



SCIENTIFIC PUBLICATION REPORT 2025

Scientific Publication Report 2025
COLLEGE OF ENGINEERING
KING SAUD UNIVERSITY

MESSAGE

Quality research is a priority for our college of engineering and the university. It is encouraging to find a considerable improvement in the publication of research papers by our faculty members in peer-reviewed journals of high reputation listed in the Web of Science. I am very optimistic that it will further accelerate in the days to come. To assess and monitor this progress, the college conducts an annual survey and assessment to track the total number of published papers as well as the quartile of each corresponding journal.

The college of engineering through its different departments and research centers, namely: -

1. The Department of Chemical Engineering.
2. The Department of Civil Engineering.
3. The Department of Electrical Engineering.
4. The Department of Industrial Engineering.
5. The Department of Mechanical Engineering.
6. The Department of Petroleum and Natural Gas Engineering.
7. Centers including Sustainable Energy Technologies Center and Center of Excellence for Research in Engineering Material.



Has published a total of 1299 papers in peer-reviewed journals of high reputation during the academic year of 1446 Hijri (2024–2025). On average, 41% of the papers were published in journals ranked in the highest quartile (Q1) based on the web-of-science classification, and 37% were in the subsequent quartile (Q2). This high percentage of publications in the best quartiles is an indication of the high quality of the research conducted within the college, yet we believe that there is room for further improvement.

I would like to congratulate the college's staff and faculty on these accomplishments and hope that there will be many more achievements in the coming years in research and innovation that are relevant to the needs of industry and society.

Dr. Majid Altamimi
Dean, College of Engineering

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INTRODUCTION

This report covers all the research articles published by the College of Engineering faculty and staff in the journals that are indexed in the web-of-science (WoS) database within an indexing period starting from the 1st of September 2024 till the 31st of August 2025, covering the academic year 1446 Hijri.

After browsing the details of articles and the journals where they were published within the stated timeframe, the journal quartile and the topic classification were recorded for each publication. For the College of Engineering as well as each department individually, two charts summarizing the findings of this report are provided:

- 1) A distribution of the journal publications' quartile.

The journals included in the WoS Science Citation Index-Expanded (SCIE) are classified into quartiles based on information obtained from the Journal Citation Reports (JCR) by Clarivate. This chart provides a breakdown of the number of publications within each quartile. As WoS encompasses various categories for each field, this chart serves as an indicator of a department's excellence within its specialty or related fields of study.

- 2) Classification of Published Papers by WoS Meso-Topic

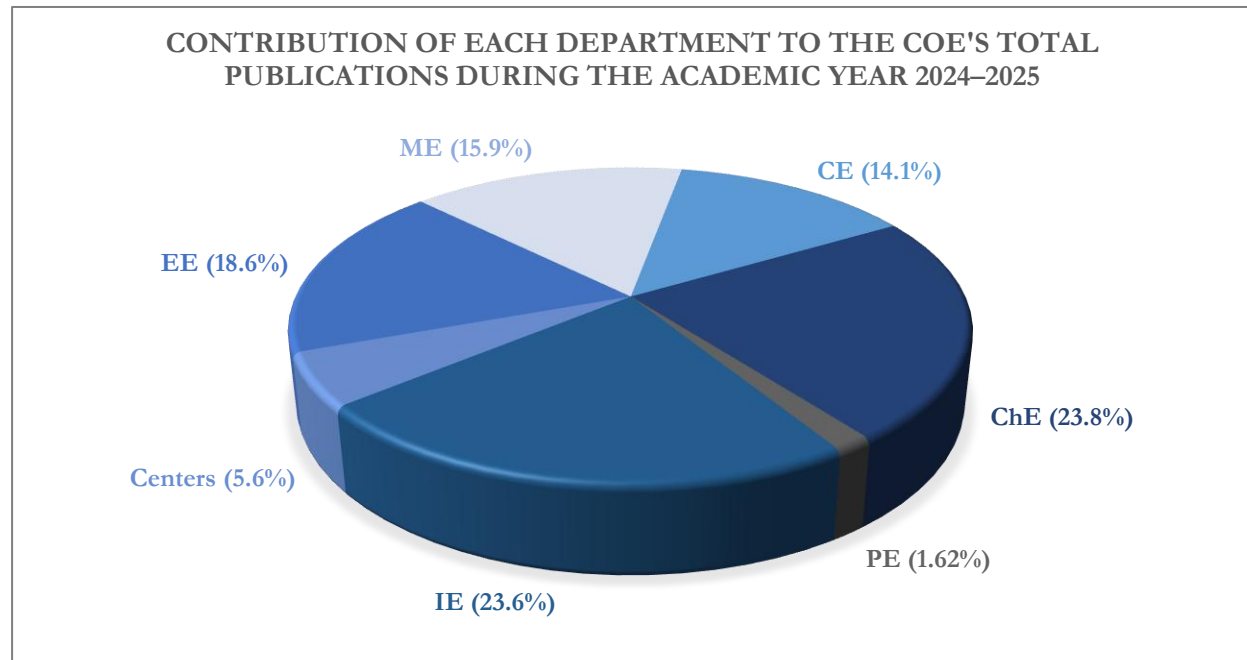
WoS citation topics are algorithmically derived citation clusters. Within WoS, these clusters are organized into three levels of hierarchy. This analysis focuses on the mid-level hierarchy known as the meso-topic classification. By applying this classification to the published papers of each department, as well as the college as a whole, the research areas within the college and departments can be effectively categorized and understood. This chart provides valuable insights into the most active fields of interest within the college, serving as an indicator of its areas of strength.

A full list of publications is also included in Appendix A of this document.

A Summary of Research Articles Published in the Academic Year 2024-2025 by Different Departments in the College of Engineering

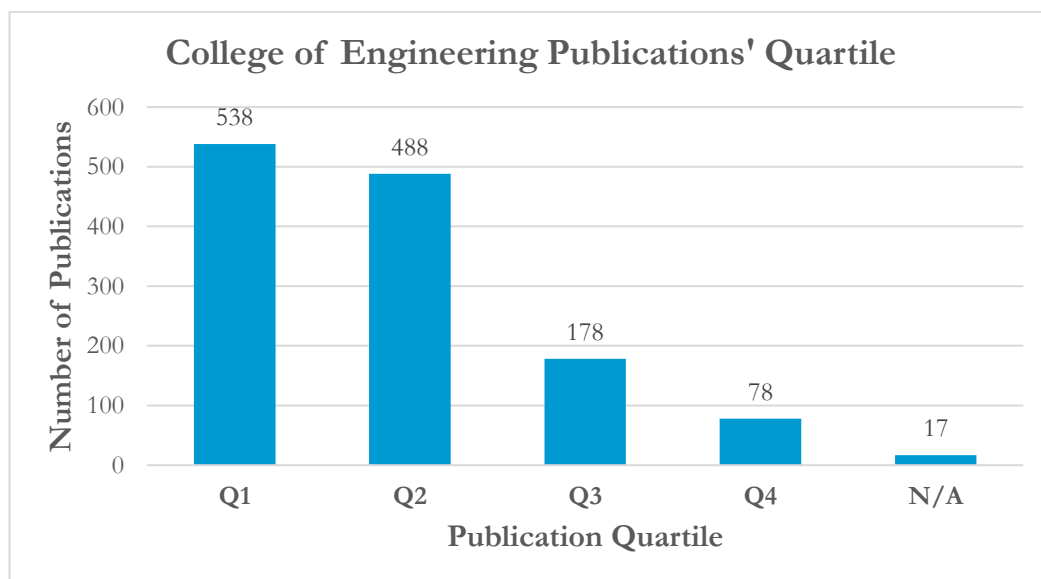
Department	Number of Publications
Chemical Engineering (ChE)	309
Civil Engineering (CE)	183
Electrical Engineering (EE)	242
Industrial Engineering (IE)	306
Mechanical Engineering (ME)	207
Petroleum & Gas Engineering (PE)	21
CENTERS	73

