



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INDUSTRIAL TRAINING LOG BOOK

20 JULY 2020 – 8 OCTOBER 2020

UTM Centre for Low Carbon Transport In
Cooperation with Imperial College London
(LoCARtic)

NAME	: FARAH UMAIRA BINTI HAIRUL ANUAR
NO MATRIC	: A17KM0080
SUPERVISOR'S NAME	: ASSOC PROF DR. SRITHAR RAJOO

Log Book From 19-07-2020 To 25-07-2020

Num.	Date	Day	Log/Activity
1	19-07-2020	Sunday	-N/A-
2	20-07-2020	Monday	- General overview briefing about Innovation Centre In Agritechnology For Advanced Bioprocessing (ICA) and safety briefing by Director ICA, Dr Cheng Kian Kai. - Talk session with Dr Umi Aisah binti Ali; Academic Manager ICA on “Research Methodology for Beginner”
3	21-07-2020	Tuesday	Meeting with supervisor (Prof Madya Dr Srithar Rajoo) and Co Supervisor (En Mohd Fadhirul Bin Saminan). We have been assigned to study about liquefied petroleum gas (LPG) and compressor system for turbocharger hot gas stand charger 400kW system
4	22-07-2020	Wednesday	Learning flow of project from the contractor (Teras Berkas Sdn bhd) about the installation, testing, and commissioning the turbocharger hot gas stand 400kW.
5	23-07-2020	Thursday	- Learning the ideal compressed air installation layout in order to ensure low maintenance cost and minimize the downtime with Intelligent Controller that has multifunctional protection to monitor the dryer system - Assisting project engineer measure pumping time from compressor to receiver tank until it achieve 8bar
6	24-07-2020	Friday	-N/A-
7	25-07-2020	Saturday	-N/A-

Company Supervisor Signature


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Log Book From 26-07-2020 To 01-08-2020

Num.	Date	Day	Log/Activity
1	26-07-2020	Sunday	- Study on the construction drawing; overall layout and compressor piping details - Doing some research about compressed air dryer, compressed air filter and air receiver tank
2	27-07-2020	Monday	- Measure the dimensions for all component in the air compressor; compressed air dryer, compressed air filter and air receiver tank - Compare the measurement result with the measurement specification on the tender and state the reason if it have any different.
3	28-07-2020	Tuesday	- Measuring and taking all the detail needed from air compressed system for applying the approval from Department of Occupational System and Health Malaysia (DOSH) - Listing all the technical specification data for air compressed system; working pressure, free air delivery rate, weight, noise level and etc.
4	29-07-2020	Wednesday	Draw floor plan for air compressor system with the detail measurement for applying the approval from Department of Occupational System and Health Malaysia (DOSH)
5	30-07-2020	Thursday	- Making component analysis for air compressed system: - Air receiver tank - Stress and strain - Buckling - Welding - Pipe - Stress and strain
6	31-07-2020	Friday	-N/A-
7	01-08-2020	Saturday	-N/A-

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Log Book From 02-08-2020 To 08-08-2020
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Num.	Date	Day	Log/Activity
1	02-08-2020	Sunday	Hari Raya Aidiladha
2	03-08-2020	Monday	- Doing some research about safety requirement for compressor pipe system: - Compressed Air System Safety - Air Receiver Tank Safety - Air Distribution Lines Safety
3	04-08-2020	Tuesday	- Drawing the component of air compressor system; - Compressed air system - Compressed air dryer
4	05-08-2020	Wednesday	- Continue drawing the component of air compressor; - Vertical air receiver tank - Compressed air filter
5	06-08-2020	Thursday	- Combine and finalize the report for compressor system before submit to supervisor\ - Submit the report to the co supervisor
6	07-08-2020	Friday	-N/A-
7	08-08-2020	Saturday	-N/A-

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Log Book From 09-08-2020 To 15-08-2020

Num.	Date	Day	Log/Activity
1	09-08-2020	Sunday	Do some reading and research on the previous project done by UTM Centre for Low Carbon Transport in cooperation with Imperial College
2	10-08-2020	Monday	Fill in the industrial training logbook with the daily activity report before meeting with our supervisor on the next day for weekly evaluation
3	11-08-2020	Tuesday	- Meeting with our supervisor; Prof Dr Srithar and Dr Izwanne - Having a group presentation session with our supervisor about our previous work (lab manual) - Discuss about the lab manual that we have submitted
4	12-08-2020	Wednesday	- Revise the report (lab manual) and list out what we need to add in order to make the lab manual complete for future reference - Assign task for each group member
5	13-08-2020	Thursday	- Going to G1 (Locartic lab) to take a few measurement and picture for lab manual - Do a summary on technical specification; - Power - Weight - Dimension
6	14-08-2020	Friday	-N/A-
7	15-08-2020	Saturday	-N/A-

