

Department of Civil & Architectural Engineering

Department Executive Summary

Civil engineering is one of the oldest professions in the world. It is a professional engineering discipline that deals with the design, construction and maintenance of the man-made and naturally-built environment. Civil engineers are involved in planning, design, analysis and construction of buildings; transportation systems (highways, bridges, tunnels, airports and ports); water distribution and wastewater collection systems; environment management systems, and other related systems. The main objective of the Civil Engineering Program is to provide the State of Qatar with highly qualified civil engineers to meet the needs of the local and regional markets. The program also provides research and community service geared to the benefit of the local and regional societies in particular, and the entire global society at large. In addition to the undergraduate program, which offers several areas of specializations, the department participates in the College of Engineering graduate program (master's degrees) through two tracks: construction management and environmental engineering. The department also offers masters and doctoral degrees in civil engineering.



Prof. Ramzi Taha
Head, Department of Civil & Architectural Engineering

Department Profile

Table 1: Exertive Summary of Civil & Architectural Engineering Department

Description	
Academic and Support Staff	2016
Faculty	18
Teaching Assistant	6
Support Staff	3
On-Study Leave	1
Total	28
Undergraduate Program	2016
Enrollment	365
Graduates	29
Total number of registered students	394
Graduate Program	2016
Enrollment	26
Graduates	6
Total number of registered students	32
Research Projects Awarded	2016
UREP	6

NPRP	7
Qatar University Start-Up Grants	1
University Internal Students' Grants	5
External Grants	0
GCC Co-Fund Program	1
Publications (Appendix A1)	2016
Refereed Journal Papers	35
Conference Papers	11
Technical Reports	0
Book Chapters	0
Books	0
Book Reviews	0
Editorials and Essays	0
Seminars – Public Lectures – Short Courses (Appendix A2)	2016
Seminars and Public Lectures Delivered by Departmental Faculty Members Inside Qatar University	9
Seminars and Public Lectures Delivered by Departmental Faculty Members Outside Qatar University	1
Short Course Delivered by Departmental Faculty Members	1
Seminars and Public Lectures Attended by Departmental Faculty Members	4
Seminars and Public Lectures Delivered by Visiting Academics and Professionals	4
Invited Public Lectures/ Keynote Speakers	1
Faculty Activities (Appendix A3)	2016
Consultancy	4
Community Service	4
Awards and Achievements	2
Conferences Attended	7
Workshops, Training and Visits	1
Events Organized	1
Students' Activities (Appendix A4)	2016
Competitions	2
Awards	2
Other Activities	8

Academic Staff

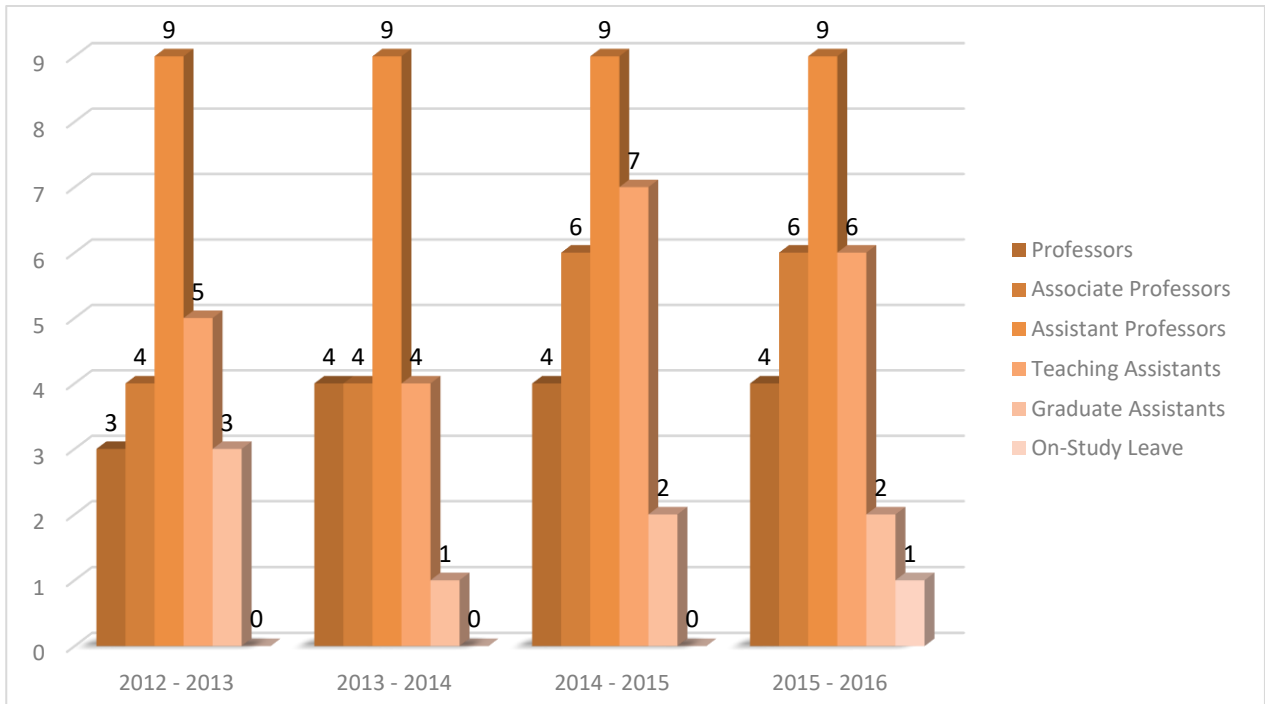


Figure 1: Academic Staff in CAE Department, 2012-2016.

Technical and Administrative Staff

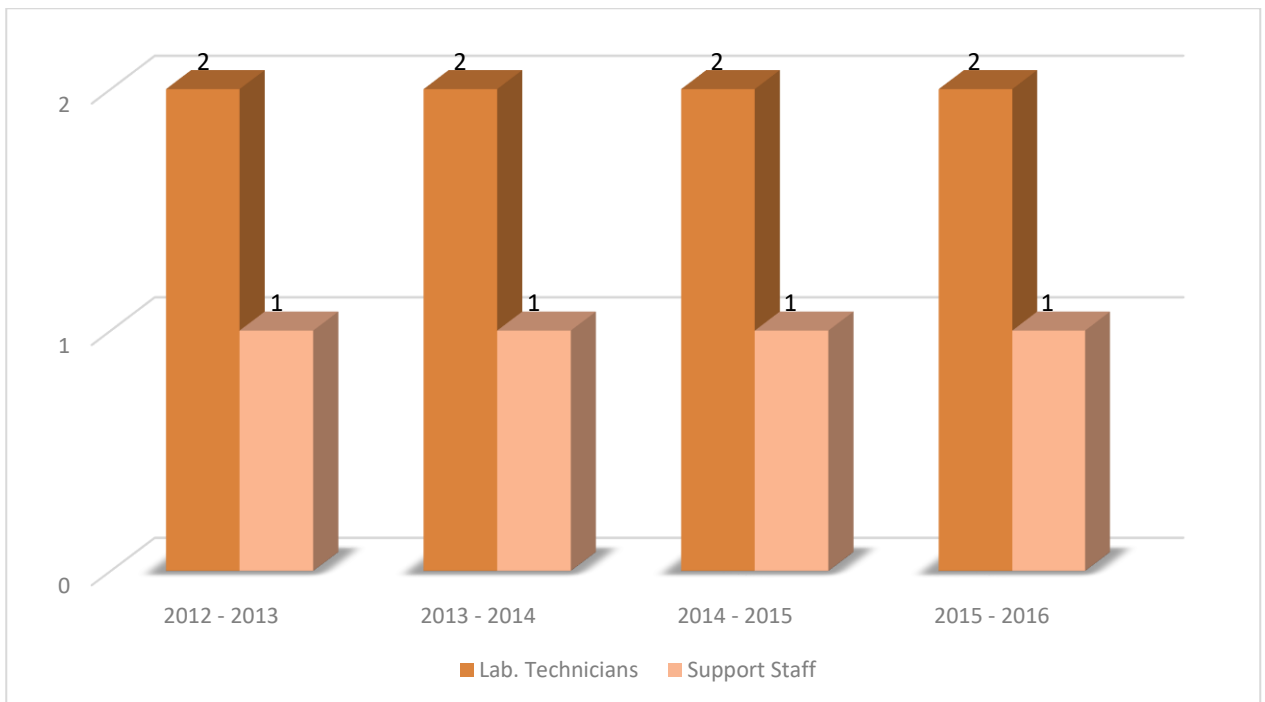


Figure 2: Non-Academic Staff in CAE Department, 2012-2016.

Department Standing Committees

The department has eight active committees with established terms of reference for each committee in line with those of similar committees in the College of Engineering and a number of coordinators.

