To be completed by Course Team							
	Module name : **Information Industrial Systems**					Module code: M19	
	Course name: **Information Industrial Systems**					Course code:	
	Faculty: **IIS PWSZ in Elblag**						
	Field of study: **Informatics**						
	Mode of study : **Full-time**		Learning profile: **practical**			Speciality:	
	Year/ semester: **2/4**		Module/ course status: **obligatory**			Module/ course language: **Polish and English**	
	Type of classes	lecture	lessons	lab	project	tutorial	other (please specify)
	Course load	**15**	**0**	**30**	**0**	**0**	**0**

Module/ course coordinator	Dr. Eng. **Stanisław Witkowski**
Lecturer	Dr. Eng. **Stanisław Witkowski;** MSc. **Andrzej Stojek**
Module/ course objectives	Acquainted with the design rules properly functioning computer system and the principles of industrial installations of industrial information systems. Teaching administration and management of computerized systems in industry~~ial~~.
Entry requirements	Knowledge of network technology of electronic information and telecommunications

LEARNING OUTCOME		
Nr	LEARNING OUTCOME DESCRIPTION	Learning outcome reference
	Knowledge	
01	He knows the basics of creating a modern telecommunication networks	K_W04 K_W08 K_W15
02	Knows the principles of construction of modern computers and devices cooperating with them as well as operating systems and databases	K_W05 K_W09
03	He knows the IT security standards in relation to information systems	K_W16 K_W17
	Skills	
04	It designs, develops, configures and programs secure data communication systems, work~~sing~~ in a team with the division of work into stages	K_U02 K_U03 K_U06 K_U08 K_U09 K_U10 K_U11 K_U12 K_U13

		K_U14 K_U16 K_U17 K_U21 K_U22 K_U23
05	Supports and manages audio-visual and multimedia programming tools	K_U03 K_U12 K_U16 K_U20 K_U22 K_U23
06	It uses the rules, regulations and social standards of information systems	K_U01 K_U02 K_U06 K_U09 K_U22 K_U24
	Social skills	
07	Analyzes and evaluates the technical and technological progress with regard to the impact of information systems on the environment	K_K01 K_K02 K_K03 K_K04 K_K05
08	Follows the rules of professional conduct, in particular honesty, respects copyright and respect for diversity of views	K_K03
09	He works in a team and is responsible to a jointly completed task	K_K03 K_K04 K_K05

CURRICULUM CONTENTS

Lecture

1. Requirements for computer networks, industrial, basic concepts related to industrial networks, industrial network interfaces;
2. The main aspects of the use of informatics in industry;
3. Time requirements for industrial real-time systems;
4. Distribution and characteristics of real-time systems;
5. The process of decomposition of the technology and its impact on the informatics system dispersal;
6. Construction of a layered model of the informatics industrial system;
7. Fiber Optics technics and technologies;
8. Creating and building of lists of object code;
9. Inventory of binary and analog signals;
10. The term of system hardware and software architecture;
11. Selection of type and kind of programmable devices and development tools;
12. Communication systems and data transfer;
13. Workstations and engineering stations;
14. Development tools such as DCS;
15. Examples of real industrial applications;

Tutorial

Laboratory:

1. Audiovisual systems (knowledge on the sound and image processing - analysis of parameters of musical equipment) - ***laboratory stand number 1a***
2. Systems for recording and playback (recording of sound background and image - filtration, sound analysis)- ***laboratory stand number 1b***
3. Control systems for safety - ***laboratory stand number 2***
4. Access control systems (programming, servers, cards) - ***laboratory stand number 2***
5. 5.Processing and image analysis(server) - ***laboratory stand number 3***

6. Transmission systems and image analysis (camera) - ***laboratory stand number 3***
7. Visualization systems of room acoustics - ***laboratory stand number 5***
8. Fire information systems - ***laboratory stand number 4***
9. Designing of teleinformation systems (Intelicad) - ***laboratory stand number 6***
10. Analog and digital telephone exchanges - ***laboratory stand number 7***
11. The test of parameters and fiber optical properties - ***laboratory stand number 4***
12. Fiber optical welding techniques - ***laboratory stand number 5***
13. Analysis of damage to fiber optical systems - ***laboratory stand number 6***
14. Designing equipment of server racks together with their power - ***laboratory stand number 7***
15. Multimedia medical systems (DSO) - ***laboratory stand number 1***

Classes will be held in rotation at 8 laboratory stands. Test will be required before, report and bonus activity.