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Log Book From 16-08-2020 To 22-08-2020
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Num.	Date	Day	Log/Activity
1	16-08-2020	Sunday	- Go to G1 (Locartic lab) to make some preparation for TNC and administration people from Universiti Teknologi Malaysia JB visit - Explaining to the visitor about lab and project at UTM Pagoh - Introducing the new machine in the lab to the visitor
2	17-08-2020	Monday	- Study on the installation placement and design of the machine and equipment in the lab; - Compressor room ventilation - Air receiver
3	18-08-2020	Tuesday	- Study on how to inspect the machine and equipment for maintenance and troubleshooting - Continue doing the lab manual (compressor)
4	19-08-2020	Wednesday	- Continue doing the lab manual (compressor) - Compile and finalize the lab manual (compressor) before submit to our supervisor - Submit the lab manual
5	20-08-2020	Thursday	- Reading some publication journal done by UTM Centre for Low Carbon Transport team - Make a summary based on the reading
6	21-08-2020	Friday	-N/A-
7	22-08-2020	Saturday	-N/A-

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Log Book From 23-08-2020 To 29-08-2020

Num.	Date	Day	Log/Activity
1	23-08-2020	Sunday	- Study the Liquefied Petroleum Gas (LPG) lab manual on the technical specification for overall system; - Design of gas storage - Gas equipment - Model
2	24-08-2020	Monday	- Make some research on the type of valve use in the Liquefied Petroleum Gas (LPG) piping system; - Name - Function - Location of installation
3	25-08-2020	Tuesday	- Study on how to inspect the machine and equipment in Liquefied Petroleum Gas (LPG) piping system for maintenance and troubleshooting; - Air leakage test - Gas detector alarm panel
4	26-08-2020	Wednesday	Fill in the industrial training logbook with the daily activity report before meeting with our supervisor on the next day for weekly evaluation
5	27-08-2020	Thursday	- Meeting with our supervisor; Prof Dr Srithar and Dr Izwanne at G1 - Having discussion about our next project; we (intern student) are divided into 3 group - Dr Izwanne give briefing to us about the project ; aim, objective and etc
6	28-08-2020	Friday	-N/A-
7	29-08-2020	Saturday	-N/A-

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Log Book From 30-08-2020 To 05-09-2020
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Num.	Date	Day	Log/Activity
1	30-08-2020	Sunday	Taking a leave due personal matter
2	31-08-2020	Monday	Independence day
3	01-09-2020	Tuesday	- Start doing research about the new project (Liquefaction and Organic Rankine Cycle) in order to understand more about the project - Read the article and journal from the internet about the liquefaction technology and system
4	02-09-2020	Wednesday	- Brainstorming and assign task for each group member - Making a work schedule for the group member to make sure the project is finish and complete before the dateline
5	03-09-2020	Thursday	- Study about the method how to improve Liquid Air Energy Storage (LAES) performance and efficiency ; - System configuration and optimization - Enhanced thermal storage - System integration
6	04-09-2020	Friday	-N/A-
7	05-09-2020	Saturday	-N/A-

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Log Book From 06-09-2020 To 12-09-2020

Num.	Date	Day	Log/Activity
1	06-09-2020	Sunday	- Study about integration of Liquid Air Energy Storage (LAES) with Organic Rankine Cycle (ORC) for compression heat utilization; - System description - System model - Do summary for the integration of LAES
2	07-09-2020	Monday	- Do the calculation for Round trip and energy efficiency of Liquid Air Energy Storage (LAES) based on working condition at Organic Rankine Cycle (ORC) - Do a comparison between a few system model and list out the advantage and disadvantages of the model system
3	08-09-2020	Tuesday	- Listing out and study the effect of design parameter on the Liquid Air Energy Storage (LAES) performance; - Influence of charging and discharging pressures - Influence of thermal losses of the heat and cold storage - Influence of cold recovery of liquid air - Influence of heat recovery of compressed air
4	09-09-2020	Wednesday	Online meeting/briefing by Assoc Prof Dr Muhamad Azizi Bin Mat Yajid about Research Undergraduate Project and PRISMS with final year student
5	10-09-2020	Thursday	- Having discussion among the group member about the system model and propose our idea - Sort out a few final system model to be used to increased used of thermal energy
6	11-09-2020	Friday	-N/A-
7	12-09-2020	Saturday	-N/A-

