(*faculty stamp*)

COURSE DESCRIPTION

1. Course title: QUALITY CONTROL	**2. Course code** S I-AiIP/30b
3. Validity of course description: 2017/2018	
4. Level of studies: 1st cycle of higher education	
5. Mode of studies: intramural studies	
6. Field of study: AUTOMATICS AND INDUSTRIAL INFORMATICS	(RG)
7. Profile of studies: practical profile	
8. Programme:	
9. Semester: 5	
10. Faculty teaching the course: Faculty of Mining and Geology, Department of Mining Management and Safety Engineering	
11. Course instructor: Anna Bluszcz, Ph.D.	
12. Course classification: specialty items	
13. Course status: elective	
14. Language of instruction: English	
15. Pre-requisite qualifications: Management of small and medium enterprise, Mathematical statistics in industry.	
16. Course objectives: The course's objective is to acquire basic knowledge of modern techniques, methods and tools for quality control	

17. Description of learning outcomes:

Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Knows and understands the mathematical tools used to describe the processes related to the life cycle of equipment, facilities and technical systems	Written test	Lectures, project	K_W01++
2.	Can use the methods of mathematics (including algebra, mathematical analysis, complex numbers, discrete mathematics, numerical and optimization methods, statistics and basics of operational calculus)	Written test	Lectures, project	K_U01+
3.	Can use the knowledge of Information Technology to aid engineering calculations, prepare technical documentation (using graphics software) and give multimedia presentations	Project presentation	Lectures, project	K_U07++
4.	Is able to plan experiments and work individually or in a team	Project presentation	Lectures, project	K_U17++
5.	Can independently plan and implement self-learning throughout life	Project presentation	Lectures, project	K_U18++
6.	Is ready to initiate the action to the public interest and to contribute to the social environment	Project presentation	Lectures, project	K_K02++

18. Teaching modes and hours

Lecture 15 h, Project 15 h

19. Syllabus description:

Lectures:
Selected topics of management science, quality control in manufacturing companies, the historical outline of the a series of ISO 9000:2001 standards, process approach - concept and definitions, reengineering of the organization process. Quality management systems (TQM). Auditing and certification of products and services. Standardization in quality. Management responsibility, resource management.

Project:
The project includes basic techniques to diagnose and analyze problems. Use of tools to detect problems in the form of control charts and histograms for industrial data. The use of tools for fault analysis using the Ishikawa diagram, Pareto analysis, correlation chart and flowcharts. Analysis of industrial problems using the similarities diagram and relationship diagram. Activities control in the product development process using QFD - Quality Function Deployment. Quality activities control during materials supply - suppliers classification methods. Quality activities control in the production FMEA - Failure Mode and Effect Analysis, construction, process, Six Sigma, process control, comparative analysis - benchmarking, monitoring and measurement using Statistica software with QImicros add-in.

20. Examination: No

21. Primary sources:

1. Hamrol A., Mantura W.: Zarządzanie jakością. PWN, 2002.
2. Hernas A., Gajda L.: Systemy zarządzania jakością, Wydawnictwo Politechniki Śląskiej, Gliwice 2005.
3. Pacana A., Stadnicka D.: Wdrażania i auditowania systemów zarządzania jakością zgodnych z normą ISO 9001: 2000. Oficyna Wyd. Pol. Rzeszowskiej. 2006.
4. Knowles G.: Quality Management. Bookboon 2011

22. Secondary sources:

1. Łunarski J.: Systemy jakości, normalizacja i akredytacja w zarządzaniu. Oficyna Wyd. Pol. Rzeszowskiej. 2007.
2. Wawak S.: Zarządzanie jakością. Teoria i praktyka. Wydawnictwo Helion Gliwice 2006.
3. Bagiński J. (red): Zarządzanie jakością. Oficyna Wyd. Pol. Warszawskiej 2004.
4. Pekar J. P.: Total Quality Management. Guiding Principles for Application. American Society for Testing and Materials, Philadelphia 1995

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/30 – including reading bibliography, case studies
2	Classes	
3	Laboratory	/
4	Project	15/30 – individual preparing the project for exemplary enterprise
5	BA/ MA Seminar	
6	Other	/
	Total number of hours	30/ 60

24. Total hours: 90

25. Number of ECTS credits: 3

26. Number of ECTS credits allocated for contact hours: 1

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 2

28. Comments:

Approved:

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(date, Instructor's signature) (*date, the Director of the Faculty Unit signature)*