COURSE DESCRIPTION CARD - SYLLABUS

Course name
MANAGING RESEARCH PROJECTS [S5SD1>ZPB]

Course

Proposed by Discipline
–

Year/Semester
1/2

Level of study
Doctoral School

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
4

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

prof. dr hab. inż. Jerzy Nawrocki
jerzy.nawrocki@put.poznan.pl

Lecturers

Prerequisites

Knowledge: good command of English. Skills: ability to use the resources of the library of Poznan University of Technology. Social competences: willingness to improve their research skills.

Course objective

The course aims at helping PhD students to better manage their PhD project.

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:

Knowledge:
Test
90% - A, 80% - B etc.

Skills:
Writing a protocol of a systematic literature study for the PhD thesis.

Programme content

1. Setting research goals (SzD_U01, SzD_U04)
2. Scrum for research (SzD_U09)
3. Managing systematic literature studies (SzD_W03, SzD_U02, SzD_U04, SzD_K01)
4. Managing scientific experiments (SzD_U02)

Course topics

1. Setting research goals: SMART criteria, structured abstract, project statement, Technology Readiness Levels and Death Valley syndrome.
2. Scrum for research: paper-based PhD thesis, Manifesto of Agility, Scrum practices useful in the research context, Kanban board.
3. Managing systematic literature studies: systematic literature review vs. systematic mapping study, database-driven literature studies, snowballing, protocol of systematic literature study, design of Data Extraction Table, validity threats in systematic literature studies, planning execution of literature studies, checklist-based review of protocols.
4. Managing scientific experiments: the V model, design for reproducibility, GQM approach to defining an empirical study, describing a measurement system, experiment procedure, observations and their threats to validity, conjectures and their threats to validity.

Teaching methods

Multimedia presentations, including illustrations and examples. Short quizzes. Peer reviews.

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	1,00
Classes requiring direct contact with the teacher	4	0,00
Doctoral student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation)	24	1,00