

Course Unit Title	MOE505 Process Modelling and Simulation
Programme of study	MSc in Oil and Gas and Offshore Engineering
Lecturer	Dr.-Ing. Paris A. Fokaides
Type of course unit	Compulsory
ECTS	7
Year of study:	1
Semester(s) offered	Spring Semester 2015
Course content	<ul style="list-style-type: none"> ▪ Introduction to process modelling and simulation ▪ Simulation of oil and gas industry processes including mixing, splitting, distillation, and chemical reactors ▪ Design, simulation and optimization steps of process engineering problems
Course modules:	<ol style="list-style-type: none"> 1. <u>Introduction to process modelling</u> <ul style="list-style-type: none"> ▪ Modelling of equation of state ▪ Modelling of vapour-liquid equilibria ▪ Modelling of chemical reaction equilibria ▪ Process simulation 2. <u>Process Modelling with Aspen Plus (1)</u> <ul style="list-style-type: none"> ▪ Properties – pure properties data bank ▪ Properties analysis ▪ Simple blocks – mixer/splitter ▪ Simple blocks - separators 3. <u>Process Modelling with Aspen Plus (2)</u> <ul style="list-style-type: none"> ▪ Flowsheeting and model analysis tools ▪ Fortran in Aspen Plus ▪ Sensitivity function ▪ Design specification ▪ The data regression system 4. <u>Process Modelling with Aspen Plus (3)</u> <ul style="list-style-type: none"> ▪ Flashes and decanter ▪ Pressure changers (pumps, compressors, pipelines) ▪ Heat exchangers 5. <u>Process Modelling with Aspen Plus (4)</u> <ul style="list-style-type: none"> ▪ Reactors ▪ RYield, REquil and RGibbs block ▪ RSTR RPluc and RBatch block ▪ Optimization examples
Textbooks:	Schefflan, R. (2011). Teach yourself the basics of Aspen Plus. John Wiley & Sons.
Instruction language	English
External reference	link