

# 2011 Annual Report



## College of Engineering

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# College of Engineering

**Prepared by Publication/Web committee:**

Dr. Jamil Abdo (Chair of Committee, Department of Mechanical and Industrial Engineering)

Dr. Ghazi Al Rawas (Department of Civil and Architectural Engineering)

Dr. Tariq Jamil (Department of Electrical and Computer Engineering)

Dr. Khaled M. Goher (Department of Mechanical and Industrial Engineering)

Dr. Jamil Naser (Department of Petroleum and Chemical Engineering)

Mr. Ibrahim Al Saifi (Deputy Director, College of Engineering)

Mr. Reyaas Rafaideen (Dean's Office)

**Direction by:**

Dr. Ali Salem Al Harthy, Dean, College of Engineering

**Photographs taken by:**

CET (Center for Educational Technology)

Ayman Al Ghazali (Student – CAE)

**Cover page designed by:**

Mr. Reyaas Rafaideen (Dean's Office)



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## College of Engineering



### EXECUTIVE SUMMARY

- The College offers Bachelor of Engineering degrees in eight undergraduate programs: Civil, Mechanical, Electrical & Computer, Petroleum & Natural Gas, Architectural, Industrial, Chemical & Process, and Mechatronics. In addition, the College offers a joint program in Agricultural Engineering which is housed in the College of Agriculture and Marine Science (CAMS). The programs in Architectural Engineering, Chemical & Process Engineering, Industrial Engineering, and Mechatronics Engineering have been accredited by ABET, Inc. in 2008-2009 accreditation cycle, while the engineering programs in Civil, Mechanical, Electrical & Computer, Petroleum & Natural Gas received substantially equivalency in 2006. All the eight programs will be assessed again for accreditation by ABET in 2013.
- The number of new undergraduate students admitted every year in the College has remained relatively constant in the range of 455 to 475 students yearly for the last four years. The total number of students enrolled in the College remains at around 2600 students. The number of engineering students graduating every year has been increasing during the last three years. In 2009, 2010 and 2011 commencements, 387, 391 and 340 undergraduate students have graduated respectively.
- The College is starting to see a gradual increase in post graduate students enrollment. In 2011, the number of newly admitted Master students reached the highest record, where 76 new master students were admitted adding to about 80 registered master students. About 16 Master students graduated in 2011 Commencements. For the second year since starting, the total number of PhD students has now reached 11.
- The College continues to attract external contracts every year. The total value of attracted external research contracts, grants and support services in 2011 reached nearly 1.3 Million Omani Rials, mostly from external contracts. Six new research projects funded by TRC totaling 0.6 Million Rials are currently being carried out in the college. As for internal grants from the University, 20 research projects were granted in 2011 totaling Rial Omani 70,000, a value within the range that has remained almost constant for the last nine years.
- The University Council has approved a new Master in Environmental Engineering to be launched in the Department of Civil & Architectural Engineering.
- In 2011, the College has welcomed 11 new faculty members and 8 new technical and administrative staff.



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- The College is proud of its faculty member Dr Ahmed Al Futaisi, Associate Professor from the Department of Civil & Architectural Engineering and Alumni to be appointed by His Majesty as Minister of Transport & Communication.
- In year 2011, the College faculty staff have published 130 journal papers, 102 conference papers, 5 books, 10 book chapters and 18 technical reports.
- The College has participated in the 18<sup>th</sup> GCC Deans Meeting held in Al Qasseem, Saudi Arabia on 19-20 April 2011. A yearly meeting where the GCC Deans of Engineering, Computer and Architecture meet to share experience and put forward plans for cooperation.
- A team of students from the Mechanical & Industrial Engineering Department has represented SQU in an International Submarine Race in Maryland, USA in June 27<sup>th</sup> - July 1<sup>st</sup>, 2011.
- The student 4<sup>th</sup> Engineering Exhibition was held on March 7-9<sup>th</sup> 2011. The guest of honor was Dr Mohammed Barwani, Chairman MB holdings who delivered an inspiring address to the students.
- The College has been selected to participating along with other institutions in Oman in a National Eco House Competition organized by TRC. The competition will include design and construction of a house that is ecologically suitable with adoption of sustainable and using renewable energy designs.
- Offices and laboratories in the new Lab Building (Block C) have been occupied and equipped. Phase I of the laboratory fixed furniture (Phase I) has been completed.

