

**CURRICULLUM VITAE****Ghulam Murshid****1) Personal Information**

- Address Department of Petroleum and Chemical Engineering, College of Engineering, Sultan Qaboos University, P.O.Box 33 AlKhodh, Muscat, P.C.123, Tel: (968) 24142546, Fax: (968) 24141354,
- email: g.murshid@squ.edu.om

2) Education, Employment Information and Career Development**Education Background**

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|----------------|---|
| 1) Institution | Universiti Teknologi PETRONAS (UTP), Malaysia |
| a) Degree | PhD |
| b) Major | Chemical Engineering |
| c) Year | 2012 |
| 2) Institution | University of Stuttgart, Germany |
| a) Degree | MSc |
| b) Major | Environmental Process Engineering |
| c) Year | 2007 |
| 3) Institution | University of the Punjab, Lahore, Pakistan |
| a) Degree | BEng |
| b) Major | Chemical Engineering |
| c) Year | 2004 |

Employment History

Sep 2014 – To Date	Associate Professor.	Petroleum and Chemical Engineering Department, Sultan Qaboos University
Jan 2013 – Aug 2014	Lecturer	Chemical Engineering Department, University Teknologi PETRONAS
Mar 2007 – Dec 2009	Lecturer	Chemical Engineering Department, COMSATS University, Pakistan

3) Teaching and Learning**a) Courses Taught at Sultan Qaboos University**

- (1) Chemical Engineering Thermodynamics
- (2) Fluid Flow
- (3) Heat Transfer
- (4) Chemical Engineering Practical
- (5) Engineering Materials
- (6) Petroleum Refinery
- (7) Project I
- (8) Project II

b) Student/Trainee advising and supervision**i) Undergraduate Students Advising and Mentoring**

- (1) Student advisor for cohort 2018 Chemical Engineering Program
- (2) I supervised the final year projects of Chemical engineering students.

(a) Academic Year: 2015-2016

Project Title: Plant Design: Production of ethylene from natural gas

(b) Academic Year: 2016-2017

Project Title: Plant Design: Production of Styrene

(c) Academic Year: 2017-2018

Project Title: Plant Design: Ammonia Production

(d) Academic Year: 2018-2019

Project Title: Plant Design: Urea Production

(3) Involve undergraduate students in my research projects:

- (a)** Research Title: Development of Novel Green Amino Acid based Solvents to Capture CO₂
- (b)** Research Title: Synthesis, Characterization and Modification of MOF-74 for CO₂ capture.

(4) ENGIE Power and Water: Project presented at OMAN Water and Energy Conference, 2016

- (a)** Project Title: Synthesis, Characterization and Modification of MOF-74 for CO₂ capture.

c) Participation in curriculum development/review and teaching management**i) Courses Developed (modifying courses contents and developing courses materials)**

- (1) Green Engineering:**
 - (a)** Developed the course outline and detailed contents to introduce this course as technical elective for chemical engineering program (CHPE).
- (2) CHPE3302 Fluid Flow:**
 - (a)** Developed the teaching material which include new slides and video contents.
 - (b)** Introduced interactive coaching for tutorial lectures.

ii) Curriculum Development

- (1) Member of the Ministry of Higher Education Oman (MOHE) curriculum development and review committee for the following degree programs.
 - MSc Energy Systems and Thermal Processes – Muscat University, 2016
 - MSc in Process Engineering program, Caledonian College of Engineering, 2017
 - MSc in Chemical Process Engineering, National University of Science & Technology (NUST) (2018)
- (2) Member of the focus group of the Chemical Engineering Program.
- (3) Active participation in the preparation of the ABET accreditation for Petroleum and Chemical Engineering Programs during the current cycles.
- (4) Reviewed the curriculum of Department of Chemical and Petrochemical Engineering, University of Nizwa, Oman

