

Module designation	<i>PETE 603 Advanced Reservoir Engineering</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Firidun Aliyev</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:225 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>7.5</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<p><i>This course is aimed at understanding the rock and fluid properties of a hydrocarbon reservoir. The course covers the nature of fluid flow and pressure distribution within a reservoir and also looks at the effect of production or injection on flow and pressure, and therefore on the recovery of reserves from the reservoir.</i></p> <p><i>The overall aim of this course is to allow the student to:</i></p> <ul style="list-style-type: none"> <li><i>• Understand the rock and fluid properties of a hydrocarbon reservoir</i></li> <li><i>• Describe the nature of the fluid flow and pressure distribution in a reservoir</i></li> <li><i>• Understand the effects of production/injection on recovery of reserves</i></li> </ul>
Content	<i>Introduction to reservoir engineering, Reservoir fluids composition, Behaviour of gasses, Properties of reservoir liquids, Fundamental properties of reservoir rocks, Fluid flow in porous media, Drive mechanisms, Vapour-liquid equilibria, PVT analysis, Material balance, Natural water influx, Immiscible flow</i>
Examination forms	<i>Witten Exam</i>
Study and examination requirements	<i>Total grade above 61</i>

Reading list

*Reservoir Engineering Student Notes by Heriot Watt University*

*Reservoir Engineering Handbook by Tarek Ahmed*

*Fundamentals of Reservoir Engineering" by L.P. Dake*

Module designation	<i>PETE 607 Research Methods in Petroleum Engineering</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Assoc.Prof.Rauf Nadirov</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:225 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>7.5</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<p><i>This course is aimed :</i></p> <ul style="list-style-type: none"> <li>• <i>To provide detailed understanding of research philosophy, types, phases and methods.</i></li> <li>• <i>Application of this approach to principal analytical equipment and methods to Petroleum Engineering objectives and goals.</i></li> <li>• <i>To provide the necessary tools to help engineers design and operate processes and unit operations in petroleum engineering.</i></li> <li>• <i>To demonstrate how to use analytical equipment and its results in sample control, data analysis, or process interpretation.</i></li> </ul> <p><i>By the end of the course the students should be able to:</i></p> <ul style="list-style-type: none"> <li>• <i>Understand the importance of the main research methods in general as well as in Petroleum Engineering.</i></li> </ul>
Content	<ul style="list-style-type: none"> <li>• <i>Introduction to research methods, Research Purposes and Results Deliverability, Research Paradigm, Research Methodology and Methods, Different Types of Researches, Research Design Methods, Phases of Research, Basic and Applied Researches, Models – Empirical vs. Deterministic, Research Proposal and its Elements, Research Methods in Petroleum Engineering, Core Analysis, Microscopic Studies, Macroscopic Studies, Geochemical Analysis, Computational Fluid Dynamics (CFD), Micro-computed tomography pore network extraction analysis, Pore network extraction analysis, Mathematical methods in modelling, Probability and risk assessment methods.</i></li> </ul>

Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Research Methods for Engineers" by David V. Thiel</i>

Module designation	<i>PETE 605 Formation Evaluation</i>
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Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Assoc.Prof.Javid Shiriyev</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:225 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>7.5</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<p><i>A major role of petrophysicists is to measure and evaluate rock properties by acquiring well log measurements, in which a string of measurement tools is inserted in the borehole, and core measurements, in which rock samples are retrieved from subsurface for the laboratory measurements. These studies are then combined with geological and geophysical research, and reservoir engineers utilize this knowledge to describe the dynamic behavior of the reservoir. In this course, we will focus mainly on the first way of acquiring data from underground formations and will look at the specific methodologies used in current field applications.</i></p> <p><i>Course objectives are to understand the significance of well logging in reservoir evaluation, hydrocarbon exploration, and production optimization; to familiarize with logging tools; to comprehend the physics and principles underlying various well logging techniques; to acquire the knowledge and skills needed to evaluate subsurface formations, including lithology, porosity, permeability, and fluid content; to learn data acquisition techniques; to interpret well logging data to derive petrophysical properties and make informed assessments of subsurface reservoirs; to analyze tool responses in different formations; to address mud and environmental effects; to differentiate cased hole and open hole logging</i></p>
Content	<i>Introduction to Formation Evaluation, Borehole Environment, Routine Core Analysis, Well Logging, Interpretation Techniques, Spontaneous Potential, Formation Water Resistivity, Acoustic Logging, Nuclear Family Tools, LithoPorosity Determination, Saturation Determination</i>
Examination forms	<i>Witten Exam</i>

Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Formation Evaluation- Handbook by HW</i>

Module designation	<i>PETE 641 Reservoir Sedimentology</i>
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Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Assoc.Prof. Gasham Zeynalov</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:225 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>7.5</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Reservoir sedimentology studies sediments to derive information on the depositional conditions which acted to deposit the rock unit, and the relation of the individual rock units in a basin into a coherent understanding of the evolution of the sedimentary sequences and basins, and thus, the Earth's geological history as a whole. Classification of sedimentary rocks, sediment texture as grain size, sorting, grain shape, fabric, grain morphology and surface texture and texture maturity. Properties of sandstone, depositional environment of sandstone; sandstone classification, porosity evolution in course of sandstone diagenesis; characteristic reservoir morphology and criteria for recognition of aeolian, fluvial, coastal, deltaic, shelf and basin sandstone bodies; reservoir heterogeneity; petrophysical analysis using logs; reservoir sedimentology of sedimentary prolific basins. Facies analysis and facies models of carbonates, classification of carbonate rocks; standard microfacies types; carbonate diagenesis; porosity evolution and diagenesis in sequence stratigraphic framework; pore geometry and performance of reservoir rocks; relationship of depositional environments with the development of reservoirs. Transportation and deposition of sediments with physical processes of transportation, transportation of sediments by fluids, formation of bedforms and sedimentary structures in current-generated (water currents), wave-generated, wind-generated processes and sediment gravity flows. Clastic and carbonate depositional environments and their reservoir examples, clastic and carbonate diagenesis and their influence to reservoir poroperm properties.</i>
Content	<i>Introduction to Reservoir Sedimentology, Grain Properties and Sediment Texture and their Influence on Porosity and Permeability, The Transport and Deposition of Sediments:Mass movement and Gravity flow</i>

	<i>mechanisms, Transport and Deposition by Fluid, Bedforms and Sedimentary Structures and their generation principle, Facies and Facies Associations, Depositional Systems and Depositional Environments, Clastic depositional Environments: Classification of Depositional Systems/Facies Models, Carbonate Sedimentology and Reservoir Geology, Carbonate grain, Clastic and Carbonate Diagenesis: Clastic diagenesis, Factors controlling sandstone diagenesis</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>REM Reservoir Sedimentology- HW Manual</i> <i>2. H.-E.Reineck and I.B.Singh, 1986, Depositional Sedimentary Environments, 551 pages</i> <i>3. Gary Nichols, 2009, Sedimentology and Stratigraphy, Second Edition, Wiley-Blackwell, 419 pages</i>

Module designation	<i>PETE 622 Reservoir Concepts</i>
Semester(s) in which the module is taught	<i>Spring</i>

