

EMPOWERING STUDENTS IN LARGE ONLINE CLASSES



WALKING THE TALK

Empowering does not mean transferring power to the students but creating an environment that allows students to own their learning



How would you define a large class size ?

Respond at PollEv.com/hayatiabdull809

There is no universal conception of the size of the small or large classes

2.2 Ketetapan nisbah staf akademik : pelajar untuk setiap bidang dan tahap dalam MQF seperti di bawah:

BIDANG	SIJIL, DIPLOMA DAN DIPLOMA LANJUTAN	IJAZAH SARJANA MUDA, SIJIL DAN DIPLOMA SISWAZAH	SIJIL DAN DIPLOMA PASCASISWAZAH, SARJANA	IJAZAH KEDOKTORAN (Kerja Kursus Dan Campuran)
SAINS SOSIAL	1:30	1:25	1:20	1:12
SASTERA DAN KEMANUSIAAN	1:30	1:25	1:20	1:12
SAINS	1:25	1:20	1:15	1:9
SAINS KESIHATAN BERSEKUTU DAN PERUBATAN	1:25	Perubatan (1:4)	1:15	1:9
		Sains Kesihatan Bersekutu (1:20)		
KEJURUTERAAN DAN TEKNOLOGI	1:20	1:15	1:15	1:6



**So, you have a large class.....
But now it's empty !**

DURING TIMES OF CRISIS

- DATA.....*so you can design meaningful learning experiences*
- COMPASSION.....*so you can be a human when using technology*
- MOTIVATION.....*so you can keep your sanity & your student's*
- WISDOM & TRUST.....*so you & your students can thrive.....*

DATA

- Entry Survey – Part 1

No.	ITEM
1.	Name
2.	IC Number
3.	Telephone number (WhatsApp)
4.	Email Address
5.	Hometown
6.	Location during the semester (If home - name of hometown) (If on campus – which college) (If off campus – which apartment/housing area)
7.	Access to computer? Access to smartphone? Sufficient mobile data ?
8.	Access to internet? Strong Internet ?
9.	Have a conducive environment to learn (no distraction) during the semester?

DATA

- Entry Survey – Part 2

No.	ITEM
10.	Family background
11.	Academic background <u>Subjects</u> <u>Academic achievement/grade</u> Physics Mathematics Additional Mathematics English
12.	Command of the English Language (Good, Moderate or Needing Improvement)
13.	My expectation for this course/What I hope for from this course
14.	I understand that I must attend all classes, monitor my own progress, maintain a learning portfolio and study smart in order to successfully achieve the course learning outcomes (CLO) and attain a fulfilling experience. Signature:

COMPASSION

The measure of us is during trying times.....

Work from home & submit your assignment online.....



MOTIVATION

What do you see in the photo below ?



**If you see that as a bird instead of a cat,
you've been in front of the computer for too long !**

WISDOM & TRUST



ANTI-CHEATING HELMETS

Source: <https://imgur.com/x6tA6de>

The New Normal ?

“It’s not just about a new way of living.
It’s also about a new way of thinking.”

Define a large class not in terms of number of students
but the quality of student learning.....

“Approach a large class with the same creativity you
would a small class.
Then find a way to make the logistics work.”