d) Personal professional development in university teaching and learning

- (1) Certification of “***Integrated Course Design through Active Learning***” organized by CETL, Sultan Qaboos University, November 2023
- (2) Workshop on “***The Awareness Raising Sessions about the Strategies Used for Implementing SQU Teaching Philosophy and Teaching and Learning Methodologies***” organized by CETL, Sultan Qaboos University, 09 Nov, 2023
- (3) Workshop on “***Preparing Engineers for a Globalized Economy: How to Teach Engineering Students***” presented by Prof Nikos Mourtos organized by Sultan Qaboos University, Muscat, Oman, 26-28 May. 2015.
- (4) Three Weeks Course on “***Integrated Course Design through Active Learning***” organized by Sultan Qaboos University, Muscat, Oman, Nov-2023.
- (5) Workshop on “***Introduction to CDIO Initiative***” presented by Dr. Juha Kontio organized by Sultan Qaboos University, Muscat, Oman, 17-19 May. 2016.
- (6) Workshop on “***Student and Staff Plagiarism: Factors and Approaches***” presented by Dr. Christopher Denman organized by office of the Deputy Voice Chancellor, Sultan Qaboos University, Muscat, Oman, 11 Oct. 2018.
- (7) Workshop on “***Assessment Training for New Student Industrial Internship Program (SIIP) Structure***” Presented by Dr. Idris b Ismail, Organized by Universiti Teknologi PETRONAS, Malaysia

e) Recognition in university teaching and learning

- (1) Member of ABET review and auditing team
- (2) Member Department curriculum review and modernization committee
- (3) Member of Department Thermodynamic focus group
- (4) Development of Green Engineering course for Chemical Engineering students
- (5) Served as Judge at Chem-car Competition organized by Petroleum & Chemical Engineering Department, 22nd Feb, 2016.
- (6) Served as Judge in 33rd Engineering and Design Exhibition, Universiti Teknologi PETRONAS, 6-7 Aug, 2014.

f) Leadership in university teaching and learning

Member review committee of Ministry of Higher Education (MOHE) Oman, 2016, 2017, 2018

Invited as external examiner by University of Nizwa to evaluate their final year projects, May 2018

Reviewed Chemical Engineering Program, University of Nizwa

4) Scholarship**Research Interests**

- Development of Green solvents for CO₂ capture with emphasis on
 - a. Non aqueous Deep Eutectic systems
 - b. Amine and Amino acid based hybrid mixtures
 - c. Aqueous solutions of physical solvents
 - d. Synthesis of MOFs Adsorbents

a) Scholarly work**Google Scholar**

Total citations = 1075

h-index = 20

i10-index = 30

International refereed published journal papers = 60

International conference papers & presentations = 5

Research Gate

Score = 470

Total reads =
13,000

i) International Published Refereed Journal Papers

- 1 **Imidazole–Monoethanolamine-Based Deep Eutectic Solvent for Carbon Dioxide Capture: A Combined Experimental and Molecular Dynamics Investigation**
FR Al-Fazari, FS Mjalli, M Shakourian-Fard, G Kamath, J Naser, **Murshid. G.**
Journal of Chemical & Engineering Data, 2023, 68 (5), 1077-1090

- 2 **Algorithm for estimating SARA fraction properties and its application in predicting the densities of heavy oils, bitumen and diluted bitumen with solvents**
K Nasrifar, MHS Al-Shamli, MMS Al-Mahrezi, **G Murshid**
Petroleum Science and Technology, 2023, 41 (4), 425-443

- 3 **Optimization and experimental analysis of sustainable solar collector efficiency under the influence of magnetic nanofluids**
AS Hanbazazah, A Ali, M Alsaady, Y Yan, **G Murshid**, KS Khoo,
Applied Nanoscience, 2022, 12, 3859-3870

- 4 **Model analysis for development of piperazine activated sodium sarcosinate solutions for environmental sustainability**
G Murshid, A Ali, S Garg, S Al-Jabri, M Mubashir, PL Show
Sustainable Energy Technologies and Assessments, 2022, 53, 102509

- 5 **Algorithm for estimating SARA fraction properties and its application in predicting the densities of heavy oils, bitumen and diluted bitumen with solvents**
K Nasrifar, MHS Al-Shamli, MMS Al-Mahrezi, **G Murshid**
Petroleum Science and Technology, 2022, 1-19

- 6 **Carbon dioxide solubility in amine-based deep eutectic solvents: Experimental and theoretical investigation**
KA Pishro, **G Murshid**, FS Mjalli, J Naser
Journal of Molecular Liquids, 2021, 325, 115133

- 7 **An experimental and modeling approach to investigate CO₂ solubility in blended aqueous solutions of 2-amino-2-hydroxymethyl-1, 3-propanediol (AHPD) and piperazine (PZ)**
G Murshid, S Garg, A Ali, K Maqsood, TL See
Cleaner Engineering and Technology, 2020, 1, 100004

- 8 **Novel diethanolamine based deep eutectic mixtures for carbon dioxide (CO₂) capture: synthesis and characterisation**
G Murshid, FS Mjalli, J Naser, S Al-Zakwani, A Hayyan
Physics and Chemistry of Liquids, 2019, 57 (4), 473-490

