



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

Bachelor of Education in Physics

MODULE HANDBOOK

Module Name	Learning Multimedia for Physics
Module Level, if Applicable	Bachelor
Code	KFI620207
Sub-Heading, (*if Applicable)	-
Classes, (*if Applicable)	-
Description	In this course, students follow lectures to form learner competencies in the field of utilization and production of media and learning resources using TPACK such as Augmented Reality, Scratch (visual programming) Microsoft Power Point, Adobe Flash, Google Sites, and Macromedia Flash application in making multimedia physics learning in schools. At the end of learning, students can develop multimedia in physics learning in the form of interactive learning videos, physics animations, learning modules, applications, and interactive PPT on Natural Science (IPA) related to social science issues (SSI) such as the misuse of technology in society. This will strengthen students' understanding that multimedia can be used as a technology that reinforces scientific knowledge as a dynamic process and continues to evolve along with technological advances and increasingly sophisticated experiments.
Semester	3rd
Module Coordinator	Dimas Permadi, S.Pd., M.Pd.
Lecturers	Team Teaching of Learning Multimedia for Physics
Language	Indonesian/English
Classification With in the Curriculum	Study Program Compulsory Courses in the third year (3rd semester) Bachelor Degree
Teaching Format/Class Hours Per Week During the Semester	Learning activity can be carried out in the form of : 1. Lecture or students' response



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

	a. Face to face : 50 minutes/SKS b. Structured activity : 60 minutes/SKS c. Independent activity : 60 minutes/SKS 2. Laboratory activity: 170 minutes/SKS
Teaching methods	In class activity : Team Based Project Structured activity : Group Discussion using Worksheet Independent activity : Individual task
Workload	1 CU (SKS) for bachelor degree equal to 3 work hours per week or 170 minutes for lecture or students' response. 2x50 minutes face to face, 2x60 minutes structured tasks, 2x60 minutes independent learning. 1 CU (SKS) for bachelor degree equal to 1 work hours per week or 170 for laboratory activity. for 16 weeks (including mid and final exam), a total of 136 hours/semester. One CU equals to 1.51 ECTS
Credit Points	3 (2-1) CU (SKS) = $3 \times 1.51 = 4.53$ ECTS
Prerequisites Courses	-
Course Outcomes (CO)	After completing this module, a student is expected to: 1) PLO-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) PLO-2 :Formulate physical systems using mathematics to solve physics problems. 3) PLO-3 : Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 4) PLO-6 :Able to develop physics learning resources according to the needs and development of science and technology 5) CO-1 : Students are able to synthesise the meaning, types, classification, and characteristics of physics learning media.



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

	6) CO-2 : Students are able to synthesise the meaning of audio-based learning media. 7) CO-3 : Students are able to synthesise understanding of video-based learning media. 8) CO-4 : Students are able to synthesise the development of learning media and planning science-based physics learning media, contextual technology, especially ICT and the surrounding environment. 9) CO-5 : Students are able to design and produce print-based physics learning media (analog and digital physics images). 10) CO-6 : Students are able to design and produce audio-based physics learning media producing Adobe Audition. 11) CO-7 : Students are able to design and produce video-based physics learning media 12) CO-8 : Students are able to use virtual reality-based physics learning laboratories. 13) CO-9 : Students are able to use smartphone and Android-based physical measurement tools. 14) CO-10 : Students are able to use the LMS for Baruan learning (edusmart.fkip.unila.ac.id and Schoology.com). 15) CO-11 : Students are able to use PhetColorado for virtual laboratory learning. 16) CO-12 : Students are able to analyse the development of learning multimedia in the field of physics
Content	1. Print-based physics learning media 2. Physics learning text 3. Utilisation and production of analog physics drawings (paintings and illustrations) 4. Utilisation and production of digital physics images (utilising cameras and scanners)



