



# EXCEL ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai  
Accredited by NBA and NAAC with "A+" and Recognized by UGC(2f&12B)

KOMARAPALAYAM - 637303





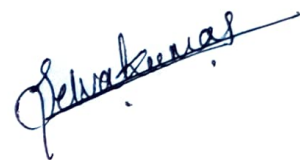

## DEPARTMENT OF PETROCHEMICAL TECHNOLOGY


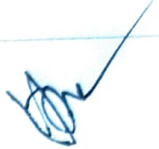
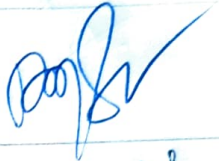





### SECOND BOARD OF STUDIES MEETING

Members Present

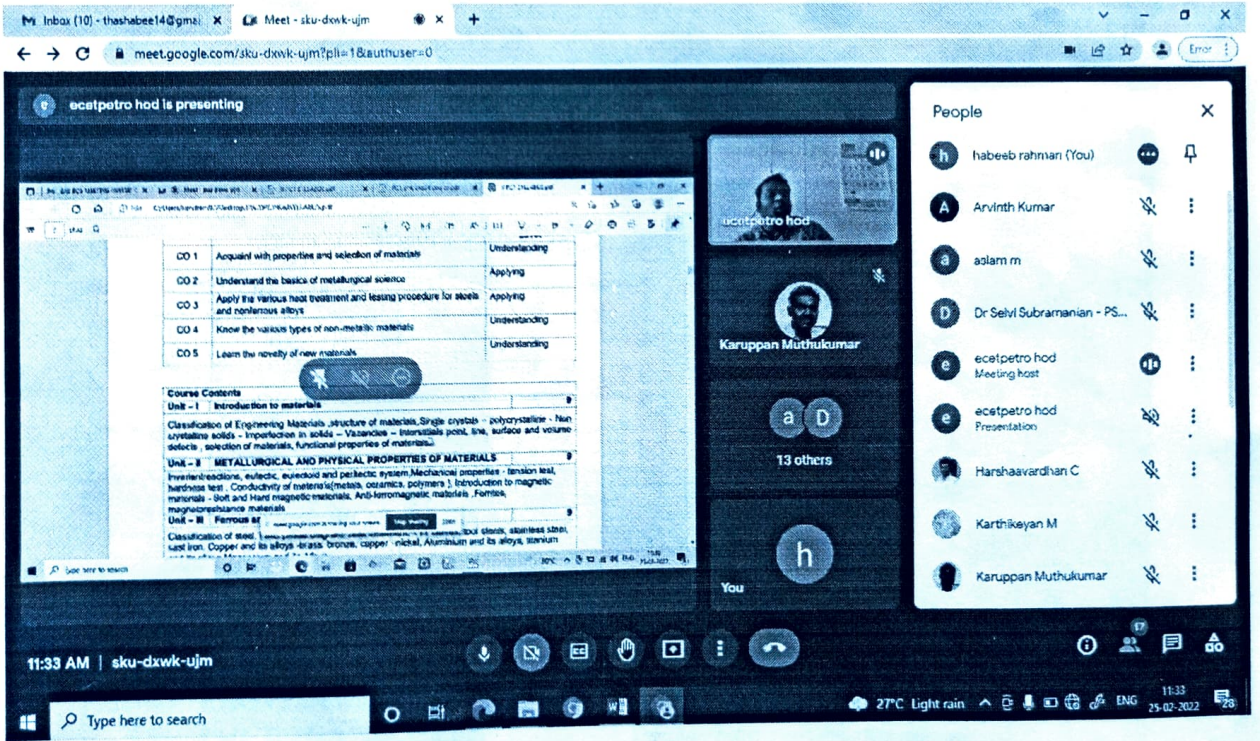
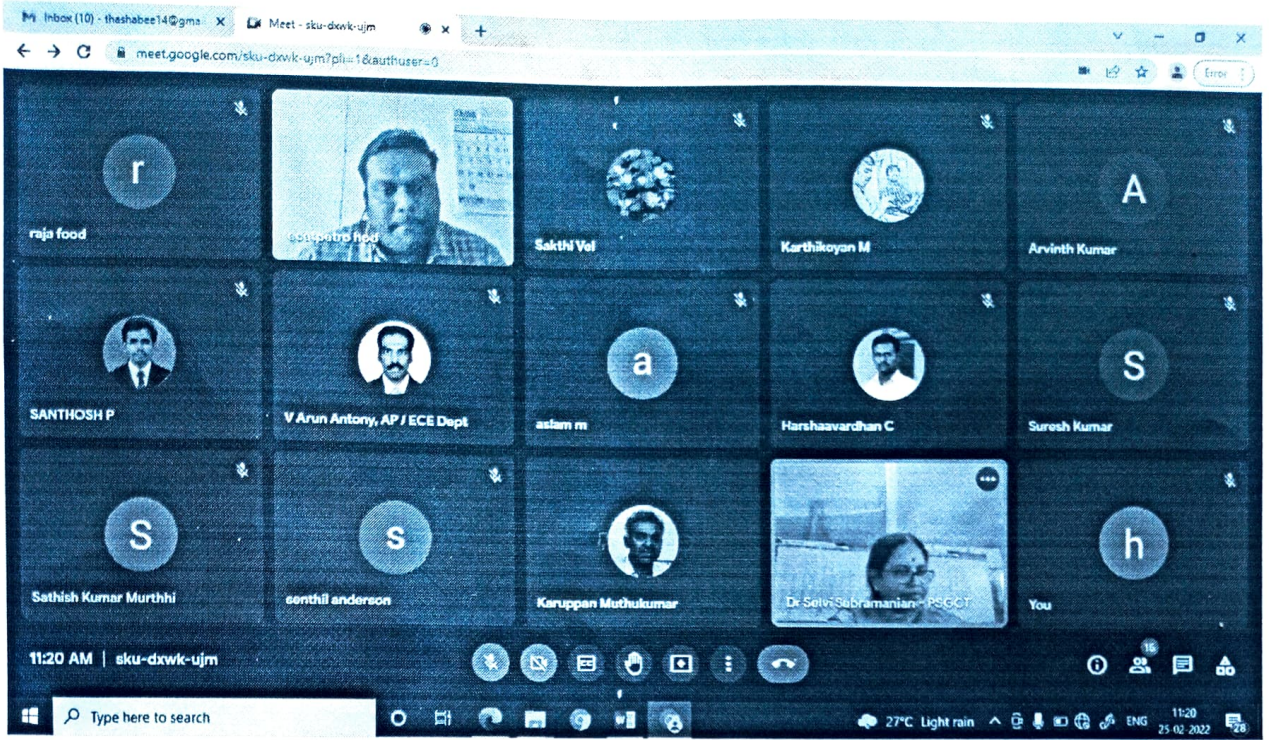
Date: 25-02-2022

