KUWAIT COLLEGE OF SCIENCE & TECHNOLOGY

كلية الكويت للعلوم والتكنولوجيا

Annual Research Report

Academic Year

2021/2022

KUWAIT COLLEGE OF SCIENCE & TECHNOLOGY
كلية الكويت للعلوم والتكنولوجيا

Research Report

Academic Year 2021/2022

November 9, 2022

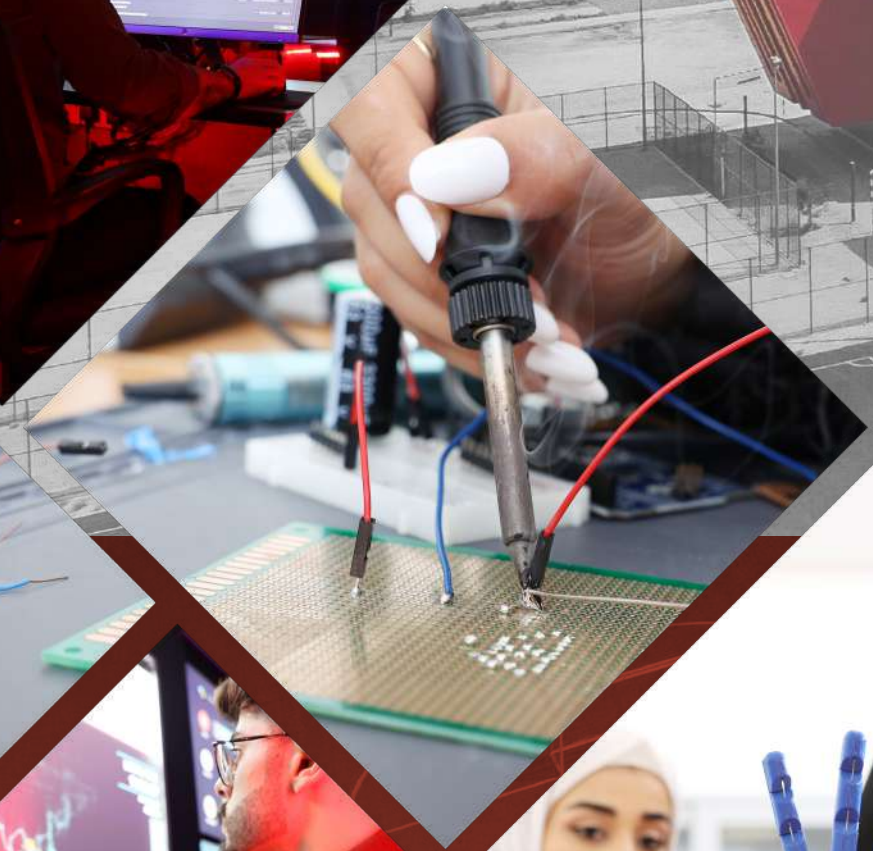

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Table of Contents

1 Executive Summary 01

2 About Kuwait College of Science and Technology

1.1. Growth in Student numbers 06
1.2. Growth in Faculty numbers 10

3 The Research Strategy

3.1. Research Vision 14
3.2. Research Values 14
3.3. Research Objectives 14
3.4. Research Priorities/Themes 17
3.5. Key Research Performance Indicators (2016-2022) – Scival (Scopus) 18

4 4.Universities Ranking and Research Benchmarking

4.2. Universities Ranking Indices and KCST related positioning 30
4.3. Research Productivity Analysis and Benchmarking 34

5 Research Output for the Academic Year (2021/2022)

5.2. Conference Papers 69
5.3. Books and Book Chapters 72
5.4. Workshops, Webinars and Training courses attended by faculty 74

6 Reference 84

Introducing OffSec's NEW
Discount Programs

1 Executive Summary

Our research strategy is oriented on the fundamental and strategically important questions and to deliver economic, social, and cultural impact at national, regional, and international levels. We engage in internationally leading research activities and collaborations.

We are very proud of our faculty research scholarly output during the last 5 years. The scholarly output has been impressively increased and aligned with the national research priorities. This growth in the research output was associated with the growth of the College's human capital, including student enrollments as well as faculty recruitment.

During the academic year 2021/2022, KCST's publications reached (214), in addition to (11) books and book chapters, (13) research proposals submitted to KFAS, (15) research proposals submitted to The British Embassy and (4) ongoing research projects with KFAS.

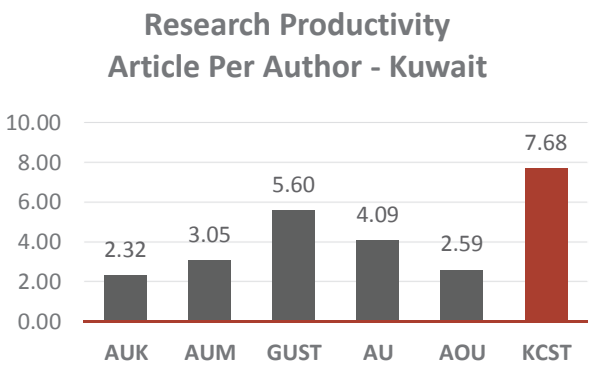
KCST hosted and organized the **35th International Conference on Modelling and Simulation in partnership with the European Council for Modelling and Simulation (ECMS)** – in May 2021. In addition, KCST conducted the **2nd Annual Cybersecurity Week** - from Nov 21 to Nov 25, 2021. It consisted of several lectures, workshops, and student competitions in cooperation with senior specialists in the field of cybersecurity.

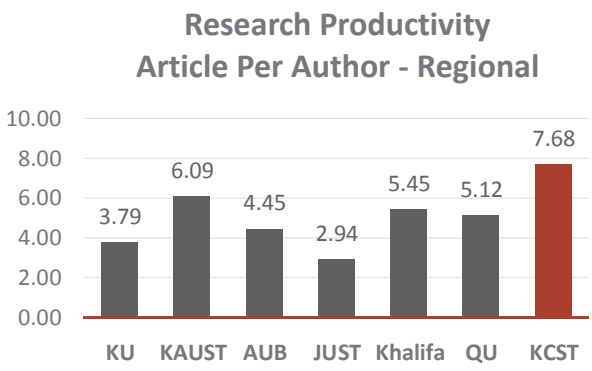
Furthermore, KCST hosted the **1st Huawei 5G Lab and 5G Star simulation training system in Kuwait** as part of the newly launched Huawei ICT Academy at KCST. The KCST partnership is the latest initiative by Huawei to develop Kuwait's talent ecosystem.

A new State-of-the-Art Cyber Security Lab facility was opened at KCST. The facility enhanced the position of KCST as the leading academic institution in Kuwait in offering specialized academic courses and training programs to increase the awareness and professionalism of cybersecurity in Kuwait and the region.

Based on Scopus, the largest research data base, **KCST has 634 published research papers in scientific journals as of November 7, 2022, which is considered high among other local universities.** 57.5% published in Q1 Journals, and 84.9% published in Q1-Q2 Journals.

Compared to other universities, KCST has excelled in published research during the last 5 years. We have looked at data from different resources and considered the data retrieved from Scopus to do the benchmarking analysis that is fully explained in section 4, Universities Ranking & Research Benchmarking of this report.





#1

In the Middle East in Research Productivity

Article/Author

© SCOPUS Indexing Database

#1

In Kuwait in Last 5 Years Research Impact

H-Index, i10 Index, Citations

© AD Scientific Ranking

634

Publications since 2016 until November 2022

© SCOPUS Indexing Database

3,755

Citations since 2016 until November 2022

© SCOPUS Indexing Database

84.9%

Publications in high quality Q1+Q2 Journals

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84.2%

Publications with international collaboration

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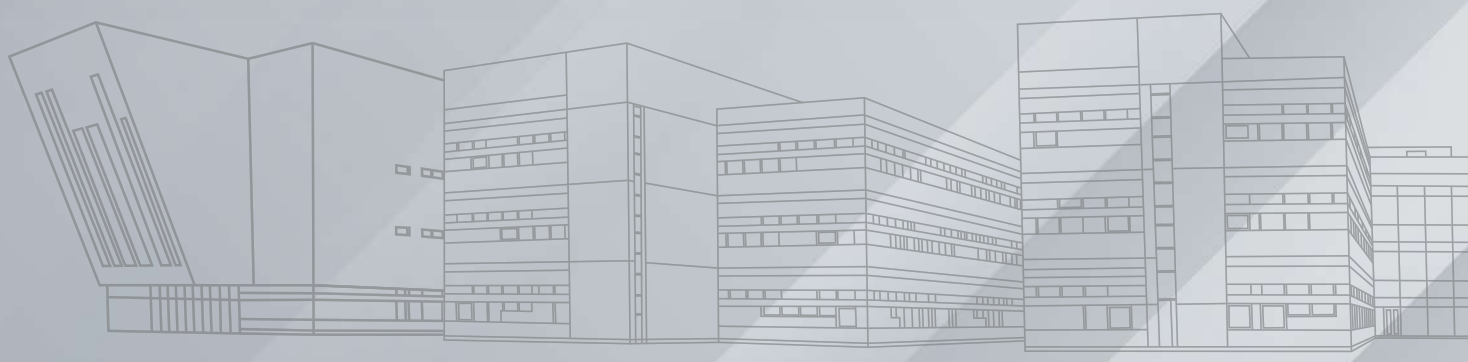


Int'l Container Terminal
Port uses 5G for crane control

2 About KCST

2. About Kuwait College of Science and Technology

Kuwait College of Science and Technology (KCST) is a private university located in Kuwait with a state-of-the-art-campus. KCST specializes in high-tech degrees with a strong leadership focus. Currently, the College offers bachelor's degrees in Computer Science, Computer Engineering, and Electronics and Communications Engineering. KCST was established with the mission to provide high-quality education and knowledge creation and to contribute to the development of society in order to prepare graduates to lead their economy and influence their community.

KCST has been promoting the research culture and encouraging its faculty members to engage in research projects and professional development. Research productivity has been increasing over the last 5 years, while teaching activities still dominate the process of academics. Moreover, KCST faculty members have been engaged in publishing research papers in Scientific Journals, publishing books and book chapters, presenting and attending conferences and workshops, and submitting and conducting research projects in collaboration with KFAS.

1.1. Growth in Student numbers

The number of students who applied, registered, and graduated from the college has increased during the last 5 years. Below are the figures for the number of new applicants and number of registered students since the college was opened for operations in the Spring 2015/2016 semester up the academic year 2021/2022. In addition to the total number of bachelor's degree programs graduates (per program area) in 2019/2020 and in 2021/2022.

1.1.1. Student Admissions

Academic Year	Spring 2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
New Applicants	16	379	210	296	375	353	686

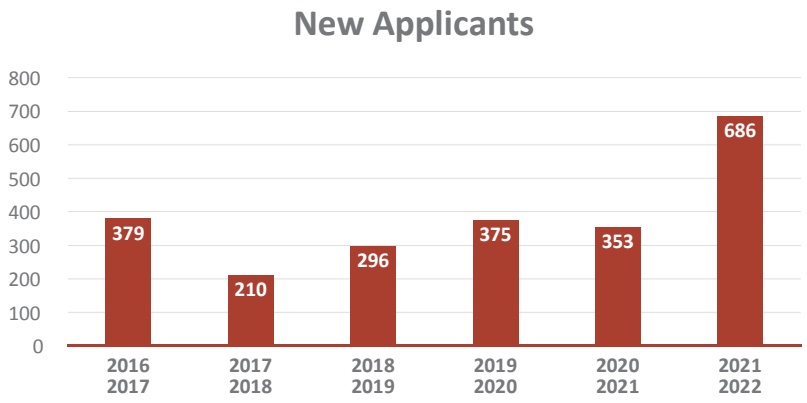


Figure 1 New Applicants (2022/2021)- (2016/2015)

1.1.2. Registered students in the Bachelor's Degree programs

Semester	Computer Science	Computer Engineering	Electronics and Communications Engineering
Fall 2016-17	5	100	66
Spring 2016-17	10	161	117
Summer 2016-17	7	56	52
Fall 2017-18	21	182	137
Spring 2017-18	24	212	148
Summer 2017-18	18	146	107
Fall 2018-19	44	272	193
Spring 2018-19	39	297	235
Summer 2018-19	55	255	249
Fall 2019-20	68	364	278
Spring 2019-20	69	351	377
Summer 2019-20	97	414	428
Fall 2020-21	68	486	498
Spring 2020-21	55	453	470
Summer 2020-21	74	470	439
Fall 2021-22	60	614	616
Spring 2021-22	68	643	628
Summer 2021-2022	62	585	564

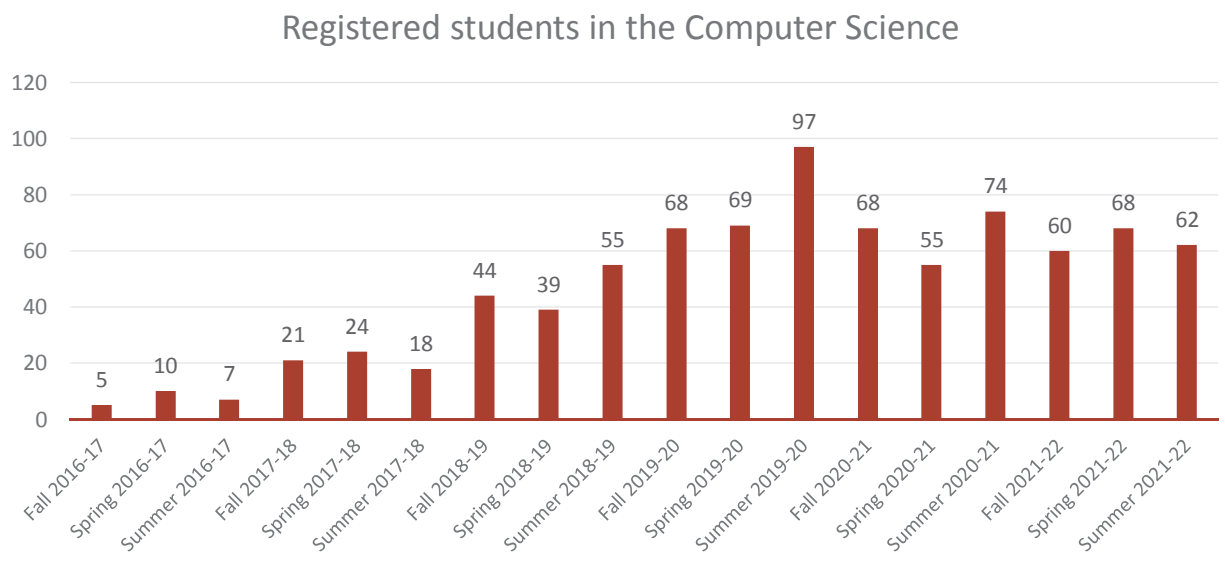


Figure 2 Registered students in the Computer Science

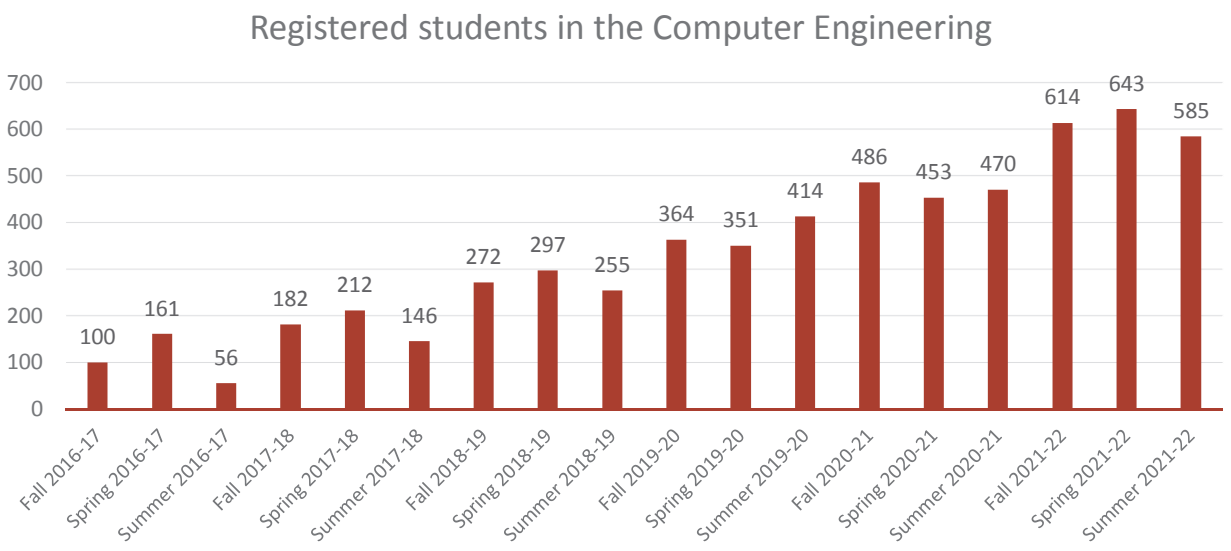


Figure 3 Registered students in the Computer Engineering

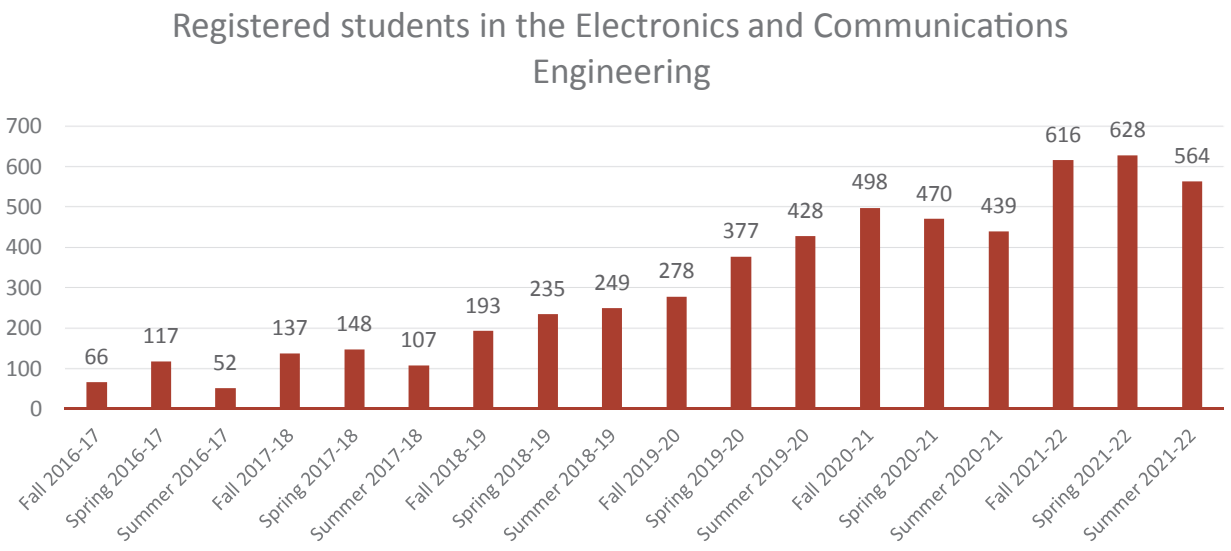


Figure 4 Registered students in the Electronics and Communications Engineering

1.1.3. Registered students in the Foundation Program

Semester	Foundation 1	Foundation 2	Total
Spring 2015-16	4	12	16
Fall 2016-17	112	65	177
Spring 2016-17	24	51	75
Fall 2017-18	109	59	168

