

# Dr. Abrar Inayat

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<b>Qualifications</b>	PhD Chemical Engineering (Renewable Energy/Biomass Energy Systems) MS Energy Engineering (Sustainable Energy Systems) BSc Chemical Engineering
<b>Experience to Date</b>	15 Years <ul style="list-style-type: none"><li>• Teaching &amp; Research: 12</li><li>• Industry: 03</li></ul>
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<b>Contents</b>	<b>Page</b>
1. Academics/ Research Experience	2
2. Industrial Experience	5
3. Supervision	5
4. Research Interest	7
5. Academics	7
6. Awards/ Appreciations	8
7. Thesis/ Projects/ Reports	9
8. Patents/ Copy Rights	11
9. Research Statistics	11
10. Journals Publication	12
11. Conference Publications	18
12. Book Section	25
13. Professional Development	26
14. Consultancy/ Expert Services	27
15. Membership/ Editorial Board	28
16. Computational Skills	28

# 1. Academics/ Research Experience

- (i) **2015 to date:** As *Assistant Professor* in Department of Sustainable & Renewable Energy Engineering, University of Sharjah, Sharjah, United Arab Emirates

## Professional Roles in UOS, UAE

- **Courses Taught to Undergraduate**
  - Heat Transfer
  - Statics and Dynamics
  - Biomass Energy Systems
  - Intro. to Energy Science & Technology
  - Heat Transfer Lab
  - Energy Storage Lab
  
- **Key Responsibilities**
  - Member of research center “Renewable Energy Technologies Research Center”
  - Member of Community Service, Outreach and Communication Committee (2015-2016)
  - Member of ABET accreditation of SREE program (2015-2016)
  - In-charge ABET Program’s Home Room (2015-2016)
  - Member of student activities & welfare committee (2015-2016)
  - Coordinator of seminar organizing committee (2015-2016)
  - Member research and graduate studies committee (2015-2016)
  - Member of MOHESR accreditation of SREE program (2016-2017)
  - Member of Community Service, Outreach and Communication College Committee (2016-2017)
  - Member Departmental Teaching and Learning Committee (2016-2017)
  - Coordinator Community Service of SREE Department (2016-2017)
  - Department Course Schedule Coordinator (2017-2018)
  - Member Ad-hoc College Committee for New Undergraduate Program of BSc in Desalination and Water Engineering (2017-2019)
  - Member of Committee for the Preparation of Department Annual Report (2017-2018)
  - Member Departmental CAA Accreditation Committee (2017-2018)
  - Member of Ad-Hoc Committee for Lab Engineer Position (2017-2018)
  - Member Departmental Graduate Program Development Committee (2017-2018)
  - Member Departmental Strategic Planning Committee (2017-2018)
  - Member University Waste Management Sustainability Circle (2018-2019)
  - Member University Climate Change Sustainability Circle (2018-2019)

- Member PhD Accreditation Committee (2018-2019)
- Member Departmental Teaching and Learning Committee (2018-2019)
- Member of College Engineering Innovation and Entrepreneurship Committee (2018-2019)
- Chair for the committee of Department Engineering Innovation and Entrepreneurship (2018-2019)
- Department Course Schedule Coordinator (2018-2019)
- Department Annual Report Coordinator (2018-2019)
- Research celebration Event Coordinator (2018-2019)
- Head of the Departmental Specialty Group “Mechanics” (2018-2019)
- Member of the Departmental Specialty Group “Thermal Energy” (2018-2019)
- Member of SEEP 2019 Conference Committee

(ii) **2013 to 2015:** As *Senior Lecturer* in Chemical Engineering Department, Universiti Teknologi PETRONAS, Tronoh, Malaysia

“In 2014 and 2015, Chemical Engineering Department (UTP) attained position in *Top 150 World Ranking* (QS World Ranking *by Subject*)”

#### **Professional Roles in UTP, Malaysia**

- **Courses Taught to Undergraduate**
  - Process Plant Design
  - Health, Safety and Environment
  - Introduction to Materials Science and Engineering
- **Key Responsibilities**
  - Supervisor of final year projects
  - Member of process system engineering cluster
  - Member of task force for the MSc Process System Engineering program
  - Course analysis via outcome based education (OBE) system
  - Core member of mission oriented research (MOR) Green Technology
  - Departmental coordinator for final year projects
  - Supervisor for the plant design projects
  - Evaluation of students industrial training reports and projects
  - Examiner for the postgraduate students symposium
  - Reviewer for the conference papers submitted by UTP staff and students
  - Judge of engineering design exhibitions
  - Examiner for the plant design projects
  - Auditor for the final examination papers
  - Mentor in the mentor mentee program

- Examiner for the research completion seminar (PhD students)
  - Associate member of center for biofuels and biochemical research (CBBR)
- (iii) **2008 to 2013 (2009-2012 on Study Leave):** As *Assistant Professor* in Department of Chemical Engineering, COMSATS University Islamabad (CUI), Lahore Campus, Pakistan
- (iv) **2007 to 2008:** As *Lecturer* in Department of Chemical Engineering, COMSATS University Islamabad (CUI), Lahore Campus, Pakistan

