



University of Bahrain

# College of Engineering Senior Projects Exhibition

Second Semester of the Academic Year 2023/2024  
June 2024

Sponsored by



ميرة عبد الرحيم  
الكوهجي الخيرية  
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**His Excellency Dr. Fuad Mohammed Al Ansari**  
President of University of Bahrain



**Dr. Sh. Haifa Bint Ebrahim Al-Khalifa**  
Dean of College of Engineering



تحت رعاية  
سعادة الدكتور فؤاد محمد  
رئيس جامعة البصرة  
تنظم كلية الهندسة  
ورش مشاريع التخرج لطلاب  
الفصل الدراسي الثاني 2022



## Senior Projects Scientific Committee Members



Dr. Semih Erhan- Head of Committee  
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Department of Civil Engineering



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Department of Electrical and Electronics  
Engineering



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Department of Mechanical Engineering

## Senior Projects Guidelines

- **Objectives of senior project**

After completing senior project course, the student should be able to

- a. Design of a component, system, or process to meet a desired need using realistic multiple constraints and engineering standards.
- b. Develop skill in exchanging technical ideas about the work with other students
- c. Develop self-study self-learning capability in solving engineering problems.
- d. Develop skill for conducting and designing engineering experiments.
- e. Develop skill in using effectively software tools in the analysis and design.
- f. Develop skill in searching for technical documentation, report writing and oral presentation.

- **Requirements for senior project:**

- a. The projects should be design oriented. Design is a decision making process based on engineering calculations to achieve desired needs. It is usually iterative i.e. several cases may be considered and solved to select the most appropriate case based on a set of constraints that are prepared predefined, such as economic, environmental, ethical, etc. So the constraints need to be decided ahead
- b. Students must practice team work during the design and show evidence of team work, such as minutes of group meetings stating who was present and what each student said and discussed and most importantly, what were the duties given to each member of the team and the progress in completing these duties.
- c. Draft project reports must be read and revised by the supervisors and the notes for corrections suggested by the supervisor must be shown on the draft report. Students make corrections as instructed by the projects supervisor in the final version of the report. Both of the draft copy (only one copy, showing the supervisors notes) and the final copy of the report (three copies) should be submitted by the student. The draft report will not be used in grading but will be needed for ABET purposes.
- d. The Student must show in his report evidence of his knowledge of contemporary issues (e.g. globalization of economy, global warming, nanotechnology, etc) related to his field of specialization, knowledge of broad education (e.g. impact of engineering on environment, health, society, etc) and evidence of lifelong learning (e.g. what new topics did he learn on his own, including software package and other skills and information). The student must write a paragraph in his report about how the project has helped him in either learning or implementing and applying each of these issues.
- e. Plagiarism (i.e. copying other people's work, whether from the internet or previous reports or books) cannot be tolerated. In such cases, the report should be rejected and the students will have to rewrite the report, but with his own writing and results. Anything work from the literature should be properly referenced, and if full text are taken then they should be placed between "Quotes followed by the reference. In any case quoted material should be very limited, and should be avoided.

# Department of Civil Engineering

Senior Design Projects of Civil Engineering, 2<sup>nd</sup> Semester 2023-2024

Senior Project Coordinator: Dr. Hassan Al Jaidah

No	Student ID	Student Name	Project Title	Supervisor
1	20198813	Noor Abdulmohsin Hasan Ali	Management Analysis on The Design of A Prefabricated Artificial Intelligence Center	Dr. Semih Erhan
	20198769	Manar Yaser Eid Alsalat		
2	20196086	Mohamed Ayman Ahmed Mohamed	Efficient Ecofriendly Building Design	Dr. Semih Erhan
	20195721	Faisal Rasul Vepari		
	20195130	Waleed Obadah Shaker Khawaldeh		
3	20193693	Lubna Omar Ebrahim AlMahmood	Design of Metro Station Using Virtual Reality	Dr. Uneb Gazder
	20197567	Nawra Hasan Husain Ali		
4	20195371	Shooq Khaled Ali Alshawoosh	Design of Multi-Model Urbanmobility System for Seef District	Dr. Uneb Gazder
	20192155	Talal Mohamed Salman Ali		
5	20182543	Zahra Taleb Ebrahim Hubail	Design Tied Arch Pedestrian Bridge	Dr. Semih Erhan
	20192844	Noor Hasan Mohamed Madan		
	20199673	Fajar M J M Almahmeed		
6	20172076	Zeyad Tareq Saad Farhan	Advanced Flood Management System Utilizing Modified Speed Bumps	Dr. Abrar Habib
	20161172	Saad Muath Sami Aldallal		
	202008870	Hamza Rashed Ali Helal		
7	202005081	Asma Yusuf Ahmed Ameen	Tunnel Lining for The Metro Construction	Prof. Mustafa Aytekin
	20194665	Aysha Mohamed Abdulmalek Alkhajah		
	20181488	Rawan Sultan Ahmed Saleem		
8	202006857	S Mohamed Taher Mohsen AlSaffar	Design of Multimodal Highway in Hidd in Bahrain	Dr. Uneb Gazder
	202008650	Yaser Ammar Taiseer Majeed		
	202005305	Mahmood Jalal Ahmed Almansoor		
9	20193224	Hasan Ali Ahmed Alnainoon	Design of Metro Track in Bahrain	Dr. Uneb Gazder
	20194493	Husain Ali Ahmed Alshaikh		
	20194455	Ebrahim Ali Abdulhusain Ebrahim		
10	20192593	Ali Husain Abdulla Alawainati	Comparing Between Steel and Concrete for Cinema Complex	Dr. Mahmoud Jahjouh
	20192338	Husain Ali Mansoor Haider		
	202008929	Manea Sameer Khalifa Alzayani		
11	20184950	Zaid Maki Ahmed Ahmed	Design of A 10- Stories Commercial Building	Dr. Mahmoud Jahjouh
	20193011	Osama Tofeeq Mohammad Tofeeq Shera		
	202005146	Yusuf Mohamed Jaafar Mohamed		
12	202005187	Husain Ali Ahmed Saleh	Design Curve Prestressed Box Girder Highway Bridge	Dr. Mahmoud Jahjouh
	202003804	Noor Husain Ali Salman		
	202010377	Nada Mohamed Saif Alomari		
13	20194758	Maryam Faisal Husain Abdulrasool	Design of an Olympic Swimming Pool Using Secant Piled Walls	Prof. Mustafa Aytekin
	20194705	Narjis Abdulnabi Merza Ebrahim		
14	20183802	Sayed Ahmed Mohamed Salman Mahfoodh		Dr. Muhammad Ajmal

