Course description

1 General information

Course name	Machining
Course code	
Level of study (B.Sc, M.Sc., Ph.D.)	M.Sc.
ECTS	5
Course manager	Dr hab. inż. Bogdan Słodki, Institute of Production Engineering
Course length	One (1) semester
Coordinator for international programs	erasmus@mech.pk.edu.pl

2 Prerequisites

- None

2 Program

Type	Lectures	Classes	Labs	Computer labs	Project	Seminar
Hours	30	-	15	-	-	-

3 Contents

Lectures		
No.		Hours
1.	Fundamentals of machining	2
2.	Tool materials	2
3.	Principles of external and internal turning	2
4.	Cutting data selection based on catalogue recommendation and the influence of local machining environment on this process	4
5.	Principles of milling	2
6.	Hole making	2
7.	Thread cutting and gear cutting	2
8.	Creation and forms of chips	2
9.	Abrasive machining	2
10.	Electro discharge machining (EDM)	2
11.	Tool wear and cutting tools sharpening	2
12.	Phenomena in cutting zone	2
13.	Computer aided cutting data selection for turning and milling.	2
14.	New trends in machining	2

Labs		
No.		Hours
1	External and internal turning	3
2	Principles of milling	2
3	Hole making	2
4	Abrasive machining	2
5	Cutting tools sharpening	2
6	Wire electro discharge machining (WEDM)	2
7	Computer aided cutting data selection	2

3 Learning Outcomes (skills and knowledge):

- Student knows the basic issues related to the various machining processes.

- Student knows the basic factors influencing the cutting process (e.g. cutting tool geometry)
- Student knows the principles concerning cutting data selection and the influence of the local operating features on the process efficiency.
- Student can select the proper method of machining for a given task.
- Student is able to use various computer programs for tool and machining data selection.

4 Assessment policy (examination):

- Report concerning laboratory classes.
- Elaboration on a chosen topic.

5 Literature

1. Boothroyd G. — Fundamentals of Metal Machining., Londyn, 1965, Edward Arnold Ltd.
2. Sandvik — Modern Metal Cutting - a Practical Handbook, Sweden, 1994, Sandvik.
3. Grzesik W. — Advanced Machining Processes of Metallic Materials, Amsterdam, 2008, Elsevier.
4. Jabłoński W., Słodki B. – Machining – Reference notes for foreign students SU 1683, Kraków, 2006, AGH.
5. Niżankowski Cz. – Laboratorium obróbki ubytkowej i powłok ochronnych, Kraków 2008, PK.