STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Storage of fine materials**		Code **1010631261010612996**
Field of study **Transport**	Profile of study (general academic, practical) **(brak)**	Year /Semester **3 / 6**
Elective path/specialty **Engineering of Pipeline Transport**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **1** Classes: **-** Laboratory: **-** Project/seminars: **-**		No. of credits **1**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences**		ECTS distribution (number and %) **1 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of the strength of materials, basic construction machinery, metallurgy and transport logistics, property and the properties of particulate materials and bulk
2	**Skills**	Gathering knowledge from the knowledge and analysis of the various use cases.
3	**Social competencies**	General technical knowledge of storage needs.

Assumptions and objectives of the course:

Introduction to the transport and storage of particulate materials by pipeline

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has a structured, theoretically founded knowledge in the field of operations research, including: linear programming, discrete issues - problems of storage and sharing of resources, issues of transportation - [K1A_W08]

2. Has a structured, theoretically founded knowledge in the field of logistics, including: the essence of logistics, the reasons for the development of logistics concepts, structure of logistic systems, logistics management, exploitation of synergies, decision-making problems in micrologistic systems, the importance of logistics in the supply - [K1A_W09]

Skills:

1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions. - [K1A_U01]

Social competencies:

1. Understands the need and knows the possibilities of lifelong learning, knows the need for acquiring new knowledge for professional development. - [K1A_K01]

2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions in short and long-term aspect. - [K1A_K02]

3. Is able to identify and resolve the dilemmas associated with the profession, among others. problems at the technology/environment level. - [K1A_K06]

Assessment methods of study outcomes

Final test

Course description

Types of storage materials and tasks are divided. Classification and characteristics of technical and economic particulate material loading equipment. Storage functions and the role of storage in the production and distribution. Organization of cargo in stations, bases and transhipment cargo. The warehouse process flow of materials and information. Security filling and emptying of warehouses and storage protection in the process. -House hydraulic and pneumatic transport of particulate materials (principle of operation, equipment and components for use in conveyors, conveyor calculation methodology).

Basic bibliography:

1. Goździecki M., Świątkiewicz H.: Przenośniki, WNT, Warszawa, 1975
2. Dmowski A.: Transport pneumatyczny w młynarstwie, WPLiS, Warszawa 1967
3. Jakubowski L.: Technologia prac ładunkowych, OWPW, Warszawa 2003
4. Korzeń Z.: Logistyczne systemy transportu bliskiego i magazynowania, ILiM, Poznań, 1998

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Participation in the lecture	15
2. Consultation	3
3. Preparing to pass	6
4. Final test	4

Student's workload

Source of workload	hours	ECTS
Total workload	28	1
Contact hours	22	1
Practical activities	0	0