S.No.	Name and Affiliation	Member	Signature
1.	<b>Prof. A. Meenakshi Sundar</b> Head of the Department Department of Petrochemical Technology Excel Engineering College Komarapalayam.	Chairman, BoS	
2.	<b>Dr. Selvi Subramaniam</b> Professor, Department of Biotechnology PSG college of Technology coimbatore	University Nominee	
3.	<b>Dr. K. Muthukumar</b> Professor, Department of Chemical Engineering National Institute of Technology, Tiruchirappalli Tamilnadu, India.	Academic Expert, Member	

4.	<b>Dr. M. Aslam Abdullah</b> Assistant Professor(Senior) School of Chemical Engineering, Vellore Institute of Technology(VIT) Vellore.	Academic Expert, Member	
5.	<b>Mr. A. Tittualagu</b> Senior Manager(Design Process),FEDO The Fertilizers and Chemicals Travancore limited(FACT) Kochi-683501	Industrial Expert, Member	
6.	<b>Mr. M. Karthikeyan</b> CCR Operator, Tamilnadu Cements Corporation limited (TCCL-Govt Of Tamilnadu Undertaking), Ariyalur Cements Work,Ariyalur-621729	Special Invitee, Member	
7.	<b>Mr. M. Sathish Kumar</b> SITE DCS ENGINEER(SITE OPERATIONS) Shell Technology center, Industrial park north,Bengaluru,Karnataka	Special Invitee, Member	
8.	<b>Mr. J. Selva Kumar</b> Assistant Manager Tamilnadu News Print And Papers Ltd, Kagithapuram, Karur-639136, Tamil Nadu, India	Special Invitee, Member	
9.	<b>Mr. Akhil Santhosh</b> Graduate Engineer Trainee Kudankulam Nuclear power plant, Coimbatore.	UG Alumnus	

