

## FACULTY OF CHEMISTRY

**SUBJECT CARD**

Name of subject in Polish: Kontrola produkcji i zarządzanie jakością  
 Name of subject in English: Production control and quality management  
 Main field of study: Chemical technology\*, Chemistry  
 Specialization: Technology of fine chemicals\*, Medicinal chemistry  
 Profile: academic and practical  
 Level and form of studies: 2<sup>nd</sup> level, full-time  
 Kind of subject: obligatory  
 Subject code: TCC024025  
 Group of courses: YES

	Lecture	Classes	Laboratory	Project*	Seminar
Number of hours of organized classes in University (ZZU)	15			15	
Number of hours of total student workload (CNPS)	30			60	
Form of crediting	crediting with grade			crediting with grade	
For group of courses mark final course with (X)					
Number of ECTS points	1			2	
including number of ECTS points for practical (P) classes				2	
including number of ECTS points for direct teacher-student contact (BK) classes	0,5			1	

**PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**

None

**SUBJECT OBJECTIVES**

- C1 Introducing students to the basic terminology, concepts and definitions of quality management and tools for its improvement.
- C2 Presentation of issues concerning the concept of Sustainable Development, Green Chemistry, environmental programs and the impact of the product/technology/ process on the environment.
- C3 Acquire basic knowledge about organization and management of the production process
- C4 Understanding the nature and role of formation quality management in the production process and implementation of quality control of every stage of it.
- C5 Acquire basic knowledge about the product, its life cycle and an efficient system of production management - from raw materials to final product.
- C6 Knowledge about the importance of product quality and role of brand in marketing
- C7 Presentation of issues concerning the development of sustainable technologies and applied in practice management systems of quality.
- C8 Understanding the nature and role of quality management in the production process and elaboration of basic documents on the subject.

**SUBJECT LEARNING OUTCOMES****relating to knowledge:**

- PEK\_W01 – knows the key concepts and definitions of quality and has sufficient knowledge of the basic principles of quality management in chemical enterprise
- PEK\_W02 – has the knowledge and can describe the Quality Management System in accordance with ISO 9000, knows basic documentation in this area and knows how to use the tools of quality improvement
- PEK\_W03 – has knowledge of Sustainable Development, Green Chemistry and the documents relating to

global sustainable development policy, knows environmental programs
PEK_W04 – knows the key concepts and issues in the field of production management and organization of the production system
PEK_W05 – has knowledge of the product, its life cycle, knows the scope of producer responsibility for the product and has a information about the continuous improvement of product quality and productivity of manufacturing processes
PEK_W06 – has the informations about the improvement of technological processes and audit of technology management as well as the continuous improvement of products and productivity of manufacturing processes in accordance with modern production management system
PEK_W07 - has knowledge of the marketing aspects of the product quality formation
<b>relating to skills:</b>
PEK_U01 – is able to put into practice the knowledge of production quality management and organization of the production system
PEK_U02 – has the knowledge and skills in the use of selected quality tools and assessing the ability of production process
PEK_U03 – has the knowledge and knows how to use it in the implementation of quality management systems and knows the basic documentation on the subject
<b>relating to social competences:</b>
PEK_K01 - is ready to independently prepare a Quality Manual and procedures in accordance with ISO 9001
PEK_K02 - is aware of the benefits of implementing a quality management system in the company

PROGRAM CONTENT		
Lectures		Number of hours
Lec 1	Quality, origin, basic concepts and definitions	1
Lec 2	Quality Management Systems - Standards ISO series 9000	2
Lec 3	Principles of Sustainable Development, EMAS, environmental programs, "Responsible and Care", Cleaner Production, Cleaner Technology, Green Chemistry	2
Lec 4	Techniques and methods for improving the quality	2
Lec 5	Organization and management of the production process	2
Lec 6	Product - the product life cycle	2
Lec 7	Lean Manufacturing, Benchmarking, Controlling, Kaizen	2
Lec 8	Marketing aspects of product quality, Brand and its position on the market	2
	Total hours	15
Project		Number of hours
Proj 1	Introduction, organization, discuss the range of activities	2
Proj 2	Structure of the Quality Manual in accordance with the principles of ISO 9001 regarding the supervision of documentation	2
Proj 3	Required documentation for ISO 9001. Comparison between ISO 9001:2015 and ISO 9001:2008	2
Proj 4	Quality procedures and requirements for documented information according to the ISO 9001 Standard	2
Proj 5	Tools and methods for the improvement of quality - practical application	2
Proj 6	Tools and methods for the improvement of quality - practical application	2
Proj 7	Tools and methods for the improvement of quality - practical application	2

Proj 8	Submission of the project in the form of written required documentation of ISO 9001 Standard	1
	Total hours	15
<b>TEACHING TOOLS USED</b>		
N1. lecture with a multimedia presentation N2. individual preparation and multimedia presentation		
<b>EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT</b>		
<b>Evaluation</b> (F – forming (during semester), P – concluding (at semester end))	Learning outcomes number	Way of evaluating learning outcomes achievement
C (Lecture)	PEK_W01 – PEK_W07 PEK_K01-PEK_K02	Exam
F (Project)	PEK_U01-PEK_U03 PEK_K01-PEK_K02	Submission of the project in the form of written required documentation of ISO 9001 Standard
<b>PRIMARY AND SECONDARY LITERATURE</b>		
<b><u>PRIMARY LITERATURE:</u></b>		
[1] Sujak-Cyruł B., Quality management systems: an introduction to the project of documenting and audit of quality management systems, Wrocław University of Technology, Łódź: PRINTPAP, 2011.		
[2] Oakland J.S., Total Quality Management. Text with cases. Butterworth-Heinemann, Oxford, 2003.		
[3] Kloppenborg T.J., Petrick J.A., Managing project quality, Vienna, Va.: Management Concepts, 2002.		
[4] Windsor S.E., An introduction to green process management, Milwaukee, Wis.: ASQ Quality Press, cop. 2011.		
[5] Tague N. R., The quality toolbox, Milwaukee, Wis.: ASQ Quality Press, 2005.		
<b><u>SECONDARY LITERATURE:</u></b>		
[1] Łańcucki J., Podstawy Kompleksowego Zarządzania Jakością TQM, Poznań: Wyd. AE, 2006.		
[2] Hamrol A., Mantura W., Zarządzania jakością, teoria i praktyka, Poznań: PWN, 1999.		
[3] Nowosielski S., Zarządzanie produkcją, Wrocław: Wyd. AE, 2001.		
[4] Sosnowska A., Zarządzanie nowym produktem, Warszawa: SGH, 2000.		
[5] Żuchowski J., Łagowski E., Narzędzia i metody doskonalenia jakości, Radom: Wyd. Pol. Radomskiej, 2004.		
<b>SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)</b>		
dr inż. Marta Huculak-Mączka, marta.huculak@pwr.edu.pl and Z-14 teaching assistants		