#### **Professional Role in CUI, Pakistan**

- **Courses & Labs Taught to Undergraduate**
    - Chemical Engineering Plant Design
    - Chemical Engineering Transfer Operations
    - Fuel and Combustion
    - Process Control
  - **Key Responsibilities**
    - Established chemical transfer operations laboratory
    - Established industrial liaison office
    - Industrial liaison officer
    - Event management coordinator
    - In-charge departmental seminar organizing committee
    - Convener COMSATS SOCIETY FOR SUSTAINABILITY
    - Member biomass conversion research center
    - Member departmental Financial Assistance Committee and Disciplinary Committee
    - External Examiner for “NFC Institute of Engineering & Technology, Faisalabad, Pakistan
- (v) **2009 to 2012:** As *Research Officer* in Biohydrogen Research Cluster (Green Technology Mission Oriented Research), Department of Chemical Engineering, University Teknologi PETRONAS (UTP), Malaysia

#### **Professional Role in UTP, Malaysia**

- **Courses Taught to Undergraduate**
  - Heat Integration
  - Process Heat Transfer
  - Process Instrumentation
- **Key Responsibilities**
  - Research issues and makes recommendations as appropriate

- Develops and writes research papers, milestone reports and quarterly reports for bio-hydrogen project
- Assists in developing partnerships and collaborative arrangements with other organizations
- Responsible for the monthly report
- Assists with the preparation of the final reports
- Develops and maintains Journals database importance to project
- Assists with planning, development and execution for project meetings, workshops, programs and other events

## 2. Industrial Experience

- (i) **2006 to 2007:** As *Assistant Manager* in Utility Process Department, Dewan Salman Fibre Ltd. (DSF), Hattar Industrial Estate, Harripur-Pakistan
- (ii) **2002 to 2004:** As *Assistant Engineer* in Utility Process Department, Dewan Salman Fibre Ltd. (DSF), Hattar Industrial Estate, Harripur-Pakistan

### Professional Role in DSF, Pakistan

- **Key Responsibilities**
  - Supervised production & process control section
  - Study & analyze the daily process data and daily report submission
  - Study, suggest and implement changes for process & production improvement
  - To ensure safety and health of staff
  - Training of junior officers and staff
  - Communication & co-ordination with local and international delegates and contractors/vendors
  - Participated in the hiring process of the staff
  - Supervised the whole utility process equipment. (Chillers, Compressors, Boilers, Cooling Towers, Air Handling Units)
  - Co-ordinates at nitrogen production unit & water treatment section

## 3. Supervision

- **Supervised Undergraduate Final Year Research & Design Projects**
  - Slow Pyrolysis system to produce Activated Carbon from Coffee waste used for Medical Application
  - Design of Integrated CRS for HP Steam Production Using Solar and Biomass
  - Energy Efficient Biomass Combustion System using Municipal Solid Waste as feedstock
  - Design of Pyrolysis Process for Bio-Oil Production from Coffee Waste

- Biodiesel Production from Neem Oil using KOH with Activated Carbon as Catalyst
- Biomass Gasification Technology for Irrigation Pumping
- Design of Hybrid Central Receiver Systems (CRS) for Electricity Generation using Solar and Biomass
- Biodiesel Production from Waste Cooking Oil via Micro reactors
- Hydrogen Production From Waste Via Integration Of Anaerobic Digestion And Catalytic Dry Reforming
- Syngas Production from Municipal Solid Waste via Plasma Gasification
- Biodiesel Production from Date Seeds via Microwave Assisted Technique Farm house
- Design of Self-Sustained Vegetable farm house using integrated power production and water cooling system via Solar and Wind Energy
- Generation of Electricity using speed breakers
- Design of a Solar Assisted Reactor for the Pyrolysis of HDPE to Fuel and Petrochemicals
- Design of Direct Methanol Fuel Cell
- Plant Design Project for the Production of Ethylene
- Simulation for Hydrogen Production from Palm Waste via Supercritical Gasification using Concentrated Solar Energy
- Simulation and Parametric Study for the Hydrothermal Gasification of Palm Waste
- Parametric Study to Investigate the Coal Bottom Ash as CO<sub>2</sub> Sorbent
- Plant Design Project for the Production of Propylene Glycol
- Simulation of District Cooling System using Solar Cooling with Water-Ammonia Absorption Chillers
- Determination of Kinetics Parameters for the Reactions Involved in Biodiesel Production via Optimization Approach
- Design of Formaldehyde Production Plant
- Model Development of Tar Cracking for Biomass Steam Gasification for Hydrogen Production
- Development of Reaction Kinetics Model for the Production of Syngas from using CO<sub>2</sub> (Dry Methane Reforming)
- Development of the Reaction Kinetics Modelling for the Production of Biodiesel from Palm Oil
- Parametric study for the Production of Di Methyl Ether (DME) as a Fuel from Palm Wastes using iCON Process Simulator
- Simulation of Synthetic Natural Gas (SNG) Production through Catalytic Gasification of Biomass
- Superstructure Optimization for Hydrogen Production from Air-Steam Gasification
- Gasification Model of Hydrogen Production from EFB using ASPEN HYSIS

- Heat Integration Study on Biomass Gasification Plant for Hydrogen Production
  - Simulation of Integrated Pressurized Steam Gasification of Biomass for Hydrogen Production using iCON
  - Superstructure Optimization for Hydrogen Production from Biomass Pyrolysis
- **Supervision of Post Graduate Students**
    - Co-Supervisor - Mr Muhammad Ammar (MSc) – “Development of Systematic Algorithm for the Production of Synthetic Natural Gas for Vehicles (SNGV)”. [Graduated on Oct 2018]
    - Co-Supervisor - Mr Muhammad Shahbaz (PhD) – “Modelling and Experimental Study for In-Situ Catalytic Biomass Gasification for Syngas Production by Utilization of Coal Bottom Ash”. [Graduated on Jan 2019]

