6.10.54 Implementation Regulations for the Master’s Programme in Petroleum Engineering at the Clausthal University of Technology, Faculty of Energy and Economics from 21 July 2015

In the version of the 2nd Amendment from 13 June 2017

The Faculty for Energy and Economics agreed on the following implementation regulations on 21 July 2015, in accordance with § 7 para 3 in relation with § 44 para 1 of the Higher Education Act of Lower Saxony (NHG). These regulations were authorised by the chairmanship of the Clausthal University of Technology on 01 September 2015. Amended by the faculty board decree from 17 January 2017 and the authorisation from the chairmanship from 14 February 2017. Last amended by the faculty board decree from 13 June 2017 and the authorisation from the chairmanship from 27 June 2017.

Preamble

These implementation regulations solely apply in relation with the general exam regulations (APO) of the TU Clausthal in the respectively valid version, and contain all programme-specific additions, amendments and regulations.

Objective of the Programme

The Master's programme Petroleum Engineering is intended to provide graduates with a wide range of skills, methods and knowledge for an international career and will put them in the position to apply these skills, methods and knowledge during problem-related analysis and solutions. The programme aims at acquiring transferable key qualifications as well as professional and interdisciplinary skills for a problem-solving-oriented understanding of technology and management skills staying abreast of the rapid changes at an international scale. In addition to an interdisciplinary understanding of science, this requires new, open and non-hierarchical forms of knowledge acquisition and knowledge transfer. Problem-oriented interdisciplinarity, internationality and competence are the pillars of this curriculum. The degree of scientifically sound professional skills is developed through successive steps starting at the foundation in natural sciences, engineering and economics with growing abilities for independent use and further education up to personal specialisation.

With the academic degree of Master of Science in Petroleum Engineering in the three disciplines - Reservoir Management, Drilling / Production and Deep Geothermal Systems *) - graduates demonstrate that they have in-depth, scientifically based profes-

*) 2nd Amendment of the implementation regulations of 13 June 2017
sional skills and knowledge beyond the Bachelor of Science for practical research, thus acquiring another professional qualification.

In accordance with the international orientation of the consecutive programme, lectures are given in English.

---

**On § 5  
Programme-specific implementation regulations**

The Master’s programme in Petroleum Engineering has a modular structure. Appendix 1 (Module Overview) lists the credit points (CP) assigned to individual modules in accordance with ECTS (European Credit Transfer System) as well as the type and scope of academic and/or examination requirements.

The following concentrations are available, students must select one:

a. Reservoir Management  
b. Drilling/Production  
c. Deep Geothermal Systems *)

Annexes 2a, 2b and 2c *) contain a model study plan for each concentration, showing the recommended course of study.

A detailed description of the modules and their content is provided in the separate module manual.

---

**On § 6  
Duration and structure of the programme, examination**

Students can only commence the programme the winter semester.

The time in which the Master’s programme can be completed for full-time studies, including the Master’s thesis is 4 semesters (standard period of study). The scope of the Master’s programme equates to 120 Credit Points (CP), including 28 CP for the Master’s thesis and the colloquium.

Students who have earned their Bachelor of Science from a German university are advised to spend a semester abroad, preferably the third or fourth, preferably at a partner university or to do an internship abroad. Students must consult their Advisor regarding academic requirements in advance and have them approved by means of a Learning Agreement.

*) 2nd Amendment of the implementation regulations of 13 June 2017
On § 10
Admission for exam

The concentration selection is binding with the first test attempt in one of the modules of the curriculum. Changing the concentration is only possible if no test attempts have been made in said module. Changing the concentration is possible only once and must be submitted in writing to the Examination Office in good time before placing the newly selected module of the other concentration.

The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.

On § 13
Structure of the examinations, additional examinations and conditional examinations

According to Annex 1, the Master’s programme consists of compulsory and elective modules with module and sub-module examinations and a Master’s thesis according to § 16 APO.

The Faculty Council will update the elective module catalogue (Annex 1) once a year. Changes made to elective module catalogues, are published by the study centre by the end of August for the next academic year (winter/summer semester). Changes will be published in exceptional cases by the end of February for the following summer semester:
https://www.studium.tu-clausthal.de/studienangebot/energie-und-rohstoffe/petroleum-engineering-master/

All courses are taught in English. All written and oral examinations are held in English.