- 9 **Investigation of thermophysical properties for aqueous blends of sarcosine with 1-(2-aminoethyl) piperazine and diethylenetriamine as solvents for CO₂ absorption**
G Murshid, WA Butt, S Garg
Journal of Molecular Liquids, 2019, 278, 584-591

- 10 **Application of artificial neural networks (ANN) for vapor-liquid-solid equilibrium prediction for CH₄-CO₂ binary mixture**
A Ali, A Abdulrahman, S Garg, K Maqsood, **G Murshid**
Greenhouse Gases: Science and Technology, 2019, 9 (1), 67-78
- 11 **Volumetric properties of non-aqueous binary mixture of diethanolamine (DEA) and dimethylformamide (DMF)**
G Murshid, H Ghaedi, M Ayoub, FS Mjalli, S Garg
Journal of Environmental Chemical Engineering, 2018, 6 (5), 6390-6398
- 12 **Initial solubility & density evaluation of Non-Aqueous system of amino acid salts for CO₂ capture: potassium proline blended with ethanol and ethylene glycol**
G Murshid, S Garg
IOP Conference Series: Earth and Environmental Science, 2018, 154 (1), 012020
- 13 **Experimental and correlation of viscosity and refractive index of non-aqueous system of diethanolamine (DEA) and dimethylformamide (DMF) for CO₂ capture**
G Murshid, H Ghaedi, M Ayoub, S Garg, W Ahmad
Journal of Molecular Liquids, 2018, 250, 162-170
- 14 **Thermal stability analysis, experimental conductivity and pH of phosphonium-based deep eutectic solvents and their prediction by a new empirical equation**
H Ghaedi, M Ayoub, S Sufian, SM Hailegiorgis, **G Murshid**, SN Khan
The Journal of Chemical Thermodynamics, 2018, 116, 50-60
- 15 **Density, excess and limiting properties of (water and deep eutectic solvent) systems at temperatures from 293.15 K to 343.15 K**
H Ghaedi, M Ayoub, S Sufian, AM Shariff, **G Murshid**, SM Hailegiorgis, ...
Journal of Molecular Liquids, 2017, 248, 378-390
- 16 **Experimental and prediction of volumetric properties of aqueous solution of (allyltriphenylphosphonium bromide—Triethylene glycol) deep eutectic solvents**
H Ghaedi, M Ayoub, S Sufian, SM Hailegiorgis, **G Murshid**, S Farrukh, ...
Thermochimica acta, 2017, 657, 123-133
- 17 **Investigation of various process parameters on the solubility of carbon dioxide in phosphonium-based deep eutectic solvents and their aqueous mixtures: Experimental and modeling**
H Ghaedi, M Ayoub, S Sufian, **G Murshid**, S Farrukh, AM Shariff
International Journal of Greenhouse Gas Control, 2017, 66, 147-158
- 18 **Physical properties of aqueous blend of diethanolamine and sarcosine: experimental and correlation study**
S Garg, **G Murshid**, FS Mjalli, W Ahmad
Chemical Papers, 2017, 71 (10), 1799-1807
- 19 **Monoethanolamine-based deep eutectic solvents, their synthesis and characterization**
FS Mjalli, **G Murshid**, S Al-Zakwani, A Hayyan
Fluid Phase Equilibria, 2017, 448, 30-40
- 20 **Experimental and correlation study of selected physical properties of aqueous blends of potassium sarcosinate and 2-piperidineethanol as a solvent for CO₂ capture**
Murshid.G., Sahil Garg, Farouq S. Mjalli
Chemical Engineering Research and Design, 2017, 118 (<http://www.sciencedirect.com> ...

