San José State University
Department of Design / Industrial Design Program
DSID 136, Advanced Digital Workshop, Section 02, FA17

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Prof. Josh Nelson</th>
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<tbody>
<tr>
<td>Office Location:</td>
<td>Art 231</td>
</tr>
<tr>
<td>Telephone:</td>
<td>(408) 924-4376</td>
</tr>
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<td>Email:</td>
<td><a href="mailto:joshua.nelson@sjsu.edu">joshua.nelson@sjsu.edu</a></td>
</tr>
<tr>
<td>Office Hours:</td>
<td>M/W 11:00am - 12:00pm</td>
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<tr>
<td>Class Days/Time:</td>
<td>M/W 12:00pm - 2:50pm</td>
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<tr>
<td>Classroom:</td>
<td>ART 103</td>
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<tr>
<td>Prerequisites:</td>
<td>DSID 129</td>
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Canvas Course Management Website & Course Format

This course uses a hybrid method of teaching. A hybrid course means that there are components of the course that are done in the classroom and other components that require using the online course management system. Course materials such as the syllabus, assignment handouts, grading, etc. may be found on the DSID 136 course Canvas website. You may find your link to this website on MySJSU, along with your login/password info. You are responsible for regularly checking with the messaging system in Canvas for course updates, assignments, etc. All class correspondence and grading will also be managed through the class Canvas site. If you do not check Canvas often, you should set up your email forwarding to forward all class correspondence to your preferred email address. You must have access to a computer and the internet to be able to access the Canvas site. You may also use a tablet or your phone. Some assignments will be required to be turned in on Canvas, in which case you will need to have access to some basic software such as MS Office (MS Word) or some writing software, Adobe Acrobat, and basic scanning software for scanning sketches to upload to the assignment portal. See University Policy F13-2 at http://www.sjsu.edu/senate/docs/F13-2.pdf for more details.

Course Description:

Advanced Digital Workshop will focus on enhancing the SolidWorks skills that the student acquired in DSID 129 Visualization III. Visualization III introduced solid, parametric, feature-based and history-based modeling. This semester will introduce complex surface modeling, which will allow the student to create 3D shapes that were not possible to create using only solid modeling.
Course Goals:

Student Learning Objectives
DSID 136 is divided into six projects assigned to develop the following skills:

1. Convert previous 2D concepts and renderings into 3D CAD.
2. Visualize and create completely new concepts in 3D CAD.
3. Produce complex, organic shapes.
4. Create simple photorealistic renders

Course Learning Outcomes (CLO)
Upon successful completion of this course, students will be able to:

LO1 Create surface parts using basic features such as extrusions, fillets, knits and trims.
LO2 Create surface parts using advanced features such as splines, boundaries, lofts, sweeps, shells, mirrors and patterns.
LO3 Convert 2D concepts into 3D CAD models.
LO4 Design parts parametrically, so that they can be easily modified.
LO5 Plan design work with the aid of layout sketches.
LO6 Design parts with multiple bodies.
LO7 Design parts with multiple configurations.
LO8 Control the design of several parts with the use of a master model.
LO9 Create photo-renders of parts and assemblies.
LO10 Diagnose errors and be able to correct them.
LO11 Model Simple Sheet Metal Parts
LO12 Model Simple Plastic Parts

Required Texts/Readings

Recommended Textbooks

1) SolidWorks Surfacing and Complex Shape Modeling by Matt Lombard. ISBN 978-0-470-25823-1. The paperback version is now out of print. The Kindle version is available on Amazon for $28.49. Several course tutorials will come from this book, but will be provided to you on Canvas.