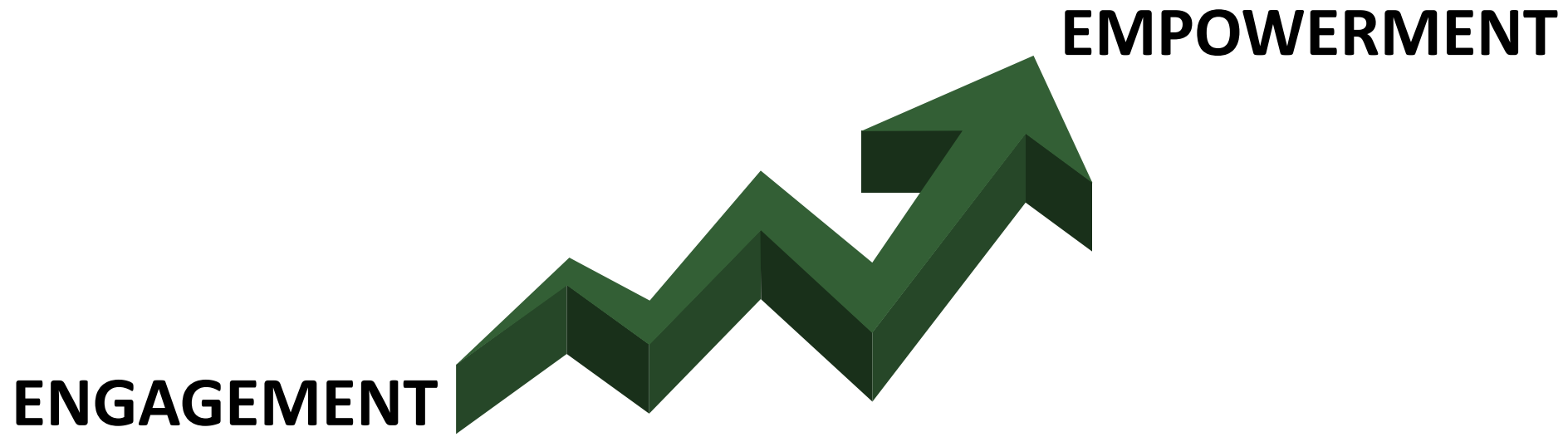
IT ALL STARTS WITH

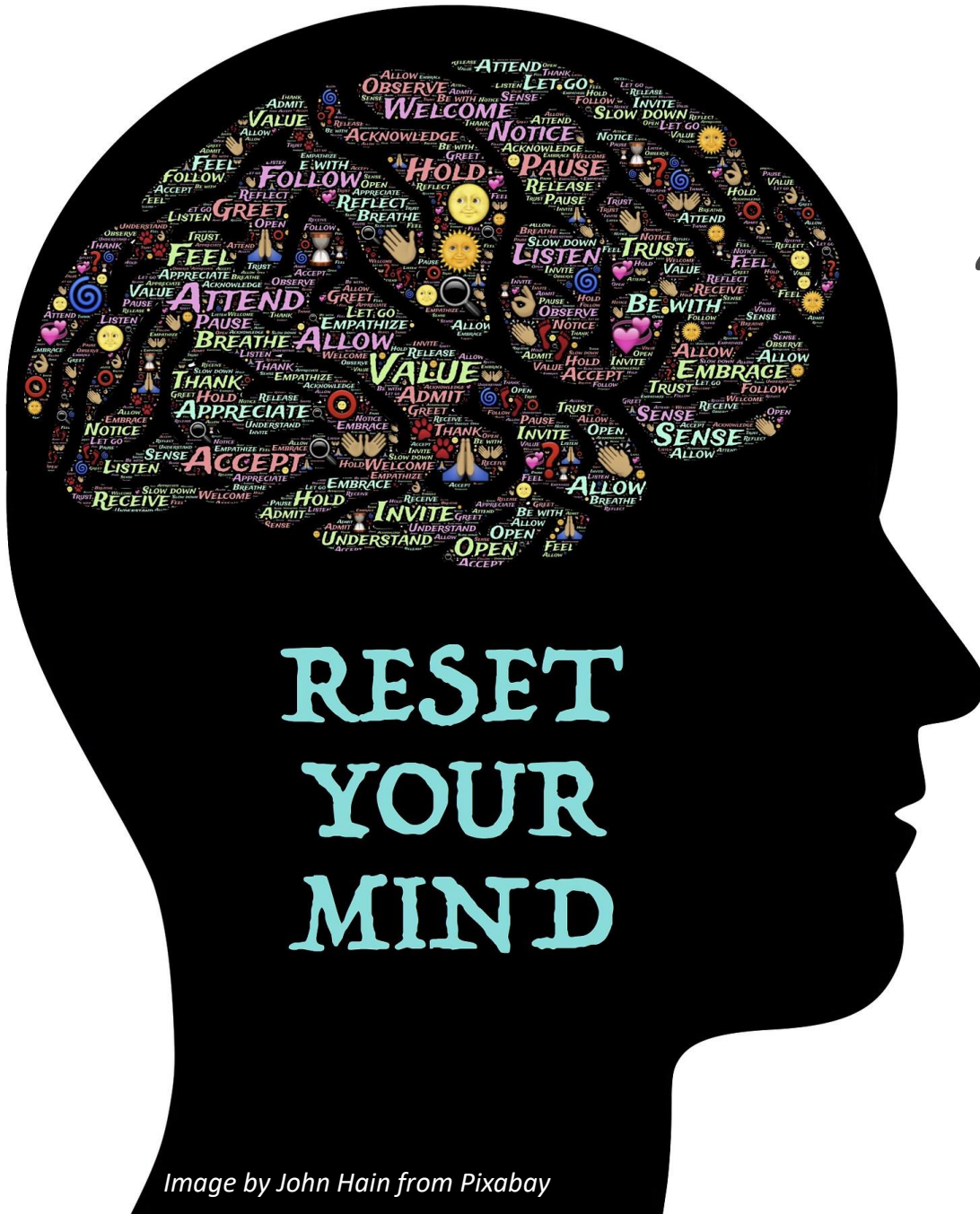
YOU!

