



MODULE CARD

Name of Faculty	Faculty of Mechanical Engineering and Aeronautics
The level of study	The third (doctoral) level of study
The name of the discipline	(1) – Construction and exploitation of machines, (2) – Mechanics
Area of education	Technical sciences
Scientific degree obtained after graduation	PhD
Name of Department	Department of Manufacturing Processes and Production Engineering

Name of Module		Methodology of conduct of scientific and research work			
Code of Module	I1	Module status	Obligatory		
Coordinator		Prof. Jarosław Sępa, DSc, PhD, Eng.			
Language		English			
Coordinator contact details		Building L, room 141, tel. 17 865 1512, email: jsztmiop@prz.edu.pl			
Coordinator term of consultation		http://jsztmiop.sd.prz.edu.pl			
System module in the study plan		15 hours of lecture – 1 ECTS			
Year of study	Second	Semester	III	Academic year	2015/2016

The aim of education and bibliography

The aim of education is to familiarize students with the methodology of research work with individual focus on individual doctoral thesis

List of literature required to pass the module

List of the literature:

Lp.	Author	Title	Editor
1.	E. Bright Wilson, Jr.	An Introduction to Scientific Research	Dover Publications, New York
2.	Smith M J	Statistical Analysis Handbook	WWW. STATSREF.COM, 2014

Modular Effects of Education

MEE	A student who has completed module	Forms of classes	The methods of verification each of presented effects of education
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MEE1	Has the knowledge about the methodology of research work	Lecture	Presentation
MEE2	Has the knowledge of test procedures	Lecture	Presentation
MEE3	Able to prepare and present a presentation on the scientific problem and how to solve it based on the methodology of scientific research	Lecture	Presentation

Module content

Sem.	CE	Content of education	Lecture	Related to MEE
3	CE1	Basic definitions - knowledge, science, scientific problem. Thesis, hypothesis, correctness and rights	L1	MEE1
3	CE2	Models and modeling. Materials science and methods of their processing	L2	MEE1
3	CE3	Selected research methods - analysis, synthesis, abstraction, deduction, induction, analogy, interpretation, inference	L3	MEE1, MEE2
3	CE4	Selected test procedures - testing the significance of the impact, design of experiments, optimization of single and multi-criteria	L4	MEE2
3	CE5	Presentations of participants in relation to their doctoral dissertation from the point of view of the methodology of research work	L5	MEE1, MEE2, MEE3

Student workload

1 ECTS = from 25 to 30 hours.

Form of classes	Work before classes	Participation in classes	Work after classes
Lecture (sem. 1)	Preparation for classes: 2 hours./semester	Contact hours: 15 hours./semester	Complement / study notes: 2 hours./semester Preparing of presentation:: 5 hours./semester
Consultations (sem. 1)		Contact hours: 4 hours./semester	
Passing (sem. 1)	Preparation to pass: 2 hours./semester		

Assessment Module

A student who has achieved the expected level of knowledge, possess the required skills, which are defined in effects of education for the module and pass the module

A student who has not reached the intended effects of education do not pass education module

Final evaluation

Form of classes	Sposób wystawiania oceny podsumowującej
Lecture	During pass an achieving the following effects module is checked: MEE01, MEE02, MEE 03 Student, who obtain 5,0: Present the presentation containing: - the subject of future PhD thesis, - scientific problem undertaken in the framework of the doctoral thesis, - the objectives of the research work undertaken in the framework of the

	doctoral thesis, - sposób rozwiązanie problemu naukowego zgodny z metodologią pracy naukowo-badawczej, - way of solve the problem in accordance with the methodology of the scientific research work. The lack of any of the above mentioned elements results in lower ratings of 0.5 degree
Final mark	The final grade is the result of presentation and is completeness.

Head of Doctoral Studies

Date, signature