**Dr. Ali Salem Al-Harthy**  
**Dean, College of Engineering**

# College of Engineering

## ADMINISTRATION, FACULTY, TECHNICAL AND SUPPORT STAFF

### Dean

Dr. Ali Salem Al-Harthy, Associate Professor

### Assistant Deans

Dr. Tasneem Pervez, Associate Professor  
Assistant Dean for Postgraduate Studies and Research

Dr. Abdulnasir Hossen, Associate Professor  
Assistant Dean for Undergraduate Studies

Dr. Issa Hamdoon Al-Harthy, Assistant Professor  
Assistant Dean for Training & Community Service

### Director of Administration

Mohammed Al-Shueily, Director  
Ibrahim Al-Saifi, Deputy Director

### College Administration Coordinators & Clerks

Syed Muneer Uddin (Dean's Office)  
Ahmed Al-Kharboushi (ADPSR)  
Abdullah Omar Al-Ojaily (ADTCS)  
Sophie Tayco-Soldevilla (ADUS)  
Hamed Al-Khanbashi (College Administration)  
Salim Al-Hinai (College Administration).  
Mohamed Reyaas Rifaideen Technician  
Mohamed Al-Mufarji Technician  
Ghareeb Khalfan Al-Mazrouey (College Administration)

### College Computer Engineers

Mahmood Nasser Al-Tobi  
Khalfan Salem Al-Abri  
Mohamed Hussain Al-Mufarji

### College Messengers

Issa Salim Al-Fori  
Khalfan Masi Al-Rubkhi



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## STAFF

### New Academic Staff

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#### Department of Civil and Architectural Engineering

Dr. Syed Muhammad Bilal Waris, Assistant Professor  
Dr. Ranjith Perara, Associate Professor

#### Department of Electrical and Computer Engineering

Dr. Nasser Hossein Zadeh, Associate Professor  
Dr. Medhat Hussein Awadalla, Assistant Professor

#### Department of Mechanical and Industrial Engineering

Dr. Sujan Piya, Assistant Professor  
Dr. Abdullah Ozer, Assistant Professor  
Dr. Chefi Triki, Assistant Professor  
Dr. Arunachalam Ramanathan, Assistant Professor

#### Department of Petroleum and Chemical Engineering

Dr. Ala Hamed Muhtaseb, Associate Professor  
Dr. Mohammad Najib Ahmad, Associate Professor  
Dr. Omar Houache, Assistant Professor

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### New Technical and Administrative Staff

---

#### Dean's Office

Mrs. Shaima Majid Al-Zadjali, Coordinator  
Mr. Issa Mattar Al-Saifi, Storekeeper

#### Department of Civil and Architectural Engineering

Mr. Alex Pak, Technician

#### Department of Mechanical and Industrial Engineering

Mr. Hussein Said Al-Salmi, Engineer  
Mr. Nour Rashid Al-Rasbi, Engineer

#### Department of Electrical and Computer Engineering

Ms. Naeema Rashid Al-Ghaithi, Engineer  
Ms. Salwa Saif Al-Bahri, Technician  
Mr. Sami Hamed Al-Jaafari, Technician

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### New Lecturers and Demonstrators

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#### Department of Civil and Architectural Engineering

Mr. Hamed Al-Mashani, Demonstrator

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# College of Engineering

## Academic Staff on Scholarships

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Department of Civil and Architectural Engineering

