COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	INFORMATICS AND COMPUTER ENGINNERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		**SEMESTER**	7th, 9th
COURSE TITLE	INDUSTRIAL INFORMATICS		
INDEPENDENT TEACHING ACTIVITIES if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits		**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures		2	
Practice Exercises		1	
Laboratory Exercises		1	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		4	5
COURSE TYPE general background, special background, specialised general knowledge, skills development	Specialised general knowledge Skills development		
PREREQUISITE COURSES:	Automatic control		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes, in English		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

Upon completion of the course the student will be able to:

- Describes and applies the principles of design, operation and programming of software applications for integrated industrial production systems.
- Analyzes distributed control systems, real-time systems, supervisory control and data acquisition systems, and PLCs.

Real examples of software applications for industrial process control are described.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management
Adapting to new situations	Respect for difference and multiculturalism
Decision-making	Respect for the natural environment
Working independently	Showing social, professional and ethical responsibility and sensitivity to gender issues
Team work	Criticism and self-criticism
	Production of free, creative and inductive thinking

Working in an international environment	……
Working in an interdisciplinary environment	Others… …….
Production of new research ideas	

- Search, analyze and synthesize data and information, using the necessary tools.
- Adaptation to new situations.
- Decision Making: Combining techniques for complex problems.
- Independent work concerning the mentioned thematic units of the course.
- Teamwork: Ability to dialogue and collaborate to develop complex applications.
- Work in an international environment: Ability to follow international literature and scientific events, Communication skills.
- Work in an interdisciplinary environment: Ability to perceive problems and needs as well as the ability to analyze issues and formulate proposals.
- Generation of new research ideas: Promotion of free, creative and inductive thinking to develop new strategic approaches.

(3) SYLLABUS

- Section 1 - INTRODUCTION TO INDUSTRIAL COMPUTING
- Section 2 - INTEGRATED PRODUCTION SYSTEMS
- Section 3 - DISTRIBUTED CONTROL SYSTEMS
- Section 4 - REAL TIME SYSTEMS
- Section 5 - SUPERVISORY CONTROL AND DATA COLLECTION SYSTEMS
- Section 6 - PROGRAMMABLE LOGIC CONTROLLERS
- Section 7 - COMPUTERS IN PRODUCTION & INDUSTRIAL NETWORKS
- Section 8 - SIMULATION IN INDUSTRIAL PRODUCTION
- Section 9 - APPLICATIONS OF INDUSTRIAL INFORMATION
- Section 10 - EXAMPLES OF SOFTWARE DEVELOPMENT FOR AUTOMATIC CONTROL OF INDUSTRIAL PROCESSES

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

Use of ICT in teaching, laboratory education, communication with students</td><td>• Posting material of the theoretical part of the course (notes, lecture slides, exercises, exam topics, etc.) on the e-learning platform (e-class).
• Use of e-mail and announcements on the e-learning platform to communicate with students</td></tr>
<tr><td>TEACHING METHODS
The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td><table><tr><th>Activity</th><th>Semester workload</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Practice Exercises</td><td>13</td></tr><tr><td>Group and Individual Studies/Assignments</td><td>53</td></tr><tr><td>Independent Study</td><td>33</td></tr><tr><td>Total Course
(25 workload hours per credit unit)</td><td>125</td></tr></table></td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>The course is assessed through assignments and a final written exam.

In particular, six assignments are delivered regarding the thematic units of the course</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Veloni, "INDUSTRIAL INFORMATION", Tziola Publications - Thessaloniki 2018.
2. 2. Robert King, "Industrial Informatics", Tziola Publications, 2003.
3. Georgios Hasapis, "Architecture and Programming of Industrial Control Systems", ZITI Publications.
4. Fotis Koumboulis, "Industrial Control", New Technologies Publications, 1999.

- Related academic journals:

1. Leslie Anderson, “Industrial Information Systems”, State Mutual Book & Periodical Service, Limited, ISBN: 0-86176-034-4 / 0861760344,
2. Michael J. Shaw, “Information-Based Manufacturing”, Kluwer Academic Publishers, 2001,
3. Edward J. Compass, Theodore J. Williams, “Computer Software for Industrial Control: Proceedings of the 7th Annual Advanced Control Conference”, Reed Buisiness

Information publishers, ISBN: 0-914331-06-X / 091433106X
4. “Advances in Industrial Computing Technology”, Instrument Society of America, 1999, ISBN: 1556177097.