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University of Applied Sciences

Industrial Management

Autumn 2023 (For spring, scroll down!)

Component code	Component Title	ECTS
CT00AO46-3001	**Flow Dynamics and Heat Techniques**	**6**
Goal: After completing the course, the student is familiar with the flow properties of fluids and the methods of heat transfer. The student is able to perform calculations related to fluid mechanics, dimension a centrifugal pump, adjust its operation energy-efficiently and assess the risk of cavitation. The student is able to apply mass and energy balances related to flow systems and heat transfer. Content: Fundamentals of fluid mechanics. Properties of fluids. Material and energy balance for flow systems. Dimensioning of pipelines and pumps and cavitation assessment. Heat transfer methods, heat exchangers and related calculations.		
CT00AO47-3001	**Computer Aided Process Calculation**	**2**
Goal: The student is able to use spreadsheets in technical calculations. The student is able to create an illustrative and user friendly spreadsheet. The student is able to build a simulation model of a simple process using commercial simulation software. Content: Spreadsheet lay-out; Absolute and relative references; Most important graphical presentations; The use of built in functions; Conditional functions; Protecting a spreadsheet; Modelling using a simulation program		
CT00AQ36-3001	**Oil Refining**	**5**
Goal: The students knows: The importance of oil products energy source globally and in different countries; The nature and origin of crude oil; Oil refining raw materials and products; The main process units and their roles in oil refineries; Supporting processes needed; The future in oil refining Content: 1. Usage and importance of Crude Oil; 2. Characterization, history and formation of Crude Oil; History of Oil refining; Different kinds of refinery feed stocks, reserves; 3. Crude Distillation; 4. Thermal processes; 5. Fluid catalytic cracking (FCC) and Thermofor Catalytic Cracking (TCC); 6. Hydrocracking; 7. Hydrotreating; 8. Catalytic Reforming; 9. Alkylation and MTBE/TAME-production; 10.Hydrogen production and purification, Acid gas removal; 11. Sulphur recovery process, Waste water treatment, Flare system and safety; 12. Clean Fuels & The future of oil refining		
IT00AS77-3001	**Introduction to computer science**	**2**
Goal: The student knows: the brief history of programming; a brief history of information technology; a brief history of the Internet; the basics of how the internet works; how to make simple pseudo-codes; what a function is; what a variable, an expression and a placement expression are; how operators work; how data transfer takes place on the internet; the basics of programming thinking; what the basic elements of programming are; programming terms; the role of the processor and memory as part of software development; the sub-areas that make up the field of information technology; the current trends in information technology; what's required if they want to succeed in studying IT. The student generally knows: computer parts and their roles; the role of information technology in society. The student can: envision the future of the Internet; make simple flowcharts. The student is aware of different careers in IT. Content: Internet in brief; History of Information Technology; Introduction to programming; Career in IT; Studying IT		
IT00AS78-3001	**Tools of software development**	**2**
Goal: The student is able to use: Version control tools; Command line tool; Editors; Project management tools; Communication tools; Documentation tools		

