**CHAMP Course Map**

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| **Course Name:** Technical Drafting III |
| **Instructor Name:** Laura Vogt | **Date:** 16 July 2014 |
| **Course Competencies:****STANDARD COMPETENCIES:** **I. Describe dimensioning basics.**  **II. Define and apply dimensioning rules.**  **III. Define dimensioning components, symbols, and systems.** **IV. Define preferred dimensioning practices.** **V. Describe and use standard abbreviations,**  **VI. Describe and use general notes and flag notes in a drawing**  **VII. Describe and use for surface finish symbols.** **VIII. Describe how to apply thread note to drawing.** **IX. Describe and apply tolerancing techniques for a part or assembly.** **X. Describe and use precision measurement instruments.** **XI. Define entry level geometric dimensioning and tolerancing symbols and their usage.**  |

**Course Materials (Text, Edition and any other publisher items)**

**Textbooks and/or Resources: Engineering Drawing and Design 5th Edition, Madson and Madson, 2012**

**Resources:**

**Rubrics:** Rubrics and specific grading criteria for EACH assessment should be included at the end of the course map.

| **Module # and Title** | **CCNS Competencies** | **Content, Activities or Challenges****(Learner Interaction** **& Engagement)**  | **Assessments, Rubrics (Feedback)** | **Publish to OER** |
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| Module 1Introduction to Mechanical Drafting Dimensioning | I.II.V.VI. | 1. Discuss Syllabus and Outline
2. Read Module 1 textbook chapter on Dimensioning
3. Display industry drawings with different examples of dimensioning styles, including unidirectional, aligned, tabular, chart, polar coordinate, and ordinate dimensioning.
4. Display dimensioning symbols.
5. Display dimensioning abbreviations.
6. Discuss dimensioning vocabulary.
7. Discuss dimensioning systems.
 | 1. Create a symbol library with definitions
2. Create a dimensioning systems library with definitions
3. Create a standard dimensioning abbreviations library
4. Create Module 1 Vocabulary List with definitions
5. Complete Module 1 Quiz
6. Completer Module 1 Vocabulary Quiz
7. Complete drawing assignments

