Newsletter

GLOBAL COLLEGE OF ENGINEERING AND TECHNOLOGY | 4TH Issue JANUARY 2022

PERSPECTIVE ON QUALITY ENHANCEMENT

His Excellency Dr. Abdullah Abbas.

The Chair of the Board of Trustees, Global College of Engineering and Technology, Muscat, Sultanate of Oman

Dear GCET staff and students,

It is an immense honor to be the Chair of the Board of Trustees (BoT) of the Global College of Engineering and Technology. I'm privileged to be surrounded by such a great team of professionals at the College.

As you know, the periodic publication of the GCET Newsletter serves as a platform for all of us not only to get to know about the College activities but also to share our personal reflections and ideas. I also want to share our resolve and optimism that have brought us to where we are now.

TURN TO P3

IN THIS ISSUE

Connect with Us :

Global College of Engineering and Technology
P.O Box 2546, CPO Ruwi 112,
Sultanate of Oman
: info@gcet.edu.om
+968 24227999 / +968 2422 7912

GLOBAL COLLEGE OF
ENGINEERING AND TECHNOLOGY
NEWSLETTER
4th ISSUE
JANUARY 2022

Publication Staff

Prof. Geoffrey Elliott
Chair

Mario Anud Jr.
Editorial staff

Tassawar Kamran
Editor

Ronald Gomez
Designer

Ms. Pooja Om Prakash
Proofreader

Contributing Writers

HE Dr. Abdullah Abbas
Prof. Geoffrey Elliott
Dr. Sulaiman Al Hasani
Dr. Ahmad Al Hoseini
Dr. Eman Al Naamani
Dr. Mazhar Hussain Malik
Dr.Javeed Hussain
Dr. Pooyan Rahmanivahid
Dr. Amna Al Saadi
Dr. Amjed Sid Ahmed
Mr. Saqib Hussain
Dr. Milad Heidari
Dr. Taleb Moazzeni
Dr. Mohammad Mohatram
Mr. Said Almufargi
Mr. Moustafa Sheikh Salim
Mrs. Maryam Alamri
Mr. Mahmood Al Hosni
Dr. Mira Chitt
Ms. Pooja Om Prakash
Dr. Morteza Khashehchi
Ms. Zamzam Al-Rawahi
Dr. Suad Said Al-Kindi
Dr. Muhammad Latif Khan
Dr. Janaki Sivakumar
Dr. Nemat Elhassan
Ms. Amani Al Balushi
Ms. Buthaina Al Rashdi
Mr. Majed Alabri
Mr. Waleed Al Mahrouqi

Contributing Designer

Ms. Amaal Khan

CONTACT US:

Get involve! Submit anything informative, relevant and Interesting to newletter@gcet.edu.om for our next publication.

CONTENTS

His Excellency Dr. Abdullah Abbas.

The Chair of the Board of Trustees, Global College of Engineering and Technology, Muscat, Sultanate of Oman

As Chair of BoT, I've watched the Campus growing steadily since 2014 into a recognized and quality-driven Higher Education Institution (HEI) in the Sultanate of Oman. Our journey chronicles many hurdles in moving forward. However, the College has fared far better than many private colleges in the Sultanate. We accepted challenges, worked diligently, and made reasoned decisions to achieve our present position. The enrollment of students remained low in the early years. This was tackled with wise marketing decisions, and alignment of recruitment with the vision and mission of the College, which attracted more students from different governorates of the Sultanate.
Essential to its success, we continued to strive for our long-term vision in making the College 'the talk of the town" by concentrating on quality and not the student recruitment numbers alone. We want our graduates to possess modern technological skills and knowledge for the complex world they will inherit. At the heart of the vision is our commitment to broadening and enhancing excellence in academic quality.

During my Chairmanship, the College completed a successful academic engagement of 5 years with the University of the west of England (UWE), in Bristol, in the United Kingdom. Our partnership with the University of the West of England has added value to the existing recognition of the College as an internationally recognized higher education institution. Our motto as everyone knows is 'international standards with local vision'. Furthermore, we have recently secured a reaffirmation of the accreditation for the next 5 years.

This collaboration is further enhanced by a 2+2 student-exchange and progression opportunity for both institutions. We, at the College, ensure that the setting and maintenance of the academic standards of awards meet UK and Omani HE expectations.

The College has published an ambitious strategic plan designed to enhance the overall student experience, increase the faculty and student support staff, and upgrade and expand facilities. Shifting from old to the present campus was not only a campus-shifting move, but a strategic step to give visibility to the College; and invite every eye to see this splendid campus on Muscat Express highway. With the resumption of physical classes after the pandemic, the College renovated its existing building, opened one new building that includes two new auditoriums, several classrooms and a cafeteria that can accommodate more than 100 students at a time. As focused teaching and learning relate directly to small class sizes and we at the College ensure the same. We have now the physical facilities expanded, from 1 building to 3 purpose-built buildings to accommodate learning, teaching, academic administration and student support.

Another significant milestone of the College is the establishment in 2020-2021 and 2021-2022 of 2 new postgraduate program (MSc Engineering Management and MSc Data Science) to expand the College's academic provision to both local and international students.

The College will further diversify its programs and the same will be reflected in our future scheme of discipline provision.

The Board of Trustees continues to support the College and the strategic direction established by the Dean and the staff of the College. Creating loyalty among our teams of academics and support staff has always been vital to the College management. The current Covid-19 Pandemic has been a hardship on all of us. We have seen how fragile that our lives are. We have also witnessed the precariousness of our business community. Paying timely remuneration obviates and removes unnecessary uncertainty among staff about their financial stability and job sustainability. The paying of full salaries during this difficult financial period remained my prime concern during the pandemic; when employers not only in Oman but also around the globe either terminated employee contracts or reduced their salaries to the lowest possible bracket in order to survive during such unprecedented times. I made sure this happened because I believe that a happy and unified team in any organization makes a real difference to its future success.

In the end, I thank the combined efforts of all academic and administrative staff, alumni, parents and friends, for promoting many of our major College and program goals.
We are comprised of incredibly ambitious and talented team of professionals. We aspire to be the "Best Known College" in the region - a college that will surely become a second to none educational entity in the near future.
May God Bless you and protect and guide us in the future!

Salam Alaikum!

Dear Treasured Colleagues, in this first edition of the GCET Newsletter for 2021-2022, I am delighted that his Excellency, Dr. Abdullah Abbas, has agreed to provide a view from the Board of Trustees on the position and development of the College. We are lucky to have Dr. Abdullah as Chair of the BoT. His support and leadership for the College in times of hardship and need have been invaluable in getting us to our current successful position.

I have now been a member of the GCET family for just over one year. I am still very proud and delighted to be with you and to work with you all. You are so welcoming, kind, and dedicated. It is a real pleasure working with you all. We have now grown to 74 staff with the appointment of new lecturers in September 2021; and we will continue to grow student numbers, InshAllah, for the next 3 academic years. It is my intention that as we grow student numbers, and associated income, we also reward the hard work of our staff through increments and/or bonuses. To ensure this happens, we developed a new annual Staff Performance Appraisal Scheme that operated at the end of the last academic year to ensure fairness and transparency in the award of increments and bonuses.

The Theme of this issue is 'Perspectives on Quality Enhancement'. Last year was a period of great change in many areas, including how we delivered our programs to students, and the way we managed our affairs, through standing committees, to be more transparent and inclusive in decision making. The concepts of 'quality' and 'enhancement' are critical indicators in the college and university sector. Quality is about reaching and meeting a standard.

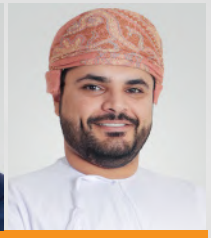
THE THEME OF SUPPORTING AND DEVELOPING THE OMAN VISION 2040

We should all know and understand the standard we need to achieve in everything we do for each other, the students, and the College. Enhancement is about a change, or a process of change, that improves something or increases its value. Value is a powerful concept in quality assurance in higher education. How do we as individuals and as an institution, in both academic departments and in administrative support departments, add value to the learning, teaching and student engagement experience? This is a question we should constantly ask ourselves every day and in everything we do as professionals. I am always keen that we individually, and collectively, understand our own professional standards and expectations; and deliver these to each other. If we know what we need to achieve in terms of meeting a quality standard, then we also know how to deliver that quality standard to staff and students. The next stage is then how we improve ourselves and the services we offer to the students and staff of GCET, which is the concept of enhancement and improvement. I feel we are now as an institution has started recognizing where we need to be in standard setting, evaluating and reflecting on how we improve and enhance our professional practices and services for students, staff, and other external stakeholders. I am so pleased and privileged to be on this professional journey together with you all.

Moving onto other matters, in addition to quality and standards, I wanted to update you on our collective achievements since the last Newsletter publication in the Summer of 2021. Together we have achieved a lot. In September 2021 we went through an important periodic review, the UWE-GCET 5-Year Institutional Partnership Review, which enables us to now sign a new partnership contract for a further 5 years, up to 2026. This followed the successful signing, with the University of the West of England (UWE), of a new APL Credit Transfer Agreement (CTA) for student entry and exchange which should result in increased APL applications and registrations in the future. It also enables our students to do 2 years at GCET and transfer to UWE for the next 2 years and vice versa. Also in September, many of us moved into the newly refurbished Learning and Teaching Building (Block-B). We now have 3 buildings on Campus that have, after refurbishment, enhanced the quality of the facilities available to staff and students of GCET. Further reflections on the refurbishment project can be found in this Newsletter. We now have 3 buildings we can be proud of with visitors and potential students: (1) Block A (Administration Building, (2) Block B (Teaching and Learning Building), and (3) Block C (The Student Hub). As significant to this infrastructure change was also the achievement of gaining a Block Funding Grant from the Ministry of Higher Education, Research, and Innovation (MoHERI) of 21,400 OMR for 2 projects. I am delighted by this news, as it's the first time that the College has ever achieved external Research Funding through the TRC or Ministry. On the academic front, we also launched our second Masters' Program in Data Science. We now have 2 Academic Departments that offer both undergraduate and postgraduate study at the College. This is a significant expansion of our program portfolio. I am also pleased to report that we have completed the GCET-UWE Annual Program Review (APR) Reporting and Monitoring process for 2020-2021. All reports submitted and checked by a sub-committee of the Quality Assurance Committee (QAC) and UWE with completion of APR monitoring reported to the Academic Board on 11/11/2021. I am grateful to all my academic colleagues for the hard work involved in reflecting upon quality and enhancements to quality in this annual monitoring cycle.

Finally, I hope the academic year 2021-2022 will see us progressing further as a family. I enjoy and love working with you all. I am genuinely proud of you all; and proud to be with you. I hope you will find this issue of the GCET Newsletter informative and useful. I wish you all peace, happiness, and a successful 2022.

'BENCHMARKING THE COLLEGE TO ACHIEVE MATCHING QUALITY STANDARDS' - A VIEW FROM THE DEANERY



Prof. Geoffrey Elliott
Dean President of College

Dr. Sulaiman Al Hasani
Deputy Dean for Administration and Finance

As we all know, the activity of benchmarking our professional practices with other higher education institutions is very important. Benchmarking is a part of the quality assurance and enhancement process in higher education. Benchmarking enables the College to prove and justify its standards by aligning them to the best practices in the higher education sector. Benchmarking is a very effective tool and technique for improving performance and sharing good practice.

In 2021-2022, the College developed its Benchmarking Policy (approved by the Academic Board and the Board of Trustees) to define and establish the system and principles of using benchmarking as a tool to improve the performance of the college's systems and practices. The policy ensures that programs offered by the College, as well as practices and systems, are benchmarked to the standards and approaches of the other higher education institutes in the Sultanate of Oman and higher institutions in the other parts of the world. Additionally, the College is working to identify benchmarking partners (through signing Memoranda of Understanding and Letters of Intent)
and benchmark particular areas to identify best practices and enhance systems in the academic and administrative support areas of the College.

The College has already started with a strong benchmarking position with all its programs, learning outcomes, and many graduate outcomes benchmarked through validation and approval by the University of the West of England (UWE) in the United Kingdom. Where future benchmarking is relevant to the College is in the delivery of programs, and the effective ness of the way we operate in administrative support rather than the content and outcomes of programs, that are already pre-defined by UWE. This College policy document is prepared to comply with the requirements of the OAAA/QA and Ministry of Higher Education, Research, and Innovation (MoHERI) expectations and requirements regarding benchmarking.

All the programs offered at the College are benchmarked with similar local and international programs, this is a requirement by the MoHERI for the submission of new program applications. Further, all UWE programs franchised to the College are already benchmarked to international standards, through the internal development and validation requirements of UWE, including embedded graduate outcomes for each program defined by UWE in the final year of study. For programs that are not franchised from UWE, such as the General Foundation Program (GFP), the Foundation Studies Department has carried out a desk-based bench marking activates to benchmark areas related to the program against the following HEIs: (1) Modern College of Business and Science; (2) Sultan Qaboos University; (3) Scientific College of Design; and (4) College of Banking and Financial Studies. The GFP benchmarking activities resulted in a number of suggestions and actions to improve the program and adopt the best practices. In addition, the College now has a formal Benchmarking Agreement between the Department of Foundation Studies (FS) and the Centre for Preparatory Studies - Sultan Qaboos University. The benchmarking will include all the areas related to the program and the teaching and learning resources provided for this program. This activity started on the 14th of Nov 2021 and is on-going. In addition, the College is benchmarking its systems, procedures, and professional practices to determine the standards of efficiency and effectiveness within the College. In order to be able to identify the best practices and benchmark College activities against the best colleges and universities, GCET is in the process of establishing its bench marking partners and signing benchmarking Memoranda agreements (MoUs). GCET has initiated the discussion with Universities and Colleges as shown below and hopes to complete the signing of all MoUs by the start of Semester Two 2021-2022.

