STUDENT DETAILS

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Guardian's Address : LOT 219 JALAN 2 KAMPUNG MELAYU SUBANG TAMBAHAN

40150 SHAH ALAM, SELANGOR

ORGANIZATION/INDUSTRI INFORMATION

Name : .....

Phone No : ..... Fax No : +603-78474612

Coordinator's Name : NORMASLIANA BINTI ZAINI

Duration of Training : Position : ADMIN

From : 18/7/2021

To : 8/10/2021

UNIVERSITY/FACULTY DETAILS

Faculty of Mechanical Engineering
Universiti Teknologi Malaysia
81310 UTM Johor Bahru
Johor Darul Ta'zim

Supervisor's Name

.....

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Person should be contacted in case of emergency :

- Dean
- Deputy Dean (Academic)
- Chairman of the Industrial Training

Preface

This log book is divided into 2 parts. The first part (Chapter 1 to 4) contains industrial training guidelines, log book instructions and filling up guidelines and guidance of preparing the industrial training final report. The second part (Chapter 5) contains tables of activity assessment form to be completed by relevant parties.

Section 8.1 - Student Overall Industrial training activities Gantt Chart

Section 8.2 - Table of Daily/Weekly Student Activity and Assessment Form by Company/Organization Supervisor

Section 8.3 - Assessment Form of Overall Student Activity by Faculty Supervisor

Section 8.4 - Table of Detailed Student Activity

This information will serve as a guidelines for the student while performing their industrial training. Also students should know their role and responsibilities.

Finally, it is hoped that all parties namely the students, company or organization and the faculty herself will benefit accordingly from the industrial training. It is also hoped that they will be able to accommodate themselves at the training place and be able to perform the task and responsibility given to them excellently.

To the companies/organization that have been willing to accept and train our students, the faculty would like to thank you and we hope that the good relationship will last with beneficial outcome to both parties.

Industrial Training Committee
Faculty of Mechanical Engineering
Universiti Teknologi Malaysia

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1.0 INDUSTRIAL TRAINING GUIDELINES, FACULTY OF MECHANICAL ENGINEERING (FME), UNIVERSITI TEKNOLOGI MALAYSIA (UTM)

1.1 INTRODUCTION

1.1.1 Background

All Faculty of Mechanical Engineering undergraduate students are compulsory to attend 12 weeks Industrial Training during the period of their studies. This training is part of teaching course that provides exposure to the world of careers for students to all the theories which learnt in the lecture room with reality and are willing to be involved in the work environment.

1.1.2 Related Programs for Industrial Training

Bachelor programs that required Industrial training are as follows:

i) Bachelor of Engineering (Mechanical) (SKMM)
ii) Bachelor of Engineering (Naval Architecture and Offshore Engineering) (SKMO)
iii) Bachelor of Engineering (Mechanical – Aeronautics) (SKMT)
iv) Bachelor of Engineering (Mechanical - Automotive) (SKMV)
v) Bachelor of Engineering (Mechanical - Materials) (SKMB)
vi) Bachelor of Engineering (Mechanical - Manufacturing) (SKMP)
vii) Bachelor of Engineering (Mechanical - Industrial) (SKMI)

Students will undergo training in Year Three in the short semester of their studies. To undertake this Industrial Training, students must pass the core courses (SKMM 2123, SKMM 2223, SKMM 2323, SKMM 2423, SKMM 2433, SKMO 2123) and obtained at least a total of 80 credits and minimum grade D- (30%).

2.0 GOALS OF INDUSTRIAL TRAINING

The goals of Industrial Training are to enhance students' knowledge and skills to a career in their respective professions, as well as to produce graduates with professional, ethical, skilled, creative and competent.

3.0 OBJECTIVES

Industrial Training objectives are :

i) to expose students to the environment and working conditions in their respective fields
ii) to gain working experiences in the organization/industry related field of study
iii) to use the knowledge of the Industrial Training, which was followed at university
iv) to train students to interact and communicate effectively at all levels in the workplace
v) to train students to prepare technical reports related to the Industrial Training which conducted
vi) to inspire a spirit or working as a team
vii) to appreciate the ethical values of their profession

4.0 SCOPE AND TRAINING PROGRAM

The scope of training to be passed by students in the company/organization includes various aspects such as :

i) to observe organization's operations/factories/companies
ii) to perform operations by making use of machinery and equipment
iii) to work on the installation and fabrication

iv) inspection and quality control
v) to work on process control and instrumentation
vi) to work on project design
vii) maintenance and repair of machinery and equipment
viii) installation of new equipment and testing
ix) management and administration
x) consultation

However, the scope and the actual training program depend on the type of companies/organizations involved. The program which only requires students to carry out production work alone is not sufficient and will not be ratified by the faculty.

The companies/organizations are requested to provide appropriate training to students who will work as an engineer/industrial designer after completing their studies.

Faculty supervisor will visit the company/organization monitor and discuss about student progress.

Company/organization's supervisor is requested to submit student's evaluation reports at week 12 of training, which is shortly after the end of Industrial Training.

5.0 RESPONSIBILITIES OF STUDENTS

Students who carry out Industrial Training is responsible to complete all projects and tasks given by the organization within the specified time. Particularly, other student responsibilities are :

i) to find a place and get information about jobs in the organization/industry to ratify by the Faculty's Industrial Training Committee

ii) to inform officially to the organization if students want to withdraw from training attachment and a copy letter is send to the faculty

iii) to attend a briefing/explanation on Industrial Training

iv) to inform the Faculty's Industrial training committee immediately after start of training (use form BLP-01)

v) to comply with all the organization's regulations

vi) to comply with the Universities and University Colleges Act's

vii) to ensure full attendance in the organization. The company/organization is encouraged not to give permission for students to leave during training except for emergencies or company's holiday. If students leave because of health (evidenced by medical certificate and not later than one week) the students do not need to replace the number of days off.

viii) to perform all the duties and responsibilities assigned by the organization

ix) to meet the scope of required training

x) to keep the university's reputation

xi) to cooperate with the organization all the time

xii) to contact the Faculty's supervisor immediately if any problem's raised during the training

xiii) to write notes in the log book, write final Industrial Training report and perform any other tasks given during the training

xiv) to submit all training related documents to the Faculty's Industrial Training Committee

xv) always be positive and contribute according to student ability

xvi) to make good relationship with the organization for future jobs

6.0 NOTES AND STUDENT'S REPORT

All students who undergo Industrial Training are required:

i) to write the training program (after consultation with the supervisor of Industrial Training) and work/activities undertaken during their Industrial Training in the log book.

ii) to prepare a comprehensive final report on training programs (not less than 50 pages) and the report must follow the UTM Thesis Writing Handbook's format.