2) SolidWorks 2013 Bible by Matt Lombard. ISBN: 978-1118508404. Paperback or e-book is available on Amazon.com

Required Software

SolidWorks 2017-2018 Student Edition (SE) (Free through SJSU)
**Required Computer Hardware**

1. Laptop computer capable of running SolidWorks
2. 2GB RAM minimum
3. 15% hard drive space free at all times
4. 3+ button Mouse

**Other suggested materials**

1. Lightboard for tracing underlays.
2. Scanner for importing sketches and drawings
3. 5+ Button Mouse with customized buttons (Esc, Backspace, Undo, Control)
4. Digital Metric/Inch Calipers, $20.00

**Useful Websites**

Solidworks Forum (Official Help Forum) [http://forum.solidworks.com](http://forum.solidworks.com)
3D Content Central (3D Model Bank) [http://www.3dcontentcentral.com](http://www.3dcontentcentral.com)
Product Design Forums [http://www.productdesignforums.com](http://www.productdesignforums.com)
Solid Smack (3D Modeling Blog) [http://www.solidsmack.com](http://www.solidsmack.com)
Engineering Tips (3D CAD Products Forum) [http://www.eng-tips.com](http://www.eng-tips.com)
Core77 (Industrial Design Site) [http://www.core77.com](http://www.core77.com)
Rob Rodriguez (Rendering Expert) [http://www.robrodriguez.com](http://www.robrodriguez.com)
Solidworks for Industrial Designers (SFSU) [http://www.swxdesign.com](http://www.swxdesign.com)
Dezignstuff (Matt Lombard’s website) [http://www.dezignstuff.com/blog](http://www.dezignstuff.com/blog)
McMaster Carr (OTS Hardware Vendor) [http://www.mcmaster.com](http://www.mcmaster.com/)

**Library Liaison**

Rebecca Kohn, Liaison Librarian for Design Department
Email: Rebecca.Kohn@sjsu.edu
Phone: (408) 808-2007

**Classroom Protocol**

The most important factor in learning Solidworks is the amount of time spent interacting with the software. It is crucial that the student gain experience in class where questions can be answered and problems averted. Failure to attend class or to focus in class can lead to late nights of panic and frustration. A productive hour in class can often be worth the same as three or four hours of struggling on one’s own.

Active participation in class activities is a significant factor in a student’s success in the Industrial Design program. Active learning facilitates mental growth, skill enhancement, creates a life long learner and improves the goals of becoming a good designer. Students are expected to be on time to class. Arriving late to class without prior arrangement and approval from the professor is considered disruptive. If the student cannot be in the classroom by the start of class, please do not interrupt the class in session by entering the
classroom. If a student encounters any problems that inhibit their ability to participate in the class, please provide as much advance notice as possible to the instructor so that he/she may respond and inform the student in a timely manner. Students are to be respectful of the professor and their peers and any disruptive activities in the classroom will result in the student being asked to leave the class.

Cell phones, tablets, and even laptops can be disruptive and inconsiderate to your classmates and the instructor. Unless it is being used for a class activity, please turn off all electronic devices that can potentially disrupt class. **Phones are NOT permitted in this class** and you will be asked to turn off and store your phone at the start of each class. If you disrupt or withdraw from class activities due to your inability to silence and ignore any of these devices, it will count against the participation portion of your final grade and you may be asked to leave the classroom. Additionally, talking in class during a lecture is considered disruptive to the class and will adversely affect the participation grade and you may be asked to leave the classroom. If emergency personal issues (documented family, medical, etc) require you to leave your phone on, please make arrangements with the instructor prior to and in advance of the start of class.

Students are expected to leave the classroom in a clean condition at the end of each class meeting so that the next class has an organized, clean room waiting for them.

**Assignments and Grading Policy**

**Tutorials**

Students must complete several SolidWorks tutorials, which are designed to help them gain confidence with certain skills and concepts before they tackle the more challenging projects. Most of the tutorials are supported by detailed instructions, videos, and completed examples, so students should be able to complete them outside of class. However, some time and assistance will be provided in class. Tutorials should be uploaded to Canvas for grading, unless otherwise specified by the instructor.

**Projects**

Students will also be assigned several projects throughout the semester. Unlike tutorials, which are “programmed” to always have the same outcome, projects are guided by themes and objectives. Like design projects in other classes, completed projects will be unique for each student. This makes the projects especially challenging, so ample time will be made available in class to work on them. Students are encouraged to take advantage of in-class time to receive help that will be tailored to their specific project issues. Most projects will require some outside-of-class time for completion.

Projects 1 will be a simple one that will take off where DSID 129 left off. It will cover plastic part design.