	20183984	Mohammed Bader Mohammed Albaalawy	Design Of Condominium Using Recycled Material in Manama	
	20196858	Ali Hasan Ali Sahwan		
15	20192983	Fatima Abdulrahman Abdulrahim A.Alkarim	Design of Energy Efficient Building in Manama	Dr. Muhammad Ajmal
	20195358	Walaa A.Jabbar Ahmed Arafat		
16	20196173	Fatema Abdulredha Ahmed Sarhan	Design of Wastewater Treatment Plant in Ras Zuwayed Area	Dr. Nagib Ghaleb
	20196349	Noor Ali Merza Saleh		
17	20194074	Esmail Ebrahim Abdulrahim Wajehuddin	Design of High-Rise Telecommunication Tower	Dr. Muhammad Ajmal
	20194256	Abdulaziz Mohamed Abdulaziz Janahi		
	20182721	Husain Jaafar Ali Almsmoom		
18	20189140	Saad Hasan Mohamed Buhusain	Design of Steel Pedestrian Bridge in Salman City	Dr. Muhammad Ajmal
	20180489	Maryam Shawqi Duaij Binzaiman		
	20183927	Noora Hasan Abdulla Ali		
19	202002518	Mohamed Naser Hasan Abdulla	Performance-Based Design Using Fiber-Reinforced Polymer Bars	Dr. Muhammad Ajmal
	202003979	Abdulaziz Baqer Abdulaziz Shehab		
	202007713	Husain Ashoor Mohamed Farhan		
20	20194175	Dana Yusuf Rashed Alkhashram	Design of Cable-Stayed Bridge	Dr. Shah Alam
	20183436	Husain Yaser Hameed Hasan		
	20164547	Salma Mubarak Ghanem Alsanad		
21	20192859	Bayan Abdulkarim Sayed Salman Husain	Design Reinforced Concrete Retaining Wall	Dr. Shah Alam
	20192018	Zahraa Jaafar Juma Almawali		
	20192785	Manar Saeed A Alhaiki		
22	202006471	Duaa Sami Khalil Rajab	Design of Cantilever High-Rise Building	Dr. Hassan Aljaidah
	202003637	Maryam Bahram Qassim Aarayeshy		
	20192304	Nawraa Faisal Ali Almarhoon		
23	20193227	Zahraa Ali Ahmed Abdali Hasan Ahmed	Value Engineering of Reinforced Concrete Building	Dr. Hassan Aljaidah
	20194135	Wadeea Yusuf Ali Abdulla		
24	20183573	Manal Yaseen Abdullah Al Hemyari	Structural Design of Reinforced Concrete Structure Multi Story Car Park	Dr. Abdulhamid Irhouma
	20184396	Muzoon Faisal Humood Althunayan		
	20195651	Shaikha Mohamed Ali Almahmood		
25	20195683	Fatema Abbas Mohamed Darwish	15 Stories Office Building : Sustainable / Green Design	Dr. Abdulhamid Irhouma
	202002870	Bayan Abbas Ali Salem		
26	202006325	Zahra Rashed Abdulla Hasan	Structural Design of Steel Structure Multi-Story Car Park	Dr. Abdulhamid Irhouma
	202009532	Abdallah Ali Ahmad Banihamad		

## BEST 3 PROJECTS OF CIVIL ENGINEERING, SEMESTER 2, 2023-24

### Best Senior Design Project

No	Student ID	Student Name	Project Title	Supervisor
1	202006471	Duaa Sami Khalil Rajab	Design of Cantilever High-Rise Building	Dr. Hassan Aljaidah
	202003637	Maryam Bahram Qassim Aarayeshy		
	20192304	Nawraa Faisal Ali Almarhoon		

### The Second Place

No	Student ID	Student Name	Project Title	Supervisor
2	20193693	Lubna Omar Ebrahim AlMahmood	Design of Metro Station	Dr. Uneb Gazder
	20197567	Nawra Hasan Husain Ali	Using Virtual Reality	

### The Third Place

No	Student ID	Student Name	Project Title	Supervisor
3	202002518	Mohamed Naser Hasan Abdulla	Performance-Based Design Using Fiber-Reinforced Polymer Bars	Dr. Muhammad Ajmal
	202003979	Abdulaziz Baqer Abdulaziz Shehab		
	202007713	Husain Ashoor Mohamed Farhan		



## External Examiners

### Eng. Muneer Abduljalil Ahmed Shehab



Eng. Muneer Abduljalil Ahmed Shehab graduated from University of Bahrain with a BSc. Degree in Civil Engineering. He then earned MSc Degree in Bridge Engineering field from University of Surrey, UK. Currently, he has been working as a senior engineer in Phonenix Engineering Services as managing director.

