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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Physics of Medical Imaging
Module level, if applicable	Bachelor
Code, if applicable	FIS425067
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	7th (Seventh)
Person responsible for the module	Dr. Nita Handayani, M.Si
Lecturer(s)	Dr. Nita Handayani, M.Si
Language	Indonesia
Relation to curriculum	compulsory course in the fourth year (7th semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures, and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam
Credit points	3
Requirements according to the examination regulations	Minimum attendance 75% All assignments submitted Attendance on time
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. Able to explain basic medical image processing techniques CO 2. Able to apply mathematical and computational methods for medical image reconstruction. CO 3. Able to explain image reconstruction techniques in several imaging modalities used in medicine. CO 4. Able to process and analyze the quality of medical images using several software.
Content	1. Introduction to Medical Imaging 2. Image Quality 3. Medical Imaging Informatics 4. Diagnostic Radiology 5. Radiographic Imaging 6. Mammography Imaging 7. Fluoroscopy Imaging 8. Computed Tomography

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<table>
<tr><td></td><td>9. Diagnostic Ultrasonography (USG)
10. Magnetic Resonance Imaging
11. Imaging in Nuclear Medicine</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>The final mark will be weighted as follows:
<table>
<tr><th>NO</th><th>Assessment methods (components, activities)</th><th>Weight (percentage)</th></tr>
<tr><td>1</td><td>Final Examination</td><td>30%</td></tr>
<tr><td>2</td><td>Mid-Term Examination</td><td>30%</td></tr>
<tr><td>3</td><td>Class Activities : Quiz, Homework, etc.</td><td>20%</td></tr>
<tr><td>4</td><td>Project Based Learning (PBL)</td><td>20%</td></tr>
</table>
The final assessment is expressed in the form of a letter value converted from a number value with the following categories:
<table>
<tr><th>NO</th><th>Number Value</th><th>Letter Value</th><th>NO</th><th>Number Value</th><th>Letter Value</th></tr>
<tr><td>1</td><td>≥ 95</td><td>A</td><td>7</td><td>65-69.99</td><td>B/C</td></tr>
<tr><td>2</td><td>90-94.99</td><td>A-</td><td>8</td><td>60-64.99</td><td>C+</td></tr>
<tr><td>3</td><td>85-89.99</td><td>A/B</td><td>9</td><td>55-59.99</td><td>C</td></tr>
<tr><td>4</td><td>80-84.99</td><td>B+</td><td>10</td><td>50-54.99</td><td>C-</td></tr>
<tr><td>5</td><td>75-79.99</td><td>B</td><td>11</td><td>55-34.99</td><td>D</td></tr>
<tr><td>6</td><td>70-74.99</td><td>B-</td><td>12</td><td><35</td><td>E</td></tr>
</table></td></tr>
<tr><td>Media employed</td><td>White-board, LCD Projector, e-learning (https://daring.uin-suka.ac.id/)</td></tr>
<tr><td>Reading list</td><td>1. T. Bushberg, J.A Seibert, E.M. Leidhodt, Jr., J.M. Boone, The Essential Physics of Medical Imaging Third Edition, Lippincott Williams and Wilkins, Baltimore, MD, 2012
2. Webb, The Physics of Medical Imaging, Taylor and Francis, 1988
3. Kenny, Patrick A., Johnston, R. Eugene, Dowsett, David J., The Physics of Diagnostic Imaging, 2nd Edition, Oxford University Press, 2006</td></tr>
</table>

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1		√							
CO 2				√					
CO 3					√				
CO 4							√		