Content: Version control GitHub & Git; Command line tools such as Bash, Command Prompt (Windows), Terminal (Mac); Code editors such as Visual Studio Code, Visual Studio; Project management tools such as Trello; Collaboration applications such as Teams, Zoom, Slack; Drawing tools such as Draw.IO		
IT00AS60-3001	**Fundamentals of programming**	**5**
Goal: After completing the course student: knows the terms variable, conditional or if, and while-loop and can use them in the programs; knows the logical operators, such as and, or and not and can use them in conditionals and while-loops; knows what methods, method parameters and method return mean, how to create them and what happens in the program while a method is used; can comment own code and understand how naming variables affects the readability of code; can write simple programs which read user input, use outputs and do basic calculations; understands the basics of lists and can use them in programs; understands the terms file and filesystem and can read a simple file with your program; knows the basics for object oriented programming and how to use it when programming; knows the different data types and how they differ from each other; can overload methods and constructors; can separate user interface from program logic. Content: Printing and reading; Variables; Calculations; Conditional and comparison; Repetition and loops; Functions; Lists; Arrays; Strings; Introduction to object orientated programming		
IT00AI33-3004	**Algorithms and datastructures**	**5**
Goal: After completing the course student: understands the basics of algorithms and data structures and understands their meaning in software engineering; can design and implement algorithms that solve problems; understands time complexity and the Big O notation; understands recursion and can use it in problem solving; knows different sorting algorithms and their differences; knows of the list and tree data structures, especially binary search tree; understands the basics of graph data structures and searching them with DFS and BFS; knows Bellman-Ford, Djikstra's and Floyd-Warshall algorithms and understand their basic functionality; is familiar with other common / popular algorithms Content: Algorithms and their performance; Different datastructures; Recursion; Lists, stacks, queues, trees, binary trees, graphs; Search and sort methods; Popular / common algorithms		
ITK1049-3005	**C++ Programming Language**	**4**
Goal: After the course student should be able to design, implement and code a computer program using C++ programming language on the intermediate level. Content: 1. Types and declarations; 2. Pointers, arrays and structures; 3. Expressions and statements; 4. Functions; 5. Namespaces and exceptions; 6. Source files and programs; 7. Abstraction mechanism; 8. Standard template library; 9. Standard structures and algorithms; 10. Development, design, programming		
IM00AD73-3004	**Business Workshop Game**	**2**
Goal: This course of business game develops students' understanding of the complexity of global business operations in a dynamic, competitive environment. Students will be able to formulate the strategy based on financial analyses and market situation of some company and make its implementation and translation into practice. Content: The business game will be implemented as an international workshop, at which the participants will make groups of 3-5 to imitate decision makers. The participants will compete in the same market. Strategic skills and knowledge of corporate economics and accounting will be useful during the game, along with the ability to analyse the changing market demand situation.		
BM00AL90-3006	**Marketing, Sales and Customer Service**	**3**
Goal: The student can explain the role of marketing. The student can analyze marketing opportunities and make necessary decisions concerning market segmentation, product positioning, marketing programs and campaigns. The student is able to describe the process of selling. The student can		

implement different sales techniques and create a sales plan. The student understands the importance of customer service and can describe the customer journey. Content: Customer relationships and their influence in the competitive advantage of companies. The role of marketing; Marketing in practice; Sales process; Sales techniques; The role of customer service; Customer journey; Modern customer service (AI etc.)		
BM00AL95-3002	**Strategic Management and Megatrends**	**3**
Goal: After completing the course, the student: 1) is able to describe strategic management and current megatrends; 2) can demonstrate basic skills of strategic thinking and planning; 3) can distinguish between alternative strategies; 4) is able to apply practical tools for strategic analysis of the business and environment, including megatrends Content: Core concepts of strategy and strategic management; Strategic management process; Basic strategic choices; Strategic analysis tools; Megatrends		
TU00AD70-3001	**Cross Cultural Project Management**	**5**
Goal: Aim is to deepen the understanding of different aspects of project management in multicultural business environments. They deepen their capabilities of communication in joint projects. Students will learn and are able to practice phases of project planning using suitable tools. Content: Managing projects in cross-cultural business environment; Project Plan; Risk analyzes; Critical path method; Reporting & Measurements		

