

HANDBOOK

**BACHELOR OF INFORMATICS PROGRAM
DEPARTMENT OF INFORMATICS
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY
INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

Module name	Grid and Parallel Computing	
Module level	Undergraduate	
Code	IF184946	
Courses (if applicable)	Grid and Parallel Computing	
Semester	8	
Contact person	-	
Lecturer		
Language	Bahasa Indonesia and English	
Relation to curriculum	<ol style="list-style-type: none"> 1. Undergraduate degree program; optional; 8th semester. 2. International undergraduate program; optional; 8th semester. 	
Type of teaching, contact hours	<ol style="list-style-type: none"> 1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 40 students 	
Workload	<ol style="list-style-type: none"> 1. Lectures: 3 sks x 50 = 150 minutes (2 hours 30 minutes) per week. 2. Exercises and Assignments: 3 x 60 = 240 minutes (3 hours) per week. 3. Private study: 3 x 60 = 240 minutes (3 hours) per week. 	
Credit points	3 credit points (sks).	
Requirements according to the examination	A student must have attended at least 80% of the lectures to sit in the exams.	
regulations		
Mandatory prerequisites	Computer network	
	After completing this module, a student is expected to:	

Learning outcomes and their corresponding PLOs	CO1 Students understand and can explain concepts and terminology in the field of grid and parallel computing	
	CO2 Students understand and can explain memory architecture in parallel computing	
	CO3 Students understand and can apply several programming models to parallel programming for certain cases	
	CO4 Students understand and can apply special aspects in designing parallel programs in multicore architecture	
	CO5 Students understand middleware technology in parallel computing and apply it using the appropriate algorithm	
Content	<p>Knowledge:</p> <ul style="list-style-type: none"> • Master the theoretical concepts and principles of network-based computing and the latest technologies related to it, in the fields of distributed computing and mobile computing, multimedia computing, high-performance computing and information and network security. <p>Specific Skill:</p> <ul style="list-style-type: none"> • Capable to apply the concept of network-based computing, parallel computing, computing to analyze and design algorithms for solving computational problems in the field; 	
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.	
Media employed	LCD, whiteboard, websites, books (as references), etc.	
Assessments and Evaluation		

Reading List	<p>Ian Foster and Carl Kesselman, <i>The Grid: Blueprint for a New Computing Infrastructure</i>, 2nd edition, Morgan Kaufmann Publishers, San Francisco, USA (2004), ISBN: 1-55860-933-4.</p> <p>Vladimir Silva, <i>Grid Computing for Developers</i>, 1st edition, Charles River Media Inc., Massachusetts, USA (2006), ISBN: 1-58450-424-2.</p> <p>Tao Yang, <i>Lecture Notes on Parallel Scientific Computing</i>, Department of Computer Science University of California Santa Barbara, CA 93106</p> <p>Barry Wilkinson and Michael Allen, <i>Parallel Programming: Techniques and Applications Using Networked Workstations and Parallel Computers</i>, 2nd edition, Prentice Hall</p> <p>CUDA by Example: An Introduction to General-Purpose GPU Programming, 9780131387683 (0131387685), Addison Wesley, 2010</p>