National Peculiarities of Education of Master's Program "Cadastre and Land Management" in Russia

Prof. Vladimir Golubev, Ass. Prof. Irina Fartukova
Russia, MIIGAiK

FIG Working Week -2012, Rome, Italy 6-10 May
Agenda

- Peculiarities of different Education systems
- Trends and necessary changes in Education
- MIIGAiK – one of the oldest university in Russia
- Economics and Land management Faculty
  - Study Programs
  - Student contingent
  - Faculty’s Departments
- Masters programmes in Russia
  - State Educational standards of Masters programmes in Russia
  - The curriculum of Master’s Program
  - Curriculum components
  - Educational Methodology
- Innovative technologies for learning and management of education process
- Perspectives and current tasks

Transition period

Bologna system of higher education

2011

- Russian universities have finally switched over to a two-level bologna system of education.
- High schools has changed old curricula and developed new Bachelor’s and Master’s curricular.
According to statistics from Russia’s Ministry of Education, Russia is the eighth-largest exporter of students in the world, after the United States, the UK, Germany, France, Austria, Spain and Canada.

**Education systems**

**RU**
- Postgraduate professional education
  - Doctor of Science (3-4 years)
- Candidate of Science (3-4 years)
- Higher professional education
  - Master’s degree (2 years)
  - Bachelor’s degree (4 years)
- Specialist (5-6 years)
- Universities

**EU**
- Third cycle
  - Doctoral studies
    - Doctoral degree
    - Minimum 3 years
- Second cycle
  - Master’s programme
    - Master’s degree
    - 90 to 120 ECTS (minimum 60)
- First cycle
  - Bachelor’s programme
    - Bachelor’s degree
    - 180 to 240 ECTS
Education system in RUSSIA

- Bachelor’s Level: 4 years
- Specialist’s level: 5 years
- Master’s Level: 2 years
- Candidate of Science: 4 years
- Doctor of Science: 4 years

Education: the necessary changes

**Current needs**

- Ensuring a high level of education
- The use of learning new approaches, solutions and models
- Ability to concentrate on teaching and learning
- The development of cooperation in sharing experiences and developing new technologies
- Support research
- Cost Management
- Improve business processes

**IT needs**

- Virtual learning environment
- Integrated systems
- Centralized, secure database
- High-powered computing and custom applications for research
- Cost-effective IT infrastructure
### Образование: необходимые изменения

<table>
<thead>
<tr>
<th>Текущие потребности</th>
<th>ИТ-потребности</th>
</tr>
</thead>
<tbody>
<tr>
<td>Обеспечение высокого уровня образования</td>
<td>Доступ к виртуальной среде обучения из любой точки мира</td>
</tr>
<tr>
<td>Использование в обучении новых подходов, решений и моделей</td>
<td>Встроенная Интернет-система, обеспечивающая легкий доступ и управление инструментами для обучения, цифровыми ресурсами и информацией об учащихся</td>
</tr>
<tr>
<td>Возможность сосредоточиться на процессе преподавания и обучения</td>
<td>Централизованная безопасная база данных, предоставляющая легкий доступ к данным, учебным планам и инструментам для обучения</td>
</tr>
<tr>
<td>Развитие сотрудничества в области обмена опытом и разработки новых технологий</td>
<td>Высокопроизводительные технические и пользовательские приложения для научных исследований</td>
</tr>
<tr>
<td>Поддержка научных исследований</td>
<td>Экономичная ИТ-инфраструктура</td>
</tr>
<tr>
<td>Управление затратами</td>
<td></td>
</tr>
<tr>
<td>Развитие бизнес-процессов</td>
<td></td>
</tr>
</tbody>
</table>

### Moscow State University of Geodesy and Cartography (MIIGAiK)

- MIIGAIK - is one of the oldest universities in Russia
- MIIGAIK was established in 1779 by Ekaterina II
- MIIGAIK – is leading surveying university in Russia and one of the largest surveying institutions of Europe.
- MIIGAIK consists of seven Faculties and trains almost 5000 students.
- MIIGAIK educates students in surveying, land management, real estate cadastre, geoinformation, land information systems
Educational programmers

Economics and Land management Faculty, MIIGAiK:
- Bachelor programmes
- Masters programmes
- Retraining and postgraduate courses
- Long-life learning

