Module Syllabus

<table>
<tr><td>Module Title</td><td colspan="2">Electrical Knowledge</td></tr>
<tr><td>Module Code</td><td colspan="2">MBS2005X</td></tr>
<tr><td>QF Credits</td><td colspan="2">7</td></tr>
<tr><td>QF Level</td><td colspan="2">2</td></tr>
<tr><td rowspan="3">Notional Learning Hours</td><td rowspan="3">79</td><td>Contact Hours: 39</td></tr>
<tr><td>Self-study Hours: 38</td></tr>
<tr><td>Assessment Hours: 2
(Outside Contact/Self-study Hours)</td></tr>
<tr><td>Pre-requisite</td><td colspan="2">Nil</td></tr>
<tr><td>Co-requisite</td><td colspan="2">Nil</td></tr>
<tr><td>Anti-requisite</td><td colspan="2">Nil</td></tr>
<tr><td>Exemption Criteria</td><td colspan="2">Nil</td></tr>
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Module Intended Learning Outcomes:

On completion of the module, learners are expected to be able to:

1. apply basic electricity theories to solve simple problems in electrical circuit;
2. apply the knowledge of alternating current (AC) and electricity supply to identify and explain the AC electricity issues in workplace and daily life; and
3. apply the basic electromagnetism theories to explain how electromagnetism can be applied in various mechanical systems.

Learning Contents and Indicative Contact Hours:

	Learning Contents	**Indicative Contact Hours**
A.	Basic Electricity Theories • *Units and symbols of potential difference, current, resistance, energy and power* • *Properties of resistance* • *Calculate equivalent resistance for resisters in series or parallel* • *Apply Ohm's Law to solve simple problems in electrical circuit*	12 hours
B.	Alternating Current (AC) and Electricity Supply • *Concepts of Alternating Current, such as amplitude, period, frequency, instantaneous, average and r.m.s. values* • *Electricity supply system in Hong Kong, domestic flat* • *Type of cables* • *Introduction to circuit protection and earthing*	12 hours
C.	Working Principles of Electric-Driven Devices with Basic Electromagnetism Theories • *Introduction to basic electromagnetism theory, such as magnetic flux, flux density, working principles of simple electric-driven devices in workplace* • *Make use of electromagnetic rules, such as Fleming's Left-hand and Faraday's Law, Lenz's Law, to illustrate the applications of electromagnetic induction in various mechanical systems*	15 hours

Mapping of Learning Contents with Module Intended Learning Outcomes:

	Learning Contents	**Module Intended Learning Outcomes**		
		1	**2**	**3**
A	Basic Electricity Theories	✓		
B	Alternating Current (AC) and Electricity Supply		✓	
C	Working Principles of Electric-Driven Devices with Basic Electromagnetism Theories			✓

Learning and Teaching Strategies:

- *Lectures are to develop students' critical thinking and an analytical mind to rationalize the theoretical aspects of the covered topics and to elaborate important and difficult areas, providing a meaningful framework and a focus for text reading and the corresponding tutorials.*
- *Tutorials are to encourage students to apply and extrapolate the knowledge they learn through various activities, including group discussions, case studies, and presentations.*
- *Through assignments and tutorial exercises, students can interact with tutors to develop solutions and/or solve or deal with trade situations in an interactive and pleasant learning atmosphere.*

Assessment Scheme:

Continuous Assessment (CA)	**50%**
End-of-Module Assessment (EA)	**50%**
Total	**100%**

Textbooks:

1. In-house learning and teaching materials

References:

1. Hughes, E., 2016. *Hughes Electrical And Electronic Technology*. Pearson Education Limited.
2. 黃仲宇 (2015)。基本電學 (上、下)。台科大圖書股份有限公司。
3. 陳樹輝 (2013)。電力裝置實用手冊。萬里書店。
4. 機電工程署。電力（線路）規例工作守則 (2009)。香港特別行政區政府機電工程署。

Creation/Revision Record:

Version	Date	Created/Revised by
1	*1 June 2020*	*LEUNG Chun Yip*
2	*8 July 2020*	*LEUNG Chun Yip*

Module Assessment Scheme

1	**Module Details**					
a	Module Code/Title	**MBS2005X / Electrical Knowledge**				
b	Programme Code/Title	**EG423704P / Diploma in Infrastructure Engineering (Mechanical)**				
c	QF Level	2				
d	Notional Learning Hours (total)	79				
e	Notional Learning Hours, comprising	Contact Hours	Self-study Hours	Assessment Hours		
		39 hrs	38 hrs	2 hrs		
2	**Module Intended Learning Outcome (MILO)***	Module Assessment in alignment with MILO (*Please indicate the assessment mode for each MILO by ticking (✓) the appropriate box(es))				
		Test	Assig't	Workshop	EA	etc.
a	apply basic electricity theories to solve simple problems in electrical circuit	✓	✓		✓	
b	apply the knowledge of alternating current (AC) and electricity supply to identify and explain the AC electricity issues in workplace and daily life	✓	✓		✓	
c	apply the basic electromagnetism theories to explain how electromagnetism can be applied in various mechanical systems		✓		✓	
3	**Continuous Assessment (CA)**	Total CA marks contributing to 50% of module mark				
a	CA component	Test	Assig't	Workshop	etc.	
b	No. of assessment (s)	1	2			
c	CA component as a % of module mark	30%	20%	%	%	
4	**End-of-Module Assessment (EA) in the form of examination**	Total EA marks contributing to 50% of module mark				
a	Duration of examination	2 hours				
b	Approximate distribution of marks	Long questions 60%	MC questions -%	Short questions (non-MC) 40%		
c	Choice of questions	no				
5	**Any Special Assessment Requirement**	**Nil**				

<u>Note</u>:

(a) The Module Assessment Scheme (MAS) is compiled at the beginning of each academic term or year and is subject to annual review by the Programme Team concerned, following the prevailing Procedure for Programme Development, Revision and Review.

(b) Details of Module Intended Learning Outcomes (MILOs) may be specified on a separate page for reference.