  | * Class Outline/Syllabus
* Lecture Notes
* Vocabulary list
* Vocabulary quiz
* Term Abbreviations and Symbols list
* Term Abbreviations and Symbols quiz
* Module quiz
* Grading rubrics
* Web link – Types of Dimensions <http://www.we-r-here.com/cad/tutorials/level_4/different-types-of-dimensions-in-autocad-4-11a.htm>
* <http://www.autodesk.com/education/free-software/all>
* <http://www.cad-notes.com/contents/autocad-articles/>
* <http://www.autocadtutorials.net/>
* <http://www.cadtutor.net/>
* <http://www.we-r-here.com/cad/index.htm>
* <http://www.draftingzone.com/shoppingzone/6-1.pdf>
* <https://sites.google.com/site/mewithmeccano/drawing---standard-abbreviations>
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| Module 2Basic Dimensioning | II.IV.IX. | 1. Read Module 2 textbook chapter on Basic Dimensioning
2. Discuss ASME Y14.5 - 2009 standard
3. Display examples of basic dimensioning and discuss ANSI 14.5M 1994 standard application.
4. Display examples of unidirectional and aligned dimensions and discuss ANSI 14.5M 1994 standard application.
 | 1. Complete Module 2 Vocabulary List with definitions
2. Complete Module 2 Quiz
3. Completer Module 2 Vocabulary Quiz
4. Complete drawing assignments.
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
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| Module 3Annotation – General and Specific Notes | III.IV.IX. | 1. Read Module 3 textbook chapter on Annotation and General and Specific Notes
2. Discuss General and Specific Notes per ASME Y14.1, Decimal Inch Drawing Sheet Size and Format ASME Y14.1M Metric Drawing sheet Size and Format standards.
 | 1. Complete Module 3 Vocabulary List with definitions
2. Complete Module 3 Quiz
3. Complete Module 3 Vocabulary Quiz
4. Complete drawing assignments
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
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| Module 4Surface Finish Symbols and Thread Call-out Notes | VII.VIII. | 1. Read Module 4 textbook chapter on Surface Finish Symbols and Thread Call-out Notes.
2. View examples of Surface Finish Symbols.
3. View examples of Thread Call-out Notes
4. Discuss Surface Finish Symbols per ASME….
5. Discuss Thread Call-out Notes per ASME…
 | 1. Create a library of Surface Finish Symbols
2. Complete Module 4 Thread Call-out Vocabulary List with definitions
3. Complete Module 4 Thread Call-out and Surface Finish Symbols Quizzes
4. Complete Module 4 Thread Call-out and Surface Finish Symbols Vocabulary Quiz
5. Complete drawing assignments
 | * Lecture notes
* Surface Finish Quiz
* Thread Call-out Quiz
* Thread Call-out Vocabulary List
* Thread Call-out vocabulary Quiz
* Surface Finish Vocabulary quiz
* Surface Finish Vocabulary List
* <http://mdmetric.com/tech/surfruff.htm>
* <http://www.kanabco.com/vms/eng_surface/eng_surface_02.html>
* <http://engineeronadisk.com/V2/notes_manufacturing/engineeronadisk-51.html>
* <http://www.mfg.mtu.edu/cyberman/quality/sfinish/>
* <http://www.wikihow.com/Read-a-Screw-Thread-Callout>
* <http://www.engineeringarchives.com/ref_mechref_threads.html>
* <http://dealertraining.cat.com/suppliertraining/Printreading/prmod2/lesson222.htm>
* <http://www.brighthubengineering.com/machine-design/50877-a-guide-to-thread-standards-how-to-interpret-american-thread-designation/>
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| Module 5Advanced Dimensioning | II.IV.IX. | 1. Read Module 5 textbook chapter on Advanced Dimensioning
2. View examples of tabular and chart dimensions and discuss ASME Y14.5 - 2009 standard application
3. View examples of polar coordinate and ordinate dimensioning and discuss ANSI 14.5M 1994 standard application.
4. Discuss advanced dimensioning.
 | 1. Complete Module 5 Vocabulary List with definitions
2. Complete Module 5 Quiz
3. Complete Module 5 Vocabulary Quiz
4. Complete drawing assignments
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
 |
| Module 6Tolerance  | II.IV.V.IX. | 1. Read Module6 textbook chapter on Tolerance
2. View examples of different types of tolerances
3. Discuss tolerance styles per ASME Y14.5 - 2009 standard.
 | 1. Create a tolerance style library
2. Complete Module 6 Vocabulary List with definitions
3. Complete Module 6 Quiz
4. Complete Module 6 Vocabulary Quiz
5. Complete drawing assignments
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
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| Module 7GD&T | II.IV.VII. | 1. Read Module 7 textbook chapter on GD&T
2. View examples of GD&T
3. Discuss GD&T per ASME Y14.5 - 2009 standard
 | 1. Create a GD&T symbol library with definitions.
2. Complete Module 7 Vocabulary List with definitions
3. Complete Module 7 Quiz
4. Complete Module 7 Vocabulary Quiz
5. Complete drawing assignments
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
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| Module 8Precision Measurement Instruments | X. | 1. Read Module 8 textbook chapter on Precision Measurement Instruments.
2. View examples of Precision Measurement Instruments
3. Discuss use of Precision Measurement Instruments.
 | 1. Complete Module 8 Vocabulary List
2. Complete Module 8 Quiz
3. Complete Module 8 Vocabulary Quiz
4. Complete Precision Measurement assignment
 | * Lecture notes
* Vocabulary list
* Module quiz
* Vocabulary quiz
* Grading rubrics
* <http://archive.hnsa.org/doc/tools/part3.htm>
* <http://itdc.lbcc.edu/cps/machineTool/precisionTools/precisionToolsALT/precisionTools.htm>
* <https://www.lhup.edu/~dsimanek/scenario/labman1/measure.htm>
* <https://www.youtube.com/watch?v=JX8gHdNpamk>
* <http://www.precisionmeasuringtools.com.au/Precision-Tools-Measuring.aspx>
* http://its.foxvalleytech.com/MachShop1/Inspection/MetricMic.htm
* <https://www.youtube.com/watch?v=b38hFWvEjwI>
* <https://www.youtube.com/watch?v=i_jygJkJujE>
* <https://www.youtube.com/watch?v=oiAutI0i5YE>
* <https://www.youtube.com/watch?v=C--TRJcABho>
* <https://www.youtube.com/watch?v=O8vMFFYNIfo>
* <https://www.youtube.com/watch?v=StBc56ZifMs>
* <https://www.youtube.com/watch?v=XQT6RSNN9sA>
* <https://www.youtube.com/watch?v=xssnKUtYYMo>
* <https://www.youtube.com/watch?v=5VG8-nlhA8k>
* <https://www.youtube.com/watch?v=ZXcYw61FKJ8>
* <https://www.youtube.com/watch?v=TrRcEg0NB9A>
* <https://www.youtube.com/watch?v=qMgXGedDffw>
* <https://www.youtube.com/watch?v=LbjB0wx-P-c>
* <https://www.youtube.com/watch?v=ZVRc8rxOy30>
* <https://www.youtube.com/watch?v=4utqgpiMB3k>
* <https://www.youtube.com/watch?v=G1P-J1O_a-A>
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