#### 4. Research Interest

- Biomass and Bioenergy
- Process System Engineering
- Heat Integration
- Optimization & Modelling & Simulation
- Sustainable Energy Systems
- Biofuels
- Environmental Science & Engineering
- Co-Generation
- Solar Thermal Energy
- Hybrid Energy Systems
- CO<sub>2</sub> Capture and Utilization

#### 5. Academics

**Doctorate of Philosophy in Engineering (PhD Eng)** (2009-2012)  
 (Chemical Engineering)  
 Universiti Teknologi PETRONAS, Tronoh, Malaysia

**Master in Energy Engineering (M Eng)** (2004-2006)  
 (Master with Focus on Sustainable Energy Systems)  
 Mälardalens University, Västerås, Sweden

**Bachelor of Science in Engineering (BSc Eng)** (1998-2002)  
 (Chemical Engineering)  
 University of the Punjab, Lahore, Pakistan

## 6. Awards/ Appreciations

1. **2<sup>nd</sup> Position** in 2<sup>nd</sup> Engineering Undergraduate Design Projects Exhibition 2019 (EUDPE 2019) as Supervisor, 09 May 2019, University of Sharjah, United Arab Emirates
2. **2<sup>nd</sup> Position** in 1<sup>st</sup> Engineering Undergraduate Design Projects Exhibition 2018 (EUDPE 2018) as Supervisor, 09 May 2018, University of Sharjah, United Arab Emirates
3. **Appreciation Certificate** for serving as Judge. *SREE Renewable Energy Challenge*, 08 May 2018, University of Sharjah, United Arab Emirates
4. **Appreciation Certificate** for serving as Judge. *UAE Undergraduate Research Competition*, 08 May 2017, Abu Dhabi, United Arab Emirates
5. **Best Researcher of the University Award**. *12<sup>th</sup> Convocation Ceremony, 21 October 2012, University Teknologi PETRONAS, Perak, Malaysia*.
6. **Gold Medal**. *23rd International Invention, Innovation and Technology Exhibition (23rd ITEX 2012)*, 17-19 May 2012, Kuala Lumpur, Malaysia. “Integrated Catalytic Adsorption (ICA) Steam Gasification for Biohydrogen Production from Biomass”
7. **Silver Medal**. *12th Invention & Innovation Awards 2012, Malaysian Technology Expo (MTE)*, 16-18 February 2012, Kuala Lumpur, Malaysia. “Integrated Catalytic Adsorption (ICA) Steam Gasification for Biohydrogen Production from Biomass”
8. **Gold Medal**. *The Belgian and International Trade Fair for Technological Innovation (60<sup>th</sup> INNOVA 2011)*, 19 November 2011, Brussels, Belgium. “Integrated Catalytic Adsorption (ICA) Steam Gasification for Biohydrogen Production from Biomass”
9. **Special Sustainable Development Award**. *The Belgian and International Trade Fair for Technological Innovation (60<sup>th</sup> INNOVA 2011)*, 19 November 2011, Brussels, Belgium. “Integrated Catalytic Adsorption (ICA) Steam Gasification for Biohydrogen Production from Biomass”
10. **Silver Medal**. *The Belgian and International Trade Fair for Technological Innovation (60<sup>th</sup> INNOVA 2011)*, 19 November 2011, Brussels, Belgium. “Bio-Gasoline from Agricultural Waste via Catalytic Conversion Process(BIOGAX)”
11. **Gold Medal**. *Geneva Inventions, Salon International Des Inventions*, 8 April 2011, Genève, Switzerland. “Fuel bio provenant de déchets de l’agriculture via un processus de conversion catalytique”



12. **Saudi Arabia Mawhiba Award** (An award from King Abdul Aziz). *Geneva Inventions, Salon International Des Inventions*, 8 April 2011, Genève, Switzerland. “Creativity for the effort in managing waste and converting waste to wealth”
13. **Gold Medal**. *10th Invention & Innovation Awards 2011, 10th Malaysian Technology Expo (MTE), 17-19 February 2011, Kula Lumpur, Malaysia*, “Bio-Gasoline from Malaysian Agricultural Waste via Catalytic Conversion Process (BIOGAX)”
14. **Bronze Medal**. *Engineering Design Exhibition (EDX-26), 25-26 October 2010, University Teknologi PETRONAS, Perak, Malaysia*. “Feasibility Study of H<sub>2</sub> Production from Empty Fruit Bunch (EFB) Gasification via Modeling and Simulation Approach”
15. **Silver Medal**. *Engineering Design Exhibition (EDX-25), 21-22 April 2010, University Teknologi PETRONAS, Perak, Malaysia*. “Kinetics Modeling for Enriched Hydrogen Gas Production through Steam Gasification of Biomass”