7.0 LOG BOOK INSTRUCTION

i) To log all relevant industrial training activities in log book.

ii) Log book to be handed in to company/organization supervisor upon training completion for endorsement.

iii) Log book to be handed weekly to company/organization supervisor for assessment.

iv) Log book to be shown to faculty supervisor during his/her industrial visit.

v) Any misreporting in the log book will be dealt accordingly.

vi) Log book to be handed in to the faculty not later than one (1) week upon the Industrial Training completion.

8.0 GUIDELINES FOR COMPLETING THE LOG BOOK

8.1 Students Overall Industrial Training Activities Gantt Chart

Overall training planning must be done prior to the commencement of Industrial Training. This chart must be completed after discussing with company/organization supervisor. This chart must be completed not later than two (2) days after reporting to the company/organization.

8.2 Table of Daily/Weekly Student Activity and Assessment Form by Company/Organization Supervisor

These tables must be filled by student every week.

8.3 Assessment Form of Overall Student Activity by Faculty Supervisor

This is the overall students activity assessment form to be filled by faculty supervisor

8.4 Table of Detailed Student Activity

This table must be completed by students to report in details what have been summarised

9.0 ASSESSMENT OF TRAINING

The performance of students during their Industrial training and personality development should be evaluated by both faculty's supervisor and industrial's supervisor. The assessment includes quality of work and student's personality. In overall Industrial's Training assessment includes:

i) observations and reports from faculty's supervisor
ii) observations and reports from the supervisor's of the company/organization

9.1 Observations and Reports From Faculty's Supervisors and Supervisor's of the Company/Organization

9.1.1 Faculty's Supervisory Report [20%]

The performance of students during their Industrial Training assessed by the faculty's supervisor is based on face-to-face interviews with the student and feedback from industrial's supervisor. BLP-02 form is used for the purpose of this assessment. Overall mark for this report is 20%. Evaluation of supervisor reports were made through interviews that includes:

a) ability to describe clearly their training experiences. Capability to describe their adaptability with the company/organization.

b) maturity answering questions. Ability to discuss problems with supervisors.

9.1.2 Industrial/Organization Supervisory Report [30%]

Industrial supervisor is also asked to assess student's performance. The assessment of students including job performance, work and character building. BLP-03 is used (Appendix 3) for the purposes of this assessment. Overll mark for this report is 30%. Industrial's supervisors are required to provide an assessment of student performance which includes the two scopes as below:

a) Performance of work
- knowledge of work
- the credit for completing work on time
- the time taken to obtain job skills
- the need for supervision
- quality of work

b) Personality
- the ability to communicate
- initiative and motivation
- attitude towards work
- discipline

9.2 Log Book [10%]

Log Book is a student's diary. Through log book, the supervisor can understand the activities undertaken by students during their Industrial Training. Log book contains all the job experiences, discussions with supervisors, comments, data and information from the company/organization, and library's references. Overall score for the log book is 10%. The components evaluated from the log book includes:

i) tidieness of the log book (1%)

ii) confirmation by the organization's supervisor (at least once a week) (1%)

iii) description of equipment or systems to use and simple procedure (4%)

iv) the detailed of content and student's learning experiences (3%)

v) the learning experienced by students (1%)

The log book assessment is assessed by the faculty's supervisor.

9.3 Final Report [40%]

Apart from the log book, students are also required to prepare the final report. This report contains brief information about the background of the company/organization, the scope of training, the content of the training provided with detailed proposals to the company/organization and faculty and the conclusions. A copy of the final report should be sent to the company/organization if requested. Details of the final report's format is as follows:

a) Introduction (10%)
- introduction to the Industrial Training
- objective of Industrial Training
- scope of Industrial Training
- summary of Industrial Training

b) Background of Industrial/Organizational (10%)
- company profile
- organizational structure
- information on the department/unit which involves for Industrial Training
- flow chart of the industry/organization

c) Comprehensive Training Information (10%)
- description of the training was conducted in general
- the experience gained

d) Project Information/Training in Specific (40%)
- the objective of the project/training is clearly presented
- implementation of project-related training
- results of project-related training
- ability to analyze, problems solving and links all the information, procedures and projects related to the field of study

e) Conclusion (10%)
- the conclusion of the report
- problems and recommendations
- references

f) Writing Skills (10%)
- composition, sentence's structure and style
- appropriated and clearly presented all the figures, tables, chart etc

g) Format of the Report (refer to UTM's Thesis Writing Guide) (10%)
- the composition and contents of the report
- the size and format
- references formatting

10.0 MARK WEIGHTAGE

The weighted score for the whole period of Industrial Training for 12 weeks is as follows:

a. IT report - 40%
b. Industry' supervisor assessment report – 30%
c. Faculty supervisor assessment report - 20%
d. Log book - 10%

10.1 Requirement of Pass Grade for IT

i) Passing mark is 60% out of the total mark with conditions:

a. the marks on industry supervisory report must be at least 15% (from 30% of total marks of industrial's supervisory report)

b. the total score for industrial's supervisory and faculty's supervisor report must be at least 25% (from both of the two supervisors)

c) Report must be submitted to faculty

10.2 Plagiarism

Plagiarism is defined as the unauthorised use or close initation of the language and thoughts of another author and the representation of them as one's own original work by not crediting the author.

Plagiarism are considered as follows:

i) full copy of statement/sentences as one's own original statement. Statement must be repharased by using own wording and make a critetion of the sourses.

ii) adopted idea directly from the original references without criting the sources.

Plagiarism is a serious academic misconduct that may be subjected to action under the Disciplinary Rules of the University.

11.0 SUMMARY OF ACTIVITY AND ASSESSMENT FORMS

11.1 Students activity planning

11.2 Students weekly activity and assessment forms by company/organization supervisor

11.3 Overall activity assessment form by faculty supervisor.

11.4 Students detailed activity

8.1 – STUDENTS OVERALL INDUSTRIAL TRAINING ACTIVITIES GANTT CHART

Place/Department	*Types of Training	Date: 19/7/2021 Upto : 23/7/2021 WEEK 1	Date: 26/7/2021 Upto : 30/7/2021 WEEK 2	Date: 2/8/2021 Upto : 6/8/2021 WEEK 3	Date: 9/8/2021 Upto : 13/8/2021 WEEK 4	Date: 16/8/2021 Upto : 20/8/2021 WEEK 5	Date :23/8/2021 Upto : 27/8/2021 WEEK 6
Admin and Engineering	1) Management and administration 2) Learn how to read the project design 3) Consultation 4) to observe organization's operations/factories/companies	Know what is manufacturing process	Read the design of the chiller in BIPV project	Learn how chiller work and what is chiller	Learn to do admin work	Type of solar panels	Know specifications the solar panel

8.1 – STUDENTS OVERALL INDUSTRIAL TRAINING ACTIVITIES GANTT CHART

Place/Department	*Types of Training	Date: 30/8/2021 Upto : 3/9/2021 WEEK 7	Date: 6/9/2021 Upto : 10/9/2021 WEEK 8	Date :13/9/2021 Upto : 17/9/2021 WEEK 9	Date: 20/9/2021 Upto : 24/9/2021 WEEK 10	Date: 27/9/2021 Upto : 1/10/2021 WEEK 11	Date: 4/10/2021 Upto : 8/10/2021 WEEK 12
Admin and Engineering	1) Inspection and quality control 2) Technical training	Type of battery and inverter	Site visit at Kota Tinggi -do some inspection to the machines	Learn to do the PTW (permit to work)	Having meeting with SV and having ROTU Navy camp	Configuration of CTTV system	Quality inspection on the component that commonly use in security system

* Types of training examples

1) Handling of equipment
2) Operational observation
3) Welding and assembling work
4) Collection and analyzing data
5) Report Writing

……
Student's signature

Date : …….