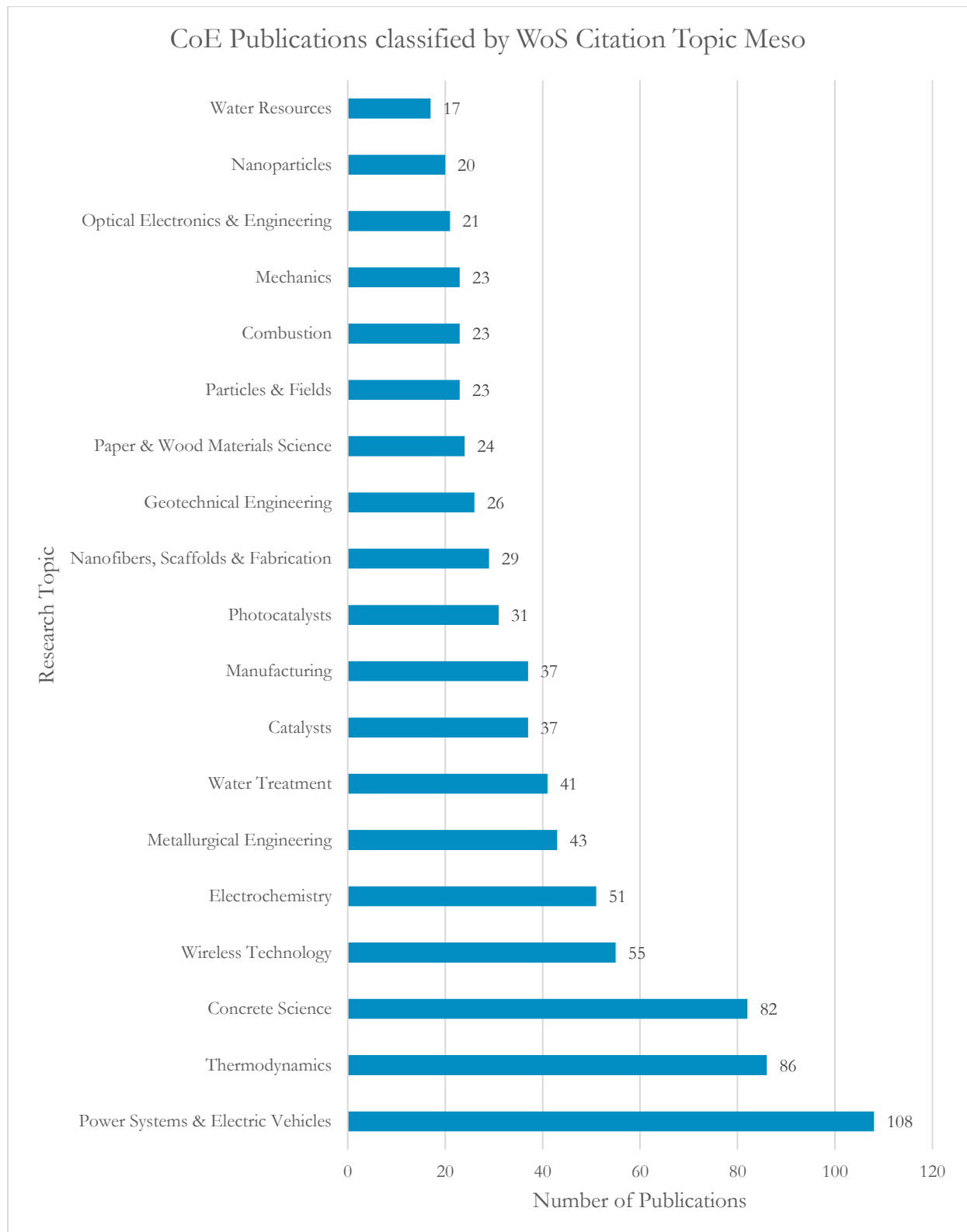
Note: 42 of the publications in this table were published as collaborative works among the college's different departments; as a result, they have been included in the list of two departments based on the affiliations of the collaborating authors.



COLLEGE OF ENGINEERING

The College of Engineering has published a total of 1299 journal articles. Approximately 41% of those articles were published in Q1 journals, while 37% were published in Q2-ranked journals. The top three research topic focus areas were: Power Systems & Electric Vehicles, Thermodynamics and Concrete Science.

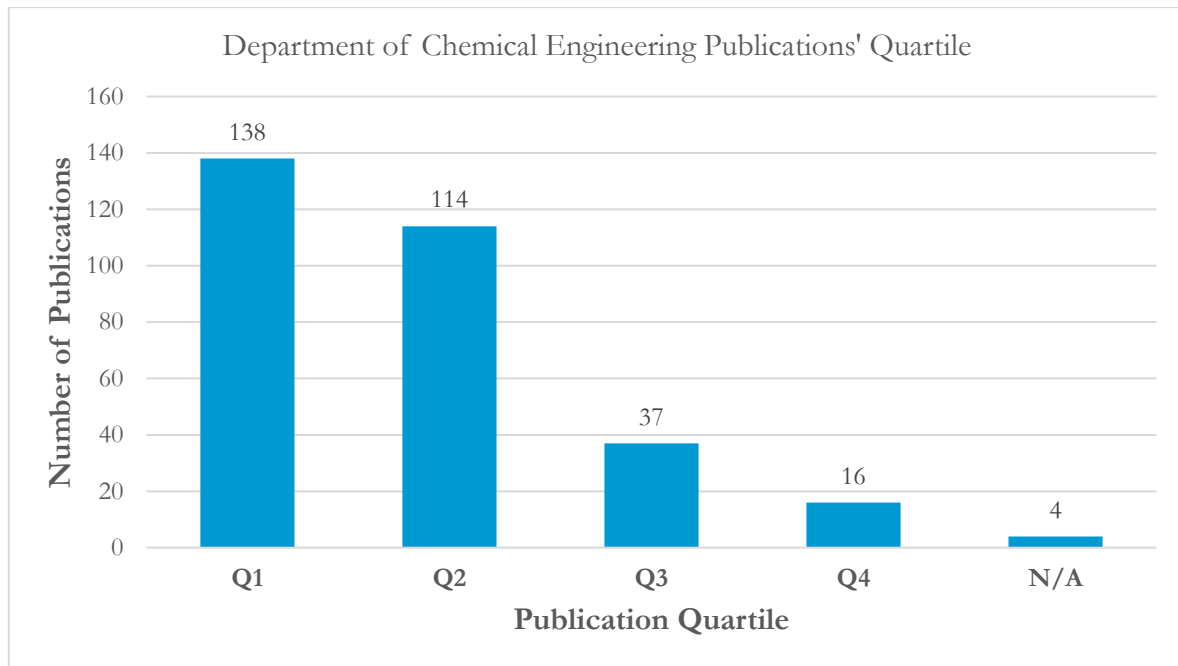


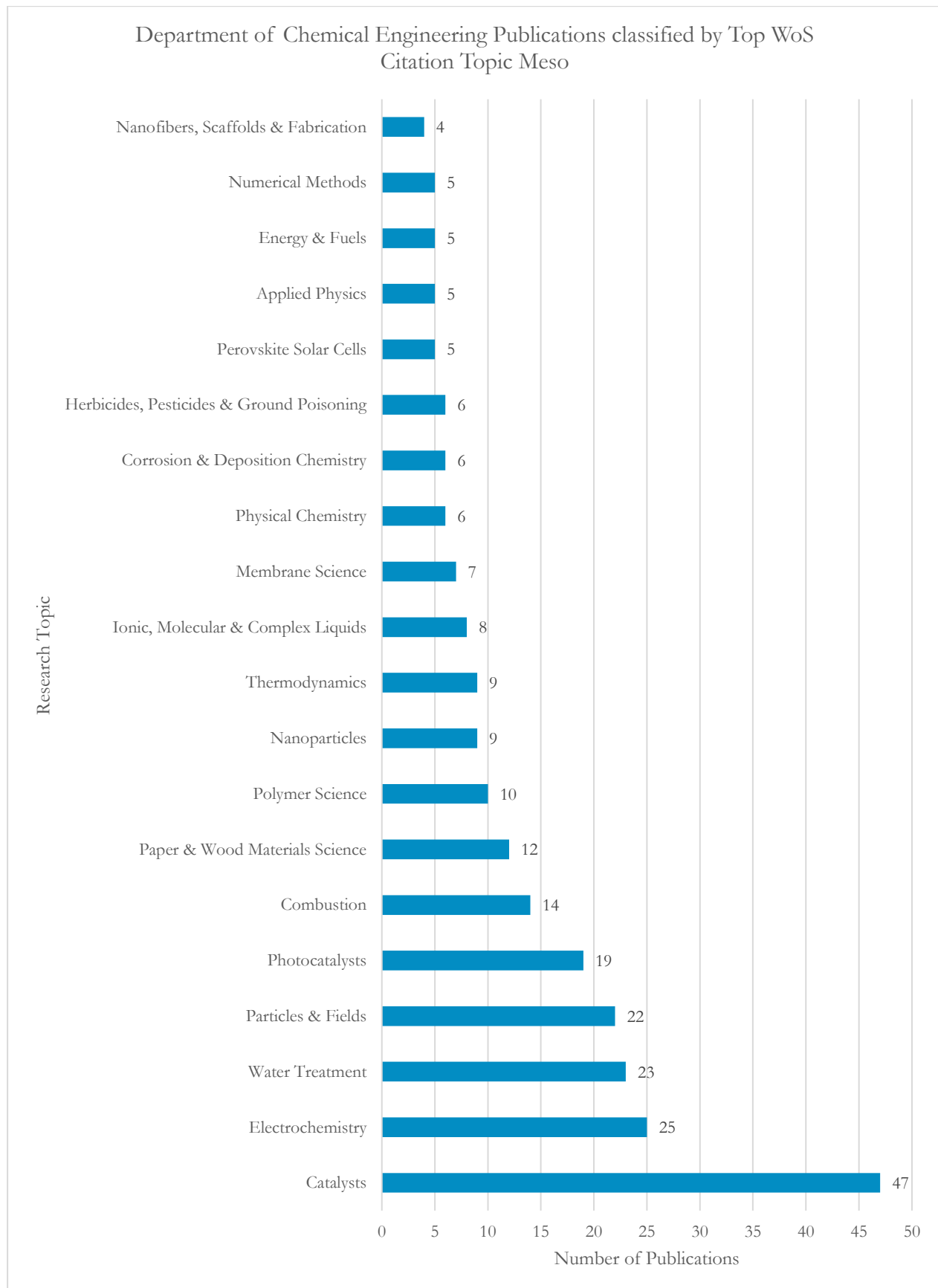


Note: Other than those on this list of research topics here, there are another 122 topics where 492 more research articles were published, bringing the total number of publications by CoE to 1299.