## 7. Projects/ Reports/ Thesis

### (i) Projects

1. **Abrar Inayat**, Chaouki Ghenai, Abdullah Shanableh. “Development and Simulation of Integrated System for the Hydrogen Production from Waste via Anaerobic Digestion, Dry Reforming and Steam Gasification”. [Amount Secured: 48,000 AED] Competitive Project, University of Sharjah, United Arab Emirates
2. Chaouki Ghenai, **Abrar Inayat**, Tareq S Z Salameh. “Plasma Gasification of Municipal Solid waste”. [Amount Secured: 200,000 AED] Targeted Research Grant, University of Sharjah, United Arab Emirates
3. Mohammad A Abdelkareem, Anis Allagui, Di Zhang, **Abrar Inayat**, Hussain Alawadhi. “Development of Photo-electrochemical Fuel cells for Simultaneous Wastewater Treatment and Power Generation”. [Amount Secured: 80,000 AED] Competitive Project, University of Sharjah, United Arab Emirates
4. Chaouki Ghenai, Ali Al-Keblawy, **Abrar Inayat**. “Renewable and Alternative Fuels (Biodiesel and Biogas) from UAE Plants”. [Amount Secured: 400,000 AED] Collaborative Project, University of Sharjah and Sharjah Research Academy
5. Muhammad Zubair, **Abrar Inayat**, Muhammed Hashim. “Reliability Evaluation of Reactor Protection System (RPS) Considering Different Failure Modes”. [Amount Secured: 71,000 AED] Competitive Project, University of Sharjah, United Arab Emirates
6. **Abrar Inayat**, Chaouki Ghenai, Mohammad Ali Abdelkareem, Tareq S Z Salameh, Muhammad Zubair. “Development of Systematic Algorithm for the Production of Synthetic Natural Gas for Vehicles (SNGV) from Biomass”. [Amount Secured: 64,000 AED] Competitive Project, University of Sharjah, United Arab Emirates

7. **Abrar Inayat**, Chaouki Ghenai, Tareq S Z Salameh. “Energy efficient and cost effective hydrogen production process development from date pits via steam gasification”. [Amount Secured: 40,000 AED] SEED Project, University of Sharjah, United Arab Emirates
8. **Abrar Inayat**, Suzana Yusup, M I Abdul Mutalib. “Heat Integration and Optimization for the Development of Energy Efficient Bio-Hydrogen Production Process from Palm Waste”. [Amount Secured: 22,700 RM] Short Term Internal Research Fund (STIRF), Universiti Teknologi PETRONAS, Malaysia
9. Muhammad Ayoub, **Abrar Inayat**. “Biodiesel-derived glycerol conversion to valuable polyglycerol via solvent free etherification over inexpensive and environmental friendly Aluminum pillared clay”. [Amount Secured: 25,000 RM] Short Term Internal Research Fund (STIRF), Universiti Teknologi PETRONAS, Malaysia
10. Lemma D Tufa, Suzana Yusup, Yoshimitsu Uemura, Haslinda B Zabiri, **Abrar Inayat**. “Dynamic Model and Dynamic Behavior of Fluidized Bed Biomass Gasification System”. [Amount Secured: 75,200 RM] Fundamental Research Grant Scheme (FRGS), Ministry of Education, Malaysia
11. Suzana Yusup, Murni M Ahmad, Anita B Ramli, Ku Z K Shaari, **Abrar Inayat**, Mas Fatiha, Sharifah Shahidah, Taufif M Arfin, Zakir Khan, Athirah M Tamidi, Siti B Eda. “Development of integrated biomass catalytic gasification systems for sustainable hydrogen production”. [Amount Secured: 20 Million RM] Petronas Research Fund (PRF), PETRONAS Sdn Bhd, Malaysia

**(ii) Reports**

12. Murni M Ahmad, Zakir Khan, **Abrar Inayat**, Siti A M Saman, Azwan F Z Abidin, Noor A Zaina and Tigabwa Yosef. “Commissioning and performance testing of the developed gasification system”.
13. Murni M Ahmad, Ku Z K Shaari, Athirah M Tamidi and **Abrar Inayat**. “Process modelling, simulation, optimization and integration for integrated catalytic biomass gasification systems and validation”.
14. Mohd K Yunus and **Abrar Inayat**. “Preliminary economic analysis of catalytic steam gasification of empty fruit bunch for hydrogen production”.
15. Callistus Ezeani, Ekun Ferdin, **Abrar Inayat** and Njah M Ezewudo. “Project report on feasibility of water pumping applications using photovoltaic solar cells”.
16. **Abrar Inayat**, Michel John, Roman Pietropaolo and Adam Peters. “Project design of heat pump using outdoor heat as air source”.
17. **Abrar Inayat**, Ekun Ferdin and Callistus Ezeani. “Project report on sustainability of dimethyl ether as fuel in Volvo trucks”.

18. Ekun Ferdin, **Abrar Inayat**, Callistus Ezeani, and Njah M Ezewudo “Project report on feasibility fuel cell power stations in Västerås”.
19. **Abrar Inayat**, Kamran Akhter, Naveed Izhar and Yasser Ahmad. “Process design on the manufacturing of medicated soaps”.