Department Committees – 2016:

- Departmental Board Committee : Dr. Ramzi Taha
- Curriculum Committee: Chair: Dr. Usama Ebead
- Research Committee: Chair: Prof. Hisham Eid
- Strategic Planning Committee: Chair: Dr. Riyadh Al-Raoush
- Graduate Studies Committee: Chair: Prof. Hisham Eid
- Promotion:- Ad-Hoc Committee
- Recruitment:- Ad-Hoc Committee
- Student Affairs Committee: Chair: Drs. Ramzi Taha and Mohammed Al-Ansari

Department Coordinators – 2016:

- Laboratories and Safety Coordinator: Eng. Abdelhamid Bin Salem
- Scheduling Coordinator : Eng. Abdulrahman Abu Hijleh
- Financial Coordinator: Eng. Abdulrahman Abu Hijleh
- Senior Design Projects Coordinator: Dr. Okan Sirin
- Industrial Advisory Board: Dr. Mohammad Ghanim
- CAE Newsletter Coordinator: Eng. Khaled Rabie
- Courses Timetabling: Dr. Wael Al-Nahhal
- IT Coordinator: Eng. Sikder M Selimuzzaman
- SharePoint & ABET Sites: Eng. Nasser Al-Nohmi
- Course Files Coordinator: Eng. Nasser Al-Nohmi

Faculty Profile

Table 2: CAE Faculty Profile 2016

Photo	Faculty Name	Rank/Position	Area of Specialization
	Hassan Al-Derham	QU President	Procurement of construction projects, productivity of construction projects, housing projects, evaluation of consulting offices
	Nasser Alnuaimi	Director of the Center for Advanced Materials	Structural concrete properties and behavior, concrete materials engineering and the design of reinforced concrete structures, concrete durability and concrete repair
	Ramzi Taha	Professor & Head of Department	Transportation Infrastructure, Sustainable Construction, Solid Waste and By-Product Materials Recycling, Soil Stabilization and Improvement
	Hisham Eid	Professor & Graduate Program Coordinator	Soil and rock mechanics, geo environmental engineering, soil structure interaction
	Murat Gunduz	Professor	Construction engineering and management, construction productivity measurement and improvement, construction health and safety, data collection and analysis
	Mohammed Al-Ansari	Associate Professor	Reinforced concrete design; solid mechanics, Earthquake Engineering, Numerical Analysis

	Mohammed Hussein	Associate Professor	Railway Engineering, Ground-borne Vibration, Structural Dynamics, Structural-Health Monitoring, Soil-structure interaction, Human-structure interaction.
	Usama Ebead	Associate Professor & Undergraduate Program Coordinator	Structural Engineering, Rehabilitation of reinforced concrete structures, Finite element modeling of reinforced concrete structures, Durability of FRP reinforcement in concrete
	Okan Sirin	Associate Professor	Pavement materials and design, Superpave technology, Accelerated pavement testing, Traffic engineering
	Riyadh Al-Raoush	Associate Professor	Fate and transport of contaminants in subsurface systems, Environmental fluid dynamics, Multiphase and multistate modeling of flow through porous media
	Alaa Al Hawari	Associate Professor	Water and waste water treatment (membrane rejection and fouling, bio sorption and selective adsorption), solid waste management and sustainability
	Khaled Shaaban	Associate Professor	Traffic Operations, Intelligent Transportation Systems, Traffic Simulation, Traffic Safety, Work Zones
	Onur Avci	Assistant Professor	Structural engineering, structural dynamics, structural health monitoring, floor vibrations, damage detection, damage identification, earthquake engineering, structural steel.

	Omar Al-Ansari	Assistant Professor	Geotechnical Engineering
	Khalid Naji	Assistant Professor	Computer applications in construction engineering with emphasis on project management, cad and graphical simulation techniques, virtual environments
	Mohammad Ghanim	Assistant Professor	Traffic Operations and Optimization, Public Transportation, Transportation Network Modeling, Intelligent Transportation Systems, Transportation Planning, Sustainable Transportation Systems, Highway Safety.
	Mohsin Siddiqui	Assistant Professor	Construction Engineering and Management, IT applications in CEM, Construction Safety, Data Sensing and Analysis, Sensor Networks, Assessment and Accreditation, Engineering Education.
	Wael Ibrahim Anahhal	Assistant Professor	Structural Engineering, Application of advanced composite materials (FRP) in the infrastructure and in upgrading deteriorating structures, Computational mechanics, Finite Element Analysis, Floor vibrations serviceability, and Earthquake Engineering.
	Abdelhamid Bin Salem	Teaching Assistant	Geometrics Engineering and science of Measurement





	Hamad Alnuaimi	Teaching Assistant	Analysis and Design of Structures <u>(On-Study Leave)</u>
	Sikder M Selimuzzaman	Teaching Assistant	Environmental Engineering (Wastewater treatment)
	Abdulrahman Z. Abu-Hijleh	Teaching Assistant	Construction Management & Analysis and Design of Structures
	Nasser Al-Nohmi	Teaching Assistant	Analysis and Design of Structures, concrete durability, Structural concrete properties and behavior & Construction Management
	Khaled Rabie	Teaching Assistant	Geotechnical Focusing on Landslides ,slope stability and soil shear strength

Table 3: CAE Technical and Administrative Staff Profile 2016

Photo	Staff Name	Role	Area of Interest
	<p>Abdul Azeez Kilayil</p>	<p>Senior Lab Technician</p>	<p>Land Surveying, Materials Testing & Concrete and Soil Mechanics</p>
	<p>Joseph Valiya Parambil Siju</p>	<p>Lab Technician</p>	<p>Traffic, Transportation & Pavement and Material Testing</p>
	<p>Fatma S. Bejia</p>	<p>Administrative Coordinator</p>	<p>Organizational Skills, problem Solving Ability, Efficient Coordinator and Motivator</p>

Department/Program FTE

Table 4: CAE Faculty Teaching Load (2016)

Professorial Faculty Name	Title/ Position	Spring 2016 ICH	Fall 2016 ICH	Total	Approved ICH	Difference	FTE
Dr. Ramzi Taha	Professor and Head	9	5.5	14.5	6	8.5	8.50
Dr. Hisham Eid	Professor	12	9	21	12	9	9.00
Dr. Osman Elnawayy	Professor	9	0	9	9	0	0.00
Dr. Murat Gunduz	Professor	13	9	22	18	4	4.00
Dr. Okan Sirin	Associate Professor	6	10	16	18	-2	-2.00
Dr. Alaa Al-Hawari	Associate Professor	11.5	9.5	21	18	3	3.00
Dr. Riyadh Al-Raoush	Associate Professor	11.5	9.5	21	18	3	3.00
Dr. Usame Ebead	Associate Professor	6.67	3.92	10.59	12	-1.41	-1.41
Dr. Mohammed Al-Ansari	Associate Professor	8	7	15	18	-3	-3.00
Dr. Mohammed Hussain	Associate Professor	11	10	21	18	3	3.00
Dr. Onur Avci	Assistant Professor	8.5	12.84	21.34	18	3.34	3.34
Dr. Nasser Al-Nuaimi	Assistant Professor	8.5	8.5	17	18	-1	-1.00
Dr. Wael Alnahhal	Assistant Professor	10	13	23	18	5	5.00
Dr. Khalid Shaaban	Assistant Professor	7.5	10.5	18	18	0	0.00
Dr. Mohammed Ghanim	Assistant Professor	11	8.5	19.5	18	1.5	1.50
Dr. Mohsin Siddiqui	Assistant Professor	13	8.67	21.67	18	3.67	3.67
Average of the department		9.5	8.5	18.0	15.8	2.2	2.2

Undergraduate Majors and Minors

Bachelor of Science in Civil Engineering

The Department of Civil and Architectural Engineering at Qatar University awards the Bachelor of Science (B.Sc.), Master of Science and Doctoral degrees in Civil Engineering. The Architectural Engineering Program was “frozen” in 2009. Civil Engineering is the broadest and oldest of the engineering disciplines, spanning across many technical specialties which are not independent, but rather interact with each other. Civil engineers plan, design, construct and maintain the physical and naturally built environment including buildings; roads; bridges; airports; railways; ports; water distribution and wastewater collection systems; waste disposal facilities; tunnels; stadiums; offshore structures; dams; and other infrastructure projects. As civil engineers develop their skills, they can advance into the area of engineering management, overseeing the completion of the whole project.

Our Civil Engineering Program’s intake has increased from a low of 45 students in 2012 to a high of 90 students in 2016. A total of 36 students graduated in 2014-2016. In addition, the department has 28 master’s and 5 doctoral students. The civil engineering graduates secure full employment within three months of their graduation. Our students find jobs in the private and public sectors including Ashghal, Qatar Petroleum, Parsons International, Al-Jaber Trading Company and many others.

Our students have to complete a total of 131 credit hours in order to graduate with the B.Sc., degree. Our curriculum ensures an excellent coverage of mathematics and basic sciences; general education; communication skills development; engineering fundamentals; core and upper level civil engineering courses’ requirements; and design experience. Additional opportunities to enhance professional development include industrial training; field visits; presentations by practicing engineers; involvement in research projects and competitions; participation in the ASCE Student Chapter; and participation in students’ exchange through the International Association for the Exchange of Students for Technical Expertise (IAESTE) Program.

The department has 19 faculty members, 7 full-time teaching assistants, 3 engineering technicians, and one secretary. Three of those faculty members are fully engaged in upper administration duties. All faculty members and one Teaching Assistant have PhDs from various reputable institutions in three countries (USA, UK and Canada). The faculty members’ specialties cover various areas of Civil Engineering including structures; transportation; geotechnical and materials; water resources; environmental engineering; and construction management and engineering. Eight faculty members are also holders of the professional engineering license from the USA, Canada and Jordan. Our faculty members are also active in research and other scholarly work, professional service, and community engagement. As of 2016, the department has close to 8 million dollars of research funding.

We are proud of our students, faculty, teaching assistants, and other supporting staff. We are also proud that the Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET. Accreditation ensures that the students, parents, employers, and the society we serve can be confident that a program meets the quality standards that produce graduates prepared to enter a global workforce.

