# COMPUTER MODELING

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| Programme type | Master's studies (university) |
| Field of study | Informatics |
| Study area | Computing |
| Degree | Master in Computing |
| Duration | 1,5 years (3 semesters) |
| Workload | 90 ECTS |
| Language of instruction | English |
| Location | Vilnius, Lithuania |
| Starting date | 1st of September |
| Tuition fee EU students | 3236 EUR/per year |
| Tuition fee Non-EU students | 4000 EUR/ per year |

## PROGRAMME DESCRIPTION

The Computer Modeling programme ensures to use computer modelling technologies and participate in their development, to imply the generation and analysis of hypotheses and ideas, scientific, empirical and applied research, interpretation of results, to develop research and analytical skills, professional ethics code, to generate reports. The specific character of programme is constant improvements of various kind, as adding courses of cloud computing, of images and signal processing, of web services, etc. Students will gain also skills to research work, including HPC (high performance computing), Grid/ Cloud computing, or using supercomputer.

- *The objective*

The objectives of programme is to educate specialists with competences of the mathematical and computer modelling; to make research and apply knowledge in modelling of processes of physical sciences; to provide with skills of abstract thinking, assessment, and with attitudes that enable creativity when technologies are changing; to stimulate the ability to communicate, propagate knowledge in the academic community, public sector, and business, also, the ability to integrate oneself into the community of the European science, technological development, and product marketing.

- *Career opportunities*

Positions in enterprises in the national or private sector where the applied practical or scientific computing is undertaken or problems in physical sciences are solved using mathematical or computer models that benefit by modern technologies.

- *Access to further studies*

The graduates can also pursue further studies in informatics (computer science), software engineering, and information technologies.

## KEY LEARNING OUTCOMES

Data Management, Modeling and Analysis (25%), Modern Technologies (16%), Scientific Research (35%), Optional Subjects (12.2%).

## COURSE INFORMATION

The programme has the following structure:

| Course Type | 1st Semester | 2nd Semester | 3rd Semester |
|---|---|---|---|
| **Compulsory Courses** | Spatial Databases (5 ECTS) | Data Mining (5 ECTS) | Master Thesis (30 ECTS) |
| | Methods of Cryptography (5 ECTS) | JAVA Technologies (5 ECTS) | |
| | Methods of Nonlinear Modeling (10 ECTS) | Scientific Research project (10 ECTS) | |
| | Secure Internet Technologies (5 ECTS) | Signal and Image Analysis and Processing (5 ECTS) | |
| **Elective Courses** | Programming in Cloud Computing (5 ECTS) | Visual Data Mining (5 ECTS) | |
| | Multi-dimensional Data Structures (5 ECTS) | Management of Information Security (5 ECTS) | |
| | Secure Operating Systems (5 ECTS) | Optimization Algorithms in Grid Environment (5 ECTS) | |
| | Secure Networks (5 ECTS) | Secure Dynamic Internet (5 ECTS) | |
| | Computational Geometry Algorithms (5 ECTS) | Audit of System Security (5 ECTS) | |
| | | Web Services (5 ECTS) | |

## GRADUATION REQUIREMENTS

In order to earn Master's degree, candidates must successfully pass the exams and defend Master Thesis.

## ADMISSION REQUIREMENTS AND SELECTION CRITERIA

- Bachelor degree in Computer Science, Software Engineering, Information Technology, Mathematics or Physics;
- English language proficiency: the level not lower than B2 (following the Common Framework of Reference for Language approved by the Council of Europe).

## EXAMINATION AND ASSESSMENT REGULATIONS

The main form of evaluation is an examination. Every course unit is concluded with either a written or written-oral examination or pass/fail evaluation. Student's knowledge and general performance during the exam are evaluated using grading scale from 1 (very poor) to 10 (excellent). The final stage of studies will include research done and defense for master thesis.

| Academic contact | Admission contact |
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