COMPUTER MODELLING OF TECHNOLOGICAL PROCESSES

2 ECTS

AGH University of Science and Technology

Course responsible: dr. Grzegorz S. Jodłowski

Course overview

The aim of the subject is to obtain knowledge on basics and modern technics of technological process modelling. Students learn how to transform elemental technological process or whole production line into computer data space using well known techniques. Students are introduced to the application of advanced computer tools containing data sheeting methods. Computer laboratory – content: Elemental operation and technological process. Computer aided calculation – methods.

- Optimization and simulation,
- Methodology of model choice, methods of model evaluation and study of the case:
- Model assumption, construction and evaluation.
- Data-expert system. Data acquisition.
- Methods of process control.
- Elemental operation description in classical sheeting program (MS Excel, Origin, etc.). Flowchart diagram of the process. T
- The chosen methods of calculation programming (iteration, approximation etc.).
- Flowcharting and Flowsheet.

Additionally a student obtains the general knowledge on data acquisition, data mining and process control.

Outcome of the course

After this course the student should be able to:

- prepare computational transcription of physical model;
- prepare computational description of the unit;
- deliver computational description of whole process;
- apply approximation, optimisation and simulation techniques;
- construct physical process model;
- use methods of model evaluation;
- use standard applications (spreadsheet) for process description;
- apply flowsheets and flowcharts for process analysis and control.

Course coordinator & teachers

Dr. Grzegorz S. Jodłowski, Faculty of Energy and Fuels, AGH, E-MAIL: jodlowsk@agh.edu.pl