

# Course Specifications

From the academic year 2015-2016 up to and including the

## Innovation in Photonics (E030770)

Course size (nominal values; actual values may depend on programme)

Credits 3.0 Study time 90 h Contact hrs 24.0 h

Course offerings and teaching methods in academic year 2017-2018

A (semester 2)	English	lecture	25.0 h
		group work	5.0 h
B (semester 2)	Dutch	group work	5.0 h
		lecture	25.0 h

Lecturers in academic year 2017-2018

Ryckeboer, Eva TW05 lecturer-in-charge

Offered in the following programmes in 2017-2018

	crdts	offering
<a href="#">Bridging Programme European Master of Science in Photonics</a>	3	A
<a href="#">Bridging Programme Master of Science in Photonics Engineering</a>	3	A
<a href="#">European Master of Science in Photonics</a>	3	A
<a href="#">Master of Science in Photonics Engineering</a>	3	B

Teaching languages

Dutch, English

Keywords

Creativity, Innovation, Product Development, Business Development

Position of the course

To make the engineer familiar with all aspects and tools available to trigger and streamline his/her photonics innovation skills, the students will elaborate a real-world photonics business case.

The aim of the course is to give the students an overview of all steps required to solve a photonics problem by designing a conceptually new product and to analyse its marketability. Students will be taught how to apply a methodical way of developing a new product, which should lead to an enhanced quality of the resulting product. All parts of the methodical design process will be practiced as group assignments. The problem is defined by a company. The company will be involved in the assignment process.

Contents

During lecture sessions, the students are instructed in Methodical Design Process and Innovation Management Techniques.

- the methodical design process
- Creativity techniques
- application of selection processes
- Sustainable design
- teamwork and project management
- intellectual property and search methods
- basic financing for budget appraisal
- business plan and presentation techniques

The students apply these techniques to develop an innovative product solution and elaborate its business case working intensively together in small teams. The cases are real-world issues supplied by enterprises. Throughout the innovation process, the students will interact regularly with the respective enterprises.

Initial competences

- Fundamental knowledge in photonics

- Introduction to Entrepreneurship

#### Final competences

- 1 Capable to analyse, synthesis and manage an innovation process.
- 2 Capable to use creativity techniques
- 3 Capable to implement a feasibility study.
- 4 Familiar with cost and benefit analysis
- 5 Capable of presenting and defending a project.
- 6 Having no fear to start an innovation project (spin-in, spin-off or start-up).
- 7 Teamwork. Distribution and managing of tasks within the group.

#### Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

#### Conditions for exam contract

This course unit cannot be taken via an exam contract

#### Teaching methods

Group work, lecture, project

#### Learning materials and price

Slides and reference material

#### References

#### Course content-related study coaching

#### Evaluation methods

continuous assessment

#### Examination methods in case of periodic evaluation during the first examination period

#### Examination methods in case of periodic evaluation during the second examination period

#### Examination methods in case of permanent evaluation

Oral examination, participation, peer assessment, report

#### Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

#### Extra information on the examination methods

The assessment is based upon the written report, presentation, and the operation within the group. In addition to a description of the designed product and the process to the final design, the report will also include a technical and business feasibility assessment.

#### Calculation of the examination mark

20% innovation; 80% process (operation (permanent evaluation), presentation, written report)