

## COURSE OUTLINE

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<b>Course code:</b>	SKAB 1422	<b>Academic Session/Semester:</b>	201718/2
<b>Course name:</b>	Engineering Drawing	<b>Pre/co requisite (course name and code, if applicable):</b>	
<b>Credit hours:</b>	2 + 2		


<b>Course synopsis</b>	This course is designed to expose the students to the basic understanding of technical and engineering drawings. It will cover the aspect of understanding and interpretation of the element of drawings. The concept of orthographic and isometric projection will be discussed and applied in the hands-on session with Computer Aided Drawing (CAD). Students will also be exposed to the civil works drawings, i.e. the earthworks, reinforced concrete detailing and structural steel detailing drawings. Several exercises are performed with the use of CAD to get the students acquaintance of the software. During this session, students will be asked to draw and submit group projects that are given to them. After completing this course students should be able to produce civil engineering drawings using CAD			
<b>Course coordinator (if applicable)</b>	Dr. Halinawati Binti Hirol			
<b>Course lecturer(s)</b>	<b>Name</b>	<b>Office</b>	<b>Contact no.</b>	<b>E-mail</b>
	Dr. Halinawati Binti Hirol	02-45-01	0197643292	halinawati@utm.my

**Mapping of the Course Learning Outcomes (CLO) to the Programme Learning Outcomes (PLO), Teaching & Learning (T&L) methods and Assessment methods:**

No.	CLO	PLO (ICGPA CODE)	Weight (%)	*Taxonomies and **generic skills	T&L methods	***Assessment methods
CLO1	<b>Apply</b> the principles of technical and civil engineering drawings.	PLO1	40	L2	Lecture, active learning	A, T
CLO2	<b>Apply</b> CAD software to produce civil engineering drawing.	PLO5	25	L3	Project-based learning	PR, Pr
CLO3	<b>Practice</b> values as individual and in group work.	PLO10	35	L3	Project-based learning	PR, Pr

Refer \*Taxonomies of Learning and \*\*UTM's Graduate Attributes, where applicable for measurement of outcomes achievement

\*\*\*T – Test; Q – Quiz; HW – Homework; PR – Project; Pr – Presentation; F – Final Exam; A- Assignment etc.

<b>Prepared by:</b>	<b>Certified by:</b>
Name: Dr. Halinawati Binti Hirol	Name:
Signature: 	Signature:
Date: 28/01/2018	Date:

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**Weekly Schedule:**

Week 1	Graphic communication for engineers - The role of engineer on a design team AutoCAD - Setting drawing, Coordinates Line command and Point Entry methods
Week 2	Circles, Arc, Rectangle, Polygon and Donut Commands Copy, Move, Mirror and Erase commands Object Selection and Object Snap
Week 3	Zoom commands Offset, Trim, Extend and Fillet commands Array and Point Commands
Week 4	Layer, linetype, colour and line weight controls Orthographic Projection
Week 5	Text command Dimensioning type: linear, aligned, radius and angular Hatch command
Week 6	Sectional Views Blocks and Insert Commands Plotting
Week 7	Polyline and Spline commands Isometric projection
Week 8	Mid-Semester Break
Week 9	Test 1
Week 10	Civil Engineering Drawing - Earthwork
Week 11	Civil Engineering Drawing - Earthwork
Week 12	Civil Engineering Drawing - Reinforced Concrete Detailing
Week 13	Civil Engineering Drawing - Reinforced Concrete Detailing
Week 14	Civil Engineering Drawing - Structural Steel Detailing
Week 15	Presentation / Q & A

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**Student learning time (SLT) details:**

Distribution of student Learning Time (SLT) Course content outline					Teaching and Learning Activities		TOTAL SLT
	Guided Learning (Face to Face)				Guided Learning Non-Face to Face	Independent Learning Non-Face to face	
<b>CLO</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>			
CLO 1	14h	14h					<b>28h</b>
CLO 2	14h		14h		6h	6h	<b>40h</b>
CLO 3	14h		14h		6h	6h	<b>40</b>
<b>Total SLT</b>	<b>42h</b>	14h	28h		<b>12h</b>	<b>12h</b>	<b>108h</b>

Continuous Assessment		PLO	Percentage	Total SLT
1	Test 1	PLO1	30	<b>2h</b>
2	Assignment	PLO1	10	As in CLO3 <b>(28h)</b>
7	Design Project 1	PLO5	30	As in CLO 2 (28h)
8	Design Project 2	PLO10	30	As in CLO3 (28h)
<b>Grand Total</b>			<b>100</b>	<b>86h</b>

L: Lecture, T: Tutorial, P: Practical, O: Others

**Special requirement to deliver the course (e.g: software, nursery, computer lab, simulation room):**

Computer lab with AutoCAD
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**Learning resources:**

1. Ashleigh Fuller , Antonio Ramirez and Douglas Smith (2016). Technical Drawing 101 with AutoCAD, SDC Publication, Kansas.
2. Nighat Yasmin (2016) Introduction to AutoCAD 2017 for Civil Engineering Applications, SDC Publication, Kansas.
3. Randy H. Shih (2014), Principles and Practice: An Integrated Approach to Engineering Graphics and AutoCAD 2015 SDC Publication, Kansas
4. A. Yarwood (2002). An Introduction to AutoCAD 2002. Pearson Education, Edinburgh.Sons Inc., 1995.

**Online**

<http://elearning.utm.my>

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**Academic honesty and plagiarism:** *(Below is just a sample)*

Assignments are individual tasks and NOT group activities (UNLESS EXPLICITLY INDICATED AS GROUP ACTIVITIES)  
Copying of work (texts, simulation results etc.) from other students/groups or from other sources is not allowed. Brief quotations are allowed and then only if indicated as such. Existing texts should be reformulated with your own words used to explain what you have read. It is not acceptable to retype existing texts and just acknowledge the source as a reference. Be warned: students who submit copied work will obtain a mark of **zero** for the assignment and disciplinary steps may be taken by the Faculty. It is also unacceptable to do somebody else's work, to lend your work to them or to make your work available to them to copy.

**Other additional information (Course policy, any specific instruction etc.):**

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**Disclaimer:**

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