



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
Module level, if applicable:	Undergraduate Program
Code:	FSK6348
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5 th
Module coordinator:	Pinaka Elda Swastika, M.Sc.
Lecturer(s):	Prof. Dr. Ariswan, M.Si., Rita Prasetyowati, M.Si., Pinaka Elda Swastika, M.Sc.
Language:	Indonesian
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	150 minutes lectures per week.
Workload:	Total workload is 120 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes individual study per week for 16 weeks.
Credit points:	3 SKS (4.86 ECTS)
Prerequisites course(s):	FSK6227
Course Outcomes	CO1. Mastering the basic concepts related to the structure and properties of semiconductor material. CO2. Able to analyze concepts of semiconductor in diode and transistor. CO3. Able to analyze semiconductor applications in physical phenomena
Content:	This course discusses basic concepts of materials science,

	intrinsic and extrinsic semiconductors, physical quantity of semiconductor materials and their measurement principles, junctions in metal-semiconductor materials, P-N junctions, charge distribution models in depletion region, working principles of transistor, models of transistor, and P-N junction applications on solar cell technology															
Study / exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1, CO2, CO3 and CO4</td> <td>a. Assignment (Case Study) b. Quiz c. Mid d. Final Exam</td> <td>Written test</td> <td>30% 15% 25% 30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3 and CO4	a. Assignment (Case Study) b. Quiz c. Mid d. Final Exam	Written test	30% 15% 25% 30%	Total				100%
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1	CO1, CO2, CO3 and CO4	a. Assignment (Case Study) b. Quiz c. Mid d. Final Exam	Written test	30% 15% 25% 30%												
Total				100%												
Forms of media:	Board, LCD Projector, Laptop/Computer															
Literature:	<ol style="list-style-type: none"> 1. S.M. Sze, 1985. Semiconductor Device Physics and Technology, John Wiley & Sons, New York. 2. Ir. S. Reka Rio and Dr. Masamori Iida, Fisika dan Teknologi Semikonduktor, PT Pradnya Paramita, Jakarta. 3. Henry Mathieu, Thierry Bretagnon, Pierre Lefebvre, 2001, Physique des semiconducteurs et des Composants electronique, Dunod Paris. 4. H. Sutrisno and R Prasetyowati, 2017, Crystal Structure, optical, and electrical properties of SnSe and SnS semiconductor thin films prepared by vacuum evaporation techniques for solar cell applications, IOP Conference Series: Materials Science and Engineering 202 (1), 012042. 															

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
CO1		√							
CO2					√				
CO3					√				