

**West Linn–Wilsonville School District**  
**The Arts (Communications/Technology) – Course Statement**

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| <b><u>Course Title: Computer Animation I</u></b> |                                   |
| <b>Length of Course:</b>                         | Semester                          |
| <b>Number of Credits:</b>                        | 1                                 |
| <b>Grade Level:</b>                              | 9, 10, 11, 12                     |
| <b>Prerequisites:</b>                            | None                              |
| <b>CIM Work Samples</b>                          |                                   |
| <b>Offered in Course:</b>                        | Writing and speaking work samples |
| <b>Date of Description/Revision:</b> 2006        |                                   |

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| <b>Course Overview</b> |  |
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This course introduces students to computer animation. Students will learn about the following topics: animation basics of the coordinate system, perspective and orthographics, foundations of modeling, geometry pipeline, foundations of animation, compound objects, mesh modeling, patch modeling, advanced modeling, foundations of materials, mapping, cameras and lights, forward kinematics, controllers and constraints, character modeling, character animation, and special effects. Students will use the computer program *3ds Max*. Students will produce projects for each of the topics and will maintain personal electronic portfolios, which will include all of their work throughout the semester.

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| <b>Essential Questions</b> | <b>Concepts providing focus for student learning</b> |
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- What is animation?
- Why do we create?
- What are modifiers?
- What is an animator?
- What is data flow?
- What is keyframing?
- What is mesh modeling?
- What is patch modeling?
- What are material maps?
- How do you control lights and cameras in an animation?
- What are hierarchies in animation?
- How do you use controllers and constraints?
- How do you create character modeling?

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|   |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
|---|---------|---|--------|----------------------------|--------|----------------------|--------|-----------------------------|--------|---------------------|--------|------------------|--------|-------------------|---------|---------------------|--------|----------------------------|---------|----------------------|--------|-----------------------|--------|-----------------------|--------|--------------------------------|--------|------------------------|---------|--------------------|--------|
| <b>Proficiency Statements</b>   |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| <p>Upon completion of course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Create a variety of computer modeling techniques used in animation computer characters.</li> <li>• Understand how animation programs work.</li> <li>• Understand the complex methods of creating an animation.</li> <li>• Create computer characters.</li> <li>• Evaluate how the popular media are used to tell a story.</li> <li>• Demonstrate knowledge of use of <i>AutoCAD</i>, <i>3ds Max</i>, computers, and editing programs.</li> <li>• Evaluate the strengths and weaknesses of their own work and the works of others using critique skills.</li> </ul>   |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| <b>General Course Topics/Units &amp; Timeframes</b>   |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 80%;">A. Introduction to Use of <i>AutoCAD</i> and <i>3ds Max</i></td><td style="text-align: right;">1 week</td></tr> <tr><td>B. Foundations of Modeling</td><td style="text-align: right;">1 week</td></tr> <tr><td>C. Geometry Pipeline</td><td style="text-align: right;">1 week</td></tr> <tr><td>D. Foundations of Animation</td><td style="text-align: right;">1 week</td></tr> <tr><td>E. Compound Objects</td><td style="text-align: right;">1 week</td></tr> <tr><td>F. Mesh Modeling</td><td style="text-align: right;">1 week</td></tr> <tr><td>G. Patch Modeling</td><td style="text-align: right;">2 weeks</td></tr> <tr><td>H. Advance Modeling</td><td style="text-align: right;">1 week</td></tr> <tr><td>I. Foundation of Materials</td><td style="text-align: right;">2 weeks</td></tr> <tr><td>J. Materials Mapping</td><td style="text-align: right;">1 week</td></tr> <tr><td>K. Cameras and Lights</td><td style="text-align: right;">1 week</td></tr> <tr><td>L. Forward Kinematics</td><td style="text-align: right;">1 week</td></tr> <tr><td>M. Controllers and Constraints</td><td style="text-align: right;">1 week</td></tr> <tr><td>N. Character Animation</td><td style="text-align: right;">2 weeks</td></tr> <tr><td>O. Special Effects</td><td style="text-align: right;">1 week</td></tr> </table> |         | A. Introduction to Use of <i>AutoCAD</i> and <i>3ds Max</i> | 1 week | B. Foundations of Modeling | 1 week | C. Geometry Pipeline | 1 week | D. Foundations of Animation | 1 week | E. Compound Objects | 1 week | F. Mesh Modeling | 1 week | G. Patch Modeling | 2 weeks | H. Advance Modeling | 1 week | I. Foundation of Materials | 2 weeks | J. Materials Mapping | 1 week | K. Cameras and Lights | 1 week | L. Forward Kinematics | 1 week | M. Controllers and Constraints | 1 week | N. Character Animation | 2 weeks | O. Special Effects | 1 week |
| A. Introduction to Use of <i>AutoCAD</i> and <i>3ds Max</i>   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| B. Foundations of Modeling  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| C. Geometry Pipeline  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| D. Foundations of Animation   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| E. Compound Objects   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| F. Mesh Modeling  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| G. Patch Modeling   | 2 weeks |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| H. Advance Modeling   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| I. Foundation of Materials  | 2 weeks |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| J. Materials Mapping  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| K. Cameras and Lights   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| L. Forward Kinematics   | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| M. Controllers and Constraints  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| N. Character Animation  | 2 weeks |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| O. Special Effects  | 1 week  |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| <b>Resources</b>  |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |
| <ul style="list-style-type: none"> <li>• Software: <i>3ds Max</i>; IMAGINiT Technologies</li> <li>• Text: <i>Foundations of 3ds Max 6</i>, Aaron Ross, Autodesk Press, 2004</li> </ul>  |         |   |        |                            |        |                      |        |                             |        |                     |        |                  |        |                   |         |                     |        |                            |         |                      |        |                       |        |                       |        |                                |        |                        |         |                    |        |