



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Diploma seminar [S1DSwB1>SD]

Course

Field of study

Data Science in Business

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

0

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

15

Number of credit points

2,00

Coordinators

dr hab. inż. Agnieszka Misztal prof. PP
agnieszka.misztal@put.poznan.pl

Lecturers

Prerequisites

Knowledge of basic research methods used in data analysis and business. Ability to analyze scientific and technical literature. Basic knowledge of analytical tools used in Data Science. Ability to independently plan work and solve engineering problems.

Course objective

The goal of the thesis seminar is to prepare students to independently develop their engineering thesis, in accordance with academic and technical requirements. Students will enhance their skills in defining the research problem, literature analysis, selecting appropriate data analysis methods, and presenting results. The seminar will provide support in planning and executing the thesis, as well as preparing students for its defense.

Course-related learning outcomes

Knowledge:

Characterizes the research methods, techniques, and tools used in preparing the thesis and analyzing engineering problems [DSB1_W07].

Skills:

Selects appropriate sources of information and utilizes scientific literature and databases to formulate research questions [DSB1_U01].

Designs and conducts scientific research, analyzing its relevance and value for solving the problem [DSB1_U03].

Formulates specifications for engineering problems and develops solutions based on literature analysis and empirical data [DSB1_U05].

Creates scientifically correct documentation and research reports, adhering to the formal requirements of the thesis [DSB1_U12].

Plans and organizes their work on the thesis project, efficiently managing time and resources [DSB1_U13].

Social competences:

Critically analyzes their own knowledge and skills in the completion of the thesis, striving for continuous improvement [DSB1_K01].

Uses available scientific and technological achievements in an ethical manner and in accordance with academic integrity principles [DSB1_K02].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment: Based on the current progress in the following areas: formulation of the research problem and objectives of the thesis, selection of literature, choice and justification of research methods.

Summative assessment:

- Presentation of the thesis topic.

Programme content

The purpose and principles of writing a scientific paper. Basic principles of paper construction (abstract, introduction, justification of topic selection, objectives and scope of the paper, literature review, practical-research part, real data from the studied company, proposals for solving the problem, and summary). Characteristics of the paper structure, division of text into chapters, subchapters, etc.

Basic principles of preparation for the defense of the thesis. Discussion of the diploma exam procedure. The importance of clearly stating and justifying the research problem, objective, and scope of the paper (group exercises). Development of the thesis topic card.

Collection, evaluation, and selection of literature and other materials used in the thesis. Searching for sources in bibliographic databases. Correct citation of literary sources in the text, figure and table descriptions. Principles of creating a literature list. Elements of copyright regulations and permissible use. Regulations regarding plagiarism checks.

The importance of the research methods review, establishing criteria for assessing their adequacy to the research problem presented in the thesis, and justification of the selection for the practical part.

The significance of discussing the research method, research plan, and the way of collecting and recording data.

Guidelines for correct data analysis for solving the research problem (basic analytical tools, correctness in creating and describing graphs, tables, diagrams, figures, and photos).

The importance of interpreting the obtained results in the context of the research questions. Developing a concept for the solution, projects, and other outcomes based on research results.

Requirements for technical preparation and editing of the paper.

Requirements for proper preparation of the thesis presentation.

Presentations of prepared theses.

Topics:

- The purpose and principles of writing a scientific paper
- The role of the thesis in engineering education.
- Characteristics of the thesis: objective, structure, formal requirements.
- Selection and justification of the thesis topic.
- Structure of the thesis
- Discussion of the basic elements of the paper: abstract, introduction, justification of the topic selection, objective and scope of the work.
- Construction of the literature review and practical-research section.