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- 21 **The effects of salt, particle and pore size on the process of carbon dioxide hydrate formation: A critical review**
H Ghaedi, M Ayoub, AH Bhat, SM Mahmood, S Akbari, **G Murshid**
AIP Conference Proceedings,2016, 1787 (1), 060001
- 22 **High Pressure Rheology and Viscosity of Monoethanolamine with n-Methyl-2-Pyrrolidone and Water Hybrid Solvent**
GM L.S. Tan
Procedia Engineering,2016 (<http://www.sciencedirect.com/science/article/pii ...>)
- 23 **Thermo-Physical Properties and Solubility of CO₂ in Piperazine Activated Aqueous Solutions of β -Alanine**
G Murshid
World Academy of Science, Engineering and Technology, International Journal ,2015
- 24 **Measurement and prediction of physical properties of aqueous sodium L-prolinate and piperazine as a solvent blend for CO₂ removal**
MS Shaikh, AM Shariff, MA Bustam, **G Murshid**
Chemical Engineering Research and Design,2015, 102, 378-388
- 25 **Physicochemical properties of aqueous solutions of sodium glycinate in the non-precipitation regime from 298.15 to 343.15 K**
GM Muhammad Shuaib Shaikh, Azmi Mohd Shariff, Mohd Azmi Bustam
Chinese Journal of Chemical Engineering, 2015
<http://www.sciencedirect.com ...>
- 26 **Synergistic Effect of Thiourea and Surfactants on Corrosion Inhibition of Stainless Steel-410 in Presence of Sulfuric Acid**
S Ullah, MS Azmi, M Nadeem, MA Bustam, SA Shahid, **G Murshid**, ...
Applied Mechanics and Materials,2015, 699, 186-191
- 27 **Absorption of Green House Gas (CO₂) and Physical Properties of Aqueous Solutions of 2-Amino-2-Hydroxymethyl-1, 3-Propanediol and Di-Ethanolamine (AHPD+ DEA) at Elevated Pressures**
G Murshid, AM Shariff, MA Bustam, S Ullah
Journal of Applied Sciences,2014, 14 (23), 3228-3234
- 28 **Synthesis and adsorption study of modified MOF-5 with multi-wall carbon nanotubes and expandable graphite**
S Ullah, MA Bustam, AM Shariff, AEI Elkhalfah, **G Murshid**, N Riaz
AIP Conference Proceedings,2014, 1621 (1), 34-39
- 29 **Analysis of Physicochemical Properties of Aqueous Sodium Glycinate (SG) Solutions at Low Concentrations from 0.1-2.0 M**
MS Shaikh, AM Shariff, MA Bustam, **G Murshid**
Journal of Applied Sciences,2014, 14 (10), 1055-1060
- 30 **Solubility of CO₂ in PZ activated MDEA and 2-Amino-2-Methyl-1-Propanol**
MK Wong, **G Murshid**, MA Bustam, S Tyutyu, AM Shariff
Journal of Applied Sciences,2014, 14 (22), 3114-3117
- 31 **Effect of modified MIL-53 with multi-wall carbon nanotubes and nanofibers on CO₂ adsorption**
S Ullah, AM Shariff, MA Bustam, AEI Elkhalfah, **G Murshid**, N Riaz, ...
Applied Mechanics and Materials,2014, 625, 870-873
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- 32 **Solubility of CO₂ in piperazine (PZ) activated aqueous solutions of 2-amino-2-methyl-1-propanol (AMP) at elevated pressures**
G Murshid, AM Shariff, MA Bustam, S Ullah
Applied Mechanics and Materials,2014, 625, 233-236
- 33 **Study of CO₂ solubility in aqueous blend of potassium carbonate promoted with glycine**
MS Shaikh, MS Azmi, MA Bustam, **G Murshid**
Applied Mechanics and Materials,2014, 625, 19-23
- 34 **Density, Viscosity and CO₂ Solubility of Novel Solvent**
WM Kee, A Mohd Shariff, MA Bustam, LK Keong, T Karikalan, **G Murshid**
Advanced Materials Research,2014, 917, 301-306
- 35 **Solubility of carbon dioxide in aqueous solutions of piperazine (PZ) at elevated pressures**
G Murshid, AM Shariff, LK Keong, M Azmi Bustam
Advanced Materials Research,2014, 917, 144-150
- 36 **Physicochemical properties of aqueous solutions of sodium l-proline as an absorbent for CO₂ removal**
MS Shaikh, AM Shariff, MA Bustam, **G Murshid**
Journal of Chemical & Engineering Data,2013, 59 (2), 362-368
- 37 **Physical properties of aqueous solutions of potassium carbonate + glycine as a solvent for carbon dioxide removal**
MS Shaikh, AM Shariff, MA Bustam, **G Murshid**
Journal of the Serbian Chemical Society,2013
- 38 **Solubility of carbon dioxide in aqueous solution of 2-amino-2-hydroxymethyl-1, 3-propanediol at elevated pressures**
M Ghulam, SA Mohd, BM Azmi
Res. J. Chem. Env,2013, 17, 41-45
- 39 **Volumetric properties, viscosities and refractive indices of aqueous solutions of 2-amino-2-methyl-1-propanol (AMP)**
M Ghulam, SA Mohd, BM Azmi, A Faizan
Res. J. Chem. Environ,2013, 17 (9), 22-31
- 40 **Physical properties of aqueous blends of sodium glycinate (SG) and piperazine (PZ) as a solvent for CO₂ capture**
MS Shaikh, AM Shariff, MA Bustam, **G Murshid**
Journal of Chemical & Engineering Data,2013, 58 (3), 634-638
- 41 **High pressure physical solubility of CO₂ in novel solvent (stonvent)**
MK Wong, KK Lau, MA Bustam, **G Murshid**, SF Hashim, AM Shariff
Chem. Env. Eng 3, 2012
- 42 **Process simulation and optimal design of membrane separation system for CO₂ capture from natural gas**
F Ahmad, KK Lau, AM Shariff, **G Murshid**
Computers & Chemical Engineering,2012 36, 119-128
- 43 **The study of Joule Thompson effect for the removal of CO₂ from natural gas by**