(iii) **Thesis Tittles**

*Doctorate of Philosophy in Engineering (PhD Eng)* “Systematic design algorithm for energy efficient hydrogen production from palm waste”

*Master in Engineering (MS Eng)* “Designing of district cooling system using deep cooling water as a source”

*Bachelor of Science in Engineering (BSc Eng)* “Plant design on the production of ammonia from synthesis gas”

## 8. Patents and Copy Rights

1. **[Patent No: MY-157067-A]** Suzana Yusup, Murni M. Ahmad, Chok V Soon, **Abrar Inayat**, Zakir Khan, Mohamad T Arpin. “Integrated Catalytic Adsorption (ICA) Biomass Steam Gasification Systems for Hydrogen Production”
2. **[Copy Right]** **Abrar Inayat**, Suzana Yusup, Murni M. Ahmad, M I Abdul Mutalib. “Systematic Design Algorithm for Energy Efficient Hydrogen Production from Palm Waste” (Under Filling)

## 9. Research Statistics (March 8, 2020)

Type of Publication	Number	Remarks
Journal Papers	46	Total Impact Factor = 162
Conference Proceedings Papers	57	Scopus Index Proceedings = 26
Books & Book Chapters	5	
<b>Total</b>	<b>108</b>	

Source	Documents	Citations	<i>h</i> -index
Google Scholar	88	951	13
Scopus	60	687	12

## 10. Journals Publications

1. **Abrar Inayat**, Mohsin Raza, Zakir Khan, Chaouki Ghenai, Muhammad Aslam, Muhammad Shahbaz, Muhammad Ayoub. (2020), “Flowsheet Modelling and Simulation of Biomass Steam Gasification for Hydrogen Production: A Review”. *Chemical Engineering & Technology*. Accepted and in Press DOI: 10.1002/ceat.201900490  
*\*Indexing: ISI Web of Science [Impact Factor=2.418], Scopus, SJR (Q2)*
2. **Abrar Inayat**, Hu H Ang, Mohsin Raza, Bashria AA Yousef, Chaouki Ghenai, Muhammad Ayoub, Syed IUH Gilani. (2020), “Integration and simulation of solar energy with hot flue gas system for the district cooling application” *Case Studies of Thermal Engineering*, Vol 19, pp. 100620  
*\*Indexing: ISI Web of Science, Scopus, SJR (Q1)*
3. **Abrar Inayat**, Muddasser Inayat, Muhammad Shahbaz, Shaharin A. Sulaiman, Mohsin Raza, Suzana Yusup. (2020). “Parametric Analysis and Optimization for the Catalytic Air Gasification of Palm Kernel Shell using Coal Bottom Ash as Catalyst”. *Renewable Energy*, Vol 145, pp. 671-681  
*\*Indexing: ISI Web of Science [Impact Factor=5.439], Scopus, SJR (Q1)*
4. Muhammad Shahbaz, Suzana Yusup, Tareq Al-Ansari, **Abrar Inayat**, Muddasser Inayat, Hassan Zeb, Mohamad Alnarabiji. (2019), “Characterization and reactivity study of coal bottom ash for utilization in biomass gasification as an adsorbent/catalyst for cleaner fuel production” *Energy & Fuels*, Vol 33, pp. 11318  
*\*Indexing: ISI Web of Science [Impact Factor=3.021], Scopus, SJR (Q1)*
5. Mohammed Kamil, Khalid Ramadan, Abdul Ghani Olabi, Chaouki Ghenai, **Abrar Inayat**, Mugdad H. Rajab. (2019). “Desert Palm Date Seeds as a Biodiesel Feedstock: Extraction, Characterization, and Engine Testing”. *Energies*, Vol 12, pp. 3147  
*\*Indexing: ISI Web of Science [Impact Factor=2.707], Scopus, SJR (Q1)*
6. **Abrar Inayat**, Farrukh Jamil, Mohsin Raza, Shahzad Khurram, Chaouki Ghenai, Ala’a H. Al-Muhateb. (2019), “Upgradation of Waste Cooking Oil to Biodiesel in Presence of Green Catalyst Derived from Date Seeds”, *Biofuels*, Accepted and in Press DOI: 10.1080/17597269.2019.1608036  
*\*Indexing: ISI Web of Science [Impact Factor=1.130], Scopus, SJR (Q2)*
7. Zakir Khan, Suzana Yusup, Muhammad Aslam, **Abrar Inayat**, Muhammad Shahbaz, Salman Raza, Robina Farooq, Ian Watson. (2019). “NO and SO<sub>2</sub> emissions in palm kernel shell catalytic steam gasification with in-situ CO<sub>2</sub> adsorption for hydrogen production in a pilot-scale fluidized bed gasification system”. *Journal of Cleaner Production*. Vol 236, pp. 117636  
*\*Indexing: ISI Web of Science [Impact Factor=6.395], Scopus, SJR (Q1)*

