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**442 DIGITAL PRESENTATION – 3D PRINTING, INDESIGN & SKETCHUP ANIMATION**

**COURSE:** 4 Class periods for 3D printing  
 4 Class periods for InDesign  
 4 Class periods for SketchUP Animation

**Recurring Google Meet link:** [meet.google.com/dvt-yijq-dzq](https://meet.google.com/dvt-yijq-dzq)

**SOFTWARE:** TinkerCAD, Cura, InDesign, Photoshop, SketchUp & Enscape

**REQUIRED HARDWARE:** USB flash memory dedicated to this class only - 16GB minimum  
 Students working from their own computers must have a three click mouse with a scroll wheel.

**STUDENT WORK PRODUCT:** All student work produced for this class will be gathered by the professors and will not be returned to students. If you wish an additional copy of your work, please arrange for such copies independent of what you turn in for grading.

**LATE WORK:** Late work will only be accepted up to one week after the due date. All late work will be deducted half credit and will be subject to further point deduction based on any missing items from the grading requirements. No points will be given for late work past one week from the original due date. No late work will be accepted for quizzes or the Final Sketchup UP Animation Project.

**GRADING:**

3D Printing	50 points
InDesign	50 points
<u>SketchUP</u>	<u>50 points</u>
Total	150 points

<u>Percent</u>	<u>Point Range</u>	<u>Letter Grade</u>
90	135-150	A
80	120-134	B
70	105-119	C
60	90-104	D
0	0-75	F

**ATTENDANCE:** Each student may have two total absences. However, more than two consecutive class meeting absences or three non-consecutive class meeting absences per course may result in the student being withdrawn from the course. Attendance is considered an important habit to acquire in becoming a mature, responsible member of the professional community.

**CLASS 1: [3D Printing] 3D Printing From a Drawing:**

**Lecture:**

*Basics of TinkerCAD*  
*Signup and Login*  
*Drawing Area*  
*Grid*  
*Shapes*  
*Mirror Tool*  
*Rotate Tool*  
*Ruler Tool*  
*Align Tool*  
*Align and Rotate Tools*

**Exercise:**

*Complete TinkerCAD Tutorials*

**Assignment 1.1 - 10 points:**

*Create at least 3 simple objects in Tinkercad before 2<sup>nd</sup> class*  
*Combine several shapes*  
*Explore additional tools*  
*Objects you would like to print should not exceed 3 cubic inches*  
*Review help files and videos if needed*

**CLASS 2: [3D Printing] Slicing and Existing Models:**

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**Due at the beginning of class: Assignment 1.1 digital files**

**Lecture:**

*Cura*  
*Quality*  
*Materials*  
*Support*  
*Brim*  
*Model warehouses*

*Thingiverse.com*  
*3dwarehouse.sketchup.com*  
*Youmagine.com*  
*GrabCad.com*  
*Fabster.com*

**Assignment 1.2 - 10 points:**

*Modifying existing models – keyfob*

**CLASS 3: [3D Printing] Intermediate Slicing and Model Considerations:**

**Due at the beginning of class: Assignment 1.2 digital files**

**Lecture:**

*Cura*  
*Layer Height*  
*Infill*  
*Speed*  
*Support types*  
*Retraction*

**Assignment 1.3 - 20 points:**

*Final assignment: Create a model that could be used to show to a client.*  
*It can be art, furniture, jewelry, fashion, fixture, or architecture.*

**CLASS 4: [3D Printing] Advanced Discussion (Flex Day - Remove class at 11 week term):**

**Due at beginning of class: Assignment 1.3 digital files**

**Due at end of class: Assignment 1.2 3D Printed Object**

**Lecture:**

*Simplify3D*  
*Multiple model placement*  
*Multiple filaments*  
*Infill variations*