10.	<b>Mr. Arun Antony</b> Assistant Professor Department of ECE Excel Engineering College	Special Invitee, Faculty	
11.	<b>Dr. Habeebur Rahman</b> Assistant Professor	Autonomous Coordinator, Member	
12.	<b>Dr. A. M. Sakthivel</b> Assistant Professor	Department Faculty, Member	
13.	<b>Mr. C. S. Arvinth Kumar</b> Assistant Professor	Department Faculty, Member	
14.	<b>Mr. P. Santhosh</b> Assistant Professor	Department Faculty, Member	
15.	<b>Mr. C. Harshaavardhan</b> Assistant Professor	Department Faculty, Member	
16.	<b>Mr. C. P. Suresh</b> Assistant Professor	Department Faculty, Member	
17.	<b>Mr. A. Senthil</b> Assistant Professor	Department Faculty, Member	







Invitation for inauguration : FDI x Meet - sku-dxwk-ujm

meet.google.com/sku-dxwk-ujm?pli=t&authuser=0

ecetpetro hod is presenting

**Course Contents**

**Unit - I INTRODUCTION** 10  
 Scope and Limitations of Thermodynamics - Definitions and Fundamental Concepts - Energy, Work, Force and Pressure - Equilibrium states and the Phase rule - Temperature and Zeroth Law of Thermodynamics - Reversible and Irreversible process - P-V Behavior - Ideal Gas - Equation of state for Ideal and Real Gas - Compressibility Chart - Principles of Corresponding States.

**Unit - II THERMODYNAMIC LAWS** 10  
 First law of Thermodynamics and its limitations - Enthalpy - Experiment - Internal energy - Enthalpy - Application of First Law of Thermodynamics for Flow and non-flow processes - Second law of Thermodynamics - Entropy, Clausius inequality - Thermodynamic Temperature Scale - Clausius Inequality - Third law of Thermodynamics - Entropy.

**Unit - III REFRIGERATION & LIQUEFACTION** 10  
 Refrigeration: COP - Ammonia cycle - Heat Pump - Heat Engine: Liquefaction process - Relationships among thermodynamic properties - Maxwell relations - Clausius equation - Criteria for Equilibria and Stability.

**Unit - IV PROPERTIES OF SOLUTIONS** 10  
 Partial molar properties - Ideal and non-ideal solutions - Selection of standard states - Raoult-Duhem equation - Activity in Solutions - Activity Coefficients - Property changes of mixing - Excess Properties of mixtures.

**Unit - V PHASE EQUILIBRIUM AND CHEMICAL REACTION EQUILIBRIUM** 10  
 Thermodynamic consistency of Phase Equilibria - Criteria for Phase Equilibria - Equilibria in Single-Phase Systems - Phase Diagrams - Ideal Reaction Equilibria - Standard free energy change - Choice of Standard State - Feasibility of a reaction - Effect of Temperature and Pressure on Equilibrium.

ecetpetro hod

aslam m

11 others

You

**In-call messages**

Messages can only be seen by people in the call and are deleted when the call ends.

aslam m 11:46 AM  
 Thermodynamics: Consider topics on - use of Rankine cycles, Cycle Improvement Methods - Reheat and Regenerative cycles, Economiser, preheater, Binary and Combined cycles. Psychrometric process - adiabatic saturation, sensible heating and cooling, humidification, dehumidification, evaporative cooling and adiabatic mixing. Simple Applications

ok sir, noted with thanks!

11:49 AM | sku-dxwk-ujm

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27°C Light rain

ENG 11:49 25-02-2022

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People

Name	More	Add people	Full screen
habeeb rahman			
Arvindh Kumar			
Senthil Anderson			
Sathish Kumar Murthi			
Harshaavardhan C.			
ecetpetro hod			
aslam m			

ecetpetro hod

Sathish Kumar Murthi

5 others

Pin yourself to your main screen.

**People**

Search for people

In call

- habeeb rahman (You)
- Arvindh Kumar
- ecetpetro hod Meeting host
- ecetpetro hod Presentation
- Harshaavardhan C.
- Sathish Kumar Murthi
- senthil anderson

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ENG 12:12 25-02-2022





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## DEPARTMENT OF PETROCHEMICAL TECHNOLOGY

### BOARD OF STUDIES

### MINUTES OF MEETING

**Meeting No** : EEC/ BoS – 2 / PCT / 2022 – 23

**Date** : 25.02.2022

**Time** : 11.15 AM

**Venue** : Online Mode (Via Google Meet)

**Link** : [meet.google.com/sku-dxwk-ujm](https://meet.google.com/sku-dxwk-ujm)

#### Agenda:

1. To discuss and pass the syllabi of the courses of II year B. Tech. Petrochemical Technology programme for the students admitted from 2020-21 academic year onwards.
2. To discuss and pass the syllabi of the One Credit Courses of II year B. Tech. Petrochemical Technology programme for the students admitted from 2020-21 academic year onwards.
3. Other relevant matter.

