UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNIVERSITAS GADJAH MADA

<table>
<tr><td>Module name</td><td>Computer Graphics</td></tr>
<tr><td>Module level</td><td>Undergraduate</td></tr>
<tr><td>Code</td><td>MII-2207</td></tr>
<tr><td>Courses (if applicable)</td><td>Computer Graphics</td></tr>
<tr><td>Semester</td><td>Fall (Ganjil)</td></tr>
<tr><td>Contact person</td><td>Drs. Janoe Hendarto, M.Kom.</td></tr>
<tr><td>Lecturer</td><td>Drs. Janoe Hendarto, M.Kom.
Arif Nurwidyantoro, M.Cs.</td></tr>
<tr><td>Language</td><td>Bahasa Indonesia</td></tr>
<tr><td>Relation to curriculum</td><td>Undergraduate degree program, mandatory, 3rd semester.</td></tr>
<tr><td>Type of teaching, contact hours</td><td>Undergraduate degree program: lectures, < 32 students, Friday, 14.30-17.00</td></tr>
<tr><td>Workload</td><td>1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week.
2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week.
3. Private study: 3 x 60 = 180 minutes (3 hours) per week.</td></tr>
<tr><td>Credit points</td><td>3 credit points (sks).</td></tr>
<tr><td>Requirements according to the examination regulations</td><td>A student must have attended at least 75% of the lectures to sit in the exams.</td></tr>
<tr><td>Recommended prerequisites</td><td>Calculus II, Fundamental Linear Algebra</td></tr>
<tr><td>Learning outcomes and their corresponding PLOs</td><td>After completing this module, a student is expected to:
<table>
<tr><td>CO-1</td><td>Knows and be able to understand the roles of computer graphics in everyday life</td><td>PLO3</td></tr>
<tr><td>CO-2</td><td>Knows and be able to understand the work principle and the technological development of computer graphics</td><td>PLO4</td></tr>
<tr><td>CO-3</td><td>Knows and be able to understand the basic algorithms of graphic primitives</td><td>PLO3</td></tr>
<tr><td>CO-4</td><td>Knows and be able to understand the basic concepts and transformations of 2-dimensional (2D) objects</td><td>PLO3</td></tr>
<tr><td>CO-5</td><td>Knows and be able to understand the basic concepts, methods, representations, and display techniques of 3-dimensional (3D) objects</td><td>PLO3</td></tr>
<tr><td>CO-6</td><td>Knows and be able to understand animation and graphic design</td><td>PLO4</td></tr>
<tr><td>CO-7</td><td>Knows and be able to create computer programs to draw 2D objects, 3D objects, and animation</td><td>PLO5</td></tr>
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<tr><td></td><td></td></tr>
<tr><td>Content</td><td>In this course, students are introduced to graphic systems: software and hardware, graphic's elements (both two-dimensional or three dimensional). Students are also introduced to how to draw and manipulate these kinds of objects.</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>Assignments, midterms examination, and final examination.</td></tr>
<tr><td>Media employed</td><td>LCD, blackboard, websites, and programming tools</td></tr>
<tr><td>Assessments and Evaluation</td><td>
<table>
<tr><th>CO</th><th>Evaluation Method</th><th>Type</th><th>Percentage</th></tr>
<tr><td>CO-1</td><td>Assignment 1 – Essay</td><td>Formative</td><td>5%</td></tr>
<tr><td>CO-2</td><td>Problem no 1 UTS</td><td>Summative</td><td>5%</td></tr>
<tr><td></td><td>Assignment 2 – Essay</td><td>Formative</td><td>5%</td></tr>
<tr><td>CO-3</td><td>Problem no 2 UTS</td><td>Summative</td><td>10%</td></tr>
<tr><td>CO-4</td><td>Problem no 3 UTS</td><td>Summative</td><td>5%</td></tr>
<tr><td></td><td>Problem no 4 UTS</td><td>Summative</td><td>10%</td></tr>
<tr><td>CO-5</td><td>Problem no 1 UAS</td><td>Summative</td><td>10%</td></tr>
<tr><td></td><td>Problem no 2 UAS</td><td>Summative</td><td>10%</td></tr>
<tr><td>CO-6</td><td>Problem no 3 UAS</td><td>Summative</td><td>5%</td></tr>
<tr><td></td><td>Problem no 4 UAS</td><td>Summative</td><td>10%</td></tr>
<tr><td></td><td>Assignment 7</td><td>Formative</td><td>5%</td></tr>
<tr><td>CO-7</td><td>Assignment 3 – Programming</td><td>Formative</td><td>5%</td></tr>
<tr><td></td><td>Assignment 4 – Programming</td><td>Formative</td><td>5%</td></tr>
<tr><td></td><td>Assignment 5 – Programming</td><td>Formative</td><td>5%</td></tr>
<tr><td></td><td>Assignment 6 – Programming</td><td>Formative</td><td>5%</td></tr>
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<tr><td>Reading List</td><td>

Hearn, D dan Baker M.P., 1997, *Computer Graphics*, Prentice Hall, Inc., New Jersey.

Shirley P., Ashikhmin M., dan Marschner S., 2009, *Fundamentals of Computer Graphics*, A K Peters

Asthana, R.G.S. dan Sinha, N.K., 2001, *Computer Graphics For Scientists and Engineers*, New Age International Ltd., New Delhi.

Ammeraal L., dan Kang Z., 2007, *Computer Graphics for Java Programmer*, *2nd Edition*, Wiley,

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