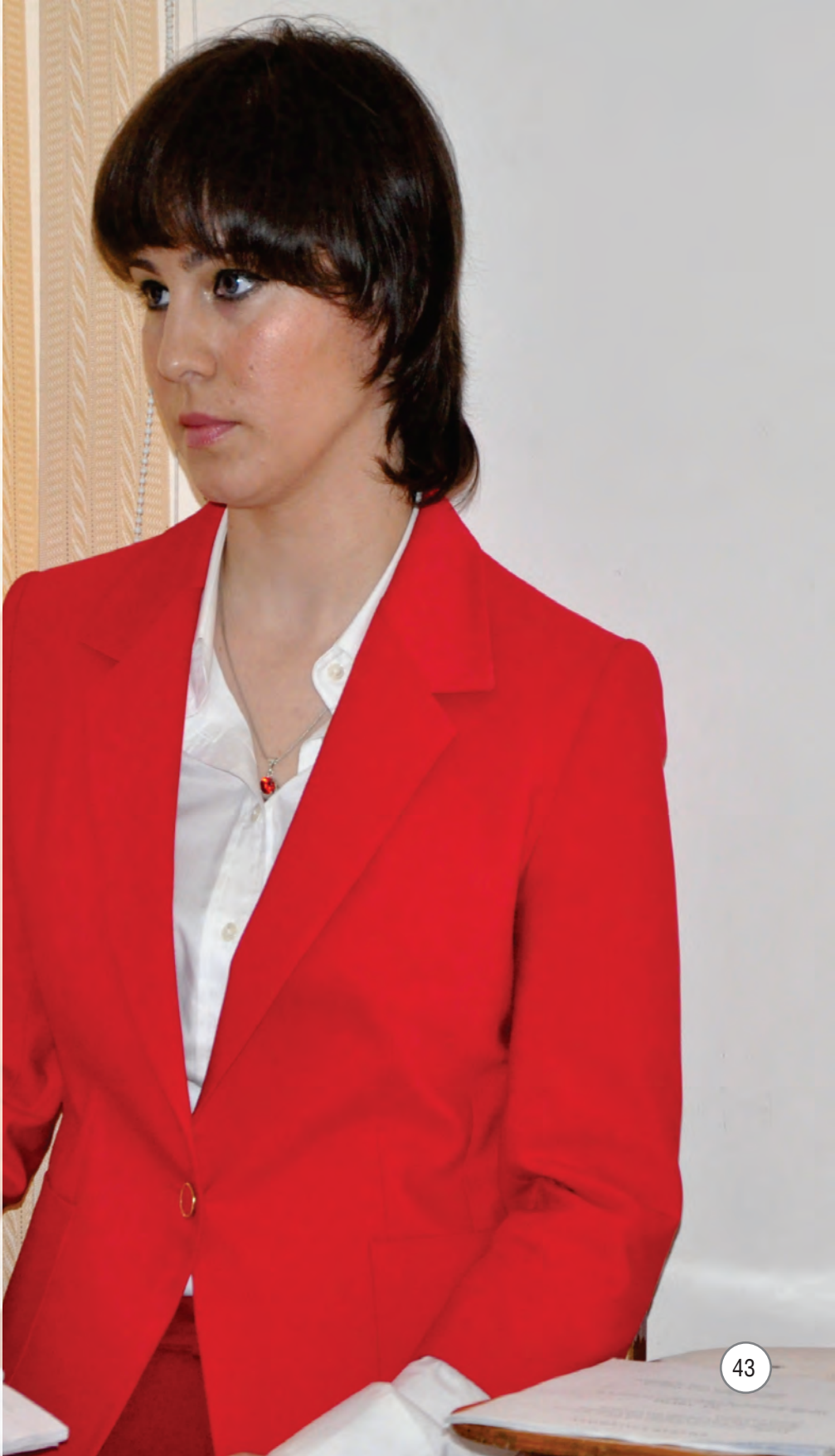
Petroleum engineers are involved in nearly all stages of oil and gas field evaluation, development and production. Close links with oil and gas industries ensure our students' attractiveness to local and international employers such as: BP, Schlumberger, Halliburton, SOCAR, Statoil, AzerEnergy, AzerSu and others.

PhD Degree Programs

- Computer Networking
- Computer Sciences
- Management İnformation Systems
- Mathematics (Functional analysis, Differential Equations)

PhD degree programs offer the opportunity to acquire a doctor's degree within the research programs that prepare students for a career in universities, government entities or private organizations, as well as enable them to conduct research in their field of interest.

These PhD programs offer students a rich scientific environment (laboratories, study materials, supervision, internships, etc.) allowing them to take advantage of a high-level education. Doctoral students need to complete the required number of courses, pass comprehensive examinations, write a thesis proposal, and defend a dissertation.



I am really grateful that I had the chance of studying Petroleum and Gas Engineering at Khazar. The University is a good place to study, the lecturers are nice and always at your service, while the facilities are impressive. It provided me with fundamental technical skills and good knowledge of the subject within an amazingly multicultural environment.

Shaig Khanlarov
Azerbaijan
BS, MS in Petroleum and Gas Engineering