Semester	Foundation 1	Foundation 2	Total
Spring 2017-18	26	121	147
Fall 2018-19	182	57	239
Spring 2018-19	24	191	215
Fall 2019-20	268	59	327
Spring 2019-20	21	268	289
Fall 2020-21	241	29	270
Spring 2020-21	24	250	274
Fall 2021-22	352	116	468
Spring 2021-22	0	358	358

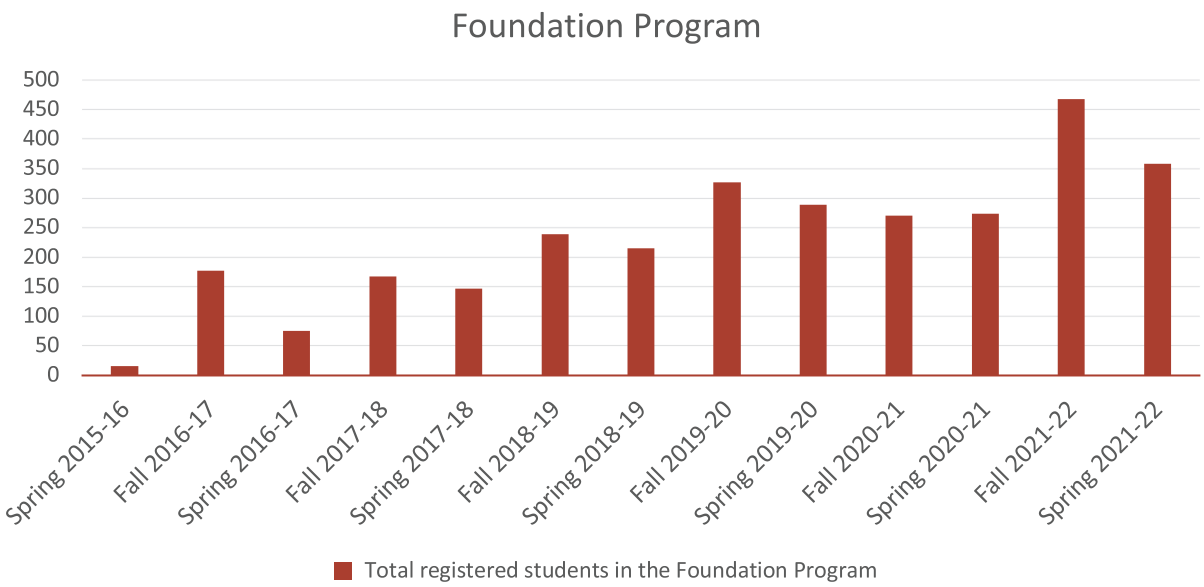


Figure 5 Registered students in the Foundation Program

1.1.4. Graduates from the bachelor's degree Programs

Semester	Computer Science	Computer Engineering	Electronics and Communications Engineering	Graduates per year
2019/2020	0	43	31	74
2020/2021	3	122	86	211
2021/2022	7	114	112	233
Cumulative per program	10	279	229	518
Total KCST Alumni	518			

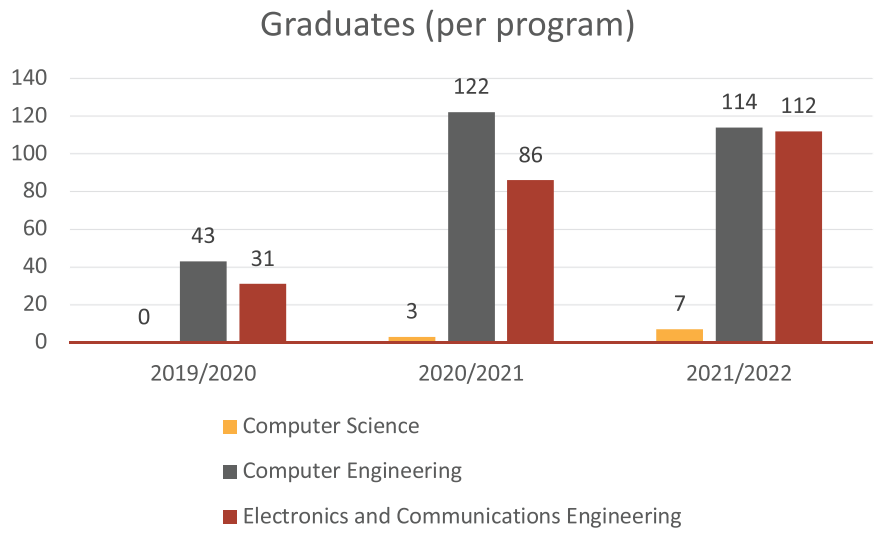


Figure 6 Graduates

1.2. Growth in Faculty numbers

The number of faculty has increased during the last 5 years to accommodate the increase in the students' numbers. The table below shows the number of faculty members per academic ranking (Professor, Associate, Assistant, Lecturer, and Teaching Assistant) from the academic year 2016/2017 up to the academic year 2020/2021.

Faculty	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Professor	3	4	5	6	4	5
Associate	5	6	9	9	8	7
Assistant	4	8	13	17	16	17
Lecturer	3	9	13	16	16	21
Teaching Assistant	5	9	12	12	15	21
Part-Time	7	6	15	12	6	5
Total	27	42	67	72	65	76

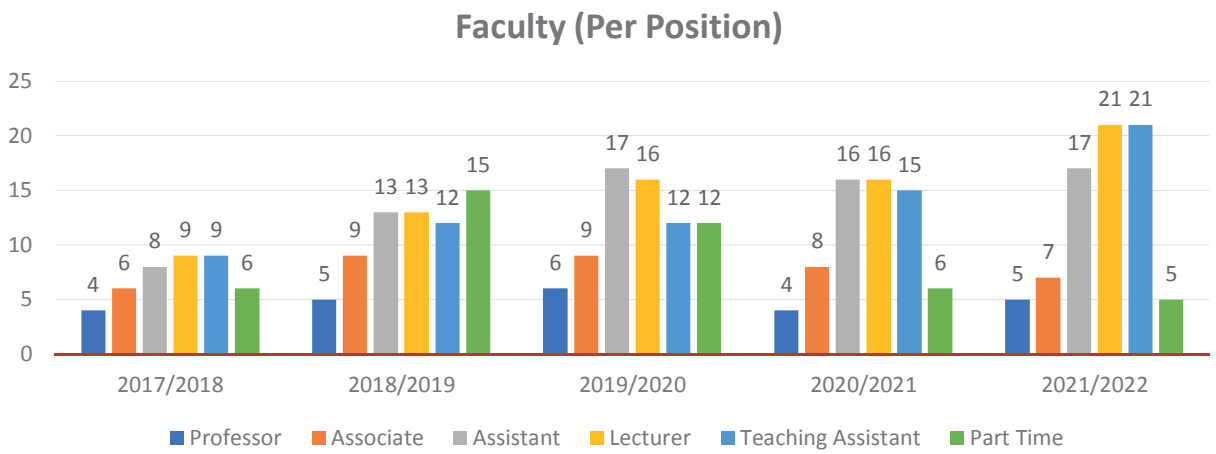
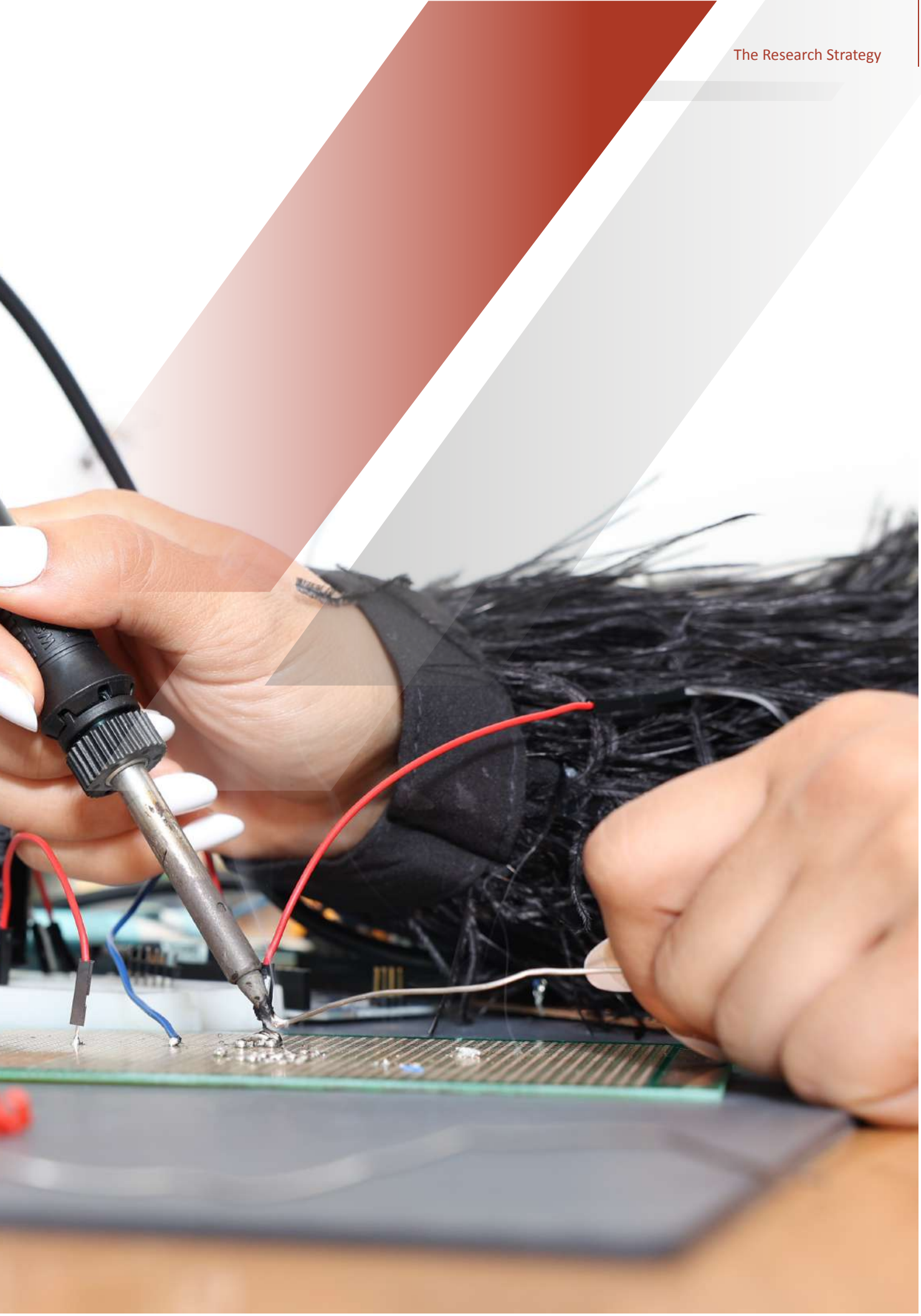


Figure 7 KCST Faculty members (2016/2017)- (2021/2022)

> **Technology by itself doesn't make leaders. Technology only amplifies true leadership."**
>
> **Steve Jobs**

3 The Research Strategy



3. The Research Strategy

3.1. Research Vision

Our **vision** for the Research Strategy is as follows:

Research excellence and innovation are integral to the vision of the Kuwait College of Science and Technology. Our goal is to address fundamental and strategically important questions and to deliver economic, social and cultural impact at national, regional and international levels. We engage in internationally leading research activities and collaborations.

3.2. Research Values

Our **values** for the Research Strategy are:

Our Strategy is informed by the following set of values, by which the University/College will judge the merits of planning and investment decisions for research:

1. Research excellence contributes significantly to building our reputation as a University, both at a national and international level.
2. We engage in high-quality research, both basic and applied, to answer fundamental and strategically important questions and to benefit the people and economy of Kuwait.
3. Research informs our teaching, and we seek to engage students in our research in all programs.
4. We value the expertise of our staff and students and are committed to supporting them to reach their full research potential.
5. We are committed to maximizing the income associated with our research and, through this providing the sustainable environment needed to enhance our research.

3.3. Research Objectives

KCST Research Strategy is presented as a series of objectives:

Figure 8 Strategic Research Objectives – KCST

1. Research excellence and profile

1.1 To identify and develop emerging areas of research excellence, including those that cross traditional subject or discipline boundaries.

1.2 To support the effective dissemination of original and significant research outputs through high-quality outlets.

1.3 To understand, influence and respond to external research priorities at both national and international levels.

2. Collaboration

2.1 To promote and support collaboration in order to extend the quality and breadth of our research.

2.2 To provide support for collaborations that address strategically important priorities, including interdisciplinary research.

2.3 To develop sustainable collaborations nationally and internationally, working with other universities, research institutions and other organisations, including industry and other commercial partners. Our collaboration will build to extend on the signed agreements with the Indian Institute of Technology (IIT-Delhi), City University of London, Kanagawa Institute of Technology, Japan, and Edith Cowan University in Australia

3. Sustainable research environment

3.1 To recruit, develop and retain high-quality postgraduate research degree students and to provide them with a stimulating and supportive research environment and career development opportunities.

3.2 To direct targeted investment towards key infrastructure and an agile research support system which fosters and sustains high-quality basic and applied research and responds promptly to emerging opportunities.

3.3 To enhance the resilience of our research base by diversifying our engagement with external funding streams..

4. Supporting researchers and research leaders

4.1 To attract, retain and reward high-quality academic and research staff who are able to make a significant contribution to our research profile.

4.2 To make research performance a key criterion for academic promotions.

4.3 To encourage all staff and degree students to reach their full research potential and to support their career development.

4.4 To facilitate best practices in research leadership and management, including equal opportunities and diversity.

4.5 To make good use of our collaborations to develop opportunities for career and skill development.

5. Research informs educational strategy

5.1 To ensure that the curriculum is informed and enriched by research.

5.2 To engage research-active academic staff at all levels in teaching.

5.3 To foster the development of research skills in students and to engage them in research, where appropriate, through taught programs.

6. Social, economic and cultural impact

6.1 To engage with partner organisations and communities in making promote our research and in delivering social, cultural and economic benefits.

6.2 To exploit the potential of the University's research so as to generate resources for the Institution and to offer solutions to real-world problems. Priority will be given to research that has a direct benefit to Kuwait.

6.3 To promote the impact and value of our research and to generate public understanding and awareness of the University as well as its contribution to society.

3.4. Research Priorities/Themes

At KCST, we encourage the faculty to conduct research in certain Research themes or clusters that are aligned with our strategic plan; and are aligned with the national research priorities adopted by the Kuwait Foundation for the Advancement of Sciences (KFAS). KFAS provides grants for research projects in seven key domains of knowledge. These domains are:

Figure 9 KFAS National Research Priorities

[1] https://www.kfas.org/what-we-offer/scientific-research/research-grants

3.5. Key Research Performance Indicators (2016-2022) – Scival (Scopus)

The data in this section was retrieved from SciVal (Scopus), including key metrics of the overall performance of the scholarly output affiliated with Kuwait College of Science and Technology for the period 2016 to 2022.

These metrics are useful for 1) Benchmarking the visibility of entities of similar size and that fall into similar disciplines, such as multidisciplinary institutions with a similar number of research staff or international collaboration networks in similar disciplines, and 2) Providing impressive figures to showcase the performance of entities that are large in comparison to a group of peers when this metric is likely to give high numbers.

The core of SciVal is based on output and usage data from Scopus, a source-neutral abstract and citation database curated by independent subject matter experts. SciVal uses Scopus data from 1996 to the current date, which covers over 60 million records. SciVal receives a weekly update of new data from Scopus, and due to processing times, this means SciVal is typically 1-2 weeks behind Scopus. The Scopus database covers over 85 million publications.

Some diagrams in the section show some years as "incomplete years": the dotted lines for (line charts) and striped bars (for bar charts) to emphasize that the data for the year isn't complete. The likelihood of additional publications being added to the incomplete years is high. Therefore, metrics for those years will likely fluctuate over the course of the year than for the complete years. In May/June, the publication completeness in Scopus for the previous year was at around 95%.

