UIN SUNAN KALIJAGA YOGYAKARTA
FACULTY OF SCIENCE AND TECHNOLOGY
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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Medical Instrumentation
Module level, if applicable	Bachelor
Code, if applicable	FIS425072
Subtitle, if applicable	-
Courses, if applicable	Medical Instrumentation (Instrumentasi Medis)
Semester(s) in which the module is taught	6^{th} (sixth)
Person responsible for the module	Chair of Instrumentation Interest Area
Lecturer(s)	Frida Agung Rakhmadi, S.Si., M.Sc. and Rochan Rifai, S.Si. , M.Sc.
Language	Indonesia
Relation to curriculum	Elective course in the third year (6^{th} 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 must be submitted before the exam
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1 Understanding basic concepts of nuclear medicine physics CO 2 Understanding radioisotope production with reactors and accelerators CO 3 Understanding production of radiopharmaceuticals and their clinical applications CO 4 Understanding measurement of radiation dose CO 5 Understand tests of thyroid and kidney function CO 6 Understanding Gamma cameras CO 7 Understanding Single Photon Emission of Computed Tomography (SPECT) C0 8 Understanding Positron Emission Tomography (PET)
Content	1. Bbasic concepts of nuclear medicine physics 2. Radioisotope production with reactors 3. Radioisotope production with accelerators 4. Radiopharmaceuticals production 5. Radiopharmaceuticals for clinical applications 6. Measurement of radiation dose 7. Tests of thyroid function 8. Tests of kidney function 9. Gamma cameras

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<table>
<tr><td></td><td>10. Single Photon Emission of Computed Tomography (SPECT)
11. Positron Emission Tomography (PET)</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>35%</td></tr>
<tr><td>2</td><td>Mid-Term Examination</td><td>35%</td></tr>
<tr><td>3</td><td>Class Activities : Quiz, Homework, etc.</td><td>30%</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. Simon R. Cherry, James A. Sorenson, Michael E. Phelps, 2012, *Physics in Nuclear Medicine*, Fourth Edition, Saunders Elsevier
2. D.L. bailey, J.L. Humm, A. Todd-Pokropek, A.van Aswegen, 2014, *Nuclear medicine Physics: A Handbook for Teachers and Students*, International Atomic Energy Agency, Vienna
3. Majid Assadi, Hojjat Ahmadzadehfar, H.J. Biersack, 2018, *Principles of Nuclear Medicine*, 1st Edition, Springer International Publishing
4. Rachel A. Powsner, Matthew R. Palmer, Edward R. Powsner, 2013 *Essentials of Nuclear Medicine Physics and Instrumentation*, Third Edition, Wiley-Blackwell</td></tr>
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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		√	√						
CO 5			√						
CO 6		√	√						
CO 7		√	√						
CO 8		√	√						