FI565 Astrophysics

Module name:	Astrophysics
Module level, if applicable:	Undergraduate
Code:	FI565
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	6th
Module coordinator:	Judhistira Aria Utama
Lecturer(s):	Judhistira Aria Utama
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective course

Type of Teaching	Contact hours per week during the semester	Class Size
1. Lecture (conceptual, contextual and problem-solving approaches through expository, discussions and presentation) 2. Structured activities (assignments based on conceptual, contextual and problem-solving approaches, Presentation) 3. Self-study (Mini research project)	2 hours 30 minutes	20

Workload:	Total workload is 136 hours 4.8 ECTS (8.160 minutes) per semester which consists of 2100 minutes (1.22 ECTS) lectures, 2520 minutes (1.58 ECTS) structured activities, 2520 minutes (1.58 ECTS) self-study per week for 14 weeks, 400 minutes (0.2 ECTS) for each exam, and 480 (0.22 ECTS) minutes for each exam preparation.
Credit points:	4.8 ECTS
Pre-requisites course(s):	FI121 Basic Physics I, FI340 Mechanics
Course Learning Outcomes (CLO):	After taking this course, the students have the ability to: CLO1. Describe the concept of light as information from the sky and instruments light collector CLO2. Explain the operation and determination of telescope optical parameters CLO3. Conduct astronomical observations and be able to assemble portable telescopes or procedures for accessing remote/robotic telescopes in observation sessions to obtain data (can be in the form of images) of observed celestial objects CLO4. Describe the law of black body radiation,

	CLO5. Measure and calculate specific intensity, flux, and luminosity by considering stars as black bodies
	CLO6. Describe the fundamental quantities and laws in astronomy and of the measurement of basic quantities in astronomy through astronomical observations
	CLO7. Describe the concept of star photometry,
	CLO8. Measure and determine magnitude and correction star photometry
	CLO9. Describe stellar spectroscopy and the process of star spectrum formation
	CLO10. Measure and determine the strength of the spectral line of celestial bodies
	CLO11. Explaind the proper motion of stars
	CLO12. Measure and determine proper motion
	CLO13. Disseminate the results of research/scientific study results in the form of reports according to standard scientific principles and present them in lectures
	CLO14. Process of data acquisition and ethics in the use of public data
Content:	The light as information from the sky and instruments light collector, the telescope optical parameters, the law of black body radiation, the laws in astronomy, the star photometry, the stellar spectroscopy, the proper motion of stars

Study/exam achievements:

The final mark will be weight as follow:

No	CLO	Assessment Object	Assessment Techniques	Weight
1	1 – 6	Subject specific competences: a. Individual assignments b. Mid Exam	Written Written test	15% 25%
2	7 – 12	c. Individual assignments d. Final Exam	Written Written test	15% 25%
3	13 – 14	e. Presentation	Project	20%
Total				100%

Forms of media:	Board, LCD Projector, Laptop/Computer, LMS
Literature:	1. Carroll, B.W., Ostlie, D.A. (2007). *An Introduction to Modern Astrophysics 2nd Edition.* Pearson Addison Wesley. 2. Karttunen, H. et al. (2017). *Fundamental Astronomy 6th Edition*. Springer. 3. Kutner, M.L. (2003). *Astronomy: A physical perspective*. Cambridge University Press. 4. LeBlanc, F. (2010). *An Introduction to Stellar Astrophysics*. Weley.

PLO and CLO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CLO1		√										
CLO2		√										
CLO3		√										
CLO4		√										
CLO5		√										
CLO6		√										
CLO7		√										
CLO8		√										
CLO9		√										
CLO10		√										
CLO11		√										
CLO12		√										
CLO13		√										
CLO14		√										