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CT00AO45-3002	**Mechanical Operations in Chemical Engineering**	**6**
Goal: During the course, the student acquires basic knowledge and skills in various mechanical processes and methods, which are mainly related to the processing of minerals. The aim is to be able to dimension equipment at basic level after completing the course. In the laboratory part of the course, the student learns the operation, calculation and reporting of mechanical processes. Content: The course includes theory teaching and laboratory exercises. It includes general properties of granular material, grain size and grain size distribution. Material grinding, crushing and grinding, screening, classification. Solid separation techniques, thickening, clarification, filtration, centrifugation and cyclones. The most common enrichment methods. Dust separation as well as the most common liquid mixing equipment, mixing vessel flow patterns, evaluation of mixing efficiency and time. The most common devices and their advantages and disadvantages, as well as the most important design principles.		
CTK1033-3004	**Mass Transfer**	**6**
Goal: The student has knowledge about equilibrium between phases and apply the knowledge in the mass transfer processes. Content: The Gibb's phase rule and phase equilibrium drawings in one component systems and the mathematical handling of phase equilibrium of different phases of the same substance. The vapour-liquid-equilibrium (VLE) pictures of binary mixtures in both ideal and real cases and their application in simple distillation.The construction of VLE drawings. Different types of physical state drawings of binary condensed systems and their meaning. The colligative properties of liquids and their mathematical handling. The most important legalities of the solubility of gases. The utilising databases in phase equilibrium problems. The course will emphasise the following unit operations of mass transfer: distillation, absorption, liquid-liquid-extraction, dissolving solids, crystallisation, handling humid gases, drying, adsorption, ion exchange.		
CT00AQ29-3001	**Environment and Energy**	**5**
Goal: The student knows the the impact of consumption of energy and production of energy on the environment. He understands the problems it causes and knows the possibilities to reduce the impact. Content: Energy production and energy consumption, energy resources, annealing and their effects, purifying methods, boosting methods of energy use.		
IT00AL10-3003	**Object-Orientated programming and modelling**	**5**
Goal: After completing the course student: knows the practices for object oriented programming and how to use it when programming; can create a project with proper structure and are able to run tests in the correct folder; can use dictionaries as data storage and understands hash's; can use basic library functions like random strings and numbers; can handle exceptions, read, and write (to and from) files, and use these in problem solving; can create small graphical interfaces for your programs. Content: Object oriented programming; Interfaces; Inheritance; Comparisons; Randomness; Graphical user interfaces		
ITK1032-3005	**Embedded Systems (unknown yet whether it is offered)**	**6**
Goal: The student knows the internal architecture and central peripherial circuits of a microprocessors and micrcontrollers and knows the programming of such devices. The student knows the possibilities that microprocessor thecnology offers to the implementation of embedded systems. Content: Structure of microcomputer, microprocessor and microcontroller, pheripherial circuits, programming of the microprocessor, combining hardware and software, embedded system development tools, laborations.		

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ITK1040-3004	**C Programming Language**	**4**
Goal: After the course is completed: Student shall understands role and importance of programming languages in software development process; Student shall be able to use for own purposes Visual Studio 2015 for programming in C language; Student shall understand the structure of the source code of a program; Student shall be able to apply pre-processing directives in programs which are being developed; Student shall know how to perform input / output operations; Student shall understand how to allocate memory; Student shall understand the role of data types as well as how to apply in programs primitive, compound and structured data types; Student shall understand C language operators and expressions; Student shall understand the flow control of a program; Student shall know how to design and use in a program functions. Content: 1. Introduction; 2. Program building blocks; 3. Flow control; 4. Pointers and functions; 5. Compound data types; 6. Input output		
TL1038-3011	**Professionally Speaking**	**3**
Goal: The student can communicate efficiently and fairly fluently in various communication situations and roles in working life and also in university settings both facing an audience and online. The student can adjust their communication to different registers. The student can organize meetings and act in different roles in meetings. The student can successfully participate in negotiations and in different social situations in their own field. The student can give a presentation on a field-specific topic. The student is aware of different cultural backgrounds and how culture can influence communication. Content: presenting skills; negotiating skills; meeting skills; general social interaction skills		
BM00AM27-3001	**Customer Experience Management**	**5**
Goal: The student acquires an understanding of the importance of strong customer relationships and their influence on the competitive advantage of companies. After completing the course, the student 1) can explain the role of strong customer relationships; 2) can describe and manage the customer life-cycle; 3) can use customer data to understand customers behavior and gain customer insight; 4) can apply ideas to improve customer experience Content: The role of strong customer relationships; Customer life-cycle; Analyzing customer data; Emergenging of customer experience		
TU00AP03-3001	**Strategic Management Workshop**	**4**
Goal: The student understands the importance of strategic management as an organizational competitive factor. He knows the key tools of strategic management and will be able to draw up the company's strategy on the basis of analysis of the operating environment and competitive situation. Content: During the Workshop on Strategic Management international students work in small groups to elaborate mission, strategic goals and strategy of real enterprise. To develop a strategy, students should carry out an analysis of the macroenvironment, the competitive environment and the company's potential.		