DEPARTMENT OF CHEMICAL ENGINEERING

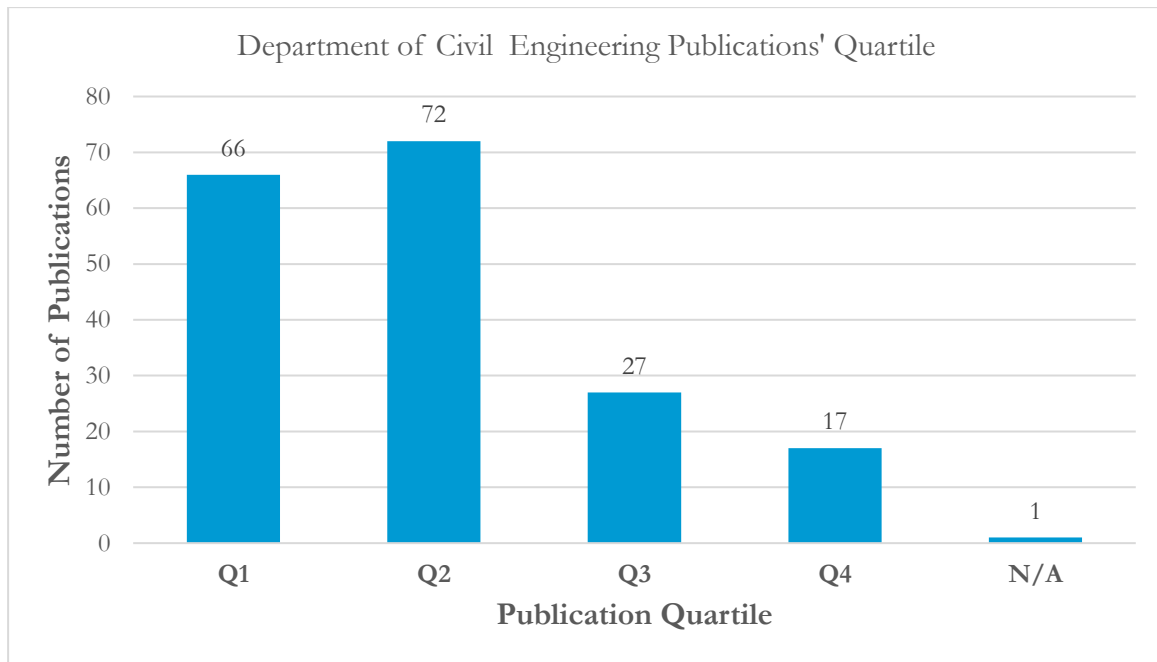
The Department of Chemical Engineering has published a total of 309 journal articles. Approximately 45% of those articles were published in Q1 journals, while 37% were published in Q2-ranked journals. The top three research focus areas were Catalysts, Electrochemistry and Water Treatment.



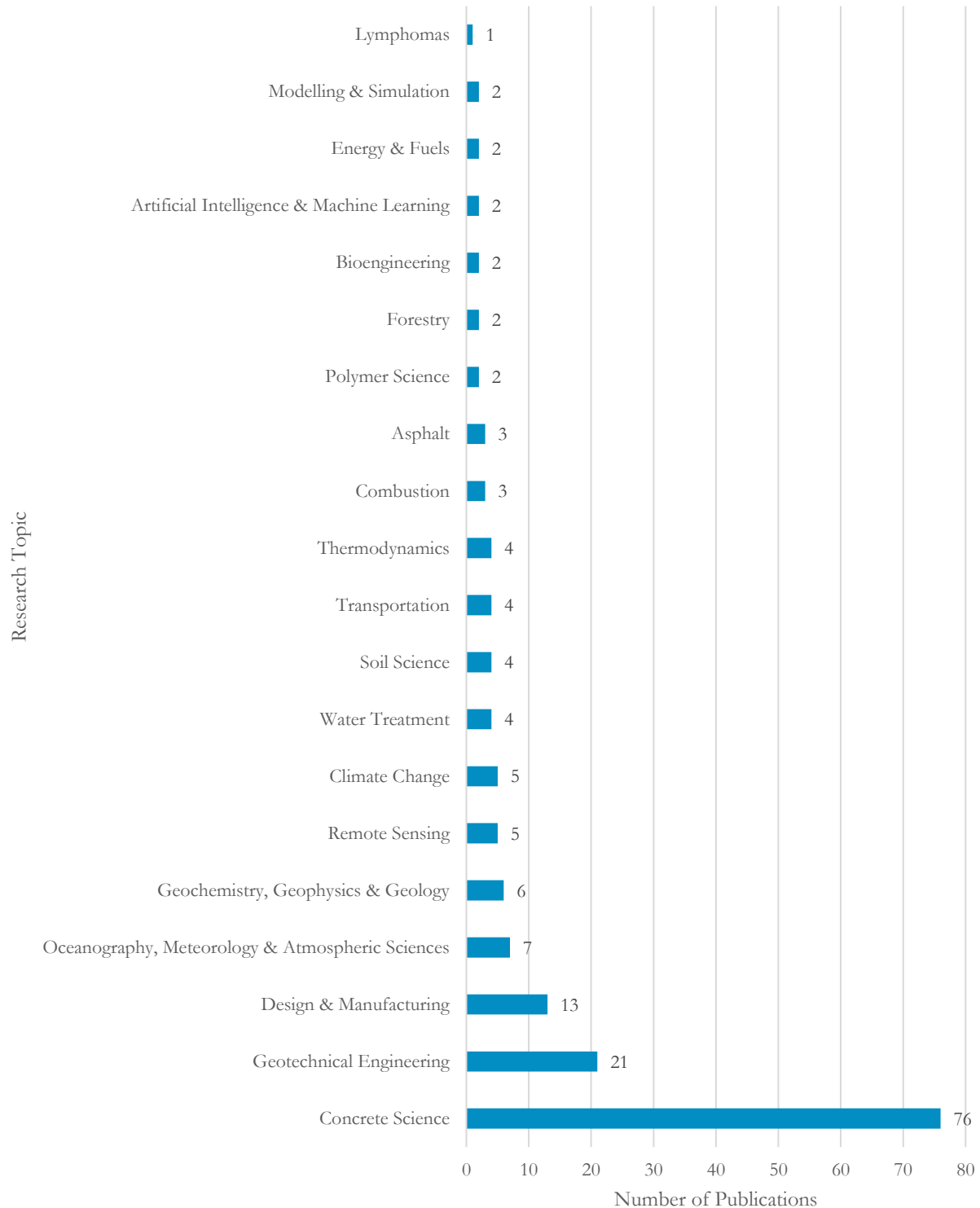


DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering has published a total of 183 journal articles. Approximately 36% of those articles were published in Q1 journals, while 39% were published in Q2-ranked journals. The top research focus areas were Concrete Science, Geotechnical Engineering and Design & Manufacturing.

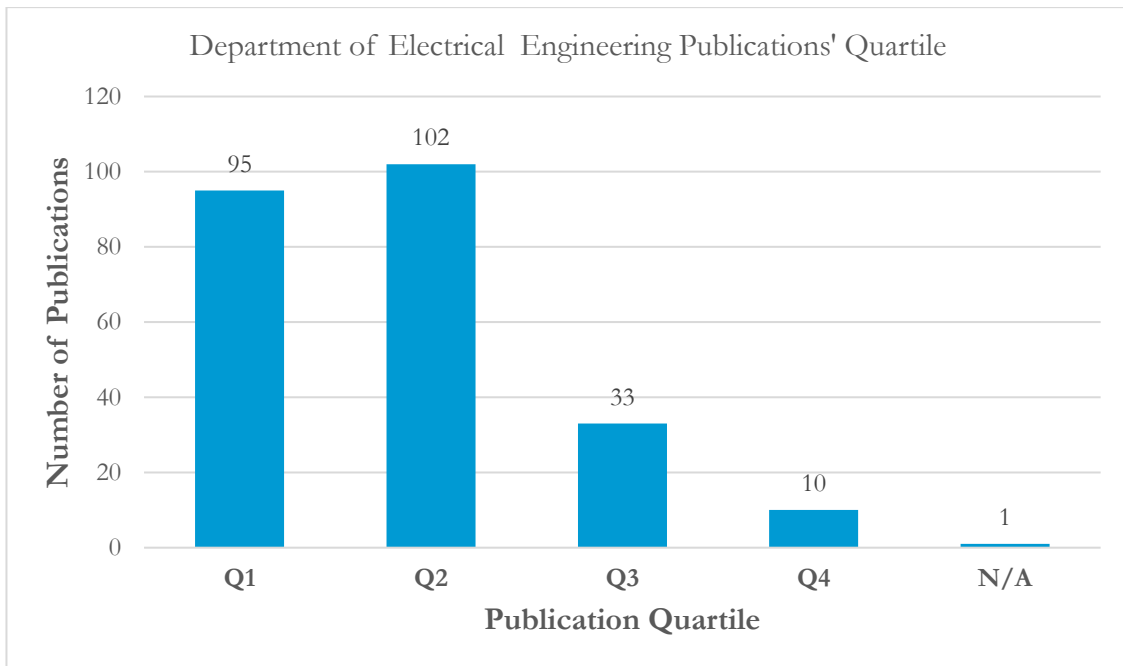


Department of Civil Engineering Publications classified by Top WoS Citation Topic Meso