Mr. Saleh Nasser Al-Saadi, Lecturer

Mr. Mohammed Al Shahri, Lecturer

Mr. Mubarak Khamis Al-Alawi, Demonstrator

Department of Electrical and Computer Engineering

Mr. Rashid Al-Abri, Lecturer

Mr. Hassan Murtadha Al-Lawati, Lecturer

Mr. Ahmed Al-Maashri, Lecturer

Department of Mechanical and Industrial Engineering

Mr. Issam Mahfoodh Bait Bahadur, Lecturer

Ms. Nasra Said Al-Maskri, Demonstrator

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## Technical and Administrative Staff on Scholarships

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Dean' Office

Mr. Khalfan Salim Al-Abri

Department of Electrical and Computer Engineering

Ms. Laila Hamood Al-Hasani, Coordinator

Department of Mechanical and Industrial Engineering

Ms. Basma Suleiman Al-Farsi, Coordinator

---

## Promotions:

### From Assistant Professor to Associate Professor:

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Department of Civil and Architectural Engineering

Dr. Abdullah Al-Saidy

### From Associate Professor to Professor:

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Department of Civil and Architectural Engineering:

Prof. Khalifa Saif Al-Jabri

### From Assistant to Associate Professor

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Department of Mechanical and Industrial Engineering

Dr. Khalid Al-Zebdeh

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## COLLEGE COMMITTEES

Committees	Members	
<b>College Board</b>	Dr. Ali Salem Al-Harthy	Chair
	Dr. Abdulnasir Hossen	Assistant Dean for Undergraduate Studies (ADUS)
	Dr. Tasneem Pervez	Assistant Dean for Postgraduate Studies & Research (ADPSR)
	Dr. Issa Hamdoon Al-Harthy	Assistant Dean for Training and Community Service (ADTCS)
	Prof. Mohammed Ould Khaoua	HoD, Electrical and Computer Engineering (ECE)
	Dr. Nabeel Al-Rawahi	HoD, Mechanical and Industrial Engineering (MIE)
	Dr. Yahya Al-Wehaibi	HoD, Petroleum and Chemical Engineering (PCE)
	Prof. Khalifa Al-Jabri	HoD, Civil and Architectural Engineering (CAE)
	Prof. Awni Shaaban	Invited Member, CAE
	Dr. Afaq Ahmad	Invited Member, ECE
	Dr. Mahad Bawain	CAE
	Dr. Amer Al-Hinai	ECE
	Dr. Amur Al-Yahmadi	MIE
Dr. Talal Al-Wahaibi	PCE	
Mr. Mohammed Al-Shueily	Director of Administration	
Syed Muneer uddin	Secretary	
<b>Executive</b>	Dean	Chair
	Assistant Deans	
	Heads of the Departments	
	Director of Administration	
<b>Postgraduate Studies &amp; Research</b>	Dr. Tasneem Pervez	ADPSR, Chair
	Dr. Khaled Al-Shamsi	CAE
	Dr. Talal Al-Wahaibi	PCE
	Prof. Sabah Al-Sulaiman	MIE
	prof. Hadj Bourdoucen	ECE

# College of Engineering

<b>Computing</b>	Dr. Ahmed Al-Futaisii	Chair
	Dr. Mohammed Al-Abri	PCE
	Dr. Mohammed Al-Nadabi	ECE
	Dr. Mohammed Khadem	MIE
	Mr. Mohammed Al-Shueily	DoA
	Mr. Mahmood Al-Toubi	Computer Eng
<b>Accreditation</b>	Dr. Ali Al-Harthy	Dean, Chair
	Dr. Abdulnasir Hossen	ADUS
	Dr. Mansoor Al-Harthy	ADTCS
	Dr.. A.W. Hago	CAE
	Prof. Awni Shaaban	CAE
	Dr. Hossam Hassan	CAE
	Dr. Ibrahim Ashour	PCE
	Dr. Yahya Al-Wahahbi	PCE
	Dr. Yousuf Zurigat	MIE
	Dr. Ashraf Shikdhar	MIE
	Dr. Faical Mnif	MCTE
	Dr. Joseph Jervase	ECE
	Prof. Adel Gastli	ECE
Prof. Ibrahim Metwally	ECE	
<b>Industrial Training</b>	Dr. Issa Al-Harthy	ADTCS, Chair
	Dr. Arif Malik	ECE
	Dr. Lazhar Khriji	MCTE
	Dr. Majid Al-Moharbi	MIE
	Dr. Addul Aziz Al-Hashmi	PCE
	Mr. Mohammed Al-Shueily	DoA
<b>HSE</b>	Dr. Khalifa Al-Jabri	ADPSR, Chair
	Dr. Siegfried E. Trautwein	MIE
	Mr. Mohammed Al-Hadhrani	MIE
	Dr. Mohammed Al-Abri	PCE
	Mr. Nasser Al-Mandhari	PCE
	Dr. Mohammed Shafiq	ECE
	Mr. Sulaiman Al-Kalbani	ECE
	Mr. Juma Al-Ruzaiqi	CAE
	Mr. Mohammed Al-Shueily	DOA/Coordinator