- Describing the studied enterprise and formulating problem-solving proposals.
- Principles of organizing and editing scientific text
- Structure of the work divided into chapters and subchapters.
- Linguistic, stylistic, and editorial correctness.
- Text formatting guidelines according to university requirements.
- Preparation for the thesis defense
- The course of the diploma exam and grading criteria.
- Common mistakes made during the defense.
- Techniques for effective self-presentation and argumentation.
- Formulating the research problem, objective, and scope of the thesis (group exercises)
- Clear definition of the problem and its significance.
- Methodology for determining the scope of work and formulating research objectives.
- Developing a thematic card for the thesis.
- Collecting, selecting, and evaluating literature and other sources
- Searching for literature in bibliographic databases.
- Citation rules and referencing sources in the text.
- Describing figures and tables, and creating the bibliography list.
- Regulations concerning copyrights and plagiarism
- Permissible use of sources and data.
- Author's responsibility in the context of intellectual property.
- Procedures for plagiarism checks.
- Review of research methods and their selection for the thesis
- Key methods for data analysis used in engineering theses.
- Criteria for evaluating the adequacy of methods in relation to the research problem.
- Justification for selecting research methods.
- Research plan and data collection methods
- Designing the research process and organizing data collection.
- Selection of analytical tools and methods of recording results.
- Rules for collecting and securing data.
- Data analysis and visualization of results
- Basic analytical tools used in data analysis.
- Creating and interpreting graphs, tables, diagrams, and other graphical elements.
- Correctness of the analysis in the context of the research problem.
- Interpreting research results and formulating conclusions
- Linking research results to the posed research questions.
- Developing a solution concept, projects, and recommendations.
- Critical analysis of the obtained results and their limitations.
- Technical preparation and editing of the thesis
- Formatting and organization requirements for the document.
- Visual consistency and linguistic correctness of the thesis.
- Verification of completeness and compliance with university guidelines.
- Preparing the thesis presentation
- Structure of the presentation according to defense requirements.
- Selecting key content and presenting it appropriately.
- Exercises on effective presentation and answering committee questions.
- Presentation of prepared theses - trial session
- Presenting the assumptions of the thesis, methodology, and research results.
- Discussion and comments on improving the presentation.
- Simulation of the defense and discussion of potential committee questions.
- Summary of the seminar and evaluation of thesis progress
- Verification of students' readiness for defense.
- Review of challenges and common errors in thesis preparation.
- Final tips for finalizing and defending the engineering thesis.

Course topics

none

Teaching methods

Problem lecture, talk, explanation, work with a book and magazine, work with bibliographic databases, problem method, workshop method, presentation.

Bibliography

Basic:

1. Regulamin realizacji prac dyplomowych oraz przebiegu egzaminu dyplomowego (materiały wewnętrzne Wydziału inżynierii Zarządzania opublikowane na stronie internetowej).
2. Rozpondek M., Wyciślik A. (2007), Seminarium dyplomowe: praca dyplomowa magisterska i inżynierska: pierwsza praca - know how, Wydawnictwo Politechniki Śląskiej, Gliwice.
3. Czakon W. (red.) (2015), Podstawy metodologii badań w naukach i zarządzaniu, Oficyna a Wolters Kluwer business, Warszawa.
4. Majchrzak J., Mendel T. (2009), Metodyka pisania prac magisterskich i dyplomowych: poradnik pisania prac promocyjnych oraz innych opracowań naukowych wraz z przygotowaniem ich do obrony lub publikacji, Wydawnictwo Uniwersytetu Ekonomicznego, Poznań.
5. Dudziak A., Żejmo A. (2008), Redagowanie prac dyplomowych: wskazówki metodyczne dla studentów, Centrum Doradztwa i Informacji Difin, Warszawa.
6. Kłos Z. (red.) (2011), Rozprawy naukowe, Wydawnictwo Politechniki Poznańskiej, Poznań.

Additional:

1. Borcz L. (2001), Vademecum pracy dyplomowej, Wydawnictwo WSEiA, Bytom.
2. Wójcik K. (2005), Piszę akademicką pracę promocyjną, Placet, Warszawa.
3. Szkutnik Z. (2005), Metodyka pisania pracy dyplomowej, Wydawnictwo Poznańskie, Poznań.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	35	1,50