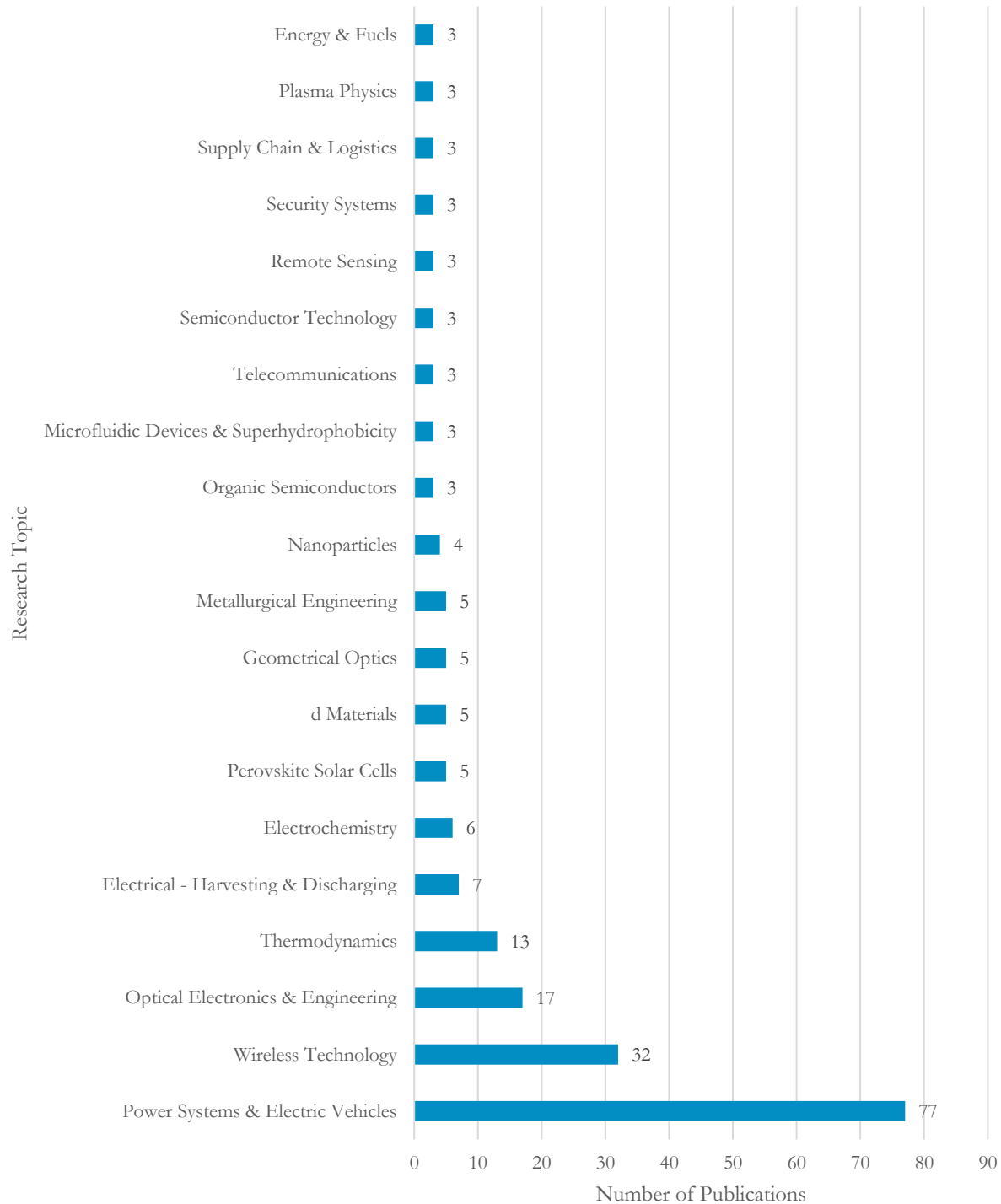


DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering has published a total of 242 journal articles. Approximately 40% of those articles were published in Q1 journals, while 42% were published in Q2-ranked journals. The top three research focus areas were: Power Systems and Electric Vehicles, Wireless Technology and Optical Electronics & Engineering.

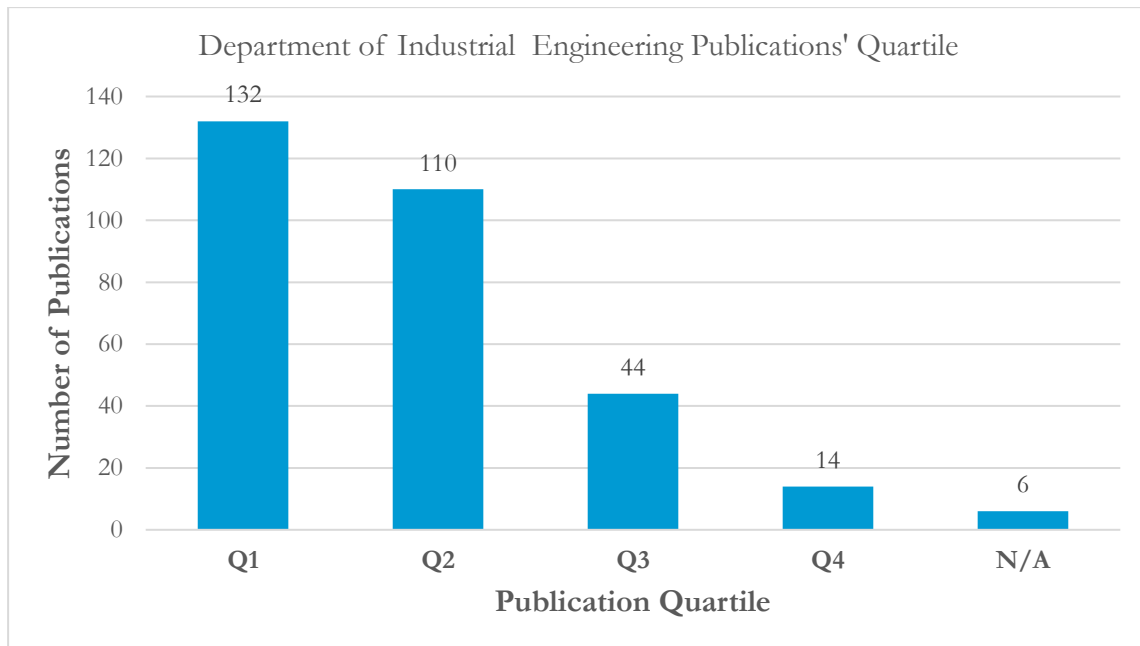


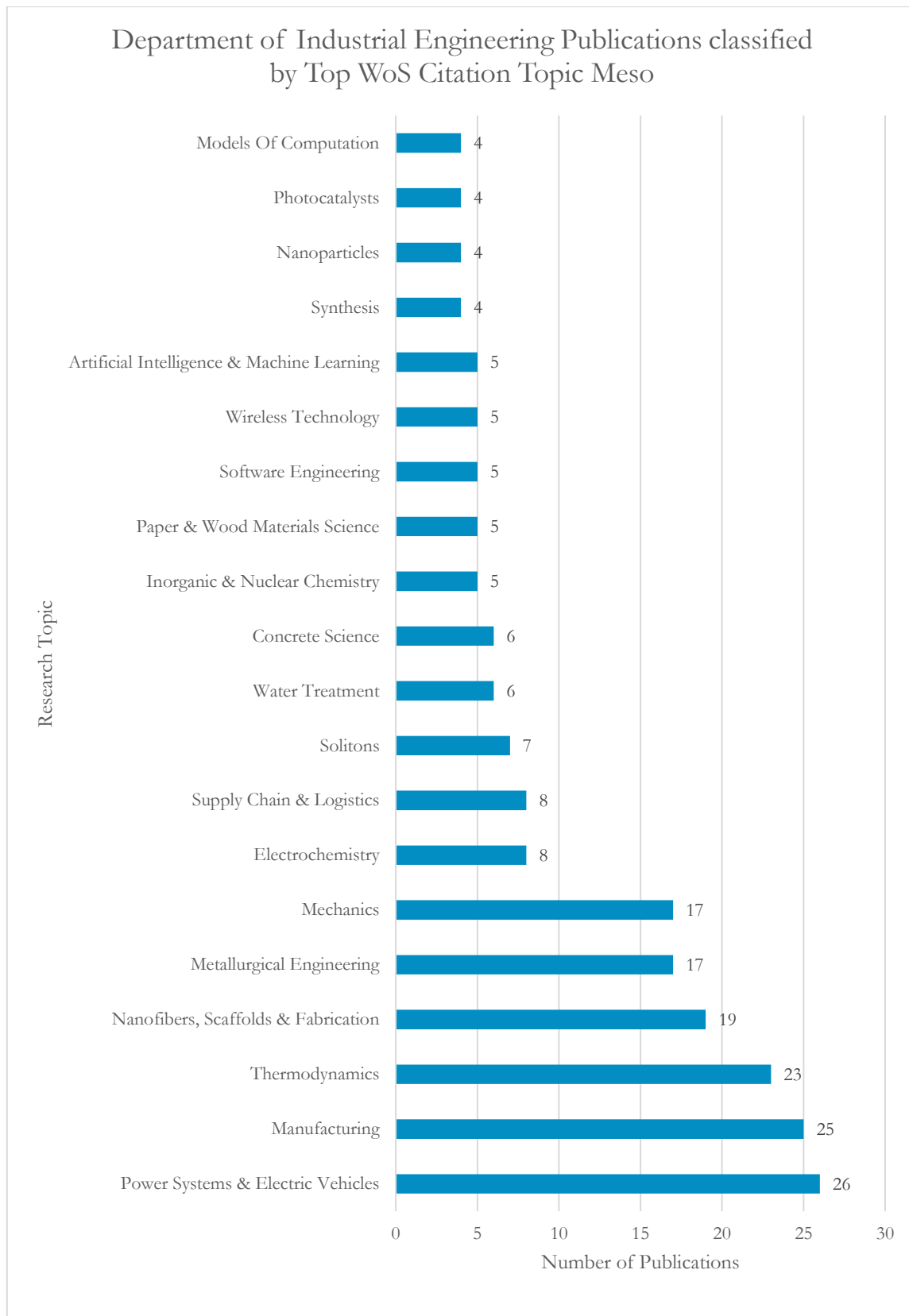
Department of Electrical Engineering Publications classified by Top WoS Citation Topic Meso



