

**UNDERGRADUATE PROGRAM IN ELECTRONICS AND INSTRUMENTATION**  
**DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS**  
**FACULTY OF MATHEMATICS AND NATURAL SCIENCES**  
**UNIVERSITAS GADJAH MADA**

Module name	<b>Microprocessors</b>	
Module level	Undergraduate	
Code	MII-2601	
Courses (if applicable)	<b>Microprocessors</b>	
Semester	Odd	
Contact person	Drs. Abdul Ro'uf, M.Kom.	
Lecturer	Drs. Abdul Ro'uf, M.Kom. Triyogatama Wahyu Widodo, M.Kom.	
Language	Bahasa Indonesia	
Relation to curriculum	Undergraduate degree program, mandatory, 3 <sup>rd</sup> semester	
Type of teaching, contact hours	Lectures, < 60 students, 2 hours	
Workload	<ol style="list-style-type: none"> <li>1. Lectures: 2 x 50 = 100 minutes (1 hour and 40 minutes) per week</li> <li>2. Exercises and Assignments: 2 x 50 = 100 minutes (1 hour and 40 minutes) per week</li> <li>3. Private study: 2 x 60 = 120 minutes (2 hours) per week</li> </ol>	
Credit points	2 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams	
Mandatory prerequisites	MII 1804 Digital Electronics	
Learning outcomes and their corresponding PLOs	<p>After completing this module, a student is expected to:</p> <p>CO-1 Comprehend the history of microprocessor development, especially Intel x86 families, along with its architecture</p> <p>CO-2 Able to apply the use of registers and instructions available on Intel x86 microprocessors into a program written in Assembly language</p> <p>CO-3 Be able to solve problems by utilizing the microprocessor as part of the solution</p>	<p>PLO2</p> <p>PLO3</p> <p>PLO4</p>
Content	This course discusses the development of microprocessors from 8 bits, 16 bits, 32 bits to 64 bits, basic programming concepts in embedded assemblies for the x86 family of microprocessors, the use of floating point arithmetic processors and processing of multiple data with one instruction. Based on the basic concept of 16-bit microprocessor hardware is used to understand the development of microcomputer hardware.	
Study and examination requirements and	<ul style="list-style-type: none"> <li>• Quizzes (2)</li> <li>• Assignments (2)</li> </ul>	

forms of examination	<ul style="list-style-type: none"> <li>• Mid-term examination</li> <li>• Final examination</li> </ul>
Media employed	LCD, whiteboard, websites (eLisa).
Assessments and Evaluation	CO-1 Midterm exam, quiz (total: 28,5%) CO-2 Midterm exam, quiz, assignment, final exam (total: 50%) CO-3 Final exam, assignment (total: 21,5%)
Reading List	Barry B. Brey, 2008, "Intel Microprocessors", 8 <sup>th</sup> ed., Pearson Education Mazidi, M.A., 2003, "The 80x86 IBM PC & Compatible Computers Vol. 1& II", 4 <sup>th</sup> ed., Prentice Hall International Inc., New Jersey, USA. Kip R. Irvine, 2010, "Assembly Language for x86 Processors", 6 <sup>th</sup> ed., Prentice Hall