On § 14
Academic and examination requirements

Annex 1 (module overview) lists the types of academic and examination requirements (Module overview). In case the examiner requires a different type of examination, then the examiner will specify and make known all possible examinations and approved aids mentioned in Annex 1 during the first lecture. For written and oral exams (see § 15 para. 3 and 4 APO), the duration of the examination is defined in the module manual.

During the group project (module 13) students will train interdisciplinary cooperation skills while solving real-life problems. The topic of the module will focus on the main concentration, e.g. a Field Development Plan and 4 students per group will normally work together. For a field development study, e.g. real data of a deposit is used to simulate the work stages of the geophysical exploration and evaluation of
the deposit, the design of the drilling, the geological modelling, the production prediction, the design of the day and night conveying facilities, the economic calculations, the evaluation of the project, the transport of the distribution of the products. The project time will be between 6 and up to 8 weeks. In preparation for the assignment, students learn about reporting and interpersonal skills by attending compact courses. Each group is assigned at least one university lecturer as a mentor. The results of the project are presented in written form, evaluated and presented by the group in a joint presentation within the course of a seminar. To examine the individual contribution of students, the specification of sections, page numbers or other objective criteria needs to be clearly distinguishable and assessable on its own as well as meet the requirements of § 14 APO. The assessment of the group's performance and the performance of individual students is carried out by lecturers in the field of the group project.

On § 16
Final thesis

The master thesis, including the colloquium, comprises 28 credit points and must be completed within a period of 5 months.

Upon request and with the approval of the primary examiner an extension may be granted in an exceptional situation for a total duration of up to 6 months by the Examination Board.

According to § 10 APO the Master Thesis requires a separate admission. When submitting the application, the primary examiner must be indicated.

The examiner must belong to the university lecturer group of the TU Clausthal and his or her department must be listed below:

- Department of Petroleum Engineering
- Department of Geology and Palaeontology
- Department of Geophysics
- Department of Mining
- Department of Processing, Landfill Technology and Geomechanics
- Department of Mechanical Engineering
- Department of Engineering Mechanics

Exceptions are granted by the Examination Board.

In addition to the admission requirements pursuant to § 10 APO, students need a total of at least 80 credit points. Justified exceptions are granted by the Examination Board.

Grading of the module Master's Thesis is based upon 90% of the written examination and 10% of the oral examination (Colloquium).

On § 18
Examination of exam performance, grading
The weighing of the individual modules for the final grade occurs in accordance with Annex 1 (Module Overview).

### On § 20
**Second attempt, repeating exams**

Comparable courses of study within the meaning of § 20 (5) APO are all master's and diploma programmes in the fields of:
- Petroleum Engineering
- Erdöl- und Erdgastechnik.

In case of doubt, the responsible study advisor will carry out the assessment of the assignment of a course of study.

### On § 22
**Failure, cheating, exception regulations**

The Master’s programme Petroleum Engineering is not intended for part-time studies.

### On § 28
**Coming into effect**

These implementation regulations come into effect on the day after their announcement in the official announcement paper of the Clausthal University of Technology at the beginning of the examination period of the winter semester 2015/2016.

**Transitional provisions to these implementation regulations of 21 July 2015**

Students who commence their studies at the TU Clausthal in the winter semester 2015/2016 will be examined in accordance with these implementation regulations.

Students who are already enrolled in the second or higher semester of this course of study when these implementation regulations take effect, may complete the Master’s programme by the end of the winter semester 2017/18 in accordance with the implementation regulations of the Master's Programme for Petroleum Engineering as of 16 January 2007 in the version of the 2nd Amendment of 21 July 2015. Students may change to these implementation regulations. However, the application must be submitted to the Examination Office at the latest before the application for admission to the thesis.

Any hardships arising from a change may be compensated by the Head of the Examination Board on a case-by-case basis.
Transitional provisions to the 1st Amendment of 17.01.2017

(1) Students, who commence their studies at the TU Clausthal this summer semester 2017 will be examined in accordance with this version of the implementation regulations.

(2) Students who have been enrolled in this programme at the TU Clausthal before the Summer Semester 2017 will be transferred into this version of the implementation regulations. The following provisional regulations apply to them:

- Students who have already successfully passed the previous valid modules will keep the credits for these modules.