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Log Book From 13-09-2020 To 19-09-2020
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Num.	Date	Day	Log/Activity
1	13-09-2020	Sunday	• Submit a few system model to Dr Izwanne • Ask Dr. Izwanne for guidance and suitability of the model. • She suggested a few options that can be used to design the system model
2	14-09-2020	Monday	• Continue on the project • Revise and improvise some component in the system model based on Dr Izwanne explanation and comment
3	15-09-2020	Tuesday	• Starts on the report. • Prepare the background study, literature review, aim and objective of the project • Assign task for each group member
4	16-09-2020	Wednesday	• Malaysia Day 2020
5	17-09-2020	Thursday	• Continue on the report • Study on the integration of Liquid Air Energy Storage (LAES) with Organic Rankine Cycle (ORC) for compression heat utilization for literature review
6	18-09-2020	Friday	-N/A-
7	19-09-2020	Saturday	-N/A-

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Log Book From 20-09-2020 To 26-09-2020

Num.	Date	Day	Log/Activity
1	20-09-2020	Sunday	- Fill up my logbook for supervisor evaluation - Prepare slide for industrial training presentation for evaluation from faculty supervisor; Prof Ir Dr Syahrullail Samion
2	21-09-2020	Monday	- Online supervision by faculty supervisor; Prof Ir Dr Syahrullail Samion - Explaining about our job scope, current and past project - Sharing our feedback and opinion about the industrial training
3	22-09-2020	Tuesday	- Research on the component that are usually involved in the liquefaction processes. - The variance of the net output power will increases as the mass flow rate increases - This is mainly due to the growing rotating speed of the cryo-pump
4	23-09-2020	Wednesday	- Study on the disadvantages of Liquid Air Energy Storage (LAES) standalone - The amount of cold energy recovered in the discharging cycle is not enough to fully cool the compressed air in the charging cycle and - The compression heat generated in the charging cycle is in excess and cannot be used efficiently in the discharging cycle
5	24-09-2020	Thursday	- Making a comparison between LAES standalone and LAES-ORC thru calculation - The integrated LAES-ORC systems are more efficient than the standalone LAES system with highest improvements of ~17% for the round trip efficiency - The LAES-ORC shows a better performance and simple configurations
6	25-09-2020	Friday	-N/A-
7	26-09-2020	Saturday	-N/A-

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Log Book From 27-09-2020 To 03-10-2020
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Num.	Date	Day	Log/Activity
1	27-09-2020	Sunday	Fill in the industrial training logbook with the daily activity report before meeting with our supervisor on the next day for weekly evaluation
2	28-09-2020	Monday	- Joining the event (Fun Run & Walk 3km) held by Kelab Rekreasi & Ukhuwah UTM Pagoh - Fill in the industrial training logbook with the daily activity report before meeting with our supervisor on the next day for weekly evaluation
3	29-09-2020	Tuesday	- Meeting with our supervisor; Prof Dr Srithar and Dr Izwanne at G1 - Fill up all the form that need to be submit to the faculty - Discuss about the project that we had been assigned before final presentation
4	30-09-2020	Wednesday	- Continue the previous project - Starts on calculation of system model. - Finding the power generated, waste heat and efficiency of the liquefaction model.
5	01-10-2020	Thursday	- Further calculation on the model - Based on the calculation that had been made, there are some modification on the system model in order to improve the system efficiency - Modified the system model drawing
6	02-10-2020	Friday	-N/A-
7	03-10-2020	Saturday	-N/A-

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Log Book From 04-10-2020 To 10-10-2020
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Num.	Date	Day	Log/Activity
1	04-10-2020	Sunday	Prepare industrial training report that need to submit after industrial training session
2	05-10-2020	Monday	- Settle all the document that needed by LoCARTic for application of allowance that will be provided to industrial training student - Continue on preparing the industrial training report
3	06-10-2020	Tuesday	- Prepare group slide presentation for final presentation on the research project - Finalize and compile the project report before submit to our supervisor
4	07-10-2020	Wednesday	- Went to LoCARTic lab to see the rig test by the contractor from Teras Berkat Sdn Bhd and contractor from Japan (MEI Inc) via webex - The contractor from Japan set up the machine and instrument via TeamViewer - The contractor explained to us how to use the machine manually and automatically.
5	08-10-2020	Thursday	- Joining the talk “how to be employed” by En Mohd Farid bin Rahmat ; Deputy Registrar of UTM Pagoh - Final presentation on the project that had been assigned - Liquefaction of air with Organic Rankine Cycle - Submission of the project report to our supervisor - Submission of log book for weekly evaluation by the supervisor
6	09-10-2020	Friday	-N/A-
7	10-10-2020	Saturday	-N/A-

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