

Course Unit Title	ASOG 403 Industrial Processes
Programme of study	BSc in Mechanical Engineering
Lecturer	Dr.-Ing. Paris A. Fokaides
Type of course unit	Compulsory (for Oil and Gas Engineering Stream)
ECTS	5
Year of study:	4
Semester(s) offered	Fall Semester 2016, 2018
Course modules:	<p><u>Module 1: Process design of heat exchangers</u></p> <ul style="list-style-type: none"> ▪ Shell and tube heat exchangers ▪ Design of heat exchangers ▪ Process design of reboilers and vaporizers ▪ Heat exchanger networking for energy integration <p><u>Module 2: Design of liquid-liquid extractors</u></p> <ul style="list-style-type: none"> ▪ Industrial applications of liquid-liquid extractors ▪ Phase equilibrium ▪ Solvent properties and choice of solvents ▪ Supercritical extraction <p><u>Module 3: Process design of distillation columns</u></p> <ul style="list-style-type: none"> ▪ Selection of equipment for distillation ▪ Distillation column design ▪ Batch distillation ▪ Reactive and catalytic distillation <p><u>Module 4: Process design of absorbers</u></p> <ul style="list-style-type: none"> ▪ Criteria of absorber selection ▪ Design of packed tower type absorber ▪ Process design of spray tower absorber ▪ Process design of falling film absorber <p><u>Module 5: Petroleum refining</u></p> <ul style="list-style-type: none"> ▪ Refining processes ▪ Refinery feedstocks and products ▪ Operation of crude distillation units ▪ Crude oil desalting ▪ Crude distillation material balance <p><u>Module 6: Mass and Energy Balance Laboratory Exercises</u></p> <ul style="list-style-type: none"> ▪ Laboratory Exercise 1: Aspen Plus – Vapour-liquid equilibrium modelling ▪ Laboratory Exercise 2: Aspen Plus – Heat exchangers modelling ▪ Laboratory Exercise 3: Aspen Plus – Distillation column modelling (1) ▪ Laboratory Exercise 4: Aspen Plus – Distillation column modelling (2)
Textbooks:	Thakore, S. B., & Bhatt, B. I. (2007). Introduction to process engineering and design. McGraw-Hill Education.
Instruction language	English
External reference	link