**Exercise:**

*Additional work on assignment*

**Quiz 1.4 - 10 points:**

*Model Prep and Slicing*

**CLASS 5: [InDesign] Introduction to InDesign:**

**Grading this section:**

Quiz 2.1 = 5 (online quiz)  
Quiz 2.2 = 5 (online quiz)  
Quiz 2.3 = 5 (vr loaded to website)  
Assignment 2.1 = 10 (sketching)  
Assignment 2.2 = 10 (indesign project)  
Assignment 2.3 = 10 (vr spherical panorama)  
Attendance = 5

**Lecture:**

Document setup: file, new document, set units, set pages, no bleed or slug, 0.5 margins, create - inches, 17, 11, 4 pages  
Docking and undocking: panels, tabs, bars, drag by tab or drag by title bar  
Hide default workspace: tab key  
Rulers: view, show rulers or hide rulers - ctrl+R  
Guides: drag from ruler, shift key to constrain location  
View and preview: bottom of tool panel, press and hold button, normal or preview  
Bail out: strike "V", click in open space, activates the selection tool - esc, V  
Master pages: pages tab panel, double click white box at left of "A-Master" in pages tab panel  
Assign master pages: pages tab panel, right click page box, choose apply master to pages, at apply master choose a set up master or none, choose to pages, page number or all pages

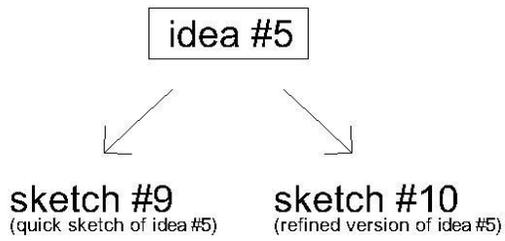
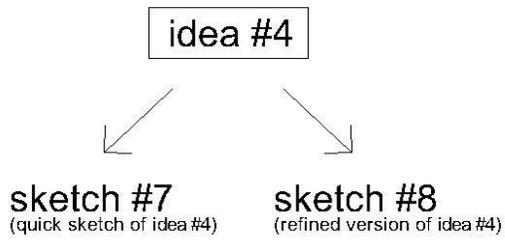
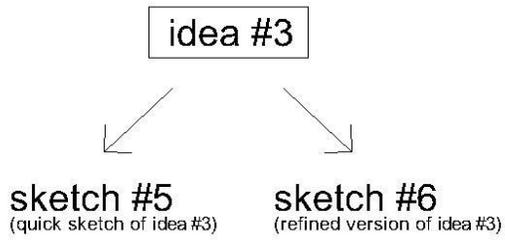
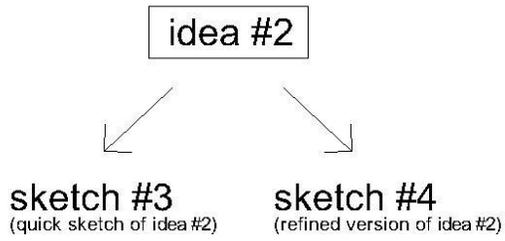
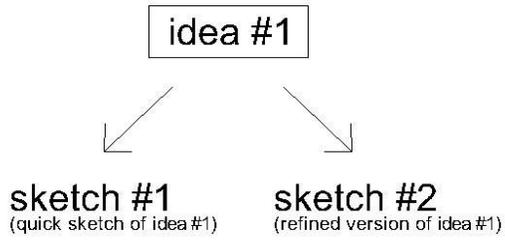
**Exercise:** Create a (4) page 11x17 document, a master page, and assign the master page to the document pages.