DEPARTMENT OF INDUSTRIAL ENGINEERING

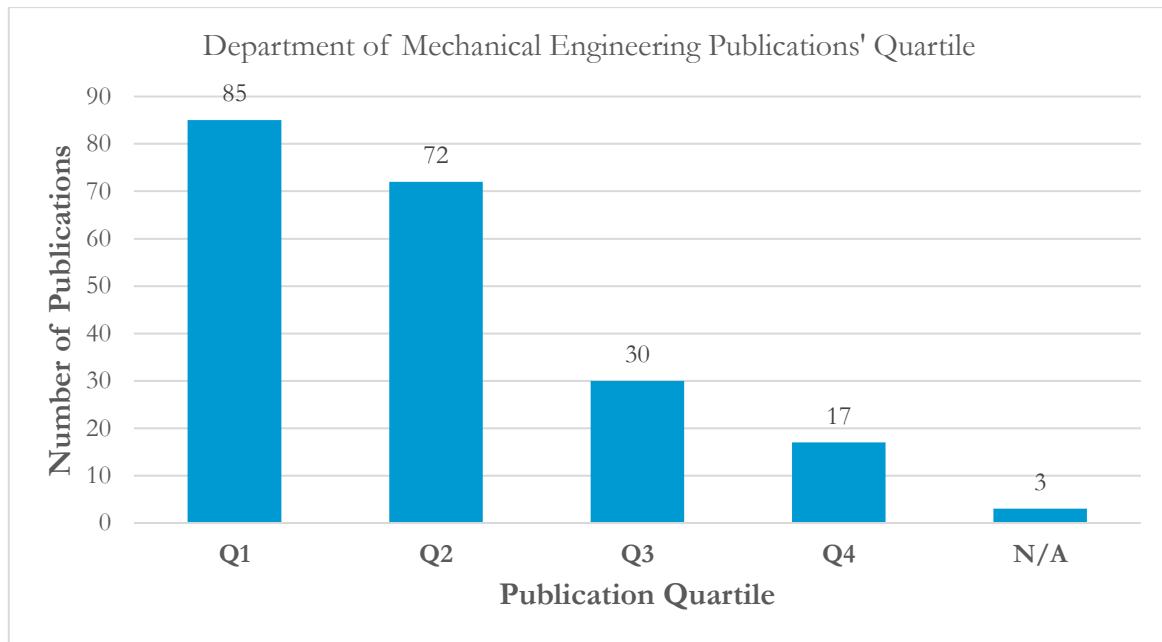
The Department of Industrial Engineering has published a total of 306 journal articles. Approximately 43% of those articles were published in Q1 journals, while 36% were published in Q2-ranked journals. The top three research focus areas were: Power Systems & Electric Vehicles, Manufacturing, Thermodynamics.

