GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Quality and chemical production management, PG_00060878						
Field of study	Zarządzanie jakością i produkcją chemiczną						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2027/2028			
Education level	first-cycle studies		Subject group	Obligatory subject group in the field of study			
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	4		Language of instruction	Polish			
Semester of study	7		ECTS credits	1.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Process Engineering and Chemical Technology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Karolina Kucharska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information: wykład: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=10798 seminarium: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=10799						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours	Self-study	SUM	
	Number of study hours	15		1.0	9.0	25	
Subject objectives	The student masters the information related to the introduction of quality management systems in a company with a chemical profile. The student anticipates the effects of the activities carried out and is prepared for the critical selection of the quality management system, its implementation, and also uses the knowledge learned to conduct the audit.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] has knowledge of chemical technology based on mineral or energy resources and modern energy sources, understands the concept of sustainable development, knows the principles of green chemistry and environmentally friendly process engineering, has knowledge of occupational safety in the chemical industry	The student has knowledge of chemical technology, understands the concept of sustainable development, knows the principles of green chemistry and environmentally friendly process engineering, has knowledge of occupational safety in the chemical industry and is able to apply the relevant standards and legal regulations in relation to them.	[SW1] Ocena wiedzy faktograficznej
[K6_U06] is able to select the chemical and technological concept of the production method, is able to justify the suitability of the raw materials used, analyses and evaluates the quality of the products obtained, critically analyses the functioning of existing technical solutions and evaluates these solutions	The student is able to choose a chemical and technological concept for the production method, is able to justify the suitability of the raw materials used, analyzes and evaluates the quality of the obtained products, critically analyzes the functioning of existing technical solutions and evaluates these solutions based on regulations and guidelines in force in the production area.	[SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU1] Ocena realizacji zadania
[K6_K02] understands the non-technical aspects and implications of the activities of a chemical engineer, including the impact on the environment, is aware of professional behaviour, observance of professional ethics and respect for diversity of views and cultures	The student collaborates professionally in a team, knows and adheres to the principles of professional ethics, is able to effectively exchange information and improve teamwork.	[SK1] Ocena umiejętności pracy w grupie
[K6_W04] understands processes occurring in the life cycle of equipment and facilities and has knowledge of mechanical engineering, chemical apparatus, technical thermodynamics and chemical engineering and chemical reactor engineering necessary to analyse technological processes and correctly design installations and systems in the chemical industry	The student processes and applies knowledge of quality management systems to assess and analyze the proper functioning of the organization, including technological processes.	[SW2] Ocena wiedzy zawartej w prezentacji

Subject contents

Course content – lecture
History of Quality Management Systems.

Discussing the Deming cycle and the risk-based approach.

Principles of Good Manufacturing Practice

Principles of Good Laboratory Practice

Discussion of the assumptions of the ISO 9001: 2015 standard in relation to chemical production.

Discussion of the assumptions of ISO 14001: 2015 in relation to chemical production

Discussion of the assumptions of ISO 45001: 2018 in relation to chemical production

Auditing techniques

Audit plan, checklist and audit report.

Classes and materials were prepared with the use of skills acquired through participation in the POWER 3.4 project - "Improvement of didactic competences of academic teachers of the Gdańsk University of Technology"

Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
presentation	60.0%	20.0%
test	60.0%	40.0%
group work-report	60.0%	40.0%

Recommended reading	Basic literature	1. A. Hamrol *Zarządzanie jakością z przykładami*, PWN, Warszawa, **2007**. 2. B. Gajdzik, A. Wyciślik *Jakość, środowisko i bezpieczeństwo pracy w zarządzaniu przedsiębiorstwem*, Wyd. Pol. Śl., Gliwice, **2010**. 3. B. Hancyk *ADR, REACH, CLP Niebezpieczne chemikalia Poradnik*, Atest, Kraków, **2012**. 4. R. Wolniak, B. Skotnicka-Zasadzień *Zarządzanie jakością dla inżynierów*, Wyd. Pol. Śl., Gliwice, **2010**. 5. ISO 9001:2015 6. ISO 18001:2015 7. ISO 45001:2018 8. Crosby Ph., Quality is still Free, McGraw-Hill, New York **1996**.
	Supplementary literature	1. Deming E.W., Out of the Crisis, Massachusetts Institute of Technology, Cambridge **1982**. 2. Feigenbaum A.V., Total Quality Control, McGraw-Hill, Inc., New York **1991**. 3. Juran J.M., Gryna Frank M., Jr., Jakość projektowanie analiza, Wydawnictwo Naukowo-Techniczne, Warszawa **1974**. 4. Juran J.M., Juran`s Quality Control Handbook, McGraw-Hill, Inc., New York **1988**. 5. Taguchi G., Elsayed E.A., Hsiang T., Quality Engineering in Production Systems, McGraw-Hill, Inc., New York **1989**.
	eResources addresses	

Example issues/ example questions/ tasks being completed	**The student answers the questions of the presentation presented at the seminar, examples of questions:** 1. Health and safety requirements and fire protection in chemical production. 2. Basic legal acts in the field of waste management in the chemical industry 3. Types of audits. 4. Rules of the auditor's work. **Student prepares a multimedia presentation, examples of topics:** 1. Planning of material needs in chemical production. MRP method. 2. Principles of GLP Good Laboratory Practice according to the Regulation of the Minister of Health of May 22, 2013, Coll. 2013 item 665. 3. Production according to the principles of Good Manufacturing Practice GMP according to the Regulation of the Minister of Health of March 18, 2019, Journal of Laws 2019 item 728 4. Validation and verification of the process according to the principles of Good Manufacturing Practice GMP according to the Regulation of the Minister of Health of March 18, 2019, Journal of Laws 2019 item 728 5. Supervision over the quality of cosmetic products according to the Act OJ 2018 item 2227 **The student prepares a report on the task entrusted to him while working in a group, examples of tasks:** 1. Audit plan 2. List of control questions 3. Audit report
Practical activites within the subject	Workshop on using the standard

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