



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	ICT-Based Physics Learning
Module Level, if Applicable	Bachelor
Code	KFI620213
Sub-Heading, (*if Applicable)	-
Classes, (*if Applicable)	-
Description	The ICT-Based Physics Learning course aims to provide an in-depth understanding of the ICT-Based Physics Learning in physics, as well as their linkages to Social Science Issues (SSI), Technological Pedagogical Content Knowledge (TPACK), and Nature of Science (NOS). In this course, students will learn concepts such as computer-based learning, Blended E-learning, WEB-based learning, various ICT-based media, characteristics of each ICT-based learning media, selection of learning media, development of physics teaching materials, making physics learning presentations with PowerPoint, designing / design blended learning physics, Videos and physics animations, experimental simulations Phet.colorado.edu, physics teaching material e-modules, physics learning blogs and e-learning, analyzing various LMS, CBT physics. This learning is very important because there are several main problems in ICT-based physics learning including limited access to devices and the internet, teachers' digital skills, limited virtual practicum, low student motivation, evaluation challenges, lack of social interaction, difficulty choosing effective learning resources, dependence on paid platforms, and data security issues. In addition, students will be taught to integrate technology into learning, students will learn how to select and use appropriate ICT tools, such as simulations, learning apps, and social media, to support the teaching of physics concepts. Students use apps and platforms such as PowerPoint Text, Google Classroom, Learning Management



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	System, Moodle, etc. Through an understanding of NOS, students will be trained to teach students to think critically about scientific knowledge and educate them on how physics theories can change with the development of research and technology.
Semester	5th
Module Coordinator	Prof. Dr. Agus Suyatna, M.Si.
Lecturers	Team Teaching of ICT-based Physics Learning
Language	Indonesian/English
Classification With in the Curriculum	Study Program Compulsory Course
Teaching Format/Class Hours Per Week During the Semester	Learning activity can be carried out in the form of 1. Lecture or students' response: 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, presentation Structured activity : Group Discussion Independent activity : Expository
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 x 1.51 = 4.53 ECTS
Prerequisites Courses	-



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Course Outcomes (CO)	1. PLO-3 : Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 2. PLO-6 : Able to develop physics learning resources according to the needs and development of science and technology. 3. CO-1 : Students are able to identify the characteristics of ICT-based physics learning in schools based on research results 4. CO-2 : Students are able to identify the characteristics of digital teaching materials for learning physics in schools based on research results. 5. CO-3 : Students are able to optimally develop physics learning presentation materials for high school level with Power Point. 6. CO-4 : Students are able to make blended learning designs for physics learning for high school level including offline synchronous, online synchronous, offline asynchronous, online asynchronous learning settings. 7. CO-5 : Students are able to have the skills to download physics teaching materials from various online sources. 8. CO-6 : Students are able to analyze the advantages and disadvantages of high school physics e-learning from various sources. 9. CO-7 : Students are able to identify the characteristics of the LMS platform forms that are suitable for learning physics at school. 10. CO-8 : Students are able to develop computer-based tests for learning physics at school. 11. CO-9 : Students are able to visualize simple physical phenomena using macromedia flash or others 12. CO-10 : Making physics learning e-modules at school. 13. CO-11 : Students are able to develop school physics learning videos with a YouTube platform form.
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	14. CO-12 : Students are able to make LMS-based e-learning for school physics learning.
Content	This course will study computer-based learning, Blended E-learning, WEB-based learning, various ICT-based media, characteristics of each ICT-based learning media, selection of learning media, development of physics teaching materials, making physics learning presentations with PowerPoint, designing / design blended learning physics, Videos and physics animations, experimental simulations Phet.colorado.edu, physics teaching material e-modules, physics learning blogs and e-learning, analyzing various LMS, CBT physics.
Study/Exam Achievements	Midterm Exam 20% Final Exam 20% Assignment 10% Project Assignment 50 % The initial cut - off points for grades A, B+, B, 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 ICT-based Physics Learning module 2. Final Exam (UAS) ✓ UAS is held at the 16th meeting



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	✓ UAS is exam 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 ICT-based Physics Learning module. 3. Project Assignment ✓ Project assignment is given as group task ✓ 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 ICT-based Physics Learning module. 4. 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 ICT-based Physics Learning ✓ 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 ICT-based Physics Learning module
Forms of Media	LCD, whiteboard, and online resources
Literature	1. Agus Suyatna. 2016. Visualisasi Fenomena Fisika: Membuat Fisika Menarik. Innosains. Yogyakarta 2. Mukhtar dan Iskandar. 2012. Desain Pembelajaran Berbasis TIK. Jakarta: Referensi.



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	3. Rusman. 2012. Belajar dan Pembelajaran Berbasis Komputer. Bandung: Alfabeta. 4. Sutrisno. 2012. Kreatif Mengembangkan Aktivitas Pembelajaran Berbasis TIK. Jakarta: Referensi.
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PLO and CO Mapping

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