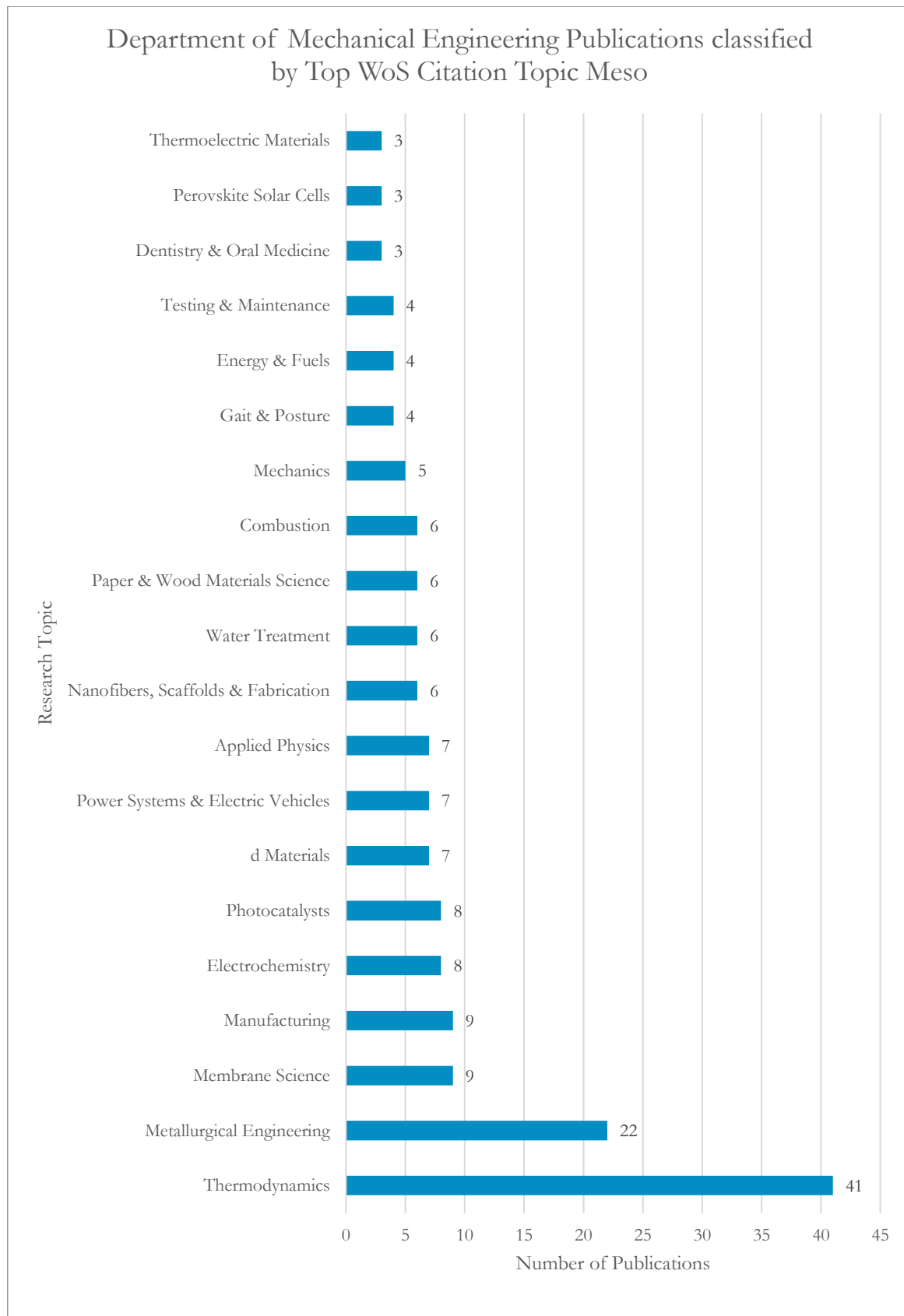




DEPARTMENT OF MECHANICAL ENGINEERING

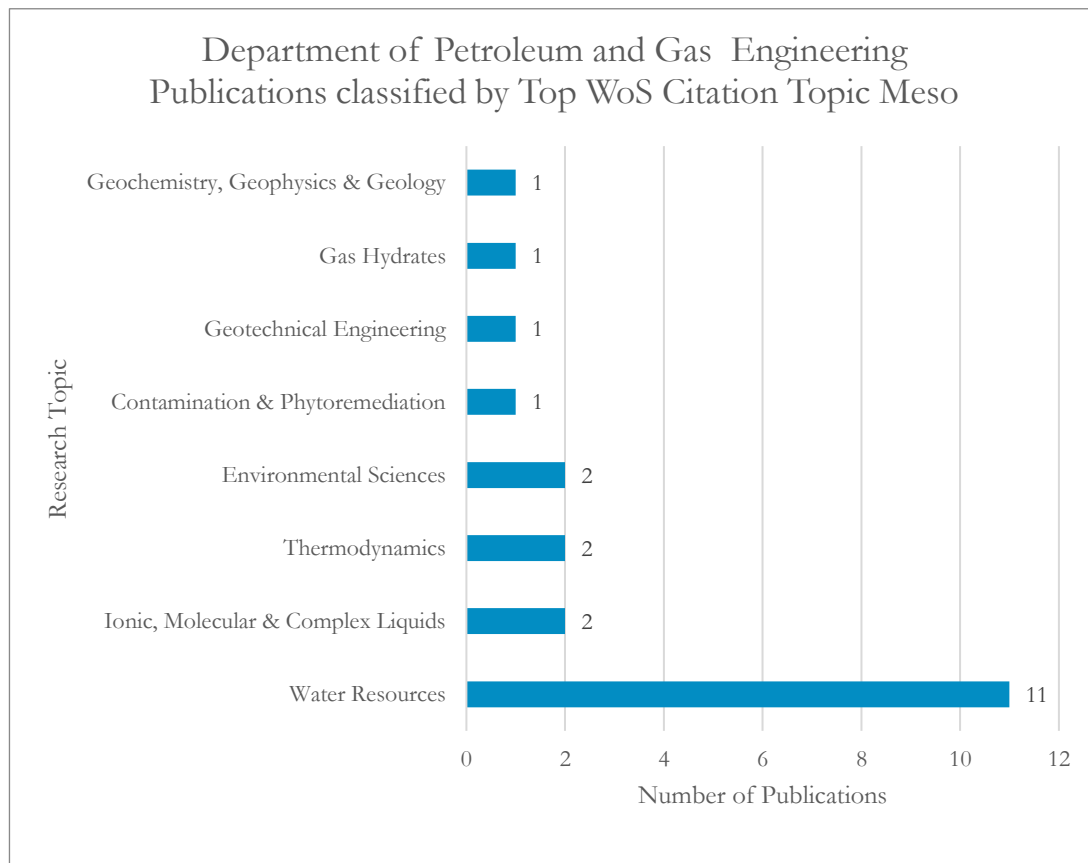
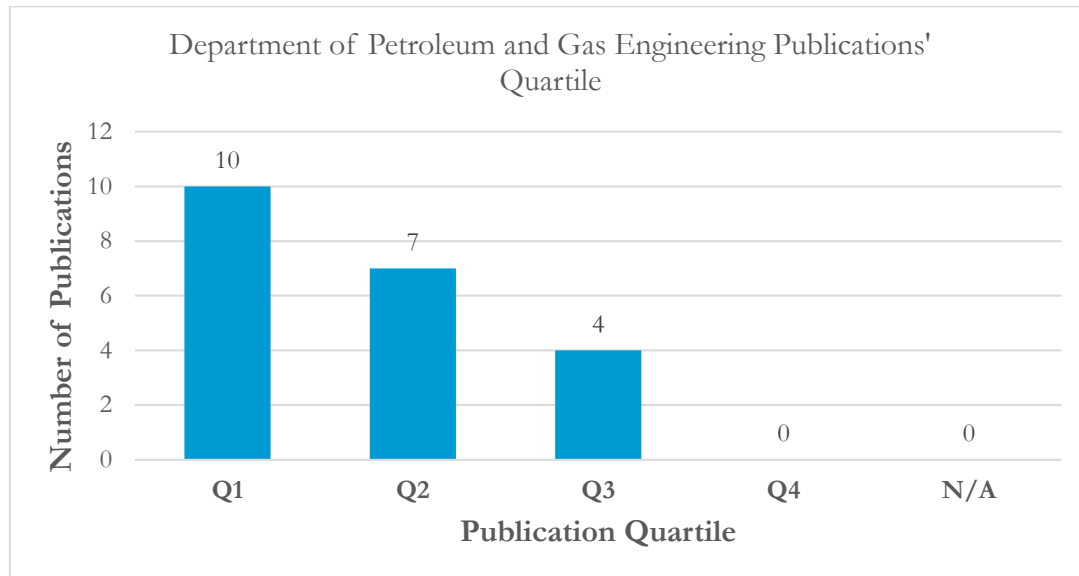
The Department of Mechanical Engineering has published a total of 207 journal articles. Approximately 41% of those articles were published in Q1 journals, while 35% were published in Q2-ranked journals. The top three research focus areas were: Thermodynamics, Metallurgical Membrane Science.





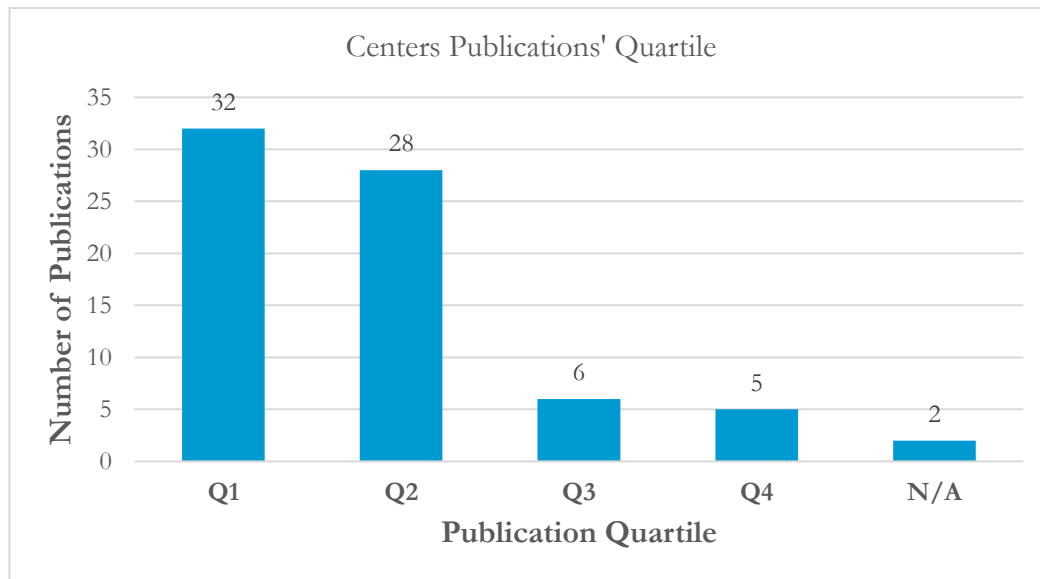
DEPARTMENT OF PETROLEUM AND GAS ENGINEERING

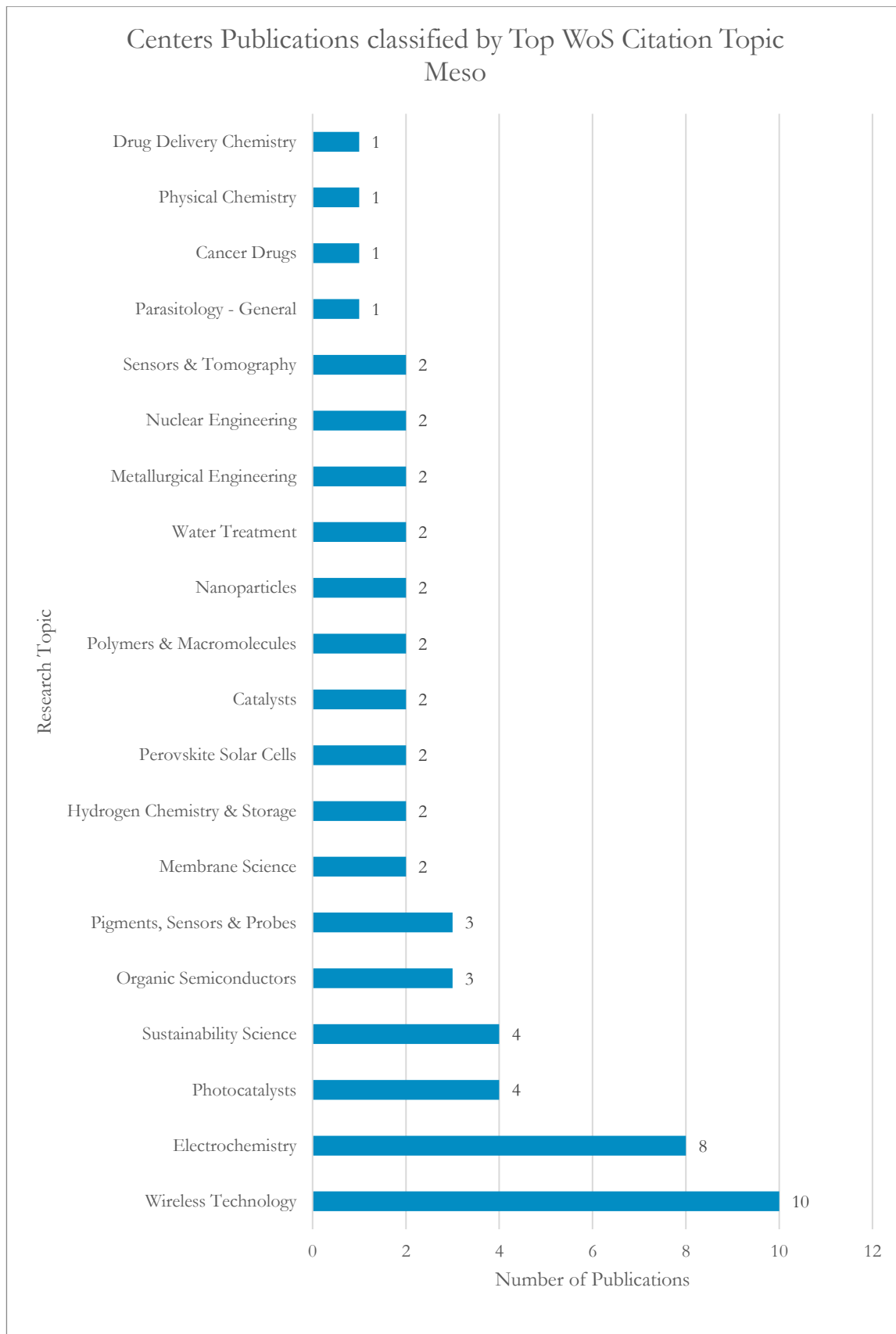
The Department of Petroleum and Gas Engineering has published a total of 21 journal articles. Approximately 48% of those articles were published in Q1 journals, while 33% were published in Q2-ranked journals. The research topics are classified under Water Resources, Ionic, Molecular & Complex Liquids and Thermodynamics.