Projects 2 and 3 will focus on teaching the students to build complex surface models. This will teach students how to build shapes that would be otherwise difficult, if not
impossible, to create using solid modeling techniques. The skills needed for these projects will be developed through several surfacing tutorials.

Projects 4, 5 and 6 are the three phases of the Indie Project. Students will have the opportunity to conceive a complex object, construct it in Solidworks, and finally, create a photo rendering of it. Ideally, the results of this project will be suitable for a student’s portfolio. Further details of this project will be introduced about 5-6 weeks into the semester.

**Grading Policy**

Grading is weighted as follows (percentages are approximate and may be adjusted during the semester):

- **Tutorials:** 15%
- **Projects 1-3:** 35%
- **Final Project 4-6:** 50%

Grading will follow the standard SJSU A-F system.

- A+, A, A- / 100+ - 91% / Excellent
- B+, B, B- / 90 – 81% / Above Average
- C+, C, C- / 80-71% / Average
- D / 70-61% / Below Average
- F / Below 61% / Failure

**Project Due-Dates and Late Policy**

Students are expected to be familiar with the syllabus and to know when projects are due.

- Tutorials are due in the class session that follows the one in which they were assigned.
- Projects are to be deposited into Canvas no later than 11:59PM on the due date, unless otherwise specified by the instructor.
- All assignments are due on time. No late work is accepted.
- Extra credit is not possible in this course as the workload is significant enough.
- A passing grade (for receiving university credit for the requirement) in this course is a D-, however, D- project work will usually not pass the next required Portfolio Project 3 course.

**University Policies**

SJSU’s Office of Graduate and Undergraduate Programs maintains university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. You may find all syllabus related University Policies and resources information listed on [GUP’s Syllabus Information Web Page](http://www.sjsu.edu/gup/syllabusinfo/).
Student Technology Resources

It is a requirement for ID students to have their own computer with the required software for this course and it is required that by their 5th semester that all ID students have a large format printer (11”x17” or 13”x19”). A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

Both Solidworks and Adobe Creative Suite licenses have been available through the SJSU Adobe software program for faculty, staff, and students. Students can access Adobe Creative Suite 6 Design and Web Premium, and should be able to download it from http://its.sjsu.edu/services/adobe/. Adobe Creative Suite 6 Design and Web Premium includes: Photoshop CS6 Extended, Illustrator CS6, InDesign CS6, Dreamweaver CS6, Flash® Professional CS6, Fireworks® CS6, Acrobat® X Pro, Bridge CS6, Media Encoder CS6. Solidworks access will be given to students at the start of the semester. Follow instructions for downloading.
### DSID 136 / Advanced Digital Workshop, Sec 02 / FA17

