

Module Handbook

Module Name:	Physics of Rocks and Porous Media
Module Level:	Bachelor
Abbreviation, if applicable:	FI4261
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	Fourth Year
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	2 hours of lecture
Workload:	2 hours of lecture
Credit Points:	2
Requirements:	<ol style="list-style-type: none"> 1. FI2102 Mathematical Physics I 2. FI2201 Mathematical Physics II 3. FI3101 Waves 4. FI2202 Electricity and Magnetism 5. FI3202 Computation of Physics
Learning goals:	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Able to describe the role of rock physics in the exploration, carbon capture sequestration, and environmental geophysics. 2. Able to recognize and understand the various types of rocks, the process of formation, and microstructure cycle. 3. Demonstrate the understanding of various physical quantities of rock and able to apply various methods and approaches to measure the quantities. <p>Skills:</p> <ol style="list-style-type: none"> 1. Able to understand and analyze the relationship between various physical properties of rocks. 2. Able to understand specific methods related to rock physics and petrophysics to solve various problems related to rock physics.
Content:	Micro-structure of rocks, physical properties of porous media such as porosity, specific surface area, density, modelling of micro-structure of pores, e.g.: random, fractal, molecular dynamics, elastic properties of rocks, permeability, resistivity and dielectricity, homogenization and up-scaling.
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of maximum mark of the exams, homework.
Forms of Media:	Slides and LCD projectors, blackboards.
Literature:	<ol style="list-style-type: none"> 1. Gueguen, Y., Palciauskas, 1994, "Introduction to the physics of rocks", Princeton University Press (primary reference) 2. Mavko, G., Mukerji, T., Dvorkin, J., 1998, "The rock physics handbook: tools for seismic analysis in porous media", Cambridge University Press. (supporting reference) 3. Schoen, J., 1998, "The rock physics handbook, physical properties of rocks (fundamentals and principles of petrophysics)", Cambridge University Press, 2nd ed. (supporting reference) 4. Tiab D. & E. C. Donaldson, 2004, "Petrophysics: Theory and Practice of

	Measuring Reservoir Rock and Fluid Transport Properties”, Gulf Professional Publishing. (supporting reference) 5. Sahimi, M., 1995, Flow and Transport in Porous Media and Fractured Rock. VCH Verlagsgesellschaft mbH., Germany. (pustaka pendukung)
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