……..
Supervisor's signature

Name : …….

Post & stamp : …….

Date : ……..

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 1**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
19/7/2021	23/7/2021	• During MCO all office worker work from home	9AM – 4PM (Working hours during MCO)

Instruction to supervisor:

Please refer to the student report in Table 8.4 before accessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Supervisor's signature & date : …….

Name : …….

Post & stamp : …….

Date : …….

Comments:

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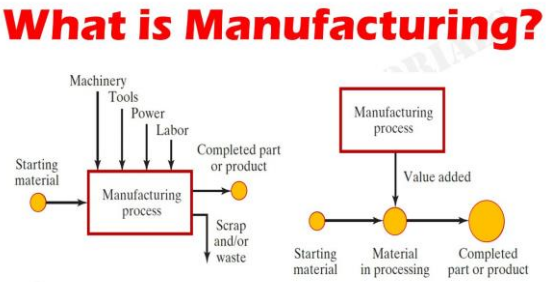
DETAILED REPORT

- As everyone WFH during this pandemic I also WFH before entering the company
I do some study on manufacturing process.
What is manufacturing process?
Manufacturing process is are the step through which raw material are transformed into a final product



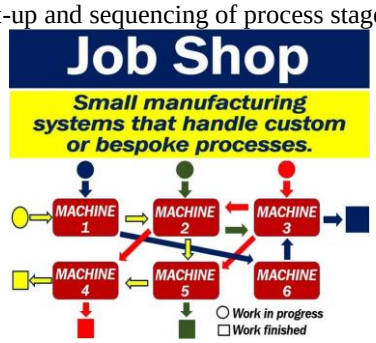
-There **5 type of manufacturing process**:-

i)Repetitive manufacturing
- Repeat production that commits to a production rate and the operataion speed can be increased or decreased to meet demands or requirements.

ii) **Discrete manufacturing**
-A term used in the industry to describe the production of finished goods that are easily counted, handled, or seen.

Difference between process and discrete manufacturing

iii)**Job Shop manufacturing**
-Small quantities of a range of unique products are manufactured in this type of manufacturing procedure. Most of the goods produced in a job shop require a particular set-up and sequencing of process stages.



iv)**Process manufacturing(continous)**
-A continuous supply of raw materials while the manufacturing process is in progress that allows items to be produced or processed without interruption.

iiv)**Process manufacturing(Batch)**
-A production method in which things are produced in predetermined groups or quantities over a set period of time. To produce the final desired product, a batch can go through a succession of steps in a major manufacturing process.

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 2**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto	• Work from home • Got work from the company to do research about the chiller • Read the design specification of the chiller	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)
26/7/2021	30/7/2021		

Instruction to supervisor:

Please refer to the student report in Table 8.4 before accessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Supervisor's signature & date : …….

Name : …….

Post & stamp : …….

Date : …….

Comments:

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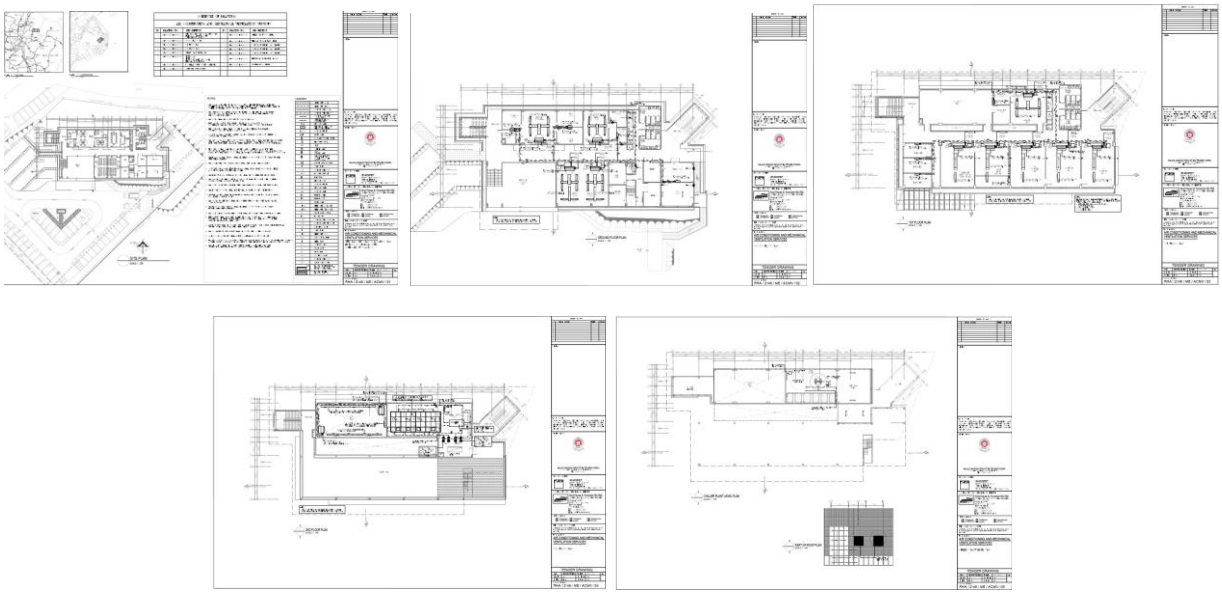
DETAILED REPORT

For the week interpret the designs the building that have the chiller inside.



This is some example of the design

From the design I know the position of the chiller and ACMV (air conditioning and mechanical ventilation) system.

- In this building we have only one chiller that will cover the whole building. Besides that, we also have chiller water pump 1 stand by and 1 duty. On addition, we also have condensed water pump 1 stand by and 1 duty. All of this are at the same level of the building.

- The **chilled water pump** is **used to circulate chilled water in a closed system**. The chilled water pump circulates return chilled water from the air handling units & fan coil units back to the chiller.

- A pumping system circulates chilled water or a water/glycol solution from the chiller to the process in most process cooling applications. The warm fluid returns to the chiller as the cool fluid eliminates heat from the process. The process water is used to transport heat from the process to the chiller.

- **Condensate pumps** collect and disperse hot water and liquid produced by condensation from heating systems, such as gas and oil condensing boilers, from the production of refrigerated air, such as air conditioning and refrigeration systems, air dehumidifiers and evaporators, and the steam produced by heat exchangers and radiators.

