UNIVERSITY OF LAMPUNG
FACULTY OF TEACHER TRAINING AND EDUCATION
Department of Physics Education
Jl. Prof. Dr. Soemantri Brodjonegoro No. 1 Bandar Lampung 35145

MODULE HANDBOOK

Bachelor in Physics education

Module name	Data Analysis and Report
Module level	Undergraduate
Code	KFI620317
Courses	Data Analysis and Report
Description	This course studies various types of reporting data analysis techniques in research and evaluation including: basic concepts of reporting data analysis techniques in research and evaluation, characteristics of reporting data analysis techniques in research and evaluation; characteristics of reporting data analysis techniques in research and evaluation; approaches to reporting data analysis techniques in research and evaluation; methods of reporting data analysis techniques in research and evaluation; analyze the results of reporting data analysis techniques in research and evaluation; implement reporting data analysis techniques in research and evaluation; The policy approach taken is based on the results of reporting data analysis techniques in research and evaluation of part or all of the education policy process.
Semester	Even
Lecturer	Prof. Dr. Undang Rosidin, M.Pd. Anggreini, S.Pd., M.Pd.
Contact Person	081374530256
Language	Indonesian
Relation to curriculum	Elective

Type of teaching, contact hours	Expositories, questions and answers, case studies, discussions, presentations
Workload	Contact hours: 14 weeks x 100 minutes Structured learning: 14 weeks x 120 minutes Independent study: 14 weeks x 120 minutes Practicum sessions: 14 weeks x 170 minutes
Credit points	3 (2-1) CP or 4.8 (ECTS) ((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) : 60 minutes/hour = 119 hours : 25 study hours/ECTS = 4.8 (ECTS)
Requirements according to the Examination regulations	
Learning outcomes (course outcomes) and their corresponding PLOs	**After completing this module, a student is expected to:** **1. KNO- 4: Using research methodology knowledge to solve physics education and learning problem.** **2. SKI-2: Able to plan and carry out physics education research to solve physics learning problems.**
Competencies/ Course Learning Outcomes	Students are able to deduce the types of research data, data collection techniques for quantitative and qualitative research, data analysis techniques for quantitative and qualitative research, interpret the interpretation of quantitative and qualitative data, and make reports on the results of data analysis
Contents	Data Analysis and Report course is a 3 (2-1) credit course. The subject matter of this subject covers basic concepts of reporting data analysis techniques in research and evaluation, characteristics of reporting data analysis techniques in research and evaluation; characteristics of reporting data analysis techniques in research and

	evaluation; approach to reporting data analysis techniques in research and evaluation; methods of reporting data analysis techniques in research and evaluation; analyze the results of reporting data analysis techniques in research and evaluation; implement reporting data analysis techniques in research and evaluation; a policy approach taken based on the results of reporting data analysis techniques in research and evaluation of part or all of the education policy process.
Study and examination requirements and forms of examination	Written test, practicum, presentation, activity
Media employed	**LCD, whiteboard, and online resources**
Assessments and Evaluation	Participants are evaluated based on participation activities and products and portfolio (50%) and cognitive test (50%): Products and portfolio (50%): ● Class Participation (15%) ● Products and portfolio (35%) Cognitive test (50%): ● Assignments (15%) ● Mid Exam (15%) ● Final Exam (20%)
Reading list	1. Tim Penyusun. 2013. Buku Ajar Fisika Dasar I (Mekanika). Bandar Lampung: Universitas Lampung. 2. Giancoli, D. C. 2014. Fisika. Jakarta: Erlangga. 3. Halliday and Resnick. 2011. Fundamental of Physics.

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MODULE HANDBOOK

Bachelor in Physics education

Module name	Digital Electronics
Module level	Undergraduate
Code	KFI620324
Courses	Digital Electronics
Description	This course is intended as a consolidation and deepening of the basic material on electrical circuits and basic electronics that has been obtained in previous lectures, by introducing digital electronic systems, enriched with skills in operating, repairing and designing electronic devices. The material that will be discussed in this lecture includes; number systems, logic gates, Boolean Algebra, basics of digital circuit planning, and life skills regarding electronic devices.
Semester	Even
Lecturer	Ismu Wahyudi, S.Pd., M.PFis.
Contact Person	081387408646
Language	Indonesian
Relation to curriculum	Elective
Type of teaching, contact hours	Explanation, practice, lecture, discussion, presentation
Workload	Contact hours: 14 weeks x 100 minutes Structured learning: 14 weeks x 120 minutes