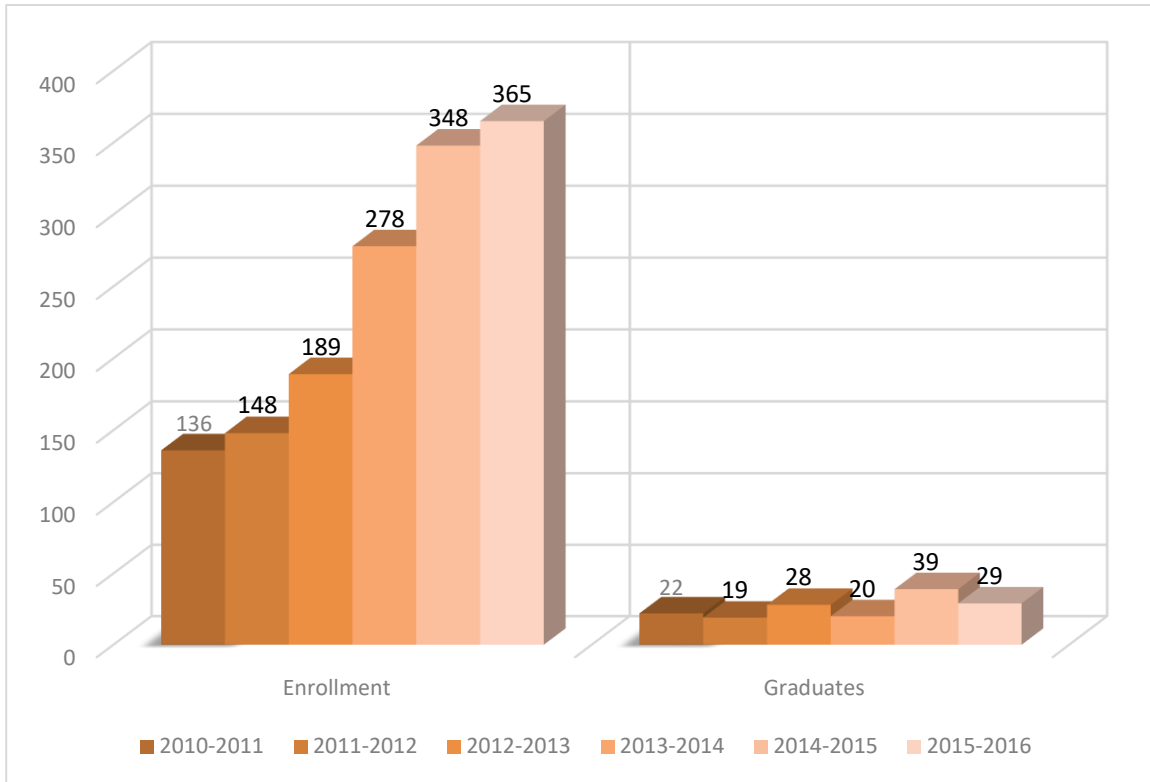


Figure 3: Number of Registered and Graduating Students in CAE Department, 2010–2016

Post Graduate Programs

The Department of Civil and Architectural Engineering started its graduate programs in 2010 as part of the graduate program of the College of Engineering, CENG. It participates in two interdisciplinary master's programs: the Engineering Management and the Environmental Engineering Programs, offered under the umbrella of the College of Engineering. In addition, the department has started to offer master's and Ph.D. degrees in other Civil Engineering disciplines.

The details of the department's graduate degrees can be summarized as follows:

1. **Master of Science in Engineering:** The Department of Civil and Architectural Engineering participates in two CENG Master of Science degrees in Engineering:
 - a) Engineering Management (Construction Track), in collaboration with the Department of Mechanical and Industrial Engineering: This track was supposed to offer courses starting Fall 2011, but there was only one student registered in the track so it was put off until Fall 2012. Now the department has about 8 students who already started the track in Fall 2012.
 - b) Environmental Engineering, in collaboration with the Chemical, Department of Mechanical and Industrial Engineering: This program started offering courses in Fall 2011.
2. **Master of Science in Civil Engineering:** A new program that was initiated in Fall 2011. It includes specialization in structures, geotechnical, transportation, and hydraulics and water resources. This program started enrolling students in Fall 2012.
3. **Ph.D. in Civil Engineering:** This program was set up in 2010 and accepted two students in the area of structures/materials in Fall 2011. Qatar University signed an MOU with the University College of London, UCL that will help complement this program and provide needed expertise.

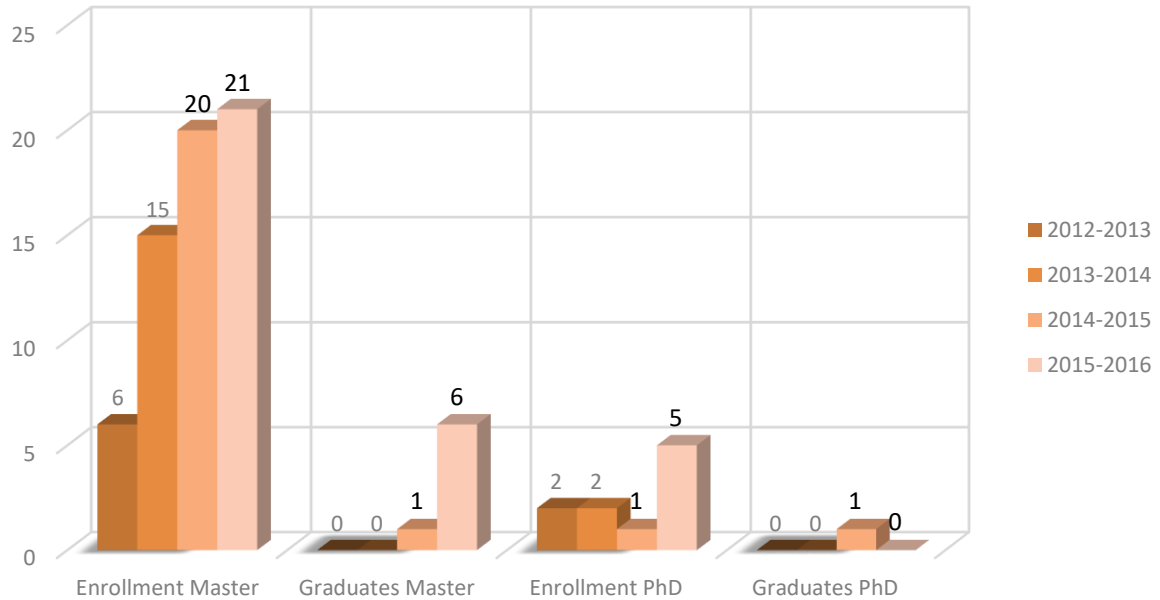


Figure 4: Number of Registered and Graduating Students in CAE Department, 2012–2016

Internal, External Grants and Research

The following table illustrates the awarded research projects in the Department of CAE 2016

Table 5: Awarded Research Projects and Grants in the Department of CAE in 2016

Project Number	Project Title	Co-LPI/LPI
NPRP-6-526-2-218	A Monitoring Framework Development for the Next Generation Stadia to be showcased during Qatar 2022 World Cup.	Dr. Onur Avci
NPRP-8-1568-2-666	Spectral Band-structure Identification of Amplitude-dependent Viscoelastic Mechanical Metamaterials	Dr. Wael Alnahhal (LPI), Dr. Amjad Aref, Dr. Jongmin Shim
NPRP-8-836-2-353	A Unified Approach to Vibration Serviceability Assessment of Floors.	Dr. Onur Avci, Dr. Mohammed Hussein
NPRP-9-110-2-052	Sustainable concrete using seawater, recycled aggregates, and non-corrosive reinforcement	Dr. Usama Ali Ebead, Dr. Antonio Nanni
NPRP-9-360-2-150	Modeling the Impacts of Different Variable Message Sign Strategies on Driver Behavior using Driving Simulations	Dr. Mohammad Ghanim

NPRP-9-093-1-021	Groundwater Pollution by Petroleum-Derived Contaminants in Coastal (Semi)-Arid Environment	Dr.Riyadh Al-Raoush
NPRP-9-390-1-088	SIMUPOR: Simulation of microscale biogeochemical processes in porous media using advanced computer vision	Dr.Riyadh Al-Raoush
UREP18-162-2-065	Flexural Behavior and Evaluation of Deflection for high-strength MiniBar Reinforced Concrete Beams with Basalt FRP Reinforcing	Dr. Wael Alnahhal
UREP18-144-2-058	Lateral Design Re-Assessment of Low to mid-Rise Reinforced Concrete	Dr. Mohammed Hussein (PI) Dr. Onur Avci
UREP18-054-2-020	Evaluation of Transit Signal Priority Implementation along Major Arterial in Doha	Dr. Mohammad Ghanim
UREP19-038-2-015	Signalized Roundabout: Safety and Operational Performance Case Study in Doha	Dr. Mohammad Ghanim
UREP 19-042-2-016	Characterization of soil profile and properties by Spectral Analysis of Surface Waves	Dr. Mohammed Hussein Dr. Onur Avci
UREP 19-042-2-016	Characterization of soil profile and properties by Spectral Analysis of Surface Waves	Dr. Mohammed Hussein
QUSG-CENG-CAE-14/15-4	Construction Safety	Dr. Murat Gunduz
QUST-CENG-FALL-15/16-5	Produced Water Treatment Using Slotted Membranes in a Forward Osmosis (FO) Process	Dr. Alaa Hawari
QUST-CENG-SPR-14/15-15	Textile reinforced mortar for shear strengthening of reinforced concrete beams	Dr. Usama Ali Ebead
QUST-CENG-SPR-14/15-16	Bond slip relationships for externally bonded mechanically fastened (EB/MF) fiber reinforced polymer (FRP) system in reinforced concrete structures	Dr. Usama Ali Ebead
QUST-CENG-SPR	Behavior of Sustainable Self-Compacting Concrete Using Recycled Concrete Aggregate Produced in Qatar	Dr. Wael Alnahhal
QUST-CENG-SPR-15/16-12	Measurement of tire/pavement Interaction Noise on highway Pavement in the state of Qatar	Dr. Okan Sirin
GCC-2017-008	Performance of Basalt Fiber Reinforced Polymer "BFRP" Reinforcing Bars under the GCC Harsh Environment	Dr.Wael Alnahhal (PI, Lead) Dr. Nasser Alnuaimi (Co-PI)