membrane process**F Ahmad, KK Lau, AM Shariff, G Murshid**

International Journal of Chemical and Environmental Engineering, 2012, 3 (2), 115-118

- 44 **Physical properties of piperazine (PZ) activated aqueous solutions of 2-amino-2-hydroxymethyl-1, 3-propanediol (AHPD+ PZ)**
G Murshid, AM Shariff, KK Lau, MA Bustam, F Ahmad
Journal of Chemical & Engineering Data, 2011, 57 (1), 133-136
- 45 **Physical properties and thermal decomposition of aqueous solutions of 2-amino-2-hydroxymethyl-1, 3-propanediol (AHPD)**
G Murshid, AM Shariff, KK Lau, MA Bustam, F Ahmad
International Journal of Thermophysics, 2011, 32 (10), 2040-2049
- 46 **Solubility and absorption performance of enhanced amine solvent (stonvent) for carbon dioxide removal**
TL Seea, G Murshid, MA Bustama, LK Keonga, AM Shariffa
International Journal of Chemical and Environmental Engineering, 2011, 2 (4)
- 47 **CO 2 capture from natural gas using membrane separation system: Process simulation, parametric analysis and joule thompson effect**
A Faizan, KL Kok, SA Mohd, M Ghulam
Research Journal of Chemistry and Environment, 2011, 15 (2), 238-244
- 48 **Thermo physical analysis of 2-amino-2-methyl-1-propanol solvent for carbon dioxide removal**
G Murshid, AM Shariff, LK Keong, AM Bustam
Chemical Engineering Transactions, 2011, 25, 45-50
- 49 **Physical Properties of Aqueous Solutions of Piperazine and (2-Amino-2-methyl-1-propanol+ Piperazine) from (298.15 to 333.15) K**
G Murshid, AM Shariff, LK Keong, MA Bustam
Journal of Chemical & Engineering Data, 2011, 56 (5), 2660-2663
- 50 **Thermophysical analysis of aqueous solutions of piperazine (PZ) and 2-amino-2-hydroxymethyl-1, 3-propanediol+ piperazine (PZ+ AHPD)**
G Murshid, AM Shariff, KK Lau, MA Bustam, F Ahmad
International Journal of Chemical and Environmental Engineering, 2011, 2 (5)
- 51 **Thermo-physical Analysis of Aqueous Solutions of 2-Amino-2-hydroxymethyl-1, 3-propanediol (Potential CO2 Removal Solvent from Gaseous Streams)**
G Murshid, AM Shariff, KK Lau, MA Bustam, F Ahmad
Research Journal of Chemistry and Environment, 2011

ii) International Conferences**(1) Ab Absorption of CO₂ in Blended Aqueous Solution of 2-amino-2-hydroxymethyl-1, 3-propanediol (AHPD) and Piperazine (PZ): Modeling of CO₂ Solubility Data using Artificial Neural Network Approach****Ghulam Murshid**, Sahil GArg

4th International Conference on Green Energy Technology (ICGET), 16-18 July, 2019, Rome, Italy.