	Independent study: 14 weeks x 120 minutes Practicum sessions: 14 weeks x 170 minutes
Credit points	3 (2-1) CP or 4.8 (ECTS) ((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) : 60 minutes/hour = 119 hours : 25 study hours/ECTS = 4.8 (ECTS)
Requirements according to the Examination regulations	Basic electronics
Learning outcomes (course outcomes) and their corresponding PLOs	**After completing this module, a student is expected to:** 1. **KNO-1: Demonstrate knowledge of classical physics (mechanics, electrodynamics, thermodynamics, oscillations, waves and optics) and are familiar with the fundamentals of quantum, atomic and molecular, nuclear, elementary particle and solid state physics.** 2. **KNO-2: Formulate physical systems using mathematics to solve physics problems.** 3. **KNO-3: Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning.**
Competencies/ Course Learning Outcomes	Students are able to understand and master basic electronics and digital electronics concepts, have skills in making schematics of a circuit, PCB layout, installing passive and active electronic components, and testing the functionality of the device; as well as using, maintaining, repairing and designing manual and digital electronic equipment.
Contents	Digital electronics course is a 3 (2-1) credit course. The subject matter of this subject covers number systems, logic gates, Boolean

	algebra, basics of digital circuit planning, and skills / life skills for electronic devices.
Study and examination requirements and forms of examination	Oral presentation, essay, ability to use tools
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	Mid-term exam (theory) (100%), product-based practice mid-term exam (100%), final exam (theory) and final practice exam (100%). Performance in mid-term exam (theory) (100%): ● Trus concept (75%) ● Logical/mathematical (25%) Performance in product-based practice mid-term exam (100%): ● Presentation (25%) ● Paper/reports (25%) ● Product functionality (50%) Performance in final exam (theory) (100%): ● Trus concept (75%) ● Logical/mathematical (25%) Performance in final practice exam (100%): ● Tool selection accuracy (15%) ● Accuracy of stringing tools (25%) ● Accuracy and speed of making the program (sketches) (30%) ● Results of the program made (30%)
Reading list	1. Mano, Morris. 1995. Digital Design. Prentice Hall. New York. 2. Sutrisno. 1986. Elektronika, Teori Dasar dan Penerapannya. Penerbit ITB. Bandung. 3. Wahyudi, Ismu. 2018. Modul Keterampilan Elektronika. Tidak diterbitkan.

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MODULE HANDBOOK

Bachelor in Physics education

Module name	E-learning Development
Module level	Undergraduate
Code	KFI620326
Courses	E-learning Development
Description	
Semester	Even
Lecturer	Prof. Dr. Agus Suyatna, M.Si. Dr. Abdurrahman, M.Si.
Contact Person	08127911494
Language	Indonesian
Relation to curriculum	Elective
Type of teaching, contact hours	Presentation, expository, discussion
Workload	Contact hours: 14 weeks x 100 minutes Structured learning: 14 weeks x 120 minutes Independent study: 14 weeks x 120 minutes Practicum sessions: 14 weeks x 170 minutes
Credit points	3 (2-1) CP or 4.8 (ECTS)

	((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) : 60 minutes/hour = 119 hours : 25 study hours/ECTS = 4.8 (ECTS)
Requirements according to the Examination regulations	
Learning outcomes (course outcomes) and their corresponding PLOs	**After completing this module, a student is expected to:** 1. **KNO-3: Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning.** 2. **SKI-3: Able to develop physics learning resources according to the needs and development of science and technology.**
Competencies/ Course Learning Outcomes	Students are skilled at compiling syllabuses, lesson plans, developing teaching materials, broadcast materials, multimedia, discussion assignments, interactive questions for high school physics learning and posting all materials on the selected LMS, managing LMS for electronic physics learning simulations
Contents	Laboratory Equipment Maintenance and Repair course is a 3 (2-1) credit course. The subject matter of this subject covers concept of e-learning, its advantages and disadvantages, characteristics of physics material that can be taught by e-learning, types of e-learning LMS and the advantages and disadvantages of each, procedures for developing teaching materials, broadcast materials, multimedia, discussion assignments, interactive questions for e-learning high school physics learning, and posting all materials on the LMS, and procedures for managing e-learning
Study and examination requirements and forms of examination	Assignments, e-learning products

Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	Participants are evaluated based on performance test and written test (100%): ● Performance in operating moodle (20%) ● The task of making an e-learning PHYSICS syllabus (10%) ● The task of making e-learning PHYSICS teaching materials (10%) ● The task of making e-learning PHYSICS learning multimedia (20%) ● The task of making a computer-based quiz (CBT) (10%) ● PHYSICS e-learning products (20%) ● Performance in managing e-learning (10%)
Reading list	1. Effendi, Hartono Zhuang, 2005. E-learning konsep dan aplikasi. Andi. Yogyakarta 2. Lesmana, Surya, Andhi Susano, Abdul Mufti. 2013. 2 Jam Bisa Bikin Web E-Learning Gratis Dengan Moodle: Solusi Cerdas Membuat Media Pembelajaran Online. Smart. Jakarta **3.** Michael W. Allen . 2007. Designing Successful e-Learning , John Wiley & Sons, Inc 4. Pramono, Andi. 2004. Berkreasi Animasi dengan Macromedia Flash MX Professional 2004. Andi. Yogyakarta 5. Suyatna, Agus. 2016. Visualisasi Fenomena Fisika Membuat Fisika Menarik. Yogyakarta: Innosain **6.** William Rice . 2011. Moodle 2.0 E-Learning Course Development, Packt Publishing,

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MODULE HANDBOOK

Bachelor in Physics education

Module name	*Physics Visualization*
Module level	Undergraduate
Code	KFI620328
Courses	*Physics Visualization*
Description	This course is one of the Elective Study Program Expertise Subjects (MKKPS) which is oriented towards mastering the field of physics study, especially school physics. After completing this lecture, students are expected to be able to design and develop programs to visualize and model physical phenomena using certain application programs (macromedia flash or others). In this lecture you will be trained in drawing physics illustrations with various effects, creating animations to visualize physical phenomena such as rotation, GLB, GLBB, GJB, collisions, vibrations and waves, creating control buttons and action scripts.
Semester	Even
Lecturer	*Prof. Dr. Agus Suyatna, M.Si* *B. Anggit Wicaksono, S.Pd., M.Si.*
Contact Person	
Language	Indonesian
Relation to curriculum	*Elective*
Type of teaching, contact hours	*Expository, demonstration, practice, question and answer*

Workload	*Contact hours: 14 weeks x 100 minutes* *Structured learning: 14 weeks x 120 minutes* *Independent study: 14 weeks x 120 minutes* *Practicum sessions: 14 weeks x 170 minutes*
Credit points	*3 (2-1) CP or 4.8 (ECTS)* *((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) :* *60 minutes/hour* *= 119 hours : 25 study hours/ECTS* *= 4.8 (ECTS)*
Requirements according to the Examination regulations	- *Students have the skills to visualize physical phenomena through independent analysis of subject matter (Pedagogical Content Knowledge) in accordance with instructional design principles, scientific approaches, utilizing ICT.* - *Students master the principles of science-based physics learning media development, contextual technology, especially ICT and the surrounding environment.*
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO-3: Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 2. SKI-3: Able to develop physics learning resources according to the needs and development of science and technology.
Competencies/ Course Learning Outcomes	- *Students have the skills to visualize physical phenomena through independent analysis of subject matter (Pedagogical Content Knowledge) in accordance with instructional design principles, scientific approaches, utilizing ICT.* - *Students master the principles of science-based physics learning media development, contextual technology, especially ICT and the surrounding environment.*

