MODULE DESCRIPTION

Module code	**Z-ZIP-385z**
Module name	**Transfer Technologii**
Module name in English	**Technology Transfer**
Valid from academic year	**2016/2017**

A. MODULE PLACEMENT IN THE SYLLABUS

Field of study	**Management and Production Engineering**
Level of education	**1st degree** *(1st degree / 2nd degree)*
Studies profile	**General** *(general / practical)*
Form and method of conducting classes	**Full-time** *(full-time / part-time)*
Specialisation	**All**
Unit conducting the module	**The Department of Production Engineering**
Module co-ordinator	**Aneta Masternak-Janus, PhD**
Approved by:	

B. MODULE OVERVIEW

Type of subject/group of subjects	**Major** *(basic / major / specialist subject / conjoint / other HES)*
Module status	**Non-compulsory** *(compulsory / non-compulsory)*
Language of conducting classes	**English**
Module placement in the syllabus - semester	**5th semester**
Subject realisation in the academic year	**Winter semester** *(winter / summer)*
Initial requirements	**No requirements** *(module codes / module names)*
Examination	**No** *(yes / no)*
Number of ECTS credit points	**1**

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	**15**				

C. TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aim of the module is to familiarize students with problems of creation and commercialization of knowledge and technology as well as the aim of the module is to learn basic notions and main entries of the Europe 2020 strategy as regards the development of innovations as well as learning the methodology of functioning of the largest European network supporting international technology transfer.

Effect symbol	Teaching results	Teaching methods *(l/c/lab/p/other)*	Reference to subject effects	Reference to effects of a field of study
W_01	A student has knowledge of basic notions concerning innovativeness, entrepreneurship, research commercialisation, technology transfer as well as the expenditure on R&D in Poland and the EU. A student has basic knowledge of the Europe 2020 strategy in the aspects of Knowledge-Based Economy.	l	K_W18	T1A_W05
W_02	A student has basic knowledge as regards the mission on role of the European Enterprise Network (EEN) and knows functioning methodology within this network as regards technology transfer support.	l	K_W18	T1A_W05
W_03	A student knows the examples of good practice as regards international technology transfer and knows key stages to realise them.	l	K_W13	T1A_W09 T1A_W11
W_04	A student has knowledge as regards the following: sources of obtaining and financing technologies, selecting a proper technology, the principles of operations concerning governmental and regional institutions supporting technology transfer, and the systems of technology transfer in Poland and abroad.	l	K_W13	T1A_W09 T1A_W11
U_01	A student obtains and next utilizes the acquired knowledge to solve dilemmas appearing in improving enterprise competitiveness. A student also analyses the relationship of expenditure on R&D with an increase in enterprise competitiveness.	l	K_U01	TA1_U01
U_02	A student is able to utilise basic theoretical knowledge as regards the methodology of supporting technology transfer.	l	K_U01 K_U02	TA1_U01 TA1_U02
U_03	A student notices the connections between engineering decisions and their influence on boosting enterprise development. A student also has the ability of obtaining information from databases and making their analyses and interpretations. A student is capable of individual work and teamwork.	l	K_U01 K_U02 K_U11	TA1_U01 TA1_U02 SA1_U03
K_01	A student understands the necessity of lifetime education in order to raise his/her professional qualifications in connection with the changing market conditions on national and international scales.	l	K_K01 K_K06	T1A_K01 T1A_K07
K_02	A student can co-operate and work in a group as well as communicate effectively in order to solve a given problem.	l	K_K04 K_K03	T1A_K03 T1A_K04 T1A_K05 S1A_K04

Teaching contents:

1. Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	Basic notions – technology, innovativeness, entrepreneurship, commercialisation of research results, technology transfer, and technological base. The essence of technology transfer. The significance of technology transfer in enterprise development.	W_01 U_01
2	The mechanisms and forms of technology transfer. The stages of technology transfer. Technology market. The selected examples of successful technology transfers in Poland and in the world.	W_01 W_03 K_01
3	The sources of obtaining technologies – the choice of an appropriate option (advantages, disadvantages, benefits and risk, costs). R&D in technology transfer. Investment in R&D in Poland and in the EU. Assessing and selecting an appropriate technology. Criteria of selecting technology and the necessity of implementing, adapting, and absorbing technology.	W_01 W_04 U_01 U_02 U_03 K_01 K_02
4	The centres of innovation and technology transfer: technology parks, technology incubators, technology transfer centres; IRC. Mission and aims of the Enterprise Europe Network (EEN). The methodology of EEN as regards supporting cross-border technology transfer.	W_02 W_04 U_02 U_03 K_01 K_02
5	Main governmental and national institution supporting technology transfer in Poland and the selected EU countries. Technology transfer systems in Poland and the selected EU countries.	W_04 U_02 U_03 K_01 K_02
6	Financing technology. The sources of finance. Gaining private equity/venture capital. Finance programs supporting technology transfer in Poland in the world.	W_04 U_02 U_03 K_01 K_02
7	The idea of the Europe 2020 strategy.	W_01

2. Teaching contents as regards classes

Class number	Teaching contents	Reference to teaching results for a module

3. Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module

4. The characteristics of project assignments

Students, in groups of 2-3, prepare a case study concerning technology transfer based on individually collected materials gained, among other things, through EEN.

