COURSE DESCRIPTION CARD - SYLLABUS

Course name
MANAGING RESEARCH PROJECTS

Course

Proposed by Discipline
-

Type of studies
Doctoral School

Form of study
full-time

Year/Semester
I/2

Course offered in
English

Requirements
elective

Number of hours

Lecture
4

Tutorials

Projects/seminars

Number of credit points

1

Lecturers

Responsible for the course/lecturer:
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Responsible for the course/lecturer:

Prerequisites

Knowledge: good command of English.

Skills: ability to prepare presentations in PowerPoint (or similar tools).

Social competences: willingness to improve their research skills.

Course objective

The course aims at helping PhD students to better manage their PhD project. The PhD students will learn various techniques of formulating research goals (Structured Abstract, Elevator Pitch, GQM), managing their PhD projects within the agile framework (Scrum), performing Systematic Literature Reviews, and planning their experiments with validity threats in mind.

Course-related learning outcomes

Knowledge

A PhD student who graduated from doctoral school knows and understands:

1. scientific research methodology in disciplines related to engineering, natural sciences, and social sciences. [P8S_WG/SzD_W03]

Skills

A PhD student who graduated from doctoral school can:

1. define the aim and subject of scientific research, form a research hypothesis, [P8S_UW/SzD_U01]
2. critically analyze and asses scientific research results, work of experts and other creative activities together with their contribution into knowledge development, [P8S_UW/SzD_U02]
3. communicate on specialist issues on the level that allows active participation in the international scientific community, [P8S_UK/SzD_U04]
4. plan and implement individual and team research projects. [P8S_UO/SzD_U09]

Social competences

A PhD student who graduated from doctoral school is ready to:

1. critically assess the achievements within a given scientific discipline. [P8S_KK/SzD_K01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

PQF code	Methods for verification of learning outcomes	Assessment criteria
W03	Quiz (test)	90% - A, 80% - B etc.
U01, U02, U04, U09	Presentation of a protocol (design) of Systematic Literature Review concerning student's PhD thesis	Quality of the protocol (completeness, reproducibility) and of the presentation itself
K01	The presentation mentioned above	The same as above

Programme content

1. Setting goals (Paper-based PhD thesis, Structured Abstract; Elevator pitch, Goal-Question-Metrics (SzD_U01, SzD_U04).
2. Research project planning and execution – an agile approach (Scrum methodology in the research context (SzD_U09).
3. Literature review as a research method (Systematic Literature Review – Protocol preparation (SzD_W03, SzD_U02, SzD_U04, SzD_K01).
4. Experimentation & validity threats (Cook & Campbell approach to analysis of threats to validity of experiments (SzD_U02).

Teaching methods

Lecture: multimedia presentation including illustrations and examples. Also short presentations prepared by PhD students concerning their research project.

Bibliography

Basic

1. The Scrum Guide, https://www.scrum.org/resources/scrum-guide
2. Guidelines for performing Systematic Literature Reviews in Software Engineering, EBSE Tech. Rep. EBSE-2007-01, Univ. of Durham, https://www.elsevier.com/__data/promis_misc/525444systematicreviewsguide.pdf

Additional

1. Claes Wohlin et al., Experimentation in Software Engineering, Springer, 2012, Chapter 8: Planning, 89- 116.

Breakdown of average student's workload

	Hours	ECTS
Total workload	28	1.0
Classes requiring direct contact with the teacher	4	0.2
Student's own work (literature studies, preparation for tutorials, project preparation, consultations with the teacher) [1]	24	0.8

[1] delete or add other activities as appropriate