CAD 262: 3D Printing - Working Syllabus

# Module 1

| Week 1 | Introduction & HistoryChuck Hall, SLA. Local Company 3D Systems |  |   |
| --- | --- | --- | --- |
| Week 2 | PowerPoint on Uses of 3D PrintingIndustrial Uses of 3D Printing:* car prototyping
* medical
* jewelry
* custom machinery
 | **Quiz**(10 points) | Create 6 sided nut with dimensions. Should be no more than a 10 min brain exercise.  |
| Week 3 | Personal Uses of 3D Printing:* fixing misc items
* prosumer level
* printed self miniatures
* custom brackets
* cheap prosthetics
 |  |   |

# Module 2

| Week 1 | PowerPoint on Types of PrintersView links and videos in PowerPoint Types of Printer Technology* EBM
* SLS
* FDM
 | **Hands On**(20 points) | Take apart $10 electronic and describe the different manufacturing components involved including materials used and processes. |
| --- | --- | --- | --- |
| Week 2 | Materials* Plastics
* Metals
* Photopolymers
* Wax
* Food
 | **Presentation**(45 points) | Present to class their deconstructed electronic part. Grading based on content, presentation, difficulty etc. |
| Week 3 | When to use Additive MFGSet up printer and calibrate. | **Essay**(15 points) | Write up Pros & Cons of Additive MFG |

# Module 3

| Week 1 | File Types* Obj
* stl
* dwg
* iges
* sldprt
* step
 |  |   |
| --- | --- | --- | --- |
| Week 2 | Loading, exporting* thingiverse
* grabcad
* pinshape
* youmagine
 | **Hands On**(20 points) | Download file from site, fix, orient for build. |
| Week 3 |  Printing Day! | **Printing** | Load Print and awway wee g0! |

# Module 4

| Week 1 | Types of post processing* powder based
* FDM
* removal of supports
* vapor bath
 | **Essay**(15 points) | Design an experiment to test tolerancing. |
| --- | --- | --- | --- |
| Week 2 | Part analysis for printing* support files
* minimum thickness and radii
* scale
* GD&T
 | **Printing** | Print test pieces. |
| Week 3 | Assembly Tolerancing |  | Refine prints if necessary |

# Module 5

| Week 1 & 2 | Final Project:* Find component to customize
* Design
* Print
 | **Printing**(50 points) | Final Project |
| --- | --- | --- | --- |
| Week 3 | Class presentation order is decided by a quiz. A revised version of the original 6 sided nut now to include a matching bolt that works together within the printers tolerances. 10 min or so to design | **Quiz & Presentation**(25 points) | Class presentations on final project. Grading based on difficulty of project, presentation, 3D print, etc. |