HEIs/Benchmarking partner	Areas of proposed Benchmarking
National University	Engineering Programs Teaching and Learning Resources and Services. Admission and Registrations.
ASharqiyah University	Library and Learning Recourses. Admission and Registrations; HR; and Research
Majan College	CIT programs; Support for PG Students; Quality Assurance and Compliance; and HR
Centre for Preparatory Studies - Sultan Qaboos University	GFP curriculum; Teaching and learning support to GFP students; and Academic advising and tutoring.
German University of Technology in Oman (GUTech)	Library and Learning Recourses; Urban Planning and Architecture Programs; and Students Services.
Gulf College	International Foundation Program

MoUs will be signed with the benchmarking partners and then staff teams from both institutions will conduct the benchmarking activities based on the benchmarking policy and procedures, including visits to each institution by relevant staff; and action plans prepared based on the findings from the benchmarking activities. This is to enable our staff to benefit from the experience of other colleges and universities over the last 10 to 20 years. The benchmarking activity will not be used in any other manner other than to support and help staff to see what other colleges do and to take the best industry professional practices in higher education.

Onwards and upwards dear treasured colleagues...

'RISK MANAGEMENT IN HIGHER EDUCATION – WHAT IS IT AND WHY DO WE DO IT?'

Prof. Geoffrey Elliott
Dean President of College

The concept of risk management is prevalent in most well-managed institutions, in business, and in higher education. Risk Management (RM) is a part of the quality assurance and enhancement process and framework in higher education. It is part of Scope 1 of the OAAA/QA Quality Audit Portfolio; and is normally practiced in most universities and colleges around the world. In the Academic Year (AY) 2020-2021, the College established and approved an updated Risk Management Policy to define the College's approach to RM. In addition, the College established and approved through the Board of Trustees (BoT) a Risk Register. These are regularly updated and presented to the Executive Management Board and Academic Board for scrutiny and monitoring. The risk management policy of the institution helps the College define its risks, monitor the likelihood of risk, and establish risk indicators.

The purpose of the updated and new Risk Management Policy is to provide effective oversight of the management of Institutional risk. The policy sets out the processes and practices the College undertakes to ensure that appropriate management of risk is conducted in the institution.

The policy covers the assessment of risk, management of risk, intending to ensure mitigation of institutional risk.

Risk management aims to ensure that every effort made by the College is to minimize all forms of risk, whether financial, organizational, or human. The College defines and benchmarks its risk approach to work done by Robert Kennedy College (RKC) where 'risk' is defined by RKC as a 'probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through pre-emptive action. In addition, 'risk' is defined as the chance or probability of threat damage, injury, liability, loss, or any 'other negative occurrence that is caused by external or internal vulnerabilities.' These may be avoided through pre-emptive action and management of risk [Reference: Robert Kennedy College Blog 23 July 2018, Vidhi Kapoor]. The College also references as another source of support and benchmarking of risk management a 'University Business Executive Roundtable' paper as a tool for defining and discussing Institutional Risk [Reference: 'A Practical Approach to Institutional Risk Management: Getting Risk Right in an Era of Constrained Administrative Resources', Project Director, Mary Meshreky, 2012]. Both these references are valuable and supportive of the process of risk management in colleges and universities; and referenced in the Risk Management Policy.

As a management team, the College is committed to minimizing, mitigating, and managing institutional risks. The College considers risk management as an integral part of the role and responsibilities of the College management team. The College adopts all the precautionary measures to deal with the potential risks; and is committed to ensuring staff understands their responsibilities to implement risk management effectively through the Executive Management Board (EMB) team. The Institutional Risk Register is the tool used by the College for establishing, managing, and regularly reviewing the possible institutional risks. The last review of the Risk Register, and implemented changes, was in December 2021 through EMB.

As is sometimes said...manage risk...and control the unexpected...

All enquiries regarding the Risk Management Policy of the College should be directed to the Head of the Quality Assurance and Compliance Office (QACO).

Dr. Eman Al Naamani
HoD Quality Assurance
and Compliance Office (QACO)

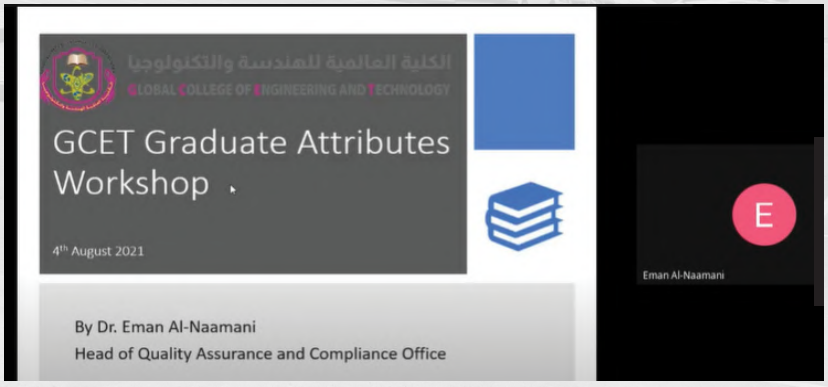
GCET GRADUATE ATTRIBUTES

GCET has developed a set of graduate attributes that are aligned with the UWE Bristol Graduate Attribute Framework: ambitious, inclusive, innovative, collaborative, and enterprising; and incorporating the expectations of the Oman Vision and the National Strategy for Education 2040 which states "Equip human resources with the values, knowledge and skills to enable them to be productive in the world of the knowledge economy, keep pace with the continual changes in the world, maintain their national identity and intrinsic values, and contribute to the advancement of human civilization". GCET aims for its graduates to be work-ready and able to contribute to Oman society and the global community, as knowledgeable, critical thinkers, life-long learners that are good communicators and demonstrate innovation and entrepreneurship in their professional practice. The attributes with their descriptions are illustrated in the table below.

GCET conducted discussion seminars with staff and ran feedback forms to establish the graduate attributes that integrate skills and abilities in alignment with the College mission. As such, local and internationally recognized higher education quality, delivered through excellent teaching, learning, is represented in the graduate attributes: knowledgeable, critical thinker, life-long learner and effective communicator. While research, innovation, and community engagement are presented in the graduate attributes: innovative, global citizen, and entrepreneurial leader.

To ensure these attributes in our graduates GCET is conducting alumni satisfaction, alumni destination surveys, and employer surveys to enable us to evaluate graduate skills and abilities. In addition, External Advisory Committees at each Academic Department established in 2021-2022 discuss the alignment of graduate attributes with current industrial needs which includes alumni feedback as members of these committees.

Attribute	Description
1. Knowledgeable	Knowledge and Understanding of the scientific principles and technological methodologies in the discipline area that enables the graduate to recognize current practices and reflect on to promote sustainable development.
2. Critical thinker	Ability to demonstrate Intellectual Skills to evaluate, analyze, reflect and judge through critical thinking approaches based on knowledge and understanding of the studied field.
3. Life-long learner	Development of Subject/Professional/Practical Skills to acquire knowledge and new skills through self-managed learning.
4. Effective communicator and emotionally intelligent	Demonstrate Transferable Skills such as communication skills, ICT skills in the discipline context, and ability to work with others.
5. Innovative	Acquire Research and Innovation skills through problem-based learning and encouraging contribution in recent challenges locally and internationally which leads to creativity and excellence.
6. A global citizen	Demonstrate awareness of Citizenship and Community Engagement and value education, positive trends and volunteering.
7. Entrepreneurial leader	Reinforce with Entrepreneurial Skills to encourage creativity and enthusiasm for new ventures.



LAUNCHING OF GCET INTERDISCIPLINARY RESEARCH GROUPS

Dr. Amjed Sid Ahmed
Director of Research & Innovation

The role of research has evolved over the recent decades from basic research in which knowledge is generated and transferred through teaching and scientific publications to more direct engagement in the commercialization of research.
Research and innovation at GCET are currently in their initial stages. GCET aims to foster a culture of research and innovation amongst all its staff and students, with emphasis on applied research, and to be the Center of Excellence in research shortly.

With the strategic objective of "Enhancing Research and Innovation Opportunities and Activities" embedded in the college's Institutional Strategic Plan 2021-2026, the Research and Innovation Office (RIO) has successfully launched seven interdisciplinary research groups.

These interdisciplinary research groups are formulated in alignment with the college's unique programs, most of the time, within the Sultanate of Oman. All the research focus areas of the groups articulated in the college's Institutional Research Strategy 2021-2026 to serve the needs of the Sultanate. These interdisciplinary research groups were formulated with the consideration of Oman Strategic Vision 2040, National Innovation Strategy, and National Research Priorities of the Sultanate. As research collaboration is a key success in research, GCET research groups started collaboration with industry and academia locally and internationally.
For more information about the groups' members, activities and research focus areas, visit the research and innovation page at the following QR code below.

Research & Innovation Office
Global College of Engineering and Technology

Automation & Robotics

GCET Cyber

GCET Renewable Energy

Data Science

Communications

Mechanical Engineering

Education & Community

MoHERI RESEARCH FUNDS

The Global College of Engineering and Technology (GCET) participated in the Ministry of Higher Education, Research, and Innovation (MoHERI) Block Funding Program (BFP) called 2021. This was the first time that the college participated in this program since its establishment in 2014. In total, five proposals were submitted in 2021 with three under the BFP-Research Grant (RG) and two under the BFP- Graduate Research Grant (GRG). Two out of these five proposals successfully received funds. A total of 21,400 OMR in research funding was allocated by MoHERI.

Under the BFP-Research Grant (RG), a project in automation and robotics titled "A Multimodal interactive humanoid robot as Health care assistance systems in hospitals of Oman using Artificial Intelligence"' received a fund of 18,400 OMR. The project will be conducted by Dr. Javeed Hussain as the Principal Investigator from the Department of Electrical and Electronics Engineering and Dr. Sivasakthivel Thangavel as the Co-Principal Investigator from the Department of Mechanical Engineering. The project will be carried out under the GCET Automation and Robotics research group.

Dr. Javeed Hussain
Principal Investigator

Dr. Sivasakthivel Thangavel
Co-Principal Investigator

The main aim of the project is to protect the medical sector staff. The pandemic created devastation and fatalities of health workers and doctors. The fatalities occurred as doing these responsibilities related to infectious patients such as registering, directing to the infectious wards, treating the patients. To address these issues, the Automation and humanoid robotics technology is used for its extraordinary potential with its features of proactive engagement, data collection, multilingual interaction, parameter estimation, machine learning, and stabilization, emotional intelligence, cognitive computing, and efficient telepresence tool are essential in the humanoid robots. The solution to these problems is to design, train the robot with computer vision, emotion recognition using facial expressions algorithms, multilingual interactive neuro-fuzzy algorithm, pathfinding algorithms, and telepresence using Artificial Intelligence techniques.

Under the BFP-Graduate Research Grant (GRG), a project in green energy titled "Towards hydrogen energy production: A comparative study on the feasibility of blue versus green hydrogen" received a fund of 3,000 OMR. The project will be conducted by postgraduate students in the M.Sc. of Engineering Management program under the supervision of Dr. Eman Al-Naamani. Two team members in this project Mr. Saif Ali Al Ruhaili as a Principal Investigator and Mr. Mahfoodh Shaban Al Dhad Al Asi as Co-Principal Investigator.

Dr. Amjed Sid Ahmed
Director of Research & Innovation

The project is conducted under the supervision of the GCET renewable energy research group and in alignment with the Oman Energy Master Plan 2040, which indicates that 30% of energy sources in Oman should be from renewable energy by 2030. The aim of the project is to conduct a comparative study on the feasibility of blue versus green hydrogen towards hydrogen energy production. The project aims to target the current challenges facing the production of hydrogen such as cost optimization, the infrastructure required to be established; optimum options for cleaner hydrogen; and finally, regulations of this type of energy. The findings of this research can enhance the field of Hydrogen Energy research for long-term energy strategies, commercial feasibility perspective for blue and green hydrogen, financial investment challenges, the impact of regulations on expediting hydrogen energy production, and finally the constructive influence of local hydrogen energy production on global commitments such as the Paris agreement.

GCET appreciated the efforts that both teams put in to receive these funds. The college also warmly congratulates fund receivers and wishes them all the success and best of luck with their projects.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS REPORT ON EXECUTIVE ADVISORY BOARD MEETING

Dr. Javeed Hussain
HoD Electronics and Electrical Engineering (EEE)

An External Advisory Board (EAB) is constituted and operated in the Academic Department of Electrical and Electronics. The EAB provides a forum for a cross- section of external stakeholders to share their experiences with the College; provide advice, guidance, and ideas from business, industry, and/or government. The EAB helps the Academic Department and College in terms of inputs into the programs, students' experiences, and graduate attributes and attainments. The EAB process benefits the College in terms of curricula development and enhancement, subject market position and analysis, internships, projects, assessment strategy, and graduate attributes and attainment.

The EAB draws its membership from different representatives. These representatives are from alumni, business, industry, and/or government who understand the importance of the academic subject domain to the community and the Sultanate of Oman. The external members provide business, industry, and/or government experience that adds value to the College and its Academic Departments. The EAB also acts as a mechanism for the Academic Departments to be more market-focused in terms of the development, and provision, of the programs and courses that meet the needs of business, industry, and/or Government.

