

Science learning design

Module Name :	Science Learning Design	
Module Level :	Undergraduate	
Code :	32252012	
Sub-heading, if applicable :		
Classes, if applicable :		
Semester :	6 st	
Module coordinator :	Dwi Susanti, M.Pd.	
Lecturer(s) :	Prof. Dr. sunaryo, M.Si. Dwi Susanti, M.Pd.	
Language :	Indonesian	
Classification within the curriculum :	Compulsory course	
Type of Teaching	Contact hours per week during the semester	Class Size
Lecture (Expository, discussion, exercise)	100 minutes	40
Workload	Total workload of this course 90,6 hours (3 ECTS) per semester which consist of 26,67 hours (0,89 ECTS) classroom activity, 32 hours (1.06 ECTS) structured task, and 32 hours (1.06 ECTS) per semester.	
Credit points :	3 ECTS	
Prerequisite course(s) :	-	
Course Outcomes :	<p>After taking this course the student have ability to :</p> <p>CLO31. Analyze the concept of Learning design model using various streams as a system.</p> <p>CLO32. Analyze instructional needs according to the demands of the curriculum and society referring to Bloom's Taxonomy.</p> <p>CLO33. Identify measurement/assessment tools, learning strategies and materials to achieve learning objectives.</p> <p>CLO34. Able to solve problems in the preparation of semester programs and formative / summative evaluations.</p>	
Content :	<ol style="list-style-type: none"> 1. Concept of Instructional Design using various psychological streams/learning theories. <ol style="list-style-type: none"> 1.1 Definition of Design 1.2 Definition of Instructional Learning 1.3 Definition of Instructional Design 1.4 Some related terms to Instructional Design 	

	<p>1.5 Psychological Streams/Learning Theories in Learning</p> <p>2. Concept, Position, and Function of instructional design as a system.</p> <p>2.1 Definition of System</p> <p>2.2 System Components</p> <p>2.3 System Approach</p> <p>2.4 Instructional System</p> <p>2.5 Disciplines influencing Instructional Design</p> <p>2.6 Some related terms to Instructional System Design</p> <p>3. Instructional Design models based on the ADDIE Model.</p> <p>3.1 Definition of Model</p> <p>3.2 Some Instructional Design Models</p> <p>3.3 Similarities and Differences among Designs</p> <p>3.4 ADDIE Model</p> <p>4. Instructional Design models based on the Dick and Carey Model.</p> <p>4.1 Definition of Model</p> <p>4.2 Some Instructional Design Models</p> <p>4.3 Similarities and Differences among Designs</p> <p>4.4 Dick and Carey Model</p> <p>5. Instructional Design models based on the MPI Model.</p> <p>5.1 Definition of Model</p> <p>5.2 Some Instructional Design Models</p> <p>5.3 Similarities and Differences among Designs</p> <p>5.4 MPI Model</p> <p>6. Instructional needs according to curriculum and societal demands.</p> <p>6.1 Instructional Needs</p> <p>6.2 Definition of Competence</p> <p>6.3 Definition of Ability</p> <p>6.4 Difference between Competence and Ability</p> <p>6.5 Instruction, Learning, and Performance</p> <p>6.6 Basic Principles of Curriculum and Learning</p> <p>6.7 Competency-Based Learning</p> <p>7. Formulation of specific learning objectives (indicators) using operational verbs based on Bloom's taxonomy.</p> <p>7.1 Understanding the Learning Objective (Goal)</p> <p>7.2 Operational Verbs in Bloom's Taxonomy</p> <p>7.3 Competency Map</p> <p>8. Preparation of assessment tools to measure learning outcomes in accordance with specific instructional objectives/indicators.</p> <p>8.1 Criterion-Referenced Test</p>
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	<p>8.2 Norm-Referenced Test 8.3 Learning Outcome Assessment Tools 8.4 Validity 8.5 Reliability 8.6 Types of Tests 8.7 Test Item Blueprint</p> <p>9. Selection of appropriate learning strategies to achieve learning objectives. 9.1 Definition of Learning Strategies 9.2 Types of Learning Strategies 9.3 Some related terms to strategies: Methods, approaches, techniques, tactics 9.4 Basic Concepts of Learning Strategies 9.5 Learning Stages</p> <p>10. Selection of learning materials that support learning objectives. 10.1 Definition of Instructional Materials 10.2 Forms of Instructional Activities 10.3 Independent Learning System 10.4 Face-to-Face Learning System 10.5 Combination Learning System 10.6 Development of Conventional Teaching Materials 10.7 Development of Instructional Materials</p> <p>11. Preparation of complete Semester Programs, Syllabi, and Lesson Plans that meet the criteria for high school levels of Grade X, XI, XII. 11.1 Definition of Syllabus 11.2 Basis for Syllabus Development 11.3 Principles of Syllabus Development 11.4 Syllabus Components 11.5 Mechanism for Syllabus Development 11.6 Steps in Syllabus Development 11.7 Developing Lesson Plans for Grade X, XI, XII in High School</p> <p>12. Preparation of formative/summative evaluations. 12.1 Concept of Evaluation 12.2 Operational Evaluation 12.3 Formative and Summative Evaluation</p>								
Study/exam achievements:	<p>Examination are conducted as unit test, as following</p> <table border="1" data-bbox="407 1608 1235 1827"> <thead> <tr> <th>No</th> <th>Assesment Object</th> <th>Assesment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Case-based learning</td> <td>Project Assessment (for group project assignments)</td> <td>55%</td> </tr> </tbody> </table>	No	Assesment Object	Assesment Technique	Weight	1	Case-based learning	Project Assessment (for group project assignments)	55%
No	Assesment Object	Assesment Technique	Weight						
1	Case-based learning	Project Assessment (for group project assignments)	55%						

