

MIDDLE EAST TECHNICAL UNIVERSITY NORTHERN CYPRUS CAMPUS

**Syllabus for CVE 101 (2-2)3 Civil Engineering Drawing
2019-2020 Academic Year 2nd Semester**

Instructor:

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Course Schedule:

2019-2020 Academic Year Spring Semester, Assoc. Prof. Dr. Murat Sönmez							
SCHEDULE							
Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
08:40 - 09:30				CVE 101 (S1) [I-104]	MECH 114 (S1) [I-104]		
09:40 - 10:30				CVE 101 (S1) [I-104]	MECH 114 (S1) [I-104]		
10:40 - 11:30	MECH 113 (S1) [I-104]	CVE 101 (S1) [I-104]	Office Hour		MECH 100 (S1) [T-117]		
11:40 - 12:30	MECH 113 (S1) [I-104]	CVE 101 (S1) [I-104]	Office Hour		MECH 100 (S1) [T-117]		
12:40 - 13:30							
13:40 - 14:30	MECH 113 (S2) [I-104]	MECH 114 (S1) [I-104]		MECH 113 (S1) [I-104]	MECH 113 (S2) [I-104]		
14:40 - 15:30	MECH 113 (S2) [I-104]	MECH 114 (S1) [I-104]	Office Hour	MECH 113 (S1) [I-104]	MECH 113 (S2) [I-104]		
15:40 - 16:30	MECH 114 (S2) [I-104]		Office Hour	MECH 114 (S2) [I-104]	GREEN - SÖNMEZ []		
16:40 - 17:30	MECH 114 (S2) [I-104]			MECH 114 (S2) [I-104]	GREEN - SÖNMEZ []		
17:40 - 18:30		MECH 114 (S2) TUTORIAL (I-104)	MECH 114 (S1) TUTORIAL (I-104)	CVE 101 (S1) TUTORIAL [I-104]	MECH 113 (S1 & S2) Tutorial (I-104)		
18:40 - 19:30							

Reference Books and other Supplementary Materials:

- * “Technical Drawing with Engineering Graphics” by Giesecke et al., 15th Ed., 2016, Pearson
- * “Engineering Drawing and Design” by Jensen/ Hesel/ Short, 7th Edition, 2008, Mc Graw- Hill.
- * “Tools for Design Using AutoCAD 2018 and Autodesk Inventor 2018” by Randy Shih, SDC Publications.
- * “Engineering Graphics with AutoCAD 2014”, by Bethune, J., 2014, PEARSON
- * “Engineering Design and Graphics with Autodesk Inventor 2013”, by Bethune, J., 2014, Pearson Prentice Hall
- * “Understanding Construction Drawings” by Mark Huth, 2005, Thomson Delmar Learning
- * “Technical Drawing- A Multidisciplinary Curriculum for the First Semester”, by Douglas Smith, Antonio Ramirez and Jana Schmidt, 2015, SDC Publications, USA.
- * “Autodesk Revit Architecture 2016 Essentials”, by Duell, R., et al., 2015, Sybex-Wiley

*Lecture Notes at the web page of CVE 101

<http://users.metu.edu.tr/sonmez/CVE%20101/CVE%20101home.htm> and also in METU Class

<https://odtuclass.metu.edu.tr/>

Grading:

Mid-Term Exam	: 40%
Quizzes& Pop Quizzes'	: 20%
Final	: 40%

Important Note for Attendance: 80% attendance is mandatory. If your attendance is below 80%, you will not be allowed to take the midterm and the final exams.

Catalog Description

Introduction to engineering drawing; drafting as a language, drafting environment, board drafting, Computer Aided Drawing and Design. Geometrical Constructions; two- dimensional drawing, sketching for creating solid models, drawing and editing commands in AutoCAD environment, 2D and 3D tools of AutoCAD. Orthographic projection; 1st and 3rd angle projection, Principal views, Basic Dimensioning, size tolerances, Introduction to solid modelling in Autodesk Inventor, creating solid model of structures in Autodesk Inventor environment. Creating orthographic views from a solid model in AutoCAD, in Inventor, Introduction to BIM in Autodesk Revit. Model creation, view creation, in Revit

Course Learning Outcomes

Having successfully completed this course, the student will be able to:

- (1) Draw two-dimensional sketches, views in CAD environment (particularly in AutoCAD)
- (2) Draw the orthographic views of an object in CAD environment (particularly in Autodesk AutoCAD environment).
- (3) Draw plan and elevation views of a building in AutoCAD environment
- (4) Create solid models of objects; objects in basic shapes, custom built components, building models etc. using the tools of AutoCAD
- (5) Create the solid model of structures in Autodesk Inventor environment
- (6) Create the 1st and 3rd quadrant orthographic views of an object from the solid model (particularly in Autodesk AutoCAD and Inventor environments).
- (7) Dimension views, show some annotations, provide the size tolerance of functional features, and general tolerances
- (8) Read the given orthographic views; i.e. visualize the 3- Dimensional model of the object shown to its orthographic views and create its CAD model.
- (9) Explain and interpret the dimensions and the associated tolerances, some annotations
- (10) Create the solid model of a building, plan, elevation, sectional and detail views in Autodesk Revit environment

Teaching Format

Two 50-minute lectures, two 50 minutes applications, one 50 minutes tutorial per week.

Weekly Class and Tutorial Schedule

Week 1	Introduction; Engineering Graphics as a language, Board Drawing vs. Computer- Aided Drawing, BIM- Revit, Introduction to AutoCAD Mechanical Environment.
Week 2- 3	Structures of AutoCAD Mechanical and Autodesk Inventor Professional, Drawing Paper/Drawing Template Scaling, Types of Lines, Precedence of Lines, Lettering,
Week 4 -5	Layer creation in AutoCAD, Geometrical Constructions, View drawing in AutoCAD and sketching in Inventor, Drawing/Sketching and Editing Commands,
Week 6	Solid Model creation in AutoCAD, Solid Model creation via importing an AutoCAD file into Inventor environment, 2-Dimensional Sketching in Inventor, Creation of right prisms, extrusion process, Rounds and fillets, sweep, loft, shell, revolve processes
Week 7	Creating solid model of structures in Inventor, assembly modelling
Week 8-9	Orthographic Projection; Principle Picture Planes, Principal views, 1st.Quadrant, 3rd.Quadrant projections, Object Orientation, Selection of Views, Plan views, elevation views Projections of a point, Views of lines, flat planes and objects, Creating views in AutoCAD and in Autodesk Inventor Environments
Week 10	Exercises on Solid Model creation, Inspection tools of AutoCAD and Inventor Environments
Week 11	Dimensioning format/ Rules, Non-functional and Functional Dimensions, Size Tolerances, IT-Grading System, General Tolerances, Dimensioning tools of AutoCAD Mechanical environments, Dimensioning in civil engineering drawings
Week 12-14	Building Information Modelling in Autodesk Revit, Architectural drawings, walls, doors, windows, lightening fixtures, roofs, floors, view creation in Revit, Animated 3D walkthrough of a model, creating 3D view camera perspective

Relationship to Program Performance Indicators

This course contributes to fulfillment of the following performance indicators: