**ROMANIAN ACADEMY - SCOSAAR**
**DOCTORAL SCHOOL OF ENGINEERING, MECHANICAL, COMPUTER SCIENCES (SD-SIMC)**

# COURSE DESCRIPTION

**Course Name: Project Management in Research**
**Lecturer: CSI. dr. Eng. Victor Vlădăreanu**
Year of Study: 2023

| **Hours per week / Evaluation / Credits** | | |
|---|---|---|
| **Course** | **Examination Format** | **Credits** |
| 2 | Exam | 10 |

**A. COURSE OBJECTIVES** (Objectives are formulated in terms of professional competencies):

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|---|---|
| General Course Objectives | • This discipline aims to offer the general and specific notions necessary for the implementation and coordination of research projects in the field of mechanical engineering, as well as practical experience in the use of project management techniques. |
| Specific Objectives | • Creating the skills to identify the typical situations of each studied method, to understand and correctly apply the theoretical and practical principles<br>• Drafting of a project plan that includes elements of goal management, time management, resource management (financial, human and material), quality and risk management, etc.<br>• The use of computer tools specific to project management. |

**B. CONDITIONS** (where applicable)

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|---|---|
| of the course | • Providing an optical projector (video projector) together with all related accessories (power cables, data and video signal, remote control) |

**C. ACCUMULATED SPECIFIC COMPETENCES (** Regards the competencies provided by the study program which the discipline is a part of)

| | |
|---|---|
| Professional skills | • Knowledge of theoretical concepts, methods and tools, techniques for project management (planning, organization and management, control of tasks and resources).<br>• Use of advanced tools, approaches and innovative techniques specific to project management.<br>• Elaboration of project proposals based on current models in order to identify funding opportunities.<br>• Analyzing options in the context of the project life cycle.<br>• Analyzying based on a series of specific tools and techniques (for example: logical framework method, critical path method, Gantt charts, PERT charts or SWOT analyses)<br>• Identifying risks, developing the risk matrix (probability-impact), establishing a risk response plan. |

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|---|---|
| | • Analyzing the income and expenditure budget, financial analyses, conclusions of the cash-flow analysis |
| Transversal skills | • Identifying the type and stages of work planning so as to optimize decision-making, problem-solving and time-management processes.<br>• Identifying ways to quickly integrate into a project team.<br>• Adopting the best approach to collaboration with the groups involved<br>• Developing relationships between team members and between teams within projects.<br>• Analysis of styles, strategies, negotiation and communication techniques in order to acquire leadership attitudes.<br>• Analyzing and comparing options in the decision-making approach: defining options (scenarios), analyzing options, advantages of the proposed option<br>• Implementation of effective leadership and motivation practices in managing relationships promoting dynamism and accountability of work teams. |

## D. THE CONTENT OF THE COURSE

***a) Course***

| **Chapter** | **content** | **No. hours** |
|---|---|---|
| 1. | 1. Fundamentals of project management<br>1.1. Content management<br>1.2. Time management<br>1.3. Financial and procurement management<br>1.4. Human resources management<br>1.5. Communication management<br>1.6. Quality management<br>1.7. Risk management<br>1.8. Applied notions of risk estimation, planning and management | **16** |
| 2. | 2. Project management in Engineering Sciences<br>2.1. Life cycle of engineering projects – traditional and modern methods<br>2.2. Time and human resource management for engineering projects<br>2.3. Financial management for engineering projects<br>2.4. Quality management for engineering projects | **8** |
| 3. | 3. Integration of projects in the organizational framework<br>3.1. Integration management and project portfolios<br>3.2. Project development management | **4** |
| | **Total hours** | **28** |

**E. ASSESSMENT** (The methods, forms of assessment and their weight in establishing the final grade are specified. The minimum performance standards are indicated, related to the skills defined in point **A. Course Objectives**)

| Type of activity | Evaluation criterias | Evaluation methods | Weight of the final grade |
|---|---|---|---|
| Course | Knowledge acquired | Written exam | 55% |
| Seminar | Activity | Case studies presented | 45% |
| The results of the subject evaluation are expressed by the following qualifications: "*Very good*"; "*Good*"; "*Satisfactory*"; "*Unsatisfactory*". The grades "*Very good*", "*Good*" and "*Satisfactory*" allow the doctoral student to obtain credits**.** | | | |

**F. METHODOLOGICAL REMARKS**

Course: The teaching is based on the method of oral lectures and active dialogue with the students, supported by the presentation of illustrative examples and applications, or for recording the answers given to the students to their questions, but also on the use of the video projector to achieve the optimal conditions for direct communication with the students and of their active mobilization. The methods of communication with students are the frontal exposition and problem posing methods.
Seminar: Promotion of active-participatory methods, centered on the student (student involvement in the teaching-learning process, heuristic dialogue, solving problematic situations, simulations, microgroup activities, research projects, etc.) within the laboratory. The types of exercises and problems covered in the seminar follow the line of the course taught.

**G. CORROBORATION OF THE CONTENTS OF THE COURSE WITH THE EXPECTATIONS OF THE REPRESENTATIVES OF THE EPISTEMIC COMMUNITY, PROFESSIONAL ASSOCIATIONS AND REPRESENTATIVE EMPLOYERS FROM THE FIELD RELATED TO THE PROGRAM**

- The discipline provides a wide fund of fundamental and practical knowledge regarding the application of knowledge, concepts and basic methods of project management in the context of research.
- It identifies new product ideas and applications in the engineering fields possible only through the use of new materials and by improving the technologies for obtaining and processing them.
- Demonstrates ability to work effectively in a team with other colleagues and also with teaching staff in carrying out teaching activities.
- Demonstrate autonomy in the learning context by enriching their knowledge, skills and abilities leading to the formation of the spirit of independence and initiative.
- Analyzes and capitalizes on opportunities to attract funding sources within the respective organization/institution or community.
- Ability to select and browse bibliographic sources
- Ability to learn new concepts by combining and referencing existing theoretical foundations
- The ability to independently select and go through didactic materials external to the course

## H. BIBLIOGRAPHY


1. Ian Sommerville, Software Engineering, 9th Edition, Addison-Wesley, 2011
2. A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Fifth Edition, 2013, ISBN-13: 9781935589679
3. Ioan Stefan Sacala, Mihnea Alexandru Moisescu, "Project management for the development of information systems" - ISBN 978-606-23-0325-9, Printech Publishing House 2014
4. Thommen, JP, & Grösser, S. (2014). Economy, Company, Management: Introduction to Business Administration. Versus Verlag.


| Course Lecturer | Doctoral School Director |
| --- | --- |
| CSI.dr.eng. Victor Vladăreanu | CSI.dr.eng. Mihaiela Iliescu |