Source of image

<https://getintodigitalworld.com/transformation-starts-with-you/>

Large Online Classes...





RESET
YOUR
MIND

Image by John Hain from Pixabay

“I Have To Learn” vs “I Want To Learn”

~ Own Their Learning ~

*“Tap into intrinsic motivation –
find tasks that they want to do
rather than they have to do”*

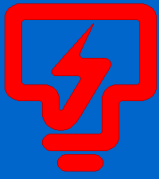


“Sometimes students don’t know what they will love until a teacher introduces it to them”

#1

Create a Real World Context

- so that they want to learn more
- give them a reason why they exist in your class & why you exist in their life



**TENAGA
NASIONAL BERHAD**

SELAMAT DATANG

KE

STESEN JANA ELEKTRIK GLUGOR

Kepada Pelajar-Pelajar UTM





#2

Give them a challenge & keep them curious

- Use Inquiry Based Learning -
Create the initial Question/Problem.
Let student own the learning process...
...they decide what data to collect,
how to experiment & analyze and
present their results

Project: Save the fish

The Importance of Social & Emotional Learning

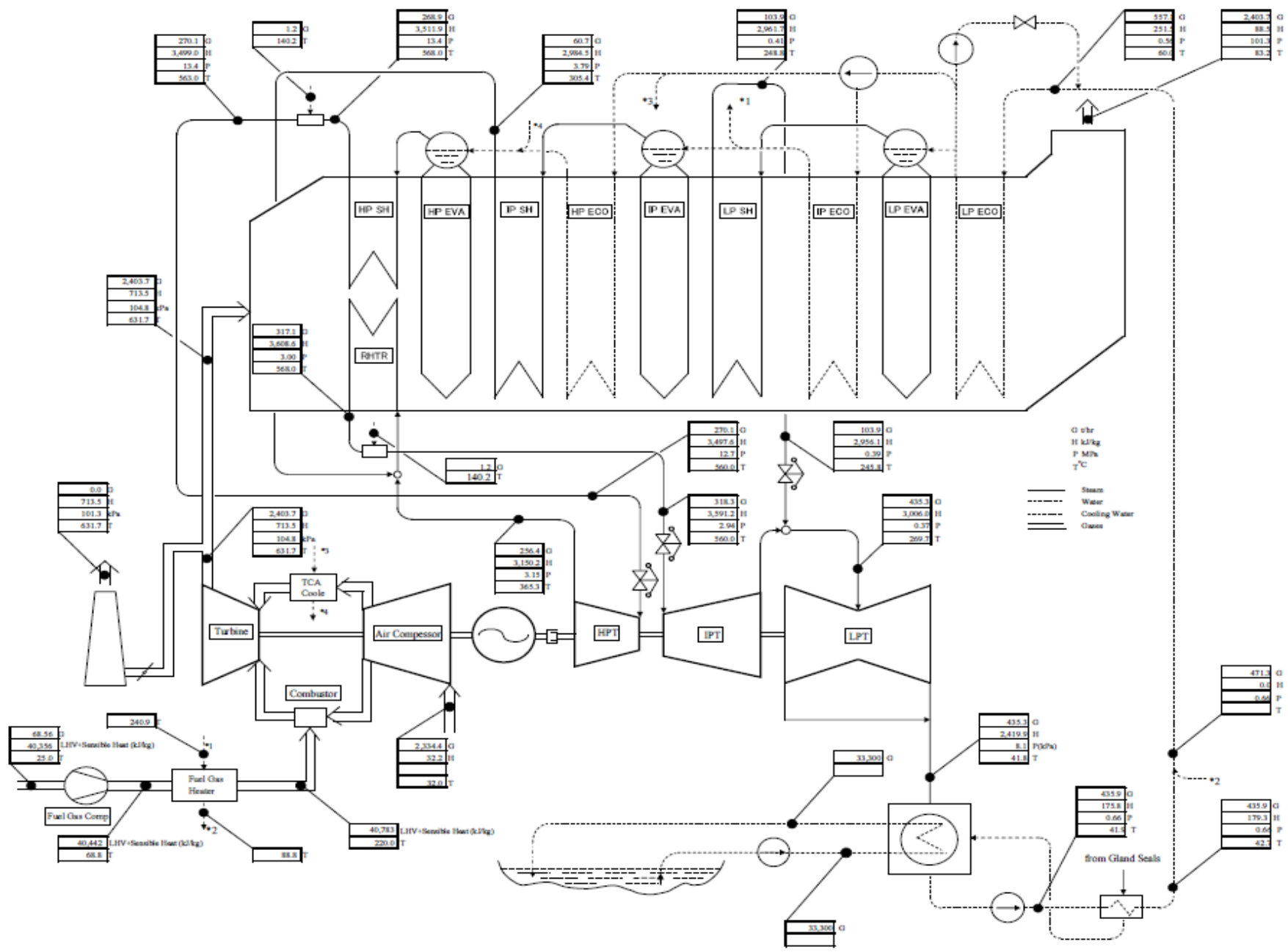




- It is proposed to build a 700 MW electric power plant with steam as the working fluid
- The condensers are to be cooled with sea water. The maximum condition will be 540°C and 170 bar
- As an engineering consultant, you are to convince the local authorities that **the discharge to the sea will not be harmful to the environment.**

“Provide Scaffolding so that student can match the challenge level to their perceived ability level”

Heat and Mass Balance Diagram



Gross Power Output	
Gas turbine	304,000 kW
Steam turbine	144,900 kW
Plant total	448,900 kW
Plant Gross Thermal Eff	58.4 %
Auxiliary Power	11,400 kW
Plant Net Power Output	437,500 kW
Plant Net Thermal Eff	56.9 %

Operating Conditions	
Dry Bulb Temperature	32.0 oC
Ambient Pressure	101.3 kPa
Relative Humidity	80.0 %
Wet Bulb Temperature	29.0 oC
Type of Fuel	Natural Gas
Net Specific Energy	40,310 kJ/kg



Online Via:
Cisco Webex

Meeting number:
913 271 690

Meeting password:
qfUPysr3X74



SEMM 2413

THERMODYNAMICS

Interactive Online Lecture by
Professionals from Industry
SEMESTER II 2019/2020

Date: 14 May 2020 (Thursday) Time: 4.00 pm

TOPIC: Operation & Performance of Thermal Power Plants

Learning Outcome

Analyze performance of heat engines based
on the first and second laws of thermodynamics

