PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

ADVANCED MICROSTATION
CID 2130

Class Hours: 3.0                         Credit Hours: 4.0
Laboratory Hours: 3.0                    Date Revised: Fall 2001

NOTE: This course is not designed for transfer credit.

Catalog Course Description:

An advanced course in the use of MicroStation. MicroStation Modeler is taught as a 3-D design tool. The student will be able to construct three-dimensional design models and transfer the model information to two-dimensional files for dimensioning, annotating, cross-hatching to create traditional mechanical drawings. Other subjects covered include menu and workspace customizing, rendering, animation, and BASIC programming.

Entry Level Standards:

Must have college level English and math skills.

Prerequisite:

CID 1210 or 1220

Textbook(s) and Other Reference Materials Basic to the Course:

The MicroStation Modeler Workbook, Ward, Michael K. and Arroyo, Mike A.

I. Week/Unit/Topic Basis:

(This schedule may vary slightly depending on the progress of the class.)

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to Modeling on MicroStation Modeler</td>
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<tr>
<td>2</td>
<td>Profile Creation with SmartLine and AccuDraw</td>
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<tr>
<td>3</td>
<td>Introduction of 3D View Controls, Design Space, And Active Depth</td>
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<td>4</td>
<td>Parametric Solid Modeling</td>
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<tr>
<td>5</td>
<td>Revolved and Free-Form Solids</td>
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<tr>
<td>6</td>
<td>Dimension Driven Design Profiles</td>
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<tr>
<td>7</td>
<td>Dimension Driven Cells</td>
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</table>
II. Course Objectives*

A. Construct 3-D models using MicroStation Modeler. II
B. Customize workspace. II, III, V, VI
C. Customize Menus. II, III, V, VI
D. Create rendering schemes. II, III
E. Create animation schemes. II, III
F. Understand the fundamental of BASIC (a programming language) for creating menus and macros. II, III, V
G. Comprehend assembly drawings in engineering practices. I

*Roman numerals after course objectives reference goals of the CID program.

III. Instructional Processes*

Students will:

1. Use critical thinking to solve problems dealing with drawings. Problem Solving and Decision Making Outcome, Numerical Literacy Outcome
2. Use the Internet and electronic mail to communicate effectively between the instructor and other students. Technological Literacy Outcome, Communication Outcome
3. Develop set of individual working drawings for an assembly project. Problem Solving and Decision Making Outcome, Technological Literacy Outcome
4. Draw complete assembly set. Active Learning Strategies, Technological Literacy Outcome
5. Create and animate rendered images. Technological Literacy Outcome, Active Learning Strategies, Communication Outcome, Transitional Strategy
6. Create and modify workspace components: the project configuration, the user configuration, and the user interface. Technological Literacy Outcome
7. Customize the function keys. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome*

8. Create custom line styles. *Technological Literacy Outcome*

9. Create a set of simple menu items using BASIC programming commands. *Numerical literacy outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

**IV. Expectations for Student Performance**: Upon successful completion of this course, the student should be able to:

1. Set software and environment variable to create a seed file.  A
2. Demonstrate knowledge of parametric solid modeling tools (Polygons, ellipses, complex shapes, projections, b-spine curves, revolved solids and boolean operations).  A
3. Create 3 dimensional models of mechanical parts.  A, G
4. Utilize sheet views to produce 2 dimensional drawings from the models.  A, G
5. Create user workspace name.  B
6. Set user preferences through Preference dialog box.  B
7. Change necessary configuration variables.  B
8. Modify or create a new tool box.  C
9. Set or create a new tool frame.  C
10. Modify the pull-down menus.  C
11. Change the view border tools.  C
12. Create a 3D drawing.  D
13. Set up Cameras.  D
14. Place light sources.  D
15. Decide on a rendering method.
16. Render drawing and change settings to improve rendering.  D
17. Define keyframes to specify the location of geometry at certain positions.  E
18. Create, edit and save the script.  E
19. Preview and record the script.  E
20. Understand the standard BASIC language keywords.  F
21. Open the BASIC editor. F
22. Write BASIC code. F
23. Debug program using the BASIC Editor debugger icons. F
24. Run, test, and adjust routine. F
25. Utilize the model to reference individual parts to create an assembly drawing. G

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures: 70% of grade

   A number of quizzes will be given at the discretion of the instructor counting for 10% of the total grade.
   Mid-term exam: 30% of total grade
   Final exam: 30% of total grade
   Quizzes: 10% of total grade

B. Laboratory Expectations: 30% of grade

   Students will be evaluated on the correctness of their drawings/work and on final set of working drawings of a project.

C. Field Work:

   N/A

D. Other Evaluation Methods:

   N/A

E. Grading Scale:

   A  90 -- 100
   B+ 86 -- 89
   B  80 -- 85
   C+ 76 -- 79
   C  70 -- 75
   D  60 -- 69
   F  < 60

VI. Policies:

   Attendance Policy:

   Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.