- As water flows into the condensate pump basin. The water level rises and triggers the float switch. The motor then pumps the water up through the discharge tube. When the water level drops.

Example of chiller water pump, condensed water pump and chiller

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 3**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
2/8/2021	6/8/2021	• Work from home • What is chiller	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)

Instruction to supervisor:

Please refer to the student report in Table 8.4 before accessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Supervisor's signature & date : …….

Name : …….

Post & stamp : …….

Date : …….

Comments:

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DETAILED REPORT

CHILLED WATER REFRIGERATION MACHINES

- Chiller have many of type of chiller in this project they want to used Oil free Chilled water refrigerant machines (chillers) shall be water-cooled of approved manufacture with centrifugal compressor/s driven by either hermetically sealed or open motor, direct or gear driven, operating on non-toxic, non-flammable and non-CFC refrigerant of the HFC family (HFC-134a, HFC-407c, HFC-507).Chiller manufacturer shall be certified by ISO 9001, ISO 14001, ISO 18001 and AHRI standard.

- Oil-free chiller with microprocessor control, two stage centrifugal variable speed oil-free compressor(s), and electronic expansion device the oil-free compressor must have a variable-speed drive that is cooled by refrigerant.

- The chiller set's capacity must be calculated with an evaporator refrigerant temperature of not less than 1.5°C and a condenser refrigerant temperature of not more than 40.6°C. The given capacity is the chiller set's net cooling capacity. The capacity required for motor cooling shall be added to the net capacities to obtain the total cooling capacity required. The complete unit shall be dehydrated, sealed and shipped with a refrigerant and oil charge.

- Chillers shall consist of compressor, motor, evaporator, condenser, integral water and refrigerant piping and valves, controls and all other necessary components and accessories factory assembled into a compact machine. All components shall be designed for the refrigerant used.

For this project there, **safety and operating controls** that we have to follow, this is depend on the client wants.

Each chiller shall incorporate a factory fitted microprocessor-based control panel, containing all necessary components for the efficient and correct control of the chiller within the specified parameters.

Where three (3) or more chillers are installed in parallel, a Master Control Panel incorporating a comprehensive Chiller Optimization Programmed shall be provided, which includes calculation of energy consumption by pumps and cooling towers in its chiller sequencing programmed control.

The required integral operating and safety control of the machines shall include as a minimum the following items:

(a) Condenser high pressure cut-out.

(b) Phase failure protection against low voltage, phase imbalance or phase reversal.

(c) Motor winding high temperature cut-out.

(d) Refrigerant low temperature cut-out.

(e) Chilled Water and condenser water pump interlock.

(f) Chilled water and condenser water flow switch interlock.

(g) “Local” and “Remote” switch.

(h) Chilled water low temperature cut-out.

(i) Low oil pressure cut-out.

(j) High refrigerant discharge temperature.

(k) Predetermined delay between compressor starts.

(l) Chilled water temperature control as required by this specification.

(m) Motor current demand limiting control.

(n) Leaving chilled water temperature remote reset control.

(o) % motor current remote reset control.

(p) External indication of operating alarm to remote location.

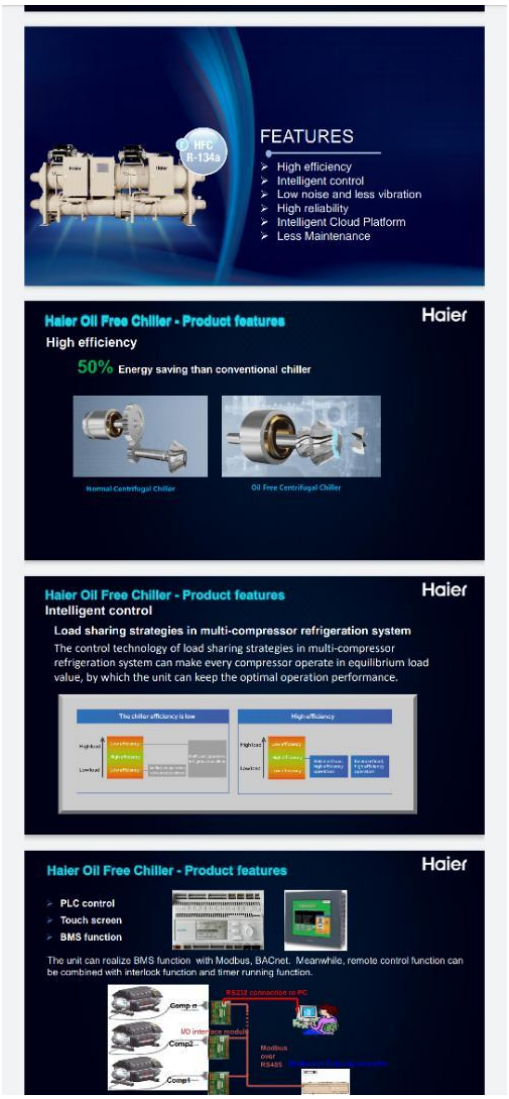
(q) Infinitely variable capacity control to modulate compressor slide valve or cylinder unloader with Energy Management System (EMS) programmed to determine number of compressors versus part loaded compressor/s operation.

The chiller controller shall limit the compressor from starting for more than 5 times in one hour. Time delay shall be provided to prevent short-cycling of compressor.

The chiller shall be shut down with alarm indication or alarm messages displayed on the control panel when any of the following occurs:

- Low evaporator pressure
- Low chilled water temperature
- High condenser pressure
- No/Low chilled water flow
- No/Low condenser water flow
- High motor temperature
- phase sequence
- No/Low chilled water flow alarm, No/Low condenser water flow alarm and phase sequence alarm shall be auto reset by the chiller controller for smooth operation.

An emergency stop button shall be provided to cut-off the operation of the chiller in case of any emergency.
of any emergency. The control panel shall include a key pad with an informatic display panel. Access for programming of operating set points shall be via password. All safety and operating programming parameters shall be displayable with keypad interaction. Connections between chiller set controls and instruments and control panel shall be so installed as to allow for movement of the chiller set without causing fatigue to wires or tubes.



Two brand that company consider to use in this project were HAIER and CLIMAVENETA

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 4**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
9/8/2021	13/8/2021	• Reporting duty to supervisor Ms. NorMasliana Binti Zaini • Briefing about the work scope that I will do in the office. • Explain rules and regulation that I must to follow during the internship with the company and SOP during I come to the office. • Introduce me to my colleague and my co-worker • Learn how to do invoice and purchase order	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)

Instruction to supervisor:

Please refer to the student report in Table 8.4 before accessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Supervisor's signature & date : ……

Name : ……

Post & stamp : ……

Date : ……

Comments:

……

……

……

DETAILED REPORT

- On the first day of reporting duty to Ms. Normasliana my supervisor at the company. She does some briefing to me how I will work and to follow the SOP during the pandemic and the regulation of the office. Besides that, she also mentions the job I will do during my internship with the company.