- Students who have already passed the Module 3 „Advance Production and Well Planning“ and/or „Module 7 „Advanced Drilling and Completion“ within the scope of their free attempt will be given the opportunity to better their grades according to § 20 para. 1 APO after consulting the Faculty of Energy and Economics. Students can only register for the module examination within the scope of their free attempt to improve grades by submitting the Application For Admission to Examinations at the Examination Office.

- Failed examination attempts for the replaced module examinations in Module 3 and/or Module 7 will not be included in the new sub-module examination according to this version of the implementation regulations.

(3) Any hardships arising from a change to the present implementation regulations may be compensated by the Head of the Examination Board on a case-by-case basis.

Transitional provisions for the 2nd amendment from 13 June 2017

(1) Students who commence their studies at the TU Clausthal in the winter semester 2017/2018 will be examined in accordance with this version of the implementation regulations.

(2) Students already enrolled at TU Clausthal before the winter semester 2017/2018 will be transferred into this version of the implementation regulations.

(3) Any hardships resulting from a change may be compensated on application for a case-by-case based decision by the Examination Committee.
Annex 1: Modules of the Master’s programme in Petroleum Engineering

The weighting factors of each module for the calculation of the final grade is given in the tables below. In each case, the module’s credit points are divided by the amount (∑) of all the modules selected within the concentration of the Master’s Programme, depending on the concentration and elective courses.

<table>
<thead>
<tr>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Type</th>
<th>Weight</th>
<th>Graded</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td>5/ ΣCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 9009</td>
<td>2Ü</td>
<td>2</td>
<td>ThA</td>
<td>0,400</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>W 6104</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>W 6234</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>W 6131</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>W 6105</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>W 6117</td>
<td>4V</td>
<td>6</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>W 6171</td>
<td>6P</td>
<td>12</td>
<td>PA</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>5</td>
<td>28</td>
<td>28/ ΣCP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) 1st Amendment of the implementation regulations of 17 January 2017
Field of study:

Concentration "Reservoir Management"
- Students need to choose one concentration.
- The concentration selection is binding with the first test attempt in one of the modules of the curriculum. Changing the concentration is only possible if no test attempts have been made in said module. Changing the concentration is possible only once and must be submitted in writing to the Examination Office in good time before placing the newly selected module of the other concentration.

Compulsory modules "Reservoir Management"
All modules listed below must be passed with a total of 34 credit points.

<table>
<thead>
<tr>
<th>Bezeichnung des Moduls bzw. der Lehrveranstaltung</th>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 4 Data Acquisition and Evaluation</td>
<td>6</td>
<td>2V+1Ü</td>
<td>10/ΣCP</td>
<td>S K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Applied Well Test Analysis</td>
<td>S 6109</td>
<td>2V+1Ü</td>
<td>S 6109</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Well Logging II</td>
<td>S 4023</td>
<td>2V+1Ü</td>
<td>S 4023</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 5 Reservoir Modeling and Simulation</td>
<td>6</td>
<td>2V+1Ü</td>
<td>10/ΣCP</td>
<td>S K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Geological Modeling</td>
<td>W 4820</td>
<td>2V+1Ü</td>
<td>S 4820</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Numerical Reservoir Simulation</td>
<td>S 6102</td>
<td>2V+1Ü</td>
<td>S 6102</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 6 Enhanced Hydrocarbon Recovery</td>
<td>3</td>
<td>2V</td>
<td>5/ΣCP</td>
<td>S K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Enhanced Oil Recovery</td>
<td>W 6103</td>
<td>2V+1Ü</td>
<td>W 6103</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Module 10a Economics and Law</td>
<td>3</td>
<td>3</td>
<td>5/ΣCP</td>
<td>S K od. M</td>
<td>0,600</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Planning and Budgeting</td>
<td>W 6114</td>
<td>2V</td>
<td>W 6114</td>
<td>K od. M</td>
<td>0,600</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Energy Law I</td>
<td>S 6168</td>
<td>1Ü</td>
<td>S 6168</td>
<td>K od. M</td>
<td>0,400</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 12 Seminar</td>
<td>2</td>
<td>4</td>
<td>4/ΣCP</td>
<td>S SL</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Advanced Reservoir Topics</td>
<td>S 6101</td>
<td>2S</td>
<td>S 6101</td>
<td>SL</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
</tbody>
</table>

Elective module selection "Advanced Rock Characterization"
- Students must select modules worth 5 credit points from the compulsory elective module catalogue 15 "Advanced Rock Characterization" and pass them all. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.