### Eng. Amal A.Nabi Abdulla Khalaf



Eng. Amal A.Nabi Abdulla Khalaf graduated with Honours from University of Bahrain and holds MSc in Civil engineering from University of Bahrain. She has more than 21 years' experience in the field of design and construction of buildings. Currently working as Director of Material Engineering Directorate within Ministry of Works, Municipality affairs and Urban planning.

### Eng. Sayed Yousif Arif Mohammed



Eng. Sayed Yousif Arif Mohammed graduated from University of Bahrain with a BSc Degree in Civil Engineering in 2016. He has also earned a M.Sc. Degree from University of Bahrain in the field of Structural Engineering in 2021. He has been working as an engineer in Maintenance Group of Water Distribution Directorate in Electricity and Water Authority, Bahrain since 2021

**Eng. Ahmed Tahsin Ahmed Channaa**



Eng. Ahmed Tahsin Ahmed Channaa graduated from University of Bahrain with a BSc Degree in Civil Engineering in 2014. He has also earned a MSc Degree from University of Bahrain in the field of Structural Engineering in 2023. He has currently been working as a civil engineer in Ministry of Transportation and Telecommunications, Bahrain since 2021.

**Eng. Mohamed Ahmed Raafat**



Eng. Mohamed Ahmed Raafat graduated from University of Bahrain with a BSc Degree in Civil Engineering in 2010. Throughout his professional career, he has successfully managed a range of Roads projects, including the related infrastructure works in new areas of the kingdom of Bahrain. He has currently been working as a chief engineer in Urban Planning Section, Urban Planning & Development Authority, Kingdom of Bahrain since 2023.

**Dr. Mubarak Aman Al-Noaimi**



Dr. Mubarak Aman Al-Noaimi graduated from University of Riyadh with a BSc Degree in Department of Geology in 1978. He then earned MSc Degree and PhD Degree in Hydrogeology and Water Resources Management field from University of Plymouth, UK. He had worked Ministry of Municipalities Affairs and Urban Planning - Kingdom of Bahrain for many years. Currently, he has been an independent Water Expert Hydrogeology and Water Resources Management since 2013.



# Department of Chemical Engineering

Senior Design Projects of Chemical Engineering, 2<sup>nd</sup> Semester 2023-2024

Senior Project Coordinator: Dr. Muhammad Rizwan

## Chemical Engineering Program

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
1	202003382	Jaafar Sadeq Saleh Alaskafi	Modeling of Direct Contact Membrane Distillation	Dr. Sabri Mrayed	Dr. Omar Abbasi
	202005571	Ahmed Abdulla Hasan Dakheel			
	202008702	Yunes Hasan Mohamed Abdalnabi			
2	202005866	Salman Salah Abdulrahman Manea	Techno-Economic Assessment of Green Hydrogen Production in Bahrain	Dr. Majeed Jasim	
	202009520	Ali Osama Abdulrahim Alnawakhtha			
	202009862	Jasim Salah Jasim Almuqahwi			
3	20190939	Hajar Farah Mohamed Ebrahim Alhayki	Influence of utility treated sewer water on the corrosion of ship body surfaces	Dr. Hosni M Zubeir	Dr. Abdulla Alshater
	20195477	Marwa Kadhem Ali Alwadi			
	20197551	Ameera Ahmed Mustafa Adawi			
4	20183318	Reham Abdulelah Mohammed Alhoori	Evaluating the Effectiveness of a Sodium Nitrite Inhibitor on the Corrosion of Steel in Sodium Chloride Solutions	Dr. Hosni M Zubeir	Dr. Abdulla Alshater
	20195254	Husain Sami Jaffar Alshaway			
	20195285	Mohamed Sami Jaffar Alshaway			
5	20191127	Sheikha Saif H Alshamsi	Techno-economic feasibility of utilizing methanol from GPIC in formalin and DME synthesis	Dr. Kamal Sassi	
	20194888	Wesal Mubarak Hamad Saad			
	20195059	Fajer Ali Abdulla Sindala			
6	20183645	Talal Zakareya Abdulqader Albalooshi	Simulation of Reverse Osmosis Process Powered by Renewable Energy	Dr. Kamal Sassi	
	20190827	Faris Khaled Mohamed Yusuf Alaynati			
	20196930	Faisal Adel Abdulrahim Husain			
7	202002060	Raghad Nayef Yusuf Buasali	Application of System Thinking and System Dynamics for Environmental Sustainability using VENISM	Dr. Raed Al-Jowder	
	202002867	Sara Waleed Jaafar Sayed Jaafar Mohamed			
	202002845	Nujood Ahmed Aqeel Faqih			
8	20194921	Rahma Merza Hasan Hasan	Optimum production of bacterial cellulase and their application on agricultural waste biodegradation	Dr. Zakir Hossain	Dr. Shaker Haji Dr. Maysoon Awadh
	20195450	Ali Abdulredha Mohamed Alattar			
	20198454	Ali Maki Ahmed Madan			

## BEST 3 PROJECTS OF CHEMICAL ENGINEERING PROGRAM, SEMESTER 2, 2023-24

### Best Senior Design Project

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
1	20194921	Rahma Merza Hasan Hasan	Optimum production of bacterial cellulase and their application on agricultural waste biodegradation	Dr. Zakir Hossain	Dr. Shaker Haji Dr. Maysoon Awadh
	20195450	Ali Abdulredha Mohamed Alattar			
	20198454	Ali Maki Ahmed Madan			