Basic literature	1. *Rafał Pawlak, „Okablowanie strukturalne sieci", wydawnictwo Helion, 2008* 2. *Openhajm, R. Shaffer: „Cyfrowa obróbka sygnałów", WNT W-wa 1998* 3. *Zygmunt Wróbel, Robert Goprowski „Praktyczne przetwarzania obrazów z zadaniami w programie Matlab", wyd. EXIT , Warszawa 2008.* 4. *Eric Maiwald „Bezpieczeństwo w sieci kurs podstawowy" wyd. Edition 2000, Kraków 2001.* 5. *Witold Wrotek „Sieci komputerowe Kurs" wyd. Helion, Gliwice 2008.* 6. *Leszek Litwin „Europejski Certyfikat Umiejętności Komputerowych – przewodnik tom II" wyd. Helion, Gliwice 2009.* 7. *Brian W. Kernighan, Rob Pike, „Lekcja programowania", Wydawnictwo Naukowo – techniczne, Warszawa 2002* 8. *Rafał Pawlak, „Okablowanie strukturalne sieci", wydawnictwo Helion, 2008* 9. *Robert A. Babel, Richard A. Roberts, „Sygnały i systemy liniowe", wydawnictwo Naukowo – Techniczne, Warszawa 1978* 10. *Eric Cole, Ronald L.Krutz, James Conley, „Bezpieczeństwo Sieci Biblia", wydawnictwo Helion, 2005* 11. *Tomasz Rak, „Sieci komputerowe", wydawnictwo Helion, 2006* 12. *Joshua Eichorn, „Tworzenie i optymalizacja aplikacji sieciowych", wydawnictwo Helion, 2007* 13. *R.G. Lyons: „Wprowadzenie do cyfrowego przetwarzania sygnałów", Wydawnictwo Komunikacji i Łączności W-wa 2000* 14. *C. Marven, G. Ewers: „Zarys cyfrowego przetwarzania sygnałów", WKiŁ W-wa 1999* 15. *A.Oppenheim "Digital signal processing", PWN, 1979.* 16. *H. Kwakernak, R. Sivan: "Modern signals and systems" Prentice-Hall, Englewood Cliffs. N. Yersey 1991* 17. *Balmer: Signal and Systems. Prentice Hall, London 1997.* 18. *R. Read: Telekomunikacja, Helion, Gliwice 1999.* 19. *R.G. Lyons: Wprowadzenie do cyfrowego przetwarzania sygnałów. WKŁ, Warszawa 1999.*
Additional literature	20. Krzysztof Perlicki „Pomiary w optycznych systemach telekomunikacyjnych" Wydawnictwo Komunikacji i Łączności, Warszawa 2002. 21. Jeff Duntemann „Przewodnik po sieciach Wi – Fi" wyd. Nakom, Poznań 2006. 22. Praca zbiorowa „Vademecum Teleinformatyka cz. 1,2,3", wyd. IDG,377-9

Teaching methods	Lecture and presentation of multimedia thematic issues subject. Research laboratories, along with a discussion of the result obtained. Laboratory studies with IT technology. Practical aspects of implementation of tasks using film documentation and teaching materials for laboratory use.

Assessment method	Learning outcome number
Laboratory: A1 - Test preparation for laboratory classes	01,02,03,04,05,06, 07,08
Laboratory: A2 - The preparation of the report of the results of research and analysis	05,06,07,08,09,10, 11
Laboratory: A3 - Solving the Problems of the test during class and activity	01,02,03,04,05,06, 07,08,09,10,11
Lecture: B – Written test	01 -04

Form and terms of an exam	Lecture: credit Final written, Laboratory: 15 interpretation of records of individual thematic Laboratory - 50%, 50% - Lecture Laboratory: A1 - 50%, A2 - 30% A3 - 20%, Lecture: B - 100%hematic Laboratory - 50%, 50% - Lecture

STUDENT WORKLOAD	
	Number of hours
Participation in lectures	15
Independent study of lecture topics	5
Participation in tutorials, labs, projects and seminars	30
Independent preparation for tutorials*	20
Preparation of projects/essays/etc.*	0
Preparation/ independent study for exams	5
Participation during consultation hours	5
Other	0
TOTAL student workload in hours	80
Number of ECTS credit per course unit	**3**
Number of ECTS credit associated with practical classes	50 **2,0 ECTS**
Number of ECTS for classes that require direct participation of professors	50 **2 ECTS**