**Reading example and Reading quiz example questions:** Find pdf files on M Drive, InDesign Student Reading.pdf

**Assignment 2.1:** Hand sketches on paper showing title block and logo idea for 10 points

10 sheets of sketching required  
5 different ideas sketched on 2 pages (3 title blocks & 2 logos or 3 logos & 2 title blocks)  
First sketch contains initial idea, Second sketch contains refined version of idea  
Sketches must be professional, neat, clear, and understandable to the professor  
(if you are unsure meet with the professor in advance of the beginning of class due date)

(See diagram next page)



Points will be awarded in the following way:

- + 10 points for all requirements are met for the assignment in every way
- 2 points for each deficiency
- + 0 points if more than one or all sheets of sketches missing

**Reading for quiz 2.1:** Find pdf file on Google Classroom, InDesign Student Reading.pdf

### **CLASS 6: [InDesign] Implementation:**

**Quiz 2.1:** on assigned reading for 5 points

**Due at the beginning of Class Assignment 2.1:** grading of assignment explained in class 5

### **Lecture:**

Text frame: click type tool, click-hold & drag, release, type text, esc - strike T, esc

Relocate text frame: click selection tool, click text frame, click-hold and drag, release

Zoom: click zoom tool, single click, click-hold and drag, release, right click options - Z

Hand tool: click hand tool, click-hold & drag, release - strike H, or space bar click & drag

Frame Tool: click frame tool, click-hold and drag, release - M, shift to constrain

Place Image: select frame, file, place, browse for file, select, open - ctrl+D

Links panel: same panel as pages tab, scroll down for image data

Re-link: links panel, right click at error symbol, re-link, browse for file

Fitting: selection tool, click frame, right click, choose fitting, choose fitting option

Fitting custom: double click frame, use grips

Crop custom: click on image inside frame, click on circle in middle (content grabber), hand appears, click-hold & drag, release, to crop as desired

Polygon Frame Tool: click hold on rectangle frame tool, other tools appear, click on polygon frame tool, tool shows in toolbar, double click icon for options - 0% star inset for polygons otherwise a star, direct select for grips to modify

Fill & Stroke: fill and stroke pallets at toolbar, stroke tab pallet, color or fill tab pallet - stroke palette tab; stroke alignment and join, stroke mitre limit for clipped points or corners

View quality: view, display performance

If time:

Image text: create text, select text box, go to type, choose create outlines, place image - multiple lines may have to be selected individually and placed

Effects: go to; window, effects, opacity, blending

Line: line tool, stroke, select stroke color, color

**Exercise:** Complete the (4) page 11x17 document, using the images provided, practice lecture items above, or you may begin work on assignment 2.2

**Assignment 2.2:** Create a 2 page 11x17 resume, mood board, or portfolio for 10 points  
Assignment to be turned in as a PDF and as an InDesign file.

2 pages

Sketch of layout idea

Images and text on each page

Title block and logo

Be creative

There are no other rules than those listed here

Points will be awarded in the following way:

+ 10 points for all requirements are met for the assignment in every way

- 2 points for each deficiency

+ 0 points if any file is missing in requirements

**Reading for quiz 2.2:** Find pdf file on Google Classroom, InDesign Student Reading.pdf

**CLASS 7: [VR 1] Model and Image:**

**Due at the beginning of class Assignment 2.2:** grading of assignment explained in class 6

**Due at end of class: Assignment 1.3 3D Printed Object**

**Quiz 2.2:** on assigned reading for 5 points

**Lecture:**

Sketchup Model: create, find, or use other class project, use any model you wish

Setup view: basic perspective, limit field of view - strike Z, the VCB=35 (default) slightly higher is ok as well

Set Camera: camera, position camera, position in center, use on face inference point, use default eye height (5'6")

Adding a light source in Enscape

Render Spherical Panorama in Enscape

Save Panorama to file

Uploading to [www.renderstuff.com](http://www.renderstuff.com) Spherical Panorama viewer