Contents	*Physics visualization is a (2-1) credit course. The subject matter of this course is to draw physics illustrations with various effects, create animations to visualize physical phenomena such as rotation, uniform straight motion, uniformly changing straight motion, uniform circular motion, collisions, vibrations and waves, making control buttons and action scripts.*
Study and examination requirements and forms of examination	*Essay, product creation*
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	*Participants are evaluated based on their performance in class* *Mid-term exam (theory) (100%) and final project (100%).* *Mid-term exam (theory) (100%):* ● *Mid-term performance test (50%)* *Final project (100%):* ● *Final product creation (100%)*
Reading list	1. Agus Suyatna. 2016. *Visualisasi Fenomena Fisika:Membuat Fisika Menarik*. Innosains. Yogyakarta. 2. Astuti, Dwi. 2006. *Teknik Membuat Animasi Profesional Menggunakan Macromedia Flash 8*. Andi. Yogyakarta. 3. Dwi Satya Palupi, Suharyanto, Karyono. 2008. *Fisika untuk SMA dan MA Kelas XI Jilid 2*. Pusat Perbukuan Depdiknas. Jakarta. 4. Karyono, Dwi Satya Palupi, Suharyanto. 2008. *Fisika untuk SMA dan MA Kelas X Jilid 1*. Pusat Perbukuan Depdiknas. Jakarta. 5. Mukhtar dan Iskandar. 2012. *Desain Pembelajaran Berbasis TIK*. Jakarta: Referensi. 6. Rusman. 2012. *Belajar dan Pembelajaran Berbasis Komputer*. Bandung: Alfabeta. 7. Sutrisno. 2012. *Kreatif Mengembangkan Aktivitas Pembelajaran Berbasis TIK*. Jakarta: Referensi.

	8. Pramono, Andi. 2004. *Berkreasi Animasi dengan Macromedia Flash MX Professional 2004*. Andi: Yogyakarta. 9. Prasetyo, Fransiskus Hadi. 2007. *Desain dan Aplikasi Media Pembelajaran dengan Menggunakan Macromedia FLASH MX*. Ardana Media: Yogyakarta.

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MODULE HANDBOOK

Bachelor in Physics education

Module name	*Development of Digital Physics Teaching Materials*
Module level	Undergraduate
Code	KFI620329
Courses	*Development of Digital Physics Teaching Materials*
Description	
Semester	Even
Lecturer	*Prof. Dr. Agus Suyatna, M.Si.* *Novinta Nurulsari, S.Pd., M.Pd.*
Contact Person	085609592777
Language	Indonesian
Relation to curriculum	*Elective*
Type of teaching, contact hours	*Presentation, expository, discussion, team-based project*
Workload	*Contact hours: 14 weeks x 100 minutes* *Structured learning: 14 weeks x 120 minutes* *Independent study: 14 weeks x 120 minutes* *Practicum sessions: 14 weeks x 170 minutes*
Credit points	*3 (2-1) CP or 4.8 (ECTS)* *((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) :* *60 minutes/hour* *= 119 hours : 25 study hours/ECTS*

	= 4.8 (ECTS)
Requirements according to the Examination regulations	-
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO-3: Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 2. SKI-3: Able to develop physics learning resources according to the needs and development of science and technology.
Competencies/ Course Learning Outcomes	*Students are able to develop Physics teaching materials in digital form such as optimizing power point display materials, interactive digital format textbooks, making broadcast materials for Physics learning and interactive digital format textbooks*
Contents	*Laboratory Equipment Maintenance and Repair course is a 3 (2-1) credit course. The subject matter of this subject covers procedures for developing physics learning broadcast materials, procedures for developing physics textbooks in digital format, power point optimization, and types of book development program applications and. ICT-Based Learning*
Study and examination requirements and forms of examination	*Assignments, product results, peer/performance assessment during presentations, observation sheets during class discussions*
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	*Participants are evaluated based on cognitive test (theory) (50%), their performance in class (lectures) (50%), and product results (40%)* *Performance in theory (50%%):* ● *Assignments (20%)* ● *Mid Exam (15%)* ● *Final Exam (15%)* *Performance in class (10%):* ● *Class Participations (5%)* ● *Attendance (5%)*

	Product results (40%): ● *Products (40%)*
Reading list	1. Suyatna, A., Rakhmawati, I., Istiqomah, A. 2022. *Pembuatan Bahan Ajar Digital*. Universitas Lampung. 2. *Relevant books and journals*

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MODULE HANDBOOK

Bachelor in Physics education

Module name	*Authentic Assessment*
Module level	Undergraduate
Code	KFI620331
Courses	*Authentic Assessment*
Description	This course studies various types of authentic assessment instruments and rubrics in physics learning including: developing performance, process, product, portfolio, attitude and self-assessment assessment instruments. After completing this lecture, students are expected to be able to develop authentic assessment instruments and rubrics in physics learning.
Semester	Even
Lecturer	*Prof. Dr. Undang Rosidin, M.Pd.* *Anggreini, S.Pd., M.Pd.*
Contact Person	081374530256
Language	Indonesian
Relation to curriculum	*Elective*
Type of teaching, contact hours	*Questions and answers, case studies, discussions, presentation*
Workload	*Contact hours: 14 weeks x 100 minutes* *Structured learning: 14 weeks x 120 minutes* *Independent study: 14 weeks x 120 minutes* *Practicum sessions: 14 weeks x 170 minutes*