Speaker

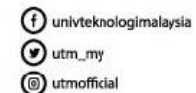
Ir. Ts. Mohd Razlan Rozali

Section Head, Technical Training (Thermal)
Malakoff Power Berhad

School of Mechanical Engineering,
Faculty of Engineering,
Universiti Teknologi Malaysia



www.utm.my





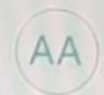
Muhammad Haikal



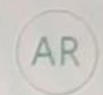
Razlan Rozali



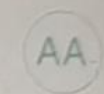
Mohammed Jubaid Al Ras...



Ammar Alwhashi



Abdulrahman Mohamme...



adib amsyar

Power Plant Operation & Performance

By:
Ir. Ts. Mohd Razlan Rozali

|| [Stop sharing](#) [Hide](#)



Lesson Outcome

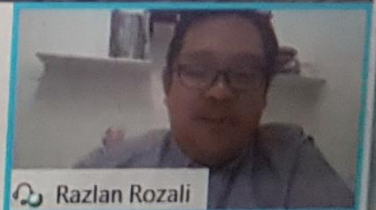
At the end of the session learners will be able to understand the fundamental of power plant operation & performance



Razlan Rozali



Muhammad Haikal



Razlan Rozali



Mohammed Jubaid Al Ra...



