



VŠB TECHNICKÁ
UNIVERSITA
OSTRAVA

Agreement on Bachelor program 3rd year Ostrava

Between

Institut Polytechnique des Sciences Avancées (IPSA)
63 boulevard de Brandebourg, 94200 IVRY-SUR-SEINE, FRANCE

and

VŠB-TUO, Faculty of Mechanical Engineering (FME)
17. listopadu 2172/15, 708 00 Ostrava – Poruba, CZECH REPUBLIC

Objective:

- This Semester Bachelor program 3rd year Ostrava is conceived as special programme for the students of IPSA through a collaborative effort between VSB-TUO Faculty of Engineering and IPSA.
- Lectures will be given from the 10th February until 17th May 2020.

Selection of students:

- IPSA presents its semester study program destinations to its students by the end of June
- Selection process is made in September
- Students willing to study at VŠB-TUO must apply on-line application form as Exchange students at <https://www.vsb.cz/en/study-here/exchange-students/exchange-programme/>
- The list of nominated students will be sent to VSB by mid-October

Pre-requisites from VŠB-TUO :

Courses and modules being taught in English in accordance with the academic specifications sent by IPSA, VŠB-TUO relies on IPSA for the selection of students.

Evaluation process at VŠB-TUO:

Each module will be assessed in accordance with the teaching plan in annexe.

It is agreed that:

1. For the services connected with the stay of IPSA students at VŠB-TUO, FME, IPSA will pay: 2200 EURO/STUDENT for a number 15-20 students and 2000 EURO/student for more than 20 students. 30 students is maximum. Payment of 100 % of the total amount will be paid upon receipt of an invoice by IPSA before 24th of April 2020.
2. Students will receive assistance from VSB-TUO FME in locating suitable dormitory-style accommodation. The cost of accommodation, including food, is the sole responsibility of the student.

3. Each student is responsible for his/her own international transportation cost and is expected to be in possession of a European health insurance card.
4. Academic achievement reports will be sent to IPSA at the conclusion of the semester, not later than four weeks after the last day of final examinations by Department Coordinator of VSB-TUO FME.
5. The course topics and contents are listed as follow attachment, which will be attached in the Course Certificate issued by Dean of VŠB-TUO FME.

For Institut Polytechnique des Sciences
Avancees

[Redacted]
General Director

Date:

For VŠB-TUO Faculty of Mechanical
Engineering

[Redacted]
Dean

Date: 30. 01. 2019

I. Courses from University Curriculum

The courses above requested by IPSA represent around 133 hours and 8 weeks project.

II. ECTS Explanation at VSB:

The students will get 30 ECTS for the semester. The marks will be as follows:

ECTS Grading Scale	Local grade scale	Definition
A	91 - 100 ps	excellent
B	81 - 90 ps	very good
C	71 - 80 ps	good
D	61 - 70 ps	satisfactory
E	51 - 60 ps	sufficient
Fx	30 - 50 ps	fail (some more work required)
F	less than 30 ps	fail (conconsiderable work required)

STUDY PROGRAMME - Bachelor Program 3rd year Ostrava

Study programme consists of: 6 weeks of study of 3 subjects
8 weeks for project

Department of Control System and Instrumentation

1. Process Visualization – 35 hrs (25 hrs theory and 10 hrs laboratory work) - 3 cps

Objective of the subject is to learn about supervisory control and data acquisition system design for distributed control systems reflecting the role of the human-machine interface for control system operators, and to understand the relation of process data measurement - data visualization - process control.

Lectures

- Data acquisition from real time process, human-machine interface (HMI) and human - production process interaction :
- Data visualization in operator workstations
- Object oriented graphics, screens design principles and standards
- Process application access rights and equipment functional safety issues
- Alarm management system and trend reporting in processes

2. Information Systems and PLC in Engineering – 35 hrs – (25 hrs theory and 10 hrs laboratory work) - 3 cps

In first part of this course we discuss what makes home computing systems different from enterprise computing systems. This course will also help you to get an overview with basic concepts, procedures and trends in information systems, the life cycle of information system development, database architecture, data processing and security. The second part of the course is to acquaint students with microprocessor technology with a focus on PLC controller, which are nowadays an integral part of engineering as production lines, machinery manufacturing, etc. Students will learn about hardware platforms and software tools for configuring and programming these systems. Students will be able to connect a control system to the network, configure it, to work with its peripherals, think creatively and create programs, including interaction with the superior level with visualization SCADA systems.

Lectures

- Industry 4.0 and Future Trends in Information Systems
- Information Systems Security
- TIA Portal Software
- PLC Programming
- HMI Visualization of Technological Processes

Department of Robotics

3. Robotics – 35 hrs (25 hrs theory and 10 hrs laboratory work) - 3 cps

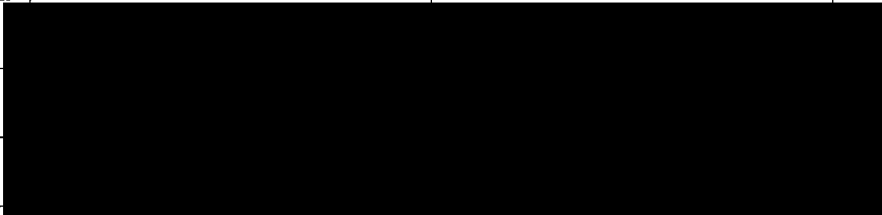
- Description of the IRB140 robot (manipulator, controller and educational cell). Safety rules for educational cell. Safety circuits of the robot. Operation modes. Description and functions of FPU unit. Manual control of the robot. Coordinate systems. Manual control modes. Basic set up of the robot. Creation of user defined tool and TCP. TCP modification. Basic user calibration.
- Introduction to ABB Robot Programming. Structure of the program. Backup and recovery of the program. Robot programming logic. Procedures and modules. Basic instructions.
- Movement instructions. Tools for complex programming. Basic data types. Compound data types. Functions and cycles.
- Using DI/DO signals. Training
- Introduction to RobotStudio software (RapidEditor). Training. Final project assignment.

4. Czech language courses: 2 cps

5. Project – (8 weeks) 8 cps

- Project in laboratory. Students will work in a team (max 2 students per team or individually). A written report and a presentation will be organized at the end of their semester for validation and results of their projects
- Choice of the project subject according to their interest.

Responsible persons for study

Subject	Name	Contact
Process Visualization		
Information Systems and PLC in Engineering		
Robotics		