

Petroleum Engineering

Faculty of Mining and Petroleum Engineering Institut Teknologi Bandung



Accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Since October 1st, 2013. Until September 30th, 2017.

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Petroleum Engineering

Petroleum Engineering ITB graduates will posses:

- 1. Perform as professionals in the petroleum industry with excellent technical competency to solve challenges in the industry with high regard to safety, health, environmental standards, and professional ethics.
- 2. Be successful in the diverse career development in various petroleum fields, including engineering practices, management, business, education, government, and regulatory agencies.
- Continue their life-long learning process through higher education, research, and professional organizations to rally with the rapidly emerging technology.

At the time of graduation the student will have the following outcomes:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as to analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs with realistic constraints.
- 4. An ability to function on multidisciplinary teams.
- 5. An ability to identify, formulate, and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. A recognition of the need for and an ability to engage in life-long learning.
- 10.A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.



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The Petroleum Engineering study program is part of FTTM that provides the students about knowledge in the petroleum and natural gas. For the two areas that explained, various aspects that are studied are including: reservoir, drilling, production, surface facilities including the management of petroleum. However, as in Indonesia has the biggest geothermal potential, Petroleum Engineering study program also provides the students about geothermal course as the mandatory minor course.

Petroleum Engineering Undergraduate Study Program begins with the strenghthening fundamental science (mathematics, chemistry, and physiscs), followed by an introduction to the general technology of upstream petroleum production system. The students are the introduced to the basic petroleum engineering sciences namely basic geology, petroleum geology, reservoir fluids, petrophysics, thermodynamics and fluid mechanics. The students are alsi equipped with some basic knowledge and skills needed in engineering practices such as numerical method, computer programming, statistics, and material of construction. The students learnd to apply the basic engineering sciences in drilling design and operations, well completion, well logging, well testing, reservoir engineering, and production design and operation. The student's laboratory experiment skills are developed through laboratory courses: resrvoir fluid analysis. petrophysics, and drilling mud and cement.

The students are required to take courses from different study programs such as Geological Engineering, Geophysical Engineering, Electrical Engineering, Mathematics, Physics, Chemitry, and Information Engineering. In fact, because a petroleumg engineer will be working in a community (usually the source of hydrocarbons are located in remote areas), it is recommended that students also take course from Sociotechnology Research Group, i.e. Social Psychology and Communication, which can give initial skill to interact with surrounding community.

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Curriculum of Petroleum Engineering

Semester I			Sem ester II		
MA1101	MathematicsIA	4	MA1201	Mathematics IIA	4
FI1101	Elementary Physics IA	4	FI1201	Elementary Physics IIA	4
KI1101	Basic Chemistry IA	3	KI1201	Basic Chemistry IIA	3
KU1101	Introduction to Engineering & Design I	2	KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Languange: Scientific Writing	2	KU1072	Introduction to Information Technology B	2
KU1164	Introduction to Mineral and Energy Resources	2	KU102X	English	2
			KU1001	Sports	2
Total Load	17 Credits		Total Load	19 Credits	

Semester III			Sem ester IV		
TM2108	Fluid Poperties Lab	3	MA3072	Numerical Methods	3
TM2121	Partial Differential Equations for Petroleum Engineering	3	GL3053	Sedimentology and Stratigraphy	3
MA2081	Elementary Statics	3	TK3082	Introduction to Transport Phenomena A	3
TK3081	Elementary Thermodynamics A	3	TM2209	Petrophysics Lab	3
GL2111	Physical Geology	3	MS2011	Fundamental of Engineering Mechanics	3
IF2132	Computer Programming	3	EL2043	Industrial Electronics	3
Total Load	18 Credits		Total Load	18 Credits	

Semester V			Semester VI		
TM3110	Reservoir Engineering I	3	TM3211	Reservoir Engineering II	3
TM3104	Production Engineering	3	TM3202	Drilling Engineering II	3
TM3101	Drilling Engineering I Lab	3	TM3205	Surface Facilities and Transportation	3
TM3113	Well Testing	3	TM3206	Artificial Lift Well Design	3

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GL3251	Petroleum Geology	3	TM3207	Well Completion and Workover	3
KU206X	Religion and Ethics	2	тм3000	Practical Training and Report Writing	1
KU2071	Pancasila and Civic Education	2	TM3214	Well Log Analysis	3
Total Load	19 Credits		Total Load	19 Credits	

Semester VII			Semester VI	I	
TM4112	Reservoir Characterization and Modelling	3	TM4235	Environmental Control in Petroleum Operation	2
TM4116	Improvement of Oil Recovery	3	TM4215	Petroleum Economic and Project Management	3
TM4107	Well Stimulating	2	TM4217	Natural Gas Engineering	3
	Elective Courses	9	TM4099	Final Project	3
				Elective Course	6
Total Load	17 Credits		Total Load	17 Credits	
Total Credits	144 Credits				

Elective Courses		
TM4019	Geothermal Engineering	3
TM4020	Unconventional Hydrocarbon Recovery	3
TM4021	Energy Economics	3
TM4022	Carbonate and Naturally Fractured Reservoirs	3
TM4023	Field Plan of Development	3
TM4024	Reservoir Data Analysis	3
TM4025	Oil and Gas Field Development Optimization	3
TM4026	Geothermal Field Development	3
TIM4028	Horizontal Drilling System	3
TM4029	Special Topics in Drilling Engineering	3
TM4030	Production Problematic	3
TM4031	Petroleum Artificial Intelligence	3
TM4032	Regulation of Petroleum Industry	3
TM4033	Production Logging	3
TM4034	Petroleum Geostatistics	3

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Minor Program		
120	Geological Engineerig	
123	Geophysical Engineering	
130	Chemical Engineering	
131	Mechanical Engineering	
132	Electrical Engineering	
Minor Program		
120	Geological Engineerig	
123	Geophysical Engineering	
130	Chemical Engineering	
131	Mechanical Engineering	
132	Electrical Engineering	

TM3104	Production Engineering
TM3205	Surface Facilities and Transportation
TM3206	Artificial Lift Well Design
TM4107	Well Stimulation
Total: 12 Credits	

Minor Program: Drilling Engineering

TM3101	Drilling Engineering I Lab	3
TM3202	Drilling Engineering II Lab	3
Total: 6 Credits		

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