The department conducted a workshop on 21st Nov 2021 with invites from both the industry and the academia. The external committee members were:

Advisory Board to each Academic Department of Electrical and Electronics	Members
Members from business, industry, and/or Government relevant to the academic subject	**Dr. Afaq Ahmad** Department of Electrical and Computer Engineering Sultan Qaboos University, Muscat Ph: 99431341 **Dr. Zool Hilmi Ismail** Deputy Director Centre of Artificial Intelligence and Robotics,Universiti Teknologi Malaysia Kuala Lumpur, Malaysia. **Eng. Asim Abdullah Said Al-Aasmi** Lead Instrument Engineer Occidental petroleum Corporation, Sultanate of Oman. Ph: 95422877
Members from Alumni	**Eng. Mohammed Al Waleed Mohammed Al Hinai** On Job Trainer (OJT) Talent Development Team, Occidental Petroleum Corporation, Sultanate of Oman. Ph: 98969196
EAB Member	**Prof. Geoffrey Elliott** Dean - President of College
Student Representative from the Department Staff-Student Liaison Committee (SSLC)	**Mr. Zaki Nasser Al Dhamri** Technical Demonstrator, Military Technical college Muscat, Oman Ph:99372735 [Currently studying Level 3 in Electronics and Telecommunication Engineering, GCET, Muscat, Oman]

The EAB committee has visited the department laboratories and resources before the meeting and their inputs were valuable. The department staff has interacted with the external members and exchanged their views and ideas related to consultancy and research.

Visit of EAB external members to the laboratories and resources of the department.

Briefing by the Dean before the meeting and updating with the staff with his directives.

The meeting started with a presentation, a Review, Discussion and Evaluation of the past Academic Year and any Internal and External Department Reviews and Outcomes by the Head of department. There was discussion of Potential new Programs and Curricula, External Market Position, and Graduate Opportunities. The discussion was quite productive by identifying the programs for the EE department with an incite view of Oman vision 2020.

There were two documents presented to EAB members, Review and Discussion of the proposed College and Program Level Graduate Attributes and Outcomes, Review and Discussion of the DRAFT Institutional Strategic Plan 2021-2026. There was productive and positive feedback with respect to the market position. After the meeting, the EAB members were felicitated by Honorable Dean Prof. Geoffrey.

Felicitation of Mr. Zaki Nasser Al Dhamri, Student Representative

Felicitation to Prof. Afaq Ahmed, Sultan Qaboos University.

Felicitation to Mr. Mohammed Waleed Al Hinai, On-Job-Trainee, Talent Development team, Occidental petroleum Corporation

Group Picture of EAB committee for Department of Electrical and Electronics

DEPARTMENT OF ELECTRICAL AND ELECTRONICS REPORT ON SCHOOL VISITS

The Department of Electrical and Electronics has conducted school visits to interact with students and staff to develop communication, to plan training programs for students as part of community engagement, and sponsor the technical activities. The visit was quite successful and was able to conduct a 3-day professional Workshop & Certification for potential learners of the School as community service. The list of schools visited is below:

S. No	Name of School	Area
1	Indian School Muscat (ISM)	Darsate
2	Indian School Darsate	Darsate
3	Indian School Wadi Kabeer	Wadi Kabeer
4	Pakistan School Muscat	Darsate
5	Srilankan School Wadi kabeer	Wadi Kabeer
6	Beaconhouse School Muscat	Al Khuwair
7	Bangladeshi School Gubra	Gubra
8	Indian School Gubra	Gubra
9	Indian School Seeb	Seeb
10	Pakistan School Seeb	Seeb
11	Indian School Mabela	Mabela
12	Indian School Mulada	Mulada
13	Pakistani School Mussana	Mussana

Felicitation of Dr. Rajeev Principal of Indian school Musca (ISM).

Felicitation to Mr. Alexandar Gee principal of Indian school Darsait

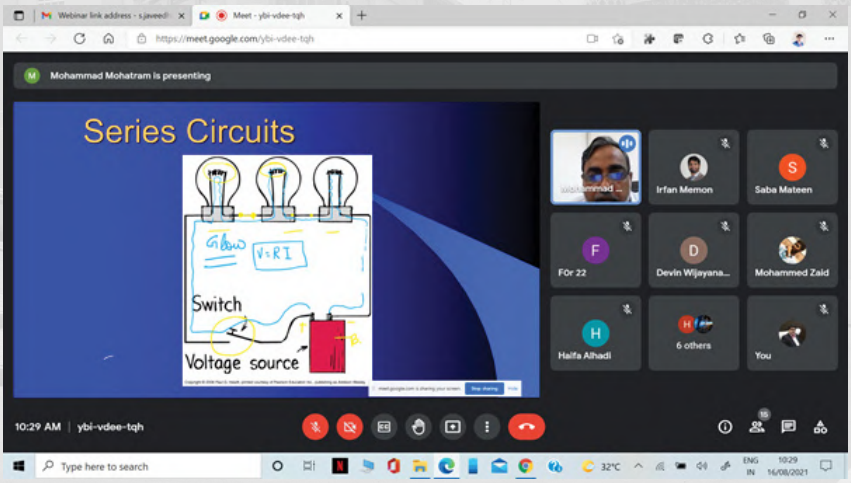
Felictation of Dr. crisant Jayawarde-na, Prinipal of Srilankan school Muscat

Felicitation of Dr. Isac ahmed, Pakistani school Musanaa

Felicitations to Mr. Jay lal, Principal of Indian school Mulada.

These visits were along with the Program leaders Dr. Irfan Memon and Dr. Mohammed Mohatram. During all these visits,l the schools were informed about the technical webinar and also were introduced about the programs of the department and the college. This was a quite successful drive and we received admissions from these local and international schools.

The 3-day technical event was conducted for the school students and there were around 140 participants for this workshop and this was delivered by Dr. Javeed Hussain, Dr. Irfan memon and Dr. Mohammed Mohataram. The partici-pants were awarded with certificates of participations after the 3-day training on circuit designing, digital systems and basic electronics.



Screenshot of 3-days webinar conducted for school students in Oman.

UNIVERSITY OF NIZWA
BENCHMARKING VISIT

Dr. Mohammad Mohatram
Senior Lecturer, EEE

Dr. Mohammad Mohatram, the Program Leader Instrumentation & Control, and Automation & Robotics Engineering visited the University of Nizwa on December 6, 2021. The visit aimed to explore engineering laboratories and research facilities. He visited the Natural and Medical Sciences Research Center, DARIS, the Center for Scientific Research and Technological Development, and the laboratories of the Department of Electrical and Computing Engineering. During his visit, he met faculties, technicians, and research assistants from various engineering departments to understand how and where the two institutes need a change to improve their performances as well as to provide a platform for the staff for collaborative research.

MECHANICAL ENGINEERING DEPARTMENT

Dr. Pooyan Rahmanivahid
HoD Mechanical Engineering (ME)

GCET has been growing significantly over the last few years and so is the ME department. This year, we have recruited 367 undergraduate students and eight postgraduate students. Also, four new academic staff with different specialties in mechanical engineering have joined the department.

The ME department aims to create a vibrant atmosphere for the students to become well-trained and ready-to-join the professional work environment. Therefore, we have started to convert the college basement to a research center, where we hopefully will carry out the scientific research projects.

In addition, UWE has moved to Electric formula vehicles and offered collaboration with GCET. We are working on electric vehicles, wind turbines and solar panels projects to make zero- emission/energy consumption buildings, and maybe have solar power charging stations for the electric vehicles.

Finally, we believe more and better will come for the Mechanical Engineering Department; and will keep informing you accordingly.

MECHANICAL LABS

Purpose: The purpose of this document is to highlight the significance of four mechanical labs and workshops that are essential to the practical knowledge of the students and are a core part of the Mechanical Engineering course.

Scope: This document entails the introduction to four different labs that are at the heart of the Mechanical Engineering course and explains the significance and benefits of each lab for the students.

1. Workshop
The workshop will contain the following two labs:
i. **Dynamics Lab -**
The objective of this lab is to impart practical knowledge on the design and analysis of mechanisms in machine tools and automobiles. In the Machine Dynamics Lab, the students are doing experiments related to their theory subjects like Engineering Mechanics, Machines and Mechanisms and Fundamentals of Vibration and Noise.
ii. **Heat Transfer Lab -**
The laboratory course is aimed to provide practical exposure to the students about the determination of the amount of heat exchange in various modes of heat transfer including condensation & boiling for several geometries.

2. Mechanical Lab
The mechanical lab shall cover the following three lab areas:
i. **Manufacture Lab -**
To introduce and demonstrate to the students the basic concepts of shearing, bending and molding operations and to develop knowledge of appropriate parameters to be used for manufacturing operations. Ability to demonstrate skills for completion of tasks individually like preparing a manufactured part, operating a piece of equipment, or using the software.
ii. **Thermodynamics Lab -**
To enable students to demonstrate the application of the First Law, Second Law, conservation of mass and properties of substances to practical engineering systems
iii. **Fluid Mechanics Lab -**
The main objective of Fluid Mechanics Lab is to improve the psychomotor skills of the students and to demonstrate to them the basic principles of Fluid Mechanics.

3. Computer Lab
The computer lab is dedicated to teaching essential mechanical software to students that enable them to learn the modern-day applications that are being utilised in the industries. The computer Lab shall cover the following software:

Mr. Said Almufargi
Assistant Lecturer/ Technical Demonstrator)

Mr. Moustafa sheikh salim
Lab Technician

i. **SolidWorks -**
for 3-D designing, assembly and simulations.
ii. **Ansys -**
for thermodynamic and fluid simulations and analysis.
iii. **MATLAB -**
for solving complex calculations via computer.

4. Project Lab
The project lab will provide students with a learning, focused and collaborative environment where they can do different projects in a safe and supervised learning space.

Dr. Mira Chitt
Senior lecturer

IMPORTANCE OF PRACTICAL LEARNING IN ANY COURSE

Researchers have found that there are many learning approaches, that is why every student tends to learn differently. The four main core learning styles are visual, auditory, reading and writing, and kinesthetic.

Some students might be fast learners through the visual style and others through the auditory style. However, practical learning is the most beneficial and preferable one for students. In the past, most of the courses relied on the theoretical part. With practical learning, students can understand how theory applies to real-life situations. Even with mathematics for example, upon solving many exercises, students will improve their cogni

tive skills and solve problems fast and correctly. Practical learning will increase the students' understanding of the subject since they will be experiencing it by doing certain tasks. It will also give them the ability to better gain knowledge in the subject and retain information quickly for a longer period. The reason for this is that our brains try to memorize words when we study in a theoretical text-based manner. When we learn in a practical setting, we remember activities and scenarios that are easier for our brains to recall. To sum up, it is always highly recommended to include practical learning in any course to improve the quality of teaching and motivate the students.

BASEMENT RESEARCH CENTRE

The ME projects at the basement of building B are designed to examine the research potentials of Oman, particularly in the fields of energy recovery, automotive, fluid dynamics, vertical farming, and water desalination systems. Facilities will be provided for investigating the most common scientific projects in mechanical engineering as well as in energy systems to enhance the hands-on experience of our students. The main goal of designing such a workspace is to create an infrastructure in GCET to apply for both national and international applied scientific projects shortly. To this end, many efforts have been made to build laboratory equipment with in-house power and to provide a significant percentage of the construction cost from the external grant.

Dr. Morteza Khashehchi
Senior Lecturer

MUSIC ACADEMY AT GCET

Both music and engineering are built on the same principles and ideas. University-based music academies might potentially be beneficial in a variety of ways. Music lessons can assist children in achieving academic achievement. Students who study music not only improve their musical ability, but also enhance their skills in other areas of study. This results in their overall academic achievement. Students who participate in instrumental music, do better in problem-solving, which is a gateway for future success. Students who play an instrument at college, feel more prepared for success in college.

A music academy has been recently established at the Global College of Engineering and Technology (GCET) to establish a highly competitive and effective music center in Muscat that would become the first choice for GCET students to learn or participate as a band member. This academy is based on GCET's available musicians and offers students, employees, and

individuals the chance to promote the greatest levels of human aspiration and aesthetic This academy is based on GCET's available musicians and offers students, employees, and individuals the chance to promote the greatest levels of human aspiration and aesthetic integrity via music composition and performance while also enhancing GCET's reputation. The mission of this Academy is to provide affordable professionals and highly effective music training and services to a wide range of GCET students. The goal of the academy is to involve

Dr. Milad Heidari
Senior Lecturer

students to spend their spare time at the college, to organize and participate in social events at the college (National day...), to create a positive ambiance, and to organize music competitions & activities. Currently, there is a band Music academy that performs for some social events at college. The current members of this band are Dr. Milad Heidari (Director of Academy), Dr. Mira Chitt, Ronaldo Gomez, Taif Al Alawi, and Osama Al Falahi (KSO). The band had the first live performance on National day at college and the second performance would be on the occasion of Christmas.