#### Course Schedule

*Schedule is subject to change with fair notice (one week) in class or via notice on Canvas.*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Demos, Assignments, Deadlines, Presentations</th>
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</thead>
</table>
| 1    | W 8/23   | **Assignment:** P1: Plastic Housing with Draft  
Due: T1 - Surfaces 1: SW Nozzle (Solidworks built-in tutorial)  
**This Week’s Lecture Topics:**  
Review of Syllabus  
Introduction to surfaces  
Customizing the menus |
| 2    | M 8/28   | **Assignment:** P4-A: Independent Project Proposal  
Due: T2 - Plastics 1: Plastic Features (Draft, Ribs and Bosses)  
W 8/30 Due: T3 - Surfaces 2: Fill Surfaces |
|      |          | **This Week’s Lecture Topics:**  
Draft angles  
Ribs  
Surface Trim  
Surface Types: Extruded, Revolved, Swept, lofted, boundary & Planar |
| 3    | M 9/4    | **NO CLASS - Labor Day** |
|      | W 9/6    | Due: T4 - Fillets 1: Fillet Types  
Due: T5 Surfaces 3: iPhone  
**This Week’s Lecture Topics:**  
Advanced Fillets  
Surface Continuity  
Surfacing Strategies  
Avoiding Degenerate Points |
| 4    | M 9/11   | **Due:** P1: Plastic Housing with Draft  
**Assignment:** P2: Efebo Chair  
Due: T6 - Surfaces 4: Bike Seat with Surfaces  
W 9/13 Due: P4-A: Independent Project Proposal  
**Assignment:** P4-B: Independent Project Presentation  
Due: T7 - 3D 1: Cables |
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activities</th>
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<tbody>
<tr>
<td>5</td>
<td>M 9/18</td>
<td><strong>Due</strong>: T8 Surfaces 5: Light Bulb</td>
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<td></td>
<td>W 9/20</td>
<td><strong>Due</strong>: T9 - Assemblies 1: Advanced Assemblies (engine)</td>
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</tbody>
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| 6    | M 9/25| **Assignment**: P3: Blow Molded Bottle  
|      |       | **Due**: P2: Efebo Chair  
|      |       | **Due**: T10 - Surfaces 6: Food Container with Configurations |
|      | W 9/27| **Due**: T11 - Surfaces 7: Bottle with Side Indents |
| 7    | M 10/2| **Due**: T12 - Surfaces 8: Fabric Treatment Bottle |
|      | W 10/4| **Due**: T13 - Surfaces 9: Twisted Detergent Bottle |
| 8    | M 10/9| **Due**: P4-B: Independent Project Final Selection  
|      |       | **Assignment**: P4-C: Initial Layout Sketches |
|      | W 10/11| **No Projects Assigned or Due** |
| 9    | M 10/16| **Due**: P4-C: Initial Layout Sketches  
<p>|      |       | <strong>Assignment</strong>: P4-D: Final Layout Sketches |</p>
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<thead>
<tr>
<th>Date</th>
<th>Due</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>W 10/18</td>
<td><strong>P3: Blow Molded Bottle</strong></td>
<td>This Week’s Lecture Topics: Patterns</td>
</tr>
<tr>
<td>10 M 10/23</td>
<td><strong>P4-D: Final Layout Sketches</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>W 10/25</td>
<td><strong>T14 - Indie 1-17: Independent Project Tutorials (choose two)</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
</tr>
<tr>
<td>11 M 10/30</td>
<td><strong>T14 - Indie 1-17: Independent Project Tutorials (choose two)</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>W 11/1</td>
<td><strong>P5: Indie Surfacing</strong> <strong>T15 - Indie 1-17: Independent Project Tutorials (choose two)</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>12 M 11/6</td>
<td><strong>T15 - Indie 1-17: Independent Project Tutorials (choose one)</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>W 11/8</td>
<td><strong>No Projects Assigned or Due</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>13 M 11/13</td>
<td><strong>Indie Check-ins 1</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>W 11/15</td>
<td><strong>Indie Check-ins 2</strong></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>14 M 11/20</td>
<td><strong>T16 - Rendering 1</strong> <strong>P6: Indie Rendering</strong></td>
<td>This Week’s Lecture Topics: Rendering</td>
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<tr>
<td>W 11/22</td>
<td><strong>NO CLASS - Non-instructional holiday</strong></td>
<td>This Week’s Lecture Topics: Rendering</td>
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<td></td>
<td>Date</td>
<td>Lecture Topic</td>
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<td>15</td>
<td>M 11/27</td>
<td>Due: T17 - Rendering 2</td>
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<td></td>
<td>W 11/29</td>
<td>No Projects Assigned or Due</td>
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<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>16</td>
<td>M 12/4</td>
<td>Indie Check-ins 1</td>
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<tr>
<td></td>
<td>W 12/6</td>
<td>Indie Check-ins 2</td>
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<tr>
<td></td>
<td></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>17</td>
<td>M 12/11</td>
<td>Last Day of Instruction</td>
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<tr>
<td></td>
<td></td>
<td>No Projects Assigned or Due</td>
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<tr>
<td></td>
<td></td>
<td>This Week’s Lecture Topics: Working on Indie in Class</td>
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<tr>
<td>18</td>
<td>T 12/19</td>
<td>Final Exam 9:45am-12:00pm</td>
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<tr>
<td></td>
<td></td>
<td>Due: P5: Indie Surfacing</td>
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<tr>
<td></td>
<td></td>
<td>Due: P6: Indie Renders</td>
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