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<b>Technical Staff Committee</b>	Dr. Mohammed Al-Aghbari	Chair
	Dr. Siegfried E. Trautwein	MIE
	Mr. Mohammed Al-Hadhrami	MIE
	Dr. Ilham Kirm	PCE
	Mr. Nasser Al-Mandhari	PCE
	Dr. Mohammed Al-Nadabi	ECE
	Mr. Salem Al-Rashdi	ECE
	Mr. Suleiman Al-Kindi	CAE
	Mr. Mohammed Al-Shueily	DOA
<b>Publication &amp; Web</b>	Dr. Jamil Abdo	MIE, Chair
	Dr. Jamil Nasser	PCE
	Dr. Tariq Jamil	ECE
	Dr. Ghazi Al-Rawas	CAE
	Mr. Ibrahim Al-Saify	Dy. DOA
	Engr. Jamil Al-Yaqoubi	CAE
Mr. Mohamed Reyaas	Dean's Office	
<b>Curriculum</b>	Dr. Abdulnasir Hossen	ADUS, Chair
	Dr. Yahya Mohammedzain	CAE
	Dr. Shaibu Garba	CAE
	Dr. Afaq Ahmed	ECE
	Dr. Joseph Jervase	ECE
	Dr. Jamil Abdo	MCTE
	Dr. Faical Mnif	MCTE
	Dr. Mohammad Khadem	MIE
	Dr. Baba Jibril	PCE
Dr. Rashid Al-Maamari	PCE	
<b>Engineering Society Advisors and Social Activity</b>	Dr. Mahmood Al-Kindi	MIE, Chair
	Dr. Ghazi Al-Rawasi	CAE
	Dr. Lazhar Khriji	ECE
	Dr. Majid Al-Moharbi	MIE
	Dr. Hamoud Al-Hadhrami	Invited Member
	Engr. Jamil Al-Yaqoubi	CAE
	Mr. Mohammed Al-Shueily	DoA
	Dr. Adel Al-Ajmi	PCE
	Mr. Hamdan Al-Amri	PCE
	Mr. Yousuf Al-Shueily	ECE
Mr. Mohamed Ali Al-Hadfami	MIE	

# College of Engineering

<b>Staff/Student Liaison</b>	Dr. Ali Al-Harthy	Chair
	Dr. Abdulnasir Hossen	ADUS
	Dr. Abdullah Al-Saidy	CAE
	Dr. Zia Nadir	ECE
	Dr. R.A. Siddiqui	MIE
	Dr. Hamoud Al-Hadrami	PCE
<b>College Strategic Planning and Development</b>	Dr. Ali Al-Harthy	Chair
	Dr. Zahid Qamar	MIE
	Dr. Tasneem Pervez	ADGSR
	Dr. Abdulnasir Hossen	ADUS
	Dr. Issa Al-Harthy	ADTCS
	Dr. Ali Al-Nuaimi	CAE
	Prof. Adel Gastli	ECE
	Dr. Mansoor Al-Harthy	PCE
<b>College Academic Promotions</b>	Dr. Ali Salem Al-Harthy	Chair
	Prof. Adel Gastli	ECE
	Prof. Ramzi Taha	CAE
	Prof. Sabah Al-Sulaiman	MIE
	Prof. Mohammed Khaoua	ECE
	Dr. A.W. Hago	CAE
	Dr. Ashraf Shikdar	MIE
<b>Steering Committee for Mechatronic Engineering Program (MCTE)</b>	Prof. Mohamed Khaoua	Chair
	Dr. Ashraf Shikdar	Co-Chair/Coordinator
	Dr. Abdulnasir Hossen	ADUS
	Prof. Hadj Bourdoucen	ECE
	Dr. Afaq Ahmed	ECE
	Dr. Faical Mnif	ECE
	Dr. Lazhar Khriji	ECE
	Dr. Mohammed Shafiq	ECE
	Dr. Jamil Abdo	MIE
	Dr. Amer Al-Yahmadi	MIE
	Dr. Khaled Goher	MIE
Dr. Riadh Zaier	MCTE	