- The second day, Ms.Masliana introduce me to the staff of the company and not all of them only some of the staff that work at the moment.
- Next day, Ms.Normasliana show how to do the invoice and the purchase order of the company.

Intersignals Sdn. Bhd. (809167-M)
Communication & Security System Integrator

PURCHASE ORDER

Bill To:
AFFA ENERY EXPERT TRADING
NO 100 LORONG SAWI SEBERANG LALANG
KAMPUNG CHABANG KERTEH,24300
KEMAMAN ,TERENGGANU

No : 00620
Date : 28.05.2021
Your Ref : 0025
Page : 1

Subject : TO SUPPLY FOR RENTAL INSTRUMENT TEST EQUIPMENT

Item	Descriptions	Code	Quantity	Unit Price RM	Total Price RM
1	FLUKE PROCESS METER 2 UNIT FLUKE 789 PROCESS METER 1 UNIT FLUKE 725 PROCESS METER 1 LOT COPY CALIBRATION CERTIFICATE 3 PCS HAND CARRY SOFY BAG	5823	3	2,700.00	8,100.00
				Total (Not Include 0% SST)	8,100.00
				Dicsount %	600.00
				Additional 0% SST	-
				Total Amount	7,500.00

INTERSIGNALS SDN BHD

horized signatories

Head Office:
No. 52, Jalan Bulan U5/BN, Seksyen U5, 40150 Shah Alam, Selangor Darul Ehsan.
www.intersignals.com.my

Intersignals Sdn. Bhd. (809167-M)
Communication & Security System Integrator

Fax: +603 – 7847 4612

INVOICE

Bill To:
ATT TANJUNG BIN SDN BHD
LOT 8095-1, WISMA ATB,
PUSAT PETROLEUM TANJUNG BIN,
82300 SERKAT, PONTIAN,
JOHOR DARUL TAKZIM

No : 00716
Date : 22.03.2021
Your Order No: 770-605058
Page : 1
Term: 30 days

Item	Descriptions	Quantity	Unit Price RM	Total Price RM
1	Configuration of workstation, server and centralized user name and password - Modification work for the system including site work - Establish remote access for server	1	17,200.00	17,200.00
2	Mob and demob	2	2,500.00	5,000.00
	ACCOUNT NO: 21232100020725 BANK: Rhb Bank Berhad	Total Add SST @ 0%		22,200.00 -
	Interest rate at 1.5% per month will be charged on all overdue. All cheque should be crossed and made payable to "INTERSIGNALS SDN BHD". Goods will remain our property until full payment for them has been received.	TOTAL PRICE		22,200.00

INTERSIGNALS SDN BHD

Authorized signatories

Head Office:
No. 52, Jalan Bulan U5/BN, Subang Bestari,
Seksyen U5, 40150 Shah Alam, Selangor Darul Ehsan.
www.intersignals.com.my

- **Invoices** is a time-stamped commercial document that itemizes and records a transaction between a buyer and a seller is known as an invoice. If products or services were acquired on credit, the invoice usually spells out the conditions of the agreement and lists the various payment options.
- **Purchase orders** are used to obtain products for direct consumption or stock, to procure services, to cover customer requirements with external resources, or to procure a material from an internal source that is needed in plants (long-distance intra-plant stock transfers).

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 5**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
16/8/2021	20/8/2021	• Mr.Rahman assign me to do some research about building-intergrated photovoltaics (BIPV) and do some briefing about the project that company participated on 16th . • Have meeting with the client about BIPV project. • Discuss about the specification that client want. • Do some research about the Photovoltaics type. • **Monocrystalline solar** • **Polycrystalline solar** • **Printed Solar panel/ thin solar panel**	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)

Instruction to supervisor:

Please refer to the student report in Table 8.4 before accessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Supervisor's signature & date : ……

Name : ……

Post & stamp : ……

Date : ……

Comments:

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DETAILED REPORT

On 16th I meet Mr. Rahman and he told me about the project that company want to take as a new project for the next month. He does some briefing for about the project is building-integrated photovoltaic (BIPV).

- A **Building Integrated Photovoltaics (BIPV) system** consists of integrating photovoltaics modules into the building envelope, such as the roof or the facade. By simultaneously serving as building envelope material and power generator, BIPV systems can provide savings in materials and electricity costs, reduce use of fossil fuels and emission of ozone depleting gases, and add architectural interest to the building.
- While the majority of BIPV systems are interfaced with the available utility grid, BIPV may also be used in stand-alone, off-grid systems.
- One of the benefits of grid-tied BIPV systems is that, with a cooperative utility policy, the storage system is essentially free. It is also 100% efficient and unlimited in capacity. Both the building owner and the utility benefit with grid-tied BIPV.
- The on-site production of solar electricity is typically greatest at or near the time of a building's and the utility's peak loads. The solar contribution reduces energy costs for the building owner while the exported solar electricity helps support the utility grid during the time of its greatest demand.
- A **complete BIPV system** includes:

  a) the PV modules (which might be thin-film or crystalline, transparent, semi-transparent, or opaque)

  b) a charge controller, to regulate the power into and out of the battery storage bank (in stand-alone systems)

  c) a power storage system, generally comprised of the utility grid in utility-interactive systems or, a number of batteries in stand-alone systems

  d) power conversion equipment including an inverter to convert the PV modules' DC output to AC compatible with the utility grid

  e) backup power supplies such as diesel generators (optional-typically employed in stand-alone systems)

  f) appropriate support and mounting hardware, wiring, and safety disconnects.

The next day we discuss about PV technologies

The Photovoltaic (PV) technologies:

There are two basic commercial PV module technologies available on the market today:

1. **Thick crystal products** include solar cells made from crystalline silicon either as single or poly-crystalline wafers and deliver about 10-12 watts per ft² of PV array (under full sun).
2. **Thin-film products** typically incorporate very thin layers of photovoltaicly active material placed on a glass superstrate or a metal substrate using vacuum-deposition manufacturing techniques similar to those employed in the coating of architectural glass. Presently, commercial thin-film materials deliver about 4-5 watts per ft² of PV array area (under full sun). Thin-film technologies hold out the promise of lower costs due to much lower requirements for active materials and energy in their production when compared to thick-crystal products.

Basically in this project they will use thin-film product. There 3 type of solar panel are monocrystalline,polycrsyatalline and thin-film/printed solar panel.

Monocrsyatalline solar panel

- the highest efficiency rates, typically in the 15-20% range. This high efficiency rate means they produce more power per square foot, and are therefore very space-efficient.
- Higher life span (around 40 years) & last longer.