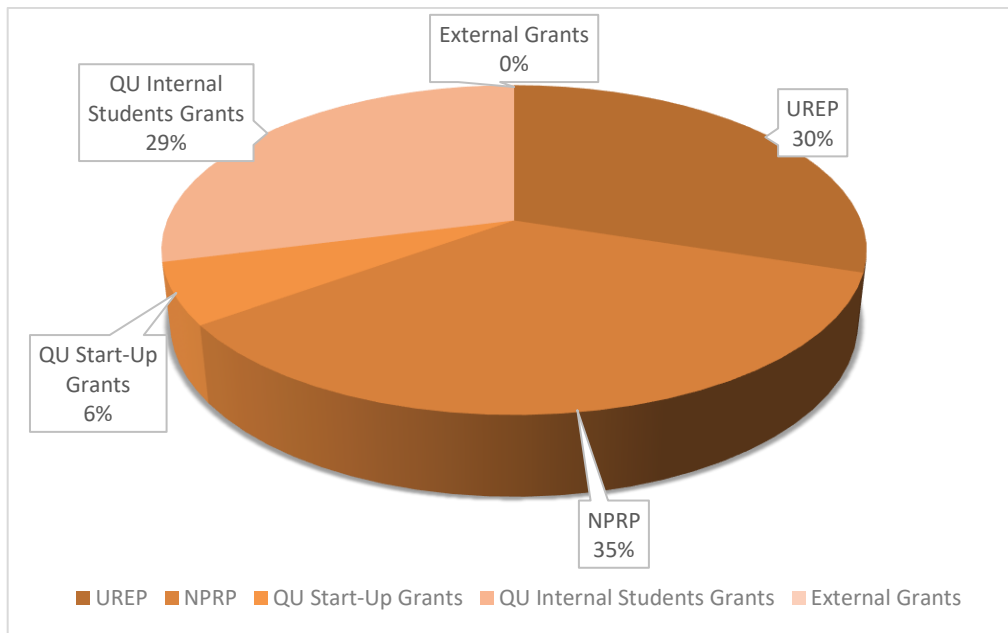


Figure 3: Research Projects Awarded in 2012-2013.

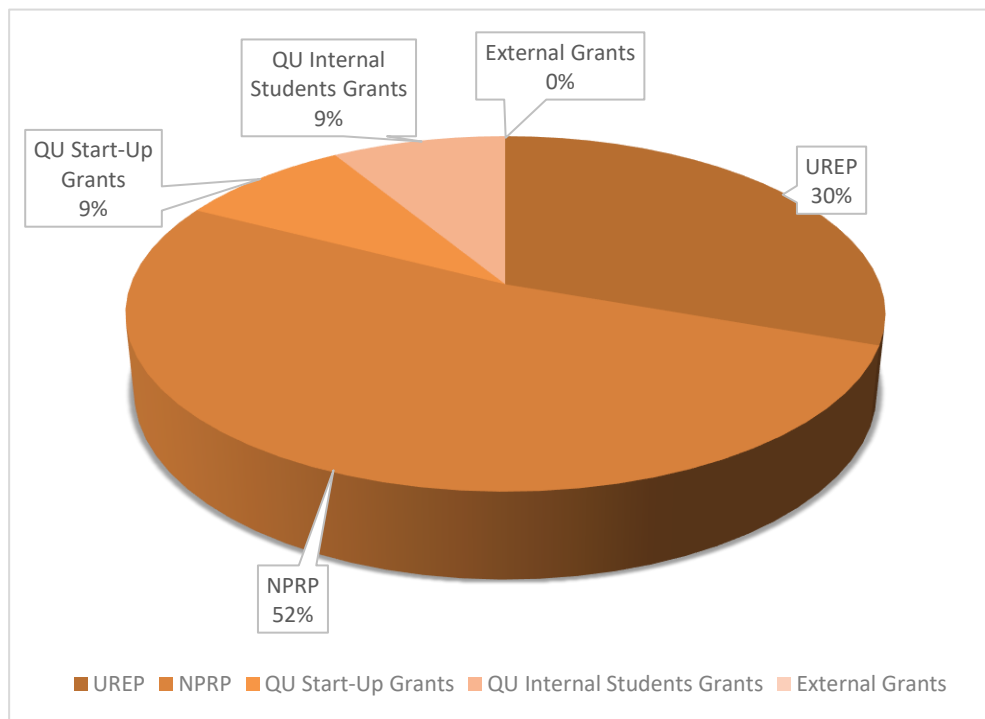


Figure 4: Research Projects Awarded in 2013-2014.

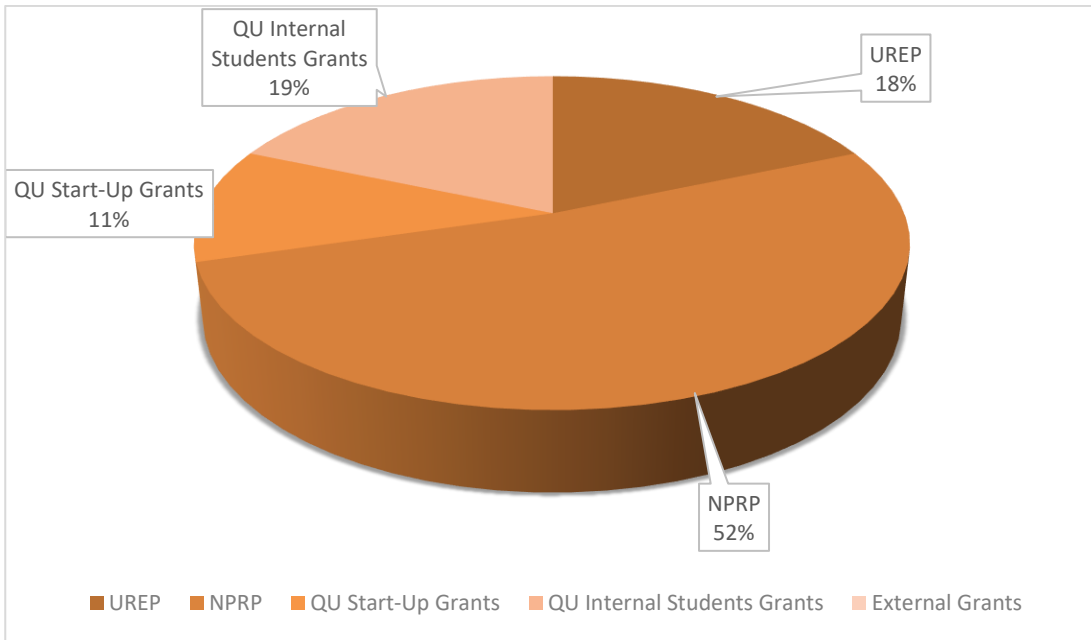


Figure 7: Research Projects Awarded in 2014-2015.

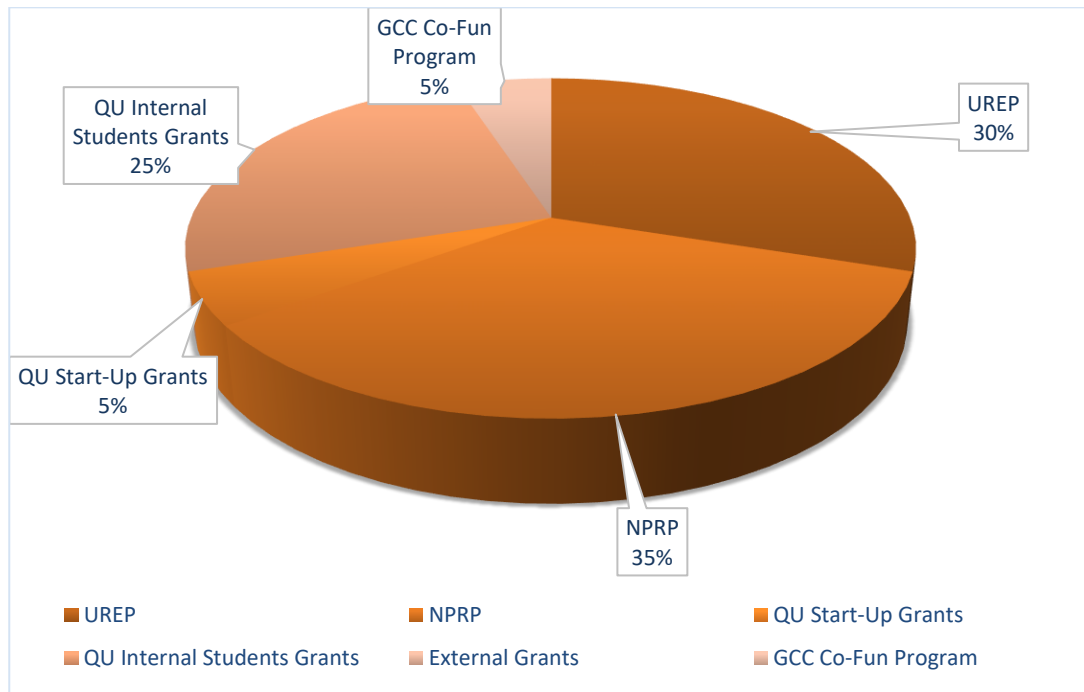


Figure 8: Research Projects Awarded in 2015-2016.

Publications

The table below illustrates the publications in the Department of CAE 2016. List of publications in 2014-2016 are indicated with details in appendix A1.