Key indicator/metric	Kuwait Collage of Science and Technology for the period 2016 to 2022
Scholarly output	634
Outputs in Top Citation Percentiles	125 (19.7%) number of publications in the top 10% most cited publications worldwide
Publications in Top 10% Citation Percentiles	107 (19.0%) number of publications in the top 10% journals by CiteScore
Citation Count	3755
Citation per Publication	5.9
Field-Weighted Citation Impact	1.87
h5-index	17
Authors [3]	103

[2] https://www.scival.com/

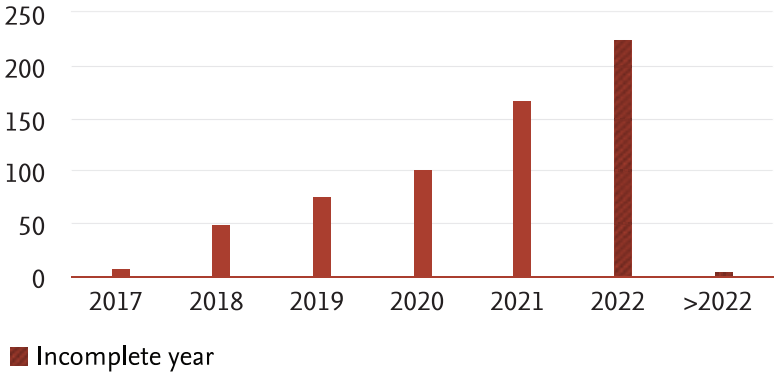
[3] all authors affiliated by the college since 2016 up to November 7, 2022, and some may no longer be affiliated (former faculty members)

3.5.1. Scholarly output

The Scholarly output refers to the number of publications the college has indexed in Scopus. This metric is useful for benchmarking the scholarly output of entities that are similar in size and that fall within similar fields of research, such as Institutions with a similar number of research staff or Researchers in the same field of research and with similar career lengths. Also another way of measuring the output performance is using the publications to authors ratio; that is a total number of scholarly output divided by the total number of authors.

Scholarly Output 2016-2022

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022



634

number of publications by authors at the Kuwait College of Science and Technology

3.5.2. Outputs in Top Citation Percentiles

Publications in Top Journal Percentiles in SciVal indicates the extent to which an entity's publications are present in the most-cited journals in the data universe: how many publications are in the top %10 ,%5 ,%1 or %25 of the most-cited journals indexed by Scopus?

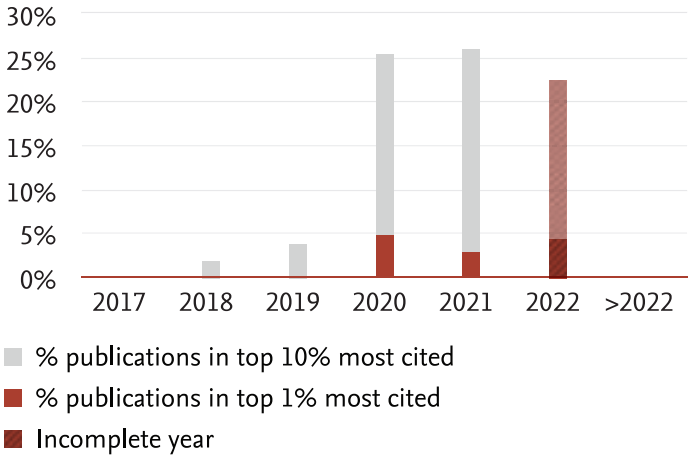
The most-cited journals are defined by the journal metrics CiteScore, SNIP (Source-Normalized Impact per Paper) or SJR (SCImago Journal Rank). This means that the data universe is the set of items indexed by Scopus that have a journal metric and so can be organized into percentiles; this excludes publications in stand-alone books and trade publications, which do not have journal metrics.

Outputs in Top 10% Citation Percentiles (field-weighted)

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

Share of publications at the Kuwait College of Science and Technology that are among the most cited publications worldwide

field-weighted



125 (19.7%)

number of publications in the top 10% most cited publications worldwide

KCST publications have reached 125 (19.7%) in the top 10% of journals by CiteScore.

3.5.3. Publications in Top 10% Citation Percentiles (field-weighted)

Outputs in Top Citation Percentiles indicate the extent to which an entity's publications are present in the most-cited percentiles of a data universe: how many publications are in the top 1%, 5%, 10% or 25% of the most-cited publications?

The entire Scopus database, or "World", is the data universe used to generate this metric:

- The metric is calculated in Scopus per Publication Year. Sometimes the citation threshold at, for example, the 10% boundary, has been received by more than 10% of publications; in this case, all of the publications that have received this number of citations are counted within the top 10% of the Scopus data universe, even though that represents more than 10% by volume.

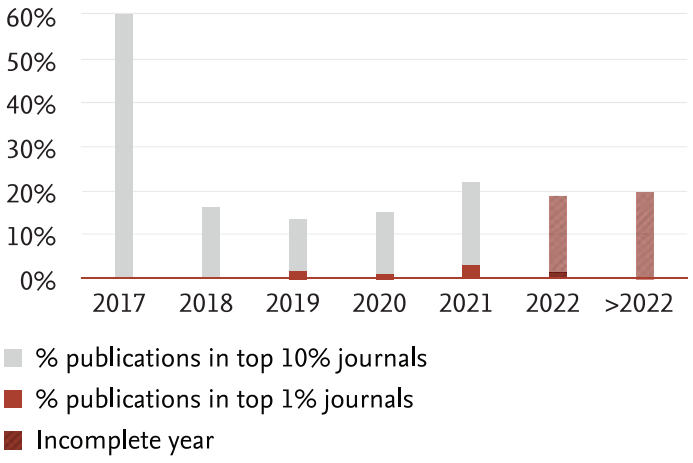
- The citation thresholds are updated weekly with each new snapshot of Scopus data. For each year, the global publications are extracted from Scopus and ordered from highest to lowest citation. The publications are then split into 100 even percentiles, and the citation thresholds are noted.

- SciVal uses these citation thresholds to calculate the number of an entity's publications that fall within each percentile range.

Publications in Top Journal Percentiles by CiteScore Percentile

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

Share of publications at the Kuwait College of Science and Technology that are in the top journals by CiteScore Percentile



107 (19.0%)

number of publications in the top 10% journals by CiteScore

3.5.4. Publications per Journal Quartile by CiteScore

In this metric, we considered all the KCST publications in the range (2016-2022) and the journals in which they are published. From the journals, we can determine in which "quartiles" the publications belong. This metric is calculated for the publications that have journal metrics.

More than 50% of the KCST publication were published in Q1.

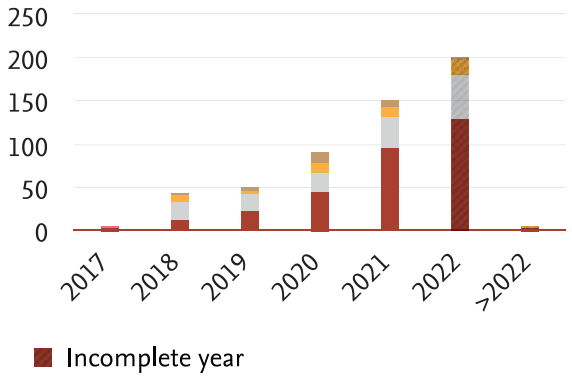
57.5% of publications in Q1 (top 25%) and 84.9% of publications in Q1-Q2 (26%-50%) Journals.

[4] CiteScore is a simple way of measuring the citation impact of serial titles such as journals. Serial titles are defined as titles which publish on a regular basis (i.e. one or more volumes per year). Calculating the CiteScore is based on the number of citations to documents (articles, reviews, conference papers, book chapters, and data papers) by a journal over four years, divided by the number of the same document types indexed in Scopus and published in those same four years.

Publications by Journal quartile

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

Share of publications per Journal quartile by CiteScore Percentile

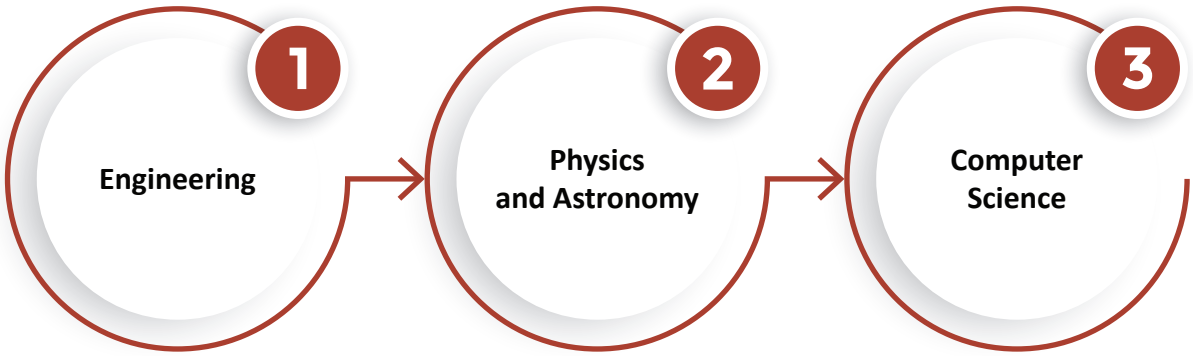


Quartiles	Publications	Publication share (%)
Q1 (top 25%)	315	57.5
Q2 (26% - 50%)	150	27.4
Q3 (51% - 75%)	54	9.9
Q4 (76% - 100%)	29	5.3

Cumulative shares	Publications	Publication share (%)
Q1 to Q2 (top 50%)	465	84.9
Q1 to Q2 (top 75%)	519	94.7

3.5.5. Publications by Subject Area

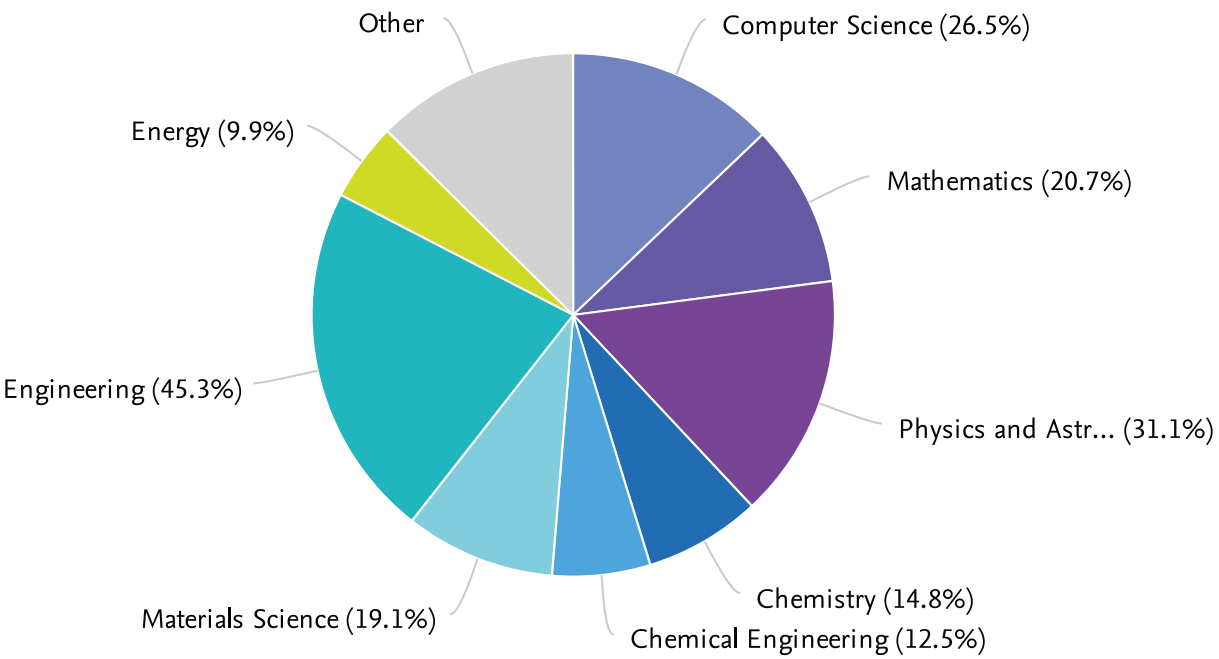
The publications of the KCST from 2016 up to 2022 were on different subjects. The Top three subjects areas:



(45.3%) of the KCST publications in **Engineering**, (31.1%) of the KCST publications in **Physics and Astronomy**, and (26.5%) of the KCST publications in **Computer Science**.

Publication share by Subject Area

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

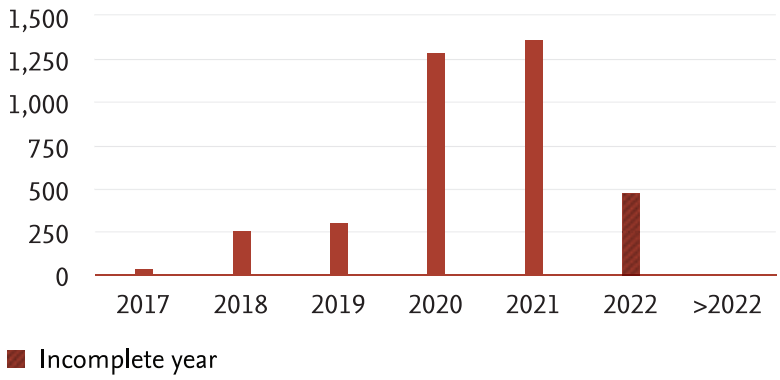


3.5.6. Citation Count

Citation Count in SciVal indicates the total citation impact of an entity: how many citations have this entity's publications received? SciVal often displays Citation Count in a chart or table with years. These years are always the years in which items were published and do not refer to the years in which citations were received.

Citation Count

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022



3,755

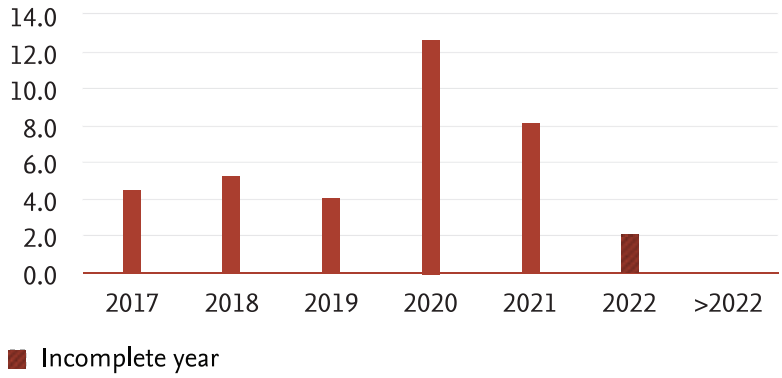
number of citations received by publications at the Kuwait College of Science and Technology

3.5.7. Citations per publication

Citations per Publication in SciVal indicates the average citation impact of each of an entity's publications: how many citations have this entity's publications received on average? SciVal often displays Citations per Publication in a chart or table with years. These years are always the years in which items were published and do not refer to the years in which citations were received. This metric is useful for 1) Benchmark the average citation impact of publications within a body of work 2) Comparing the average influence of publications of entities of different sizes, but in related disciplines, such as research teams working in a similar field of research, or a Researcher and Publication Sets belonging to that Researcher.

Citations per Publication

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022



5.9

average number of citations per publication at the Kuwait College of Science and Technology

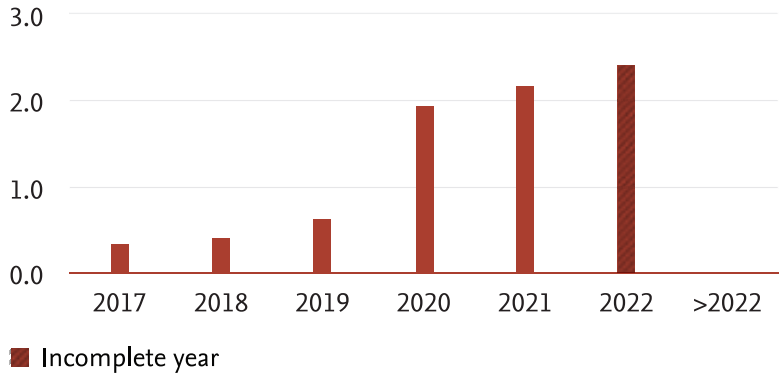
3.5.8. Field-Weighted Citation Impact

Field-Weighted Citation Impact (FWCI) in SciVal indicates how the number of citations received by an entity's publications compares with the average number of citations received by all other similar publications in the data universe: how do the citations received by this entity's publications compare with the world average?

- An FWCI of 1.00 indicates that the entity's publications have been cited exactly as would be expected based on the global average for similar publications; the FWCI of "World", or the entire Scopus database, is 1.00.
- An FWCI of more than 1.00 indicates above the global average for similar publications; for example, 2.11 means 111% more than the world average.
- An FWCI of less than 1.00 indicates below the global average for similar publications; for example, 0.87 means 13% less than the world average.

Field-Weighted Citation Impact

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022



1.87

Field-Weighted Citation Impact of the Kuwait College of Science and Technology

3.5.9. Collaboration

Collaboration in SciVal indicates the extent to which an entity's publications have international, national, or institutional co-authorship and single authorship. This number is a count unless the percentage symbol (%) is visible. Each publication is assigned to 1 of 4 mutually exclusive collaboration types based on its affiliation information: international, national, institutional, or single authorship. The metric was built in collaboration with the Swedish Foundation for International Cooperation in Research and Higher Education (STINT).

Academic-Corporate Collaboration in SciVal indicates the degree of collaboration between academic and corporate affiliations: to what extent are this entity's publications co-authored across the academic and corporate or industrial sectors? A publication either exhibits academic-corporate collaboration or does not. This assignment is made based on the sector assigned to the Institution in SciVal. This metric calculates the Citations per Publication for collaborative and non-collaborative papers.