Polycrystalline solar panel

- solar panels that consist of several crystals of silicon in a single PV cell.
- polycrystalline solar panels **are cheaper and eco-friendlier to produce**, they are also used in large solar farms, roof-mounted arrays, traffic-lights, houses, etc.
- These solar panels are square in shape and they have a shining blue hue as they are made up of several crystals of silicon
- Life span (around 35 years)

Thin-film/printed solar panel

- Solar cell work very well even in cloudy weather.
- This will allow solar cells to be much cheaper and be placed almost anywhere
- Paper thin solar cells or eventually direct 3D printing will allow to create solar cells on blinds, in windows, in curtains, and almost anywhere in the home.

EXAMPLE OF BIPV

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 6**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
23/8/2021	27/8/2021	• Get to know specification of solar panel • What U and G value meaning in solar panel? • How we adjust the transparency we needed to operate the building itself without using grid electric form TnB	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

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DETAILED REPORT

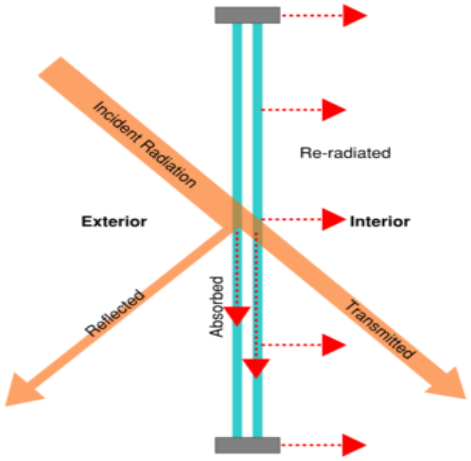
When we want to get solar panel, we need to go through the specifications that suitable for our building so that the energy will absorb effectively and at optimum work.

U-value

- Thermal transmittance, also known as U-value, is the rate of transfer of heat through a structure (which can be a single material or a composite), divided by the difference in temperature across that structure. The units of measurement are W/m^2K.
- In other word we can call it insulation capacity
- U-values can tell you how well an insulated glass unit (IGU) will hold in heated or cooled air. **The lower the number, the better the insulating performance**. U-values generally range from 0.1 (very little heat loss) to 1.0 (high heat loss).
- U-value is for indirect sunlight.

SHGC g-value

- Solar gain (also known as solar heat gain or passive solar gain) is the increase in thermal energy of a space, object or structure as it absorbs incident solar radiation. The amount of solar gain a space experiences is a function of the total incident solar irradiance and of the ability of any intervening material to transmit or resist the radiation.
- We need to know the heat that pass through the glass so that we know how much the glass can absorb the heat from direct sunlight.



How it works g-value that we calculate or absorb

Transparency (VLT)-visual light transmission

- We must decide the VLT that can pass through the window or glass
- For example, if you apply a tint of 70% VLT, it **allows 70% of sunlight to pass through your windows**. ... The darker the film you apply, the lower the amount of light that can get through will be — more light will be reflected off your window.

Module efficiency (STC)- standard test condition

- Standard Test Conditions (STC) refers to the fixed set of laboratory conditions under which every solar module is tested. Manufacturers use STC testing to ensure that photovoltaic panels with similar energy output can be sold and used together.
- The STC rating of a solar module is determined by carefully controlling light and temperature in the testing environment.

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 7**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto	• Type of battery use for storage at BIPV. • Inverter that might efficient to used	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)
30/8/2021	3/9/2021		

Instruction to supervisor:

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Post & stamp : …….

Date : …….

Comments:

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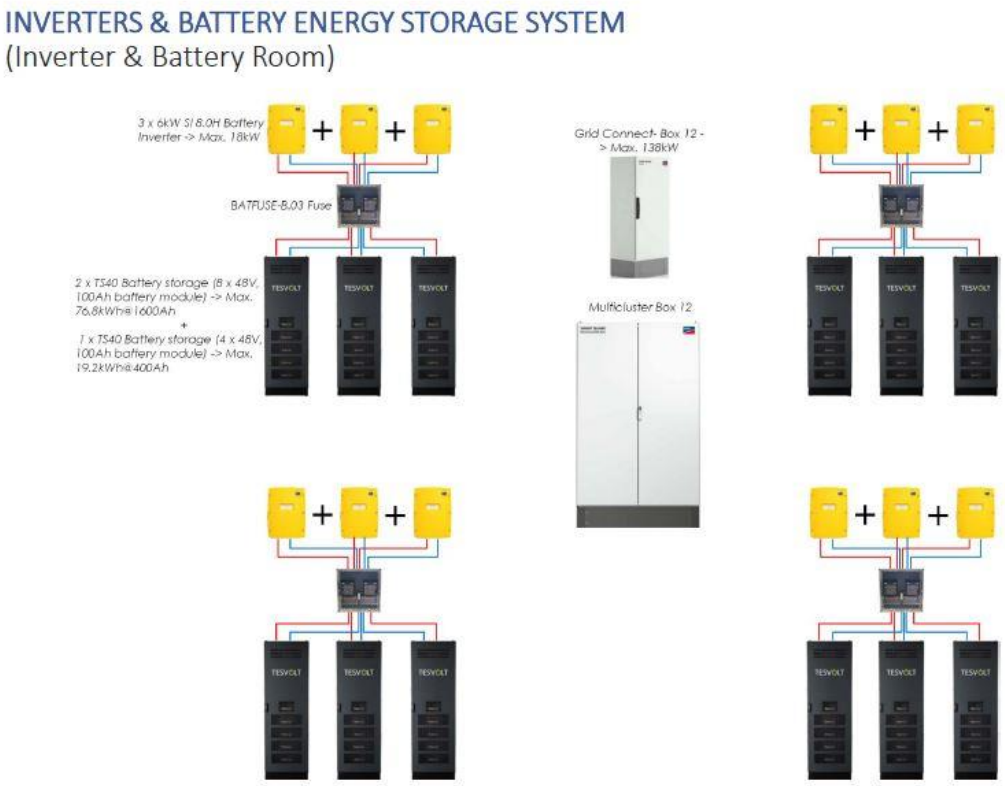
DETAILED REPORT

- As we all know when come to solar panel we must provide battery to store the energy that solar panel has absorb. Besides that, battery for solar its quite expensive among others component in solar panel system.
- In addition, we also need inverters because inverters play a crucial role in any solar energy system and are often considered to be the brains of a project.
- The main function of an inverter is to convert direct current (DC) into alternating current (AC) (AC). Because many business appliances use AC, many people consider inverters to be the “gateway” between the photovoltaic (PV) system and the energy off-taker.
- Inverter technology has progressed to the point where, in addition to converting DC to AC, they now offer a variety of additional capabilities and services to ensure that the inverter performs at its best, including data monitoring, advanced utility controls, applications, and system design engineering.
- Inverter manufacturers also provide post-installation services that are integral to maintaining energy production and a high level of performance for the project, including preventative maintenance, O&M services and a quick mean time to repair (MTTR)



Example of battery for project BIPV

INVERTERS & BATTERY STORAGE SYSTEM
(Concrete Roof)

Example of inverter for BIPV project

- From there I learn the importance to get the best battery and inverter for the solar panel, so that the energy we absorb we could store and use at efficient rate.
- This project also open new path for the building system for the upcoming future.