	2	Midterm Test	Written test	15%	
	3	Final Test	Written test	20%	
	4	Attendance	Presence list	10%	
Media :	Power point presentation, textbook, learning management system (LMS)				
Literatures :	<ol style="list-style-type: none"> 1. Branch, R. M. (2009). <i>Instructional Design: The ADDIE Approach</i>. New York: Springer. 2. Dick, W., Carey, L., & Carey, J. (2009). <i>The Systematic Design of Instruction</i>. New Jersey: Pearson. 3. Gredler, M. E. (2011). <i>Learning and Instruction: Teori dan Aplikasinya</i>. Jakarta: Kercana. 4. Gustafson, K. L., & Branch, R. M. (2002). <i>Survey of Instructional Development Models</i>. New York: ERIC. 5. Joyce, B., Weil, M., & Calhoun, E. (2009). <i>Models of Teaching</i>. Boston: Pearson. 6. Keller, J. M. (2010). <i>Motivational Design for Learning and Performance: The ARCS Model Approach</i>. London: Springer. 7. Moller, L., Huett, J. B., & Harvey, D. M. (2009). <i>Learning and Instructional Technologies for 21st Century: Vision of the Future</i>. New York: Springer. 8. Richey, R. C., Klein, J. D., & Tracey, M. W. (2011). <i>The Instructional Design Knowledge Base: Theory, Research and Practice</i>. New York: Routledge. 9. Riser, R. A., & Dempsey, J. Y. (2012). <i>Trends and Issues in Instructional Design and Technology, Third Edition</i>. New York: Pearson. 10. Rothwell, W. J., & Khazanas, M. (2004). <i>Mastering Instructional Design Process: A Systematic Approach</i>. San Francisco: Pfeiffer. 11. Schunk, D. H. (2012). <i>Learning Theories: An Educational Perspective (Teori-Teori Pembelajaran: Perspektif Pendidikan)</i> Edisi Keenam. Yogyakarta: Pustaka Pelajar. 12. Suparman, M. A. (2012). <i>Desain Instruksional Modern: Panduan Para Pengajar dan Inovator Pendidikan</i>. Jakarta: Erlangga. 13. Association for Educational Communications and Technology (AECT) http://aect.site-ym.com/ 14. Christopher R. Gareis, Leslie W. Grant. <i>Teacher-Made Assessments How to Connect Curriculum, Instruction, and Student Learning</i>. 2015. 15. David D. Williams (Editor). <i>“Online Assessment, Measurement And Evaluation_ Emerging Practices</i>. 2006. 16. Edmund W. Gordon, Kavitha Rajagopalan auth. <i>The Testing and Learning Revolution The Future of Assessment in Education</i>. 2016. 17. <i>Instructional Design.org</i> http://www.instructionaldesign.org/ 18. <i>Instructional Design Center (IDC)</i> http://www.instructionaldesigncentral.com/whatisinstructionaldesign 19. Jayne Bartlett. <i>”Outstanding Assessment for Learning in the Classroom”</i>. 2015. 				

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| | <ol style="list-style-type: none">20. Krathwohl, David R., "A Revision of Bloom's Taxonomy: An Overview", <i>Theory into Practice</i>, Vol. 41(4), 2002.21. Munzenmaier, Cecelia and Nancy Rubin, <i>Perspectives Bloom's Taxonomy: What's Old Is New Again</i>, (California: The e-Learning Guild, 2013).22. Susan M. Brookhart. "How to Create and Use Rubrics for Formative Assessment and Grading-Association for Supervision & Curriculum Development". 2013. |
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