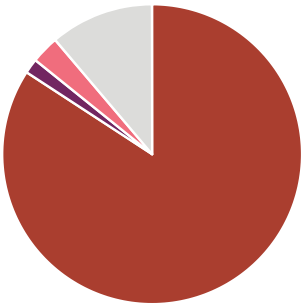
KCST Collaboration 2016-2022

Kuwait College of Science and Technology 2017 to >2022

Collaboration

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

Scholarly Output at the Kuwait College of Science and Technology, by amount of international, national and institutional collaboration



Metric		Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact
International collaboration	84.2%	534	3,414	6.4	2.11
Only national collaboration	1.6%	10	157	15.7	2.33
Only institutional collaboration	3.0%	19	56	2.9	0.72
Single authorship (no collaboration)	11.2%	71	128	1.8	0.28

Academic-Corporate Collaboration

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

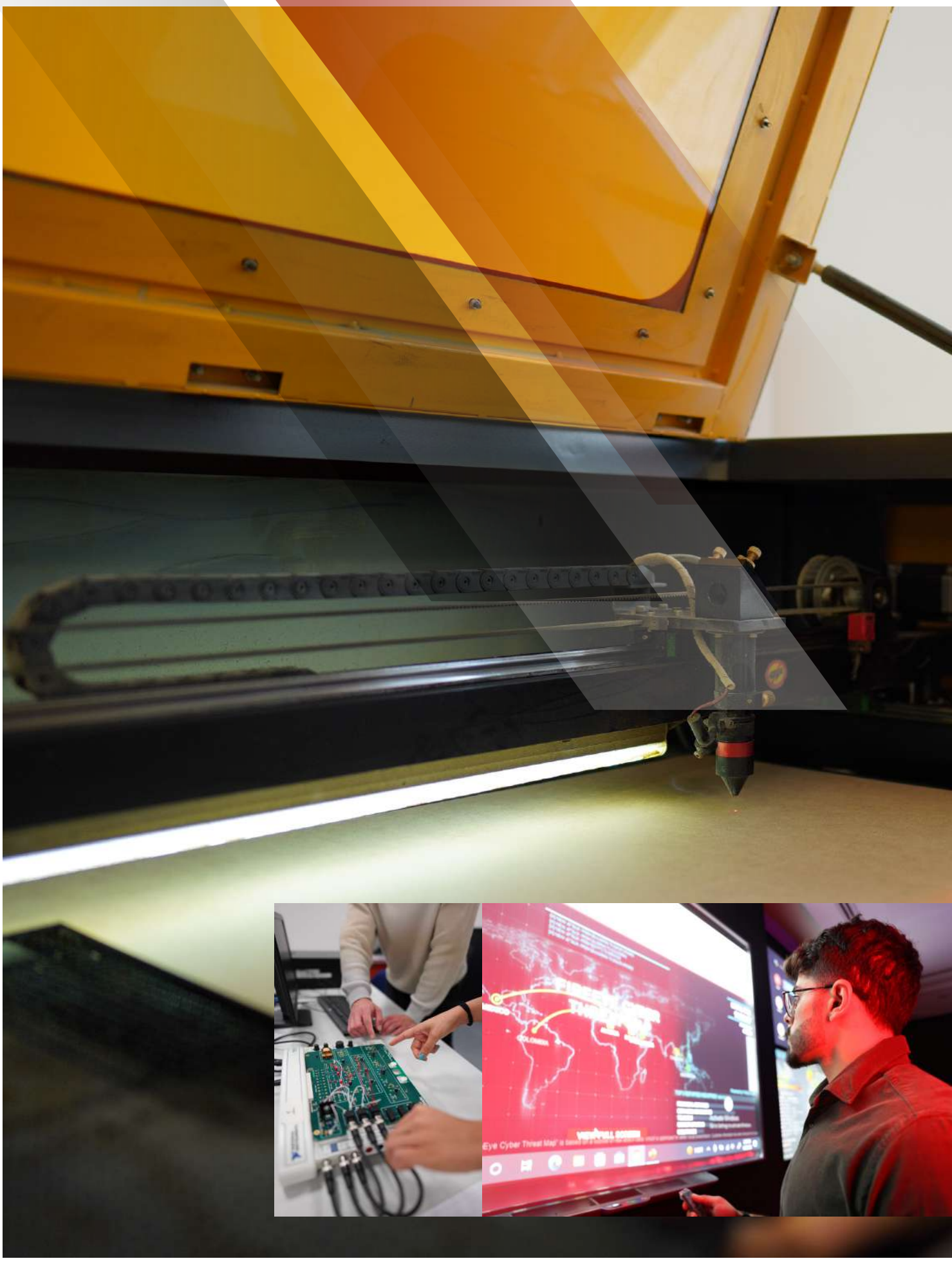
Scholarly Output at the Kuwait College of Science and Technology with both academic and corporate author affiliations

Metric		Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact
Academic-corporate collaboration	0.8%	5	12	2.4	0.64
No academic-corporate collaboration	99.2%	629	3,743	6.0	1.88

Top collaborating Institutions

Entity: Kuwait College of Science and Technology · Year range: 2017 to 2023 · Data source: Scopus, up to 02 Nov 2022

	Institution	Co-authored publications ↓	Citations received for co-authored publications	Co-authors	Field-Weighted Citation Impact
1	Alexandria University	48 ▲	240	41 ▲	0.49
2	Kuwait University	38 ▲	193	15 ▲	1.05
3	Texas A&M University	36 ▲	448	16 ▲	2.22
4	Texas A&M University at Qatar	36 ▲	448	14 ▲	2.22
5	Anna University	32 ▲	128	39 ▲	1.54
6	Utah State University	26 ▲	121	5 ▲	0.46
7	Osaka University	21 ▲	78	1 ▲	2.35
8	University of Monastir	20 ▲	143	12 ▲	2.26
9	King Abdulaziz University	19 ▲	204	8 ▲	3.00
10	China Medical University Taichung	16 ▲	177	6 ▲	3.05



4 Universities Ranking and Research Benchmarking

4. Universities Ranking and Research Benchmarking

Universities Ranking entities (THE, QS, AD) have different inclusion criteria and different calculation methodologies. Thus the overall results are different based on the diverse outcomes from the industrial questionnaires, published research, Google Scholar profiles along with H index.

We believe that each university's Ranking has its own pros and cons. Therefore, we shall consider all other factors concerning the quality of higher education and the research output.

Compared to other local universities, KCST has excelled in published research during the last few years. We have looked at all data from different resources and considered the data retrieved from Scopus to do the analysis benchmarking.

We are very proud of the position that we have reached in terms of the quantity and quality of the research by our faculty members.

4.2. Universities Ranking Indices and KCST-related positioning

4.2.1. Times Higher Education World University Ranking

The "THE World University Rankings" provide the definitive list of the world's best universities, with an emphasis on the research mission. It is the only global university league table to judge research-intensive universities across all of their core missions: teaching (the learning environment); research (volume, income and reputation); citations (research influence); industry income (knowledge transfer) and international outlook (staff, students and research). It uses 13 carefully calibrated performance indicators to provide the most comprehensive and balanced comparisons. The overall list is accompanied by 11 subject-specific rankings.

Inclusion Criteria

A team of data experts evaluates world-class universities against 13 separate performance indicators, covering the full range of a top university's essential areas of activity: teaching, research, knowledge transfer and international outlook.

- Teaches at the undergraduate level
- At least 1,000 relevant publications in the past five years and 150 each year
- Less than 80 per cent research in one single subject

Calculation Methodology

30% Teaching (the learning environment):

- Reputation survey: 15%
- Staff-to-student ratio: 4.5%
- Doctorate-to-bachelor's ratio: 2.25%
- Doctorates-awarded-to-academic-staff ratio: 6%
- Institutional income: 2.25%

30% Research (volume, income and reputation):

- Reputation survey: 18%
- Research income: 6%
- Research productivity: 6%

30% Citations (research influence)

- international outlook (staff, students, research): 7.5%
- Proportion of international students: 2.5%
- Proportion of international staff: 2.5%
- international collaboration: 2.5%

2.5% Industry income (knowledge transfer)

Eligibility of KCST to apply

We are not eligible to apply at the moment due to the size of the published research. We are working toward meeting this goal in the near future (1000 published research).

4.2.3. QS World University Ranking

Institutions are assessed across six categories (or indicators) to effectively capture university performance – including academic and employer reputation, faculty/student ratio and research citations. This assessment is done through surveys.

Inclusion Criteria

For QS World University Rankings and QS Rankings by Region, the institution must provide full degree programs* in at least two out of five broad subject categories. Further, in each broad faculty area, full-degree programs* should be offered at least in two narrow subjects.
There must have been at least three graduating classes in those narrow subjects before eligibility is conferred. Where an institution only provides degree programs in one broad faculty area, we consider this a single-faculty institution. Such institutions may appear only in our Rankings by Subject and/or Graduate Employability Rankings.

Please find more details https://www.topuniversities.com/subject-rankings/

For QS World University Rankings and QS Rankings by Region, the institution must provide full degree programs* at both undergraduate (Bachelor's or equivalent) and postgraduate (Master's, PhD or equivalent) levels.

There must have been at least three graduating classes at both levels before eligibility is conferred. Where an institution only provides degrees at either undergraduate or postgraduate, it is classified as a single-level institution. Such institutions may appear only in our rankings by subject or Graduate Employability Rankings.

Calculation Methodology

- 40% Academic Reputation
- 10% Employer Reputation
- 20% Faculty Student Ratio
- 20% Citations per Faculty
- 5% International Faculty Ratio
- 5% International Student Ratio
- International Research Network 0% (for 2023 edition)
- Employment Outcomes 0% (for 2023 edition)

Eligibility of KCST to apply

KCST is not eligible to apply now. KCST doesn't meet all the inclusion criteria. It is expected that at least 4-5 years from the establishment of the college of business.

4.2.4. AD Scientific University Ranking

This new index has been developed by Prof. Dr. Murat ALPER (MD) and Associate Prof. Dr. Cihan DÖĞER (MD) by using the total and last 5 years' values of the i10 index, h-index, and citation scores in Google Scholar. In addition, the ratio of the last 5 years' value to the total value of the abovementioned indexes is used. Using a total of nine parameters, the "AD Scientific Index" shows the ranking of an individual scientist by 11 subjects, 256 branches, 19,300 institutions, 216 countries, 10 regions (Africa, Asia, Europe, North America, Oceania, Arab League, EECA, BRICS, Latin America and COMESA) and in the world.

Inclusion Criteria

Academicians shall have a Google Scholar profile, and this profile must be set to PUBLIC. Updates and new rankings will be available through the current list of profiles and the pool of academicians that will expand along with new subscriptions. Importantly, one should remember that taking 300 citations as the lower limit for inclusion in the index brings up the potential of exclusion because of variations across different H-index values.

Calculation Methodology

AD Scientific Index performs rankings using a single parameter, which is the number of "Valued and Productive Scientists" staffed by a specific university. Selected after years of observation, this parameter is calculated using the total H-index and i10-index values together with the number of citations and the last 5 years' total H-index and i10-index values along with the number of citations received over the last 5 years. A careful examination will reveal that most of the other parameters are representations of natural academic products of "Valued and Productive Scientists." Institutions that employ a high number of "Valued and Productive Scientists", for example, scientists in the first Top 2%, Top 10%, Top 20%, Top 40%, top 60% and top 80% and later ranks, respectively, will naturally produce increased numbers of academic outputs listed as the parameters above.

KCST's ranking according to AD Scientific Ranking

We have examined the ranking data for the universities in Kuwait presented on the AD Scientific website, and we came up with the following ranking based on different sub-categories set by AD Scientific.

KCST has been ranked in the 1st place, followed by KU and KISR in the overall category. In addition, KCST also has been ranked in the 1st place along with KISR and followed by KU in the last 5 years category.

When excluding KISR, KCST has been ranked in the 1st place, followed by KU in the 2nd place, and GUST in the 3rd place in the category of the overall ranking. In addition, KCST also has been ranked in the 1st place, followed by GUST in the 2nd place, then KU in the 3rd place in the last 5 years category.

Kuwait Universities Rankings 2023[5] **-** According to AD Scientific Index

Ranking According to	KU	KCST	KISR	GUST	AUM	ACK(AU)	PAAET	AIU	AUK	AOU
Total H index	1	2	3	4	5	6	7	8	9	12
Last 5 years H index	4	2	1	3	5	6	7	8	9	12
Total i10 index	1	2	3	4	5	6	7	9	8	11
Last 5 years i10 index	3	2	1	4	5	6	7	10	8	11
Citations	1	2	4	5	7	3	6	9	8	10
Last 5 years Citations	5	1	3	4	7	2	6	9	8	11
	15	11	15	24	34	29	40	53	50	67
Average position	**2.5**	**1.83**	**2.5**	**4**	**5.67**	**4.83**	**6.67**	**8.83**	**8.33**	**11.17**
OVERALL RANKING	**2**	**1**	**2**	**4**	**6**	**5**	**7**	**9**	**8**	**10**
LAST 5 Years	12	5	5	11	17	14	20	27	25	34
AVERAGE POSTION	4	1.67	1.67	3.67	5.67	4.67	6.67	9	8.33	11.33
LAST 5 YEARS RANKING	3	1	1	4	6	5	7	9	8	10

Kuwait Universities Rankings 2023 - According to AD Scientific Index

Excluding KISR

Ranking According to	KU	KCST	GUST	AUM	AU	PAAET	AIU	AUK	AOU
Total H index	1	2	3	4	5	6	7	8	11

[5] https://www.adscientificindex.com/

Ranking According to	KU	KCST	GUST	AUM	AU	PAAET	AIU	AUK	AOU
Last 5 years' H index	3	1	2	4	5	6	7	8	11
Total i10 index	1	2	3	4	5	6	8	7	10
Last 5 years i10 index	2	1	3	4	5	6	9	7	10
Citations	1	2	4	6	3	5	9	7	9
Last 5 years' Citations	4	1	3	6	2	5	8	7	10
	12	9	18	28	25	34	48	44	61
Average position	2.00	1.50	3.00	4.67	4.17	5.67	8.00	7.33	10.17
OVERALL RANKING	**2**	**1**	**3**	**5**	**4**	**6**	**8**	**7**	**9**
LAST 5 Years	9	3	8	14	12	17	24	22	31
Average position	3.00	1.00	2.67	4.67	4.00	5.67	8.00	7.33	10.33
LAST 5 YEARS RANKING	**3**	**1**	**2**	**5**	**4**	**6**	**8**	**7**	**9**

4.3. Research Productivity Analysis and Benchmarking

4.3.1. Local benchmarking-Kuwait – according to Scopus

Research Productivity Ratio

Private Universities Kuwait	Year started	#Years	#Articles	#Authors	Research Productivity		
					Article/Author*	Article/Year	Art/Auth/Year**
American University of Kuwait	2004	18	504	217	**2.32**	28.00	**0.13**
American University of Middle East	2005	17	1799	589	**3.05**	105.82	**0.18**
Gulf University of Science and Technology	2002	20	1053	188	**5.60**	52.65	**0.28**
Australian College/University	2004	18	585	143	**4.09**	32.50	**0.23**
Arab Open University	2002	20	560	216	**2.59**	28.00	**0.13**
Kuwait College of Science and Technology	2016	6	630	82	**7.68**	105.00	**1.28**

**number of articles to a number of authors*
***number of articles to a number of authors per year*

The above Research Data has been retrieved from Scopus, the largest database for published research in scientific journals, for all local universities in Kuwait. Research productivity ratios have been calculated for all universities considered the year of establishment. The following diagrams present the result of the research productivity ratios, where KCST has scored the highest ratios in both the Article/Author ratio and Article/Author/ Year Index.

[6] www.scopus.com
www.scival.com

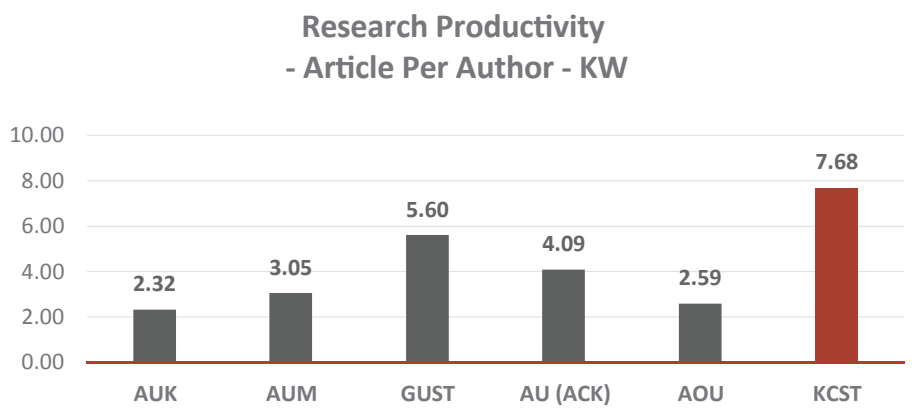


Figure 10 Research Productivity- Article/Authors - Kuwait

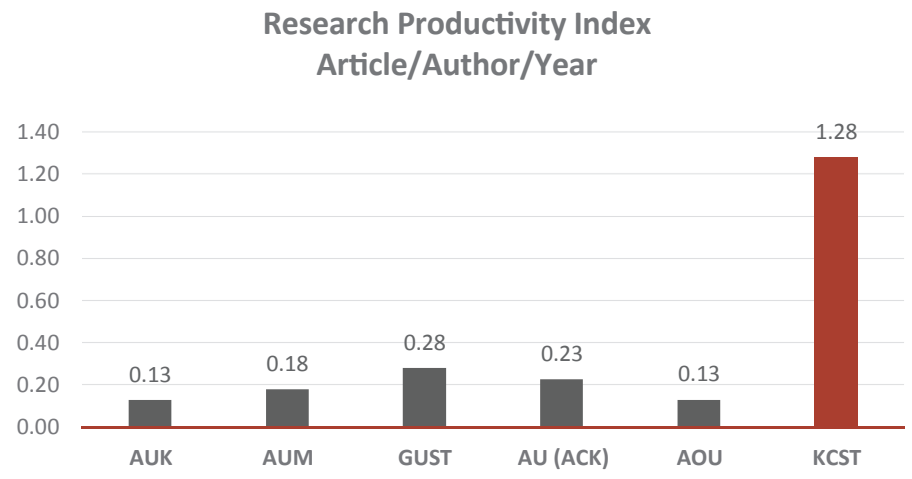


Figure 11 Research Productivity Index- Article/Author/Year - Kuwait

Moreover, another research quality indictor analysis has been done across all local universities in terms of the number of published research in Q Journals. The below data was retrieved from Scopus on October 20, 2022, for all the local private universities in Kuwait.