Person responsible for the module	<i>Assoc.Prof. Gasham Zeynalo</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 144</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>The Reservoir Concepts course studies the basic geological concept of an oil and gas field development through understanding of major producing basin geology, the various architectural relationship in reservoirs and their effect on productivity and recovery factor. The overall aim of this course is to allow the student to: - Understand geological control on reservoir properties and performance - Understand the concept of flow units and the basic processes involved in their development - Be able to correlate, map and calculate hydrocarbons in place - Understand the basics of structural geology and geophysics for assessing reservoir structure</i>
Content	<i>Introduction to Reservoir Concepts: Aim of the of Reservoir Exploration and Development Concepts, Oil fields: Key issues for different fields, Oil field settings, Wellsite Geological Operations: Key aspects of operations geology Mudlogging and Wellsite Geology Mudlog Construction, Reservoir Architectures: Basic Stratigraphic concepts Sequence Stratigraphic Concepts for reservoir Stratigraphy in non-marine and carbonates Role of Reservoir architecture in compartmentalization, Role of Datum in Correlation, Mapping: Manual, Mechanical and Computer mapping, Structural Geology: Basic terminology of Structural Geology, Structural Features Structural Families, Tectonics and Geological Events</i>
Examination forms	<i>Witten Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Reservoir Concepts, Institute of Petroleum Engineering, HWU 2017</i>

	<i>Oil Field Production Geology, M. Shepherd, 2010</i>
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Module designation	<i>GEO 622 Geomechanics and Formation Geophysics</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>Assoc.Prof.Gasham Zeynalov, Assoc. Prof. Rauf Nadirov</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>

Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:210 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 174</i>
Credit points	<i>7</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Understand rock properties and their significance in petroleum engineering. Analyze stress, strain, and in-situ forces affecting reservoir stability. Evaluate wellbore stability and develop mitigation strategies. Apply geomechanics principles to hydraulic fracturing and reservoir performance. Assess rock failure, fault mechanics, and induced seismicity risks. Interpret seismic data for reservoir characterization and field development.</i>
Content	<i>Introduction to Rock Mechanics &amp; Geomechanics, Stress &amp; Strain in Rock Formations, Geomechanics in Drilling &amp; Wellbore Stability, Hydraulic Fracturing &amp; Reservoir Geomechanics, Rock Failure &amp; Fault Mechanics, Seismic Geophysics &amp; Reservoir Characterization</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>REM Rock Mechanics, Geomechanics and Geophysics- HW Manual</i>

Module designation	<i>PETE 688 Reservoir Simulation</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Assoc.Prof.Javid Shiriyev</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>

Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:240 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>8</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Understand the fundamentals and applications of reservoir simulation. Formulate and apply reservoir fluid flow equations for different recovery mechanisms. Utilize numerical methods for solving flow equations in simulation models. Develop reservoir models using geological, petrophysical, and fluid data. Differentiate between black oil and compositional models for various reservoir types. Model well performance and forecast production using simulation tools. Assess the impact of uncertainties and conduct sensitivity analysis. Analyze real-world case studies to enhance decision-making in reservoir management.</i>
Content	<i>Introduction to Reservoir Simulation, Reservoir Fluid Flow Equations, Numerical Methods in Simulation, Reservoir Modeling &amp; Input Data, Black Oil &amp; Compositional Models, Well Modeling &amp; Production Forecasting, Uncertainty &amp; Sensitivity Analysis, Simulation Case Studies</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Applied Petroleum Reservoir Engineering – B.C. Craft &amp; M. Hawkins Fundamentals of Reservoir Simulation – Khalid Aziz &amp; Antonin Settari</i>

Module designation	<i>PETE 624 Formation Engineering, Well Test Analysis</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>Assoc.Prof.Firidun Aliyev</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 144</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Understand the principles and significance of well testing in reservoir evaluation. Analyze pressure behavior and flow regimes in porous media. Apply pressure transient analysis methods for well performance evaluation. Conduct and interpret drawdown, buildup, interference, and pulse tests. Evaluate gas well testing complexities and multiphase flow behavior. Assess wellbore storage, skin effects, and their impact on test results. Utilize type curve matching and diagnostic techniques for reservoir characterization. Interpret real-field well test data for informed reservoir management decisions.</i>
Content	<i>Introduction to Well Testing, Pressure Transient Analysis, Drawdown&amp;Buildup Tests, Interference&amp;Pulse Tests, Gas Well Testing, Wellbore Storage and Skin Effect, Type Curve Matching&amp;Diagnostic Techniques, Applications of Well Testing in Reservoir Characterization</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Well Testing-John Lee</i>