A GLIMPSE OF GCET CAMPUS REFURBISHMENT


Reception Area


Student Services and Support Office (SSSO)

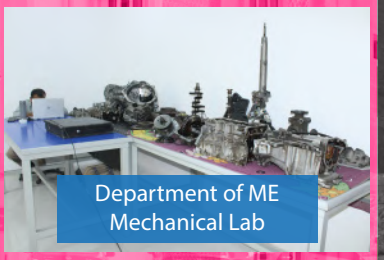

Interior view Student Services and Support Office (SSSO)


Exterior view of RARO Office


Building Block B


Department of ME Workshop Lab


Registry, Admissions and Registration Office (RARO)


Department of ME Mechanical Lab

Class Room Studio


Department of EEE Embedded System Lab


A view of Classroom at Building Block B


Department of ME Project Lab

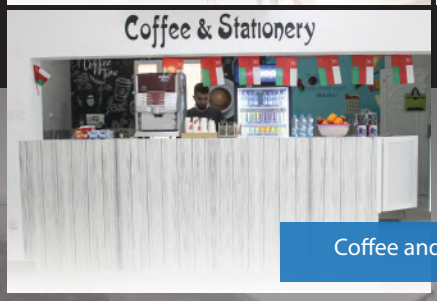

Department of EEE Electronic Lab


Department of EEE Project Design Lab


Students Study Area


One of the discussion rooms at the Students Study Area


Building Block A




Coffee and Stationary Area


VIP Conference Room


Language Lab


Students Hub


Lecture Theatre 2


Building Block C


Cafeteria


Learning Centre


Main Auditorium


Façade view of Building Block C

GCET CELEBRATES 51ST OMAN NATIONAL DAY

Ms. Maryam Alamri
HoD SSSO

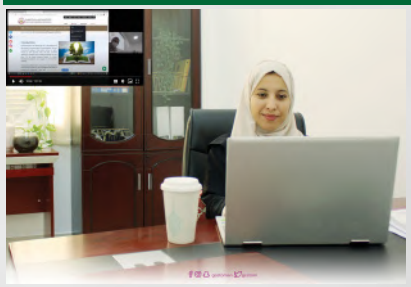
The Omani National Day is celebrated with a great sense of patriotism every year on November 18.

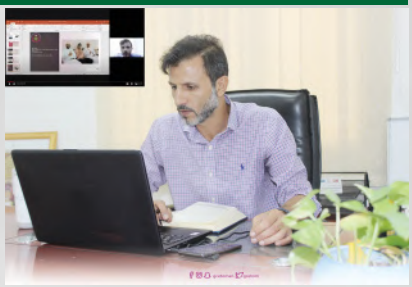
The 51st National Day this year was on Thursday, 18 November (13 Rabi Al Akhir). The National Day and the birthday of His Majesty Sultan Qaboos (Late) fall on the same day, November 18. A public holiday has been announced every year since the Sultan took power in Oman. This day also coincides with the anniversary of the liberation of the homeland and the declaration of its independence from the Portuguese occupation.

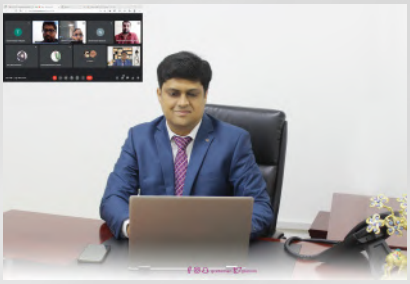
The Media College celebrated the glorious 51st National Day on November 21 with a modest celebration where a presentation of the Sultan's anthem and some patriotic songs from the Music Club in the reception area remained the focus of the audience. A group of students from the Arts Club presented their thoughtful paintings and captured the attention of the attendees.
This served as an expression of their love for their country.

GCET STUDENTS INDUCTION DAY

By: Maryam Alambri, HoD SSSO



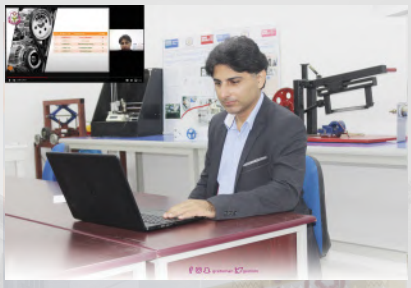


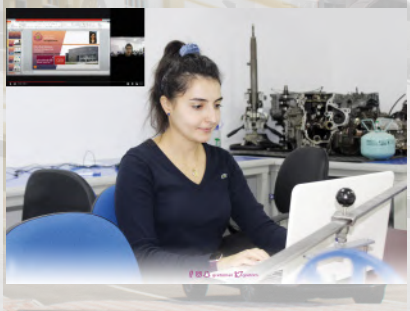


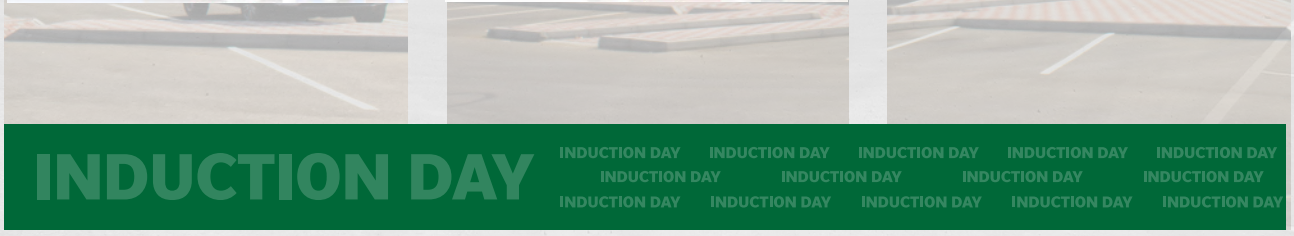
Global College of Engineering and Technology organised a 3-day induction day for its undergraduate students, general foundation program students, and postgraduate students. The event was organised both online & on-campus. The event was kicked off with the welcome remarks by the Dean of the College, Prof. Geoffrey Elliott, followed by an introductory speech from the Deputy Dean of Academic Affairs Dr. Sharifa Al Qasmi. A video presentation from MoHERI along with the welcoming video message from the Dean of the Faculty of Engineering and Technology (FET) from the University of the West of England, Dr. Tod Burton.

The heads of the academic departments along with the directors of the administrative and support units introduced their services, mechanisms, and regulations to the new students.

The event included different activities, competitions, and finally the distribution of prizes to the winners.







Dr Ahmad Hosseini
HoD Foundation Studies (FS)

GFP GRADUATION EVENT

GCET organized the Graduation ceremony of the General Foundation students of the Academic year 2020-21. In this lovely gathering, Prof. Geoffrey Elliott, dean of the College, addressed the graduates, congratulated them on their progress to the undergraduate level. A group of foundation students also shared their experience of the Foundation year. Finally, the students received their Certificate of Completion.

GCET STAFF PRESENT A WEBINAR ON HOW TO BUILD A SUCCESSFUL CYBERSECURITY

By: Dr. Amjed Sid Ahmed
Director of Research & Innovation

To build a strong, dependable, and growing network of passionate cybersecurity professionals in the Middle East, EC-Council, in association with GCET, organized a webinar titled "***How to Build a Successful Career in Cybersecurity***". In this webinar, Akash

Agarwal, Vice President (IMEA & APAC) of EC-Council, and Dr. Amjed Sid Ahmed Mohamed Sid Ahmed, Director of Research and Innovation, Program Leader of Computer Security & Forensics, addressed the GCET students about the changing landscape of the cybersecurity industry, new developments in the industry, a growing number of available roles in the industry, the academic courses & training sessions, and certification programs that are available for the career development.

WEBINARS ON HOW TO WRITE GOOD MANUSCRIPT AND EFFECTIVE RESEARCH PROPOSAL WRITING

By: Dr. Amjed Sid Ahmed
Director of Research & Innovation

Research and Innovation Office (RIO) hosted two webinars on "How to Write a Good Manuscripts" and "Effective Research Proposal Writing" on the 25th of November and 2nd of December 2021 respectively. The first webinar was presented by Associate Professor Dr. Rosilah Hassan, Head of Communication Technology Lab, Center of Cybersecurity, The National University of Malaysia (UKM). A guideline on how to write a good manuscript in order to have higher acceptance opportunities with the publishers was discussed. In addition, tips on how to select journals and conferences having a fast review process are also covered. In the second webinar, Professor Hairul Azhar Abdul-Rashid, Vice President (Research & Innovation),

Multimedia University, Malaysia explained to the staff how to write an effective research proposal for funding. The expectations of the funders and what made the proposals' potential and promising acceptance were also discussed. This webinar was hosted to help academic staff prepare for the proposals write-ups for the upcoming call 2022 of Block Funding Program (BFP) funding scheme offered by the Ministry of Higher Education Research and Innovation (MoHERI) in the Sultanate.

DEPARTMENT OF FOUNDATION STUDIES WEBINAR

By: Dr Ahmad Hosseini
HoD Foundation Studies (FS)

The Academic Department of Foundation Studies of the Global College of Engineering and Technology organised a free virtual webinar on August 30, 2021. The topic of the webinar was 'How to take IELTS and get a high score?, and was presented by Dr. Ahmad Hosseini, the head of the Academic Department of Foundation studies.

The Webinar was attended by several advanced diploma students and employees from the private and public sectors in the Sultanate. The webinar aimed to help them to pass the IELTS exam with the required band score. It is worth mentioning that the college has been offering an IELTS preparation course since October 2021.

Ms. Pooja Om Prakash
English Tutor

ACROSTIC POEM COMPETITION

The English Club organized an Acrostic Poem Competition for foundation students on October 25, 2021.

The objective of the event was to enhance students' critical thinking, vocabulary, and spelling using a range of adjectives. In addition to that, it was an initiative to boost and motivate students to participate in the upcoming activities and competitions.

The competition was announced in the second week of October via Instagram and the Students' Services Unit. Participation was mandatory for all the foundation students.

Keeping the COVID-19 protocols into consideration, the activity took place in the classrooms. An instructional presentation was displayed for the students before the competition for introducing the procedures and the rules of the activity. Jihad Al Balushi and Bayan Al Battashi, students of Stage 1 Group 7 volunteered to record their voices for the presentation.

All the students were given a certificate of participation. Overall, this event proved as an ice breaker to introduce the English club to the new students.

POSTER PRESENTATION COMPETITION

A Poster Presentation Competition entitled "MY CITY MAKES OMAN BEAUTIFUL" was organized on November 15, 2021, for the foundation students.
The objective of the event was to build self-confidence in students to stand in public for self-expression using their artwork. It also aimed at developing their critical thinking and listening skills.

Many students from all stages of the General Foundation Program took part in the competition. Participation was not mandatory for all the students so many of the Foundation students made a great audience.
The judges were Dr. Mira Chitt, Senior Lecturer, Department of Mechanical Engineering Department, Mr. Tassawar Kamran, Senior Lecturer, Foundation Studies Department, and Ms. Zainab Othman Al Balushi, Foundation Studies alumnus.

Dr. Ahmad Hosseini, Head of Foundation Studies Department, and Ms. Pooja, the English Club In-charge awarded the winners a memento and certificate of achievement.
All the participants were given a certificate of appreciation.

The results were as follows:

Winner - Shihab Mohamed Yaseen
1st Runner-up - Halima dad Rahim
2nd Runner-up - Jamila Ramez Al Khedr

Consolation prize 1 - Salma Fairborz Taheri
Consolation prize 2 - Baraa Badar Al Tubi

Overall, the event was successful in inspiring and bringing a good range of students ahead for public speaking.

THE TREE DAY

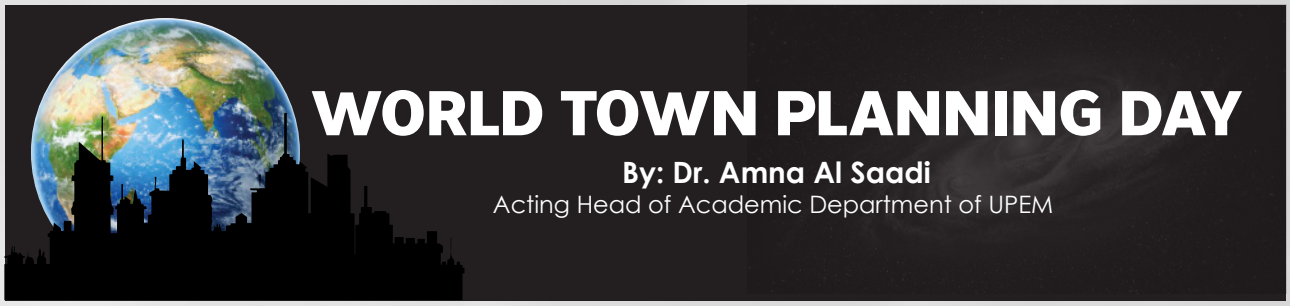
Dr. Amna Al Saadi
Acting Head of Academic Department of UPEM

The Academic Department of Urban Planning and Environmental Management at the Global College of Engineering and Technology organised a seminar to commemorate the Tree Day on 2nd November 2021. Tree Day is celebrated every year on October 31st . The tree day is the apex of the winter season in Oman and most of the tree seedlings are planted at this time of the year.

The topic of the seminar was 'Omani Native Trees' and was presented by Eng. Ismail Al Rashidi, a landscape architect, from Oman Botanic Garden. Tree Day is celebrated in different communities in Oman including Farmer Society, schools, academic and non-academic organisations in order to mark the great benefits provided by the trees. Trees give life to the world's wildlife, stabilise soil layers, clean the air, store carbon, give us oxygen and connect us with nature. The seminar raised awareness about the importance of landscaping with native trees. It also introduced the attendees, GCET students, and academic staff, to Omani native trees. The role of Omani native trees in mitigating climate change and maintaining a healthy and sustainable environment was also recognised.