Research Quality Indicators

Private Universities Kuwait	Year started	Quality indicator (% Publications by Journal quartile)	
		Q1 (top 25%)	Q1 to Q2 (top50%)
American University of Kuwait	2004	**36.9**	**64.6**
American University of Middle East	2005	**54.9**	**79.8**
Gulf University of Science and Technology	2002	**54.8**	**81.1**
Australian College/University	2004	**56.3**	**80.5**
Arab Open University	2002	**28.4**	**51.6**
Kuwait College of Science and Technology	2016	**57.5**	**84.9**

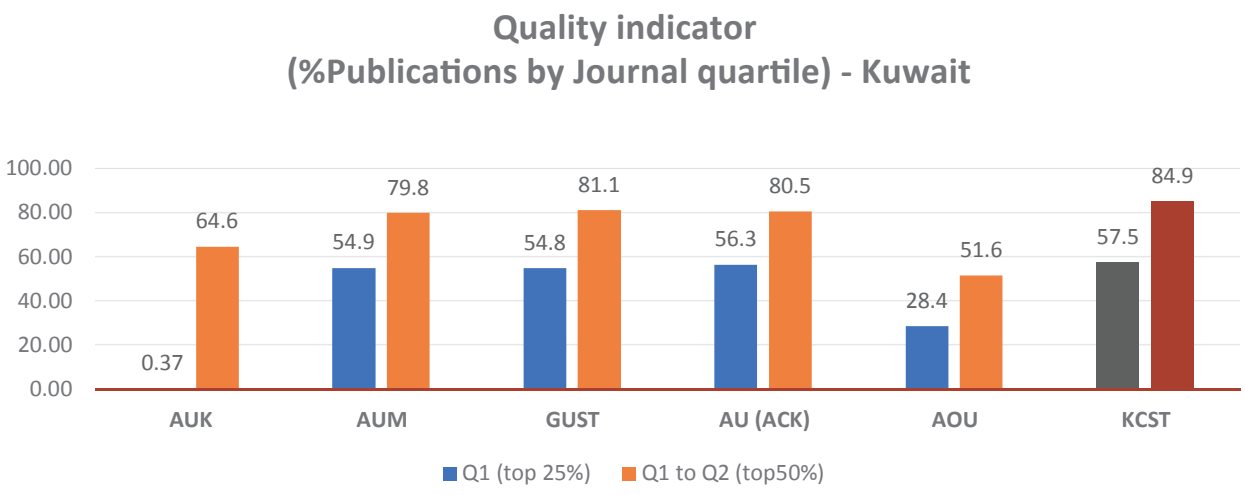


Figure 12 Quality Indicator - % publications in Q Journals - Kuwait

4.3.2. Regional benchmarking – according to Scopus

Moreover, another benchmarking analysis for KCST with regional key universities, where the same research productivity ratios and quality indicator indicators have been calculated. The below data was retrieved from Scopus on October 20, 2022.

REGIONAL BENCHMARKING		Year started		Overall Numbers		Research Productivity	
University - Middle East	Country		#Years	#Articles	#Authors	Article/Author*	Art/Auth/Year**
Kuwait University	Kuwait	1966	56	21964	5795	3.79	N/A
King Abdullah University of Science and Technology	Saudi Arabia	2006	16	24506	4025	6.09	0.38
American University of Beirut	Lebanon	1866	156	24726	5554	4.45	N/A
Jordan University of Science and Technology	Jordan	1986	36	15914	5421	2.94	N/A
Khalifa University	UAE	2007	15	16380	3003	5.45	0.36
Qatar University	Qatar	1973	49	19967	3900	5.12	N/A
Kuwait College of Science and Technology	Kuwait	2016	6	630	82	7.68	1.28

**number of articles to number of authors*

***the number of articles to the number of authors per year; this ratio has been calculated only for universities established after the year 2000. Other universities have been excluded*

The above Research Data has been retrieved from Scopus, the largest database for published research in scientific journals, for all the regional universities mentioned in the table (Kuwait University, King Abdullah University of Science and Technology, American University of Beirut, Jordan University of Science and Technology, Khalifa University, Qatar University) along with KCST. Research productivity ratio – Article per Author has been calculated for all the universities considered in the year of establishment and presented in the following diagram.

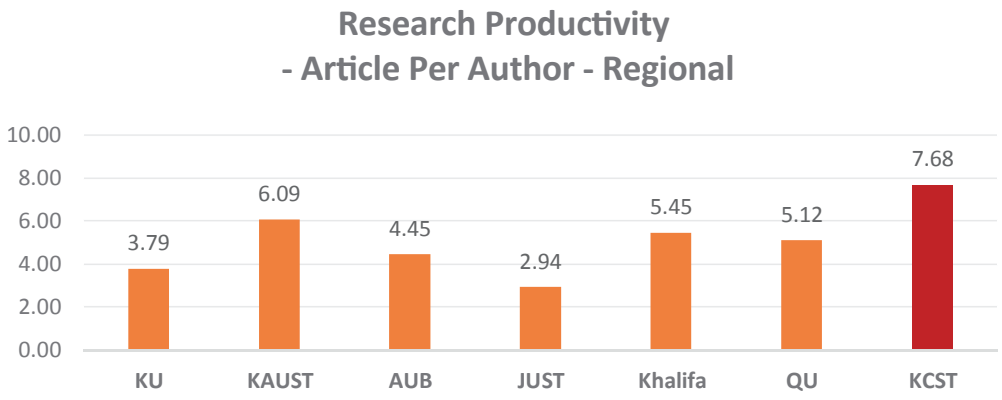


Figure 13 Research Productivity - Article Per Author Ratio – Regional

Moreover, the Article/Author/ Year Index has been calculated for the universities established after the year 2000 and presented in the following diagram:

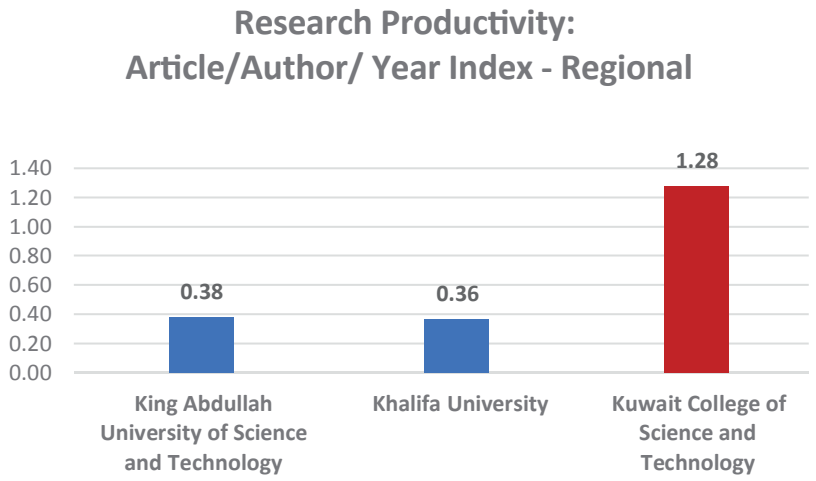


Figure 14 Research Productivity: Article/Author/ Year Index - Regional

KCST's research productivity index is 1.28, whereas King Abdullah University Science and Technology's index is 0.38, and Khalifa University's index is 0.36.

In addition, a research quality indictor analysis has been done across all mentioned regional universities in terms of the number of published research in Q Journals. The below data was retrieved from Scopus on October 20, 2022.

REGIONAL BENCHMARKING		Year started	Quality indicator (Publications by Journal quartile)	
University - Middle East	Country		Q1 (top %25)	Q1 to Q2 (top%50)
Kuwait University	Kuwait	1966	48.7	76
King Abdullah University of Science and Technology	Saudi Arabia	2006	79.2	93.4
American University of Beirut	Lebanon	1866	54.6	81.6
Jordan University of Science and Technology	Jordan	1986	40.8	76.8
Khalifa University	UAE	2007	65.9	87.4
Qatar University	Qatar	1973	60.7	85.6
Kuwait College of Science and Technology	Kuwait	2016	57.5	84.9

KCST's share of publications in Q1 and Q2 Journals is very good compared with other regional universities.

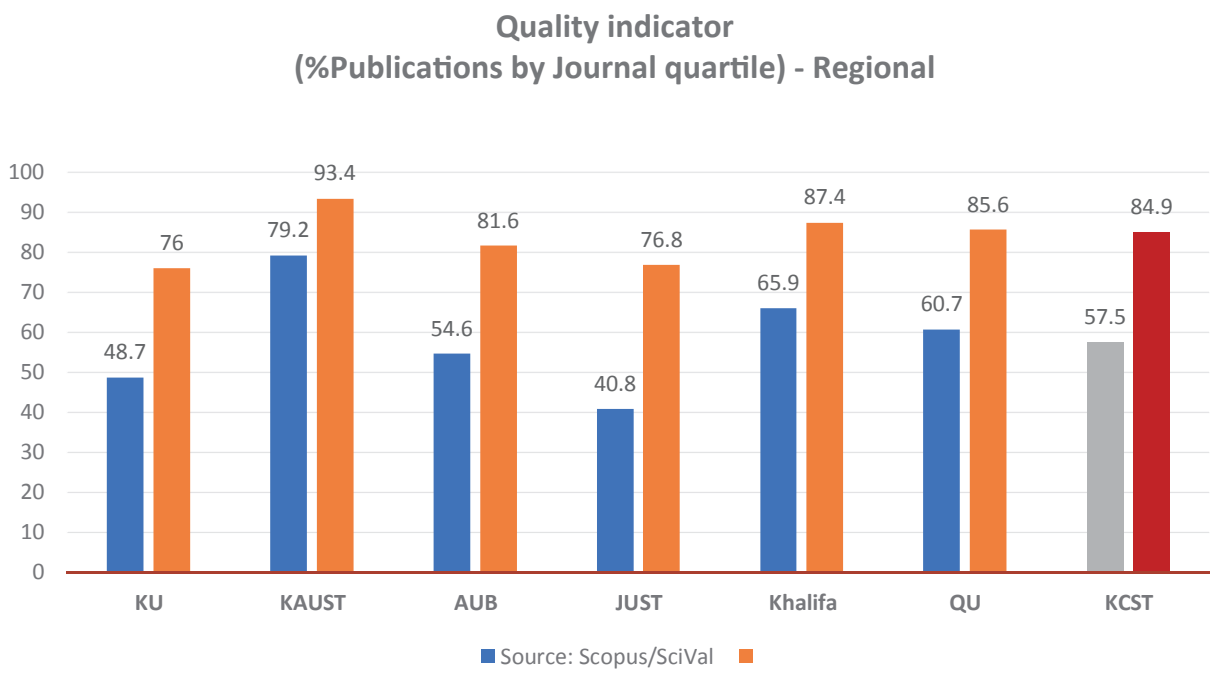


Figure 15 Quality indicator (%Publications by Journal quartile) - Regional

5 Research Output for the Academic Year (2021/2022)

Robotics
BONATONE

5.1. Published Papers in Scientific Journals

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
1	Non-Newtonian phase change study of nano-enhanced n-octadecane comprising mesoporous silica in a porous medium	Mehryan, S.A.M.| Ghalambaz, M.| Vaezi, M.| Zadeh, S.M.H.| Sedaghatizadeh, N.| Younis, O.| Chamkha, A.J.| Abulkhair, H.	2021-09-01	Applied Mathematical Modelling	7	10.1016/ j.apm.2021.03.029	Article
2	Transient nanofluid flow and energy dissipation from wavy surface using magnetic field and two rotating cylinders	Alsabery, A.I.| Ismael, M.A.| Gedik, E.| Chamkha, A.J.| Hashim, I.	2021-09-01	Computers and Mathematics with Applications	6	10.1016/ j.camwa.2021.05.030	Article
3	Convective stability of a permeable nanofluid inside a horizontal conduit: Fast chemical reactions	Umavathi, J.C.| Chamkha, A.J.	2021-09-01	Mathematics and Computers in Simulation	1	10.1016/ j.matcom.2021.02.016	Article
4	Transient nanofluid flow and energy dissipation from wavy surface using magnetic field and two rotating cylinders	Raj, A.N.J.| Murugappan, M.| Arunachalam	2021-09-02	Journal of Engineering Research (Kuwait)	0	10.36909/ jer.v9i3A.9167	Article
5	Radiative MHD flow of Casson hybrid nanofluid over an infinite exponentially accelerated vertical porous surface	Krishna, M.V.| Ahammad, N.A.| Chamkha, A.J.	2021-10-01	Case Studies in Thermal Engineering	38	10.1016/ j.csite.2021.101229	Article
6	Effect of surface waviness on MHD thermo-gravitational convection of Cu-Al2O3-water hybrid nanofluid in a porous oblique enclosure	Biswas, N.| Manna, N.K.| Chamkha, A.J.| Mandal, D.K.	2021-10-01	Physica Scripta	29	10.1088/ 1402-4896/ac0f94	Article
7	Natural convection and entropy generation of a nanoliquid in a crown wavy cavity: Effect of thermo-physical parameters and cavity shape	Dogonchi, A.S.| Sadeghi, M.S.| Ghodrat, M.| Chamkha, A.J.| Elmasry, Y.| Alsulami, R.	2021-10-01	Case Studies in Thermal Engineering	17	10.1016/ j.csite.2021.101208	Article
8	Thermal and entropy analyses on buoyancy-driven flow of nanofluid inside a porous enclosure with two square cylinders: Finite element method	Dogonchi, A.S.| Mishra, S.R.| Chamkha, A.J.| Ghodrat, M.| Elmasry, Y.| Alhumade, H.	2021-10-01	Case Studies in Thermal Engineering	11	10.1016/ j.csite.2021.101298	Article

[8]Data Source: Scopus, retrieved through SciVal on September 2022 ,20

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
9	Recurrent Quantification Analysis-Based Emotion Classification in Stroke Using Electroencephalogram Signals	Murugappan, M.| Zheng, B.S.| Khairunizam, W.	2021-10-01	Arabian Journal for Science and Engineering	2	10.1007/ s13369-021-05369-1	Article
10	Prototype of new efficient system to extremely reduce banks losses	Mahdavi, M.| Sharifpur, M.| Aybar, H.S.| Chamkha, A.J.| Meyer, J.P.	2021-10-01	International Journal of Heat and Mass Transfer	2	10.1016/j.ijheatmasstransfer.2021.121551	Article
11	Impact of micro-fins on a heated cylinder submerged in a nanofluid saturated medium	Mahdavi, M.| Sharifpur, M.| Aybar, H.S.| Chamkha, A.J.| Meyer, J.P.	2021-10-01	International Journal of Heat and Mass Transfer	2	10.1016/ j.ijheatmasstransfer. 2021.121551	Article
12	Mixed convective transport in inclined porous open arc-shaped enclosures saturated by nanofluids using a second-order Boussinesq approximation	Ahmed, S.E.| Raizah, Z.A.S.| Chamkha, A.	2021-10-01	Case Studies in Thermal Engineering	1	10.1016/ j.csite.2021.101295	Article
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66	Thermal optimisation through multilayer convective flow of CuO- MWCNT hybrid nanofluid in a composite porous annulus	Anandika, R.| Puneeth, V.| Manjunatha, S.| Chamkha, A.J.	2022-01-01	International Journal of Ambient Energy	1	10.1080/01430750.2021.2023044	Article
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94	Numerical Investigation of Perovskite and u-CIGS Based Tandem Solar Cells Using Silvaco TCAD Simulation	Boukortt, N.E.I.| Patanè, S.| AlAmri, A.M.| AlAjmi, D.| Bulayyan, K.| AlMutairi, N.	2022-01-01	Silicon	0	10.1007/ s12633-022-01960-9	Article
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96	Hydrothermal features in the swirling flow of radiated graphene–Fe3O4 hybrid nanofluids through a rotating cylinder with exponential space-dependent heat generation	Gangadhar, K.| Mary Victoria, E.| Chamkha, A.J.	2022-01-01	Waves in Random and Complex Media	0	10.1080/ 17455030.2022.2100004	Article