### The Second Place

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
2	202002060	Raghad Nayef Yusuf Buasali	Application of System Thinking and System Dynamics for Environmental Sustainability using VENISM	Dr. Raed Al-Jowder	
	202002867	Sara Waleed Jaafar Sayed Jaafar Mohamed			
	202002845	Nujood Ahmed Aqeel Faqihi			

### The Third Place

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
3	20183645	Talal Zakareya Abdulqader Albalooshi	Simulation of Reverse Osmosis Process Powered by Renewable Energy	Dr. Kamal Sassi	
	20190827	Faris Khaled Mohamed Yusuf Alaynati			
	20196930	Faisal Adel Abdulrahim Husain			



## Process Instrumentation and Control Engineering

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
1	20193251	Noor Alzahraa Ali Ahmed Alsaegh	Optimization of energy consumption of oil refinery reboiler and condenser using ANN	Dr. Bassam Alhamad	
	20195521	Lina Moosa Abdulla Alnoaimi			
2	20183369	Mohamed Husain Ali Mohamed	Identifying Faults in the Tennessee Eastman Process via K-Nearest Neighbors and Principal Component Analysis Differences	Dr. Raed Al-Jowder	Dr. Mohamed Abdelrahim
	20194544	Yusuf Khaled Salman Alsedni			
3	20191404	Maram Ali Sabt Alyasi	Simulation and Control of Tennessee Eastman Process in Aspen Hysys	Dr. Bassam Alhamad	
	20192755	Manar Abdulla Habib Ebrahim			
	20194566	Noor Husain Mohamed Yusuf			
4	202007632	Reem Majeed Abbas Aman	Developing a Real-Time Soft Sensor for Product Composition Estimation in a Crude Distillation Unit (CDU)	Dr. Bassam Alhamad	
	202008774	Rim Ahmed Metwalli Algendy			
5	20173417	Muath Ahmed Mohamed Othman Abubaker	An embedded fault detection within a model predictive controller for an industrial benchmark process	Dr. Bassam Alhamad	
	202010670	Fadhel Abbas Jaffar Hasan			
	202010922	Sayed Yousif Abdulla A.Jalil			
6	20182473	Hasan Saleh Hasan Abduljabbar	Water Quality Monitoring System Using Artificial Intelligence	Dr. Nouredine Mansour	Mrs. Bintu Jasson
	20191527	Thaha Muhammed Kuraydi Tharaparambil			
	20192705	Omar Mohamed Abdulrahim Ahmed			
7	202002744	Husain Abduljabbar Abdulla Ebrahim	Design a Noval Intelligent Medicine Box for Patient Assistance	Dr. Nouredine Mansour	Mrs. Bintu Jasson
	202004075	Ali Husain Ali Abdulredha			
	202006932	Ahmed Basel Jameel Almaskati			
8	202003164	Fatema Abdulhameed Mohamed A.Rahman	Development of PLC-SCADA System for Monitoring and Controlling PCT-9 and PCT-13 Armfield Training Control Units	Dr. Nouredine Mansour	Dr. Mohamed Bin Shams
	202003165	Mohamed Abdulhameed Mohamed A.Rahman			
	202007858	Feras Saeed Abdulla Alkhanaizi			
9	20195222	Maryam Ebrahim Mohamed Aldoseri	The Smart Artificial Intelligent System for Monitoring the Health, Safety and Environmental Condition of an Oil Field Worker	Mrs. Bintu Jasson	Dr. Bassam Alhamad
	20195932	Rayyan Maher Ali Ajjawi			
10	202003772	Omar Ezzuddin Mohamed Meshal	Implementation of Burner Management System for Industrial Purposes	Mrs. Bintu Jasson	Dr. Bassam Alhamad
	20181148	Malak Hani Ahmed			
	202010272	Maha Tareq Alabasi			
11	20195840	Batool Sayed Ali Baqer Ahmed		Dr. Mohamed Bin Shams	Dr. Raed Al-Jowder

	20196394	Masooma Zuhair Ahmed Alaskafi	Design and analysis of optimal state estimators for process control applications		
12	20183939	Jasim Abdulla Jasim Ali	Comparative Assessment of a High-Purity Distillation Column using Multivariable Predictive Control Strategies	Dr. Mohamed Bin Shams	Dr. Ghassan Murad
13	202003341	Ayman Saeed Saleh Saleh	A Comparative Study of nonlinear and gain scheduled MPC control of nonlinear systems	Dr. Mohamed Abdelrahim	Dr. Mohamed Bin Shams
	202005547	Mohamed Jaafar Ahmed Alhalal			
	202006955	Mohamad Badii Mohammad Samer Fatahi			



**BEST 3 PROJECTS OF PROCESS INSTRUMENTATION AND CONTROL  
ENGINEERING PROGRAM, SEMESTER 2, 2023-24**

**Best Senior Design Project**

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
1	202003164	Fatema Abdulhameed Mohamed A.Rahman	Development of PLC- SCADA System for Monitoring and Controlling PCT-9 and PCT-13 Armfield Training Control Units	Dr. Nouredine Mansour	Dr. Mohamed Bin Shams
	202003165	Mohamed Abdulhameed Mohamed A.Rahman			
	202007858	Feras Saeed Abdulla Alkhanaizi			