The Million Date Palm Plantation Project is one of the biggest leading projects in the Sultanate.

Ghaf famous tree in Oman



WORLD TOWN PLANNING DAY

By: Dr. Amna Al Saadi
Acting Head of Academic Department of UPEM

Every year, Planners and community developers celebrate "World Town Planning Day" on 8th November. The World Town Planning Day was first celebrated in 1949 by the late Professor Carlos Maria Della Paolera of the University of Buenos Aires to advance public and professional interest in planning. It is a special day to give special recognition to the ideals of community planning which bring professional planners and the public together.

Urban areas are towns, cities, and other places with higher populations. Scientifically, urban and regional planning is a technical and political process that focuses on the development and design of the land use and the built environment, including air, water, soil, energy, waste management, and the infrastructure passing into and out of urban areas, such as transportation, communication, and distribution of network and their accessibility. The "Urban Planning" describes how inhabitants of urban areas interact with all components of the built environment in both the short and long term. The primary focus of urban planning is to make the community healthy and liveable for its inhabitants and to ensure the achievement of sustainability.

The UPEM Department organised an event to celebrate this day at GCET. The founder of Oman Thinks Urban, Mahmood Al Wahaibi, was invited. Al Wahibi is one of the active developers of the Oman National Spatial Strategy 2020-40(ONSS). He guided the audience to the fact "Cities are developed for people" and how this approach empowers the decision-makers to respond to people's needs, desires and behaviour to lead to the Human- sustainable development of the cities. Also, students from the 2nd cohort, Aisha Mohammed Al Shehhi, Zainab Al Rawahi, Hiba AL Rashdi, and Issra Al abri took us through a visual journey of green cities, the importance of urban planning, and the urban planner's future career!!

CIT MEMBERSHIPS/ASSOCIATION AND AFFILIATIONS

The CIT staff is actively engaged to pursue professional memberships/associations. Dr. Mazhar H, Malik (HOD CIT) has recently received the fellowship of the British Computing Society and senior membership of the IEEE.
The CIT Department is continuously working to affiliate with different well-recognised professional bodies to help its staff and students to enhance their skills.

In the light of the expanding international and local affiliations, CIT has got affiliation with Juniper Networks, Inc. It's an American multinational corporation. The company develops and markets networking products, including routers, switches, network management software, network security products, and software-defined networking technology. This affiliation will enable the GCET staff and students to get free certifications in the various computer network related programs. Seven staff members and fifteen students from the CIT and E&TC departments have already signed up for the Juniper certification.

The CIT Department has also secured the membership of CompTIA (The Computing Technology Industry Association), which is the leading provider of vendor-neutral IT certifications in the world. CompTIA has developed training and certification exams for computing support, networking, security, open-source (Linux) development, cloud, and mobility. This will create opportunities for the CIT students to get certified in the various certificates offered by CompTIA.

The CIT department has also become a member of the EC-Council, a global leader in InfoSec Cyber Security certification programs like Certified Ethical Hacker and Computer Hacking Forensic Investigator. This will open doors for the CIT students, especially from Computer Security and Forensic, to enhance their skills by acquiring different certifications.

We are now a member of Cisco Systems, Inc. which is an American multinational technology conglomerate corporation. Cisco Systems, Inc offers a path to the technology career through various certifications. This will help the CIT students to obtain certification which are important for better job prospects.

We also would like to share some more exciting news.The British Computing Society, a leading professional body for IT People, has approved the GCET student chapter. The society has over 65000 members from more than 100 countries.

Mr. Saqib Hussain
Senior Lecturer

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ANNUAL REPORT ON
PROFESSIONAL BODY ASSOCIATIONS

Dr. Javeed Hussain
HoD Electronics and Electrical Engineering (EEE)

The Department of Electrical and Electronics is motivated to graduate skilled and well-trained engineers that can serve the purpose of the community, and to improve the professional skills and conduct activities among the students & staff.

The aims & objectives of department to be associated with globally recognised professional bodies are:

Aim/Future Goal:
To inspire, inform and influence the students and staff about the innovations in science and practices in Engineering, to facilitate the exchange of ideas, information and to serve the community.

Objectives:

- To be conscious of the current trends in technical innovation and excelence.
- To build professional Networking opportunities.
- To foster technological activities for the benefit of the community.
- To associate with professional organ isations to improve the learnings.

Approach:

In January 2021, the Department of Electrical and Electronic Engineering has taken an initiative to formally start a technical society called GEETECH that will be run by the students to support the students in developing skills and experience to succeed in their future career in an enjoyable and exciting style. Currently, there are two technical professional bodies within the department. They are:

1. IET On-Campus Students Network.
2. IEEE students Chapter.

A. IET On-Campus/IEEE Students Chapter Activities Conducted

The Student Volunteering has truly progressed by participating, conducting, and organising the activities as such below,

1. Participating in the International competition 'IET Present-In 10' event.

2. Conducting "Towards Future Trends in Technology", with five Webinar series.

3. Conducting a 3-day professional Workshop & Certification for potential learners of School as community service.

4. Conducting Freshers Day event and awareness on IET/IEEE.

B. Professional Memberships of Department in 2021 are:

1. IEEE- Senior Members-	03
2. IEEE- Members-	04
3. IET- Members-	02
4. IEEE- Students Members-	12
5. IET- students Members-	05
6. IET-Chartered Engineer-	01
7. IEI-Chartered Engineer-	01
8. STE-Member-	02
9. PEC-Member-	01
10. ABET PEV-	01

C. PROFESSIONAL BODY ASSOCIATIONS WITHIN EEE:

PROFESSIONAL BODY	ORGANISATION
Professional Management Institute (PMI) The EEE department is an academic partner of PMI, which offers students a path to the management of project careers through various certifications. This enables the EEE students to get certifications which are important to increase their chances of getting good and related jobs.	Project Management Institute.

PROFESSIONAL BODY	ORGANISATION
Institute of Electrical and Electronics (IEEE) In 2021, the IEEE approved the GCET Student Chapter. The IEEE Student Chapter is a Professional network of Active researchers/students in universities across the Globe. Chapters are run by the students and for the students with the support from the dedicated chapters team at IEEE that assists them with organising events, marketing, and funding.	IEEE
Institution of Engineering and Technology (IET) In 2021, the IEEE approved the GCET Student Chapter. The IEEE Student Chapter is a Professional network of Active researchers/students in universities across the Globe. Chapters are run by the students and for the students with the support from the dedicated chapters team at IEEE that assists them with organising events, marketing, and funding.	IET The Institution of Engineering and Technology
Huawei University Partnership-ICT academy The EEE department is an academic partner of Huawei that offers students a path to the management of project careers through various certifications. This enables the EEE students to get certifications, which are important to increase their chances of getting good and related jobs.	HUAWEI ICT Academy
Collaboration with Omantel The EEE department is currently in process of MOU with omantel in exchange of their students to upgrade program, training and industrial visits for students. This partnership will be helpful to provide EE students to obtain training on Industry ready programs.	عمانتل Omantel

D. Encouragement/To manage the associations:

1. Drive funds from college (GCET) and professional bodies associated (IEEE, IET).
2. Participate with students and staff in International and National comp-etitions.
3. Conduct technical activities and competitions among students and staff.
4. Organise the International/Nation al conference.

E. Future (one Year Plan-2022)

1. To increase the professional mem bers in IEEE/IET bodies by 20% .
2. To participate at least in 02 Interna tional/ National competitions.
3. To initiate the process of conducting Students' conferences in association with professional bodies.
4. To organise program wise 02 Indus trial visits each semester for students.
5. To improve the students' profession al activities by 20% each year.

REPORT ON GEETECH DAY ACTIVITY

The Department of Electrical and Electronics has conducted GEETECH students society's Event "GEETECH Day" on 25th Oct 2021. This activity was conducted by IEEE-IET students volunteers. This activity was composed of technical talks, presentations, competitions and membership drives. The event was a successful membership drive that led to increase the students' registrations in both IEEE and IET student chapters. Attendants participated in fun games demonstrating basic electronic circuits and promotional items like coffee mugs, usb drives were distributed on the side-lines of the event.

Membership Drive counter IEEE-IET Activity

The students of IEEE-IET mobilised a drive to attract new members to the technical society which was quite successful. There were a lot of interested students identified. 20 new IEEE students' members registered in this drive and 25 new IET students members registered. Coffee mugs and pen drives were given to the new members as goodies. The drive was completely driven by students.

Technical Activity Fun game with Electronic Circuits

The students of IEEE-IET mobilised a drive to attract new members to the technical society which was quite successful. There were a lot of interested students identified. 20 new IEEE students' members registered in this drive and 25 new IET students members registered. Coffee mugs and pen drives were given to the new members as goodies. The drive was completely driven by students.

In this activity the student members of level 3 briefed about the electrical flow mechanism in the circuit and presented a design to replicate the practical observations of the learning, and invited students to participate in the fun game activity. The winners received goodies and everyone enjoyed it a lot.

Department participation in the Technical Activity Drive

The Department staff and students were involved in the activities which aimed to improve communication between the staff and students and the skills of students. These activities were a true reflection of the students professional approach and demonstration of their presentation and organisation of skills. With the increased student members, such social activities will be improved and planned in a better way.

NEW GCET ACADEMIC AND ADMIN STAFF

ACADEMIC YEAR 2021-2022

Dr. Mira Chitt
Senior lecturer

Dr. Mira Chitt joined GCET as a Senior Lecturer in the Department of Mechanical Engineering in September 2021. Dr. Mira received her Ph.D. degree in Mechanical Engineering, specializing in Fluid mechanics from Paris-Saclay University in France in 2019. Dr. Mira received her Master's degree from Grenoble Alpes University in France, and her Engineering degree from the Lebanese University, Lebanon in 2016. Dr. Mira has over 3 years of experience in the Industrial field in France, focusing on mechanics, measurements, and instrumentation on large geometries and projects. She has participated in many international conferences and has received several awards for her work. She has teaching experience from Gutech, Oman where she has taught several modules in the Engineering Department.

Mr. Said Almufargi
Assistant Lecturer/ Technical Demonstrator)

Mr. Said ALmufargi has been working as an assistant lecturer in the Department of Mechanical Engineering at the Global College of Engineering and Technology since September 2021. He received his MSC degree in Mechanical Engineering, specialized in Material science from Sultan Qaboos University in the Sultanate of Oman in 2021. He received his BSC degree in 2016 from Caledonian College of Engineering, Oman.

Dr. Muhammad Latif Khan
Senior Lecturer

Dr. Muhammad Latif Khan holds the position of Senior Lecturer in the Department of Mechanical Engineering at the Global College of Engineering and Technology since September 2021. Dr. Latif received the BBA-Hons in Management from Kohat university of science and technology in 2007, Master HRM from SZABIST university Pakistan, Ph.D. in HRM University Technology PETRONAS Malaysia. He has published 6 research papers in different international journals. He has supervised more than 25 undergraduate students in the fields of management. Delivered lectures to the undergraduate students enrolled with Stirling University UK on assigned modules HR Techniques, Management challenges, Fundamental of business management, organization of business, project management. Produced research with the peers and supervised dissertations and final year research projects of the undergraduate students.

Dr. Latif is a recognized lecturer of University of Stirling, UK. He has more than 10 years of teaching experience at national and international institutions in Malaysia, Pakistan and Oman.

Mr. Majed Alabri
Graphic Designer

Mr. Majed Alabri started working as a Graphic designer and social media expert in the Department of Marketing at the Global College of Engineering and Technology in November 2021. Mr. Majed received his PhD degree in Media, specializing in TV & radio from Sultan Qaboos University in 2020.

Mr. Majed has over 3 years of experience in the media industry, focusing on graphic design, videography, and videography on many projects. He has worked in many companies.

Dr. Janaki Sivakumar
Senior Lecturer

Dr. Janaki Sivakumar pursued her Bachelor of science (B.Sc.) and Master of Computer applications (MCA) from Bharathidasan University, TamilNadu, India.She also completed her Master of Philosophy (M.Phil.) in Mother Teresa Women's University, TamilNadu, India in 2004.Dr. Janaki-Sivakumar achieved doctorate under Computer science stream with specialization in Image Processing in Criminology in the year May,2017.

Dr. JanakiSivakumar is an academician with an overall 20 years of teaching experience of which her 12 years of experience is in Oman. She started her career as an academic in 2001. Dr. JanakiSivakumar started her career as an academic in the Sultanate of Oman in the year 2008 as Lecturer at Muscat College, Bousher. She continued her career as Senior lecturer and Assistant Professor till August 2020.

Dr. JanakiSivakumar has published more than 15 papers and delivered many faculty development workshops and webinars to other HEI's and Industries.

Dr. Janaki Sivakumar has been a member of IEEE since 2012. Dr. JanakiSivakumar has Associate Fellowship in Higher Education Academy from UK.

Dr. Suad Al-Kindi
Senior Lecturer

Dr. Suad Al-Kindi received her B.S.c in Education, Sciences and Mathematics, from Sultan Qaboos University in 1995, and started her career immediately as a teacher in high schools teaching general sciences and chemistry subjects. She obtained her Masters in Sciences, major chemistry, and moved to Higher College of Technology (HCT) in 2007 as a senior lecturer in Analytical Chemistry. She pursued her PhD with integrated study in the field of Atmospheric Sciences and Air Pollution Control and Management in 2014 from the University of Birmingham (UK). She continued to serve HCT as assistant professor of Environmental Sciences, the head of the section of Environmental Sciences, head of Research & Consultancy Committee (RCC), HCT Research Focal Point-TRC, and HCT Research Focal Point-R&D (EJAD). She is currently a senior lecturer and
a program leader for the program of Environmental Management and Practices in Global College of Engineering and Technology, Oman.