<b>Agriculture- Engineering Program Committee</b>	Dr. Abdulnasir Hossen	ADUS
	Dr. Zahid Qamar	MIE
	Dr. Ahmed Sana	CAE

## UNIVERSITY COMMITTEES

### Committees

### Representatives

---

<b>Academic Promotions Committee</b>	Prof. Ibrahim Metwally
<b>Library Committee</b>	Dr. Sabah Al-Sulaiman
<b>Course &amp; Instructor Evaluation</b>	Dr. Abdulnasir Hossen (ADUS)
<b>PDO/SQU Liaison Committee</b>	Dr. Tasneem Pervez (ADGSR)
<b>Student Grievances Committee</b>	Dr. Abdullah Al-Badi
<b>University Curriculum &amp; Academic Policies Committee</b>	Dr. Joseph Jervase
<b>Safety and Security Committee</b>	Dr. Khalifa Al-Jabri
<b>Technical Committee Earthquake Monitoring Centre</b>	Dr. Tasneem Pervez (ADGSR)
<b>Coordination Committee for IT and Systems</b>	Dr. A.W. Hago
<b>Steering Committee for High Performance Computing (HPC)</b>	Dr. Nabeel Al-Rawahi Dr. Ahmed Sana Dr. Tariq Jamil Dr. Majid Al-Moharbi
<b>SQU Web Development Committee</b>	Mr. Mohammed Al-Shueily

# College of Engineering

## SUMMARY OF STUDENTS ENROLMENT (2011)

The College of Engineering has grown rapidly since its start in 1986 and currently the student population has increased to around 2600 students during the year 2011, compared to only 92 students in 1986.