Study Programs
Economics and Land management Faculty

- There are main Bachelor’s programmes:
  - Real Estate Management
  - Cadastre and Land Management
  - State and Municipal Management
  - Economics

Period of education - 4 year
Study Programs
Economics and Land management Faculty

- There are main Master’s programmes:
  - Real estate planning and development
  - GIS and LIS
  - Land Cadastre, registration and administration
  - Land management
  - Real estate valuation and management

Period of education - 2 year

Student contingent
at Economics and Land management Faculty

The contingent of full-time students

<table>
<thead>
<tr>
<th>Programs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadastre and Land</td>
<td>251</td>
</tr>
<tr>
<td>management</td>
<td></td>
</tr>
<tr>
<td>Real Estate Management</td>
<td>248</td>
</tr>
<tr>
<td>State &amp; Municipal</td>
<td>147</td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

- Total: around 800
- State-financed: around 400
Faculty’s Departments

Faculty consists of four main departments:

- Cadastre and Land Law Department
- Economics and Business Department
- Philosophy and social-economic sciences
- Real Estate Management and Development Department

Master’s programs

- Particular attention is paid to Master’s level because it is new in Russia.

Master’s level develops research skills and give a basis for Candidate of Science or Doctor of Science studies level.

- the formation of educational materials,
- establishing a scientific and educational base,
- establishing contacts with the industrial organizations as a scientific base for training undergraduates.
State Educational standards in Russia

The general curriculum standard structure for Masters Level

<table>
<thead>
<tr>
<th>Part</th>
<th>Types of studies</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>General scientific part</td>
<td>18 - 24</td>
</tr>
<tr>
<td></td>
<td>• Basic block</td>
<td>9 – 12</td>
</tr>
<tr>
<td></td>
<td>• Elective component, including elective courses</td>
<td>6-9</td>
</tr>
<tr>
<td>M2</td>
<td>Professional part</td>
<td>36 - 40</td>
</tr>
<tr>
<td></td>
<td>• Basic block</td>
<td>18 – 20</td>
</tr>
<tr>
<td></td>
<td>• Elective component, including elective courses</td>
<td>16-22</td>
</tr>
<tr>
<td>M3</td>
<td>R &amp; D, practical training</td>
<td>56</td>
</tr>
<tr>
<td>M4</td>
<td>Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

1 credit = 36 hours

The curriculum of Master’s Program "Cadastre and Land Management"

Structure of the curriculum for Master’s Program "Cadastre and Land Management"

<table>
<thead>
<tr>
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<tr>
<td>M1</td>
<td>General scientific part</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>• Basic component</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Elective component, including elective courses</td>
<td>12</td>
</tr>
<tr>
<td>M2</td>
<td>Professional part</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>• Basic component</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>• Elective component, including elective courses</td>
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<tr>
<td>M1</td>
<td>General scientific part</td>
<td>32</td>
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<td>• Basic component</td>
<td>10</td>
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1 credit = 36 hours

M1 - General scientific part

- The purpose of General scientific part - to familiarize the student with the modern science schools, research methodology, computer technology in science and education, trends in the development of information systems and technology, legal aspects.

Basic component of the General scientific part

<table>
<thead>
<tr>
<th>1 semester</th>
<th>2 semester</th>
<th>3 semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Mathematics</td>
<td>Legal support of innovation</td>
<td>Philosophy and Methodology of Science</td>
</tr>
<tr>
<td>3 Credits</td>
<td>2 Credits</td>
<td>2 Credits</td>
</tr>
<tr>
<td>Information Computer Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Credits</td>
<td></td>
<td></td>
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<td>120</td>
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</table>

1 credit = 36 hours

M2 - Professional part

The purpose of professional part:
- to develop the advanced competencies and skills in real estate cadastre, land monitoring, surveying and data processing of information,
- to investigate trends in GIS, LIS
- to examine methods of use of software and devices,
- to familiarize modern information technology in land management, cadastre, land monitoring.