Elective module selection "Advanced Reservoir Engineering"
- Students must select modules worth 4 credit points from the compulsory elective module catalogue 16 "Advanced Reservoir Engineering" and pass them all. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.
Elective module selection "Enhanced Production Engineering"
- Students must select modules worth 4 credit points from the compulsory elective module catalogue 17 "Enhanced Production Engineering" and pass them all. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.

Elective module selection "Management and Law"
- Students must select modules worth 2 CP plus max. 1 CP from the compulsory elective module catalogue 18 "Management and Law" and pass them all. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.
Concentration "Drilling/Production"

- Students need to choose one concentration.
- The concentration selection is binding with the first test attempt in one of the modules of the curriculum. Changing the concentration is only possible if no test attempts have been made in said module. Changing the concentration is possible only once and must be submitted in writing to the Examination Office in good time before placing the newly selected module of the other concentration.

Compulsory modules "Drilling/Production"

All modules listed below must be passed with a total of 37 credit points

<table>
<thead>
<tr>
<th>Module</th>
<th>Course Type, SWS</th>
<th>Course No</th>
<th>CP</th>
<th>Exam Type</th>
<th>Weight</th>
<th>Graded?</th>
<th>Exam Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 7</td>
<td>Advanced Drilling and Completion</td>
<td>6</td>
<td>10</td>
<td>10/ ∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Drilling Technology</td>
<td>W 6122</td>
<td>2V+Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Completion and Workover</td>
<td>S 6121</td>
<td>2V+Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 8</td>
<td>Directional Drilling and Logging</td>
<td>5</td>
<td>9</td>
<td>9/ ∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directional Drilling</td>
<td>S 6125</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>0,444</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Well Logging II</td>
<td>S 4023</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,556</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 9</td>
<td>Production</td>
<td>4</td>
<td>7</td>
<td>7/ ∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Hydrocarbon Conditioning and Processing I</td>
<td>S 6110</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>1,000</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Enhanced Production</td>
<td>S 6169</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 10b</td>
<td>Management, Economics and Law</td>
<td>3</td>
<td>7</td>
<td>7/ ∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Law I</td>
<td>S 6168</td>
<td>1V</td>
<td>2</td>
<td>K od. M</td>
<td>0,286</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Planning and Budgeting</td>
<td>W 6114</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>0,428</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Health, Safety and Environmental Management</td>
<td>W 6135</td>
<td>1V</td>
<td>2</td>
<td>K od. M</td>
<td>0,286</td>
<td>ben.</td>
<td>MTP</td>
</tr>
<tr>
<td>Module 12</td>
<td>Seminar</td>
<td>2</td>
<td>4</td>
<td>4/ ∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Drilling and Production Topics</td>
<td>S 6120</td>
<td>2S</td>
<td>4</td>
<td>SL</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
</tbody>
</table>

Elective module selection "Drilling/Production"

- Students must select modules worth 12 CP plus max. 3 CP from the compulsory elective module catalogue "Drilling / Production" and pass all of them. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.

2) 1st Amendment of the implementation regulations of 17 January 2017
### Concentration "Deep Geothermal Systems" *

- Students need to choose one concentration.
- The concentration selection is binding with the first test attempt in one of the modules of the curriculum. Changing the concentration is only possible if no test attempts have been made in said module. Changing the concentration is possible only once and must be submitted in writing to the Examination Office in good time before placing the newly selected module of the other concentration.