Ammar Alwhashi

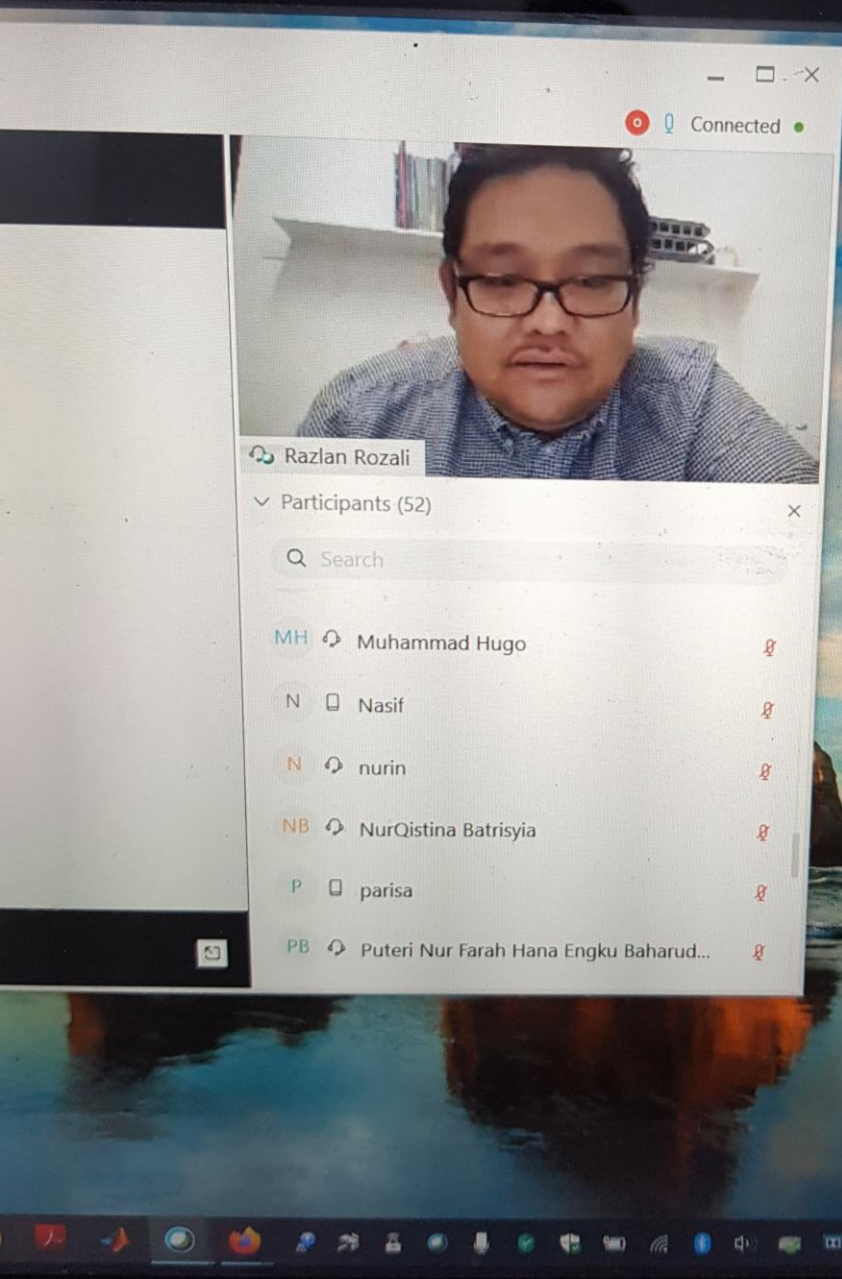


#3

Give them a Voice to ask great questions & to give feedbacks



Questions I would like to ask the Power Plant Engineer



1. Which type of power plant has maximum overall efficiency?

2. How to determine the ratio of polluting elements in plant leaves to estimate the air pollution from the power plants in regions surrounding to it?

