

Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

The sections shown on this interface are based on the templates [UG OBTL+](#) or [PG OBTL+](#)

If you are revising/duplicating an existing course and do not see the pre-filled contents you expect in the subsequent sections e.g. Course Aims, Intended Learning Outcomes etc. please refer to [Data Transformation Status](#) for more information.

Expected Implementation in Academic Year	AY2023-2024
Semester/Trimester/Others (specify approx. Start/End date)	Semester 2
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
Course Author Email	clhlee@ntu.edu.sg
Course Title	Engineering Drawing and 3D Building Information Modelling
Course Code	CV1711
Academic Units	1
Contact Hours	39
Research Experience Components	Not Applicable

Course Requisites (if applicable)

Pre-requisites	
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

The aims of the course are to:

- i) Teach students about the principles of engineering drawings and create typical drawings using Computer Aided-Design (CAD) tools;
- ii) Use a Building Information Management (BIM) software to create the 3D models for engineering applications.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	Classify 3D model, 2D drawing, setting parameters, standard and layout in AutoCAD environment.
ILO 2	Create, edit and modify different basic 2D objects.
ILO 3	Apply concepts of 1st and 3rd Angle Projection in engineering drawings.
ILO 4	Apply concepts of First Auxiliary Elevation and Plan Based on 1st Angle Projection.
ILO 5	Apply concepts of First Auxiliary Elevation and Plan Based on 3rd Angle Projection.
ILO 6	Produce inclined plan view in orthographic projection.
ILO 7	Define different structural families, exporting parts, creating drawings and set parameters in AutoCAD Revit environment.
ILO 8	Create and modify 3D parts using extrusion, sweep, blend and cutting void.
ILO 9	Produce drawings, views, hidden lines, scale, shading and printing.
ILO 10	Use AutoCAD Revit to create elevation, plan, end view and isometric view using 1st Angle Projection.
ILO 11	Use AutoCAD Revit to create elevation, plan, end view and isometric view using 3rd Angle Projection.

Course Content

S/N	Topic
1	Principles of engineering drawings
2	Engineering drawings practices
3	Principle of tangency
4	First and third angle projection
5	Sectional view
6	Isometric view
7	2D Computer Aided-Design (CAD) – AutoCAD software
8	Building Information Modelling (BIM)
9	3D Computer Aided-Design (CAD) – Revit software

Reading and References (if applicable)

1. Parker M. A. and Pickup F. (1991), "Engineering Drawing with Worked Examples", Vol. I and II", 3rd edition, Stanley Thornes Ltd., England, U.K., 1991.
2. Autodesk™ (2018), "Autodesk AutoCAD Essentials Courseware", Autodesk, Inc., U.S.A., 2018.
3. Autodesk™ (2018), "Autodesk Revit Essentials Courseware", Autodesk, Inc., U.S.A., 2018.
4. [Karen K.](#) and Douglas N. (2014), "Building Information Modelling: BIM in Current and Future Practice", 1st edition, John Wiley & Sons, Inc., Hoboken, New Jersey, U.S.A., 2014.
5. Eddy K. and James V. (2015), "Mastering Autodesk Revit Architecture 2015: Autodesk Official Press", John Wiley & Sons, Inc., Indianapolis, Indiana, U.S.A., 2015.

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	AutoCAD 2018 Essentials : Drawing Fundamental, Layout and Standards	1		In-person	Laboratory
2	AutoCAD 2018 Essentials : Creation and Modifying Objects	2		In-person	Laboratory
3	Orthographic Projection, 1st and 3rd Angle Projection	3		In-person	Laboratory
4	First Auxiliary Elevation and Plan Based on 1st Angle Projection	4		In-person	Laboratory
5	First Auxiliary Elevation and Plan Based on 3rd Angle Projection	5		In-person	Laboratory
6	Orthographic Projection Inclined Plan View	6		In-person	Laboratory
7	Continuous Assessment 1			In-person	Quiz No. 1

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
8	AutoCAD Revit 2018 : Parameters, Environment and Creation of Structural Families	7		In-person	Laboratory
9	AutoCAD Revit 2018 : Creation and Modifying Parts Using Extrusion, Sweep, Blend and Cutting Void	8		In-person	Laboratory
10	AutoCAD Revit 2018 : Drawing, Dimensions, Views, Hidden Lines, Scale and Shading	9		In-person	Laboratory
11	1st Angle Projection Exercises with Four Views	10		In-person	Laboratory
12	3rd Angle Projection Exercises with Four Views	11		In-person	Laboratory
13	Continuous Assessment 2			In-person	Quiz No. 2

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Laboratory	Weekly laboratories to provide you with the specific knowledge and techniques to achieve the learning outcome stated above, and to complete the two continuing assessments.

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Others([quiz/test])	1,2,3,4,5,6	EAB SLOs (a), (b)	50	Team	Analytic	Relational
2	Continuous Assessment (CA): Others([quiz/test])	6,7,8,9,10	EAB SLOs (a), (b)	50	Team	Analytic	Relational

Description of Assessment Components (if applicable)

Formative Feedback

Feedback will be through the dissemination of the student's performance in quizzes as well as review of the quiz questions in class.

We encourage you to initiate an Individual consultation sessions on your particular learning needs.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Transdisciplinarity	Intermediate
Information Literacy	Intermediate
Project Management	Intermediate
Design Thinking	Intermediate
Systems Thinking	Intermediate

Course Policy

Policy (Academic Integrity)

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. On the use of technological tools (such as Generative AI tools), different courses / assignments have different intended learning outcomes. Students should refer to the specific assignment instructions on their use and requirements and/or consult your instructors on how you can use these tools to help your learning. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Policy (General)

The standing university policy governing student responsibilities shall apply.
No special policy for this course.

Policy (Absenteeism)

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Policy (Others, if applicable)

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