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

	5. Utilisation and production of Audio-based physics learning audio (using Adobe Audition) 6. Utilisation and production of physics learning videos 7. Virtual reality-based physics learning laboratory 8. Utilisation of smartphone-based and Android-based physics measurement tools 9. Utilisation of LMS (edusmart.fkip.unila.ac.id & Schoology.com) for New Learning 10. Utilisation of PhetColorado for virtual laboratories. 11. Study of updated learning multimedia articles from reputable publishers.
Study/Exam Achievements	Midterm Exam 20% Final Exam 20% Assignment 10% Project Assignment 50 % The initial cut - off points for grades A, B+ , B, B-, C+ ,C, C-, and D should not be less than 85%, 80%, 75%, 70%, 65%, 60%, 55%, 50%, and 40%, respectively.
Examination Methods	1. Midterm Exam (UTS) ✓ UTS is held at the 8th meeting ✓ UTS is a written test in the form of objective and essay, and carried out in the classroom with an implementation time of 120 minutes according to the module schedule ✓ UTS is carried out to see the achievements of the PLO and CO which are in accordance with the characteristics of the Learning Multimedia for Physics



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 *e-mail*: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

2. Final Exam (UAS)

- ✓ UAS is held at the 16th meeting
- ✓ UAS is a written test in the form of objective and essay, and carried out in the classroom with an implementation time of 120 minutes which follows the UAS implementation schedule of the department
- ✓ UAS is carried out to see the achievements of the PLO and CO which are in accordance with the characteristics of the Learning Multimedia for Physics module.

3. Practicum Exam

- ✓ Practicum exam is held once in one semester after all the topic of practicum done
- ✓ Practicum exam is used to assess student skills in using tools and reporting measurement results according to scientific rules
- ✓ Practicum exam is carried out to see the achievements of the PLO and CO which are in accordance with the characteristics of the Learning Multimedia for Physics module.

4. Project Assignment



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

	✓ Project assignment is given as group task in making some of simple experiment tools ✓ Project assignment is carried out for one semester and presented at the end of semester ✓ Project assignment is carried out to see the achievements of the PLO and CO which are in accordance with the characteristics of the Learning Multimedia for Physics module. 5. Assignments ✓ Assignments are given as exercise in each meeting in the form of worksheet and independent task ✓ Assignments are about analyzing simple problems in physics and solving them with the concept of Learning Multimedia for Physics ✓ Assignments are given as individual tasks or group tasks and submitted in a limited time. ✓ The assignments are carried out to see the achievements of the PLO and CO which are in accordance with the characteristics of the Learning Multimedia for Physics module
Forms of Media	E-learning, e-book, video, virtual lab**, e-journal, Augmented Reality, Scratch (visual programming) Microsoft Power Point, Adobe Flash, Google Sites, and Macromedia Flash Applications
Literature	1. Edusmart.fkip.unila.ac.id 2. Schoology.com



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 e-mail: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

- | | |
|--|--|
| | <ol style="list-style-type: none">3. Sunal, D. W. & Sunal, C. S. 2019. <i>Physics Teaching and Learning: Challenging the Paradigm</i>. INFORMATION AGE PUBLISHING, INC.4. Fazio, C. & Logman, P. 2024. <i>Physics Education Today: Innovative Methodologies, Tools and Evaluation</i>. Leiden Univeristy.5. Gliksman, S. 2015. <i>Creating Media for Learning: Student-Centered Projects Across the Curriculum</i>. United States, SAGE Publications.6. Russell, James D., et al. 2012. <i>Instructional Technology and Media for Learning</i>. Germany, Pearson.7. Razi, P. 2013. <i>Multimedia Interaktif</i>. |
|--|--|



KEMENTERIAN PENDIDIKAN TINGGI,
SAINS, DAN TEKNOLOGI
UNIVERSITAS LAMPUNG

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN

Jalan Prof. Dr. Sumantri Brojonegoro No.1 Gedong Meneng - Bandar Lampung 35145

Telp./Fax: (0721) 704624 *e-mail*: fkip@unila.ac.id,

laman: <http://fkip.unila.ac.id>

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 6
CO 1	✓		✓	
CO 2	✓		✓	
CO 3	✓		✓	
CO 4	✓		✓	
CO 5	✓	✓	✓	✓
CO 6	✓		✓	✓
CO 7	✓		✓	✓
CO 8	✓	✓	✓	
CO 9	✓	✓	✓	
CO 10	✓		✓	✓
CO 11	✓		✓	
CO 12	✓	✓	✓	✓