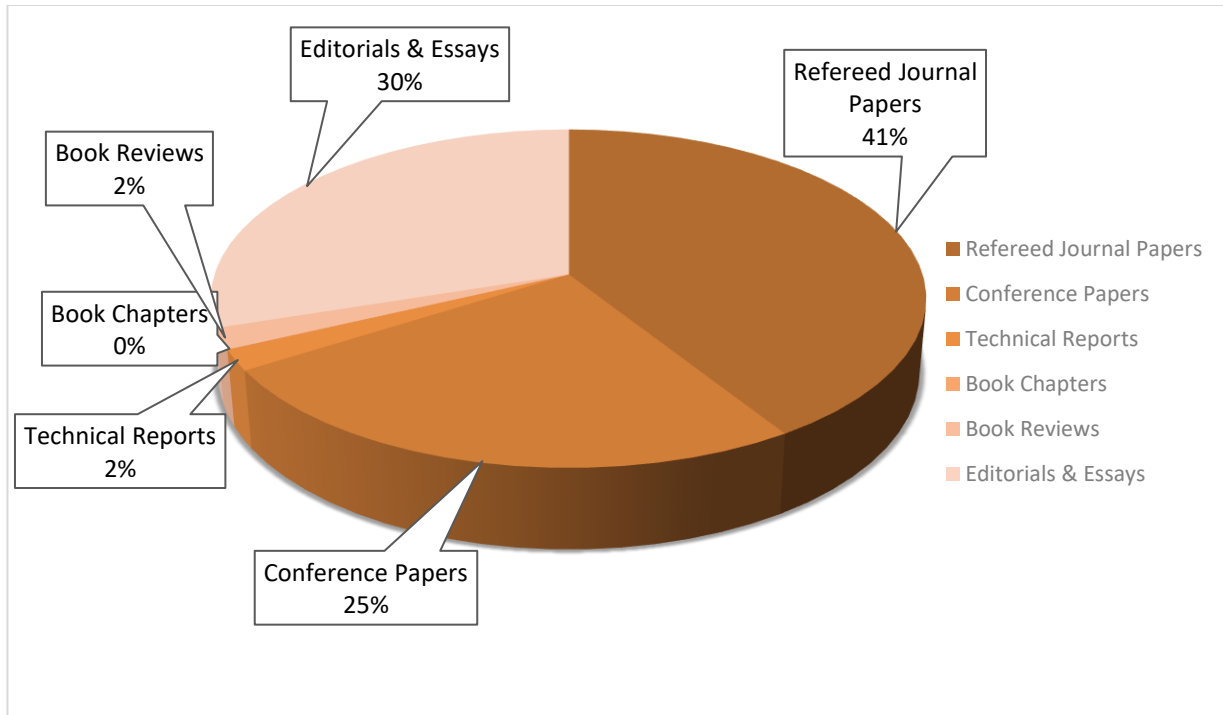


Figure 9: Publications by Faculty in 2012-2013.

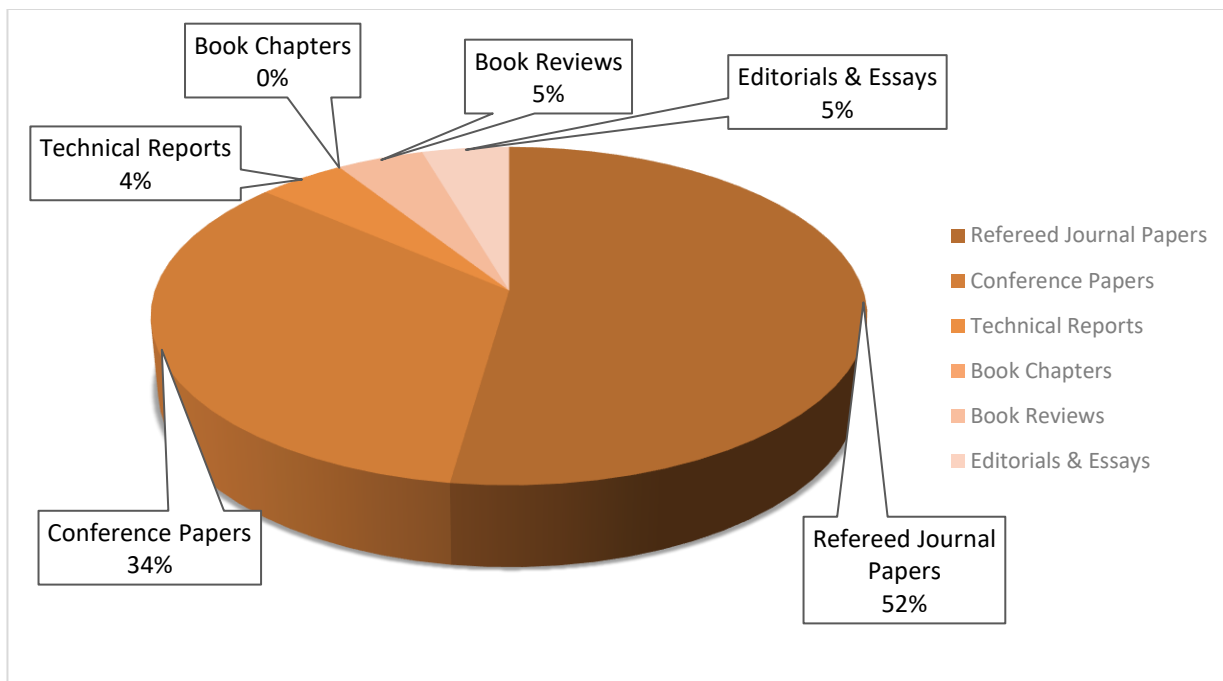


Figure 10: Publications by Faculty in 2013-2014.

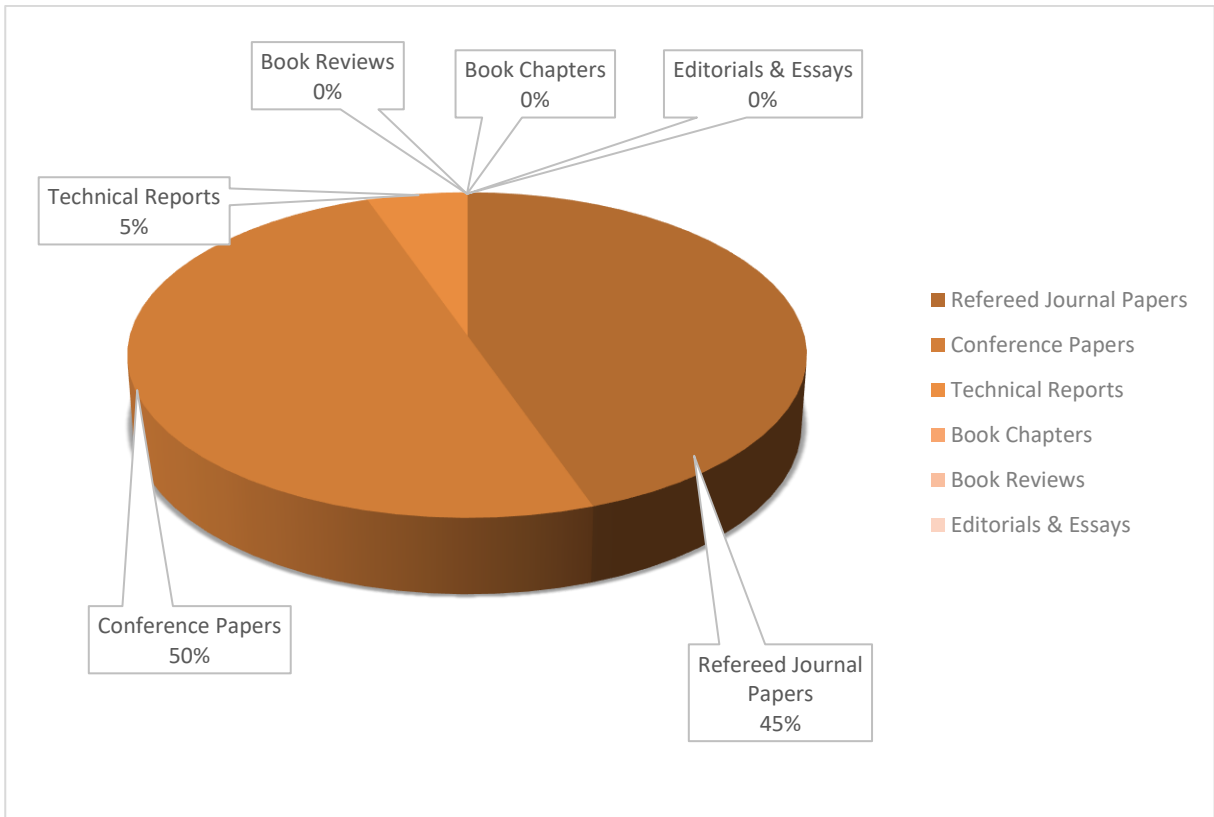


Figure 11: Publications by Faculty in 2014-2015.

