Petroleum Engineering

PETRAH

Petroleum Engineering is a specialised engineering discipline which prepares graduates for careers in the oil and gas industries. Its related operations apply physical, mathematical and engineering principles to identify and solve problems associated with exploration, exploitation, drilling, production and all the related economic and management problems associated with the recovery of hydrocarbons and alternative sources of energy from deep beneath the earth's surface.
Faculty
Faculty of Engineering

School
School of Minerals & Energy Resources Engineering

Study Level
Undergraduate

Minimum Units of Credit
168

Specialisation Type
Honours
Learning Outcomes

1. Ethical conduct and professional accountability.
   - Professionals
   - Global Citizens

2. Professional use and management of information.
   - Leaders
   - Scholars

3. Effective team membership and team leadership.
   - Scholars
   - Leaders
   - Professionals
   - Global Citizens

4. Creative, innovative and pro-active demeanour.
   - Scholars
   - Leaders
   - Professionals

5. Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.
   - Scholars

6. Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.
   - Scholars

7. In-depth understanding of specialist bodies of knowledge within the engineering discipline.
   - Scholars

8. Discernment of knowledge development and research directions within the engineering discipline.
   - Scholars

9. Knowledge of engineering design practice and contextual factors impacting the engineering discipline.
   - Global Citizens
   - Scholars
   - Professionals

10. Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.
    - Global Citizens
    - Professionals
    - Scholars

11. Application of established engineering methods to complex engineering problem solving.
    - Professionals
    - Scholars
    - Global Citizens

12. Fluent application of engineering techniques, tools and resources.

14. Application of systematic approaches to the conduct and management of engineering projects.

15. Effective oral and written communication in professional and lay domains.

16. Orderly management of self, and professional conduct.

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**Graduate Capabilities:**

For more information on Graduate Capabilities, please click on this [link](#).
Available in Program(s)

Program(s) in which this honours is available

Bachelor of Engineering (Honours) - **BE (Hons)**

**3707 Engineering (Honours)**

Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 192
Typical Duration: 4 Years
Specialisation Structure

Students must complete 168 UOC.

Level 1 Core Courses

Students must take 36 UOC of the following courses.

**ENGG1000 | 6 UOC**
Introduction to Engineering Design and Innovation

**ENGG1811 | 6 UOC**
Computing for Engineers

**MATS1101 | 6 UOC**
Engineering Materials and Chemistry

One of the following:

**MATH1131 | 6 UOC**
Mathematics 1A

**MATH1141 | 6 UOC**
Higher Mathematics 1A

One of the following:

**MATH1231 | 6 UOC**
Mathematics 1B

**MATH1241 | 6 UOC**
Higher Mathematics 1B

One of the following:

**PHYS1121 | 6 UOC**
Physics 1A

**PHYS1131 | 6 UOC**
Higher Physics 1A
**Level 2 Core Courses**

Students must take 42 UOC of the following courses.

- **CEIC2001**  |  6 UOC  
  Fluid and Particle Mechanics

- **PTRL2010**  |  6 UOC  
  Business Practices in the Petroleum Industry

- **PTRL2019**  |  6 UOC  
  Reservoir Engineering A

- **PTRL2020**  |  6 UOC  
  Petrophysics

- **PTRL2030**  |  6 UOC  
  Field Development Geology

- **PTRL2114**  |  6 UOC  
  Petroleum Geophysics

One of the following:
- **MATH2018**  |  6 UOC  
  Engineering Mathematics 2D

- **MATH2019**  |  6 UOC  
  Engineering Mathematics 2E

**Level 3 Core Courses**

Students must take 42 UOC of the following courses.

- **PTRL3001**  |  6 UOC  
  Reservoir Engineering B

- **PTRL3015**  |  6 UOC  
  Well Drilling Equipment and Operations
Level 4 Core Courses

Students must take 24 UOC of the following courses

PTRL4012 | 6 UOC  
Enhanced Oil and Gas Recovery

PTRL4017 | 6 UOC  
Well Technology

PTRL4020 | 6 UOC  
Natural Gas Engineering

PTRL4021 | 6 UOC  
Petroleum Production Engineering

Level 4 Project / Thesis

Students must take 12 UOC of either PTRL4010 (6 UOC) and PTRL4011 (6UOC), or PTRL4951 (4 UOC) and PTRL4952 (4 UOC) and PTRL4953 (4 UOC).

Note: School approval is required to undertake the alternative thesis options.
Level 1 Prescribed Electives

Students must take 12 UOC of the following courses.

NOTE:
- CHEM1031 and CHEM1041 are only available to students enrolled in a Program with a major in Chemistry
- GEOS1101 is the recommended first year elective for this specialisation

BABS1201 | 6 UOC
Molecules, Cells and Genes

BIOM1010 | 6 UOC
Engineering in Medicine and Biology

BIOS1301 | 6 UOC
Ecology, Sustainability and Environmental Science

CEIC1000 | 6 UOC
Sustainable Product Engineering and Design

CHEM1011 | 6 UOC
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Course Titles:

- Chemistry 1A: Atoms, Molecules and Energy
- Chemistry 1B: Elements, Compounds and Life
- Higher Chemistry 1A: Atoms, Molecules and Energy
- Higher Chemistry 1B: Elements, Compounds and Life
- Engineering Chemistry 1A
- Engineering Chemistry 1B
- Computer Systems Fundamentals
- Software Engineering Fundamentals
- Environmental Principles and Systems
- Electrical and Telecommunications Engineering
- Grand Challenges for Engineering
- Undergraduate Special Projects
ENGG1300 | 6 UOC
Engineering Mechanics

ENGG1400 | 6 UOC
Engineering Infrastructure Systems

GEOS1111 | 6 UOC
Fundamentals of Geology

GMAT1110 | 6 UOC
Surveying and Geospatial Engineering

MATH1081 | 6 UOC
Discrete Mathematics

MATS1101 | 6 UOC
Engineering Materials and Chemistry

MINE1010 | 6 UOC
Mineral Resources Engineering

PHYS1231 | 6 UOC
Higher Physics 1B

PSYC1001 | 6 UOC
Psychology 1A

SOLA1070 | 6 UOC
Sustainable Energy

DISCIPLINE ELECTIVES (SINGLE DEGREE MODE)

Students can take up to a maximum of 12 UOC of the following courses.

AVIA3013 | 6 UOC
Workplace Safety
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<td>CEIC2009</td>
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<td>Material and Energy Balances in the Chemical Process Industry</td>
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<td>Physical Chemistry: Molecules, Energy and Change</td>
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<td>Organic Chemistry: Mechanisms and Biomolecules</td>
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<td>CHEM2031</td>
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<td>Inorganic Chemistry: The Elements</td>
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<td>CHEM2041</td>
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<td>Analytical Chemistry: Essential Methods</td>
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<td>COMP1511</td>
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<td>GEOS2711</td>
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Courses:
- *Principles of Water Engineering*
- *Water and Wastewater Engineering*
- *Microeconomics 1*
- *Macroeconomics 1*
- *Elements of Environmental Economics*
- *Strategic Leadership and Ethics*
- *Entrepreneurial Engineering*
- *Communicating in Engineering*
- *Business Finance*
- *Environmental Systems, Processes and Issues*
- *Peak Carbon: Climate Change and Energy Policy*
- *Australian Climate and Vegetation*
Enrolment Disclaimer

You are responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements. Do not assume that because you have enrolled in a course that the course will be credited towards your program.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)
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Authorised by Deputy Vice-Chancellor (Academic)
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ABN: 57 195 873 179