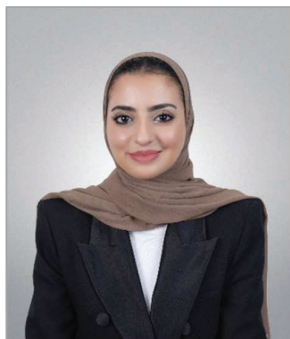
**The Second Place**

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
2	202003341	Ayman Saeed Saleh Saleh	A Comparative Study of nonlinear and gain scheduled MPC control of nonlinear systems	Dr. Mohamed Abdelrahim	Dr. Mohamed Bin Shams
	202005547	Mohamed Jaafar Ahmed Alhalal			
	202006955	Mohamad Badii Mohammad Samer Fatahi			

**The Third Place**

No	Student ID	Student Name	Project Title	Supervisor	Co-supervisor
3	20191404	Maram Ali Sabt Alyasi	Simulation and Control of Tennessee Eastman Process in Aspen Hysys	Dr. Bassam Alhamad	
	20192755	Manar Abdulla Habib Ebrahim			
	20194566	Noor Husain Mohamed Yusuf			

## External examiners:



Lujayn has graduated from University of Bahrain with a master's degree in Chemical Engineering.

She joined BAPCO in 2015 as a Process Engineer in the planning section of the Technical Services Department, where she was responsible for performing economic evaluations and optimization.

In 2022, she moved to the Corporate Strategy and Business Development department and was recently appointed as Economic Optimization Specialist, to look after the long-term investments, business units and energy transition strategy.



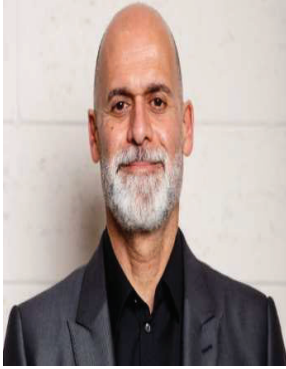
Hamad Alsharyan is a highly skilled and experienced chemical engineer with a strong background in the petrochemical industry. He holds a Bachelor's degree in Chemical Engineering from Sheffield Hallam University, which provided him with a solid foundation in the principles of chemical engineering and its applications.

With 4 years of experience in the industry, Hamad has established himself as a dedicated and competent professional. Currently, he works as a Methanol Shift Supervisor at Gulf Petrochemical Industries Company, where he is responsible for the safe and efficient operation of the methanol plant. His expertise and leadership skills have earned him a reputation as a reliable and effective team player.



S. Abdulla ALMESHAL is a Technical Services Engineer at Axens Middle East. He has over 8 years of experience in residue hydrocracking, naphtha and diesel hydrotreating, catalytic reforming, and catalytic cracking (FCC) processes, providing technical support, aiming to improve the operation and maximise profits. Previously, he worked at Bapco Refining for around 8 years. He also worked for Chevron Lummus Global (CLG) for three months in 2019 as a Process Engineer working on the process engineering design of the hydrocracking unit. S. Abdulla is one of the co-founders of Bahrain Chemical Engineers team (BChemE) and has been an active member of the organising committees of several conferences in the GCC. In 2022, he completed his M.Sc. In Chemical Engineering from UOB. In

2015, his environmental research on the wastewater treatment using novel microreactors got recognised by APJ Abdulkalam, the former President of India. S. Abdulla holds a Bachelor of Science in Chemical Engineering, Distinction with Second Class Honors, from University of Bahrain.



DR. GHASSAN MURAD was born in Oxford, England, United Kingdom. He received the BEng(Hons) degree in Electrical, Instrumentation and Control Engineering, the MSc degree in Control Systems from Imperial College London (UK), and the PhD degree in Control Engineering from the University of Leicester (UK). He is the author of a number of conference and journal articles. His research interests included Linear Optimal and Robust Control, Model Reduction, and Integrated Controls & Diagnostics. From 1990 to 1994, Dr. Murad was a Research Assistant with the Control Systems Group at the University of Leicester working on research into Robust Control methods for an industrial sponsor (namely, Philips Lighting of the Netherlands). Moreover, from 1994 to 1996, he was also a Research

Associate working on other projects associated with sponsors in the UK such as Lucas Aerospace, European Gas Turbines and the Defence Research Agency.

From 1996 to 2020, Dr. Murad was with the Bahrain Telecommunications Company where he held a number of senior executive positions such as Chief Financial Officer and Group General Manager, Mergers & Acquisitions. In 2021, Dr. Murad has founded Ghassanid Capital Advisory, a boutique advisory specializing in Mergers & Acquisitions in Telecoms, Media & Technology. He is also currently associated on a part-time basis with the College of Engineering at the University of Bahrain involved with the teaching of Linear and Nonlinear Control Systems. Dr. Murad is a Chartered Electrical Engineer which was awarded in 2000 by the Institute of Engineering Technology (formally, the IEE - UK). He is also a member of the IEEE (USA), a member of the Bahrain Society of Engineers, a member of the Institute of Measurement & Control (UK), and an associate member of the Institute of Mathematics & its Applications (UK)



Abdulrahim received his B.Sc. in Process Instrumentation and Control Engineering from University of Bahrain and M.Sc. in Big Data Science and Analytics from Liverpool John Moore's University. He is currently working as an industrial data analytics engineer at Bapco Refining. He has experience and exposure in all control and safety systems within Bapco Refining. He also has engaged in the design and implementation of several digital transformation and data analytics initiatives within Bapco Refining.



