STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Intelligent Management Support Systems	**1011101351011114060**

Field of study	Profile of study (general academic, practical)	Year /Semester
Engineering Management - Full-time studies -	**(brak)**	**3 / 5**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**elective**

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

No. of hours	No. of credits
Lecture: **15** Classes: **15** Laboratory: **-** Project/seminars: **-**	**4**

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

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**4 100%**
Technical sciences	**4 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The student knows principals of management, basics of application of computer science in management.
2	**Skills**	The student is able to apply properly notions from the area of management and computer science.
3	**Social competencies**	The student is aware of the necessity for widening own knowledge and is willing to cooperate within a group.

Assumptions and objectives of the course:

The subject is aimed at giving Management students interest on the future of the problem of application of expert systems and methods and techniques of artificial intelligence in Management

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

Knowledge:

1. The student has the basic knowledge on the life cycle of social and technical systems - [K03-InzA_W01]
2. The student has the basic knowledge on management, including quality management and running a business activity - [K06-InzA_W04]

Skills:

1. The student is able to plan and make experiments, including computer measurements and simulations, he/she knows hw to interpret obtained results and draw conclusions - [K01-InzA_U1]
2. The student is able to use analytical, simulation and experimental methods for formulating and solving engineer tasks - [K01-InzA_U2]
3. The student is able to notice system, social and technical, organizational and economical and non-technical aspects in formulating and solving engineer problems - [K01-InzA_U3]
4. The student is able to make a preliminary economical analysis for initiated engineer problems - [K01-InzA_U4]

Social competencies:

1. The student is aware of the importance and understands non-technical aspects and results of the engineer activity, including its impact on the environment and the responsibility for made decisions that correlate with it - [K01-InzA_K1]
2. The student is aware of the fact that creating products for satisfying needs of users require a system approach - [K01-InzA_K2]

Assessment methods of study outcomes

Forming evaluation:

Classes: on basis of the evaluation of the current progress in realization of tasks

Lectures: on basis of responses to questions concerning issues discussed on previous lectures.

Final evaluation:

Written test on the knowledge of issues presented during classes and project prepared in teams, concerning a chosen topic.

Written test on the knowledge of issues presented during lectures ? on basis of the final colloquium.

Course description

The course of the subject encloses five topic modules. The first module concerns problems of the intelligence in general, the process of information processing and in result ? the notion of the artificial intelligence in the robotic context and information systems in management and safety engineering. It also touches the issue of an intelligent dilemma of the sixth cycle.

The second and third module encloses the question of gaining knowledge. Methods of knowledge representation, creation and reconstruction of professional databases and strategies of expert methods for solving problems. These modules have a rather methodological character and they refer among other to heuristics and strategies of searching graphs, as well as the comparison of classical and dispersed methods of reasoning. The fourth module and the fifth one have an instrumental character. They present chosen instruments of artificial intelligence, like: artificial neuron networks and evolution algorithms. They show the way of applying them in management. They also present problems of hybrid systems and the theory of chaos.

Basic bibliography:

1. Pacholski L., Systemy ekspertowe i sztuczna inteligencja. Wyd. PP, Poznań 2011
2. Inteligentne systemy w zarządzaniu. Zieliński J.S., (red.), PWN, Warszawa 2000
3. Mulawka J.J., Systemy ekspertowe. WNT, Warszawa 1996.
4. Rutkowska D., Piliński M., Rutkowski L., Sieci neuronowe, algorytmy genetyczne i systemy rozmyte. PWN, Warszawa 1997.
5. Cytowski J., Algorytmy genetyczne. Podstawy i zastosowania. Akademicka Oficyna Wydawnicza, Warszawa 1996.

Additional bibliography:

1. Medsker L.M., Hybryd Neural Networks and Expert Systems, Kluwer Academic Publisher, Boston 1994
2. Żurada J.M., Barski M., Jędruch W., Sztuczne sieci neuronowe. PWN, Warszawa 1996
3. Budrewicz J., Fraktale i chaos. WNT, Warszawa 1993

Result of average student's workload

Activity	Time (working hours)
1. Lecture	15
2. Classes	15
3. Preparation for classes and lectures	18
4. Consultations	30
5. Preparation for the final assessment	20
6. Final assessment	2

Student's workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	62	2
Practical activities	15	1