Credit points	*3 (2-1) CP or 4.8 (ECTS)* *((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) :* *60 minutes/hour* *= 119 hours : 25 study hours/ECTS* *= 4.8 (ECTS)*
Requirements according to the Examination regulations	
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO-3: Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 2. SKI-1: Able to plan, implement, and evaluate physics learning based on learning activities to develop critical thinking, creativity, and problem solving skills.
Competencies/ Course Learning Outcomes	*Students are able to develop authentic assessment instruments and rubrics in learning physics.*
Contents	*Authentic assessment course is a 3 (2-1) credit course. The subject matter of this subject covers developing performance assessment instruments, processes, products, portfolios, attitudes, and self-assessments.*
Study and examination requirements and forms of examination	*Mastery of concepts, presentations, participation in class*
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	*Participants are evaluated based on cognitive test (theory) (50%). And their performance in class(lectures) (50%)* *Performance in theory (50%):* ● *Mid Exam (20%)* ● *Final Exam (20%)*

	• *Assignments (10%)* *Performance in class (50%):* • *Teamwork (10%)* • *Class Participations (10%)* • *Product (30%)*
Reading list	1. Rosidin, Undang. (2016*). Penilaian Otentik (Authentic Assesment)*. Media Akademi, Yogyakarta. 102 hlm.. 2. Budiyono (2015). *Pengantar Penilaian Hasil* Belajar. UNS Press. Surakarta. 202 hlm 3. Budiyono (2015). *Pengantar Teori Pengukuran Pendidikan*. UNS Press. Surakarta. 90 hlm 4. Syaifudin Azwar. (2015). *Sikap Manusia*. Pustaka Pelajar. Yogyakarta. 198 hlm 5. Syaifudin Azwar. (2015). *Dasar-dasar Psikometri*. Pustaka Pelajar. Yogyakarta. 199 hlm 6. Syaifudin Azwar. (2015). *Reliabilitas dan Validitas (edisi 4*). Pustaka Pelajar. Yogyakarta. 181 hlm 7. Artikel dari jurnal terakreditasi atau bereputasi

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MODULE HANDBOOK

Bachelor in Physics education

Module name	*Laboratory Equipment Maintenance and Repair*
Module level	Undergraduate
Code	KFI620332
Courses	*Laboratory Equipment Maintenance and Repair*
Description	This course is one of the study program's elective courses which equips students with the maintenance and management of science laboratory equipment (Physics). After completing this lecture, students are expected to master the principles and theories of work management and safety in the laboratory, prepare Standard Operating Procedures (SOP) related to the care and maintenance of laboratory equipment, inventory laboratory equipment and consumables, prepare a user manual, manage the laboratory. laboratory, uses various physics measuring instruments, and can maintain and repair minor damage to school physics laboratory equipment. This lecture discusses how to design a school physics laboratory, manage laboratory administration, laboratory management, get to know school physics experimental equipment, occupational health and safety in the laboratory, physics laboratory electrical installations, use, storage, maintenance, maintenance and repair of equipment.
Semester	Even
Lecturer	*Dimas Permadi, S.Pd., M .Pd.,* *Novinta Nurulsari, S.Pd., M.Pd.*
Contact Person	
Language	Indonesian
Relation to curriculum	Undergraduate degree program, Mandatory, 2rd semester

