STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Innovation and Creative Thinking	**1010512331010510004**

Field of study	Profile of study (general academic, practical)	Year /Semester
Computing	**general academic**	**2 / 3**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Software Engineering	**Polish**	**elective**

Cycle of study:	Form of study (full-time,part-time)
Second-cycle studies	**full-time**

No. of hours				No. of credits
Lecture: **30**	Classes: **15**	Laboratory: **-**	Project/seminars: **-**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
other	**university-wide**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	A student starting this subject should have a basic knowledge of: - modern ICT technologies, - internet applications, - product life cycle.
2	**Skills**	362/5000 The student should have the ability to solve basic problems related to: project and team management, using modern ICT technologies and the ability to acquire information from the indicated sources. He should also understand the necessity to broaden his competences and be ready to cooperate within the team.
3	**Social competencies**	In addition, as far as social competences are concerned, the student must present such attitudes as honesty, responsibility, perseverance,

Assumptions and objectives of the course:

The goal of the course:

1. To provide students with basic knowledge about innovation, creativity, pro-innovation attitude, the impact of ICT on the product and service development process, creating marketing strategies,

2. Developing students' ability to solve problems related to the assessment of suitability and the possibility of using ICT solutions for pro-innovative activities; ability to develop effective interpersonal relationships, create a creative team and care for the culture and climate of the organization

3. Teaching students the skills of teamwork and creative thinking and the attitude of self-development.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has a structured, theoretically founded general knowledge in the field of innovation, modern ICT solutions used in the process of product and service development. - [K2st_W8]

2. It has theoretically well-founded knowledge related to selected issues in the field of computer science, including: ICT in enterprise management, ICT in the product development process, impact of ICT on individual areas of enterprise innovation. - [K2st_W8]

3. He has knowledge about development trends and the most important new achievements in computer science and in selected related scientific disciplines, such as: analysis of business information systems, management, communication in business, creative thinking, management competences and organizational culture. - [K2st_W9]

4. He knows the basic concepts in the field of economics referring to IT investments and IT projects such as return on investment, fixed costs and variable costs, financial risk, revenue and profit. - [K2st_W9]

Skills:
1. Is able to obtain information from literature, databases and other sources (in mother tongue and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and comprehensively justify opinions in the scope of analyzed business cases. - [K2st_U1]
2. He can assess the usefulness and the possibility of using new achievements (methods and tools) and new IT products in the field of planning marketing activities, business development or innovation of the business. - [K2st_U16]
Social competencies:
1. He can inspire and organize the learning process of other people during exercises carried out in a workshop mode using group work. - [K2st_K3]

Assessment methods of study outcomes

Forming rating:

a) in the field of lectures:

- based on answers to questions about the material discussed in previous lectures,

b) in the field of laboratories / exercises:

- on the basis of an assessment of the current progress of tasks, research and projects

Summary rating:

a) in the field of lectures, verification of the assumed learning outcomes is carried out by:

- assessment of knowledge and skills demonstrated on the colloquium of a problem nature (the student can use any teaching materials) - the test lasts for 1.5 hours, consists of about 8 questions. Each of the questions has a number of points to be scored. There is a possibility of obtaining additional points for carrying out the audit work. Passing the exam requires obtaining a minimum of half of the possible points. Another form of examination (eg competitions - an idea for a start-up, preparation of a business plan of your own venture and other previously agreed with students) is allowed.
- discussion of the results of the colloquium,

d) in the field of laboratories / exercises, verification of the assumed learning outcomes is carried out by:

- evaluation of the student's preparation for individual laboratory-session sessions,
- continuous evaluation, on each class (oral answers) - rewarding the increase in the ability to use the principles and methods learned,
- evaluation of tasks prepared partly during the course and partly after their completion; this assessment also includes team work skills,
- assessment of knowledge and skills, increase of competences related to the preparation and implementation and presentation of individual tasks,

Obtaining additional points for activity during classes, and especially for:

- discuss additional aspects of the issue,
- effectiveness of applying the acquired knowledge while solving a given problem,
- ability to cooperate in a team practically implementing a detailed task during the exercises,
- remarks related to the improvement of didactic materials,
- indicating the perceptual difficulties of students enabling ongoing improvement of the didactic process.

Course description

The lecture program includes the following topics:

Introduction to the issues of innovation: the concept of innovation, the characteristics of the innovation process, knowledge-based economy, knowledge management. Selected rankings and innovation indicators.