Buthaina Hasan is currently Lead Automation Engineer at Bapco Upstream. She holds an experience of more than 13 years in the field of automation. She completed her Bachelor degree in Electronics Engineering, in 2011 at University of Bahrain. She did her Master degree in Business Administration (MBA), in 2020 at Open University Malaysia. She worked as Distributed Control System (DCS) Engineer in 2011 at Yokogawa Middle East and Africa for six years. Besides that, she is certified as Functional Safety Engineer (FSE), Project Management Professional (PMP), Cybersecurity Practitioner (CSP), and Certified SIRI Assessor (Smart Industry Readiness Index). Her areas of interests include Automation Engineering, New Technologies, Industry 4.0, Oil and Gas sector, Artificial Intelligent, and Cloud Computing.



Husam Fowzi Harb is an Automation Engineer in Tatweer Petroleum. He graduated from University of Bahrain on January 2021 with First Class Honour Bachelor's degree in Process Instrumentation and Control Engineering. His interest and experience are in the area of Advance Process Control, Fire and Gas Systems, Wireless Instrumentation, and Data Analytics, Also, He is Exida Alarm Management Practitioner (AMP) and AWS Data Analytics Speciality certified.



Anas Abdulwahab Abdulla is an Automation Engineer in Bapco Upstream. He graduated from Bahrain Polytechnic on January 2019 with a Bachelor's Degree in Electronics Engineering. His experience and interests are in Process Control Systems, Automation Assets Management and Networking, Artificial Intelligence and Machine Learning. He is currently studying his Master's degree specializing in Artificial Intelligence Systems.

# Department of Electrical and Electronics Engineering

Senior Design Projects of Department of Electrical and Electronics Engineering

2<sup>nd</sup> Semester 2023-2024

Senior Project Coordinator: Dr.Salwa Baserrah

## Electrical Engineering Program Senior Projects

No	Student ID	Student Name	Project Title	Supervisor
1	20192921	Aqeela Alawi Sayed Mohsen Alalawi	Single Phase Smart DB	Dr. Ali Al-Mossawi
2	202010016	Mohammed Ahmed Hussain Naser	Control Algorithm for Double Fed Induction Generator (DFIG)	Dr. Mohamed Amin Fnaiech
	202005564	Ali Munther Mohammed Hasan		
	202002163	Ali Hussain Ahmed Almeabad		
3	202004138	Husain Hasan Ahmed	Voltage Regulation for Synchronous Generator Through PWM-Rectifier Supplying Rotor Side	Dr. Mohamed Amin Fnaiech
	20184446	Ali Jaafar Ali Khudhair		
	20180890	Sayed Jaafar Ebrahim Jaafar Nema		
4	202002736	Zainab Hameed Abbas Mahfoodh Hashem	Induction Motor Noise Analysis with Fault Detection	Dr. Salwa Baserrah
	202005032	Zainab Yusuf Ahmed Jasim Almatrook		
	20194501	Salman Mohamed Salman Ali		
5	202003301	Qassim A.Ameer Alwasti	Design of Smart DC/DC Wall Plug for the DC House	Dr. Raja Mohammed Sumsudeen
	202004899	Ali Jameel Ahmed Alsahlawi		
	202007279	Ali Hasan Jaber Rashed		
6	20193752	Yusuf Isa Mohamed Muhanna Alrashed	Design Standby Generator Panel to Supply Greenhouses Using PLC	Dr. Fadhel Al-Basri
	20192274	Mohamed Abdulrazeeb Abdulla Qasim		
7	20197770	Hawra Sayed Mohammed Hameed	Energenuis: Load Type Identification Using AI	Dr. Fadhel Al-Basri
	20196107	Israa Ashoor Ali Mohamed		
	20188974	Mohammed Abdulla Hassan Ahmed		
8	202008058	Husain Ali Ebrahim Helal	Designing Smart Glasses that Aids the Operation and Safe Switching of 11kV Switchgears	Dr. Fadhel Al-Basri
	20196715	Ahmed Muneer Abdulhusain Kadhem		
	202009745	Hasan Yunis Abedali Almuqahwi		
9	20192504	Mohamed Abdulla Ali Bucheeri	Design of a Soft Starter for DC Motors	Dr. Maamar Taleb
	20193181	Abdulla Khaled Abdulla Ebrahim Talha		

## BEST 3 PROJECTS OF ELECTRICAL ENGINEERING PROGRAM, SEMESTER 2, 2023-24

### Best Senior Design Project

No	Student ID	Student Name	Project Title	Supervisor
1	202002736	Zainab Hameed Abbas Mahfooh Hashem	Induction Motor Noise Analysis with Fault Detection	Dr. Salwa Baserrah
	202005032	Zainab Yusuf Ahmed Jasim Almatrook		
	20194501	Salman Mohamed Salman Ali		

### The Second Place

No	Student ID	Student Name	Project Title	Supervisor
2	20193752	Yusuf Isa Mohamed Muhanna Alrashed	Design Standby Generator Panel to Supply Greenhouses Using PLC	Dr. Fadhel Al-Basri
	20192274	Mohamed Abdulraqueeb Abdulla Qasim		

### The Third Place

No	Student ID	Student Name	Project Title	Supervisor
3	20192504	Mohamed Abdulla Ali Bucheeri	Design of a Soft Starter for DC Motors	Dr. Maamar Taleb
	20193181	Abdulla Khaled Abdulla Ebrahim Talha		



