



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:	Radiobiology and Radiation Protection
Module level, if applicable:	Bachelor Programme
Code:	FSK6267
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	
Module coordinator:	Dr. Rida SN Mahmudah, M.Si.
Lecturer(s):	Dr. Rida SN Mahmudah, M.Si., Dr. Restu Widiatmono
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	Students graduating from this course will be able to:

	<p>CO1. Demonstrate collaborative attitude and independence in carrying out individual tasks and group assignments</p> <p>CO2. Mastering the basic knowledge on Radiation</p> <p>CO3. Mastering the concept of radiation exposure: exposure routes, units of radiation, dose measurement and calculation</p> <p>CO4. Understand health effects of radiation</p> <p>CO5. Mastering the concept of radiological protection</p>																						
Content:	This course discusses the basic concepts of radiation, radiation exposure, health effects of radiation, and principal of radiological protection.																						
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observing several achievements, i.e. attendance, engagement in class activities, language usage and ethics. Results of these observations are not being a component of the final grades, but students must attend at least 12 of the 16 classes and have generally good attitude to pass the course.</p> <p>The final grade will be weighted 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 rowspan="5">1</td> <td rowspan="5">CO2, CO3, CO4 and CO5</td> <td>a. Individual Assignment</td> <td rowspan="5">Presentation / written test</td> <td>15%</td> </tr> <tr> <td>b. Group Assignment</td> <td>15%</td> </tr> <tr> <td>c. Quiz</td> <td>25%</td> </tr> <tr> <td>d. Mid</td> <td>30%</td> </tr> <tr> <td>e. Final Exam</td> <td></td> </tr> <tr> <td colspan="3">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO2, CO3, CO4 and CO5	a. Individual Assignment	Presentation / written test	15%	b. Group Assignment	15%	c. Quiz	25%	d. Mid	30%	e. Final Exam		Total			100%
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		d. Mid		30%																			
		e. Final Exam																					
Total			100%																				
Forms of media:	Board, LCD Projector, Laptop/Computer																						
Literature:	1. Knoll G F, Radiation Detection and Measurement", II Edn. (John Wiley, 1989)																						

	<p>2. Physics and Radiobiology of Nuclear Medicine, Gopal B. Saha</p> <p>3. Radiobiology for the radiologist, Eric J. Hall, Amato J. Giaccia</p> <p>4. The Future of Radiobiology, David G Kirsch, Max Diehn, et al., J Natl Cancer Inst. 2018 Apr; 110(4): 329–340. Published online 2017 Nov 3. doi: 10.1093/jnci/djx231</p> <p>5. Various Aspects of Radiation Safety: A Literature Review, Dr. Archana Salvi¹, Dr. Jigar Salvi, International Journal of Science and Research (IJSR), Volume 4 Issue 8, August 2015.</p>
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PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1	✓							
CO2		✓						
CO3		✓						
CO4					✓			
CO5					✓			