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97	IoT-Enabled Framework for Early Detection and Prediction of COVID-19 Suspects by Leveraging Machine Learning in Cloud	Mir, M.H.| Jamwal, S.| Mehbodniya, A.| Garg, T.| Iqbal, U.| Samori, I.A.	2022-01-01	Journal of Healthcare Engineering	000	10.1155/2022/7713939	Article
98	Enhanced Deadbeat Control Approach for Grid-Tied Multilevel Flying Capacitors Inverter	Trabelsi, M.| Ben-Brahim, L.| Gastli, A.| Abu-Rub, H.	2022-01-01	IEEE Access	000	10.1109/ACCESS.2022.3149289	Article
99	An extended eigenvalue-free interval for the eccentricity matrix of threshold graphs	Anđelić, M.| Fonseca, C.M.| Koledin, T.| Stanić, Z.	2022-01-01	Journal of Applied Mathematics and Computing	000	10.1007/s12190-022-01758-3	Article
100	Regulation of Frequency in Multi-Source Two Area Power System with TCSC	Pandalaneni, N.D.V.P.| Mehbodniya, A.| Srinivas, C.| Kumar, B.P.| Ramanarayana, V.| Amarrendra, K.	2022-01-01	Proceedings - 4th International Conference on Smart Systems and Inventive Technology, ICSSIT 2022	000	10.1109/ICSSIT53264.2022.9716491	Conference Paper
101	Automatic Liver Tumor Segmentation in CT Modalities Using MAT-ACM	Priyadarsini, S.| Romero, C.A.T.| Mehbodniya, A.| Sagar, P.V.| Sengan, S.	2022-01-01	Computer Systems Science and Engineering	000	10.32604/csse.2022.024788	Article
102	Accelerating University Admission System using Machine Learning Techniques	Alothman, B.| Alazmi, H.| Bin Ali, M.| Alqallaf, N.| Khan, M.	2022-01-01	International Conference on Ubiquitous and Future Networks, ICUFN	000	10.1109/ICUFN55119.2022.9829611	Conference Paper
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106	Reverse Saturable Absorption in Substituted Hydrazones and Its Structure-Property Relationship for Photonic Applications	Sadasivan Nair, V.| Kaniyarakkal, S.| Edappadikkunnummal, S.| John, J.| Palengara, S.| Narendran, S.| Thelakkadan Puthiyaveettil, S.	2022-01-01	Laser and Particle Beams	0	10.1155/2022/3382780	Article
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108	Zika Virus Prediction Using AI-Driven Technology and Hybrid Optimization Algorithm in Healthcare	Dadheech, P.| Mehbodniya, A.| Tiwari, S.| Kumar, S.| Singh, P.| Gupta, S.| Atiglah, H.K.	2022-01-01	Journal of Healthcare Engineering	0	10.1155/2022/2793850	Article
109	Automatic COVID-19 Diagnostic and Classification Intelligent System (ACDCIS)	Naji, M.F.| Alzamil, F.| Alajaj, M.| Alshaqran, M.| Alateeq, F.	2022-01-01	2022 IEEE International Conference on Artificial Intelligence and Computer Applications, ICAICA 2022	0	10.1109/ICAICA54878.2022.9844603	Conference Paper
110	Prototype of a Smart Tracking System for School Buses	Khattab, O.| Aldafery, D.| Almutairi, H.| Alfaihan, S.	2022-01-01	International Journal of Emerging Technology and Advanced Engineering	0	10.46338/ijetae0622_01	Article
111	Hybrid nanofluid magnetohydrodynamic mixed convection in a novel W-shaped porous system	Mandal, D.K.| Biswas, N.| Manna, N.K.| Gorla, R.S.R.| Chamkha, A.J.	2022-01-01	International Journal of Numerical Methods for Heat and Fluid Flow	0	10.1108/HFF-03-2022-0163	Article
112	Free energy surfaces and barriers for vacancy diffusion on al(100), al(110), al(111) reconstructed surfaces	Mokkath, J.H.| Muhammed, M.M.| Chamkha, A.J.	2022-01-01	Nanomaterials	0	10.3390/nano12010076	Article

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114	On determinantal recurrence relations of banded matrices	Du, Z.| Da Fonseca, C.M.| Pereira, A.	2022-01-01	Kuwait Journal of Science	0	10.48129/KJS.V49I1.11165	Article
115	The role of non-erratic slot-mass disposal in a hybrid nanofluid flow due to source/sink and radiation	Barman, T.| Roy, S.| Chamkha, A.J.	2022-01-01	Waves in Random and Complex Media	0	10.1080/17455030.2022.2075047	Article
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122	Enhanced Gaussian Process Regression for Diagnosing Wind Energy Conversion Systems	Mansouri, M.| Fezai, R.| Trabelsi, M.| Mansour, H.| Nounou, H.| Nounou, M.	2022-01-01	IFAC-PapersOnLine	0	10.1016/j.ifacol.2022.07.205	Conference Paper
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124	Nonsimilar forced convection analysis of magneto nanofluid (CNTs+Water) flow in Darcy–Forchheimer porous media subjected to thermal radiations and heat generation/absorption	Hussain, M.| Farooq, U.| Sheremet, M.| Cui, J.| Chamkha, A.J.	2022-01-01	Waves in Random and Complex Media	0	10.1080/17455030.2022.2088885	Article
125	Effect of stratification and non-linear radiant energy on the MHD unsteady flow of Ag–Al2O3/(C2H6O2–H2O) on an elongated surface	Kakanuti, M.| Sreelakshmi, K.| Sarojamma, G.| Chamkha, A.J.	2022-01-01	International Journal of Ambient Energy	0	10.1080/01430750.2022.2029766	Article
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130	Conceptual analysis framework development to understand barriers of nanofluid commercialization	Alagumalai, A.| Qin, C.| K E K, V.| Solomin, E.| Yang, L.| Zhang, P.| Otanicar, T.| Kasaeian, A.| Chamkha, A.J.| Rashidi, M.M.| Wongwises, S.| Ahn, H.S.| Lei, Z.| Saboori, T.| Mahian, O.	2022-01-01	Nano Energy	31	10.1016/j.nanoen.2021.106736	Article
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133	Machine Learning Techniques for the Prediction of B-Cell and T-Cell Epitopes as Potential Vaccine Targets with a Specific Focus on SARS-CoV-2 Pathogen: A Review	Bukhari, S.N.H.| Jain, A.| Haq, E.| Mehbodniya, A.| Webber, J.	2022-01-01	Pathogens	2	10.3390/pathogens11020146	Review
134	Feasibility study of neat plastic oil with TiO2 nanoadditive as an alternative fuel in internal combustion engine	Sundar, S.P.| Palanimuthu, V.| Sathyamurthy, R.| Hemalatha, D.| Kumar, R.S.| Bharathwaaj, R.| Vasanthaseelan, S.| Chamkha, A.	2022-01-01	Journal of Thermal Analysis and Calorimetry	2	10.1007/s10973-021-10657-x	Article
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146	MHD mixed convection of a Cu–water nanofluid flow through a channel with an open trapezoidal cavity and an elliptical obstacle	Al-Farhany, K.| Alomari, M.A.| Al-Saadi, A.| Chamkha, A.| Öztop, H.F.| Al-Kouz, W.	2022-03-01	Heat Transfer	7	10.1002/htj.22370	Article
147	Significance of Rosseland's Radiative Process on Reactive Maxwell Nanofluid Flows over an Isothermally Heated Stretching Sheet in the Presence of Darcy–Forchheimer and Lorentz Forces: Towards a New Perspective on Buongiorno's Model	Rasool, G.| Shafiq, A.| Hussain, S.| Chamkha, A.J.| Bhutta, M.S.| Zaydan, M.| Wakif, A.	2022-03-01	Micromachines	6	10.3390/mi13030368	Article
148	Micropolar nanofluid thermal free convection and entropy generation through an inclined I-shaped enclosure with two hot cylinders	Tayebi, T.| Dogonchi, A.S.| Chamkha, A.J.| Ben Hamida, M.B.| El-Sapa, S.| Galal, A.M.	2022-03-01	Case Studies in Thermal Engineering	5	10.1016/j.csite.2022.101813	Article
149	Thermo-fluidic transport process in a novel M-shaped cavity packed with non-Darcian porous medium and hybrid nanofluid: Application of artificial neural network (ANN)	Mandal, D.K.| Biswas, N.| Manna, N.K.| Gayen, D.K.| Gorla, R.S.R.| Chamkha, A.J.	2022-03-01	Physics of Fluids	5	10.1063/5.0082942	Article
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152	Automated emotion recognition: Current trends and future perspectives	texMaithri, M.| Raghavendra, U.| Gudigar, A.| Samanth, J.| Prabal Datta Barua| Murugappan, M.| Chakole, Y.| Acharya, U.R.t	2022-03-01	Computer Methods and Programs in Biomedicine	3	10.1016/j.cmpb.2022.106646	Review

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155	Impact of hybrid nanofluids on unsteady MHD flow and heat transfer due to a moving infinite vertical plate	Rajesh, V.| Chamkha, A.J.	2022-03-01	Heat Transfer	1	10.1002/ htj.22355	Article
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158	Impact of moving walls on combined convection flow and thermal performance in a wavy chamber	Chattopadhyay, A.| Karmakar, H.| Pandit, S.K.| Chamkha, A.J.	2022-03-01	Journal of Thermal Analysis and Calorimetry	0	10.1007/ s10973-021-10663-z	Article
159	Experimental Investigation and Numerical Simulation of Air Circulation in a Non-AC Bus Coach System	Niranjana, S.J.| Kubsad, S.S.| Manjunatha, S.| Nagaraj, Y.| Bhavi, I.| Angadi, B.M.| Chamkha, A.JVanarotti, M.B.	2022-03-01	International Journal of Engineering Transactions C: Aspects	0	10.5829/ IJE.2022.35.03C.10	Article
160	Natural convection of alumina-water nanofluid in a partially heated square cavity with isothermal blockage inside with uniform magnetic field and heat generation/absorption	Suresh, N.| Nithyadevi, N.| Chamkha, A.J.	2022-03-01	European Physical Journal Plus	0	10.1140/epjp/ s13360-022-02557-2	Article

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162	Buoyancy-driven convection of MWCNT – Casson nanofluid in a wavy enclosure with a circular barrier and parallel hot/cold fins	Vishnu Ganesh, N.| Al-Mdallal, Q.M.| Hirankumar, G.| Kalaivanan, R.| Chamkha, A.J.	2022-04-01	Alexandria Engineering Journal	4	10.1016/ j.aej.2021.08.055	Article
163	Network optimization using defender system in cloud computing security based intrusion detection system withgame theory deep neural network (IDSGT-DNN)	Balamurugan, E.| Mehbodniya, A.| Kariri, E.| Yadav, K.| Kumar, A.| Anul Haq, M.	2022-04-01	Pattern Recognition Letters	1	10.1016/ j.patrec.2022.02.013	Article
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168	Developing optical up-conversion process via embedded silver nanostructures	Hajjiah, A.| Ibrahim, R.| Ibrahim, N.| Gamal, M.| Elrafay, S.A.A.| Shehata, N.| Kandas, I.	2022-04-01	Journal of Luminescence	0	10.1016/ j.jlumin.2021.118717	Article

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170	Three-Dimensional Study of Magnetohydrodynamic Natural Convection, Entropy Generation, and Electromagnetic Variables in a Nanofluid Filled Enclosure Equipped with Inclined Fins	Gal, S.| Kolsi, L.| Hassen, W.| Ben Ali, N.| Ben Khedher, N.| Chamkha, A.J.	2022-04-12	ACS Omega	2	10.1021/ acsomega.2c00923	Article
171	Magnetohydrodynamic thermal characteristics of water-based hybrid nanofluid-filled non-Darcian porous wavy enclosure: effect of undulation	Biswas, N.| Mandal, D.K.| Manna, N.K.| Gorla, R.S.R.| Chamkha, A.J.	2022-04-19	International Journal of Numerical Methods for Heat and Fluid Flow	16	10.1108/ HFF-03-2021-0190	Article
172	Implementation of partial magnetic fields to magneto-thermal convective systems operated using hybrid-nanoliquid and porous media	Biswas, N.| Mondal, M.K.| Manna, N.K.| Mandal, D.K.| Chamkha, A.J.	2022-05-01	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science	5	10.1177/ 09544062211060168	Article
173	Multilayer Reversible Data Hiding Based on the Difference Expansion Method Using Multilevel Thresholding of Host Images Based on the Slime Mould Algorithm	Mehbodniya, A.| Douraki, B.K.| Webber, J.L.| Alkhazaleh, H.A.| Elbasi, E.| Dameshghi, M.| Zitar, R.A.| Abualigah, L.	2022-05-01	Processes	1	10.3390/ pr10050858	Article
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#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
177	Impact of Adsorption of Straight Chain Alcohol Molecules on the Optical Properties of Calcite (10.4) Surface	Mokkath, J.H.	2022-05-01	Nanomaterials	0	10.3390/ nano12091460	Article
178	Developing a Cyber Incident Exercises Model to Educate Security Teams	Alothman, B.| Alhajraf, A.| Alajmi, R.| Al Farraj, R.| Alshareef, N.| Khan, M.	2022-05-01	Electronics (Switzerland)	0	10.3390/ electronics11101575	Article
179	Toward the thermohydrodynamic behavior of a nanofluid containing C-MWCNTs flowing through a 3D annulus channel under constant imposed heat flux	Benkhedda, M.| Tayebi, T.| Chamkha, A.J.	2022-05-01	Heat Transfer	0	10.1002/ htj.22411	Article
180	Nanofluidic thermal-fluid transport in a split-driven porous system working under a magnetic environment	Mandal, D.K.| Mondal, M.K.| Biswas, N.| Manna, N.K.| Gorla, R.S.R.| Chamkha, A.J.	2022-05-16	International Journal of Numerical Methods for Heat and Fluid Flow	4	10.1108/ HFF-08-2021-0555	Article
181	Localized surface plasmon resonances in a hybrid structure consisting of a mono-layered Al sheet and Ti3C2F MXene	Mokkath, J.H.	2022-05-16	Physical Chemistry Chemical Physics	0	10.1039/ d2cp01150f	Article
182	The effect of attendance on student performance: implications of using virtual learning on overall performance	Diab-Bahman, R.| Al-Enzi, A.| Sharafeddine, W.| Aftimos, S.	2022-05-31	Journal of Applied Research in Higher Education	1	10.1108/ JARHE-04-2021-0135	Article
183	A numerical and statistical approach to capture the flow characteristics of Maxwell hybrid nanofluid containing copper and graphene nanoparticles	Bhattacharyya, A.| Sharma, R.| Hussain, S.M.| Chamkha, A.J.| Mamatha, E.	2022-06-01	Chinese Journal of Physics	5	10.1016/ j.cjph.2021.09.015	Article
184	Influence of radiation and viscous dissipation on MHD heat transfer Casson nanofluid flow along a nonlinear stretching surface with chemical reaction	Reddy, Y.D.| Goud, B.S.| Chamkha, A.J.| Kumar, M.A.	2022-06-01	Heat Transfer	3	10.1002/ htj.22460	Article

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
185	Intelligent Blockchain-Enabled Communication and Services: Solutions for Moving Internet of Things Devices	Ridhawi, I.A.| Aloqaily, M.| Karray, F.	2022-06-01	IEEE Robotics and Automation Magazine	2	10.1109/MRA.2022.3163081	Article
186	Numerical study of hybrid nanofluid flow and heat transfer on a stretching sheet with MHD and heat generation effects	Rajesh, V.| Srilatha, M.| Chamkha, A.J.	2022-06-01	Heat Transfer	0	10.1002/htj.22427	Article
187	Effects of baffles and vortex generators on cooling performance of a gas turbine combustion chamber: Numerical assessment	Arjmandi, H.| Amini, R.| Ghaffari, A.| Rahmani, H.| Chamkha, A.	2022-06-01	Alexandria Engineering Journal	0	10.1016/j.aej.2021.10.005	Article
188	Spatial Attention-Based 3D Graph Convolutional Neural Network for Sign Language Recognition	Al-Hammadi, M.| Bencherif, M.A.| Alsulaiman, M.| Muhammad, G.| Mekhtiche, M.A.| Abdul, W.| Alohali, Y.A.| Alrayes, T.S.| Mathkour, H.| Faisal, M.| Algabri, M.| Altaheri, H.| Alfakih, T.| Ghaleb, H.	2022-06-01	Sensors	0	10.3390/s22124558	Article
189	Continued Fraction Expansions of Stable Discrete-Time Systems of Difference Equations	Zahreddine, Z.	2022-06-01	Symmetry	0	10.3390/sym14061226	Article
190	Intelligent gravitational search random forest algorithm for fake news detection	Natarajan, R.| Mehbodniya, A.| Rane, K.P.| Jindal, S.| Hasan, M.F.| Vives, L.| Bhatt, A.	2022-06-01	International Journal of Modern Physics C	0	10.1142/S012918312250084X	Article
191	Fetal health classification from cardiotocographic data using machine learning	Mehbodniya, A.| Lazar, A.J.P.| Webber, J.| Sharma, D.K.| Jayagopalan, S.| Kousalya, K.| Singh, P.| Rajan, R.| Pandya, S.| Sengan, S.	2022-07-01	Expert Systems	6	10.1111/exsy.12899	Article
192	Distributed optimization of heterogeneous UAV cluster PID controller based on machine learning	Yan, L.| Webber, J.L.| Mehbodniya, A.| Moorthy, B.| Sivamani, S.| Nazir, S.| Shabaz, M.	2022-07-01	Computers and Electrical Engineering	1	10.1016/j.compeleceng.2022.108059	Article

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
193	Analytical modeling of I–V characteristics using 2D Poisson equations in AlN/β-Ga2O3 HEMT	Singh, R.| Lenka, T.R.| Panda, D.K.| Nguyen, H.P.T.| Boukortt, N.E.I.| Crupi, G.	2022-07-01	Materials Science in Semiconductor Processing	1	10.1016/ j.mssp.2022.106627	Article
194	Thermal entropy generation and exergy efficiency analyses of coiled wire inserted nanodiamond + Fe3O4/water hybrid nanofluid in a tube	Sundar, L.S.| Mesfin, S.| Raman, E.V.| Punnaiah, V.| Chamkha, A.J.| Sousa, A.C.M.	2022-07-01	Journal of Thermal Analysis and Calorimetry	1	10.1007/ s10973-021-11080-y	Article
195	Scene Text Detection Using Attention with Depthwise Separable Convolutions	Hassan, E.| Lekshmi, V.L.	2022-07-01	Applied Sciences (Switzerland)	0	10.3390/ app12136425	Article
196	Online product sentiment analysis using random evolutionary whale optimization algorithm and deep belief network	Mehbodniya, A.| Rao, M.V.| David, L.G.| Joe Nige, K.G.| Vennam, P.	2022-07-01	Pattern Recognition Letters	0	10.1016/ j.patrec.2022.04.024	Article
197	Hydrothermal behavior of micro-polar Nano-Encapsulated phase change materials (NEPCMs) in an inclined L-shaped cavity	Sadeghi, M.S.| Chamkha, A.J.| Ali, R.| Ben Hamida, M.B.| Ghodrat, M.| Galal, A.M.	2022-07-01	Case Studies in Thermal Engineering	0	10.1016/ j.csite.2022.102039	Article
198	Hybrid pseudo-direct numerical simulation of high Rayleigh number flows up to 1011	Nee, A.| Chamkha, A.J.	2022-07-01	Journal of Thermal Analysis and Calorimetry	0	10.1007/ s10973-021-11073-x	Article
199	Electrical and Optical Investigation of 2T-Perovskite/u-CIGS Tandem Solar Cells With 30% Efficiency	Boukortt, N.E.I.| Patane, S.| Loureiro, A.G.| Alamri, A.M.| Abdulraheem, Y.M.| Lenka, T.R.| Paul, R.| Abushattal, A.	2022-07-01	IEEE Transactions on Electron Devices	0	10.1109/ TED.2022.3176591	Article
200	Development of an Electronic Smart Safe Box Using Private Blockchain Technology	Alothman, B.| Joumaa, C.| Alotaibi, A.| Alotaibi, B.| Almutairi, B.| Aldhafairi, A.| Khan, M.	2022-07-01	Applied Sciences (Switzerland)	0	10.3390/ app12136445	Article