### Compulsory modules "Deep Geothermal Systems"

All modules listed below must be passed with a total of 37 credit points

<table>
<thead>
<tr>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Graded?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modul 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Acquisition and Evaluation</td>
<td>6</td>
<td>10</td>
<td>10/∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Well Test Analysis</td>
<td>S 6109</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
<tr>
<td>Well Logging II</td>
<td>S 4023</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
<tr>
<td>Modul 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Drilling and Completion</td>
<td>6</td>
<td>10</td>
<td>10/∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Drilling Technology</td>
<td>W 6122</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
<tr>
<td>Completion and Workover</td>
<td>S 6121</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
<tr>
<td>Modul 10a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics and Law</td>
<td>3</td>
<td>5</td>
<td>5/∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and Budgeting</td>
<td>W 6114</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>0,600</td>
<td>ben.</td>
</tr>
<tr>
<td>Energy Law I</td>
<td>S 6168</td>
<td>1V</td>
<td>2</td>
<td>K od. M</td>
<td>0,400</td>
<td>ben.</td>
</tr>
<tr>
<td>Modul 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>2</td>
<td>4</td>
<td>4/∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Geothermal Engineering Topics</td>
<td>S 6119</td>
<td>2S</td>
<td>4</td>
<td>SL</td>
<td>1</td>
<td>ben.</td>
</tr>
<tr>
<td>Modul 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geothermal Systems</td>
<td>4</td>
<td>8</td>
<td>8/∑CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced Geothermal Systems</td>
<td>S 6149</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
<tr>
<td>Geothermal Energy Production Systems</td>
<td>W 6150</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>0,500</td>
<td>ben.</td>
</tr>
</tbody>
</table>

### Elective modul selections "Deep Geothermal Systems"

- Students must select modules worth 12 CP plus max. 3 CP from the compulsory elective module catalogue "Deep Geothermal Systems" and pass all of them. Further examinations can only be carried out as additional examinations.
- The module selection is binding with the first test attempt in a compulsory elective module. Changing the compulsory elective module is only possible if no test attempts have been made in a compulsory elective module.

---

* ) 2nd Amendment of the implementation regulations of 13 June 2017
**Compulsory elective module catalogue:**

### Elective module selection 15 "Advanced Rock Characterization"

- The compulsory elective module catalogue corresponds to the status of 09 July 2015. The Faculty Council updates the list of offered modules (from WS 16/17) for the following academic year once a year. The Study Centre will publicly announce the updated lists:
  

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Graded?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 15.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrophysics</td>
<td>W 4021</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Petrophysics I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 15.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geostatistics</td>
<td>W 4635</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Advanced Geostatistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 15.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock Physics</td>
<td>W 6118</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Advanced Rock Physics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Elective module selection 16 "Advanced Reservoir Engineering"

- The compulsory elective module catalogue corresponds to the status of 09 July 2015. The Faculty Council updates the list of offered modules (from WS 16/17) for the following academic year once a year. The Study Centre will publicly announce the updated lists:


<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Graded?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 16.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Interpretation</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Seismic Data Interpretation</td>
<td>S 4008</td>
<td>2V+1Ü</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Module 16.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Validation</td>
<td>S 6103</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Reservoir Model Validation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 16.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reservoir Modelling</td>
<td>S 4620</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Fractured Reservoir Modelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Elective module selection 17 "Enhanced Production Engineering"

- The compulsory elective module catalogue corresponds to the status of 09 July 2015. The Faculty Council updates the list of offered modules (from WS 16/17) for the following academic year once a year. The Study Centre will publicly announce the updated lists:


<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Graded?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 17.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Gas Recovery</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced Natural Gas Recovery</td>
<td>S 6104</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
</tbody>
</table>
### Module 17.2
**Natural Gas Storage**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas Storage</td>
<td>S 6113</td>
<td>2V</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
</tbody>
</table>

### Module 17.3
**Enhanced Production**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced Production</td>
<td>S 6169</td>
<td>3V</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
</tbody>
</table>

### Elective module selection 18 "Management and Law"

*The compulsory elective module catalogue corresponds to the status of 09 July 2015. The Faculty Council updates the list of offered modules (from WS 16/17) for the following academic year once a year. The Study Centre will publicly announce the updated lists:*  

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Module 18.1  
**Energy Law** | 2 | 3 | 3/∥CP |
| Energy Law II | W 6115 | 2V | 3 | K od. M | 1 | ben. | MP |

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Module 18.2  
**Health, Safety and Environmental Management** | 1 | 2 | 2/∥CP |
| Health, Safety and Environmental Management | W 6135 | 1V | 2 | K od. M | 1 | ben. | MP |

### Elective module selection "Drilling/Production"

*The compulsory elective module catalogue corresponds to the status of 09 July 2015. The Faculty Council updates the list of offered modules (from WS 16/17) for the following academic year once a year. The Study Centre will publicly announce the updated lists:*  

