

# Lab work 2 for Introduction Engineering

Basic Course Information			
Course Number	2005129	Subject Category	Compulsory IC
Class Format	Experiment / Practical course	Credit Type and Number of Credits	1
Department	Computer	Student Category	Year 1
Period of Study	Semester 2	Classes per Week	3
Required Materials	To be announced		
Instructor	Jonas Schwaninger	Tarsovan Kastamari	Theresawar Plewiscioon

**Course Objective**  
 This course covers the fundamentals of computer engineering lab work topics such as VM, command line, and digital circuit and includes coding learning with a block-based coding approach and object-oriented coding with Python. The Students are provided a strong foundation in lab work skills needed to formulate, analyze, and solve engineering problems. To develop general engineering skills, students will also create digital circuits and practice basic computer operations. \*

Evaluation/Rubric	Meat Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Following and Doing Procedure	Demonstrates very good knowledge of the lab procedures and principles	Demonstrates good knowledge of the lab procedures and principles	Lacks the appropriate knowledge of the lab procedures and principles
Data Collection	Measurements are both accurate and precise	Measurements are mostly accurate and precise	Measurements are imprecise, inaccurate and sporadic
Report writing	Content is comprehensive, and accurate. Important points are stated clearly with supported data.	Some contents are not comprehensive or incomplete. Important points are addressed, but not well supported	Most of the content is incomplete. Important points are addressed and/or inconsistent.
Safety	Proper safety precautions and awareness are consistently used	Proper safety precautions and awareness are generally used	Proper safety precautions and awareness are missed

**Relationship with Learning Outcomes**  
**BT1) Wide knowledge on Science and Engineering and practical ability to apply them to solve problems in the society.**  
**CT1) Ability to operate and administer the computer software and hardware**  
 Please change

**Teaching Method**  
**Outline:** Students will use command line on VM, the CyberPi robot, and digital circuit.  
**Class Format:** Labwork.  
**Please Note:** Complying with safety rules. Lab work topics are subject to be changed due to the school schedule. All reports must be submitted and accepted to get the credit.

Course Plan	Semester 2	Contents and Method of Course	Goals	Related MCC
1st week		Guidance, Introduction of course, Instructions for labwork / VM Installation	Understanding Guidance, Introduction of course, Instructions for labwork / Understanding VM installation	W-D 1 9
2nd week		Command Line Operations on VM	Understanding Command Line Operations on VM	W-D 1 10
3rd week		Command Line Operations on VM	Understanding Command Line Operations on VM	W-D 1 10
4th week		Command Line Operations on VM	Understanding Command Line Operations on VM	W-D 1 10
5th week		CyberPi and mBot2	Understanding CyberPi and mBot 2	W-D 1 11
6th week		CyberPi, mBot2, and line-following robot	Understanding CyberPi and mBot 2, and line-following robot	W-D 1 11
7th week		Midterm Preparation		
		Midterm Exam	No exam	
		S.E	01/03/2024	
		Monday class	01/12/2024	
8th week		CyberPi, mBot2, and line-following robot	Understanding CyberPi and mBot 2, and line-following robot	W-D 1 11
9th week		CyberPi, mBot2, and line-following robot	Understanding CyberPi and mBot 2, and line-following robot	W-D 1 11
10th week		TTL and DTL gate (Traker CAD)	Understanding TTL and DTL gate	W-D 1 6
11th week		TTL and DTL gate (Traker CAD)	Understanding TTL and DTL gate	W-D 1 6
12th week		TTL and DTL gate (Actually circuit)	Understanding TTL and DTL gate	W-D 1 7
13th week		TTL and DTL gate (Actually circuit)	Understanding TTL and DTL gate	W-D 1 7
14th week		Logic Gate and Digital Circuit with IC	Understanding Logic gate and digital circuit with IC	W-D 1 8
15th week		Final Exam Preparation		
		Final Exam	No exam	
		Reflection and review	Review and summarize learning.	

	Foundation	Performance	Behavior	Report Writing	Other
Basic Ability	0	0	0	0	
Technical Ability	0	0	0	0	
Interdisciplinary Ability	0	0	0	0	