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 8**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
6/9/2021	10/9/2021	• Site visit at Bukit Aping, Kota Tinggi. • Get to know how the site work through the procedure and SOP from company and state. • Learn how to check the machine properly and how it works.	9AM-4PM (Working based on schedule that company provide to come to office Monday, Wednesday, Friday and others day work from home)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

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Supervisor's signature & date : ……

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Comments:

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DETAILED REPORT

- On 6th have meeting with Ir. Abdul Hamid Mohamed Zin about the project BIPV, we discuss on how to find supplies to comply with the project.

- On 7th on the way to Kota Tinggi to have site visit.

- Arrives at Kota Tinggi in evening and have some short introduction with site supervisor there Mr. Rozie.
- I assist Mr. Rozie to inspect the machine that the contractor used was safe and able to used. The machine that we inspect was metal cut off machine. Two of the machines have some spark on the motor so we decided not to use the machine and buy a new machine to go on with the work.

- On 8th, in the morning Mr.Rozie will give briefing about work that contractor must do. Besides that, he also briefs about that they must wear PPE during the works. After that, we inspect machines that contractor use, portable welding machine DC inverter. Check whether the machines functioning well.

- Welding machines are used to permanently connect metal pieces with heat generated from electrical energy.

- Two of the machine functioning well.
- On 9th as usual they will be briefing about the work, rule and regulation before continue on working, on that day we use backhoe to compact the crusher run. The backhoe we check the engine and the mechanical part are doing fine on it.

> Crusher Run, often known as hardcore, is a 40mm construction material that is commonly used as a foundation for a variety of surfaces. Crusher run, also known as hardcore, is made from crushed rock and stone

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 9**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
13/9/2021	17/9/2021	• Do the side diary and permit to work (PTW) as the site supervisor. • Do admin work such as filling. • Have meeting with Ir. Hamid about ACMV, radiant coolant and chiller. • Have meeting with Singapore supplier.	830AM-530PM (Working hours)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

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Date : ……

Comments:

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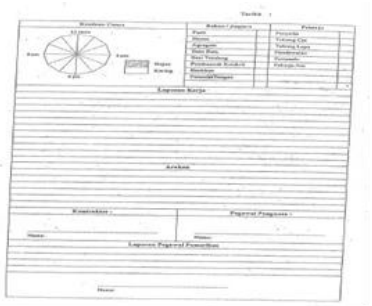
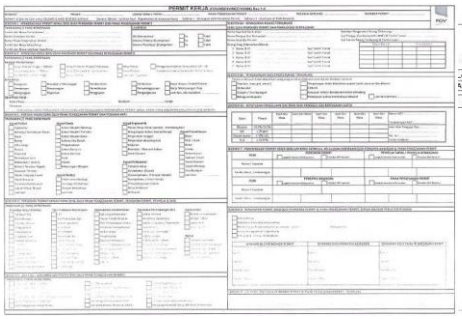
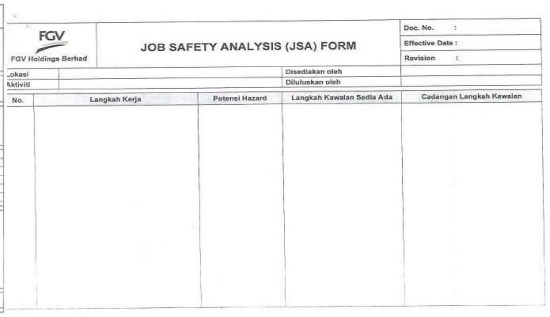
DETAILED REPORT

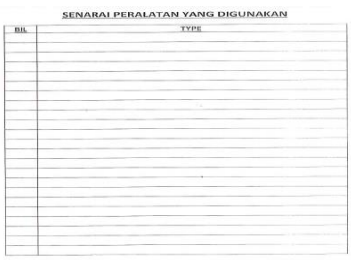
- As we on the site we also learn how to site diary and PTW for the project to proceed.
- Site diary we must to daily to update the company the progress on site whether the project follow the schedule or not.



- Once in a week we must fill in PTW as we do our work in felda must fill the FGV permit to work.







- On 13th have meeting with IR. Hamid about the BAS (building automation system) specification and the brands that our company propose that price quite pricey, we discuss want to change the brand.

- Also, discuss about chiller is there any pump in the drawing and design.

- Later on that day, Mr.Rahman call the Singapore supplier to set a meeting between our company with their company.

- On Friday I went to the site project at Gombak UniKL to have meeting with Mr.Ghazali about the BAS (building automation system) and the chiller.

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK : 10**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
20/9/2021	24/9/2021	• Do some admin work • Have meeting with SV faculty and company via google meet • Having ROTU Navy camp at KD Sri Klang.	830AM-530PM (Working hours)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

1 2 3 4 5

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Supervisor's signature & date : ……

Name : ……

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Date : ……

Comments:

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DETAILED REPORT

- Do some invoice and delivery order for the company easy to refer it when need within softcopy or hardcopy.

- On 23rd have meeting with SV faculty and company vis google meet since it still MCO, my SV faculty for this industrial training was Dr. Mohd Faridh Bin Ahmad Zaharuddin as he wants to observe what I have learn from the company during the internship with this company. The meeting went smoothly without any problem.

- this week I took 2 days leave because I have to attend ROTU Navy commissioning at Kuala Lumpur.

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 11**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto	• Learn how to setup CCTV • What cable we use and the function	
27/9/2021	1/10/2021		830AM-530PM (Working hours)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

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Supervisor's signature & date : ……

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Date : ……

Comments:

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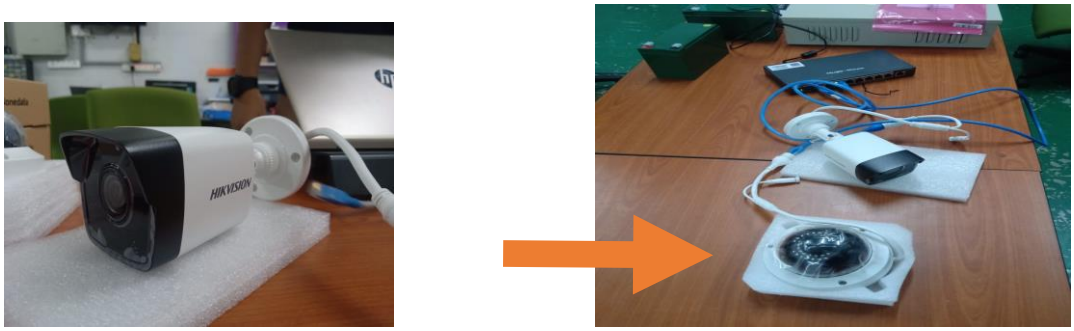
DETAILED REPORT

- Mr. Anwar has shown to me how to configure the CCTV system that company use for the client, we configure it first before we setup the CCTV at the site. From that we manage to save some time in system setup.
- An analogue camera is a traditional camera used in CCTV systems. It sends video over cable to VCRs or DVRs. IP cameras are all digital cameras that can send signals over cable to be stored in the network. Many security camera systems today are hybrid systems incorporating both analogue and digital components.
- IP (Internet Protocol) cameras digitally transmit a signal, while analog CCTV (closed-circuit television) cameras send footage over a cable the old-fashioned way. But there are also a host of features in digital, Internet-enabled cameras.