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Modul 19.1  
**Energy Law** | 2 | 3 | 3/∥CP |
| Energy Law II | W6115 | 2V | 3 | K od. M | 1 | ben. | MP |

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Modul 19.2  
**Materials Engineering** | 2 | 3 | 3/∥CP |
| Materials Engineering and Corrosion | S 6117 | 2V | 3 | K od. M | 1 | ben. | MP |

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Modul 19.3  
**Fluid Mechanics** | 2 | 3 | 3/∥CP |
| Fluid Mechanics | W 8040 | 2V | 3 | K od. M | 1 | ben. | MP |

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Modul 19.4  
**Offshore Production and Structures** | 2 | 3 | 3/∥CP |
| Offshore Production and Structures | W 6124 | 2V | 3 | K od. M | 1 | ben. | MP |

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad- ed?</th>
<th>Exam typ</th>
</tr>
</thead>
</table>
| Modul 19.5  
**Numerical Reservoir Simulation** | 3 | 5 | 5/∥CP |
| Numerical Reservoir Simulation | S 6102 | 2V+1Ü | 5 | K od. M | 1 | ben. | MP |
### Elective modul selection 20 "Deep Geothermal Systems"*

<table>
<thead>
<tr>
<th>Course</th>
<th>Course No</th>
<th>Course type, SWS</th>
<th>CP</th>
<th>Exam type</th>
<th>Weight</th>
<th>Grad-ed?</th>
<th>Exam typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modul 20.1 Energy Law</td>
<td>W 6115</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Energy Law II</td>
<td>W 6115</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.2 Fluid Mechanics</td>
<td>W 8040</td>
<td>2V</td>
<td>3</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.3 Numerical Reservoir Simulation</td>
<td>S 6102</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.4 Geological Modeling</td>
<td>W 4820</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.5 Hydrogeology for Geothermal Energy Production</td>
<td>S 6145</td>
<td>1V+1Ü</td>
<td>3</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.6 Geothermal Geology</td>
<td>W 4660</td>
<td>1V+1Ü</td>
<td>4</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.7 Fossil &amp; Renewable Energy</td>
<td>W 8831</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>1</td>
<td>ben.</td>
<td>MP</td>
</tr>
<tr>
<td>Modul 20.8 Health, Safety and Environmental Management</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*2nd Amendment of the implementation regulations of 13 June 2017
<table>
<thead>
<tr>
<th>Course</th>
<th>Modul</th>
<th>Type</th>
<th>ECTS</th>
<th>Type of Course</th>
<th>Examination Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health, Safety and Environmental Management</td>
<td>W 6135</td>
<td>1V</td>
<td>2</td>
<td>K od. M</td>
<td>ben. MP</td>
</tr>
<tr>
<td>Modul 20.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoinformation Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoinformation Systems</td>
<td>W 6340</td>
<td>2V+1Ü</td>
<td>5</td>
<td>K od. M</td>
<td>ben. MP</td>
</tr>
</tbody>
</table>

**Explanation:**

1. **Type of course:**
   - E  Excursion [Exkursion]
   - P  Practical training [Praktikum]
   - S  Seminar [Seminar]
   - T  Tutorium [Tutorium]
   - V  Lecture [Vorlesung]
   - Ú  Excercise [Übung]

2. **Form of examination:**
   - K  Written examination [Klausur]
   - M  Oral examination [Mündliche Prüfung]
   - SL Seminar performance [Seminarleistung]
   - PrA Practical work [Praktische Arbeit]
   - ThA Theoretical work [Theoretische Arbeit]
   - SA Student research project [Studienarbeit]
   - PA Project work [Projekt Arbeit]
   - IP Internship [Industriepraktikum]
   - HA Homework [Hausarbeit]
   - Ex Excursions [Exkursion]
   - Ab Final Thesis [Abschlussarbeit]

3. **Type of examination:**
   - LN Certificate of performance [Leistungsnachweis]
   - MP Module-related examination [Modulprüfung]
   - MTP Partial module-related examination [Modulteilprüfung]
   - PV Preparatory assessment [Prüfungsvorleistung]

