



**COURSE TITLE:** SCADA & HMI – Supervisory Control and Data Acquisition & Human-Machine Interface

**Institute/Division:** Faculty of Automatic Control and Computer Science, E-1

**Number of contact hours:** 45

**Course duration:** 1 semester (Fall)

**ECTS credits:** 6

**Course description:**

The course comprises lectures, laboratory exercises and individual project. It is designed to provide the student with understanding of human machine interface and of supervisory control and data acquisition.

**The topics of the lectures and labs include:**

Introduction to supervisory control and data acquisition, distributed control systems, communication between field devices, industrial internet of things, human-machine interface, programmable logic controllers and programming language. Siemens controllers and HMI panels. Elements of ladder language and graphical elements, tags. TIA Portal environment. Control and monitoring operator panels design and implementations. Example of control and visualization applications, layers: hardware layer, visualization layer, error layer, logical layer, screens, alarms and users.

**Literature:** Selected reviews from scientific literature.

**Course type:** Lectures (15h), laboratory (24h), project ( 6h)

**Assessment method:** Project, laboratory exercises and written exam.

**Target group:** Students in Computer Science, Control and Electrical Eng.

**Contact Person:** kschiff@pk.edu.pl