Type of teaching, contact hours	*Questions and answers, case studies, discussions, presentations*
Workload	*Contact hours: 14 weeks x 100 minutes* *Structured learning: 14 weeks x 120 minutes* *Independent study: 14 weeks x 120 minutes* *Practicum sessions: 14 weeks x 170 minutes*
Credit points	*3 (2-1) CP or 4.8 (ECTS)* *((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) :* *60 minutes/hour* *= 119 hours : 25 study hours/ECTS* *= 4.8 (ECTS)*
Requirements according to the Examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. SKI-4: Able to manage, use, and develop physics learning laboratory tools.
Competencies/ Course Learning Outcomes	*Students are able to master the principles and theories of management and work safety in the laboratory, develop Standard Operating Procedures (SOP) related to the care and maintenance of laboratory equipment, inventory equipment and laboratory consumables, compile user manuals, manage laboratories, use a variety of physics measuring instruments, and can maintain and repair minor damage to school physics laboratory equipment.*
Contents	*Laboratory Equipment Maintenance and Repair course is a 3 (2-1) credit course. The subject matter of this subject covers how to design a school physics laboratory, manage laboratory administration, laboratory management, get to know school physics experimental equipment, occupational health and safety in the laboratory, physics laboratory electrical installation, use, storage, maintenance, maintenance and repair of equipment*

Study and examination requirements and forms of examination	*Performance observation, assignments*
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	*Participants are evaluated based on cognitive test (theory) (95%). And their performance in class (lectures) (5%)* *Performance in theory (95%%):* ● *Assignments (40%)* ● *Quiz (15%)* ● *Mid Exam (20%)* ● *Final Exam (20%)* *Performance in class (5%):* ● *Class Participations (5%)*
Reading list	1. Grover, F., & Wallace, P. (1979). *Laboratory organization and management*. Butterworth & Co.(Publishers) Ltd., 88 Kings way, London W C 2 B 6 AB. 2. Squires, G. L., & Squires, G. L. (2001). *Practical physics*. Cambridge university press. 3. Nyeneng, I Dewa Putu. (2011). *Pengelolaan Laboratorium IPA*. Lampung: Universitas Lampung

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MODULE HANDBOOK

Bachelor in Physics education

Module name	*Computational Physics*
Module level	Undergraduate
Code	KFI620334
Courses	*Computational Physics*
Description	This course studies how to use computers to solve various physics problems numerically. The desired solution is algorithms that are consistent, portable, and stable. From this point of view, the best approach in this course is to focus on discussing effective and in-depth algorithms for solving physics problems even with the limited capabilities of existing computer equipment.
Semester	Even
Lecturer	*Ismu Wahyudi, S.Pd., M .PFis.* *Hervin Maulina, S.Pd., M.Sc.* *B. Anggit Wicaksono, S.Pd., M.Si.*
Contact Person	081387408646
Language	Indonesian
Relation to curriculum	*Elective*
Type of teaching, contact hours	*Demonstration, practicum*
Workload	*Contact hours: 14 weeks x 100 minutes* *Structured learning: 14 weeks x 120 minutes* *Independent study: 14 weeks x 120 minutes* *Practicum sessions: 14 weeks x 170 minutes*

Credit points	*3 (2-1) CP or 4.8 (ECTS)* *((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) :* *60 minutes/hour* *= 119 hours : 25 study hours/ECTS* *= 4.8 (ECTS)*
Requirements according to the Examination regulations	
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO-1: Demonstrate knowledge of classical physics (mechanics, electrodynamics, thermodynamics, oscillations, waves and optics) and are familiar with the fundamentals of quantum, atomic and molecular, nuclear, elementary particle and solid state physics. 2. KNO-2: Formulate physical systems using mathematics to solve physics problems.
Competencies/ Course Learning Outcomes	*Students are able to master algorithms in computing with Matlab and master the knowledge of solving various physics problems numerically*
Contents	*Computational Physics course is a 3 (2-1) credit course. This course studies how to use computers to solve various physics problems numerically. The subject matter of this subject program control, M-File function, root search, numerical integration of boundary condition problems.*
Study and examination requirements and forms of examination	*Performance using the software*
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	*Participants are evaluated based on cognitive test (theory) (90%). And their performance in class (lectures) (10%)* *Performance in theory (90%%):* ● *Assignments (30%)*

	• *Quiz (20%)* • *Mid Exam (20%)* • *Final Exam (20%)* *Performance in class (10%):* • *Class Participations (10%)*
Reading list	1. Pujiyanta, Ardi. 2007. *Komputasi Numerik dengan Matlab*. Yogyakarta. Graha Ilmu. 2. Etter, Delores,M. Dan David C. Kuncicky. 2003. *Pengantar Matlab 6 Edisi Indonesia*. Jakarta. Gramedia. 3. Juwariyah, Tatik. 2012. *Modul Praktikum Fisika Komputasi dengan Matla*b. Yogyakarta. UIN Sunan Kalijaga.