Doktor znanosti/doktorica znanosti s področja matematike in fizike

Selected qualifications

Name of qualification
Doktor znanosti/doktorica znanosti s področja matematike in fizike

Translated title (no legal status)
Doctor of Philosophy in the field of mathematics and physics

Type of qualification
Doktorat

Category of qualification
Izobrazba

Type of education
Doctoral education

Duration
3 years

Credits
180 credits

Admission requirements

• A completed second-cycle study programme (Bologna master's programme) in a natural science or engineering field; or
• a completed former study programme leading to an academic higher education qualification (old programmes) in a natural science or engineering field; or
• a completed former study programme leading to a specialisation in a natural science or engineering field and a previously completed professional higher education programme; before enrolling in the third-cycle programme, such candidates must meet additional requirements; or
• a completed study programme leading to professions regulated by EU directives, if consisting of 300 credits, or another integrated master's programme in a natural science or engineering field consisting of 300 credits; or
• a completed former study programme leading to a pre-Bologna research master's degree or specialisation following completion of a study programme leading to an academic higher education qualification in a natural science or engineering field; at least 60 credits are recognised for these candidates in the third-cycle doctoral programme.

ISCED field

Field
Naravoslovje, matematika in statistika

ISCED subfield

subfield fizika

Qualification level

SQF 10
EQF 8
Third level

Learning outcomes

Qualification holders are qualified to:

(general competences)

- demonstrate a capacity for abstraction and analysis of problems,
- collect, critically assess and synthesise data, measurements and solutions,
- identify the necessary data for the formulation of new knowledge,
- formulate new knowledge on the basis of existing theories or available data,
- apply knowledge in practice (particularly knowledge of modern technologies),
- make interdisciplinary connections between scientific findings,
- undertake autonomous research and development work and work in an (international) group,
- communicate and impart technical information to the general public,
- use modern research methods and procedures,
- critically assess and present their results,
- pursue further independent learning and research and keep abreast of literature,

(subject-specific competences)

- demonstrate in-depth understanding of the physical laws of nature,
- make connections between the basic laws of nature and observable characteristics of the world,
- pose physical problems in a creative manner and analyse them,
- formulate physical problems mathematically,
- deduce the physical bases of practical problems,
- model problems,
- demonstrate mastery of advanced experimental skills in physics,
- critically evaluate the results of measurements and apply these in the building or upgrading of models,
- demonstrate understanding of the principles of operation of technological devices on the basis of basic laws,
- present physical methods and results in a manner adapted to a target audience (in Slovene and a foreign language),
- impart knowledge about physics,
- demonstrate thorough familiarity with research results from the broader and narrower field of research,
- demonstrate understanding of the most complex mathematical problems and proofs,
- carry out autonomous research,
- abstract practical problems,
- keep abreast of and use mathematical literature,
- use various modern mathematical methods to resolve problems,
- work critically and autonomously and provide advice in the field of mathematics and physics education.

Assessment and completion

Examination performance is scored as follows: 10 (excellent); 9 (very good: above-average knowledge but with some mistakes); 8 (very good: solid results); 7 (good); 6 (adequate: knowledge satisfies minimum criteria); 5–1 (inadequate). In order to pass an examination, a candidate must achieve a grade between adequate (6) and excellent (10).

Progression

In order to enrol in the second year, students must have completed a minimum of 45 credits, including at least 20 credits from first-year taught course units (subjects, seminars or dissertation proposal). In order to enrol in the third year, students must have completed a minimum of 90 credits from the first and second years, including at least 40 credits from first- and second-year subjects and seminars or the dissertation proposal. In addition to these conditions, before enrolling in the third year students must have passed the doctoral examination and obtained approval for the topic of their doctoral dissertation.

Condition for obtaining certificate

In order to complete the programme, candidates must successfully complete all course units defined by the programme and successfully defend a doctoral dissertation, for a total of 180 credits. Thus in order to complete the programme, students must complete all components of taught course units, consisting of 60 credits, and gain a further 120 credits through research. Doctoral candidates must also publish or have accepted for publication a scholarly paper from the field of their doctorate in a journal from group I or II of the interpretation of the Faculty's Criteria for the appointment of teaching staff, researchers and faculty assistants. The scholarly article must be published or accepted for publication before the defence of the doctoral dissertation.

Awarding body

University of Ljubljana, Faculty of Mathematics and Physics

URL

https://www.fmf.uni-lj.si/en/