Analysis of the determinants of innovative efficiency of enterprises. Areas of innovation: technical, product, marketing and organizational.

Sources of innovation: m.in. design-driven innovation - Verganti's innovation classification, innovations that change the technological dimension and the value dimension of products and services. Design management.

The role of ICT in business management. Review of modern technologies that affect the innovative activity of enterprises in specific areas. The use of modern tools to reach the consumer, building marketing strategies with the use of internet marketing, mobile and website positioning.

Problems related to interpersonal relationships, various management styles, methods and tools supporting the development of competences in the area of ??personal development, creative thinking and team management.

The concept and meaning of creativity: its determinants, creativity management, creative economy. The use of creative techniques to create and develop new products and services as well as to streamline processes. Innovation and creativity in the field of the Internet of Things.

Laboratory classes are conducted in the form of seven 2-hour exercises held in the laboratory. Exercises are carried out both individually and in teams and in the workshop mode. The program of classes includes the following topics:

Working with the use of the design thinking methodology, developing new products and services based on knowledge about people and their needs (inclusive design). Incubation of new business projects.

Internet image of enterprises - researching user experience and testing technical aspects of websites.

Analysis of selected business cases - case study.

Workshops: Self-development - broadening competences in the area of ??interpersonal relations, adaptation techniques at particular stages of sales, effective team work, the ability to provide feedback. Work on building your own image - the ability to perform public performances (verbal and non-verbal communication).

Creativity training.

Basic bibliography:

1. Design-driven Innovation. Changing the Rules of Competition by Radically Innovating What Things Mean, Verganti R., Harvard Business review Press, Boston, 2009, http://www.designdriveninnovation.com/book.html

2. Innovation of Technology and Innovation of Meaning: Assessing Websites of Companies. E Łukasik, M Sroczan; 2nd Workshop on Social and Algorithmic Issues in Bussiness Support "Knowledge Hidden in Text" @ 6th Language &Technology Conference; UAM Foundation; 2013, pp. 105-109.

3. Zmiana przez design: jak design thinking zmienia organizacje i pobudza innowacyjność; Brown T., Libron, Wrocław, 2013

4. E-biznes ? innowacje w usługach. Teoria, praktyka, przykłady, Pod red. Olszański M., Piech K., PARP, Warszawa, 2012

5. Wspieranie postaw proinnowacyjnych przez wzmacnianie kreatywności jednostki, Drozdowski R. i in., PARP, Warszawa, 2010

Additional bibliography:

1. Information Technology Strategies ? How leading firms use IT to gain an advantage, Rapp V. W., Oxford University press, 2002

2. Marketing, Kotler P., Rebis, Poznań, 2018

3. Uwarunkowania sprawności innowacyjnej przedsiębiorstw, Mruk H., Nestorowicz R, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań, 2011

4. W kierunku rozszerzonego przedsiębiorstwa ? analiza sektorowa rozwoju ICT w Polsce, Kasprzak T. (red), Difin, Warszawa, 2006

5. Strategia błękitnego oceanu. Jak stworzyć wolną przestrzeń rynkową i sprawić, by konkurencja stała się nieistotna, Kim Chan W., Mauborgne R., MT Biznes, Warszawa, 2007

6. Punkt Przełomowy, Gladwell M., Znak, Kraków, 2009

7. Droga Toyoty, Liker K.J., MT Biznes, Warszawa, 2005

8. Winning znaczy zwyciężać, Welch J., Studio Emka, Warszawa, 2005

9. Inwestycje teleinformatyczne w przedsiębiorstwie energetycznym; M. Sroczan, E.M. Sroczan, A. Urbaniak, Rynek Energii,2007, str. 2-11

Result of average student's workload

Activity	Time (working hours)
1. participation in laboratory classes / exercises	15
2. preparation for exercises	7
3. analysis and development of the decision-making process, work related to the development of interpersonal competences - training of public speaking skills, implementation of tasks:	10
4. participation in consultations related to the implementation of the education process, in particular laboratory exercises / project, implemented tasks (including electronically)	7
5. participation in lectures	30
6. familiarization with the indicated literature / didactic materials (10 pages of scientific text = 1 hour), 100 pages	8
7. preparation for passing the lectures and participation in the final test 2 hours. + 2 hours	8

Student's workload

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	47	2
Practical activities	30	1