**Exercise:**

Work on Assignment

**Preparation for quiz 2.3:** load Spherical Panorama to [www.renderstuff.com](http://www.renderstuff.com)

**CLASS 8: [VR 2] review:**

**Due at the beginning of class Assignment 2.3:** create a spherical panorama using Sketchup and Enscape. 10 points

**Quiz 2.3:** Spherical Panorama loaded to [www.renderstuff.com](http://www.renderstuff.com) 5 points

**Lecture:**

Share VR files through headsets

**[SketchUP 1] SketchUp Navigation:**

**Lecture: Introduction**

*Review syllabus for this section*

*Points for this section of the class*

*25pts Quiz 3.1*

*25pts Project 3.2*

*Navigation is the key to animation*

*Toolbars (View > Toolbars)*

*Views*

*Camera*

*Preset Scene (Start)*

*Orbit (scroll button - use as a button)*

*Pan (scroll button - shift + click)*

*Orbit & Pan (click mid screen pull what you want to see toward you)*

*Zoom (scroll)*

*Standard Views (Camera > Standard Views)*

*Position Camera (Camera > Position Camera)*

*Field of view (Camera > Field of view) - Set this BEFORE walking for good results*

*Look & Walk (click mid screen drag direction you want to look or walk)*

*Look Around (use tool or, Camera > Look Around)*

*Walk (use tool or, Camera > Walk), see tips lower left of screen*

**Exercise A:**

*Walk a loop around the second floor using Look & Walk*

**Reminder:**

*Bring a compelling model to use in project 3.2*

## **CLASS 9: [SketchUP 2] SketchUp Navigation:**

### **Lecture: Set room scenes and 360 view**

*Navigate to room (review of last class lecture)*

*Scenes (Window > Scenes)*

*You'll set a scene for each room in exercise B*

*Field of view (Camera > Field of view) Set this BEFORE camera for good results*

*Navigate and save scenes*

*Exercise B*

*Layers (Window > Layers)*

*Create layer for camera lines*

*Line (L from the keyboard)*

*Polygon (on default toolbar under Rectangle)*

*VCB (lower right Value Control Box)*

*Save a start scene for the 360 view*

*Position Camera with geometry (Camera > Position Camera)*

*Use drawn geometry, use position camera, click hold and drag, turn off cam line layer, save scene, repeat*

*Exercise C*

*Remove unneeded scene to prepare animation (may wish to save as)*

*Animate Scenes (View > Animation > Play)*

*How to create a text document (for the quiz next time)*

### **Exercises:**

*B - Find the Woman, Man, & Child, and create scenes showing the floor, ceiling, and part of each wall of the room in which you find them*

*C - Create 360 view of a room*

### **Reminder:**

*Set up model scenes for project 3.2*

## **CLASS 10: [SketchUP 3] SketchUp Animation:**

### **Quiz 3.1 - 25 points**

### **Lecture:**

*Scenes review (Window > Scenes)*

*Animate Scenes (View > Animation > Play)*

*Wish we could use Pause button to make adjustments*

*Enable Scene Transitions (View > Animation > Settings (shows in model info))*

*For Smooth transition between views*  
*Animation Scene Transitions Seconds (View > Animation > Settings)*  
*Compare 0 and 5 seconds*  
*Scene Delay (View > Animation > Settings)*  
*Compare 0 and 5 seconds*  
*Transitions at 5 and scene delay at 0*  
*Export Video (File > Export > Animation > Video)*  
*Options (lower right corner)*  
*Export Options (File > Export > Animation > Image Set, Video)*  
*Time for production*  
*Resolution - more resolution more time but better quality*  
*Frame Rate - more frames more time but better quality*  
*Loop - default*  
*Anti-alias - default*  
*Export Image Set (File > Export > Animation > Image Set)*  
*Use styles, shadows, and materials to enhance the quality of your animation*

**Exercise:**

*Create a basic animation*

**Reminder:**

*Complete animation for project 3.2*

**CLASS 11:**

**Lab Day:**

Students will have the duration of class to work on their final projects and ask any questions pertaining to said project.

**CLASS 12: [SketchUP 4] SketchUp Animation:**

**Due prior to the beginning of class: Project 3.2 - 25 points:**

*Turn in the animation you've created using your own model*  
*Use scenes and unique styles to enhance your animation*

**In class group review of animation work:**

*Bring completed animation to class to share with your peers and discuss successes and challenges*

**Grading:**

*In class gathering and grading of student work*