



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS EDUCATION
PHYSICS STUDY PROGRAM

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Bachelor of Physics

MODULE HANDBOOK

Module name:	Semiconductor Fabrication and Characterization
Module level, if applicable:	Bachelor Program
Code:	FSK6249
Sub-heading, if applicable:	-
Classes, if applicable:	B-E
Semester:	6
Module coordinator:	Prof. Dr. Ariswan, M. Si.
Lecturer(s):	Prof. Dr. Ariswan, M. Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week.
Workload:	Total workload is 91 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	2 SKS (3.25 ECTS)
Prerequisites course(s):	
Course Outcomes	At the end of this course students should be able to: <ol style="list-style-type: none">1. Students are able to explain basic concepts related to semiconductor material fabrication techniques2. Students are able to explain basic concepts related to semiconductor material characterization techniques.

	3. Students are able to analyze experimental data including structure, optical properties and electrical properties of semiconductor materials																																
Content:	The course aims to introduce students to the main concepts of Physics of semiconductors. It will cover the fundamentals, from crystal structures and diffraction till the nature of the energy bands. The students will learn various characterization process of semiconductors. The main physical properties of semiconductors will be treated both qualitatively and quantitatively.																																
Study / exam achievements:	<p>Course evaluation will be carried out through (1) weekly assignments, (2) midterm exam (written), and (3) final exam (written). Determination of final grade is as follows:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Final score = 35% assignments + 35% midterm exam + 30% final exam</p> </div> <p>The final score then converted into the grade as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Final score</th> <th colspan="2">Conversion</th> </tr> <tr> <th>Grade</th> <th>Points</th> </tr> </thead> <tbody> <tr><td>86 – 100</td><td>A</td><td>4.00</td></tr> <tr><td>81 – 85</td><td>A-</td><td>3.67</td></tr> <tr><td>76 – 80</td><td>B+</td><td>3.33</td></tr> <tr><td>71 – 75</td><td>B</td><td>3.00</td></tr> <tr><td>66 – 70</td><td>B-</td><td>2.67</td></tr> <tr><td>61 – 65</td><td>C+</td><td>3.33</td></tr> <tr><td>56 – 60</td><td>C</td><td>2.00</td></tr> <tr><td>41 – 55</td><td>D</td><td>1.00</td></tr> <tr><td>0 – 40</td><td>E</td><td>0.00</td></tr> </tbody> </table> <p>For passing this course, students must obtain grade D or higher.</p>	Final score	Conversion		Grade	Points	86 – 100	A	4.00	81 – 85	A-	3.67	76 – 80	B+	3.33	71 – 75	B	3.00	66 – 70	B-	2.67	61 – 65	C+	3.33	56 – 60	C	2.00	41 – 55	D	1.00	0 – 40	E	0.00
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41 – 55	D	1.00																															
0 – 40	E	0.00																															
Forms of media:	Board and LCD Projector																																
Literature:	<ol style="list-style-type: none"> Kittel, Introduction to Solid State Physics, Eighth Edition, John Wiley and Sons, Inc., 8th edition J.R. Hook & H.E. Hall, Solid State Physics, John Wiley and Sons, Inc., 2nd edition 																																

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1		✓						
CO2		✓			✓			
CO3					✓			