CENTERS

The Centers (Sustainable Energy Technologies Center and Center of Excellence for Research in Engineering Material) have published a total of 73 journal articles. Approximately 44% of those articles were published in Q1 journals, while 38% were published in Q2-ranked journals. The research topics are classified under Wireless Technology, Electrochemistry and Photocatalysts.





TEAM INFORMATION



Dr. Majid Altamimi
Dean, College of Engineering



Dr. Abdullah Yahia AlFaify
Vice Dean for Graduate Studies &
Scientific Research



Dr. Osamah Abdullah Alsalman
Coordinator, CoE Scientific Research Unit

APPENDIX A: DEPARTMENT WISE LIST OF PUBLISHED PAPERS

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CHEMICAL ENGINEERING

PUBLICATIONS OF CHEMICAL ENGINEERING

- [ChE1] Parvez, A; Saleem, J; Bhatti, MA; Hasan, A; Mahmood, A; Ali, Z; Tauqeer, T. "Aligning practitioner's perception: Empowering MAST framework for evaluating telemedicine services", DIGITAL HEALTH. 2024
- [ChE2] Lam, NH; Truong, NTN; Kim, CD; Shaikh, H; Tamboli, MS; Alam, MA; Jung, JH. "Elevating photoelectrochemical water splitting efficiency using synergistic CuO@ZBO photocathode", INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. 2024
- [ChE3] Naseem, K; Manj, QW; Akram, S; Shabbir, S; Noor, A; Farooqi, ZH; Khan, SU; Ali, M; Nazar, MF; Haider, S; Alam, K. "Spectroscopic monitoring of polyurethane-based nanocomposite as a potential catalyst for the reduction of dyes", SPECTROCHIMICA ACTA PART A-MOLECULAR AND BIOMOLECULAR SPECTROSCOPY. 2024
- [ChE4] Putra, SSS; Chew, CY; Hayyan, A; Elgharbawy, AAM; Taskin-Tok, T; Hayyan, M; Ngoh, GC; Saleh, J; Al Abdulmonem, W; Alghsham, RS; Nor, MRM; Aldaihani, AGH; Basirun, WJ. "Nanodiamonds and natural deep eutectic solvents as potential carriers for lipase", INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES. 2024
- [ChE5] Bilal, HM; Ahmad, A; Abahussain, AAM; Nazir, MH; Zaidi, SZJ. "A Sustainable Green Ammonia Synthesis by Renewable Route: A Condensed Research with Design Aspects", JOURNAL OF NEW MATERIALS FOR ELECTROCHEMICAL SYSTEMS. 2024
- [ChE6] Munimathan, A; Jayabalan, J; Shanmugam, MK; Majdi, HS; Asif, M; Agbulut, Ü. "Evaluation of RCCI engine combustion, performance, and emissions using spirulina micro-algae biodiesel with methane-enriched hydrogen", INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. 2024
- [ChE7] Razzaque, S; Abubakar, M; Farid, MA; Zia, R; Nazir, S; Razzaque, H; Ali, A; Ali, Z; Mahmood, A; Al-Masry, W; Akhter, T; Hassan, SU. "Detection of toxic cypermethrin pesticides in drinking water by simple graphitic electrode modified with Kraft lignin@Ni@g-C₃N₄ nano-composite", JOURNAL OF MATERIALS CHEMISTRY B. 2024
- [ChE8] Al-Tamimi, AA; Tlija, M; Alhamidi, A; Abidi, MH; Al-Ahmari, A; Al-Zahrani, SM. "A novel reinforced PLA locking compression plate to eliminate stress shielding using design for additive manufacturing", JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T. 2024
- [ChE9] Kothari, MS; Hassan, AA; Tegenaw, A; Sahle-Demessie, E; El-Dieb, A; El-Hassan, H; Al-Anazi, A. "Sustainable synthesis of carbide slag waste derived hydroxyapatite and its application for cationic dye adsorption", JOURNAL OF WATER PROCESS ENGINEERING. 2024
- [ChE10] Merouani, S; Dehane, A; Hamdaoui, O. "Ultrasonic decomposition of endocrine disrupting Compounds - A review", ULTRASONICS SONOCHEMISTRY. 2024
- [ChE11] Rajput, YB; Al-Fatesh, AS; Osman, AI; Bayazed, MO; Ibrahim, AA; Fakeeha, AH; Abasaed, AE; Almubaddel, FS; Alothman, O; Kumar, R. "Enhancing hydrogen production via dry reforming of methane: Optimization of Co and Ni on scandia-ceria-zirconia supports for catalytic efficiency and economic feasibility", FUEL. 2024

[ChE12] Mohsen, OA; Faraj, MW; Darwesh, TM; Jawad, NH; Abed, KM; Hayyan, A; Alanazi, YM; Saleh, J; Sen Gupta, B; Salleh, MZM. "Indole derivatives efficacy and kinetics for inhibiting carbon steel corrosion in sulfuric acid media", RESULTS IN ENGINEERING. 2024

[ChE13] Alhokbany, N; Aljammaz, I; Alotaibi, B; Almalki, Y; Almasaari, S. "Synthesis, characterization and density functional theory of 64Cu based complex for hypoxia imaging", JOURNAL OF KING SAUD UNIVERSITY SCIENCE. 2024

[ChE14] Seku, K; Reddy, GB; Osman, AI; Hussaini, SS; Kumar, NS; Al-Abri, M; Pejjai, B; Alreshaidan, SB; Al-Fatesh, AS; Kadimpati, KK. "Modified frankincense resin stabilized gold nanoparticles for enhanced antioxidant and synergetic activity in in-vitro anticancer studies", INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES. 2024

[ChE15] Usman, A; Hussain, MT; Akram, N; Zuber, M; Sultana, S; Aftab, W; Zia, KM; Maqbool, M; Alanazi, YM; Nazir, A; Javaid, MA. "Modulating alginate-polyurethane elastomer properties: Influence of NCO/ OH ratio with aliphatic diisocyanate", INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES. 2024

[ChE16] Bibi, M; Asghar, MA; Ahmad, S; Zehra, SM; Haider, S; Alam, K; Kuang, YB; Mansoor, MA; Ahmad, F; Iqbal, M. "Novel ZnSe@d-Ti3CNTx 3 CNT x nanocomposite as efficient bifunctional electrocatalyst for water splitting system", MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING. 2024

[ChE17] Zheng, SJ; Yao, JN; Huang, Y; Ren, JQ; Hou, Y; Yang, B; Lei, LC; Fu, JJ; Al-Anazi, A; Jiang, GB; Li, ZJ. "Impacts of chloride ions on the electrochemical decomplexation and degradation of Cr(III)-EDTA: Reaction mechanisms of HO• and RCS", JOURNAL OF HAZARDOUS MATERIALS. 2024

[ChE18] Saeed, MU; Usman, T; Pervaiz, S; Ali, Z; Alanazi, YM; Bacha, AUR; Saeed, Y. "DFT Analysis of Alkali Scandium Sulfides AScS2 (A = K, Rb): Unveiling Structural, Electronic, and Optical Properties for Enhanced Photocatalysis", ACS APPLIED OPTICAL MATERIALS. 2024

[ChE19] Hasan, GG; Laouini, SE; Osman, AI; Bouafia, A; Althamthami, M; Meneceur, S; Al-Hazeef, MSF; Al-Fatesh, AS; Rooney, DW. "Green synthesis of Mn3O4@CoO nanocomposites using Rosmarinus officinalis L. extract for enhanced photocatalytic hydrogen production and CO2 conversion", JOURNAL OF ENVIRONMENTAL CHEMICAL ENGINEERING. 2024

[ChE20] Decardi-Nelson, B; Alshehri, AS; You, FQ. "Generative artificial intelligence in chemical engineering spans multiple scales", FRONTIERS IN CHEMICAL ENGINEERING. 2024

[ChE21] Ahmad, S; Ashraf, I; Haider, S; Alam, K; Mansoor, MA; Iqbal, M. "Hydrothermal approach for the synthesis of FeSe2/Ti3CNTx and its applications towards water splitting and energy storage", DIAMOND AND RELATED MATERIALS. 2024

[ChE22] Ali, E. "Integrated membrane distillation and absorption chiller driven by solar energy: Concept and analysis", JOURNAL OF RENEWABLE AND SUSTAINABLE ENERGY. 2024