(2) Initial solubility & density evaluation of Non-Aqueous system of amino acid salts for CO₂ capture: potassium proline blended with ethanol and ethylene glycol**Ghulam Murshid**7th International conference on Clean and Green Energy (ICCGE), 7-9 Feb, 2018, Paris, France.**(3) Synthesis of Amine Functionalized MOF-74 for CO₂ capture**

Ghulam Murshid, Sami Ullah

18th International conference on Materials Science, Engineering and Manufacturing (ICMSEM), 3-4 March, 2016, Singapore.**(4) Thermo-Physical Properties and Solubility of CO₂ in Piperazine Activated Aqueous Solutions of β -Alanine****Ghulam Murshid**17th International Conference on Environmental, Biological, Ecological Sciences and Engineering, (ICEBESE), 12-13 March, 2015, Madrid, Spain**(5) Absorption of Green House Gas (CO₂) and Physical Properties of Aqueous Solutions of 2-Amino-2-Hydroxymethyl-1, 3-Propanediol and Di-Ethanolamine (AHPD+ DEA) at Elevated Pressures****Ghulam Murshid**, AM Shariff, MA Bustam, S Ullah

International Oil & Gas Symposium & Exhibition (IOGSE), 9 – 11 October, 2013, Sabah, Malaysia

iii) Technical Reports

- (1) **“Efficient and Green Carbon Dioxide Capture Using Tunable Solvents” Dr. Ghulam Murshid.**

The Research Council, May 2015.

- (2) **“Investigation of Carbon Dioxide Absorption Characteristics in amino Acid activated Solutions**

Dr. Ghulam Murshid

College of Engineering (Internal Grant), November 2016.

b) Student/trainee advising and supervision in scholarship**i) MSc Students Supervision**

- (1) Thesis Title: **‘Experimental Measurement and Prediction of Gas Hydrate: A case Study from Oman’**

- (2) Thesis Title: **‘Absorption of CO₂ in Physio-Chemical Solvents’**

- (3) Thesis Title: **‘CO₂ Capture Using Amino Acid Based Systems’**

- (4) Thesis Title: **‘SARA Analysis of Omani Death Oils’**

- (5) Thesis Title: **‘Absorption of CO₂ in Aqueous Amino Acid based Hybrid Mixtures’**

- (6) Thesis Title: **‘Carbon dioxide removal Process Evaluation using Aqueous Amine based Deep Eutectic Solvent’**

(7)

- (8) Thesis Title: **‘Imidazole based Eutectic Systems as Potential CO₂ Capture Solvents’**

ii) PhD Students Supervision (SQU)

- (1) Thesis Title: **“Investigation and Synthesis of Tunable Amine Based Deep Eutectic Green Solvents for CO₂ Capture Application”**

c) Personal professional development in scholarship

- i) Membership of Professional Bodies & International Collaboration
 - (1) Member of “WASTE” Club, Uni-Stuttgart, Germany
 - (2) Member “International Association of Carbon Capture”
 - (3) Senior Member, International Associate of Carbon Capture
 - (4) Workshop on Sustainable Production and Management of Shale Gas, Malaysia, 1-2 June 2014.
 - (5) Attended three days Conference on Green and Sustainable Chemistry held in SQU, 13-15 Nov 2017
- ii) Give Seminar on “*Prospects for New Materials: CO₂ Capture*” in College of Engineering, 7th April 2016

d) Recognition in scholarship

- i) Served as **External Examiner** of the following Thesis
 - (1) Thesis Title: ‘Optimization of Microbial Desalination Cell for Electricity Production and Seawater Desalination Using Dialysis Process’
 - (2) Served as **Chairman** for the Thesis Title: ‘Analysis and Evaluation of Micro-grid Implementation in Oman’
 - (3) Served as **Chairman** for the Thesis title Behavior of Circular HSC Columns Reinforced with GFRP bars and Spirals”
- ii) Reviewer for the Journal of Chemical Engineering Data.
- iii) Reviewer for the Chemical Engineering Research and Design.
- iv) Reviewer for the Journal of Molecular Liquids
- v) Reviewer for the Industrial & Engineering Chemistry Research.
- vi) Reviewer Internal Journal of Green House Gases
- vii) Reviewer Chemical Engineering Science
- viii) Member Technical Committee ICGET, 2019
- ix) Secretary of the organization committee and member of the technical program of ICTEA 2017, held in SQU
- x) Conference Secretary and member of the technical program of ESTCON 2014, organized by Universiti Teknologi PETRONAS, Malaysia

i) Principle investigator of projects

- (a) Investigation of Carbon Dioxide Absorption Characteristics in amino Acid activated Solutions**
- (b) Novel green non-aqueous solvents for enhanced CO₂ absorption**
- (c) Investigation of the Potential Application of Ultrasonic assisted Reactor to Capture Carbon dioxide (CO₂) from various Industrial Gas Processing Stream using Green Deep Eutectic solvents**