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
201	Curing Effect on Durability of Cement Mortar with GGBS: Experimental and Numerical Study	Ghostine, R.| Bur, N.| Feugeas, F.| Hoteit, I.	2022-07-01	Materials	0	10.3390/ ma15134394	Article
202	Diagnosis of Parkinson's disease from electroencephalography signals using linear and self-similarity features	Bhurane, A.A.| Dhok, S.| Sharma, M.| Yuvaraj, R.| Murugappan, M.| Acharya, U.R.	2022-08-01	Expert Systems	13	10.1111/ exsy.12472	Article
203	Efficacy of diverse structures of wavy baffles on heat transfer amplification of double-diffusive natural convection inside a C-shaped enclosure filled with hybrid nanofluid	Nayak, M.K.| Karimi, N.| Chamkha, A.J.| Sattar Dogonchi, A.| El-Sapa, S.| Galal, A.M.	2022-08-01	Sustainable Energy Technologies and Assessments	7	10.1016/ j.seta.2022.102180	Article
204	Thermal management and natural convection flow of nano encapsulated phase change material (NEPCM)-water suspension in a reverse T-shaped porous cavity enshrining two hot corrugated baffles: A boost to renewable energy storage	Zidan, A.M.| Nayak, M.K.| Karimi, N.| Sattar Dogonchi, A.| Chamkha, A.J.| Ben Hamida, M.B.| Galal, A.M.	2022-08-01	Journal of Building Engineering	4	10.1016/ j.jobe.2022.104550	Article
205	Transportation of TiO2/GO–H2O hybrid nanofluid between two discs	Negi, A.S.| Kumar, B.| Kumar, A.| Kumari, C.| Prachi, K.| Chamkha, A.J.	2022-08-01	Indian Journal of Physics	1	10.1007/ s12648-021-02212-z	Article
206	MHD natural convection in a cavity with different geometries filled with a nanofluid in the presence of heat generation/absorption using lattice Boltzmann method	Nemati, M.| Sani, H.M.| Jahangiri, R.| Chamkha, A.J.	2022-08-01	Journal of Thermal Analysis and Calorimetry	1	10.1007/ s10973-022-11204-y	Article
207	Thermal and flow analysis in a room with a radiant ceiling panel	Nee, A.| Chamkha, A.J.	2022-08-01	Journal of Thermal Analysis and Calorimetry	0	10.1007/ s10973-021-11140-3	Article
208	Free convection nanofluid flow past a vertical isothermal cone surface in the presence of viscous dissipation and MHD with heat flux	Ragulkumar, E.| Sambath, P.| Chamkha, A.J.	2022-08-01	European Physical Journal Plus	0	10.1140/epjp/ s13360-022-03115-6	Article

#	Title	Authors	Full date	Scopus Source title	Citations	DOI	Publication type
209	Vehicular Ad Hoc Networks Routing Strategies for Intelligent Transportation System	Wahid, I.| Tanvir, S.| Ahmad, M.| Ullah, F.| AlGhamdi, A.S.| Khan, M.| Alshamrani, S.S.	2022-08-01	Electronics (Switzerland)	0	10.3390/ electronics11152298	Article
210	VLSI implementation using fully connected neural networks for energy consumption over neurons	Mehbodniya, A.| Kumar, R.| Bedi, P.| Nandan Mohanty, S.| Tripathi, R.| Geetha, A.	2022-08-01	Sustainable Energy Technologies and Assessments	0	10.1016/ j.seta.2022.102058	Article
211	Optimal cluster head selection for energy efficient wireless sensor network using hybrid competitive swarm optimization and harmony search algorithm	Kumar, A.| mehbodniya, A.| Webber, J.L.| Anul Haq, M.| Gola, K.K.| Singh, P.| Karupusamy, S.| Bader Alazzam, M.	2022-08-01	Sustainable Energy Technologies and Assessments	0	10.1016/ j.seta.2022.102243	Article
212	Semantic textual similarity for modern standard and dialectal Arabic using transfer learning	Al Sulaiman, M.| Moussa, A.M.| Abdou, S.| Elgibreen, H.| Faisal, M.| Rashwan, M.	2022-08-01	PLoS ONE	0	10.1371/ journal.pone.0272991	Article
213	A novel few-shot classification framework for diabetic retinopathy detection and grading	Murugappan, M.| Prakash, N.B.| Jeya, R.| Mohanarathinam, A.| Hemalakshmi, G.R.| Mahmud, M.	2022-08-15	Measurement: Journal of the International Measurement Confederation	0	10.1016/ j.measurement.2022.111 485	Article
214	MHD mixed convection on Cu-water laminar flow through a horizontal channel attached to two open porous enclosure	Al-Farhany, K.| Alomari, M.A.| Albattat, A.| Chamkha, A.J.	2022-09-01	European Physical Journal: Special Topics	1	10.1140/epjs/ s11734-022-00589-4	Article

5.2. Conference Papers

Sr	Authors	Title	Name of Conference	DOI	Date
1	J. Webber, A. Mehbodniya, A. Arafa and A. Alwakeel,	"Gesture Recognition Using Machine Learning for Light Communication Systems,"	2022 International Mobile and Embedded Technology Conference (MECON), Noida, India,	doi: 10.1109/MECON53876. 2022.9752211	2022, pp. 52 56.
2	P. S. Priya, P. Malik, A. Mehbodniya, V. Chaudhary, A. Sharma and S. Ray,	"The Relationship between Cloud Computing and Deep Learning towards Organizational Commitment,"	2022 2nd International Conference on Innovative Practices in Technology and Management (ICIPTM), Gautam Buddha Nagar, India,	doi: 10.1109/ICIPTM54933 .2022.9754046	2022, pp. 21 26.
3	N. D. V. P. Pandalaneni, A. Mehbodniya, C. Srinivas, B. P. Kumar, V. Ramanarayana and K. Amarrendra,	"Regulation of Frequency in Multi Source Two Area Power System with TCSC,"	2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT), Tirunelveli, India,	doi: 10.1109/ICSSIT53264. 2022.9716491	2022, pp. 760 765.
4	D. Devarapalli, A. Mehbodniya, N. M. Reddy, A. S. N. R. Gopal, S. Saravanan and G. J. Sudha,	"High Step Up Voltage Gain Boost Chopper Fed DC DC Converter for Medium Voltage Applications,"	2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT), Tirunelveli, India,	doi: 10.1109/ICSSIT53264. 2022.9716385	2022, pp. 792 798.
5	W. Wisetsri, S. Donthu, A. Mehbodniya, S. Vyas, J. Quiñonez Choquecota, R. Neware,	“An Investigation on the Impact of Digital Revolution and Machine Learning in Supply Chain Management”,	Materials Today: Proceedings,	https://doi.org/10.1016/ j.matpr.2021.09.367.	Volume 56, Part 6, 2022, Pages 3207 3210, ISSN 2214 7853,
6	A. Mehbodniya, P. K. Angra, V.Hindumathi, S.Vishwakarma, P. Rajasekar and S. V. V. Karthik,	"Empirical Evaluation of Blockchain Based Remote Data Communication System over Wireless Sensor Network (WSN),"	2021 International Conference on Technological Advancements and Innovations (ICTAI), Tashkent, Uzbekistan,	doi: 10.1109/ICTAI53825. 2021.9673227	2021, pp. 685 691.
7	N. D. V. P. Pandalaneni, S. Saravanan, A. Mehbodniya and R. S J,	"Improvement of Transient Stability by Teaching Learning Based Optimization Tuned AVR Associated PSS System,"	2021 Fourth International Conference on Electrical, Computer and Communication Technologies (ICECCT), Erode, India,	doi: 10.1109/ICECCT52121. 2021.9616944	2021, pp. 1 5.
8	B. S. Kumar, A. K. Rastogi, B. Rajani, A. Mehbodniya, K. Karunanithi and D. Devarapalli,	"Optimal Solution to Economic Load Dispatch by Modified Jaya Algorithm,"	2021 International Conference on Recent Trends on Electronics, Information, Communication & Technology (RTEICT), Bangalore, India,	tdoi: 10.1109/RTEICT52294. 2021.9574009ext	2021, pp. 348 352.

Sr	Authors	Title	Name of Conference	DOI	Date
9	Nour El I. Boukortt, Amal M. AlAmri, Antonio Garcia Loureiro, Yaser M. Abdulraheem, Mozhdeh Seyyedhamzeh, Giovanni Crupi	Effects of the Gate Dielectric Material on the Performance of a 14-nm SOI FinFET	2021 15th International Conference on Advanced Technologies, Systems and Services in Telecommunications (TELSIKS)	https://ieeexplore.ieee.org/document/9606380	22-11-2021
10	Nassima Bourahla, Baghdad Hadri, Nour El I. Boukortt, Ahmed Bourahla	Impact of High-k Dielectric Material on Ultra-Short-DG-FinFET Performance	2021 15th International Conference on Advanced Technologies, Systems and Services in Telecommunications (TELSIKS)	https://ieeexplore.ieee.org/document/9606360	22-11-2021
11	Othman Omar, Badreyah Sabti, Abolfazl Mehbodniya, Ahmed Alwakeel, Ahmed Arafa	Private Home Security and Management System	International conference on Intelligent systems (ICIS)	N/A	2022
12	Amer Alansari, Soud Ateyah, Eman Aldaihani, Abolfazl Mehbodniya, Ahmed Alwakeel, Ahmed Arafa	Air Quality Monitoring System	International conference on Intelligent systems (ICIS)	N/A	2022
13	Lujain Saad, Reem Almutairi, Taib Almeshari, Abolfazl Mehbodniya, Ahmed Alwakeel, Ahmed Arafa	Radio-Controlled Aircraft	International conference on Intelligent systems (ICIS)	N/A	text
14	Fatma Aljeaan, Amina Abdulnabi, Alaa Abduqothaila, Ahmed Alwakeel, Abolfazl Mehbodniya, Ahmed Arafa	Eye Directive Wheelchair	International conference on Intelligent systems (ICIS)	N/A	text
15	Sara Alhababi, Hessah Al Hajri, Dalal Al Azmi, Abolfazl Mehbodniya, Ahmed Alwakeel, Ahmed Arafa	I-Alert Health Monitoring System	International conference on Intelligent systems (ICIS)	N/A	text
16	A.N Alquennah, M. Trabelsi, H. Vahedi	Auto-Tuned Two-Step Horizon FCS-MPC for a Grid-Connected CSC Inverter-based PV System	IECON 2022 – 48th Annual Conference of the IEEE Industrial Electronics Society	N/A	text

Sr	Authors	Title	Name of Conference	DOI	Date
17	M. Mansouri, R. Fezai, M. Trabelsi, M. Hajji, H. Nounou, M. Nounou	Enhanced Gaussian Process Regression for Diagnosing Wind Energy Conversion Systems	11th IFAC Symposium on Fault Detection, Supervision, and Safety of Technical Processes, SAFEPROCESS 2022	N/A	Pafos, Cyprus, June 2022
18	M. Mansouri, R. Fezai, M. Trabelsi, M. Hajji, H. Nounou, M. Nounou	Fault Diagnosis of Wind Energy Conversion Systems Using Gaussian Process Regression-based Multi-Class Random Forest	11th IFAC Symposium on Fault Detection, Supervision, and Safety of Technical Processes, SAFEPROCESS 2022	N/A	Pafos, Cyprus, June 2022
19	G. Ben Othman, L. Sidhom, I. Chihi, E. Kamavuako, M. Trabelsi	ECG Data Forecasting Based on Linear Models Approach: a Comparative Study	19th International Multi-Conference on Systems, Signals & Devices (SSD) - Conference on Sensors, Circuits & Instrumentation Systems	N/A	Algeria, May 2022
20	A.N Alquennah, M. Trabelsi, A. Krama, H. Vahedi, M.M. Seghir	ANN based Auto-Tuned Optimized FCS-MPC for Grid-Connected CSC Inverter	IEEE 3rd International Conference on Smart Grid and Renewable Energy, SGRE 2022	N/A	Doha, Qatar, March 2022
21	X. Bao, F. Hu, Y. Xu, M. Trabelsi, and E. Kamavuako	Paroxysmal Atrial Fibrillation Detection by Combined Recurrent Neural Network and Feature Extraction on ECG Signals	International Conference on Bio-inspired Systems and Signal Processing, Biosignals 2022	N/A	February 2022
22	W. E. K. Sagoun, I. Chihi, L. Sidhom, M. Trabelsi, G.E. Georghiou	Performance evaluation of various faults classifiers for Grid-Connected PV Systems	International Conference on Electrical, Computer and Energy Technologies (ICECET)	N/A	Cape Town, December 2021
23	Jerritta S, M Murugappan, Manasa D, Gayathri, R.,	Discrete Wavelet Transform based Pain Assessment using Multiple Physiological Signals	2022 First International Conference on Electrical, Electronics, Information and Communication Technologies (ICEEICT 2022)	pp. 01-05, doi: 10.1109/ICEEICT53079. 2022.9768609.	India
24	Jerritta S, M Murugappan, Bharathi, Vidhya R, Ranjana Rajagopal, Hari Hara Sudhan	Facial Geometrical Features based Pain Assessment using KNN and Regression Tree Classifiers	2022 First International Conference on Electrical, Electronics, Information and Communication Technologies (ICEEICT 2022)	pp. 1-7, doi: 10.1109/ICEEICT53079. 2022.9768545.	India

Sr	Authors	Title	Name of Conference	DOI	Date
25	M Murugappan, S Ayyappan	Review of Diabetic Retinopathy Detection and Grading using Machine and Deep Learning Methods	International Conference on "Emerging Technologies and Applications for a Smart and Sustainable World	2022	India
26	N. Shehata, R. Nair, I. Kandas, N. Omran, and A. Hassanin	Elastic Piezoelectric Nanofibers Mats for Acoustic Energy Harvesting	6th International Conference on Materials Sciences and Nanomaterials, London, UK	In progress	July 2022
27	Fares Al Shammari	Boost Recognition & Enhance Critical Thinking Skills in EFL Classroom	The Hybrid Transition: Emotional, Social & Educational Impacts on Language Learning	https://tesolkuwait.net/page-18142	17-02-2022
26	Ammar Kassab, Rosmini Omar, Hasan Ghura	From Intentions to Actions: Exploring the Entrepreneurial Journey of Syrian Refugees in Istanbul	International Conference on Business and Technology	https://link.springer.com/chapter/10.1007/978-3-031-08954-1_9	13 July 2022

5.3 Books and Book Chapters

Sr	Authors	Publication Title	DOI	Date
1	A. Mehbodniya, J. Webber, R. Kumar, M. Ramachandran	"Designing Machine Learning Based Variable order Bayesian Network in Predicting Sudden Cardiac Arrest and Death"	Published by IGI Global in the book "Leveraging AI Technologies for Preventing and Detecting Sudden Cardiac Arrest and Death" DOI: 10.4018/978-1-7998-8443-9.ch008	2022
2	M Murugappan, R.Yuvaraj	Biomedical Signal based Computer-Aided Diagnosis Systems for Neurological Disorders	Springer, E-book: ISBN: 978-3-030-97845-7, Hardcover: ISBN: 978-3-030-97844-0	2022
3	Saravanan Krishnan, M Murugappan	Internet of Drones: Applications, Opportunities, and Challenges	CRC Press	2022

Sr	Authors	Publication Title	DOI	Date
4	Bajpai, R., Yuvaraj, R., Prince, A.A., Murugappan, M.	Abnormal EEG Detection Using Time-Frequency Images and Convolutional Neural Network	https://doi.org/10.1007/978-3-030-97845-7_1	2022
5	Choong, W.Y, Wan Khairunizam, M Murugappan, Bong Ziao Zheng	Investigation of the Brain Activation Pattern of Stroke Patients and Healthy Individuals During Happiness and Sadness	https://doi.org/10.1007/978-3-030-97845-7_6	2022
6	Abdullah AlFadhli	Arabic Language: Applied Methodology and Functional Skills	N/A	2021
7	Abdullah AlFadhli	Strengthening Business Entrepreneurship Culture in University Education: From an Intellectual Premise and Scientific Experiments.	N/A	2021
8	Arezou Harraf, Hasan Ghura	Potentials of Artificial Intelligence for Business Performance	https://link.springer.com/chapter/10.1007/978-3-030-62796-6_5	13 February 2021
9	Hasan Ghura, Arezou Harraf	How Will Artificial Intelligence Reshape the Future of Entrepreneurship and Economic Growth?	https://link.springer.com/chapter/10.1007/978-3-030-72080-3_4	13 July 2021
10	Hasan Ghura, Arezou Harraf, Alicia Cudorus	Global Entrepreneurship Monitor 2020/2021 - Kuwait Report	https://www.kfas.org/media-publications/research-studies-whitepaper/GEM-Kuwait-2020-2021	29 September 2021
11	Randa. Bahman & Mubarak A. Jazea	Business Etiquette of Arabia	https://online.thatalsalasil.com.kw/shop/business-etiquette-of-arabia-kuwait	2021