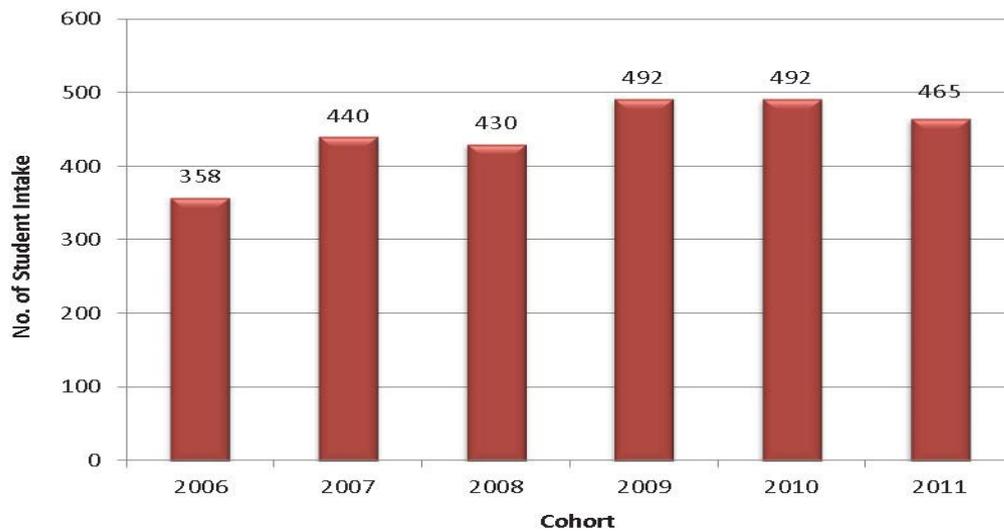


Figure A1: Annual College Intake

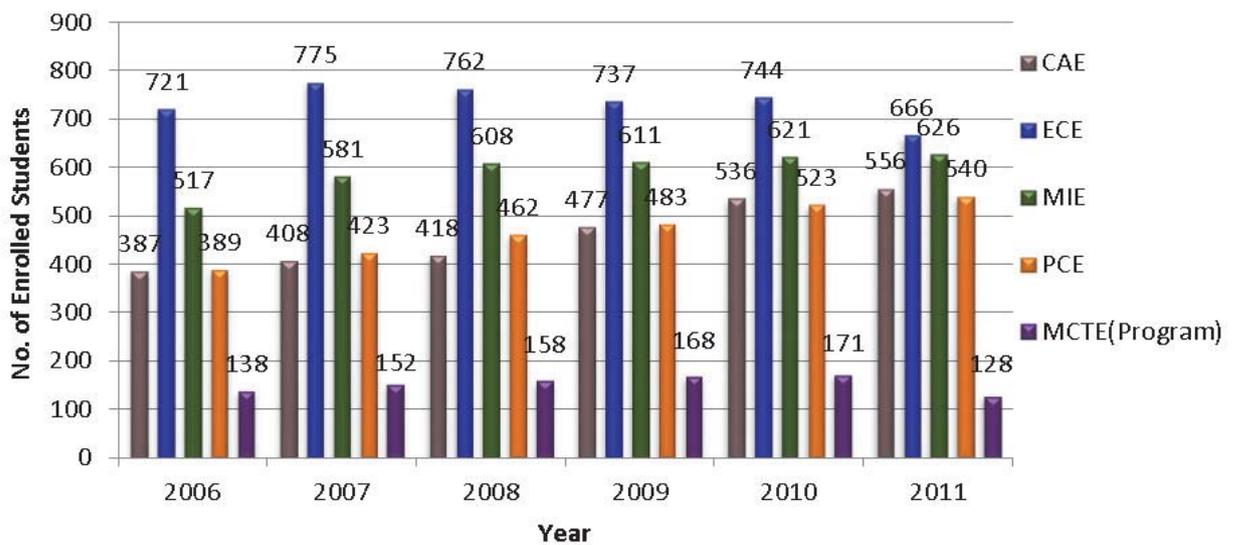


Figure A2: Enrolment in the Departments & Programs (Year 1-5)



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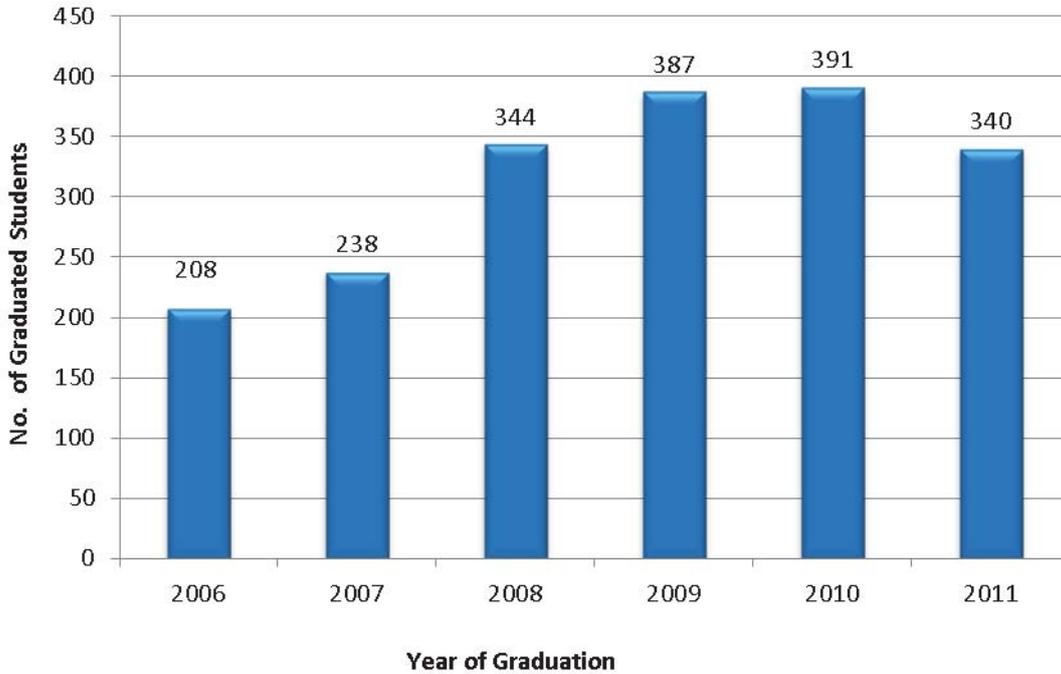