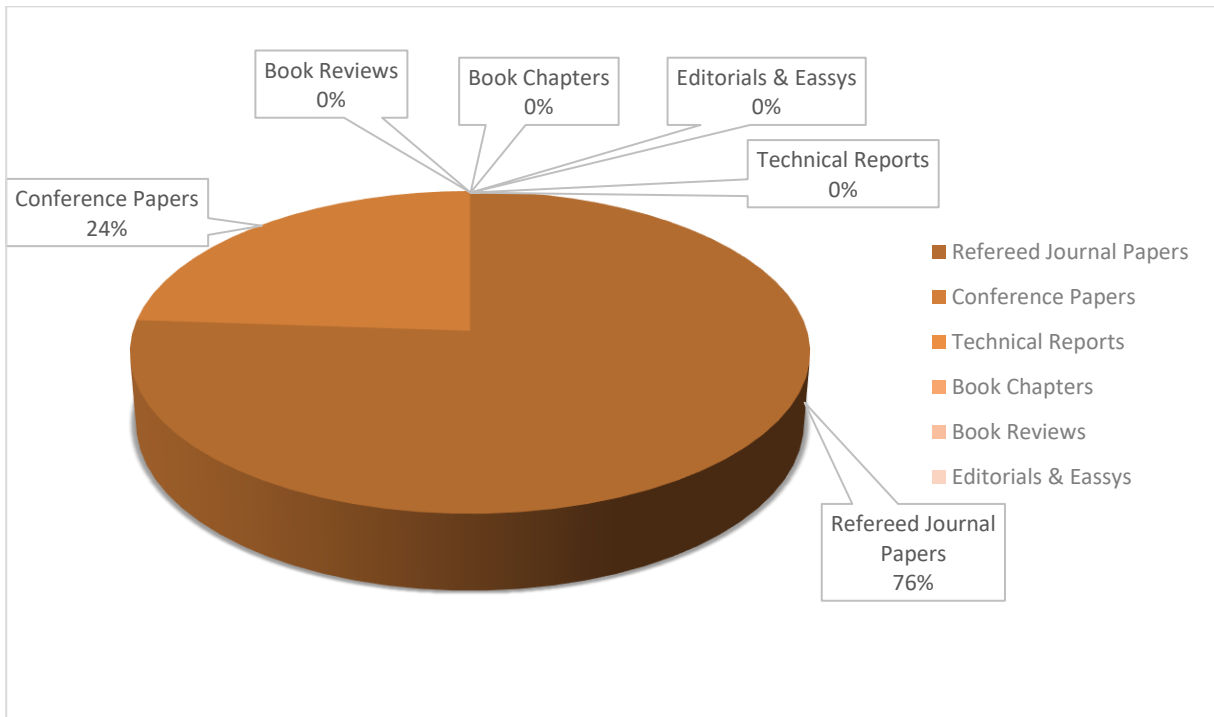


Figure 12: Publications by Faculty in 2015-2016.

Seminars, Public Lectures

The Department of Civil and Architectural Engineering held many seminars for the academic year 2014-2016. Department seminars were organized with the objective of sharing scientific researches and academic experiences. Appendix A2 lists detailed data for seminars and public lectures.

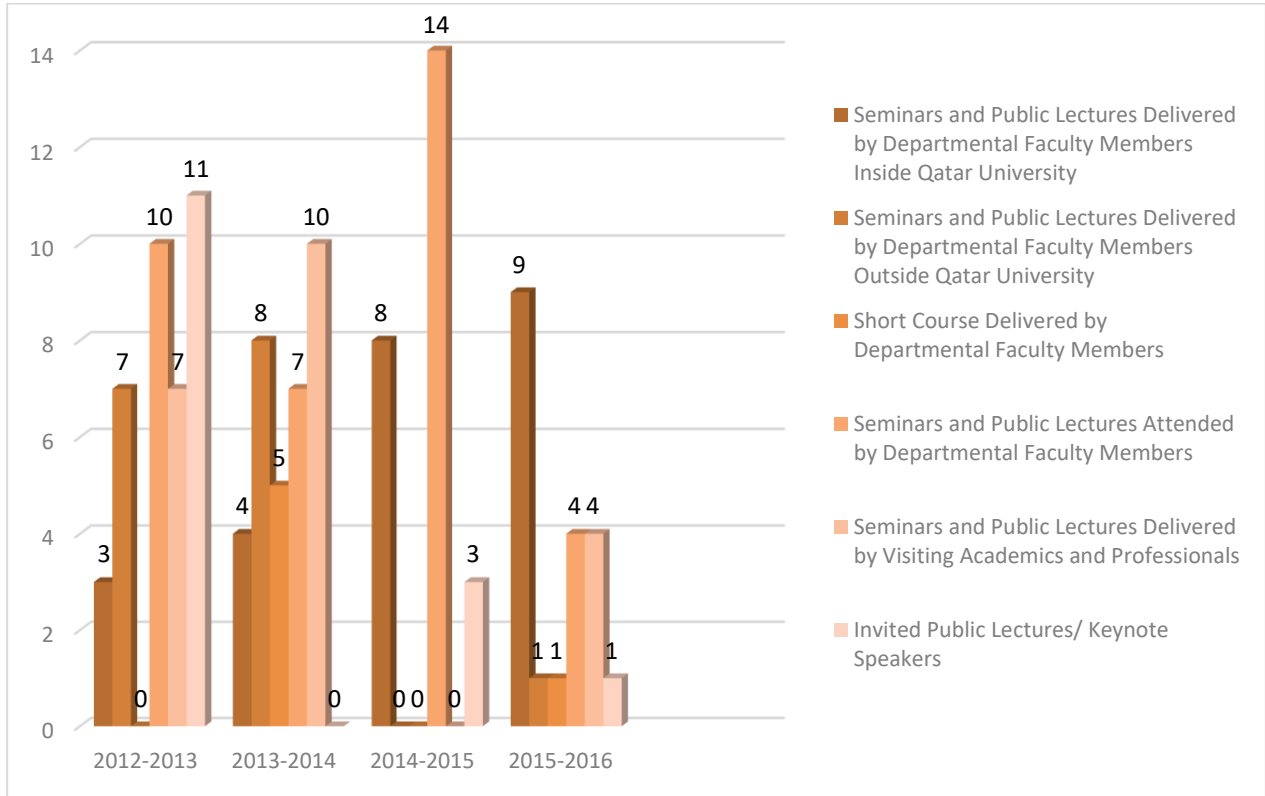


Figure 13: Seminars & Public Lectures in 2012-2016.

Professional Developments

A list of attended events namely conferences attended, workshops attended, and workshops given, and organized events is available in Appendix A3.

Service to Community and Outreach Programs

Appendix A3 lists detailed data for Service to Community and Outreach Programs.

Consultancies

Appendix A3 lists detailed data for Consultancies.