Module designation	<i>GEO 642 Geomodelling and Management</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Assoc.Prof.Javid Shiriyev</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:240 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 204</i>
Credit points	<i>8</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Understand the fundamentals of geostatistics and its role in reservoir characterization. Analyze and interpret spatial variability using variograms. Apply kriging and other interpolation techniques for property estimation. Differentiate between stochastic and deterministic modeling approaches. Design reservoir grids and perform upscaling for simulation purposes. Integrate petrophysical data for accurate reservoir property modeling. Assess uncertainty and risk using probabilistic methods. Utilize reservoir models for effective field development and management.</i>
Content	<i>Introduction to Reservoir Modelling, Geostatistics in Reservoir Characterization, Data Analysis &amp; Spatial Variability, Variogram Analysis, Kriging &amp; Interpolation Techniques, Stochastic vs. Deterministic Modelling, Reservoir Grid Design &amp; Upscaling, Petrophysical Modelling, Reservoir Uncertainty &amp; Risk Assessment, Reservoir Management Strategies</i>
Examination forms	<i>Witten Exam</i>
Study and examination requirements	<i>Total grade above 61</i>

Reading list	<i>Geostatistics: Modeling Spatial Uncertainty – Jean-Paul Chilès &amp; Pierre Delfiner</i> <i>Geostatistics for Natural Resources Evaluation – Pierre Goovaerts</i>
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Module designation	<i>PDG 202 Pedagogical Training</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>PE Department</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>training</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180</i> <i>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</i> <i>Private study including examination preparation, specified in hours: 180</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>This module aims to equip students with fundamental teaching methodologies, classroom management strategies, and assessment techniques to enhance their instructional effectiveness. It focuses on pedagogical principles, learning theories, curriculum development, and student engagement strategies. By the end of the module, students will develop essential teaching skills, understand diverse learning styles, and apply best practices in educational settings to foster an effective and inclusive learning environment.</i>
Content	
Examination forms	<i>Report, Presentation</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	

Module designation	<i>PETE 626 Field Evaluation Project</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>Kanan Mammadov</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, consultation</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):36 Private study including examination preparation, specified in hours: 144</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>The objective of this module is to equip students with the skills and knowledge necessary to conduct a comprehensive evaluation of a petroleum field. Through hands-on analysis and data interpretation, students will learn to assess geological, petrophysical, and engineering factors that impact field performance. They will utilize various tools, such as reservoir modeling, well log analysis, and production data, to determine the potential of the field and recommend strategies for optimization and development. By the end of the module, students will be able to critically evaluate the reservoir's performance, estimate reserves, and propose feasible solutions to enhance hydrocarbon recovery.</i>
Content	<i>Structural and Reservoir Architecture, Petrophysical Analysis, Reservoir Zonation and Depositional Environment, STOIP Calculation (Deterministic and Probabilistic), Special Core Analysis and Fluid Properties, Static Model Development, Dynamic Modelling and Development Scenario Setup, Production and Economics Analysis, Optimization and Uncertainty Management</i>
Examination forms	<i>Report, Presentation</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	

Module designation	<i>PSY 606 Psychology</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Narmin Ibrahimova</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:120 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):30 Private study including examination preparation, specified in hours: 60</i>
Credit points	<i>4</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Introduce psychology as a scientific discipline and key psychological concepts. Explore the relationship between the brain, nervous system, and behavior. Examine stages of human development and the impact on behavior. Understand cognitive processes such as memory, perception, and attention. Learn how behavior is influenced by conditioning and behavior modification. Investigate social influence, group behavior, and formation of attitudes. Study theories of personality and individual differences. Understand psychological disorders and their diagnosis and treatment. Explore the impact of psychology on health, stress, and coping. Introduce research methods, including experimental design and ethics.</i>
Content	<i>Introduction to Psychology, Biological Basis of Behavior, Developmental Psychology, Cognitive Psychology, Behavioral Psychology, Social Psychology, Personality Psychology, Abnormal Psychology, Health Psychology</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>