i'm sorry but i can't hear IR Razlan clearly when he explained about the condenser. did he say that the max temperature temperature that the seawater can be is 36 up to 37°C?? and are those the maximum allowable discharge temperature by the authority?

What type of fuel is used in thermal power station ?

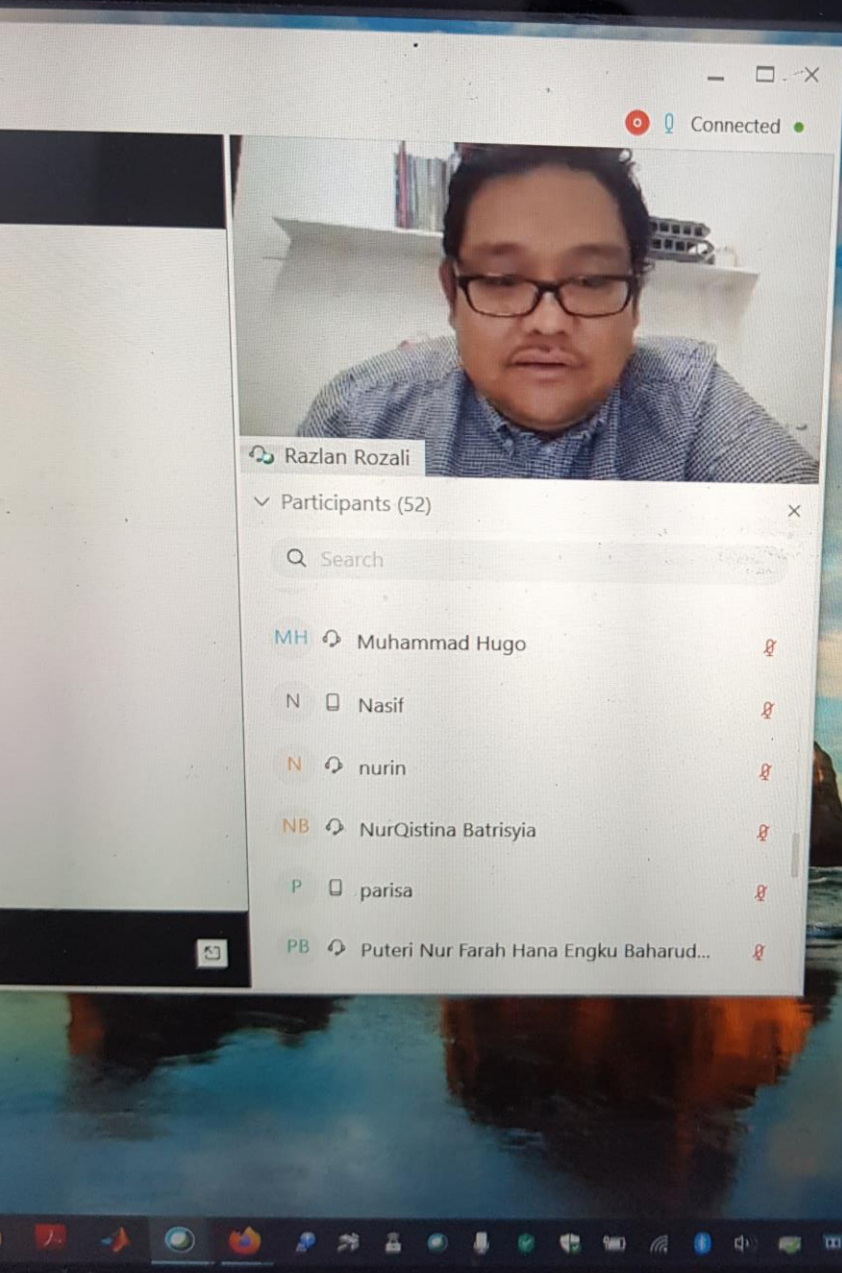
What is the main reason for low overall efficiency of a thermal plant ?