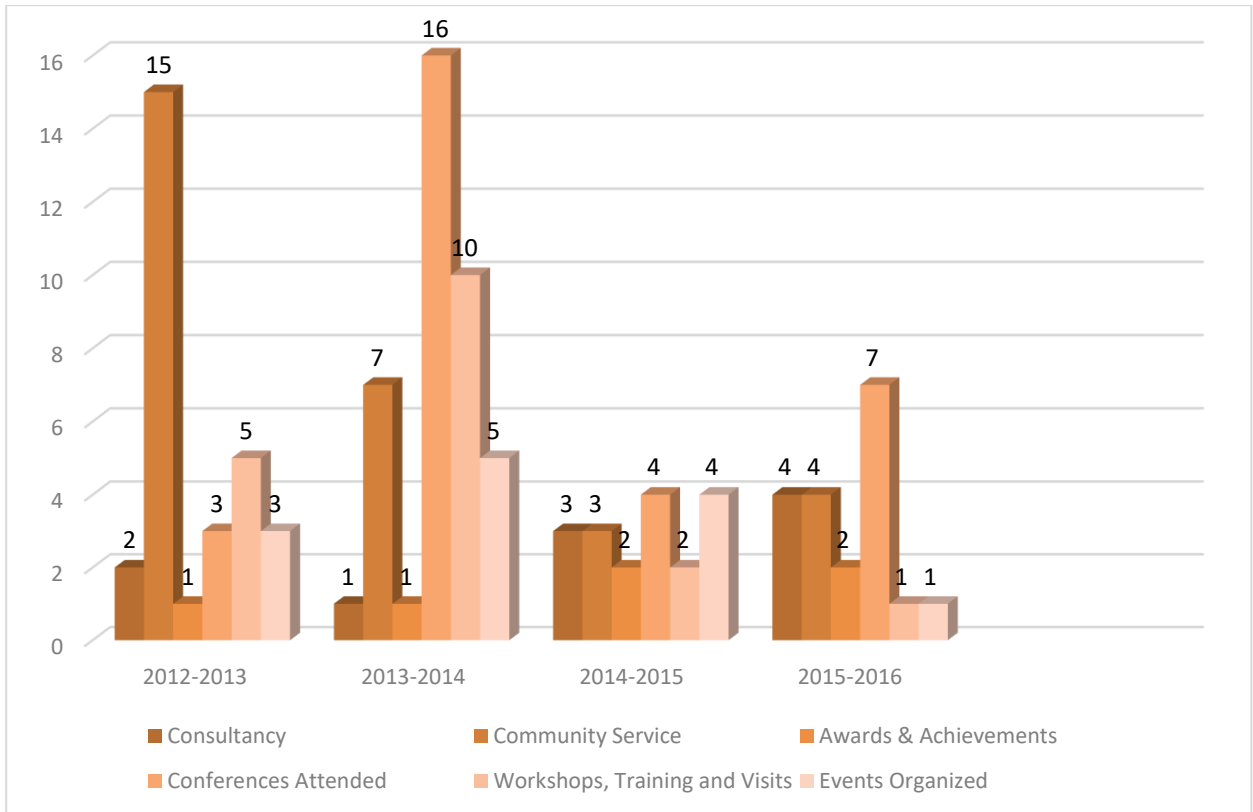


Figure 5: Faculty Activities in 2012-2016

Appendix A1: List of Publications

Journal Papers

1. Abdeljaber, O., **Avci, O.**, Kiranyaz, S., Gabbouj, M. and Inman, D.J. (2016). "Real-Time Vibration-Based Structural Damage Detection Using One-Dimensional Convolutional Neural Networks", *Journal of Sound and Vibration*, Elsevier.
2. Abdeljaber, O., **Avci, O.**, Kiranyaz, S. and Inman, D.J. (2016). "Optimization of linear zigzag insert metastructures for low-frequency vibration attenuation using genetic algorithms", *Mechanical Systems and Signal Processing*, Elsevier.
3. **Avci, O.** and Barsottelli, M. (2016). "Nonexplosive Deconstruction of Steel Girder Highway Bridges." *J. Perform. Constr. Facil.* , 10.1061/(ASCE)CF.1943-5509.0000929 , 04016087.
4. **Avci, O.**, Luttrell, L. D., Mattingly, J. and Easterling, W. S. (2016), "Diaphragm Shear Strength and Stiffness of Aluminum Roof Panel Assemblies", *Thin-Walled Structures*, 106, 51-60.
5. Abdeljaber, O., **Avci, O.** and Inman, D.J. (2016). "Optimization of Internally Resonating Chiral Lattice Based Metastructures for Broadband Vibration Suppression Using Genetic Algorithms", *Journal of Sound and Vibration*, Elsevier.
6. **Avci, O.** (2016), "Amplitude Dependent Damping in Vibrations Serviceability: Case of a Laboratory Footbridge", *Journal of Architectural Engineering*.
7. Abdeljaber, O. and **Avci, O.** (2016). "Non-Parametric Structural Damage Detection Algorithm for Ambient Vibration Response: Utilizing Artificial Neural Networks and Self Organizing Maps", *Journal of Architectural Engineering*, ASCE.
8. Abdeljaber, O., **Avci, O.** and Inman, D.J. (2016). "Active Vibration Control of Flexible Cantilever Plates Using Piezoelectric Materials and Artificial Neural Networks", *Journal of Sound and Vibration*, Elsevier.
9. **Ebead, U.A.**, Shrestha, K., Afzal, M., Refai, A., Nanni, A. (2016). "Effectiveness of Fabric-Reinforced Cementitious Matrix in Strengthening Reinforced Concrete Beams", *Journal of Composites for Construction*, , publisher: ASCE, DOI: 10.1061/(ASCE) CC.1943-5614.0000741, 04016084. 2016.
10. Abdel Baky, H., **Ebead, U.A.**, and Neale, K.W. (2016). "Nonlinear finite element analysis of fibre-reinforced polymer/concrete joints", *Advances in Structural Engineering*, Publisher: SAGE Publications. V. 19, No. 10, 2016, pp. 1604-1619.
11. **Ebead, U.A.** and Saeed, H.A. (2016). "FRP/stirrups interaction of shear-strengthened beams", publisher: *Materials and Structures*, doi: 10.1617/s11527-016-0973-72017.
12. **Eid, H.T.**, and Rabie, K.H. (2016). "Fully softened shear strength for soil slope stability analyses" *International Journal of Geomechanics*, ASCE.
13. **Eid, H.T.**, Rabie, K.H., and Wijewickreme, D. (2016). "Drained residual shear strength at effective normal stresses relevant to soil slope stability analyses" *Engineering Geology*, Vol. 204, pp. 94-107
14. **Gündüz M.**, and Yetisir, T. (2016). "A Design Reuse Technology to Increase Productivity Through Automated Corporate Memory System ", Accepted to *Neural Computing and Applications*.
15. **Gunduz, M.**, Birgonul T. and Ozdemir, M. (2016). "Fuzzy Structural Equation Model to Assess Construction Site Safety Performance", accepted to *ASCE Journal of Construction Engineering and Management*.
16. Senouci A., Alsarraj A., **Gunduz, M.**, Eldin N. (2016). "Analysis of Change Orders in Qatari Construction Projects", accepted to *International Journal of Construction Management*.
17. **Gunduz M.** and AbuHassan, M.H.A. (2016). "Causes of Construction Delays in Qatar Construction Projects" *International Journal of Civil, Environmental, Structural, Construction and Architectural Engineering*, Volume 10, Issue 4, pages 492-497.

18. **Gunduz M.** and Laitinen, H. (2016). "A 10-step Safety Management Framework for Construction SMEs" accepted to the International Journal of Occupational Safety and Ergonomics (JOSE).
19. **Gündüz M.**, and Yahya A. (2016). "Analysis of Project Success Factors in Construction Industry" accepted to Technological and Economic Development of Economy, online, in press.
20. **Gündüz M.**, and Karacan V. (2016). "Assessment of Abnormally Low Tenders: A Multinomial Logistic Regression Approach" accepted to Technological and Economic Development of Economy, online, in press.
21. **Hawari A.**, Kamal N., Altaee A. (2016). "Combined influence of temperature and flow rate of feeds on the performance of forward osmosis", *Desalination*, 398, 98 – 105.
22. **Hawari A.**, Alkadour F., Elmasry M., Zayed T. (2016). "Simulation-based condition assessment model for sewer pipelines", *Journal of Performance of Constructed Facilities*, Permalink: [http://dx.doi.org/10.1061/\(ASCE\)CF.1943-5509.0000914](http://dx.doi.org/10.1061/(ASCE)CF.1943-5509.0000914).
23. **Hawari A.**, Alnahhal W. (2016) "Predicting the performance of multi-media filters using artificial neural networks", *Water Science and Technology*, DOI: 10.2166/wst.2016.380.
24. Atef A., Zayed T., **Hawari A.**, Khader M., Moselhi O. (2016) "Multi-tier method using infrared photography and GPR to detect and locate water leaks", *Automation in Construction*, 61, 162 – 170.
25. **Hussein, M.F.M.** and Costa. P.A., (2016). The effect of end bearings on the dynamic behavior of floating-slab tracks with discrete slab units, *International Journal of Rail Transportation*, accepted for publication.
26. Brookes, D., Hamad, W.I., Talbot, J.P., Hunt, H.E.M., **Hussein, M.F.M.**, (2016), On the dynamic interaction effects of railway tunnels: Crossrail and the Grand Central Recording Studios, *Journal of Rail and Rapid Transit*, under review.
27. Thompson, D., Jiang, J., Toward, M.G.R, **Hussein, M.F.M.**, Ntotsios, E., Dickmans, A., Coulier, P., Lombaert, G. and Degrande, G. (2016). Reducing railway-induced ground-borne vibration by using open trenches and soft-filled barriers, *Soil Dynamics and Earthquake Engineering*, 88, 45-59.
28. **Mohammad Shareef Ghanim** (2016). "Improving Signalized Intersections Performance for Better Built Environment", *International Journal of Sustainable Society*.
29. Sadek, H., Masad, E., Al-Khalid, H., **Sirin, O.** (2016). "Probabilistic analysis of fatigue life for asphalt mixtures using the viscoelastic continuum damage approach", *Construction and Building Materials*, Volume 126, pp. 227-244.
30. Sadeq, M., Masad, E, Al-Khalid, H., **Sirin, O.**, Mehrez, L. (2016). "Linear and nonlinear viscoelastic and viscoplastic analysis of asphalt binders with warm mix asphalt additives", *International Journal of Pavement Engineering*, Vol. 17, pp. 495-511.
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2. **Alnahhal Wael** (2016). "International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques", March 6-8, American University of Sharjah, UAE.
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5. M. Elghazy, A. El Refai, **U.A. Ebead**, and A. Nanni, (2016) "Performance of Corrosion-Aged Reinforced Concrete (RC) Beams Rehabilitated with Fabric-Reinforced Cementitious Matrix (FRCM)", the 4th International conference in Sustainable Construction Materials and Technologies (SCMT4), Las Vegas, Nevada, August 7-11. 2016.
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7. Celik, O., Catbas, F.N., Do, N.T., Gul, M., Abdeljaber, O., Younis, A., **Avci, O.**, (2016). "Issues, Codes and Basic Studies for Stadium Dynamics". Proceedings of the Second International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques (ICIMART'16), March 8-10, 2016, Sharjah, UAE.
8. Abdeljaber, O., Younis, A., **Avci, O.**, Catbas, F.N., Gul, M., Celik, O., Zhang, H. (2016). "Dynamic Testing of a Laboratory Stadium Structure". ASCE Geotechnical and Structural Engineering Congress 2016, February 14-17, 2016, Phoenix, AZ.
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Book chapters

Nil

Patents

Nil

Technical Reports

Nil

Editorials and Essays

Nil

Appendix A2- Seminars – Public Lectures – Short Courses

Seminars and Public Lectures Delivered by Departmental Faculty Members Inside Qatar University

1. **Dr. Shahid Azam**, Professor and Chair of the Environmental Systems Engineering at the University of Regina, Canada, presented a seminar on September 1, 2015 entitled “Unsaturated Flow Through Soils for Engineering Applications.”
2. **Dr. Araki**, Associate Professor in the Department of Architecture and Architectural Engineering at Kyoto University in Kyoto, Japan, presented a seminar on September 21, 2015 entitled “Integrated Material and Structural Design of Concrete Constructions Toward Sustainable and Disaster-Resilient Built Environment.”
3. **Dr. Nasir Gharaibeh**, Associate Professor of Civil Engineering at Texas A&M University, USA, presented a seminar on April 21, 2016 entitled “Infrastructure Asset Management: A Close Look at Data Quality.”
4. **Dr. Ashraf Ayoub**, Chair of Nuclear Infrastructure at City University London, UK, presented a seminar on April 25, 2016 entitled “Behavior of Complex Concrete Infrastructures under Three-Dimensional Loads.”
5. **Dr. Mohsin Siddiqui**, Assistant Professor Construction Engineering and Management, Department of Civil and Architectural Engineering Qatar University, presented a seminar on April 30, 2016 entitled “Principles of Primavera P6-Professional Project Management Software”.
6. **Dr. Mohammad Ghanim**, Assistant Professor, Department of Civil and Architectural Engineering Qatar University, presented a seminar on Jan 02, 2016 entitled “Introduction to Real-Time Traffic Control Systems”.
7. **Hussein, M.F.M.**, Associate Professor, Department of Civil and Architectural Engineering Qatar University, presented a seminar on September 14, 2016 entitled “Observations about the use of flipped classrooms for a numerical course”.
8. **Dr. Ramzi Taha**, Professor, Head of Department of Civil and Architectural Engineering, Qatar University, presented a seminar on April 20, 2016 & May 04, 2016 entitled “Presentation and Writing Skills”.
9. **Eng. Haytham Sadek**, Qatar University, presented a seminar on October 12, 2016 entitled “The most important academic and non-academic skills that required for the works”.

Seminars and Public Lectures Delivered by Departmental Faculty Members Outside Qatar University

1. **Dr. Mohsin Siddiqui**, Assistant Professor Construction Engineering and Management, Department of Civil and Architectural Engineering Qatar University, presented a seminar on April 14, 2016 entitled “Accreditation at the Masters Level ABET Symposium” at Hollywood, FL, USA.