Basic component of the Professional part

<table>
<thead>
<tr>
<th>1 semester</th>
<th>2 semester</th>
<th>3 semester</th>
<th>4 semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern problems of Land Management and Cadastre</td>
<td>Modern problems of Land Management and Cadastre</td>
<td>Real Estate Planning and Development</td>
<td></td>
</tr>
<tr>
<td>6 Credits</td>
<td>4 Credits</td>
<td>4 Credits</td>
<td>4 Credits</td>
</tr>
<tr>
<td>Real Estate Cadastre</td>
<td>Automated systems of Cadastre (GIS and LIS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Credits</td>
<td>3 credits</td>
<td>3 credits</td>
<td>3 credits</td>
</tr>
</tbody>
</table>
### The curriculum of Master's Program "Cadastre and Land Management"

- **Structure of the curriculum for Master's Program "Cadastre and Land Management"**

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<td><strong>Total</strong></td>
<td></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

1 credit = 36 hours

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### Elective component of M1 and M2 parts

**Elective component** of M1 and M2 parts is formed and set by the University.

MIIGAiK has developed the following profiles:
- Real estate management and development
- LIS (Land Information System);
- Cadastre and Land Registration
### Elective component of M1 and M2 parts

**Elective component** of the Master's Programme
“Real estate management and development”

<table>
<thead>
<tr>
<th>1 semester</th>
<th>2 semester</th>
<th>3 semester</th>
<th>4 semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Law and Administrative Law</td>
<td>Land Information Systems</td>
<td>System of State and Municipal Management</td>
<td>Informational Technologies of Real Estate Management</td>
</tr>
<tr>
<td>5 Credits</td>
<td>5 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
</tr>
<tr>
<td>Land Monitoring and Build Environment</td>
<td>Valuation of Investments projects</td>
<td>Urban Infrastructure and Development</td>
<td>3 Credits</td>
</tr>
<tr>
<td>3 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
<td></td>
</tr>
</tbody>
</table>

### Elective component of M1 and M2 parts

**Elective component** of the Master's Programme
“LIS (Land Information System)”

<table>
<thead>
<tr>
<th>1 semester</th>
<th>2 semester</th>
<th>3 semester</th>
<th>4 semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Law and Administrative Law</td>
<td>Land Information Systems</td>
<td>Corporate GIS</td>
<td>Informational Technologies of Real Estate Management</td>
</tr>
<tr>
<td>5 Credits</td>
<td>5 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
</tr>
<tr>
<td>Technologies of Database Development</td>
<td>Creating Spatial Data Information System for Cadastre</td>
<td>Operation of Distributed Database</td>
<td></td>
</tr>
<tr>
<td>3 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Elective component of M1 and M2 parts

**Elective component** of the Master's Programme “Cadastre and Land Registration”

<table>
<thead>
<tr>
<th>1 semester</th>
<th>2 semester</th>
<th>3 semester</th>
<th>4 semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal basis of property rights registration</td>
<td>Technology of state cadastral registration</td>
<td>Registration system in foreign countries</td>
<td>Preparation, evaluation and examination of materials for the registration of rights to immovable property</td>
</tr>
<tr>
<td>5 Credits</td>
<td>5 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
</tr>
<tr>
<td>GIS for cadastral</td>
<td>Valuation of Investments projects</td>
<td>Real estate transactions and their registration</td>
<td></td>
</tr>
<tr>
<td>3 Credits</td>
<td>3 Credits</td>
<td>3 Credits</td>
<td></td>
</tr>
</tbody>
</table>

Educational Methodology

According with the standards in RF the educational process should be provided with different educational technologies.

Curricula provide the following educational parts:

- Lectures (no more than 20% of all sessions);
- Practical and laboratory classes;
- Interactive sessions (in the form of discussions);
- Research in the laboratories of the University (simultaneously with studying);
- Practical training in the professional organizations (so simultaneously with studies, as in the summer time);
- Teaching Practices.
Laboratory of Automated learning is aimed at implementing interactive approaches in the learning process. On-line training, the use of Internet resources (real estate databases, online cadastre etc.), multimedia technology, the use of digital libraries, simulating programs, and educational videos are some of the methods used in this laboratory.

Controlling Program
Training Program

Electronic textbooks
Slide lecture
Videolectures
Educational films

Programs that simulate the processes
Interactive Whiteboards

Learning with on-line technologies

Innovative technologies developed at Faculty

- MIIGAiK adopts an integrated approach, both in learning and management of education process.
- There are two main parts of innovations:
  - Innovative technologies for learning
  - Innovative technologies for management of education process
Innovative technologies for learning

Innovative Technologies in Education
/ slide lectures, Educational films/

History of Geodesy

Google Earth

Land Law (Lecture)

Educating film “Surveying”
Teaching process with Interactive Whiteboards
Innovative Technologies in Education. Faculty on-line

Access to the system, logging in...

moodle.feut.ru

Innovative Technologies in Education. Faculty on-line

If you are not subscribed to the course, subscribe by entering a code word.