- [ChE23] Amichi, H; Merouani, S; Dehane, A; Bouchoucha, H; Hamdaoui, O. "Photo(solar)-Activated Hypochlorite Treatment: Radicals Analysis Using a Validated Model and Assessment of Efficiency in Organic Pollutants Degradation", PROCESSES. 2024
- [ChE24] Fakeeha, AH; Ibrahim, AA; Osman, AI; Abasaeed, AE; Alanazi, YM; Almubaddel, FS; Al-Fatesh, AS. "Advancements in Methane Dry Reforming: Investigating Nickel-Zeolite Catalysts Enhanced by Promoter Integration", PROCESSES. 2024
- [ChE25] Amran, S; Salleh, MZM; Hizaddin, HF; Luthfi, AAI; Saleh, NM; Hadj-Kali, MK. "Extraction of Pyrrole from Its Mixture with n-Hexadecane Using Protic Ionic Liquids", MOLECULES. 2024
- [ChE26] Bayazed, MO; Al-Fatesh, AS; Fakeeha, AH; Ibrahim, AA; Abasaeed, AE; Alromach, AI; Frusteri, F; Abu Dahrieh, JK. "Role of MgO in Al₂O₃-supported Fe catalysts for hydrogen and carbon nanotubes formation during catalytic methane decomposition", ENERGY SCIENCE & ENGINEERING. 2024
- [ChE27] Hayyan, A; Abed, KM; Hayyan, M; Ali, AJ; Basirun, WJ; Putra, SSS; Alias, Y; Alanazi, YM; Saleh, J; Hashim, MA; Gupta, BS. "Direct application of tungstosilicic acid hydrate for the treatment of high free fatty acid in acidic crude palm oil and for biodiesel production", JOURNAL OF THE AMERICAN OIL CHEMISTS SOCIETY. 2025
- [ChE28] Keerthiga, R; Anju, K; Dhenadhayalan, N; Sangeetha, MS; Vinod, SM; Gayathri, S; AlReshaidan, SB; Al-Fatesh, AS; Alarifi, N; Bellahwel, O; Kumar, NS; Tamizhdurai, P; Kumaran, R. "Exploring the interaction between derivatives of urea with resorcinol-based acridinedione dyes by employing fluorescence methods and molecular docking approach", RESULTS IN CHEMISTRY. 2024
- [ChE29] Ali, I; Shchegolkov, AV; Shchegolkov, AV; Chumak, MA; Kurniawan, TA; Bin Jumah, A; Imanova, G. "Synthesis and characterization of MWCNTs nanocomposite for fabrication of tensometric transducers", FULLERENES NANOTUBES AND CARBON NANOSTRUCTURES. 2025
- [ChE30] Alam, MA; Samad, UA; Abdo, HS; Anis, A; Alnaser, IA; Hassan, A; Al-Zahrani, SM. "Fabrication of Hybrid Epoxy Composites (Joint Compound Adhesive) for Aluminum Substrate Applications and Their Evaluation for Mechanical Properties", ACS OMEGA. 2024
- [ChE31] Murphy, BO; Latimer, C; Dobani, S; Pourshahidi, LK; Fontana, M; Ternan, NG; McDougall, G; Rowland, I; Pereira-Caro, G; Tuohy, KM; Del Rio, D; Almutairi, TM; Crozier, A; Naumovski, N; Gill, CIR. "Microbially mediated phenolic catabolites exert differential genoprotective activities in normal and adenocarcinoma cell lines", INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION. 2024
- [ChE32] Al-Fatesh, AS; Osman, AI; Ibrahim, AA; Alanazi, YM; Fakeeha, AH; Abasaeed, AE; Almubaddel, FS. "Integrating advanced fitting models with experimental catalysis to maximize H₂ production in dry reforming using nickel on metalized-silica-alumina catalysts", SUSTAINABLE ENERGY & FUELS. 2024
- [ChE33] Fatima, N; Usman, M; Yusaf, A; Bokhari, TH; Akram, N; Rehman, S; Haider, S; Siddiq, M; Bhatti, MA; Cheema, MA. "Unveiling the role of solubilization of metformin hydrochloride

assimilated in nonionic surfactants mediated mixed micellar assemblies", COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS. 2024

[ChE34] Alam, M; Naeem, N; Khoja, AH; Khan, UM; Partho, AT; Kaushal, N; Gul, J; Shuja, SM; Anwar, M; Ali, M; Al-Anazi, A; Vo, DVN. "Recent advancements in perovskite materials and their DFT exploration for dry reforming of methane to syngas production", INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. 2024

[ChE35] Mushtaq, F; Tiecheng, X; Ditta, A; Alanazi, YM. "Investigating the weak gravitational lensing in Starobinsky-Bel-Robinson gravity black hole", INTERNATIONAL JOURNAL OF GEOMETRIC METHODS IN MODERN PHYSICS. 2025

[ChE36] Shukla, AK; Alam, J; Alhoshan, M. "Rheological behavior of polyphenylsulfone-organic additives solutions: a key factor in membrane fabrication process", POLYMER-PLASTICS TECHNOLOGY AND MATERIALS. 2025

[ChE37] Abed, KM; Hayyan, A; Hizaddin, HF; Hashim, MA; Basirun, WJ; Saleh, J; Hashim, NA. "Superiority of liquid membrane-based purification techniques in biodiesel downstream processing", RENEWABLE & SUSTAINABLE ENERGY REVIEWS. 2025

[ChE38] Hassan, H; Imran, M; Ahmad, Z; Barsoum, I; Haider, S; Khan, SU; Khan, K. "Zinc cobaltite embedded in binary metal-organic frameworks using a direct binder-free electrode fabrication approach for efficient energy storage devices and monosodium glutamate detection", JOURNAL OF ALLOYS AND COMPOUNDS. 2024

[ChE39] Ditta, A; Xia, TC; Maurya, SK; Mustafa, G; Mahmood, A; Ray, S. "Physical characteristics of anisotropic solutions in $f(Q, T)$ gravity under the vanishing complexity, embedding class one, conformally flat and conformally Killing conditions", NUCLEAR PHYSICS B. 2024

[ChE40] Fayyaz, S; Mushtaq, F; Mahar, J; Tariq, M; Haider, S; Alam, K; Iqbal, A. "Biogenic fabrication of NiO-ZnO-CaO ternary nanocomposite using Azadirachta Indica (Neem) leaves extract with proficient photocatalytic degradation of rhodamine B dye", MATERIALS SCIENCE AND TECHNOLOGY. 2024

[ChE41] Alanazi, YM; Al-Fatesh, AS; Al-Mubaddel, FS; Ibrahim, AA; Fakeeha, AH; Abasaeed, AE; AL-Garadi, NYA; Osman, AI. "Response Surface Methodology for Ni-Zeolite Catalyst Optimization in Syngas Production", ACS OMEGA. 2024

[ChE42] Iqbal, MA; Mahmood, A; Al-Masry, W; Park, CH; Ul Hassan, S; Akhter, T. "Versatile poly(N-vinylcaprolactam)-grafted-hydroxypropyl cellulose polymers with tailored thermo- and pH-responsive properties via sustainable organocatalyzed atom transfer radical polymerization", POLYMER CHEMISTRY. 2024

[ChE43] Saeed, AMM; Cao, GP; Al-Fatesh, AS; Alreshaidan, SB; Ali, N; Shehu, MS; Yan, JY. "Highly efficient platinum nano-particles decorated multi-walled carbon nanotubes (Pt/MWCNTs) catalyst for catalytic hydrogenation of styrene-butadiene-styrene (SBS) copolymer", ARABIAN JOURNAL OF CHEMISTRY. 2024

- [ChE44] Kumbhat, A; Madaan, A; Goel, R; Appari, S; Al-Fatesh, AS; Osman, AI. "Predicting nickel catalyst deactivation in biogas steam and dry reforming for hydrogen production using machine learning", *PROCESS SAFETY AND ENVIRONMENTAL PROTECTION*. 2024
- [ChE45] Al-Fatesh, AS; Chava, R; Alwan, SM; Ibrahim, AA; Fakeeha, AH; Abu-Dahrieh, JK; Elnour, AY; Abasaheed, AE; Al-Othman, O; Appari, S. "Effect of Ga-Promoted on Ni/Zr + Al₂O₃ Catalysts for Enhanced CO₂ Reforming and Process Optimization", *CATALYSIS LETTERS*. 2024
- [ChE46] Bibi, M; Asghar, MA; Ahmad, S; Haider, S; Alam, K; Khan, SA; Mansoor, MA; Iqbal, M. "Enhanced Electrocatalytic Performance of Novel d-Ti₃CN@CdSe Nanocomposite for Efficient Water Splitting: Achieving Low Overpotential and High Stability", *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*. 2024
- [ChE47] Elnour, AY; Abasaheed, AE; Fakeeha, AH; Ibrahim, AA; Alreshaidan, SB; Al-Fatesh, AS. "Dry Reforming of Methane (DRM) over Hydrotalcite-Based Ni-Ga/(Mg, Al)₂O₃ Catalysts: Tailoring Ga Content for Improved Stability", *CATALYSTS*. 2024
- [ChE48] Alanazi, YM; Yin, CY; Al Ragib, A; El-Harbawi, M; Sivapragasam, M. "Life Cycle Assessment of Extraction of Cellulose from Date Palm Biomass Using Natural Deep Eutectic Solvent (NaDES) via Microwave-Assisted Process", *APPLIED SCIENCES-BASEL*. 2024
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College of Engineering
P.O. Box 800, Riyadh-11421
Kingdom of Saudi Arabia
Tel: +966-11-4677089
Fax: +966-11-4673517
E-mail: coe_d@ksu.edu.sa