



Subject card

Subject name and code	Production and service management						
Field of study							
Date of commencement of studies		Academic year of realisation of subject	2018/2019				
Education level	undergraduate studies	Subject group					
Mode of study	Full-time studies	Mode of delivery	at the university				
Year of study		Language of instruction	English				
Semester of study		ECTS credits	2.0				
Learning profile	general academic profile	Assessment form	Test of knowledge				
Conducting unit	Department of Manufacturing and Production Engineering -> Faculty of Mechanical Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksandra Wiśniewska					
	Teachers	dr inż. Aleksandra Wiśniewska					
Lesson type and method of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
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	30	5.0	50.0	85		
Subject objectives	The selected program of lectures and exercises have to equip students with the necessary basic knowledge of the range of models' applications for production management at the tactical and operational level, of issues related to the planning of range-quantitatively, also the planning of resources in terms of demand-dependent and independent up to the issues related to the maintenance of the park machine aimed to evaluate and improve the effectiveness of machinery and equipment.						
Learning outcomes	Course outcome	Subject outcome	Method of verification				
	K_U06	The student is able to use source material in a foreign language: understand the content, uses the correct terms.	[SU3] Assessment of ability to use knowledge gained in the different modules				
	K_W17	The student can assess the suitability of methods and tools for solving engineering tasks involving the construction and operation of facilities and equipment, and recognize their limitations and choose and apply the right method and tools to solve complex design tasks associated with the economic analysis and financial control of the project.	[SW1] Assessment of factual knowledge				
	K_K02	The student uses the knowledge gained through different modules to assess the impact of non-technical engineering activities and adopt responsible attitudes.	[SK5] Assessment of ability to resolve work-related problems				
	K_W19	Student can use detailed knowledge gained through different modules to solve problems in the area integrated and standardized systems quality management, environment, occupational health and safety	[SW1] Assessment of factual knowledge				