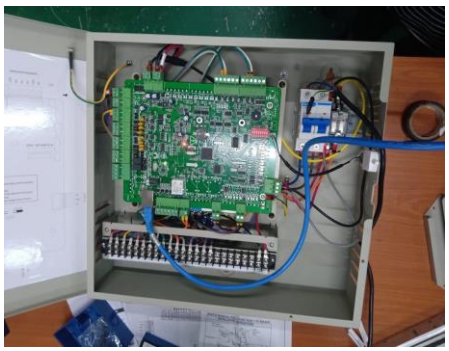
	Advantages	Disadvantages
Analogue	-**Cost:** The most obvious reason to stick with your analog system is the price tag. Analog cameras tend to be significantly cheaper, especially as your camera count increases. -**Simplicity**: Analog cameras are fairly easy to run, sending recordings to a digital video recorder (DVR), which then converts the analog to digital and stores it. DVRs are also simple to set up and run. -**Larger pool of installers and vendors**: Since analog cameras have been around for years and because they are fairly simple to install, you may have an easier time finding an installer, as well as a vendor.	-**Frame rate and image quality:** The frame rate of analog cameras is lower than that of IP, so they're not ideal for areas that have a lot of motion or that need to be seen in high detail. Images are not as sharp and may appear grainy or blurry. You also can't digitally zoom in like you can with IP cameras. -**Less coverage:** It may take more analog cameras to cover the same amount of area as it would take one IP camera. -**More cables:** You need a power cable, plus a DVR cable, whereas you only need one cable with IP cameras. -**No encryption:** A lack of encryption means a hacker could potentially access your information or replace your signal with an outside one
IP(Internet Protocol)	-**Ease of installation:** Whereas an analog camera takes two wires, an IP camera only takes one for both data and power that connects to a network switch, so you don't need power at the camera site -**Intelligence and analytics:** IP cameras are basically small computers that compress and store video, plus they can be programmed to provide all sorts of analytics. They can detect motion or smoke, count people, track certain colors, sense when something disappears, and set off alarms. -**Less equipment:** Whereas with an analog camera you need to have an encoder or decoder, there's no need for that with IP. -**Multiple sensors:** IP cameras have the ability to contain three or four cameras in one, which can cover an area that may normally take multiple cameras to cover	-**Cost of initial set-up:** It may cost more to initially set up your IP camera system if you're making the switch from analog; however, once you have it set up, it's much easier to tailor and scale your system as needed. -**Storage:** IP cameras are higher resolution, so they generate larger files than analog. You'll need to adjust your storage space accordingly.

DETAILED REPORT

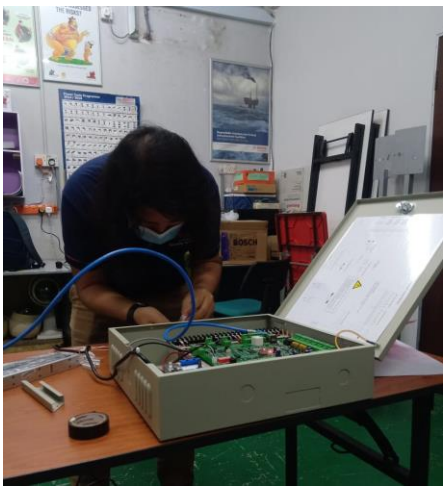


Example of Bullet and Dome CCTV

- Next, we learn how to setup and add some storage battery in the access controller if cause of blackout at the place that we want to setup.



Example of access control



Demonstration to setup access controller

- Also, we use fiber optic cable for the connection we use single mode and multimode. Fibre optic cables carry **light signals in modes**. A mode is a path that the light beam follows when traveling down the fibre. There are single mode and multimode fiber cables.
- **Single-mode fibre cable** is a single wavelength of light in the fibre core is the only mode of propagation. This means that, unlike multimode cable, there is no interference or overlap between the different wavelengths of light to garble your data over extended distances.
- **Multimode cable** has a large-diameter core that lets multiple modes of light pass through it. This means that more types of data can be transmitted.

Example of Single mode and multimode fibre optic cable

8.2 – TABLE OF DAILY/WEEKLY STUDENT ACTIVITY AND ASSESSMENT FORM BY COMPANY/ORGANIZATION SUPERVISOR

SUMMARY OF ACTIVITIES **WORKING WEEK: 12**			
Date		Work Summary/Daily Activities	Duration Hours
From	Upto		
4/10/2021	8/10/2021	• Quality inspection on the component • PIR motion sensor • Tone sounder • PoE Injector	830AM-530PM (Working hours)

Instruction to supervisor:

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WEEKLY EVALUATION OF SUPERVISOR IN COMPANY/ORGANIZATION

Work performance and student report:

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DETAILED REPORT

- For this week we have quality inspection om the component that part of CCTV system if the project needs it.
- First, we do the inspection on the PoE injector for 20-unit check whether the PoE injector can show the visual of the camera or not.
- A PoE injector **connects your PoE-enabled network device to a non-PoE LAN switch port**. Using a PoE injector avoids the need to run AC power lines for your wireless access point, network camera or IP phone, because you use the existing LAN cabling to deliver both DC power as well as data. In other words, it connects you with the camera and the pc to see what is happening.
- Next, we do the inspection on the tone sounder whether the tone sounder produce sound or not when the emergency alarm alert. Tone sounder also known as siren.
- For the next day, we continue our inspection on the PIR motion sensors. We inspect the component can detect the motion or not.
- PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out.
- A passive infrared sensor detects **body heat (infrared energy) by looking for changes in temperatures**. This is the most-widely-used motion sensor in home security systems.

PoE injector and tone sounder

PIR motion sensor

8.3 – ASSESSMENT FORM OF OVERALL STUDENT ACTIVITY BY FACULTY SUPERVISOR

FACULTY SUPERVISOR ASSESSMENT

Instruction to supervisor:

Please read the log book and interview the student before assessing and commenting. Please (√) in the appropriate box.

1. Poor
2. Unsatisfactory
3. Satisfactory
4. Good
5. Excellent

Student report:

1	2	3	4	5
☐	☐	☐	☐	☐

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Supervisor's signature : ……..

Name : ……..

Date : ……..