Reading list	<p><i>Myers, D. G. (2014). Psychology (10th ed.). Worth Publishers.</i></p> <p><i>Santrock, J. W. (2018). Life-Span Development (16th ed.). McGraw-Hill Education.</i></p> <p><i>Gravetter, F. J., &amp; Forzano, L. B. (2018). Research Methods for the Behavioral Sciences (7th ed.). Cengage Learning.</i></p>
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Module designation	<i>PDG 605 Higher Education Pedagogy</i>
Semester(s) in which the module is taught	<i>Fall</i>
Person responsible for the module	<i>Narmin Ibrahimova</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:120 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):30 Private study including examination preparation, specified in hours: 60</i>
Credit points	<i>4</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Understand key theories and principles of teaching and learning in higher education. Develop effective course design, instructional strategies, and assessment methods. Utilize digital tools and innovative techniques for enhanced student engagement. Foster critical thinking, inclusivity, and student-centered learning. Apply ethical teaching practices and engage in continuous professional development.</i>
Content	<i>Foundations of Teaching and Learning, Curriculum Design and Course Planning, Teaching Strategies and Instructional Methods, Assessment and Evaluation, Educational Technology and Digital Learning, Student Engagement and Motivation, Inclusive and Student-Centered Teaching, Professional Development and Reflective Teaching, Ethics and Responsibilities in Higher Education, Mentorship and Advising</i>
Examination forms	<i>Written Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Biggs, J., &amp; Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). McGraw-Hill. Brookfield, S. D. (2017). Becoming a Critically Reflective Teacher (2nd ed.). Jossey-Bass.</i>

	<i>Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge.</i>
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Module designation	<i>PDG 204 Industrial Training for Research</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>PE Department</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>training</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Private study including examination preparation, specified in hours: 180</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>To equip students with practical research skills by engaging them in industry-driven projects. The training focuses on developing analytical thinking, data collection and analysis, problem-solving, and the application of research methodologies to real-world challenges. It also aims to enhance collaboration, technical writing, and ethical research practices in a professional setting.</i>
Content	
Examination forms	<i>Report, Presentation</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	

Module designation	<i>Master Dissertation</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>PE Department</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:540</i> <i>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</i> <i>Private study including examination preparation, specified in hours: 540</i>
Credit points	<i>18</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>To develop students' ability to conduct independent, high-quality research by applying advanced theoretical and methodological knowledge to a specific problem. The dissertation aims to enhance critical thinking, problem-solving, data analysis, and academic writing skills while contributing to the existing body of knowledge in the chosen field.</i>
Content	
Examination forms	<i>Report, Presentation</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	

Module designation	<i>PETE 828 Advanced Production Technology</i>
Semester(s) in which the module is taught	<i>Spring</i>
Person responsible for the module	<i>Elvin Hasanli</i>
Language	<i>English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>lecture, tutorial</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload:180 Contact hours (please specify whether lecture, exercise, laboratory session, etc.):60 Private study including examination preparation, specified in hours: 120</i>
Credit points	<i>6</i>
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	<i>Production Technology 2 course covers material to describe advanced well construction and Improved Oil Recovery (IOR) methods and their application, technologies for drilling and completion of horizontal and multi-lateral wells; perforation design and operations, factors effecting perforations performance and damage due to perforations; formation damage and poor well performance, major sources of formation damage; matrix acidizing, candidate selection principles, the role of acid additives and acid volumes and injection rates, sandstone and carbonate acidizing; sand control and management, prediction of sand failure, various sand control options.</i>
Content	<i>Advanced Well Construction: Improved Oil Recovery, Perforating, Formation Damage, Matrix Acidizing, Sand Management</i>
Examination forms	<i>Witten Exam</i>
Study and examination requirements	<i>Total grade above 61</i>
Reading list	<i>Well Performance by Michael Golan and Curtis H. Whitson Production Technology - 2 Handbook by HW</i>