Which power plant is economical of a) steam power plant & b) diesel power plant ?

For the next 5-7 years, will it be the basic principle of thermodynamics still be used when our generation has plunged to the industry?

Which part in power plant that mechanical engineering will work? It is okey to ask many questions to the senior staff because we still new in work?

Questions I would like to ask the Power Plant Engineer



What Is The Overall Efficiency Of The Thermal Power Plant Or Steam Power Plant?

What components are used as power plant? and how to know the amount of power produced from each of these components?

It is known that the discharged water from power plant has higher temperature, this create a situation called "thermal pollution" can you explain further on this thermal pollution and how we can overcome this problem on the power plant to save the environment.

1) Working as an engineer, especially at power plant can be very stressful, as our simple mistakes can lead to bigger damages, like the Washington bridge or the Chernobyl. How do you deal with such responsibilities?

2) Some of our parents are very concerned about the safety of us, when comes to working as a power plant engineer. How did you manage to convince your parents and family? Are they still worried about your safety?

#4

Flipped the Classroom

- Student Creation of Content
- Students find their own answers to their own questions

HAYATI BTE ABDULLAH UTMLEAD + 25 • 5mo

Steady Flow Devices

1. Describe the steady flow device (choose any form: written, graphical, audio, video etc)
2. Describe the analysis for the device

Gas Turbine



What is a Gas Turbine? (For beginners)
by RealPars
YouTube

Add comment

Gas Turbine

Steam Turbine

Steam Turbine

By Puteri and Nurin. Enjoy reading.
At the end of the page is the test question. 😊



Thermodynamics

SEMM2413

Lesson 7 SEMM2413 - Google Docs

Air Compressor

Amin

Youtube link for reference:

1. Fuction of air compression:

https://youtu.be/eV3N9_6-Gaw


2. How an air compression work:


<https://youtu.be/S08sj8pfJJs>

SCHOOL OF MECHANICAL ENGINEERING
Faculty of Engineering

Expansion Valve

2 comments

 Anonymous 5mo
5 marks for Q1 , 2 and 3 (a and b)

 Anonymous 5mo
So Q3 (10 marks)

 Add comment

Expansion Valve

Haikal Abu Bakar

Amirul Zikri

Aizuddin Hafizi

Nozzle

Nozzle

By:

Ahmad Idham Hakim

Muhammad Haris bin

YouTube link:

> https://www.youtube.com/watch?v=RANVKhmZNNg&feature=emb_title

be

>https://www.youtube.com/watch?v=c81UCtP2rh0&feature=emb_title

be

NOZZLE April 2021

3. Prepare a test question on the steady flow device. The test question must be original

4. Prepare the marking scheme for the test question. The test question should carry 20 marks

#5

Incorporate Self-Assessment

- Give students an opportunity to assess their own learning
- Help them understand their own strengths and struggles



An Apple A Day Game

Game Plan

1. For every breakout session in the WhatsApp group, there will be some activities.
2. You are to submit in the eLearning the output of your activity latest by 10 pm on the day of the breakout session.
3. I will share the solution in eLearning the next morning.
4. You are to self-assess your output. If you get the correct solution, you get an apple.
5. If you get something wrong, you get half an apple.
6. If you get half an apple, you can resubmit the correct solution in the eLearning and collect the other half an apple.
7. You are to record this apple collection in your own Table of Apples.
8. When you get 10 apples, you get full marks for one quiz which is 2%.
9. Maximum number of apples is 20 which means you can get 4%.

TABLE OF APPLES

Date	Lesson No.	No. of Apples	Reflection
21 April 2020	06	1	What did you skip/missed and what was different from Dr. Hayati's solution and why?
23 April 2020	07	1/2	What went wrong?
Resubmission	07	1/2	What did you learn?

Table of Apples



No	Date	Lesson No	No. of apple	Reflection
1	21 April 2020	06	1/2	I use the wrong velocity for the two last questions because I didn't label properly V1 and V2. So I accidentally switched those values
2	Resubmission	06	1/2	
3	23 April 2020	07	3	As I've to make questions for heat exchanger, first of all I've to learn more about heat exchanger. From that, I learnt many new things and understand more in energy balance equation topic.
4	28 April 2020	08	2 + 1	(1) For marking the answer script from other group, it's very challenging to read their handwriting and to understand the way they solved the questions. Because the one that we marked, they used different way (different formula) from my answer scheme so I've to check whether that solution or formula is correct and can be used.

12

14 May 2020

2

Mini project – take home quiz

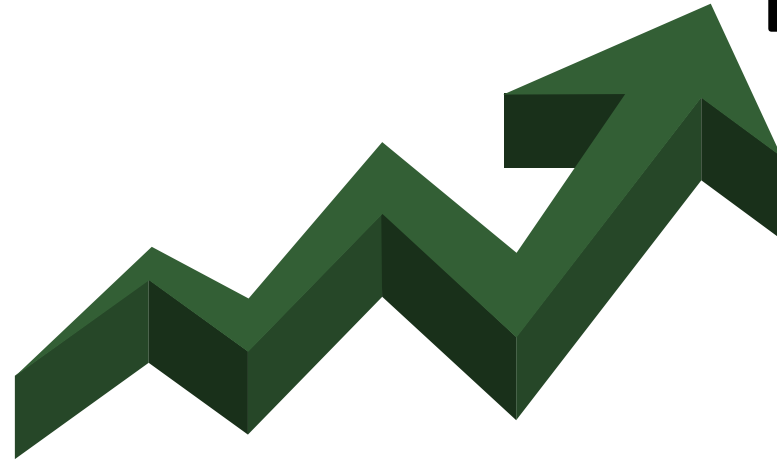
- From all the data given, I can calculate and compare both thermal efficiency and Carnot efficiency. So for this project it is an irreversible heat engine as its thermal eff is lower than Carnot eff.
- As the objective of the project is to save the fish, I need to assume the seawater temperature at the inlet of the condenser. As the result, the calculated temperature discharge into the sea is lower than the max allowable discharge temperature, meaning that the discharge is not harmful to the marine lives

14	19 May2020	15	1	<p>Refrigerator video</p> <ul style="list-style-type: none">• It's quite hard to explain about the process cycle to someone that never learn about thermodynamics• While explaining the process, i get confused for some process and that's what makes me search and learn more about refrigerator
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EMPOWERMENT

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ENGAGEMENT



Transformation



...loading...



....Thank you