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Innovative Technologies in Education
Innovative Technologies in Education.
Virtual libraries

www.geodesy.ru/library
Innovative Technologies in Education.
Virtual libraries

access to e-books

www.geodesy.ru/library

www.geodesy.ru/library

E-library contains over 100 books
Informational exchange system and data storage for training

Development of systems accumulation and storage of knowledge
Development of systems
accumulation and storage of knowledge

We get access to the list of course materials

Faculty’s Departments
Perspectives and current tasks

- to establish new laboratories for research activities,
- organization of the technical and informational support of the teaching process
- transition to blended learning
- increase of mobility of students, teachers and researchers
- creation of an integral system of education quality assurance
- development of cooperation in quality assurance with a view to develop comparable criteria and methodologies.
- provision of "comparability" of diplomas, separate courses, credits

Innovative technologies
for management of education process
Innovative technologies for management of education process

Possibility to choose all information on any student by name

- Name
- Photo
- Address
- ID
- E-mail
- Phone
- and other
Innovative technologies for management of education process

- Form of education
- Number of contract (if self-financed student)
- Date of beginning
- and other

Innovative technologies for management of education process

- Previous diplomas or documents of education
- and other
Innovative technologies for management of education process

- Type of education
- Program of Education
- Current status

- Plan of education
- Subjects
- and other
Innovative technologies for management of education process

- Plan of education
- Subjects
- Credits
- and other
Innovative technologies for management of education process

- Plan of education
- Subjects
- Credits
- etc

Innovative technologies for management of education process

- Forming of certificates
- etc
Innovative technologies for management of education process

Individual control of the final achievements

Thank you for attention!
Contacts

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Vice-dean, Economic and Land Management Faculty, MIIGAiK,
Vice-chair, FIG Working Group 2.1.,
Commission 2 - Professional Education
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+ 7 499 262 53 65
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Thank you for attention!

Prof. Vladimir Golubev, Ass. Prof. Irina Fartukova
Russia, MIIGAiK
FIG workshop in Moscow

INTERNATIONAL WORKSHOP 2012 - MOSCOW
GLOBAL TRENDS AND CONVERGENCE IN SURVEYING EDUCATION

http://fig.miigaik.ru

Venue: MIIGAiK, Moscow, RUSSIA
Date: 26-28 September, 2012

WELCOME TO MOSCOW!!!
FIG Workshop's main goals

- promote the exchange of ideas and experiences among educational schools and Universities in surveying, real estate planning and development, land law in land management and administration
- discuss global trends, technical, social and economic aspects of education in surveying and real estate management field and ways of convergence in Surveying Education to generate sustainability of real estate
- help strengthening the networks between educational system and state authorities or business society to the benefit of a better education for all

http://fig.miigaik.ru

FIG Workshop's organizers

Conference organizers:

International Federation of Surveyors FIG, Commission 2
Moscow State University of Geodesy and Cartography, Economics and Land Management Faculty
International Academy of Real Estate

http://fig.miigaik.ru
Important dates

**Submission of papers**
- Abstract (max. 1000 words) - 15 July 2012
- Full paper (max. 5000 words) - 31 August 2012

**Registration**
- Early Bird Registration before 20 July 2012 - 190 EUR
- Normal Registration from 21 July 2012 to 26 September 2012 - 240 EUR

http://fig.miigaik.ru

Sightseeing

- Museum "Gold Rooms" in MIIGAiK - is former Demidov house, an architectural monument of the 18th century
- Exclusive tour "One day in Star City"

http://fig.miigaik.ru
Museum "Gold Rooms" in MIIGAiK - is former Demidov house, an architectural monument of the 18th century.

Sightseeing

http://fig.miigaik.ru

Exclusive tour "One day in Star City"

http://fig.miigaik.ru
Exclusive tour
"One day in Star City"

WELCOME!
Welcome to MOSCOW!!!

fig.miigaik.ru

Thank you for attention!

Welcome to MOSCOW!!!

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