## Electronics Engineering Program Senior Projects

No	Student ID	Student Name	Project Title	Supervisor
1	20182328	Abdulla Husain Sulaiman Alfaqeer	IoT-Enabled Smart Solar Charger Controller	Dr. Raja Mohammed Sumsudeen
	20182640	Abdulrahman Zakareya Alamri		
	20197763	Yahya Khalifa Obaid Alghati		
2	20197397	Ali Husain Abdali Ahmed Fardan	Solar Wireless Electrical Vehicle Charging System	Dr. Raja Mohammed Sumsudeen
	20197529	Ali Jaffar Habib Abdulredha		
3	20195099	Sami Yahya Ali Alsayyadi	Marine Robot for Cleaning (PACMAN)	Dr. Ayman Al-Khazraji
	20184781	Muath Abdulwahid Ahmed Aljahmi		
	20193288	Hareth Mushtaq Ahmed Ghulam Mahar		
4	20192676	Ali Hassan Mohammed Aleskafi	IoT Smart Home Automation with BLYNK App	Dr. Ayman Al-Khazraji
	20184376	Abdulla A.Majeed Alhendi		
	202007104	Ali Isa Hasan Moosa		
5	20176129	Mahmood Abdulla Ali	Design and Implementation of a Vortex Bladeless Wind Vibrator	Dr. Mohammed Majed Al Khalidy
	20177682	Ali Mirza Mohsen Ali		
	20175524	Mustafa Abdulredha Alasfoor		
6	20183703	Juma Abdalnabi Juma Abdalnabi Ali	Solar Panel Auto Cleaning System	Dr. Maamar Taleb
	20193654	Mahdi Sadeq Abdulmahdi Hasan Albasri		
	20198429	Ahmed Mohamed Sadeq Ali Merza		
7	20193192	Noof Rabah Alheddi	Design of a Segway with Arduino	Dr. Salwa Baserrah
	20196370	Hawra Mohammed Alaam		
	20192006	Ayman Mohammed Hussain		
8	20177334	Huda Isa Husain Abdulla Tarada	Utilization of Waste Heat Using Thermoelectric Generators (TEG)	Dr. Salwa Baserrah
	202007253	Rabab Hasan Isa Salman Dawood		
9	202003389	Salman Karim Bux Balach	Alzheimer Medical Disorder Diagnosis Using Electroencephalogram (EEG)	Prof. Ebrahim Mattar
	202003342	Habib Karim Bux Sayad Mohammad		
	202102458	Mohammed Karim Bux Ghulam Habib S.Mohammed		
	20192900	Abbas Ahmed Yusuf Al-Sendi		

## BEST 3 PROJECTS OF ELECTRONICS ENGINEERING PROGRAM, SEMESTER 2, 2023-24

### Best Senior Design Project

No	Student ID	Student Name	Project Title	Supervisor
1	20177334	Huda Isa Husain Abdulla Tarada	Utilization of Waste Heat Using Thermoelectric Generators (TEG)	Dr. Salwa Baserrah
	202007253	Rabab Hasan Isa Salman Dawood		

### The Second Place

No	Student ID	Student Name	Project Title	Supervisor
2	20183703	Juma Abdulnabi Juma Abdulnabi Ali	Solar Panel Auto Cleaning System	Dr. Maamar Taleb
	20193654	Mahdi Sadeq Abdulmahdi Hasan Albasri		
	20198429	Ahmed Mohamed Sadeq Ali Merza		

### The Third Place

No	Student ID	Student Name	Project Title	Supervisor
3	20195099	Sami Yahya Ali Alsayyadi	Marine Robot for Cleaning (PACMAN)	Dr. Ayman Al-Khazraji
	20184781	Muath Abdulwahid Ahmed Aljahmi		
	20193288	Hareth Mushtaq Ahmed Ghulam Mahar		



## External Examiners



**Professor Isa S. Qamber** joined the University of Bahrain by the year 1988. Now he is a former University of Bahrain since July 2019. He has extensive academic experience in electrical engineering and specialized in Power Systems Reliability and High Voltage. He has supervised many master's and PhD-level students. He has served as the Dean of Scientific Research, Dean of Applied Studies and the Chairman of Electrical and Electronics Engineering Department. Professor Qamber is a member of professional societies such as IEEE (USA), CIGRE (France) and Bahrain Society of Engineers. He is the founder and Honorary Chair of IEEE Bahrain Section. In addition, he served as a reviewer for several International Journals. He has published more than 150 papers in prestigious journals, conference

proceedings and books' chapters.



**Mr. Adel Khalifa Hamad Al-Zayani** served in the Royal Telecom Unit of the Bahrain Defence Force (BDF) for two decades, advancing to the rank of warrant officer through promotions and attendance at specialized telecommunications courses held both domestically and abroad. A specialist in optical fibre networks and Cisco Systems, he received his training in the Netherlands. Additionally, he completed a specialized program in telecommunications, focusing on PSTN voice encryption and facsimile encryption, in Switzerland. He participated actively in the installation, programming, and repair of a variety of BDF unit equipment. He is an authority on microwave networks in every respect. As the project manager for the BDF's deployment of Fibre Optic with Ericsson, he is responsible for connecting distant defence units using highly specialized

configurations. He oversaw key BDF initiatives as the project manager, including the fibre optic network with Ericsson, the multimedia network, the Motorola network, and the microwave.