Subject contents	<p>The program of lectures: Basic rules of production management and services. Product and its design (Kono model), quality (8 rules of quality based on Norms 9001 and 9002), reliability, design (Quality Function Deployment method and it's tool – House of Quality), forecasting demand. The concept of the production system (Production income model, Production analysis model, Accounting and interpretation). The structure, forms of organization and management systems. The process of manufacturing, distribution, manufacture, production flow control (simulation and analytic methods, Value Stream Mapping). Design of production systems, production control and programming services (Total Productive Maintenance, Total Preventive Maintenance – Overall Equipment Effectiveness). Material Requirements Planning (MRP) and Manufacturing Resource Planning (MRP II), other systems like ERP, DRP, SRP. Synchronization of material flow by the JIT concept. Flow control of production (Kanban system), cost- effective production (Lean Production), the management of cross-sections bottleneck (OPT) and human resources (Motivation and Leadership, Teamworking, pros and cons during implementation processes of different optimization tools). Computer-aided management production and services.</p> <p>Case studies program: 1st . Planning of the production cycle. 2nd Design and optimization of production streamlining. 3rd Application of Kanban production control system. 4th Materials resource planning. 5th Indicator of Overall Effectiveness Equipment. 6th Optimization of the production company - linear and aggregate programming models. 7th Planning projects using networking methods.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written test	60.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Moden Y.: Toyota Production System, Industrial Engineering and Management Press, Norcross, USA, 1983 2. Ohna T.: Kanban - Just-in-time at Toyota. Management Begins at the Workplace, Japan Management Association - Productivity Press, Cambridge 1989 3. Hopp W.J., Spearman M.L.: Factory Physics: Foundations of Manufacturing Management, Irwin/McGraw-Hill, New York 2001 4. Nakajima S.: Introduction to TPM - Total Productive Maintenance, Asian Productivity Organisation, Tokyo 1990 5. Takahashi Y., Osada T.: TPM - Total Productive Maintenance, Productivity Press, Cambridge 1988 6. Denis Mc Carthy, Dr Nick Rich, <i>Lean TPM - A Blueprint for change</i>, 2004 7. Shirose K. <i>TPM for Supervisors</i>, Productivity Press 8. Masaaki Imai, <i>Gemba Kaizen</i>; Kaizen Institute Polska and MT Biznznes, 2006, 9. The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer by Jeffrey K. Liker ISBN:0071392319, McGraw-Hill © 2004 10. The machine that changed the world, James Womack, Daniel T. Jones, Daniel Roos, ISBN: 0-892-56-350-8, LCC numbr: 89-063284, USA 1990. 11. The essentials of risk management, Michael Crouhy, Dan Galai, Robert Mark, McGraw-Hills 0-07-148332-2 USA 2004 12. Effective Project Management, Robert Wysocki, Rudd McGary, ISBN: 0-471-43221-0, USA 2003 	
	Supplementary literature	<ol style="list-style-type: none"> 1. Elliot B.R. , Hill G. Total Productive Maintenance – is It time to move on ? Logistics Solutions Vol., 1 Issue 3, 1999 Great Britain. 2. Peter Willmott, Denis Mc Carthy; TPM –Route to World Class Performance; 2001 3. Shigeo Shingo: A Revolution in Manufacturing : The Smed System, Productivity Press, 1985 4. The Productivity Press Development Team Quick Changeover for operators , Productivity Press 5. The Productivity Press, Development Team, Standard work for the shopfloor, Productivity Press 6. Kunio Shirose, TPM for Workshop Leader, Productivity Press 1992 7. M. Tajiri, F. Gotoh, Autonomous Maintenance 8. Ewaldz D., Predictive and Preventive Maintenance, Manufacturing Insight 002, Bourton Group, USA. 9. Hines P., Taylor D., Going Lean, LERC, Cardiff, UK, 2000 10. Liker K.J., Becoming Lean, Productivity Press, Portland, Oregon, USA, 1998 11. Productivity Development Team, The Cellular Manufacturing. One-Piece Flow for WorkTeams, Productivity Inc., Portland, Oregon, USA, 1999. 12. Productivity Development Team, The Focused Equipment Improvement for TPM teams, Productivity Inc., Portland, Oregon, USA, 1997. 13. Productivity Development Team, The, OEE for Operators, Productivity Inc., Portland, Oregon, USA, 1999. 14. Williamson R.M., Visual Systems for Improving Equipment Effectiveness, Strategic Work Systems Inc., Mill Spring, USA, 2000. 15. Willmott P., Total Productive Maintenance. The Western way, Butterworth Heinemann Oxford, 1994. 16. Womack J.P., Jones D.T., Lean Thinking: Banish Waste and Create Wealth in your Corporation, Simon & Schuster, New York, 1996 17. Masaaki Imai; KAIZEN; MT Biznes; 2007 	

		<p>18. Productivity Press Development Team; Visual Tools: Collected Cases and Practices; Productivity Press 2006</p> <p>19. Productivity Press Development Team; TPM: Collected Practices and Cases; Productivity Press; 2006</p> <p>20. Fumio Gotoh, Masaji Tajiri; Autonomous Maintenance in Seven Steps: Implementing TPM on the Shop Floor; Productivity Press; 2007</p> <p>21. Kunio Shirose, Yoshifumi Kimura, Mitsugu Kaneda, P-M Analysis, Productivity Press; 2007</p> <p>22. Productivity Press Development Team; 5s for operators; Productivity Press;</p> <p>23. Productivity Press Development Team; Cellular Manufacturing: One-Piece Flow for Workteams; Productivity Press</p> <p>24. Max Ammerman; The Root Cause Analysis Handbook: A Simplified Approach to Identifying, Correcting, and Reporting Workplace Errors; Productivity Press; 2007</p> <p>ADDITIONAL LITERATURE WILL BE GIVEN BY THE TEACHER DURING THE LECTURES</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	1st . Planning of the production cycle. 2nd Design and optimization of production streamlining. 3rd Application of Kanban production control system. 4th Materials resource planning. 5th Indicator of Overall Effectiveness Equipment. 6th Optimization of the production company - linear and aggregate programming models. 7th Planning projects using networking methods.	
Work placement	Not applicable	