Ms. Amani Al Balushi
Receptionist

Ms. Amani Al Balushi joined the college as a receptionist in October 2021. She graduated in business administration from Waljat College of Applied Science. Her first job experience was as a kindergarten teacher at Alburj private school for 3 years, then she shifted to ALqima private school with the same position.

Ms. Amani also worked as a receptionist at Star medical complex for another 3 years and has attended several courses in human resources, customer services as well as teaching in kindergarten.

Ms. Buthaina ALRashdi
Technical Demonstrator

Ms. Buthaina ALRashdi got her bachelor's degree from Higher College of Technology (HCT) in Internet and E-Security in 2017.

Ms. Buthaina got the Graduation Training in GCET in 2017 in different areas of ICT. She worked as a Marketing Executive for 3 years in one of the private companies that provide all about security machines, and social media marketing. Ms. Buthaina is also a member of a Volunteering team for 2 years. She's now working as a Technical Demonstrator for Computing and IT (CIT) at GCET.

NEW RESEARCH AND CONFERENCE PUBLICATION

Dr. Taleb, Dr. Javeed Hussain, Dr. Sulaiman, Dr. Irfan Memon from the Department of Electrical and Electronics (EEE) jointly published a research paper on communications.

1. Taleb Moazzeni, Shaik Javeed Hussain, Sulaiman Al Hasani, Irfan Memon, On the Effect of Compactness of Pulse Shaping Function on Inter-symbol Interference, IEEE Communication letters. (Q1 Journal, I.F: 3.436)

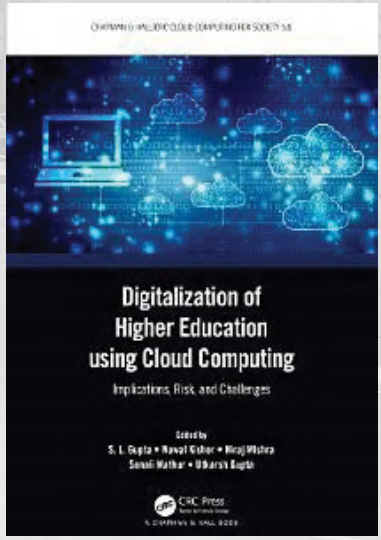
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

Dr. Javeed Hussain and Dr. Mohatram from the Department of Electrical and Electronics (EEE) published a research paper on Machine Learning.
1. Muhammad Asam, Shaik Javeed Hussain, Mohammed Mohatram S. Ahmed, A. Zafar, Tauseef Jamal, Saddam Hussain khan, U. Ali, Detection of Exceptional Malware Variants Using Deep Boosted Feature Spaces and Machine Learning, Applied Sciences 2021, 11, 10464. (Q2 Journal, I.F: 0.29)

DEPARTMENT OF COMPUTING AND IT (CIT)

Dr. Mazhar Hussien and Dr. Amjed Sid Ahmed from the Department of Computing and IT (CIT) along with Dr. Ahmed Hosseini from the academic department of foundation studies published a book chapter on computer-aided collaborative learning.

1. Malik, M.H., Ahmed, A.S. and Hosseini, A., 2021. Computer Aided Collaborative Learning: Challenges and Opportunities. In Digitalization of Higher Education using Cloud Computing (pp. 167-178). Chapman and Hall/CRC.



PROUD MOMENTS

GCET STAFF PATENTED AN INVENTION

Dr. Javeed Hussain Shaik, from the Department of Electrical and Electronics Engineering (EEE), patented a third-time invention on A Novel Brain Adequacy Test System to Improve Cognitive Index of Youth using Noninvasive Brain Sensors and Artificial Neural Networks on Dec 13, 2021, issued by the publication of the patent office in Australia. The College is proud of his achievements.

Dr. Javeed Hussain Shaik | HoD Electronics and Electrical Engineering (EEE)

GCET STAFF APPOINTED AS THE MEMBERSHIP DEVELOPMENT OFFICER FOR IEEE OMAN SECTION

Dr. Nemat Elhassan | Senior Lecturer

Dr. Nemat Elhassan from the academic department of EEE is appointed as the membership development officer for IEEE Oman Section. The "Membership Development" MD Chair position holder within Oman Section is responsible for working together as a team with the rest of the Section Executive Committee in planning, organizing, and coordinating activities for the growth, engagement, and retention of the existing members, recruitment of new members, as well as promoting the grade elevation of members within the Section.

Membership Development is much more than recruiting members. It is an investment to cultivate the individual member by providing a world-class experience that makes engineers WANT to be involved with IEEE. This is accomplished by ensuring IEEE section members are receiving the "value" they expect from being an IEEE member. To best deliver the "value", MD Chair must understand what the section members are interested in and then attempt to deliver on those interests whether it be simply directing the member to the Benefits Finder or working with members on projects like STEM, community involvement, etc." Congratulations Dr. Nemat! We are proud of your professional achievements that led to this appointment. We look forward to additional contributions and successful projects of Dr. Nemat in the future.

GCET STAFF JOINED THE ELITE RANK OF IEEE SENIOR MEMBERS

Dr. Mazhar Hussain Malik
Head of Computing and IT

Dr. Muhammad Irfan. Memon
Senior Lecturer

Dr. Irfan Memon from the academic department of EEE and Dr. Mazhar Malik Hussain from the academic department of CIT have been promoted to the rank of Senior Member of IEEE this year. Senior Member is the highest professional grade of IEEE for which a member may apply. It requires extensive experience; and reflects professional accomplishment and maturity. Only 10% of more than 400,000 IEEE members have achieved this level so far. We are very pleased to have Dr. Irfan and Dr. Mazhar joined the elite rank of IEEE Senior Members. We are proud of their professional achievements that led to this recognition. We look forward to having additional contributions and successful projects from these esteemed members of the GCET family.

APPOINTED TO SERVE AS EDITOR

Dr. Amjed Sid Ahmed
Director of Research & Innovation

Dr. Amjed Sid Ahmed was appointed as an editor in a special issue of Frontiers in Communications and Networks journal titled Future Communication Networks for Internet of Things (IoT) based Smart Grids. Congratulations Dr. Amjed! The College is proud of your professional achievements. We look forward to your additional contributions and successful projects in the years to come.

MEMBERS OF THE NEW STUDENT ADVISORY COUNCIL FOR THE YEAR 2021-2022

Members of the new Student Advisory Council (2021-2022)

President of the Student Advisory Council

Fatema Salim Nasib Suweilem

Major: Computer Security and Forensics

Vice President

Muhannad Mohammed Mubrauk Al Saidi

Major: Mechanical Engineering and Vehicle Technology

Secretary of the Council

Ahmed Salim Khamis Al Issaei

Major: Electronics and Telecommunication Engineering

Student Services Committee

Shahad Abdulhamid Al Yaqoubi

Major: Computer Security and Forensic

Activities & Initiatives Committee

Loay Mohammed Heriz

Major: Mechanical Engineering and Vehicle Technology

Academic Committee

Nasser Rashid Nasser Al Balushi

Major: Mechanical Engineering and Vehicle Technology

gcetoman gcetom

Mr. Waleed Almahroqe
GCET Team Coach

The Dean of the College, Professor Geoffery Elliott, awarded trophies to two students, Ms. Farah Anwar and Ms. Istbraq Al-Dughaishi, for their tremendous success in the girls' category of the Invitational Badminton Championship for higher education institutions (HEI). The championship was held on November 8, 2021at Gulf College.

SPORT NEWS

Ms. Farah secured 1st position for GCET in the singles competition. The SQU and Gulf University managed to secure the 2nd and the 3rd positions respectively. The College congratulates Ms. Farah Anwar for achieving 1st Place (and a Gold Medal) in the Singles Tournament, and both Ms. Farah Anwar and Ms. Istbraq Al Dughaishi for achieving 2nd Place (and a Silver Medal) in the Doubles Tournament.

The college wishes them more victories and successes in the years to come. By sustaining its legacy and care, the College is always keen to develop the sporting interests of its students by providing them opportunities to participate in such events.

From left to right - Coach Waleed Al Mahroque together with the Dean-President of the College Prof. Geoffrey Elliott congratulates Ms. Farah Anwar and Ms. Istbraq Al-Dughaishi for winning the Invitational Badminton Championship for higher education institutions (HEI)

Sports News: Karate

GCET warmly congratulates Ms. Farah Anwar, a student of BEng (Hons) Automation and Robotics Engineering, for winning the gold medal in karate competition held at the Jordan Karate Federation on September 3, 2021.

The college also felicitates Mr. Abdul Rahman Anwar Abdo from BEng (Hons) Mechanical Engineering for obtaining first Place in the Oman Karate Championship and second place in the Combat Movements which was organized by the Oman Karate Committee under the supervision of the Ministry of Culture, Sports and Youth on November 6, 2021. A consistency in practicing the martial arts of Karate, Judo, Taekwondo and Kung Fult adds to physical fitness, body health and develops mental and intellectual skills, such as, concentration, awareness, attention, and most importantly self-respect.

The college is proud of these achievements and wish them more success in the field of sports in the future.

GCET Football Team for Girls Won a Bronze Medal

Our Football team for girls headed by Mr. Waleed Al Mahrouqi, the GCET staff cum football coach, won a bronze medal on Friday, December 17, 2021. The tournament was organized by the Ministry of Culture, Sports and the Youth at Al Amal Club. The college congratulates and wishes the team more success and laurels.

How to Find an Analytical Approximation?

Dr.Taleb Moazzeni
Senior Lecturer

In many computer-based experiments, we face severe calculation problems with no closed-form or analytic solution. This type of solution is usually expressed in terms of well-known functions using arithmetic operations (addition, subtraction, multiplication, division), as well as exponentiation to a real exponent (which includes extraction of the nth root), logarithms, trigonometric functions, hyperbolic functions, inverse hyperbolic functions, etc.). In some cases such as many cumulative distribution functions the closed-form expressions consider special functions such as the error function or gamma function to be well known since, in many practical computer applications, the numerical implementations are widely available.

Numerical solutions usually contain either extensive numerical calculations or lengthy computer programming. Although after the advent of computers, nowadays, computers make numerical solutions possible, as a matter of processing and simplicity, still many practitioners strive to find approximate closed-form solutions.

In this perspective, I propose a procedure for approximating a complicated expression with a closed-form expression by showing a real example in the area of telecommunications engineering. This procedure may be applied to any kind of equation with no analytical solution.

The step-by-step tips are accomplished as follows,

Step 1: Guess a general parametric functional structure

In this step, we need to try a general function as the analytical model with adjustable parameters to fit the solutions. To minimize the trial attempts, first, we can draw the numerical results of expression and look at the resulting curve to come up with an initial guess. One useful option is to consider a combination of a few well-known functions, i.e., multiplications of Gaussian, logistic, and Sinc functions.

Step 2: Data fitting

In this step, based on the number of known parameters in the proposed approximate functions, the value of both expression and the proposed approximate function at a few points are determined. By equating the results, we will construct a system of equations with those unknown parameters of interest. Then, by solving these equations, the unknown parameters can be found.

Note that in the case of 2D expressions, this step must be repeated for each independent variable in such a way that in each step, one of the variables should be fixed.

Step 3: Model verification

As the last step, the estimated parameters are plugged in the proposed closed-form expression and the results are compared against the actual numerical ones. To that end, one may calculate the root mean square error of fitting over a wide range of domains of expression. If the error is not acceptable, we have to try another structure and start over from step 1.

Here as an example, I present an approximate expression for the symbol error rate of orthogonal and bi-orthogonal modulations. That is,

$$(P_e)_{\text{Orthogonal}} = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{\infty}\left[1-(1-Q(x))^{M-1}\right]e^{-\frac{\left(x-\sqrt{2(\log_2 M)\gamma_b}\right)^2}{2}}dx$$

$$(P_e)_{\text{Bi-orthogonal}} = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{\infty}\left[1-(1-2Q(x))^{\frac{M}{2}-1}\right]e^{-\frac{\left(x-\sqrt{2(\log_2 M)\gamma_b}\right)^2}{2}}dx$$

where Q is the known Q-function, given by,

$$Q(x) = \frac{1}{\sqrt{2\pi}}\int_x^{\infty} e^{-\frac{u^2}{2}}du$$

is the signal to noise ratio per bit and M is the modulation order.

One may check that the above equations can be well approximated by the following expression,

$$P_e \cong \frac{M-1}{1+e^{U\gamma_b+V}}Q\left(\sqrt{(\log_2 M)\gamma_b}\right)$$

where

$$U = \begin{cases} -0.138\log_2 M - 0.338, & \text{Orthogonal} \\ -0.175\log_2 M + 0.165, & \text{Bi-orthogonal} \end{cases}$$

$$V = \begin{cases} 0.438\log_2 M - 1.380, & \text{Orthogonal} \\ 0.450\log_2 M - 1.850, & \text{Bi-orthogonal} \end{cases}$$

Astonishingly, it is seen that the approximate model is a result of multiplication of two famous logistic and -functions.

References

1. Chow, Timothy Y. (May 1999), "What is a Closed-Form Number?", American Mathematical Monthly, 106 (5): 440-448.
2. Jonathan M. Borwein and Richard E. Crandall (January 2013), "Closed Forms: What They Are and Why We Care", Notices of the American Mathematical Society, 60 (1): 50-65.
3. Proakis J. G. and Salehi M., (2007), Digital Communications, New York: McGraw-Hill.