4. **Other abbreviations:**
   - ben. Evaluated performance [benotete Leistung]
   - unben. Performance without evaluation [unbenotete Leistung]
   - od. or [oder]
   - LV Course [Lehrveranstaltung]
   - Prüf. Examination [Prüfung]
   - CP Credits [Leistungspunkte]
   - SWS Number of hours per week [Semesterwochenstunden]
### Annex 2a: Model Study Programme  
Study Field: Petroleum Engineering  
Concentration: Reservoir Management

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technical Writing 2 CP</td>
<td>Interpersonal Skills 3 CP</td>
<td>Enhanced Oil Recovery 5 CP</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Geological Modeling 5 CP</td>
<td>Energy Law I 2 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Applied Well Test Analysis 5 CP</td>
<td>Planning &amp; Budgeting 3 CP</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Thermodynamics &amp; Phase Behavior of Hydrocarbons 5 CP</td>
<td>Well Logging II 5 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>Elective modul 18 2 CP</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>Master Thesis + Presentation 28 CP</td>
</tr>
<tr>
<td>9</td>
<td>Rock Mechanics II 5 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Numerical Reservoir Simulation 5 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Advanced Production 5 CP</td>
<td>Advanced Reservoir Topics 4 CP</td>
<td></td>
<td>Group Project 12 CP</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Well Planning 5 CP</td>
<td>Elective modul 16 4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Elective modul 17 4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Elective modul 15 5 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Σ SWS</td>
<td>20</td>
<td>18</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Σ CP</td>
<td>32</td>
<td>32</td>
<td>28</td>
<td>28 CP</td>
</tr>
</tbody>
</table>
# Annex 2b: Model Study Programme  
**Study Field: Petroleum Engineering  
Concentration: Drilling/Production**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technical Writing</td>
<td>Interpersonal Skills</td>
<td>Planning &amp; Budgeting</td>
<td>Master Thesis + Presentation</td>
</tr>
<tr>
<td></td>
<td>2 CP</td>
<td>3 CP</td>
<td>3 CP</td>
<td>28 CP</td>
</tr>
<tr>
<td>2</td>
<td>Thermodynamics &amp; Phase Behaviour of Hydrocarbons</td>
<td>Energy Law I</td>
<td>Health, Safety, Envir. Mgt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>2 CP</td>
<td>2 CP</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Rock Mechanics II</td>
<td>Well Logging II</td>
<td>Integrated Project Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>5 CP</td>
<td>6 CP</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Adv. Drilling &amp; Prod. Topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Advanced Production</td>
<td>Directional Drilling</td>
<td>Group Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>4 CP</td>
<td>12 CP</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Advanced Drilling Technology</td>
<td>Enhanced Production</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Well Planning</td>
<td>Completion &amp; Workover</td>
<td>Elective modul</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>5 CP</td>
<td>3 CP</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Elective modul</td>
<td>Advanced HC Conditioning &amp; Processing I</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 CP</td>
<td>3 CP</td>
<td>3 CP</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Elective modul</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S SWS</td>
<td>20</td>
<td>21</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>S CP</td>
<td>32</td>
<td>34</td>
<td>26</td>
<td>28</td>
</tr>
</tbody>
</table>
# Annex 2c: Model Study Programme

**Study Field: Petroleum Engineering**  
*Concentration: Deep Geothermal Systems*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technical Writing 2 CP</td>
<td>Interpersonal Skills 3 CP</td>
<td>Planning &amp; Budgeting 3 CP</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Thermodynamics &amp; Phase Behavior of Hydrocarbons 5 CP</td>
<td>Energy Law I 2 CP</td>
<td>Geothermal Energy Production Systems 4 CP</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Well Logging II 5 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rock Mechanics II 5 CP</td>
<td>Adv. Geothermal Engineering Topics 4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Applied Well Test Analysis 5 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Advanced Production 5 CP</td>
<td></td>
<td>Group Project 12 CP</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Completion &amp; Workover 5 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Advanced Drilling Technology 5 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Well Planning 5 CP</td>
<td>Enhanced Geothermal Systems 4 CP</td>
<td>Elective modul 3 CP</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Elective modul 5 CP</td>
<td>Elective modul 4 CP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>∑ SWS</strong></td>
<td>20</td>
<td>19</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><strong>∑ CP</strong></td>
<td>32</td>
<td>32</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>