The Following members were present:

S. No.	Name	Member
1	Prof. A. Meenakshi Sundar	Chairman, BoS
2	Dr. Selvi Subramaniam	University Nominee
3	Dr. K. Muthukumar	Academic Expert, Member
4	Dr. M. Aslam Abdullah	Academic Expert, Member
5	Mr. A. Tittualagu	Industrial Expert, Member
6	Mr. M. Karthikeyan	Special Invitee, Member
7	Mr. M. Sathish kumar	Special Invitee, Member
8	Mr. J. Selva kumar	Special Invitee, Member
9	Mr. Akhil Santhosh	UG Alumni
10	Mr. Arun Antony	Special Invitee, Faculty
11	Dr. Habeebur Rahman	Autonomous Co-ordinator, Member
12	Dr. A. M. Sakthivel	Department Faculty, Member
13	Mr. C. S. Arvinth Kumar	Department Faculty, Member
14	Mr. P. Santhosh	Department Faculty, Member
15	Mr. C. Harshaavardhan	Department Faculty, Member
16	Mr. C. P. Suresh	Department Faculty, Member
17	Mr. A. Senthil	Department Faculty, Member

At the onset, Prof. A. Meenakshi Sundar gave welcome address for the meeting of BoS. The following deliberations were made as per the items mentioned in the circulated agenda.

## Resolutions

- Resolved that the following recommendations may be passed to the standing committee of the Academic Council for the curriculum and syllabi of B. Tech Petrochemical Technology programme with the following changes.

RECOMMENDATION	RESOLUTION
<p><b><i>B. PCT. 1.1 Dr. Selvi Subramanian suggested the following</i></b></p> <ul style="list-style-type: none"> <li>➤ All COs and POs need to be checked throughout and the errors need to be rectified.</li> </ul>	<p><b>B. PCT. R 1.1</b></p>
<p><b><i>B. PCT. 1.2. Dr. K. Muthukumar suggested the following</i></b></p> <p><b>20PC301 Fluid Mechanics for Chemical Engineers</b></p> <ul style="list-style-type: none"> <li>✓ Pre-requisites to be deleted.</li> <li>✓ CO- 5<sup>th</sup> point to be replaced.</li> <li>✓ Dynamics of Bubble-cap Distillation to be removed.</li> <li>✓ Manufacture of Lead Shot – to be deleted.</li> <li>✓ Topics related to Moody Chart, Momentum, and Flow through pipes to be included.</li> <li>✓ Dimensional Continuity Equation to be deleted.</li> <li>✓ Unit 2 to be revised.</li> <li>✓ Reference book 1 to be replaced as Text Book.</li> <li>✓ Book authored by R. K. Bansal to be shifted to Reference Book.</li> <li>✓ Book authored by White to be shifted to Text Book.</li> <li>✓ CO/PO/PSO Mapping is pending.</li> </ul> <p><b>20PC304 Mechanical Operations</b></p> <ul style="list-style-type: none"> <li>✓ Topic related to Screening methods &amp; Screen efficiency found to be already included in the Unit 2.</li> </ul> <p><b>20PC301 Reservoir Engineering</b></p> <ul style="list-style-type: none"> <li>✓ Pre-requisites to be deleted.</li> </ul> <p><b>20PC301 Fluids and solids Operations Laboratory</b></p> <ul style="list-style-type: none"> <li>✓ Correction – CO5 – Design “of” size separation</li> <li>✓ Correction – 11<sup>th</sup> Exp – “Determination of” Reduction ration in Jaw Crusher.</li> <li>✓ Correction – 11<sup>th</sup> Exp – “Determination of” Reduction ration in Ball Mill.</li> </ul>	<p><b>B. PCT. R 1.2</b></p>