Electricity: Utilization and Conservation

Dr. Mohammad Mohatram
Senior Lecturer, EEE

Electricity is one of the many blessings that science has given to mankind. In today's modern world of automation and computerization, human expectations and the comfort of life are directly dependent on electricity. If you look around, you will recognize the importance of electricity in our day-to-day activities. It is almost impossible to live without electricity in modern technical society. People use electricity for lighting, heating, cooling, and refrigeration and operating appliances, computers, electronic gadgets, machinery, robots, and public transportation systems.

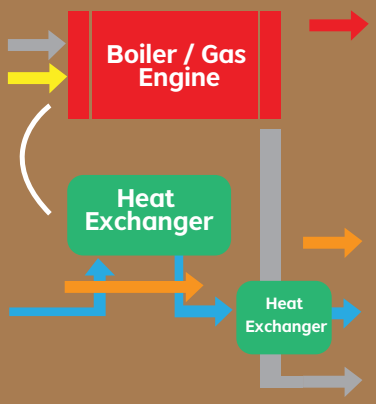
Electricity plays an important role in the field of the amusement and film industry. Radio, television, and cinema, which are the most widespread forms of entertainment, are the product of electricity. Signals among our computers and mobile phones carry information with ease because of electricity. Transmission of data from one place to another irrespective of their location and distance in a fraction of a second by using the internet is possible only because of electricity. X-ray, ECG, MRI, etc., in the field of medical science are possible only because of electricity.

With the rapid urbanization, continuously rising populations, and exponential growth and development in the automation of industrial and commercial activities, the demand for per capita electricity is significantly increasing. To meet the daily demand for electricity the existing energy resources are depleting at a speedy rate. According to power engineers and researchers, the existing energy resources would not be enough to meet the electricity requirements in the future. As such it is the responsibility of every individual to make sure that electricity is being used judicially in an efficient manner. Also, at the same time the air and thermal pollution caused by thermal plants, need to be given utmost importance to keep our environment pollution-free and safe for every creation existing on our beloved planet.

Technically and economically, it is not advisable to store electricity because it involves huge amounts of money, therefore, it must be consumed simultaneously while it is being generated. New methods of energy generation, as well as conservation of conventional sources, must be established.

Oman, thanks to its geographical location, has huge potential for electricity generation using renewable energy from solar and wind particularly in rural areas of Duqm, Ibri, Al Wusta, Thumrait, Rakhyut, and Al Mazyunah.

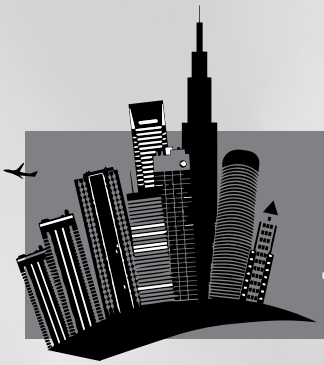
Co-generation, a technique in which electricity and steam are processed simultaneously provides a way to save energy. In thermal and nuclear plants of electricity generation, more than 60% of energy is discarded as heat through cooling towers. It is, therefore, worthwhile to save energy by the simultaneous generation of electricity and steam (or hot water). The discarded heat can be utilized in industrial processes, space, and water heating during winter seasons, or generating cooling by absorption technique during the summers. Co-generation is extremely cost-effective and appropriate for most industries such as petroleum refinery, desalination, fertilizer production, food process, and chemicals which are common in the Sultanate of Oman.



Steam Generator

Electricity
Steam
Hot Water
Exhaust Gas
Hot Water Return
Feed Water
Air
Fuel
Cooling Water
Exhaust Gas
Cogeneration Scheme
Flow of Water

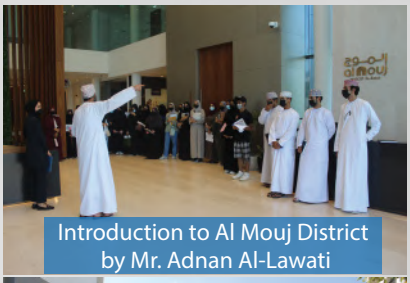
Ms. ZamZam Al Rawahi
Assistant Lecturer



POWERFUL LEARNING EXPERIENCE WITH THE UPEM DEPARTMENT!!

The department of Urban Planning and Environmental Management (UPEM) has arranged several site visits for the students to many locations inside and outside Muscat. Site visits are a very important component in the learning process. They act as a practical part of their study and aim to connect the theoretical aspects to the practical aspects. Going to the sites enhances the critical thinking skills of students and allows them to think about an aspect or a topic from different perspectives. On November 25, 2021, level 0 students of UPEM visited Al-Mouj Muscat with Dr. Suad and Ms. Zamzam. The visit aimed to walk around the city and observe its main natural and manmade features. The visit started by having a short introduction to Al Mouj and its districts, features, and activities by Mr. Adnan Al Lawati who is the Marketing Lead Specialist at Al Mouj Muscat (Figure1). After that, students moved to a residential district in Al-Mouj (Ghadeer District) which is considered as one of the very sustainable and human-friendly neighbourhoods (Figure 2). Ghadeer District has many features that make it sustainable: safe and shaded walkable areas, open spaces, a small park with water surfaces (Figure 3), kids' playgrounds and compact neighbourhood of small homes with courtyards. Students have then moved to the retail area to observe the main functions and services the area is offering for Al Mouj residents and visitors (Figure 4). Students spent a very good time at the public open square, walking around Al Marsa Plaza and breathing the fresh sea breeze in front of Al Mouj Marina. Level 1 students also visited Al Mouj on December 14, 2021 with the same program but with different objectives. Students were required to observe and study the formation of the city by doing pre-field reading, writing notes, and sketching plans and sceneries from the site (Figures 5,6&7). One more exciting site visit was made to Al-Rustaq for level 1 students on December 7, 2021. The students with Ms. Zamzam visited Harat Qasra in Al-Rustaq to learn about the formation of an ancient city, city layout, and the sustainable measures in the old settlement. The trip started by visiting one of the rehabilitated houses in Harat Qasra which is called "Al Bait Al-Gharbi البيت الغربي; The Western House". We were warmly greeted by Mrs. Zakiya Al-Lamki, the granddaughter of the former owner of Al Biat Al-Gharbi, who was a very famous religious scholar in the 19th century. We had a lovely breakfast at Al-Bait Al-Gharbi which is now a museum (Figure 8). The students were then moved to take a tour around the old Hara (village) with Mrs. Zakiya Al-Lamki, learning about the historical, planning, and engineering aspects of the village. The student then had some time to sketch one of the sceneries from Harat Qasra (Figures 9&10) and take beautiful group photos (Figures 11&12)!

There is no doubt that these site visits are one of the very powerful learning tools that can be used to provide a real-world experience to every student; leaving class rooms and seeing connections of what is happening in real life. Participating in the physical world experience will contribute to the students' understanding of the actuality and help them to understand current situations to build a better world as future URBAN PLANNERS AND ENVIRONMENTAL MANAGEMENT LEADERS!

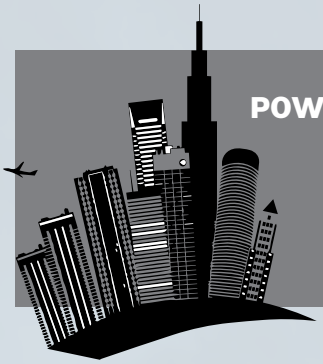


Introduction to Al Mouj District by Mr. Adnan Al-Lawati

Walking around Ghadeer District

Al Khor park

Group photo with a little girl from Harat Qasra



POWERFUL LEARNING EXPERIENCE WITH THE UPEM DEPARTMENT!!

UPEM SITES VISIT

Walking around the walk and Marina area

Observing and sketching sceneries from Ghadeer District Al Mouj Muscat

Sketches from Ghadeer District-Al Mouj Muscat

A sketch from Ghadeer District-Al Mouj Muscat

Sketching sceneries from Harat Qasra

lovely local breakfast of Al Rustaq

Sketches from Harat Qasra

URBAN PLANNING AND ENVIRONMENTAL MANAGEMENT (UPEM) INDUCTION DAY

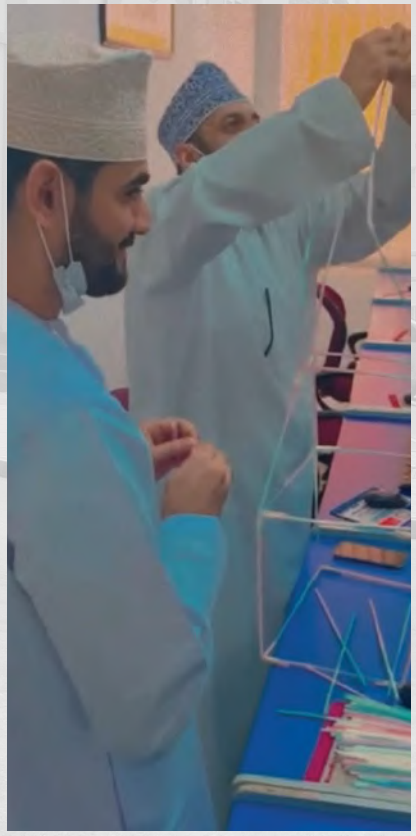
Dr. Suad Said AL-Kindi
Senior Lecturer

"Collaboration is the key to success" was the UPEM induction day opening statement. "Collaboration with your colleagues, your tutors, and every member of the GCET family will produce a joyful learning journey. All successful projects are done by a multidisciplinary team, generating collaboration with other departments, other academic institutions. "Don't stop!.. Create a project that joins academia and Industry and expands your collaboration globally to create the brightest era for the human nation" I pursued. The second part of the speech was presenting the UPEM department programs as the interdisciplinary environment professions, which reflects the value added to their undergraduate experience at GCET.

The department welcomed Dr. Suad Al Kindi, the Environmental Management Program leader. Dr.Suad gave the induction about BSc (Hons) in Environmental Management and Practice. Eng. Zamzam Al Rawahi - a specialist in Urban transport- did for the Program of BSc (Hons) in Urban and Regional Planning. The UWE-GCET academic survival guide has been recorded and shared with all the students.

UPEM's first cohort played its roles during the 2021/22 induction day. Fatema Al Farsy and Al Yaqeen Al-Mamari, UPEM students' representatives for 2021/22, were the CM of the induction day and the presenter of UPEM- Students Club. They explained about the Staff-Student Liaison Committee (SSLC) and encouraged their colleagues to approach them. Sulaiman Al Kalbani - UPEM's students Club entrepreneurship unit head -- showed the students' proposal for sustainable GCET campus development, in parallel with other UPEM-Students Club summer activities such as "weekly reading café", English lesson, etc. Media unit head, Khaloud Al Kanbashi, encouraged all the students to delight in educational and entertaining breaks. The last break was challenging as this demanded the students to recycle plastic straws into the tallest- stable tower. Students enjoyed encouraging the participating teams.

The spirit of collaboration dominated the UPEM Induction day and it was closed by "alone we can do so little; together we can do so much" ~ Helen Keller. Last but not the least; writing this article is a great opportunity to thank all members of the UPEM department and the GCET family for their efforts in organizing a successful Induction day, successful events, and a successful academic semester.



SECURITY AND FORENSICS FUTURE OF OMAN

SECRETS ARE THINGS WE GIVE TO OTHERS TO KEEP FOR US. ***~ELBERT HUBBARD***
TECHNOLOGY TRUST IS A GOOD THING, BUT CONTROL IS A BETTER ONE. ***~ STEPHANE NAPPO***

Dr. Janaki Sivakumar
Senior Lecturer

As said above, in the world of cyber-security, there is nothing called 100% security. As per one of the research studies in 2020, cyberattacks occur once every 39 seconds. How many of you are scared about making payments online using your credit or debit cards? If you answered yes, you are not an exception. Cyberattacks are the reason we are reluctant to pay online. Many of us are concerned about cyber security.

During the time of pandemics, there is a need for innovative and integrative approaches to start a new normal lifestyle. During the pandemic, scientific advancements, technological integration, and cyberspace have transformed the world into a global village. While adapting to global developments, innovation, and industrial revolutions (IR 4.0), our key mission has been to guarantee technology transformation by counterbalancing security and integrity.

When governments implemented COVID-19 lockdowns, cyberattacks such as smishing (attack via SMS), phishing (attack on sensitive information), pharming (attack by introducing malicious code), and vishing (attack by social engineering) increased by up to 667 percent [1]. Other threats are also on the upswing, posing new cyber security problems for the community.

Due to the unrestricted remote workplace, ransomware attacks (compelling payments to revert the attack) have grown more important during this pandemic. IoT is a rapidly expanding technology, and the number of connected smart devices in today's world is predicted to be approximately 200 million [2].

According to Oman's vision 2040, we drive towards the goals:

- Medical devices and services that are powered by technology
- Effective delivery of technical servic es by the public and private sectors
- Economic diversification with an emphasis on technology
- Create smart cities by taking advan tage of modern technologies and advanced public needs.
- Apply cutting-edge technology to wastewater treatment, agriculture, and power production.

We employ a variety of physical hardware resources other than computers to get closer to the above-mentioned goals, all of which are connected to share data. These gadgets leave traces in cloud storage, which causes harmful effects as an unobserved invitation to cybercriminals to launch security breaches. If we do not improve our cyber security, we will have to pay a price for our nation's security and integrity in the future.