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results *(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)*
W_01	**A written test** In order to gain a B mark, a student ought to demonstrate knowledge of basic notions concerning innovativeness, entrepreneurship, research commercialisation, technology transfer as well as the Europe 2020 strategy. In order to gain an A mark, a student should additionally know and understand the significance of economy structure based on knowledge.
W_02	**A written test, teamwork** In order to gain a B mark, a student should demonstrate his/her knowledge of mission, role, and technology concerning European technology transfer network. In order to gain an A mark, a student should additionally know the advantages of modern technology in relation to the one applied until.
W_03	**A written test, teamwork** In order to gain a B mark, a student should know good examples of technology transfer and indicate key stages to conduct them. In order to gain an A mark, a student should additionally know and understand the impact of technology transfer in the improvement of enterprise competitiveness.
W_04	**A written test, teamwork** In order to gain a B mark, a student should demonstrate his/her knowledge of the sources of technologies acquisition and financing as well as the methods utilised in selecting an appropriate technology and should know the principles of operations concerning governmental and regional institutions supporting technology transfer; in addition, a student additionally suggest proper actions directed at gaining and applying an appropriate technology in an enterprise.
U_01	**A written test, teamwork** In order to gain a B mark, a student should be able to utilise his/her basic theoretical knowledge acquired during the lectures and in the process of self-betterment to solve dilemmas occurring in enterprise development in relation to benefits resulting from investing in new technologies. In order to gain an A mark, student should demonstrate the ability to suggest appropriate targeted actions in order to increase enterprise competitiveness.
U_02	**A written test, teamwork** In order to gain a B mark, a student ought to be able to utilise the acquired knowledge (during the lectures and as a result of self-education) to analyse the applied methodology by governmental and regional institutions as well as European technology transfer network. In order to gain an A mark, a student should additionally demonstrate the ability of making his/her own analysis concerning the impact of technology transfer on the increase of enterprise competitiveness.
U_03	**Teamwork** In order to gain a B mark, a student ought to be able to utilise the acquired knowledge (during the lectures and as a result of self-education) in order to connect engineering decisions and their influence on dynamising enterprise development. In order to gain an A mark, a student should additionally indicate the ability of teamwork, a result of which is illustrating a successful

	example of modern technology transfer gained, among other things, through EEN.
K_01	**Teamwork; observations and discussions during the lectures** In order to gain a B mark, a student ought to understand the necessity of continuous improvement of his/her knowledge as regards the support system in technology transfer. In order to gain an A mark, a student should have the competences of using the available knowledge resources and understand the necessity of lifetime education in order to raise his/her professional competences.
K_02	**Teamwork; observations and discussions during the lectures** In order to gain a B mark, a student ought to co-operate efficiently in a team and participate actively in project presentation, e.g. during a case study of modern technology transfer gained, among other things, through EEN. In order to gain an A mark, a student should additionally demonstrate his/her knowledge of the influence concerning aspects connected with a given technology on the competitiveness of the described company by him/her.

D. STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	**Student's workload**
1	Participation in lectures	**15**
2	Participation in classes	
3	Participation in laboratories	
4	Participation in tutorials (2-3 times per semester)	**1**
5	Participation in project classes	
6	Project tutorials	
7	Participation in an examination	
8		
9	**Number of hours requiring a lecturer's assistance**	**16** *(sum)*
10	**Number of ECTS credit points which are allocated for assisted work** *(1 ECTS point=25-30 hours)*	**0.5**
11	Unassisted study of lecture subjects	**8**
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	
15	Preparing reports	
15	Preparing for a final laboratory test	
17	Preparing a project or documentation	**8**
18	Preparing for an examination	
19		
20	**Number of hours of a student's unassisted work**	**16** *(sum)*
21	**Number of ECTS credit points which a student receives for unassisted work** *(1 ECTS point=25-30 hours)*	**0.5**
22	**Total number of hours of a student's work**	**32**
23	**ECTS points per module** *1 ECTS point=25-30 hours*	**1**
24	**Work input connected with practical classes** *Total number of hours connected with practical classes*	**17**
25	**Number of ECTS credit points which a student receives for practical classes** (1 ECTS point=25-30 hours)	**0.5**

E. LITERATURE

Literature list	1. Bartosik A., Osiadacz J. (red.), *Biała Księga Centrum Transferu Technologii*, Warszawa 2010. 2. Guliński J., *Innowacje – podaż, popyt, instrumenty transferu, finansowanie*, Wydawnictwo Poznańskie, Poznań 2000. 3. Matusiak K.B., Guliński J. (red.), *System transferu technologii i komercjalizacji wiedzy w Polsce – siły motoryczne i bariery*, Poznań-Łódź-Wrocław-Warszawa 2010. 4. Bartosik A., *Infrastruktura kreatywności na rzecz dynamicznego rozwoju regionu*, Wyd. Wyższej Szkoły Ekonomii i Prawa, Kielce 2010, s. 11-34. 5. Sosnowska A i inni, *Jak wdrażać innowacje technologiczne w firmie*, PARP, Warszawa 2005.

	6. *Negocjacje w transferze technologii*, UNIDO/ICS, Warszawa 2004. 7. http://europa.eu/scadplus/glossary/lisbon_strategy_en.htm 8. http://www.enterprise-europe-network.ec.europa.eu/index_en.htm 9. http://ec.europa.eu/growthandjobs/faqs/developments/index_en.htm#faq01
Module website	