# Department of Mechanical Engineering

Senior Design Projects of Mechanical Engineering 2<sup>nd</sup> Semester, 2023-2024

Senior Project Coordinator: Dr. Said Ghani Khan

No	Student	Student Name	Project Title	Supervisor
1	20200257 1	Husain Ammar Mahdi	Design and Development of Double Sloped Solar Still	Dr. Abdul Waheed Badar
	20200861	Taha Nooh Darwish		
	20200573 2	Ghasan Adel Isa		
2	20200880	Hamad Mustafa Taha	Design and Analysis of MEMS Energy Harvester	Dr. Raguraman Kannan
	20200322	Hasan Abdunabi Ali Alnasheet		
	20198542	Hamad Adel Abdulrahman Almahmood		
3	20200879 2	Ali Emad Mohamed	Designing Helical Vertical Wind Axis Turbine	Dr. Niaz Khan
	20200755	Ali Ebrahim Alhayki		
	20200203	Ali Mohamed Jawad		
4	20195512	Mohamed Abdulkarim Almulla	Design and Development of Solar Thermal Concrete Collector	Dr. Abdul Waheed Badar
	20187713	Abdulla Aqeel Ghuloom Janahi		
5	20173801	Ali Abdulhusain Abdulmohsen	Condition Monitoring for Shafts Misalignment	Dr. Said G. Khan
	20176245	Husain Ali Salman		
	20200274 7	Sayed Mohammed Salman		
6	20196247	Hussain Abdulla Mohammed	Design and Control of a Robotic Walk Assist Device	Dr. Said G. Khan
	20200756	Ali Hasan Radhi Mohamed		
	20200327 1	Ali Mohammed Abdali Alkhazzaz		
7	20201153	Mustafa Ammar Esam	Design and Fabrication of Hybrid Energy Harvester	Dr. Riaz Muhammed
	20200791	Furat Ahmed Alhaddad		
	20193580	Hasan Amer Zalaikh		
8	20200579	Hasan Abdulali AlAhmed	Motorcycle Helmets with Auxetic Lattice Liners	Prof. Ghulam Hussain
	20200765 3	Ali Jaber Busafwan		
	20200584 7	Ali Abdulla Khalid AlDossieri		
9	20188555	Khalil Mohamed Khalil	Designing Cooling System of Vacuum Insulated Residential Water Tank	Prof. Ahmed Yousif
	20165803	Mahmood Jaffar Hassan		
	20183391	Ahmed Ebrahim Ahmed		
10	20197784	Ayoob Ishaq Saif	Investigation of Noise Cancellation Techniques	Dr Maher Mehmood
	20197340	Ahmed Mohammed Albusmait		
	20197317	Abdulla Ahmed Zain		
11	20192102	Asma Mohamad	Designing Screw Turbine Mechanism to Generate Electricity	Dr. Riaz Muhammed
	20193896	Zeyad Mohamed		
	20187530	Adel Ahmed		
12	20182433	Mohammed Mahmood Obaidat	Electricity Generation by Speed Bumps	Prof. Ahmed Yousif
	20192377	Ahmad AbdulRahim		
	20174027	Faisal Abdul Ghani Abbad		
13	20183116	Ayman Saleh Abdulrasool	Geothermal Cooling and Heating System	

	20196139	Sayed Murtadha Alawi		Dr Maher Mehmood
	20196541	Bayan Ahmed Abduljalil		
14	20200248	Abdulla Jasim Abdulla	Design and Development of Liquid Solar Thermal Collector Testing Rig	Dr. Abdul Waheed Badar
	20200479	Alaa Husain		
	20200965	Muaath Essam		
15	20200254	Nasser Ahmed Saif	Hybrid Vehicles in Bahrain	Prof.Ahmed Yousif
	20200856	Abdulrazzaq Mohamad		
	20201015	Ali Jawed		

## BEST 3 PROJECTS OF MECHANICAL ENGINEERING PROGRAM, SEMESTER 2, 2023-24

### Best Senior Design Project

No	Student ID	Student Name	Project Title	Supervisor
1	202002485	Abdulla Jasim Abdulla	Design and Development of Liquid Solar Thermal Collector Testing Rig	Dr. Abdul Waheed Badar
	202004798	Alaa Husain		
	202009654	Muaath Essam		

### The Second Place

No	Student ID	Student Name	Project Title	Supervisor
2	202002571	Husain Ammar Mahdi	Design and Development of Double Sloped Solar Still	Dr. Abdul Waheed Badar
	202008613	Taha Nooh Darwish		
	202005730	Ghasan Adel Isa		

### The Third Place

No	Student ID	Student Name	Project Title	Supervisor
3	202005796	Hasan Abdulali AlAhmed	Motorcycle Helmets with Auxetic Lattice Liners	Prof. Ghulam Hussain
	202007653	Ali Jaber Busafwan		
	202005847	Ali Abdulla Khalid AlDossieri		



## External examiners

### Engr. Maitham Abdulla



Engr. Maitham Abdulla is a mechanical engineer with a wealth of experience in the fields of air conditioning, plumbing, and design and supervision of firefighting tools and procedures. Currently serving as the lead mechanical engineer at Bilfinger Tebodin Middle East, he has dedicated 19 years to honing his expertise in the industry. Engr. Maitham completed his BSc. Mechanical Engineering degree from University of Bahrain in 2004. A respected member of the Bahrain Society of Engineers, he also actively contributes to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) as the Student Activity Chair. His commitment to excellence and passion for innovation continue to drive his success in the field of mechanical engineering.

### Engr. Mohammad Raied



Engr. Mohammad Raied is a seasoned Unitary Sales Engineer at Bahrain Trading Agencies, a distinguished member of the renowned "MOHAMMED JALAL AND SONS" group. With over 8 years of dedicated service in the HVAC industry, Engr. Mohammad expertly navigates diverse projects from inception to completion. His responsibilities encompass every stage of project execution, from initial consultations to final handover, where his technical acumen and strategic insights ensure seamless outcomes. Having a Bachelor of Science degree in Mechanical Engineering from the University of Bahrain, Engr. Mohammad Raied honed his skills and knowledge during his academic tenure, laying the groundwork for his illustrious career. Throughout his professional journey, he has consistently demonstrated a relentless commitment to excellence, earning the trust and admiration of clients, consultants, and colleagues alike.