We must develop and implement a wide range of education and awareness campaigns to equip users at home, work, and school with the knowledge they need to keep themselves, their institutions, their systems, and their data safe and secure online, as well as promote a level of security.

Professionals in cyber security work to ensure that infrastructure is safe from prospective attackers. They may utilize hacking to test their own or a client's networks to identify and improve vulnerabilities.

Computer forensics, on the other hand, involves investigation techniques to locate and save records from a computer device where an incidence of attack has been reported. Computer forensics is frequently used to discover evidence that could be used in court. Experts in computer forensics conduct investigations to locate digital evidence and retrieve data from hacked systems.

Oman's Contribution to Safe Technology Oman has been recognized for its technological excellence by winning the Cyber Security Award in 2021 at COMEX. Oman's efforts in cyber security, threat intelligence, and preventive services are aimed at keeping Oman's corporate entities secure from cyber-criminals and reducing cyber-attacks. In the future cyber security job market of Oman, young professionals are required to deliver cyber security solution services. There are plenty of career opportunities for technical support experts soon.

Job market positions opened in Oman for computer security and forensics graduates include:

- Digital Forensic Investigator
- Digital Forensics Analyst
- Digital Forensics Technician
- Advanced Cyber security engineer
- System and network security engineer
- Information security tester
- Cyber security-senior consultant

At GCET, we are on the right track to produce quality, skilled security and forensic graduates, the cyber world experts of future Oman, under the Department of Computing and Information Technology.

FLOATING PHOTOVOLTAIC PANELS

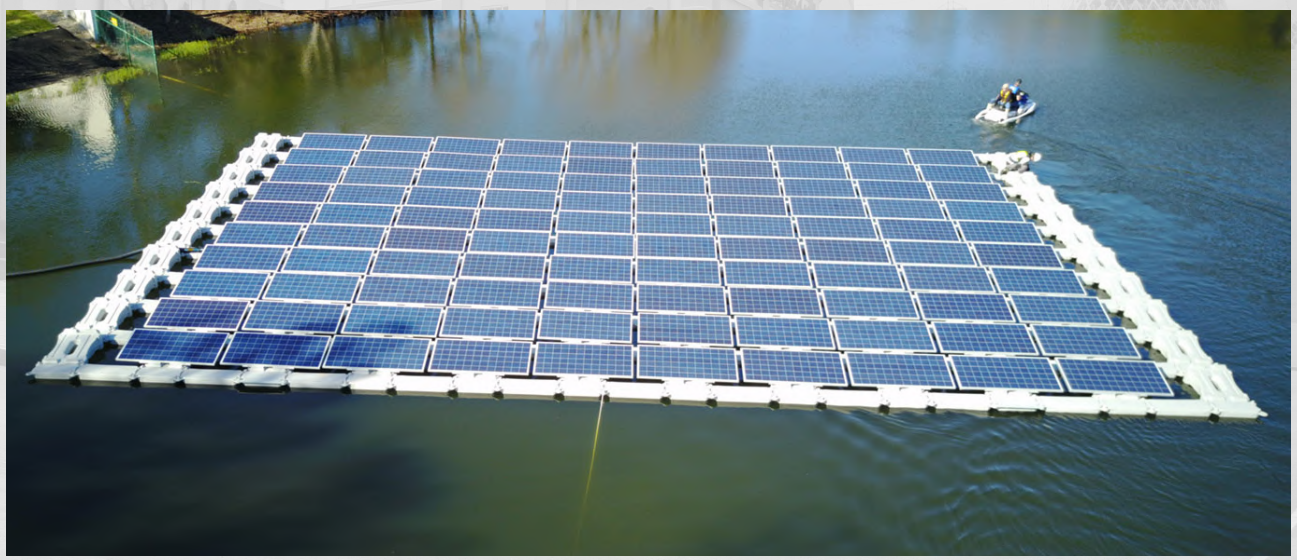
Dr. Morteza Khashehchi
Senior Lecturer

Floating photovoltaic panels are essentially the same solar panels that are mounted on the ground, except that these panels are placed on the surface of the water by afloat, which is usually made of plastic. The California Floating Solar Power Plant in the USA is the first solar power plant in the world that was built in 2007. Currently, more than 100 floating solar power plants are working in the world. In the United States, six power plants with a capacity of 50 kW to 6.0 MW have been installed. In Japan, there are also 50 power plants installed, which ranks first in the world.

Normal solar panels are installed on the ground and can be located anywhere with no limitation, but the surface of the water is different from that of the land, and even the no-wavy regions may destroy vessels and solar panels. Due to the intense evaporation of water at the water storage dams in the country, the design of floating solar panels is not only used to generate electricity but also helps prevent the evaporation of most of the freshwater behind the dam.

Despite several advantages of floating solar power plants concerning fixed ones, the instability of these power plants against massive floods and other natural disasters, as well as corrosion of panels, need to be considered. Therefore, when designing and installing parameters such as water-proofing of all systems and wiring of panels, water quality, and related regulations should be investigated.

As a result, the construction of a floating solar power plant on the surface of the water next to the facilities of hydropower plants such as a dam caused an increase in energy production and also prevented the evaporation of large amounts of stored water. The cost of floating power plants in comparison with the other cases of solar power plants, such as installation on the roof or installation on the ground is high. It is perhaps due to having a different structure. But the benefits of such power plants are convincing enough to invest in.



FLOATING SOLAR SYSTEM

STUDENTS CAN HAVE A DIGITAL PORTFOLIO TOO!

Mr. Mahmood Al-Hosni
Senior Tutor

Digital portfolios are among the most effective ways to demonstrate ability on a certain task, skill, or profession. It's a place increasingly used by artists, professionals and companies to display what they're good at. Think "Linkedin" pages where people showcase links to their recent achievements and display work they're proud of.

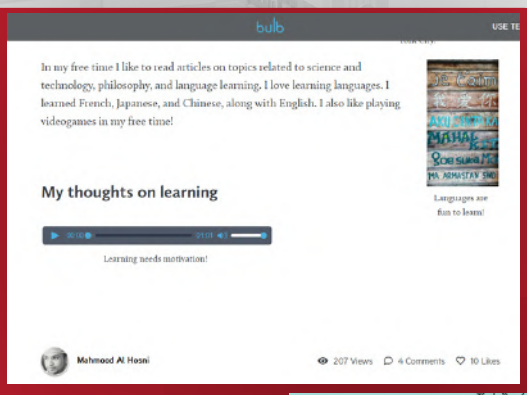
This, however, is not exclusive to professionals and companies. It definitely has its place in the classroom. Among the skills digital portfolios bring to the class, is a hands-on exposure to marketing one's abilities and achievements. Students get to keep them (because they're stored online) and the educational institutions get to brag about having high-quality evidence of learning. An authentic tool that can help with marketing efforts for potential students.

This was what I experimented with during the lockdown last year for my stage 1 Writing class. These were fresh high school students transitioning to college life (during the pandemic; which was quite challenging, to say the least).
And so I embarked on a journey to "softly" expose students to skills beyond those of high school that will gradually prepare them for an independent learning journey where they need to develop skills to help them land a job and market themselves. Ultimately, it's why they joined college. We ought to respect that and consider it our core mission to assist them one step at a time in reaching their professional potential beyond college life.

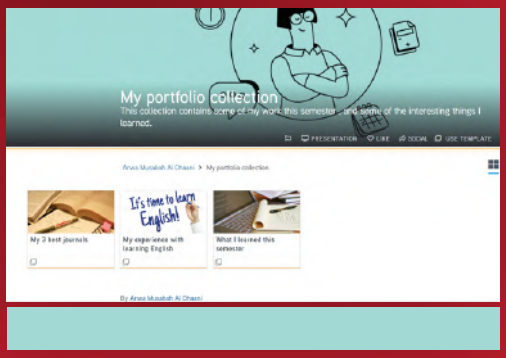
For this endeavour, I employed the Bulb portfolio online tool that provides the space for students to create their own portfolios and share them with the world. Portfolio already exists as a part of their course requirements but I thought it needed to be taken to the next level; students needed to have their portfolios and support them to the point where they are proud to share them with their classmates, the community, and then the world!

I was astonished, to say the least, about how well the students were able to learn to use this service and how it resonated with them. My sample "About me" page received more than 200 views (from my class of 25 students). And they started commenting on its content. This helped students understand what is required from them. I then presented them with simple-to-understand instructions, video tutorials, and grade-free submissions on the same page. They were ready. The results of the assignments were more than I expected. The students used text, pictures, voice recordings, and video to express their thoughts and reflect on their learning. I was proud.

We should have more of this across students' journeys during their studies at college. It helps with many aspects of their learning including motivation, agency, digital literacy, and communication skills. And, by the way, feel free to contact me to see some of the students' portfolios in action. I think you will enjoy browsing through them.



Student views on "About me" page given as a template for students.



A sample of a student's digital portfolio's collection.

HOW TO MANAGE GRADUATE EMPLOYABILITY IN THE ERA OF 21ST CENTURY

Dr. Muhammad Latif Khan
Senior Lecturer

Nowadays, employment conditions are volatile and turbulent and create a high level of ambiguity regarding career paths and expectations. In order to deal with this ambiguity, careers have become increasingly directed by the individuals rather than by the organizations, and are affected by intrinsic values rather than extrinsic motivations. Hall (1976) was the first to describe this new approach as protean career orientation (PCO): an individual attitude in which career choices are personal and underlie the search for self-fulfillment. In contrast to the traditional careers based on upward mobility, salary increases, and responsibilities across a few organizations, a protean career is conceived as being self-directed; thus, the employee is the agent who identifies individual career goals, and these may be independent of organizational boundaries. Furthermore, protean career orientation (PCO) is value-driven, "in the sense that the person's internal values provide the guidance and measure of success for the individual's career". The tendency is to look for jobs that satisfy life needs and not just work needs, thereby giving the term "career" a more comprehensive meaning of self-realization.

Economic instability, downsizing, rightsizing, and restructuring in organizations produced a shift from traditional career attitudes to contemporary career attitudes. Due to all these factors, organizations often cannot offer long-term employment to their employees. To cope with this uncertain scenario in career turbulence, career researchers have suggested that individuals must adopt protean career attitudes to maintain their employability with current and future employers.

Owing to all these unexpected changes, individuals also have a great desire to qualify as protean talent. Individuals who are strong in protean career attitudes take responsibility for their own career success instead of waiting for organizational career success. Those who possess protean career attitudes are capable of coping with uncertain situations, have confidence in their skills and abilities, have psychological well-being, are able to obtain career satisfaction, and ensure employability with current and future employers. Therefore, the expectation is that individuals with protean career attitudes will show the required level of career satisfaction and life satisfaction. Individuals who are unable to have this proactive career attitude can fail to achieve career success in a modern workplace. Individuals with this proactive attitude tend to have an active adjustment towards themselves, explain things confidently, turn problems into opportunities, are responsible, attempt in advance to avoid the occurrence of bad things, inspire people, remove job constraints, solve problems through the new ideas, have positive thinking about the individual and organization, and build a network with people inside and outside the organization. A person with a protean career attitude and behavior is always prepared for any challenges and has the potential to achieve career success.

As discussed in the literature people with protean career attitudes are more confident, skillful, dedicated, and proactive. Protean career attitudes are not always innate and can be taught. The results of this study lead to the suggestion that an organization should focus on graduate development programs. The role of the different departments in the higher education commission, universities, and colleges is vital in molding their attitudes towards self-directed career protean career attitudes and career success. Professional educationists and trainers can play a significant role in shaping protean career attitudes in all students to cope with uncertain employment situations.

Indeed, many researchers have also identified the importance and positive role of protean career attitudes in the career success of young millennials. Students who are near to their graduation usually show self-directed career attitudes; nonetheless, it remains the core responsibility of universities and colleges to nourish their self-directed career attitudes in the correct direction. This would enable the students to be more employable in the future. All this evidence shows that higher education institutions need to be active in preparing the students for continued learning and long-term employability. Moreover, it is very crucial to inform the students about market demands and supplies. This suggestion aligns with a UNESCO (2020) report about the employability of the students of Asian countries and the role of academics in shaping the career of students.

Discussing the academic role of higher institutions of Oman in the preparation of students for future challenges is critical because every year a large number of fresh graduates enter the local market. Since the economic downturn and financial crisis of 1996 adversely affected the employment rate of Oman, the problem of unemployment in Oman still exists and remains an issue. In this regard, Oman policymakers, academics must revise the role of universities in shaping the development of students' creativity and proactive traits according to market demand and supply. The responsibility of preparing students who are ready to face the challenges of the future not only is the responsibility of higher education institutions but also is an important role of other educational sectors like primary, secondary, and post-secondary

education departments in playing their role in the current and future career success of students. While training students for jobs and careers, organizations are simultaneously expected to help develop value-driven career attitudes like humanitarian values (honesty, caring, patience) and socially desirable attitudes (open, curious, and confident) that are among
the key characteristics of employability desired by potential employees. Consequently, higher education institutions, government, and primary, secondary, and post-secondary education departments can play a significant role in developing protean career attitudes dispositions like self-directed career attitudes and value-driven career attitudes towards career success. Together with this study, much other research has identified protean career attitudes as the predictors of a proactive career, self-directed career attitudes, employability, marketability and ultimate career success. Therefore, further study should examine protean career attitudes and their relevance to career outcomes like job searching and employability of students in the Sultanate of Oman.

PROPOSED RESEARCH MODEL