Short Course Delivered by Departmental Faculty Members

1. **Hussein, M.F.M.**, Associate Professor, Department of Civil and Architectural Engineering Qatar University, presented a short course on March 03, 2016 entitled “Railway Engineering” Crown plaza-Business Park.

Seminars and Public Lectures Attended by Departmental Faculty Members

Dr. Mohammed Hussein

- Academic Performance Enhancement and Principles of Excellence in Engineering Education, Part 1: Fundamentals and Plan of Action for self-improvement, By Professor Boualem Boashash, on May 16, 2016, Qatar University, Qatar.
- Academic Performance Enhancement and Principles of Excellence in Engineering Education, Part 2: Keys to Successful Leadership (there is a bigger game to be played), Professor Boualem Boashash, on May 30, 2016, Qatar University, Qatar.

Dr. Murat Gunduz

- Construction Week Leaders in Construction Qatar Summit, April 06, 2016, Grand Hyatt Hotel, Qatar.

Dr. Onur Avci

- Academic Performance Enhancement and Principles of Excellence in Engineering Education, Part 2: Keys to Successful Leadership, Professor Boualem Boashash, on May 30, 2016, Qatar University, Qatar.

Seminars and Public Lectures Delivered by Visiting Academics and Professionals

1. **Dr. Shahid Azam**, Professor and Chair of the Environmental Systems Engineering at the University of Regina, Canada, presented a seminar on September 1, 2015 entitled “Unsaturated Flow Through Soils for Engineering Applications.”
2. **Dr. Araki**, Associate Professor in the Department of Architecture and Architectural Engineering at Kyoto University in Kyoto, Japan, presented a seminar on September 21, 2015 entitled “Integrated Material and Structural Design of Concrete Constructions Toward Sustainable and Disaster-Resilient Built Environment.”
3. **Dr. Nasir Gharaibeh**, Associate Professor of Civil Engineering at Texas A&M University, USA, presented a seminar on April 21, 2016 entitled “Infrastructure Asset Management: A Close Look at Data Quality.”
4. **Dr. Ashraf Ayoub**, Chair of Nuclear Infrastructure at City University London, UK, presented a seminar on April 25, 2016 entitled “Behavior of Complex Concrete Infrastructures under Three-Dimensional Loads.”

Invited Public Lectures/Keynote Speakers

- **Dr. Mohammed Hussein**, 6th Underground Infrastructure & Deep Foundations Summit, entitled “the dynamic performance of floating-slab tracks”, Doha, Qatar.

Appendix-A3-Faculty-Activities

(Note: In this appendix, “Professional Development” includes ‘conference attended’, ‘workshops

attended', 'workshops given', and 'organized events'.)

Consultancy

Dr. Mohammed Ghanim

- Technical & Time consuming, sponsor by Katara Cultural Village with collaboration QTTSC, Qatar.

Dr. Mohammed Hussein

- Academic research to contribute to the project MOTIV: Modelling of Train Induced Vibration. Consultancy approved by the College of Engineering, sponsor by University of Southampton, Qatar.

Dr. Murat Gunduz

- Expert witness for Public Prosecution, Qatar.

Dr. Onur Avci:

- Undisclosed mission for Public Prosecution, Qatar.

Community Service:

Dr. Mohsin Siddiqui

- PEV Visit for ABET – ASAC, October 15-19, 2016

Dr. Mohammed Ghanim

- Expert committee for a court case in Qatar, Expert committee member.
- Qatar Racing & Equestrian Club, Qatar.

Dr. Mohammed Hussein

- Committee for a court case in Doha Qatar.

Awards and Achievements

Dr. Usama Ebead

- Dean's Award for Teaching, 2015-2016.

Dr. Alaa Al-Hawari

- College of Engineering Award in Research, 2015-2016.

Conferences Attended

Dr. Usama Ebead

- "The 4th international conference in Sustainable Construction Materials and Technologies (SCMT4)", 7-11, August 2016, Las Vegas, Nevada, USA.

Dr. Mohsin Siddiqui

- "ABET Symposium Conferences" 2016, Hollywood, FL, USA.

Dr. Mohammed Hussein

- “The 6th Underground Infrastructure & Deep Foundations Summit”, 23-25 May 2016, Doha, Qatar.
- “The 23rd International Congress on Sound and Vibration (ICSV23)”, 10-14 July, 2016, Athens, Greece.

Dr. Murat Gündüz

- “Causes of Construction Delays in Qatar Construction Projects”, ICCEAE: 18th International Conference on Civil, Environmental and Architectural Engineering, April 25-26, 2016, Boston, USA.

Dr. Mohammed Ghanim

- Transportation Research Board Annual Meeting, Jan 2016, Washington DC, USA.

Dr. Onur Avci

- ASCE Geotechnical and Structural Engineering Congress 2016, February 14-17, 2016, Phoenix, AZ.

Workshop, Training, and Visits Attended

Dr. Mohammed Hussein

- Visit to the University of Southampton to carry out research as part of the MOTIV project (see details under consultancy) which resulted in a number of publications to appear soon, July 2016.

Workshop, Training, and Visits Delivered

Nil

Events Organized

Dr. Mohammed Hussein

- Co-organized a session on railway noise and vibration on EuroRegio 2016, 13-15 June 2016, Porto, Portugal.

Other Activities

Dr. Ramzi Taha

- ABET Program Evaluator

Appendix-A4-Students Activities

Competitions & Awards

- A team of faculty members, staff, and students from the department participated in the College of Engineering Football Tournament on March 31, 2016. The departmental team came in the Second Place in the football competition and in the First Place in departmental participation.



Figure 15: College of Engineering Football Tournament 2016

- Jamal Hannun and Mohammed Al Bardawil, undergraduate students in Civil Engineering won the 2nd place in the 3rd Annual Innovation and Entrepreneurship Contest at QU. The work was in collaboration with two other students (Abdullah Alsalemi and Ibrahim Ahmed) from the Department of Electrical Engineering.



Figure 16: Civil Engineering Won the 2nd place in the 3rd Annual Innovation

Seminars & Trainings

Nil

Field Trips, Social and Extra-Curricular Events

- Social day was organized by the ASCE Student Chapter in the department to give an opportunity for students, faculty, and staff to meet. During the Social Day, several competitions were also organized such as the “Paper Tower Competition,” “Table Tennis Competition,” and “Fusball Competition.” The event took place on April 27, 2016.



Figure 17: Social Day, 2016

- Civil Engineering students visited the Lusail Light Rail Transit (LLRT) project on April 23, 2016. During this visit, students had the opportunity to visit both the Light Train Pearl and Marina Stations. The students observed the work progress on-site and linked their class studies with field work. The visit was organized by the ASCE Student Chapter at QU.



Figure 18: Site Visit of Lusail Light Rail Transit Project, 2016

- The ASCE Student Chapter represented the Department of Civil and Architectural Engineering in the Open Day for Secondary Schools to introduce high school students to the Civil Engineering Program at Qatar University. The event took place on March 22, 2016.



Figure 19: Open Day for Secondary Schools, 2016

- Qatar University (QU) and Qatari Diar-Saudi Ben Laden Group (QD-SBG) signed an agreement to establish a Professorial Chair in Civil Infrastructure in the Department of Civil and Architectural Engineering. QU President, Dr Hassan Al-Derham, and QDSBG Group Chairman, Khalid Al-Sayed, signed the agreement. The chair will benefit students in Civil Engineering by engaging them in practical senior design projects and by supervising their summer training. Both institutions will also co-operate to provide joint research and consulting activities, and develop tailored training programs. This will result in graduating highly qualified professionals who are able to contribute to the fast-changing Civil Engineering and infrastructure development in Qatar, including dissemination of knowledge, deployment of state-of-the-art technology, application of best practice in Civil Engineering infrastructure, and establishing stronger links with industry.



Figure 20: Qatar University and Qatari Diar-Saudi Ben Laden Group signed an agreement.

Conclusions and Recommendations

Table 7 presents a summary of curriculum assessment results and recommended improvement actions.

Assessment based on observations						Subsequent update on status of improvement actions			
University process (SP, NUR, Survey result, IEC recommendations, annual audit report)	Results/findings from the process (The outcome from the defined university process which is triggering the planned actions in the next column)	Specify the academic year of results/findings	Action/Change (Planned action or change that will be undertaken by this unit in response to the observed outcome as reported in the previous column)	SP objective mapped to the improvement action	Target date by which the action will be taken	Actual action taken	When the actual action was taken	Results/findings after the action was taken	Current status of action (completed, in progress, not started, replaced)
Curriculum	Numerical analysis background for structural analysis courses	2016	A curriculum change to propose GENG300 as a prerequisite to Analysis of Indeterminate Structures (CVEN 321) will be submitted.		Fall 2016				In progress
Curriculum	More emphasis on the evaluation of internal forces and external loads and on the use of computer applications.	2016	Meet with the structures group and particularly those teaching statics and structural analysis to implement such emphasis.		Fall 2016				In progress
Curriculum	This will highlight the importance of using assumptions in simplifying problems but without reducing the accuracy and affecting outcomes made based on	2016	In offering the Analysis of Indeterminate Structures course (CVEN 321), the instructors will be informed that the students will be asked to run more		Fall 2016				In progress

	such analysis.		calculations to provide evidence in support of the assumptions they would like to adopt.						
Curriculum	Focus on different constraints in design.	2016	Enforce a chapter that is specifically focusing on different constraints in the Civil Engineering Design Project II report. These include ethical, social and environmental constraints.		Fall 2016				In progress
Curriculum	Enhance the design experience of students	2016	Increasing the credit hours for CVEN 402 (Civil Engineering Design Project II) from 2 to 3 credit hours.		Fall 2017				In progress

