

Module designation	EEM411 Electronic Fundamental		
Semester(s) in which the module is taught	4		
Person responsible for the module	Marojahan Tampubolon, Megantara Pura		
Language	Indonesian		
Relation to curriculum	Compulsory		
Didactic methods	<ul style="list-style-type: none"> <li>- Lecture</li> <li>- Demonstration</li> <li>- Hands-On</li> <li>- Interactive Multimedia</li> </ul>		
Workload (incl. contact hours, self-study hours)	<p>Total workload: 136.08 hours</p> <p>Theory</p> <ul style="list-style-type: none"> <li>- 23.34 hours of synchronous lecture.</li> <li>- 56.04 hours of Self-study and assignments</li> <li>- 11.34 hours related to exam and self study</li> </ul> <p>Lab</p> <ul style="list-style-type: none"> <li>- 23.35 hours of lab module (and in-class assistance)</li> <li>- 16.34 hours of self-lab and assignments</li> <li>- 5.67 hours related to exam and self study</li> </ul>		
Credit points	3 SKS (5.04 ECTS)		
Required and recommended prerequisites for joining the module	<p>Required:</p> <ul style="list-style-type: none"> <li>- EEM311 Electrical Circuits</li> </ul>		
Module objectives/intended learning outcomes	Course Learning Outcome	Related ELOs	
		ELO	Performance Indicator
	Students can design projects of interest using principles from basic electronics.	G	Understand the concept of electronics, analog systems, and digital systems in designing embedded systems.
Content	<p>This course explains the basic concepts of semiconductor-based electronics components, along with circuit analysis and modeling. Including timer and filter applications formed with OPAMP components.</p> <p>Specifically, this course contains these topics:</p> <ol style="list-style-type: none"> <li>1. Semiconductor Introduction/Concept</li> </ol>		

	<ol style="list-style-type: none"> <li>2. Diode</li> <li>3. Power Supply</li> <li>4. Transistor</li> <li>5. Biased BJTs</li> <li>6. BJT Amplifiers</li> <li>7. Field-Effect Transistors</li> <li>8. Power Amplifiers</li> <li>9. Passive Filters</li> <li>10. Active Filters</li> <li>11. Oscillators and Multivibrators</li> <li>12. Thyristors</li> <li>13. Optoelectronic</li> </ol>
Examination forms	<ul style="list-style-type: none"> <li>- Written test</li> <li>- Product Based</li> <li>- Portfolio</li> </ul>
Study and examination requirements	The total average score for the assignments (30%), midterm (30%), and final (40%) exams must be more than or equal to 55 (C).
Reading list	<p>Main:</p> <ol style="list-style-type: none"> <li>1. Russell L. Meade (2006). Foundations of Electronics: Circuits &amp; Devices, 5th Edition. DELMAR CENGAGE Learning.</li> </ol> <p>Supporting:</p> <ol style="list-style-type: none"> <li>1. Robert L. Boylestad, et all (2012). Electronic Devices and Circuit Theory, 11th Edition. PEARSON.</li> <li>2. Albert Malvino (2015). Electronic Principles. McGraw-Hill Education.</li> </ol>