### **20PC401 Chemical Engineering Thermodynamics**

- ✓ Pre-requisites to be deleted.
- ✓ Regulations to be updated.
- ✓ No Basic Mechanical Engineering paper in curriculum, so TD Laws should be combined in the 1<sup>st</sup> unit itself.
- ✓ 2<sup>nd</sup> Unit should be comprised of the 2<sup>nd</sup> TD Law and the topics suggested by Dr. M. Aslam Abdullah.
- ✓ All general cycles and improvement methods to be included.
- ✓ Topics related to Psychrometric process, adiabatic saturation, cooling, humidification, dehumidification etc. to be included 3<sup>rd</sup> unit.
- ✓ Heat engine, criteria for stability topics to be deleted from 3<sup>rd</sup> unit.
- ✓ 3<sup>rd</sup> TD Law should be included in 2<sup>nd</sup> unit
- ✓ Topics related to Economiser, Preheater, Binary and Combined Cycles shall be exempted.
- ✓ The course handling faculty is given the liberty to frame the syllabus accordingly, so that the load to the student is found optimum.

### **20PC403 Petroleum Exploration and Exploitation Techniques**

- ✓ Topics related to Survey methods to be included in 2<sup>nd</sup> unit.

### **20PC404 Natural Gas Engineering**

- ✓ 2<sup>nd</sup> unit is to be fully removed.
- ✓ 2<sup>nd</sup> unit is to be merged with 1<sup>st</sup> unit.
- ✓ In 2<sup>nd</sup> unit NG offshore production, floating, mobile platform, differences between offshore & onshore techniques are to be included.

### **20PC405 Petroleum Primary Processing Technology**

- ✓ Title of the paper is to be changed as "Petroleum Processing - 1"
- ✓ Units 4 & 5 shall be kept as such

### **20PC406 Drilling Fluids Laboratory**

- ✓ Blooms Taxonomy for 4<sup>th</sup> experiment is to be changed.

### **20PC406 Drilling Fluids Laboratory**

- ✓ Blooms Taxonomy for 4<sup>th</sup> experiment is to be changed.
- ✓ Blooms Taxonomy for 1<sup>st</sup>, 2<sup>nd</sup>, 6<sup>th</sup> experiment is to be changed

### **20P1304 Technical Analysis Laboratory**



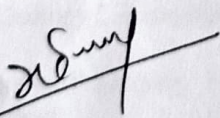
<p>✓ Blooms Taxonomy for 1<sup>st</sup>, 2<sup>nd</sup> and 6<sup>th</sup> experiment to be changed.</p> <p><b>20PCA04 Transportation of Chemicals</b></p> <p>✓ Title of the course is to be changed as “Logistics of Chemicals”</p> <p><b>20PCA02 Membrane Technology</b></p> <p>✓ Title of the 2<sup>nd</sup> Unit, “Halal Food . . .” is to be corrected, which is not pertinent to the course.</p>	
<p><i>B. PCT. 1.3 Dr. M. Aslam Abdullah suggested the following</i></p> <p><b>20PC303 Chemical Process Calculations</b></p> <p>✓ Topic related to “Conservation of Energy process without Reaction” is to be included.</p> <p><b>20PC304 Mechanical Operations</b></p> <p>✓ Topic related to Principles of granulation, Briquetting, Flocculation is to be included.</p> <p>✓ Topic related to Screening methods &amp; Screen efficiency is to be included.</p> <p><b>20PC301 Reservoir Engineering</b></p> <p>✓ Text Book authored by Tarek Ahmed – Latest edition i.e., 5<sup>th</sup> edition is suggested for usage, since it has some advanced data.</p> <p><b>20PC301 Fluids and solids Operations Laboratory</b></p> <p>✓ Pre-requisites to be deleted.</p> <p>✓ Title of the paper is to be changed as “Fluid and solid Operations Laboratory”</p> <p>✓ Blooms Taxonomy for 8<sup>th</sup> experiment does not match.</p> <p><b>20PC307 Geology Laboratory</b></p> <p>✓ Blooms Taxonomy for 2<sup>nd</sup> experiment to be changed.</p>	<p><b>B. PCT. R 1.3</b></p>

**B. PCT. 1.4 Mr. M. Sathish Kumar  
suggested the following**

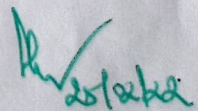
**B. PCT. R 1.4**

A Paper related to Industrial Technology and safety  
could be included to the curriculum.

The BoS Meeting ended with Vote of thanks by Dr. Habeebur Rahman.



Chairman – Board of Studies



Principal