5.4. Workshops, Webinars and Training courses attended by faculty
Training Courses and Workshops

Sr	Faculty Name	Title	Location/ Venue	Date
1	Abolfazl Mehbodniya	SciVal for Faculty Members	Online/Elsevier	20/4/2022
2	Abolfazl Mehbodniya	Introducing the EU Space Programme: Exploring the benefits of EU space data for the Gulf	Online	12/4/2022
3	Abolfazl Mehbodniya	Huawei HCIA-5G certification course	Online	29/12/2021
4	Ahmed Arafa	British Embassy grant workshop	KCST	July
5	Ahmed Arafa	SciVal Training Session	Online/Elsevier	20/4/2022
6	Ahmed Arafa	First results from 3 years of GNSS interference monitoring from LEO	Online/ION	7/2/2022
7	Ahmed Arafa	AI/ML in 6G and beyond wireless netweoks	Online/IEEE	19/8/2022
8	Mohamed Trabelsi	SciVal for Faculty Members	Online/Elsevier	20/4/2022
9	M Murugappan	SciVal for Faculty Members	texOnline/Elseviert	20/4/2022
10	Fares Al Shammari	Research Writing/ Advanced	Kuwait University	10-04-2022 – 14-04-2022
11	Ruba Najia	Teacher & Peer Feedback	Online	14-03-2022
12	Alban Beqiri	Teacher and Peer Feedback by Clair Ross	Online	14-03-2022
13	Alban Beqiri	Research Strategies by Bibi Al Enezi	KCST	17-03-2022
14	Fares Al Shammari	Teacher & Peer Feedback	Online	14-03-2022
15	Abdullah Al Farhan	Teacher & Peer Feedback	Online	14-03-2022
16	Fares Al Shammari	Research Writing/ Advanced	Kuwait University	10-04-2022 – 14-04-2022
17	Dr Bedour Alboloushi	Supporting students with learning differences	Kuwait Technical College	September 2021
18	Dr Bedour Alboloushi	Writing Literature Review	Kuwait Technical College	November 2021
19	Dr Bedour Alboloushi	Publishing Ethics	Taylor & Francis Group	February 2022
20	Omer Adam	Grant proposal: Project Planning and Expectations By David (UK Embassy - Kuwait)	KCST campus	Jun 15, 2022
21	Omer Adam	Innovations in Delivering Computer Science & Engineering Courses: Maximize Student Learning & Instructor Time in-person & online	Online-Zoom	Wed Sep 7, 2022

Sr	Faculty Name	Title	Location/ Venue	Date
22	Omer Adam	Elsevier SciVal Training Session By ELS-UAE (Elsevier)	Online	April 20, 2022
23	Ehtesham Hassan	Grant proposal: Project Planning and Expectations By David (UK Embassy - Kuwait)	KCST campus	Jun 15, 2022
24	Omar Khattab	Innovations in Delivering Computer Science & Engineering Courses: Maximize Student Learning & Instructor Time in-person/online	WILEY, Webinar	Sep 7, 2022
25	Omar Khattab	Grant proposal: Project Planning and Expectations By David (UK Embassy - Kuwait)	KCST campus	Jun 15, 2022
26	Omar Khattab	SciVal Training Session	KCST campus	textApr 20, 2022
27	Omar Khattab	Cyber Security Week	KCST campus	Nov 21-25 2021
28	Omar Khattab	Hybrid Classroom Training	KCST campus	Oct 4, 2021
29	Omar Khattab	HUAWEI Cloud Summit Middle East	Webinar, HUAWEI	Sep 15, 2021
30	Tariq Mohedat	Cyber security week	KCST campus	Nov 21-25 2021
31	Tariq Mohedat	Penetration Testing & Digital Forensics Workshop	Millennium Hotel and convention center	Kuwait on 17-19 Feb 2020
32	Tariq Mohedat	Cyber security awareness & updates workshop	KCST Campus	27,28, 29, 31 Jan 2021
33	Tariq Mohedat	Huawei cloud summit middle east,	Webinar, HUAWEI	15 Sep 2021

Scientific Conferences attended by KCST Faculty

Sr	Faculty Name	Program Description	Location/ Venue	Date
1	Abolfazl Mehbodniya	Cybersecurity Education and Research Conference (CERC),	KCST	23-24 November 2021
2	Nour El Islam Boukortt	15th International Conference on Advanced Technologies, Systems and Services in Telecommunications (TELSIKS)	University of Niš, Serbia	20 - 22 October 2021
3	Mohamed Trabelsi	ECE	Doha, Qatar (SGRE 2022)	March 2022
4	Junais Habeeb Mokkath	INTERPHOTONICS2022	Oludeniz, Turkey	April 2022
5	Nader Shehata	6th International Conference on Materials Sciences and Nanomaterials	London, UK	July 2022
6	Fares Al Shammari	1st International Scientific Conference of Educational Journal	Kuwait University	23 & 24- 03 - 2022
7	Fares Al Shammari	ELTOC	Oxford University	04 & 050 03 - 2022
8	Fares Al Shammari	Explore Life Vision with Author Jeremy Bowell	Oxford University	23-03-2022
9	Fares Al Shammari	The Hybrid Transition: Emotional, Social & Educational Impacts on Language Learning	TESOL	17 & 18-02 -2022
10	Fares Al Shammari	Cambridge One & Blackboard, of handling EFL classes	Cambridge	23-02-2022
11	Fares Al Shammari	Advancing Assessment for Learning with Global Stage	Macmillan Education	05-03-2022
12	Fares Al Shammari	Creativity. Compassion. Confidence. Guiding Students into Learning Superstars with Academy Stars	Macmillan Education	12-03-2022
13	Fares Al Shammari	Online Assessment and Impact on Achievement	Cambridge	24-02-2022
14	Abdullah AlFadhli	Rethinking Educational Reform in the GCC: Reflecting on the Past to Inform the Future	PAAET-Kuwait	2021
15	Abdullah AlFadhli	Kuwait 2nd International Scientific Conference on Educational Leadership, Administration & Planning	Kuwait University	2021
16	Ruba Najia	TEFL Kuwait Conference: Bridging English Teaching Communities	Online	31-03 & 01-04 - 2022
17	Ruba Najia	TESOL Kuwait Conference: The Hybrid Transition: Emotional, Social & Educational Impacts on Language Learning	Online	17 & 18-02 -2022
18	Alban Beqiri	TEFL Kuwait Conference	Online	31-03 & 1-04 - 2022
19	Hasan Ghura	International Conference on Business and Technology	Bahrain	23-24 March 2022

Sr	Faculty Name	Program Description	Location/ Venue	Date
20	Bedour Alboloushi	The 3rd Cybersecurity Education and Research Conference (CERC)	Kuwait University	November 2021
21	Bedour Alboloushi	1st International Scientific Conference of Education Journal	Kuwait University	March 2022
22	Bedour Alboloushi	InfoSec Summit'22: Cybersecurity and Resilience	Kuwait University	May 2022
23	Bedour Alboloushi	teInternational Grounded Theory Alliance Conferencext	UK\Online	September 2022
24	Omer Adam	International Conference on the Economics of Grids, Clouds, Systems and Services (GECON2021)	Virtual conference	Sep 21-23, 2021
25	Omer Adam	Exploring the data-driven world: Teaching AI and ML from a data-centric perspective (Raspberry Pi Foundation research seminar)	Online seminar	Tue, Oct 5, 2021
26	Omer Adam	Emerging trajectories in machine learning education (Raspberry Pi Foundation research seminar)	Online seminar	Tue, Nov 2, 2021
27	Omer Adam	6G Network AI: Artificial Intelligence for the control and orchestration of mobile networks (one6G Association)	Online seminar	Thu, May 5, 2022
28	Omer Adam	Flow and Enabling the Modern Software Organization (O'Reilly Radar: Innovation in the Cloud)	Online seminar	Tue, May 17, 2022
29	Omer Adam	Data mesh in data architecture (Hosted & run by: Zero Gravity)	Online seminar	May 26, 2022
30	Mohammed Faisal Naji	2022 IEEE International Conference on Artificial Intelligence and Computer Applications (ICAICA)	Presenter	24-26 June 2022
31	Mohammed Faisal Naji	2022 IEEE World AI IoT Congress (AIIoT)	Presenter	06-09 June 2022
32	Ismaeel Al Ridhawi	IEEE International Conference on Communications (ICC) 2022	Virtual	May 2022
33	Ismaeel Al Ridhawi	2021 IEEE Global Communications Conference (GLOBECOM)	Madrid, Spain	teDecember 2021xt
34	Samrajesh Mault	International ACM Conference on Computer and Communications Management (ICCCM 2022),	Virtual	July 2022

5.5. Research Collaborations with external bodies

5.5.1. Research proposals/applications submitted to Kuwait Foundation for the Advancement of Sciences (KFAS) - 2021/2022

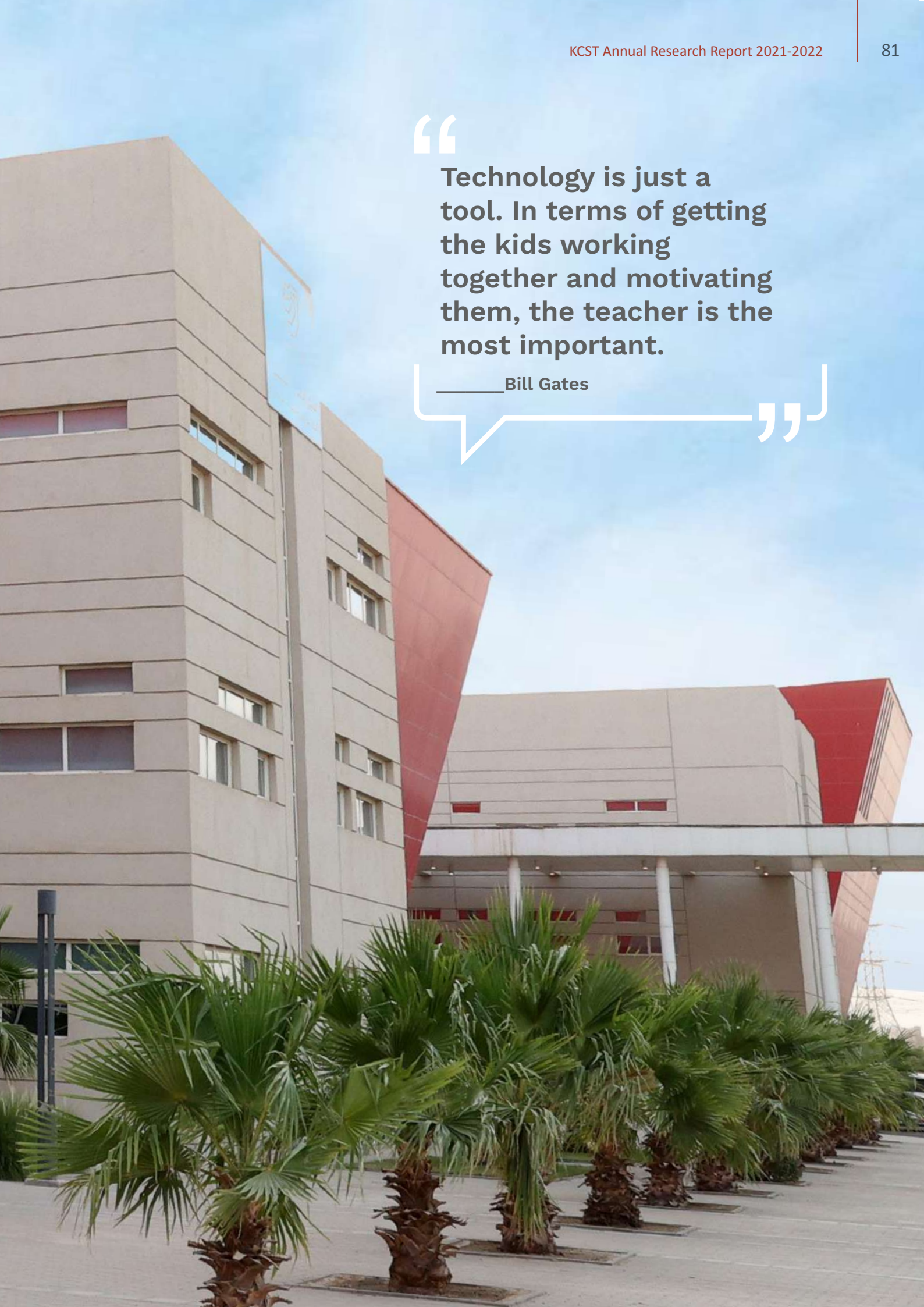
Sr	Faculty Name	Title	Location/ Venue	Date
1	Nour El Islam . Boukortt	Electronics & Communication Engineering	Design and Development of Advanced Perovskite Tandem Solar Cells	22/3/2021
2	Ahmad Al Wakeel	Electronics & Communication Engineering	Electrical engineering, Communications, Massive MIMO, Intelligent Reflecting Surface, Visible light communication.	22/3/2021
3	Ahmad arafa	Electronics & Communication Engineering	A Reliable Package Delivery System using Unmanned Aerial Vehicles"	24/3/2021
4	Abrar AlEnzi+Randa Diab	Management & Economics	Research Collaboration Community RECCO – The future of research Theory and simulations of the plasmonic behavior of MXenes at the nanoscale”	31/3/2021
5	Junais Habeeb Mokkath	Physics	Theory and simulations of the plasmonic behavior of MXenes at the nanoscale”	3/2/2022
6	Junais Habeeb Mokkath	Physics	Electric Field Enhancements in Ultrathin Plasmonic Gaps”	3/2/2022
7	Nader Abdelmonem Aly Shehata	Physics	Acoustic energy harvesting nanocomposite mats for facemasks and protection filters	20/2/2022
8	Nader Abdelmonem Aly Shehata	Physics	“Impact of Metallic Nanostructures on Perovskite Materials”	22/3/2022
9	Mohammed Naji	Computer Science Engineering	Identifying Kuwait’s dates fruit Types and Maturity Using Artificial Intelligence	23/3/2022
10	Mohammed Naji	Computer Science Engineering	Artificial Intelligence-based Solution for Detecting Covid-19's Variant and Period of Infection	23/3/2022
11	Ismaeel Al Ridhawi	Computer Science Engineering	Integrating Blockchain and Federated Learning Technologies in Healthcare Systems	23/3/2022
12	Murugappan	Electronics & Communication Engineering	Design and Development of Intelligent Obesity Assessment System for Children’s in Kuwait using Thermal Images and Artificial Intelligence (AI)“	27/3/2022
13	Murad Khan	Computer Science Engineering	Research on Cell-Free Technology for 5G and beyond networking	30/3/2022

5.5.2. Research proposals/applications submitted to the British Embassy - 2021/2022

Sr	Faculty Name	Title	Location/ Venue	Date
1	Nour El Islam Boukortt	Electronics & Communication Engineering	Design and Development of Advanced All-Perovskite Tandem Solar Cells	22/6/2022
2	Murad Khan	Computer Science Engineering	Early Forecasting of Heat Waves and its Effects on Biodiversity using Deep Learning Techniques	22/6/2022
3	Ismaeel AlRidhawi	Computer Science Engineering	Preserving Trust in the Zero Trust Era	22/6/2022
4	Ehtesham Hassan	Computer Science Engineering	Immersive & Intuitive VR interface for a Tele-Nursing Robot	22/6/2022
5	Basil Al Othman	Computer Science Engineering	Towards Cryptographic Ransomware Key Detector Using Networks Sniffing Analysis Techniques	22/6/2022
6	Abdullatif Baba	Computer Science Engineering	A new design of a flying robot for firefighting applications	22/6/2022
7	Mohammed Naji	Computer Science Engineering	Awareness of Artificial Intelligence and Robotics	22/6/2022
8	Mohammed Naji	Computer Science Engineering	Multi-Level Intelligence Robot-Wheelchair for Multi-Level Disabilities	22/6/2022
9	Julian Webber	Electronics & Communication Engineering	System for Detection and Classification of Food Contamination	22/6/2022
10	Ahmed Tarek Badran Arafa	teElectronics & Communication Engineeringxt	A contactless Signature Recognition System	22/6/2022
11	Nader Shehata	physics	Innovative Energy Harvesting Solutions for Cyber-Secured Green Buildings	22/6/2022
12	Sharafudeen Kaniyarakkal Valappil	physics	All-in-one Multifunction Nanocomposite Unit for Water Quality Monitoring and Filtration	22/6/2022
13	Mohamed Abdallah Trabelsi	Electronics & Communication Engineering	Smart Charging Infrastructure for Sustainable Electric Mobility in Kuwait	22/6/2022
14	Chibli Joumaa	Computer Science Engineering	Development of Cell Free Network for Urban environment – Application to Kuwait and UK	22/6/2022
15	Abolfazl Mehbod Niya	Electronics & Communication Engineering	Digital transformation for public health improvement" But it may take more than tomorrow to finish it.	22/6/2022

5.5.3. Ongoing research projects with KFAS

#	Faculty Name	PI Department	Date of Submission	Location/ Venue	Status
1	Nader Abdelmonem Aly Shehata	Physics	14/1/2020	Elastic Piezoelectric Nanocomposites Layers for Energy Harvesting Application.	Ongoing
2	Murugappan	Electronics & Communication Engineering	15/4/2020	Development Of Artificial Intelligence (Ai)-Based Preliminary Screening Tool For Detecting Novel Corona Virus Disease (Covid-19) From Computed Tomography (Ct) Scan Images: An Investigative Study.	Ongoing
3	Mohamed Abdallah Trabelsi	Electronics & Communication Engineering	14/1/2020	Early Screening And Monitoring Of Heart Disease Based On The Fusion Of Electrical And Mechanical Sensors.	Ongoing
4	Nour El Islam . Boukortt	Electronics & Communication Engineering	14/1/2020	Design And Development Of High-Efficiency PV Modules Based On Cigs /Silicon Tandem Thin-Film Solar Cells.	Ongoing



> **Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important.**
>
> _____Bill Gates

Communications of the ECMS
Volume 35, Issue 1, June 2021
35th ECMS International
Conference on Modelling and Simulation
June 2021, United Kingdom
ECMS 2021

Signals and Systems
Simon Haykin
Barry Van Veen
Instrumentation Measurement and Analysis
Power Electronics and Renewable Energy Systems
Analog Ci
Integrated Circuits

6 Reference

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