

## DESCRIPTION ON THE INDIVIDUAL COURSE UNITS: Esu

*course unit title*

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Visualization of industrial processes

*course unit code*

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Esu

*type of course unit (compulsory, optional)*

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Compulsory

*level of course unit (e.g. first, second or third cycle)*

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First cycle engineering studies, Full-time

*year of study*

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3

*semester/trimester when the subject (course unit) is delivered*

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6

*number of ECTS credits allocated*

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4

*name of lecturer(s)*

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Piotr Szymak PhD

*learning outcomes of the course unit*

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knowledge about architecture of visualization application and features of its elements,  
knowledge about methods and rules of designing HMI/SCADA application,  
skill of correct designing HMI/SCADA application of industrial processes using iFix environment

*mode of delivery (face-to-face, distance learning)*

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Face-to-Face

*prerequisites and co-requisites*

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Basic knowledge of programmable logic controllers and industrial networks

*recommended optional programme components*

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No recommendations

## *course contents*

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### LECTURES

Introduction to the subject of visualization of industrial processes. Definition of HMI and SCADA. Features of operator console of industrial processes. Rules of designing visualization application. Navigation in iFix environment. Basic knowledge about communication between iFIX SCADA nodes.

### LABORATORIES

Configuration of iFIX nodes using the System Configuration Utility. Creation of standard Process Database tags. Creation of graphic screens using different object types and animations. Writing basic scripts using VBA (Visual Basic for Applications). Work with ActiveX components. Using trends to monitor both real-time and historical data. Configuration of alarms and creation of screens to monitor and acknowledge alarms. Integration of iFix with OPC servers and Clients. Developing schedules to automate workflows and processes.

## *recommended or required reading*

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### Basic literature

1. Legierski T. [i in.]: Programowanie sterowników PLC, Wydaw. Pracowni Komputerowej Jacka Skalmierskiego, Gliwice 1998
2. Kwaśniewski J.: Programowalne sterowniki przemysłowe w systemach sterowania, Janusz Kwaśniewski, Kraków 1999
3. Instrukcja GeFanuc: Wprowadzenie do systemu oprogramowania Proficy HMI/SCADA – iFIX pl, 2006

### Supplementary literature

1. Datasheets inserted on <http://www.ge-ip.com>

## *planned learning activities and teaching methods*

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Lecture	Tutorials	Laboratory	Project	Seminar	Sum
10	0	20	0	0	30

## *assessment methods and criteria*

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Course passing criteria	Passing threshold	Percentage of the final grade
Written examination	60%	60%
Practical exercise	60%	40%

## *language of instruction*

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polish, english

## *work placement(s)*

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Not applicable