8. **Abrar Inayat**, Muhammad Ayoub, Ahmad Z Abdullah, Sami Ullah, Salman R Naqvi. (2019). "Decomposition of N<sub>2</sub>O at Low Temperature over Co<sub>3</sub>O<sub>4</sub> Prepared by Different Methods". *Environmental Progress and Sustainable Energy*, Vol 38, pp. 13129  
\*Indexing: ISI Web of Science [Impact Factor=1.596], Scopus, SJR (Q2)
9. Hosein Ghaedi, Ming Zhao, Muhammad Ayoub, Diana Zahraa, Azmi Mohd Shariff, **Abrar Inayat**. (2019). "Preparation and characterization of Amine (N-Methyl Diethanolamine)-based transition temperature mixtures (deep eutectic analogues solvents)". *The Journal of Chemical Thermodynamics*, Vol 137, pp. 108-118  
\*Indexing: ISI Web of Science [Impact Factor=2.290], Scopus, SJR (Q1)
10. Chaouki Ghenai, **Abrar Inayat**, Abdallah Shanableh, Eman A Sarairah, Isam Janajreh. (2019), "Combustion and Emissions Analysis of Spent Pot Lining (SPL) as Alternative Fuel in Cement Industry" *Science of the Total Environment*, Vol 84, pp. 519-526  
\*Indexing: ISI Web of Science [Impact Factor=5.589], Scopus, SJR (Q1)
11. Mohammed Kamil, Khalid M Ramadan, Omar I Awad, Thamir K Ibrahim, **Abrar Inayat**, Xiao Ma. (2019), "Environmental Impacts of Biodiesel Production from Waste Spent Coffee Grounds and its Implementation in a Compression Ignition Engine". *Science of the Total Environment*, Vol 675, pp. 13-30  
\*Indexing: ISI Web of Science [Impact Factor=5.589], Scopus, SJR (Q1)
12. **Arar Inayat**, Mohsin Raza. (2019), "District Cooling System via Renewable Energy Sources: A Review", *Renewable and Sustainable Energy Reviews*, Vol 107, pp. 360-373  
\*Indexing: ISI Web of Science [Impact Factor=10.556], Scopus, SJR (Q1)
13. **Abrar Inayat**, Ahmed M. Nassef, Hegazy Rezk, Enas T Sayed, Mohammad A Abdelkareem, Abdul G Olabi. (2019). "Fuzzy modeling and parameters optimization for the enhancement of biodiesel production from waste frying oil over montmorillonite clay K-30". *Science of the Total Environment*, Vol 666, pp. 821-827  
\*Indexing: ISI Web of Science [Impact Factor=5.589], Scopus, SJR (Q1)
14. Muhammad Shahbaz, Syed A Taqvi, Adrian C M Loy, **Abrar Inayat**, Fahim Uddin, Awais Bokhari, Salman R Naqvi. (2019). "Artificial neural network approach for the steam gasification of palm oil waste using bottom ash and CaO". *Renewable Energy*, Vol 132, pp. 243-254  
\*Indexing: ISI Web of Science [Impact Factor=5.439], Scopus, SJR (Q1)
15. Hegazy Rezk, Ahmed M. Nassef, **Abrar Inayat**, Enas T Sayed, Muhammad Shahbaz, Abdul G Olabi. (2019). "Improving the Environmental Impact of Palm Kernel Shell Through Maximizing its Production of Hydrogen and Syngas using Advanced Artificial Intelligence". *Science of the Total Environment*, Vol 658, pp. 1150-1160  
\*Indexing: ISI Web of Science [Impact Factor=5.589], Scopus, SJR (Q1)

16. Zakir Khan, Suzana Yusup, Murni M Ahmad, **Abrar Inayat**, Muhammad Naqvi, Rizwan Sheikh, Ian Watson. (2018). "Integrated Catalytic Adsorption Steam Gasification in a Bubbling Fluidized Bed for Enhanced H<sub>2</sub> Production: Perspective of Design and Pilot Plant Experiences". *Biofuels, Bioproducts and Biorefining*, Vol 12, pp. 735-748  
\*Indexing: ISI Web of Science [Impact Factor=4.224], Scopus, SJR (Q2)
  
17. Salman R Naqvi, Sana Jamshaid, Muhammad Naqvi, Wasif Farooq, Muhammad B K Niazi, Zaeem Aman; Muhammad Zubair, Majid Ali, Muhammad Shahbaz, **Abrar Inayat**, Waheed Afzal. (2018), "A Review on Potential of Biomass based Bioenergy in Pakistan based on Present case and Future Perspectives". *Renewables & Sustainable Energy Reviews*, Vol 81, pp. 1247-1258  
\*Indexing: ISI Web of Science [Impact Factor=10.556], Scopus, SJR (Q1)
  
18. Muhammad Shahbaz, Suzana Yusup, **Abrar Inayat**, David O Patrick, Muhammad Ammar, Angga Partama. (2017), "Cleaner production of hydrogen and syngas from catalytic steam palm kernel shell gasification using CaO sorbent and coal bottom ash as a catalyst". *Energy & Fuels*, Vol 31, pp. 13824-13833  
\*Indexing: ISI Web of Science [Impact Factor=3.021], Scopus, SJR (Q1)
  
19. Muhammad Shahbaz, Suzana Yusup, **Abrar Inayat**, Muhammad Ammar, David O Patrick, Angga Partama, Salman R Naqvi. (2017), "Syngas production from steam gasification of Palm kernel shell with subsequent CO<sub>2</sub> Capturing using CaO sorbent: An Aspen plus modelling". *Energy & Fuels*, Vol 31, pp. 12350-12357  
\*Indexing: ISI Web of Science [Impact Factor=3.021], Scopus, SJR (Q1)
  
20. Muhammad Shahbaz, Suzana Yusup, **Abrar Inayat**, David O Patrick, Angga Partama, Muhammad Ammar. (2017), "Optimization of hydrogen and syngas production from PKS gasification by using coal bottom ash". *Bioresource Technology*, Vol 241, pp. 284-295  
\*Indexing: ISI Web of Science [Impact Factor=6.669], Scopus, SJR (Q1)
  