Figure A3: College's Graduates

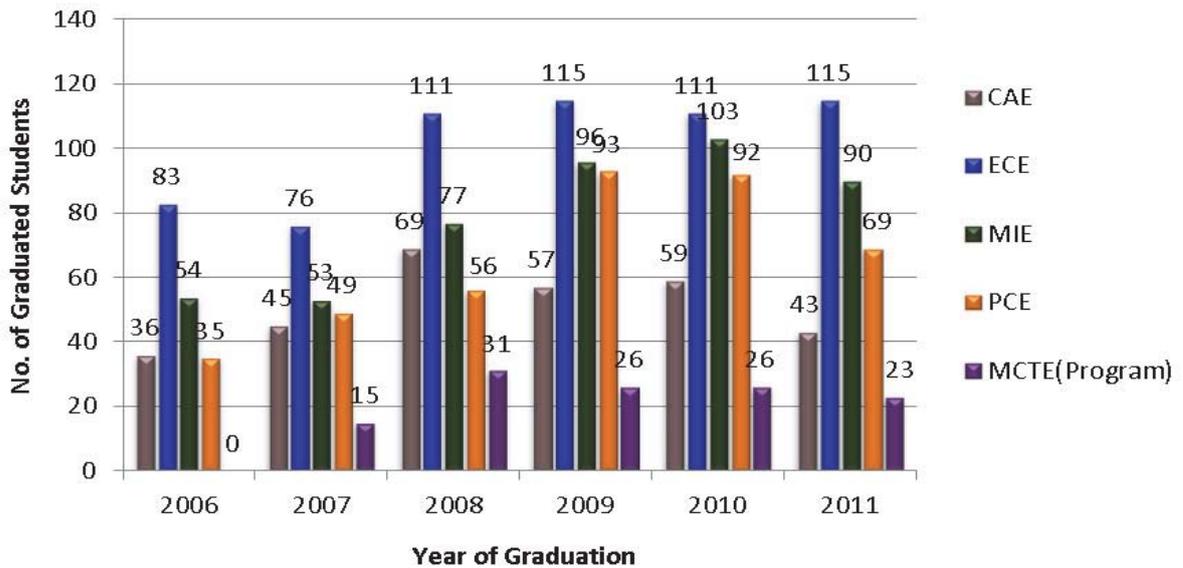


Figure A4: Graduates per Department

# College of Engineering

## SUMMARY OF INDUSTRIAL STUDENT TRAINING (2011)

Every year, the College of Engineering provides an industrial student training for all level-4 students either locally in Oman or abroad. The period of the training varies from 2 to 3 months. Local trainings are monitored by Department advisors (8) who make regular sight visits to their students. During Summer 2011, several International exchanges with a total number of 12 countries within IAESTE and 3 countries outside IAESTE were made.

