Module Handbook

Module Name:	Thermal Hydraulic and Nuclear Safety
Module Level:	Bachelor
Abbreviation, if applicable:	FI 4142
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	7/ Fourth Years
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 lectures
Workload:	2 hours lectures, 4 hours individual study and Laboratories work, 16 weeks per semester, and total 96 hours a semester
Credit Points:	2
Requirements:	Physics of Mathematics I and II, Modern Physics
Learning goals/competencies:	Knowledge: 1. To understand the concept of thermal hydraulic characteristics in power reactor. 2. To understand the concept of heat transfer phenomena in reactor nuclear. 3. To understand energy conversion at nuclear reactor. Skill 1. To demonstrate an ability to design principle and temperature distribution at nuclear reactor. 2. To demonstrate an ability to analyze temperature distribution in various coolant flow rate. 3. To demonstrate an ability to analyze and calculate temperature distribution on case loss of coolant accident. Competence: 1. To have an ability to make arrangements to complete the study of the safety aspects of nuclear and thermal hydraulics accidents. 2. To have an ability to finish the study in accordance with the planned time.
Content:	Overview reactor physics and themohydraulic characteristics of power reactors. Design principal and thermal analysis. Thermohydraulic aspects : nuclear energy conversion system, single phase flow and two phase flow, transien analysis. Flow models, disturbance and friction on cooling flow. Flow form on pipes, heat transfer, accident types analysis caused by loss of coolant.
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of examinations (mid-term test, final test, quizzes), homework, Research based learning.
Forms of Media:	Slides and LCD projectors, blackboards
Literature:	1. Neil E. Todreas and Mujid S. Kazimi, Nuclear System I: Thermal Hydraulic Fundamentals, Hemisphere Pub. 1990. 2. James. J. Duderstadt, Nuclear Reactor Analysis, John Willey & Sons, 1976 3. J. Kenneth Shultis, Fundamentals of Nuclear Science and Engineering, 2nd

	edition, CRC Press, 2008.
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