21. Muhammad Shahbaz, Suzana Yusup, Muhammad Y Naz, S A Sulaiman, **Abrar Inayat**, A Partama. (2017), "Fludization of Palm Kernal Shell, Palm Oil fronds and Empty Fruit Bunches in a Swirling Fludized Bed Gasifier". *Particulate Science and Technology*, Vol 35, pp. 150-157  
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49. **Abrar Inayat**, Murni M Ahmad, M I Abdul Mutalib, Suzana Yusup. (2010) “Flowsheet Development and Modelling of Hydrogen Production from Empty Fruit Bunch via Steam Gasification” in *Proceeding of 13<sup>th</sup> International Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES 2010)*, 28 Aug-1 Sep 2010, Prague, Czech Republic (ISBN 978-80-02-02210-7) [Published in *Chemical Engineering Transactions*, Vol. 21, pp. 427-432]  
\*Indexing: ISI, Scopus
50. **Abrar Inayat**, Murni M Ahmad, M I Abdul Mutalib, Suzana Yusup. (2010) “Flowsheet Modelling of Biomass Steam Gasification System with CO<sub>2</sub> Capture for Hydrogen Production” in *Proceeding of International Conference on Advances in Renewable Energy Technologies (ICARET 2010)*, 6-7 July 2010, Putrajaya, Malaysia (ISBN 978-967-5770-06-7)
51. **Abrar Inayat**, Murni M Ahmad, M I Abdul Mutalib. (2010) “Effect of Process Parameters on Hydrogen Production and Efficiency in Biomass Steam Gasification with in Situ CO<sub>2</sub> Capture” in *Proceeding of International Conference on Process Engineering and Advance Material (ICPEAM 2010)*, 15-17 June 2010, Kuala Lumpur, Malaysia (ISBN 978-983-2271-21-5)
52. Chai Kian Chiew, **Abrar Inayat**, Murni M Ahmad, (2010) “Simulation of Hydrogen Production from Biomass via Pressurized Gasification using iCON” in *Proceeding of International Conference on Process Engineering and Advance Material (ICPEAM 2010)*, 15-17 June 2010, Kuala Lumpur, Malaysia (ISBN 978-983-2271-21-5)



53. Murni M Ahmad, Mohd K Yunus, **Abrar Inayat**. (2010) “Simulation of Gasification with In-Situ carbon Dioxide Adsorption of Empty Fruit Bunch into Hydrogen” in *Proceeding of International Conference on Chemical Engineering and Application (CCEA 2010)*, 26-28 February 2010, Singapore (ISBN 978-1-84626-023-0)
54. Mohd K Yunus, Murni M Ahmad, **Abrar Inayat**, Suzana Yusup. (2010) “Simulation of Enhanced Biomass Gasification for Hydrogen Production using iCON” in *Preceding of International Conference on Chemical and Biological Engineering (ICCBE 2010)*, 24-26 February 2010, Penang, Malaysia (ISSN 2070-3740) [Published in **World Academy of Science, Engineering and Technology**, Vol 62, pp. 753-760]  
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55. **Abrar Inayat**, Murni Melati Ahmad, M I Abdul Mutalib, Mohd K Yunus. (2009) “Kinetic Modeling of Biomass Steam Gasification System for Hydrogen Production with CO<sub>2</sub> Adsorption” in *Proceedings of International Conference for Technical Postgraduates (TECHPOS 2009)*, 14-15 December 2009, Kuala Lumpur, Malaysia (ISBN 978-983-42035-9-7)
56. Imran Aslam, **Abrar Inayat**, Ghulam Murshid, Asim L Khan. (2008) ‘Adsorptive Desulfurization of Kerosene and Diesel for Fuel Processing in Fuel Cell Systems’. In *Proceeding of International conference on Plant Equipment and Reliability (ICPER 2008)*, 25-27 March 2008, Kuala Lumpur, Malaysia , (ISBN 978-983-42358-4-0)
57. **Abrar Inayat**, Moinuddin Ghauri, Imran Aslam, Asim L Khan. (2008) “District Cooling Systems in Pakistan using Rivers & Canals Water as Cooling Source” In *proceeding of International Conference on Plant Equipment and Reliability (ICPER 2008)*, 25-27 March 2008, Kuala Lumpur, Malaysia , (ISBN 978-983-42358-4-0)

## 12. Books Section

1. Chaouki Ghani, **Abrar Inayat**. (2019). “Sustainable Alternative Syngas Fuel”. (ISBN 978-1-78984-581-5) InTechOpen
2. Abdul G Olabi, Abdul H Alami, Muhammad Tawalbeh, **Abrar Inayat**. (2019). “Towards 100% Renewables”. (ISBN 978-9948-36-625-6) University of Sharjah
3. Awais Bokhari, Chuah L Fat, Leow Z Y Michelle, Saira Asif, Muhammad Shahbaz, Majid M Akbar, **Abrar Inayat**, Farrukh Jamil, Salman R Naqvi, Suzana Yusup. (2019). “Microwave enhanced catalytic conversion of canola based methyl ester: optimization and parametric study”, *Advanced Biofuels*, Chapter 6, pp. 154-163 (ISBN 978-0-08-102791-2) Elsevier

