BRAWIJAYA UNIVERSITY

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Undergraduate Programme in Physics

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MODULE HANDBOOK
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Course Name:	Capita Selecta Medical Physics and Biophysics / Kapita Selekta Biofisika&Fisika Medis
Module Level:	Bachelor (Sarjana)
Code:	MAP 60235
Sub-heading, if applicable:	-
Course included in the module, if applicable:	-
Semester/Term:	6/ fourth year
Module Coordinator:	Chomsin S. Widodo, PhD
Lecturer(s):	Chomsin S. Widodo, PhD, Drs. Johan Andoyo Effendi Noor, M.Sc.,Ph.D, Dr.Drs. Unggul Pundjung Juswono, M.Sc, Achmad Hidayat, S.Si.,M.Si, Sri Herwiningsih, S.Si.,M.App.Sc.,Ph.D, Firdy Yuana, S.Si, M.Si, Risalatul Latifah, S.Si., M.Si.
Language:	Bahasa Indonesia
Classification within the Curriculum:	Compulsory Course (Mata Kuliah Wajib)
Teaching format / class hours per week during semester:	Class meeting • There are 14 weeks of lectures and 2 weeks of scheduled exams, in one semester • 2 credit in a week means ▪ 2x50 min of lecture in a week ▪ 2x60 min of structural activities ▪ 2x60 min of individual studies • A week exam means 2 hours of exam and preparation activity
Workload during semester:	28 hours of class meeting, 28 hours of structural activities, 28 hours of individual study, and 4 hours of exam; totals = 88 hours
Credit Points:	2 (= 3 ECTS)
Requirement(s):	-
Learning Goals/Competencies:	Course Learning Outcomes (CLOs) are the following: CLO 1 : Students are able to describe the latest phenomena about diagnostic and interventional radiology, especially in the competence of the medical physicist profession. CLO 2 : Students are able to describe the latest phenomena about radiotherapy, especially in the competence of the medical physicist profession CLO 3 : Students are able to describe the latest phenomena about nuclear medicine, especially in the competence of the medical physicist profession CLO 4 : Students are able to describe the latest phenomena about biophysics and health physics Capita Selecta Medical Physics and Biophysics support 4 ILOs, those are ILO 6, ILO7,ILO9 and ILO10 ILO 6 : Students will demonstrate physics in interdisciplinary studies, especially in medical and environmental issues. ILO 7 : Students will have enthusiasm for lifelong learning and independently improve their capability to adapt to heterogeneous and dynamic environments ILO 9 : Students will demonstrate proficiency in Bahasa Indonesia and

English, especially for scientific purposes.

ILO 10 : Students will demonstrate logical, critical, systematic, and innovative thinking in the scientific (physics) reasoning and proficiency to present the matter orally and in writing (paper/thesis)

The correlation matrix between CLO and ILO is the following

	ILO 6	ILO 7	ILO 9	ILO 10
CLO 1	X	X	X	X
CLO 2	X	X	X	X
CLO 3		X	X	X
CLO 4	X	X	X	X

Contents:
This course discusses the latest phenomena and products in the fields of Medical Physics and Biophysics and provides insight into the application of physics in the medical world and research prospects as well as the medical physics profession and biophysical studies.

Topics	Class meeting duration /week (hours)	Number of Weeks	Total duration of class meeting (hours)
Diagnostic and interventional radiology	2	3	6
Radiotherapy	2	4	8
Nuclear medicine	2	3	6
Biophysics	2	3	6
Health Physics	2	4	8

Soft Skill Attribute:
Etika (ethic), effort, communication and teamwork

Study/Exam Achievements:
Attendance / participation in class must be ≥ 80% of the total meeting.
The evaluation weights are as follows.

- Final Semester Examination (UAS) = 20%
- Mid-Semester Exam (UTS) = 20%
- Quiz = 30%
- Homework = 30%

With the final score determined as follows:
A = >80 – 100; B+ = >75 – 80; B = >69 – 75; C+ = >60 – 69; C = >55 – 60; D+ = >50 – 55; D = >44 – 50; E = 0 - 44

Forms of Media:
Whiteboard, projector

Learning Methods:
Lecturing, Homework

Literature(s):

1) David J. Dowsett, 2006, The Physics of Diagnostic Imaging, Horder Arnold
2) Stewart C. Bushbong, 2013, Radiologic Science for Technologist: Physics, Biology, and Protection; elsivier
3) Jerrold T. Bushberg, 2001, The Essential Physics of Medical Imaging, Lippincott Williams&Wilkins.
4) S.Ananthi, 2005, A Text Book of Medical Instrument, New Age International Limited Publisher.
5) William R. Hendee, 2002, Medical Imaging Physics 4th edition, John Willey and Sons, Inc.