

FI566 Physics of Semiconductor Device

Module name:	Physics of Semiconductor Device	
Module level, if applicable:	Undergraduate	
Code:	FI566	
Sub-heading, if applicable:	-	
Classes, if applicable:	-	
Semester:	6 th	
Module coordinator:	Andi Suhandi	
Lecturer(s):	Andi Suhandi	
Language:	Bahasa Indonesia	
Classification within the curriculum:	Optional course	
Type of Teaching	Contact hours per week during the semester	Class Size
1. Lecture (conceptual, contextual, and problem-solving approaches through expository, and discussions) 2. Structured activities (assignments based on conceptual, contextual, and problem-solving approaches) 3. Self-study (reading literature)	2 hours 30 minutes	20
Workload:	Total workload is 136 hours 4.8 ECTS (8.160 minutes) per semester which consists of 2100 minutes (1.22 ECTS) lectures, 2520 minutes (1.58 ECTS) structured activities, 2520 minutes (1.58 ECTS) self-study per week for 14 weeks, 400 minutes (0.2 ECTS) for each exam, and 480 (0.22 ECTS) minutes for each exam preparation.	
Credit points:	4.8 ECTS	
Pre-requisites course(s):	Basic Physics 1 & 2, Material Physics	
Course Learning Outcomes (CLO):	<p>After taking this course the students have the ability to:</p> <p>CLO1. Explain various semiconductor devices (electronic devices and optoelectronic devices) and their different electronic systems/devices.</p> <p>CLO2. Apply concepts, laws, principles, and principles of physics to semiconductor materials and devices</p> <p>CLO3. Explain the basic structure of semiconductor devices (electronic and optoelectronic devices).</p> <p>CLO4. Explain the structure and physical mechanism of operation of various electronic devices.</p> <p>CLO5. Explain the structure and physical mechanism of operation of various optoelectronic devices.</p> <p>CLO6. Explain the characteristics of various electronic devices.</p> <p>CLO7. Explain the characteristics of various optoelectronic devices.</p>	

	<p>CLO8. Apply various electronic and optoelectronic devices in electronic systems/devices that are widely used in everyday life.</p> <p>CLO9. Explain the process of characterizing the physical properties of various electronic and optoelectronic devices.</p> <p>CLO10. Analyze of physical properties of various electronic and optoelectronic devices based on the data from the characterization of different electronic and optoelectronic devices</p>																				
Content:	<p>Various semiconductor devices (electronic devices and optoelectronic devices) and their different electronic systems/devices. Concepts, laws, principles, and principles of physics to semiconductor materials and devices. The basic structure of semiconductor devices (electronic and optoelectronic devices). The system and the physical mechanism of operation of various electronic devices. The structure and the physical mechanism of operation of various optoelectronic devices. The characteristics of various electronic devices. Various optoelectronic devices. The characterizing the physical properties of various electronic and optoelectronic devices.</p>																				
Study/exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1" data-bbox="655 875 1433 1263"> <thead> <tr> <th>No</th> <th>CLO</th> <th>Assessment Object</th> <th>Assessment Techniques</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1 – 3</td> <td>Subject specific competence: a. Individual assignments b. Mid Exam</td> <td>Written Written test</td> <td>10% 40%</td> </tr> <tr> <td>2</td> <td>4 – 10</td> <td>a. Individual assignments b. Final Exam</td> <td>Written Written test</td> <td>10% 40%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CLO	Assessment Object	Assessment Techniques	Score	1	1 – 3	Subject specific competence: a. Individual assignments b. Mid Exam	Written Written test	10% 40%	2	4 – 10	a. Individual assignments b. Final Exam	Written Written test	10% 40%	Total				100%
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Total				100%																	
Forms of media:	Board, LCD Projector, Laptop/Computer, LMS																				
Literature:	<ol style="list-style-type: none"> 1. Suhandi dan Y. R. Tayubi (2017) <i>Fisika Piranti Semikonduktor</i>, Belum diterbitkan. 2. S. M. Sze, and Ming-Kwei Lee, (2012). <i>Semiconductor Devices: Physics and Technology</i>, John Wiley & Sons. 3. J. Singh, (2019) <i>Semiconductor Optoelectronics; Physics & Technology</i>, McGraw-Hill Inc. 4. Kwok K. Ng, (2002). <i>Complete Guide to Semiconductor Devices</i>, 2nd Edition. Wiley-IEEE Press. 																				