4. **Abrar Inayat**, Murni M Ahmad, M I Abdul Mutalib, Suzana Yusup, Zakir Khan. (2014). "Hydrogen Production via Biomass Steam Gasification: A Systematic Review", *Biomass & Bioenergy*, Chapter 19, pp. 329-343 (ISBN 978-3-319-07640-9) Springer
5. Zakir Khan, Suzana Yusup, Murni M Ahmad, Yushimitsu Uemura, Voi S Chok, Umer Rashid, **Abrar Inayat**. (2011). "Kinetic Study on Palm Oil Waste Decomposition", *Biofuel's Engineering Process Technology*, Chapter 22, pp. 523-536 (ISBN 978-953-307-480-1) InTechOpen

### 13. Professional Development

- Delivered a seminar on the "Writing a Literature Review". 01 May 2019, Sharjah, United Arab Emirates
- Training workshop "How to prepare for program reaccreditation". 20 Sep 2019, Sharjah, United Arab Emirates
- Attended and Delivered Presentation on the Workshop "Current Trends and Developments in Biomass Energy and Water Desalination". 3-4 Feb 2019, American University of Sharjah, Sharjah, United Arab Emirates.
- Delivered a workshop on "Energy Efficiency and Heat Recovery". 25 April 2018, Sharjah, United Arab Emirates
- Workshop on "Materials Selection and the Environment". 15 Jan 2018, Sharjah, United Arab Emirates
- "Training Workshop on Research-Based Course Design-Putting it all Together". 18 Jan 2018, Sharjah, United Arab Emirates
- "Training Workshop on Metacognition and Transfer-What Faculty Members Expect Their Students to Learn, but Never Teach". 17 Jan 2018, Sharjah, United Arab Emirates
- Delivered a workshop training on "Simulation using ASPEN HYSYS". 07 May 2017, Sharjah, United Arab Emirates
- "Training Workshop on Course Design". 02 February 2017, Sharjah, United Arab Emirates
- "Training Workshop on Designing an Instructional Plan Incorporating Research-Based Instructional Strategies". 01 February 2017, Sharjah, United Arab Emirates
- "Workshop on Energy Storage". 28-29 November 2016, Dubai, United Arab Emirates
- Delivered a short course on "Industrial Safety Engineering". 15 May 2016, Sharjah, United Arab Emirates

- “Training program on Skills Development using e-services in universities”. 9-10 September 2015, Sharjah, United Arab Emirates
- “Workshop on Writing Final Examination Questions”. 26-27 February 2015, Tronoh, Malaysia
- “Training on OBE (Outcome Based Education)”. 01 October 2014, Tronoh, Malaysia
- “PIRC Online Workshop: Heat Integration & Pinch Technology”. 6, 13, 20 and 27 March 2014, Organized by University of Manchester, Manchester, United Kingdom
- “Effective Education Delivery Workshop”. 15 January 2014 (Eight modules in three days), Tronoh, Malaysia
- “Workshop on Team Building”. 9-12 December 2013, Lumut, Malaysia
- “Training on Student Industrial Internship Program (SIIP) Structure”. 20 November 2013, Tronoh, Malaysia
- “Training on Refinery Performance and Cost Improvement”. 18-19 November 2013, Kuala Lumpur, Malaysia
- Organized and attended “Short Course on Towards Efficient Process Systems”. 17-18 January 2011, Tronoh, Malaysia
- “Training on Agilent Standard Operation & Principle of Gas Chromatography”. 19-23 July 2010, Tronoh, Malaysia
- “Workshop on Biomass to Gas Liquid and Solid Fuels”. 14-15 June 2010, Kuala Lumpur, Malaysia
- “Research Methodology Course”. 19-21 December 2009, Tronoh, Malaysia
- “Short Course on Green Technology: Fundamentals & Applications”. 29-30 July 2009, Tronoh, Malaysia

#### **14. Consultancy/ Expert Services**

- Expert service as reviewer for the Master Program Curriculum “Master in Process System Engineering” of Muscat University, Oman. Invited by Ministry of Higher Education Oman.
- Expert service to the school research project “Biodiesel Production from Date Seeds”
- Reviewer for the following Journals;
  - Renewable and Sustainable Energy Reviews

- Journal of Cleaner Production
- Energy & Fuels
- Bioresource Technology
- Renewable Energy
- Journal of Renewable and Sustainable Energy
- Energy Conversion and Management
- Chiang Mai Journal of Science
- Journal of Molecular Liquids
- Environmental Science and Pollution Research
- International Journal of Greenhouse Gas Control
- Journal of Chemical Thermodynamics
- Applied Energy
- Polish Journal of Chemical Technology
- Journal of the Brazilian Society of Mechanical Sciences and Engineering
- Biofuels
- Iranian Journal of Science and Technology, Transactions A: Science
- Fuel
- Energy Science & Engineering
- Journal of Environmental Chemical Engineering
- Science of the Total Environment
- Journal of Petroleum Science and Engineering

## **15. Membership/ Editorial Board**

- Editorial board member of Renewable Energy Research Journal
- Associate Member of Institution of Chemical Engineers (ICHEME)
- Registered Engineer of Pakistan Engineering Council (PEC)
- Technical Editor of International Journal of Chemical Technology

## **16. Computational Skills**

- MATLAB
- iCON Process Simulator
- ASPEN HYSIS
- Heat Integration Software (SPRINT, STAR)
- TPP 200
- PROSIM Simulator
- Fortran
- Microsoft Visio
- e!Sankey
- SAM