### Statistics of Industrial Training, (Summer 2011)

Dept. Training		CAE	ECE	MIE	PCE	MCTE	Total
	Local	local	43	95	104	78	22
Abroad	IAESTE	3	7	9	4	2	25
	Other	8	1	6	-	3	18
<b>Sub Total</b>		<b>54</b>	<b>103</b>	<b>119</b>	<b>82</b>	<b>27</b>	<b>375</b>

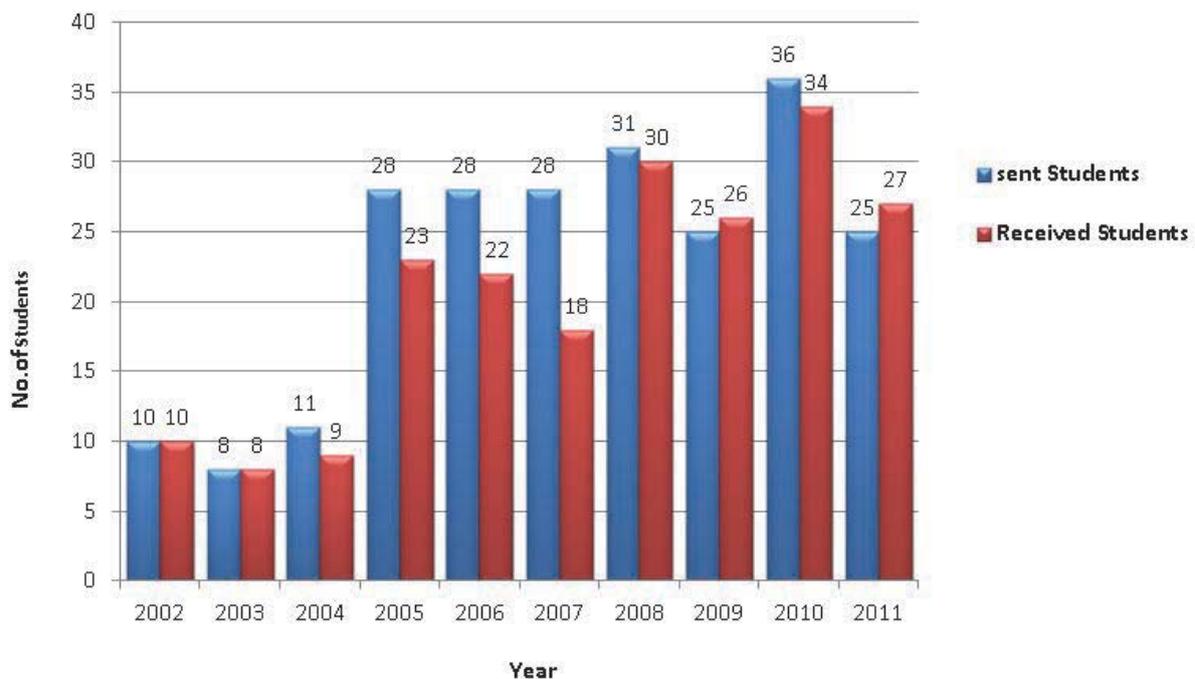


Figure A5: Number of students' exchange within IAESTE Program since 2002



# Department of Architectural Engineering

Website: <http://www.sau.edu.om/dept/ci/il/arch>

Department of Architectural Engineering





## Department of Civil and Architectural Engineering



### MM

The Department of Civil and Architectural Engineering (CAE) took its new name in 2002 to reflect its recent diversification. It has restructured its undergraduate programs to include Architectural Engineering Program. The Department offers programs leading to the degrees of Master of Science in Civil Engineering, Master of Science in Civil Engineering (Water Resources) [M.Sc. (WR)], Master of Science in Civil Engineering (Environmental Engineering), and Master of Science (Geomatics Engineering). Different areas of specializations including structural engineering, geotechnical engineering, environmental engineering and transportation engineering are emphasized in the M.Sc. offered in the Civil Engineering Program. During the academic year 2008-09, the Architectural Engineering Program received an official accreditation visit by ABET in November 2008, and the program has now been accredited by ABET. The department also offering PhD program.

Table B1: Summary

	<i>FL2009-FL2010</i>	<i>FL2011-SP2011</i>
<b>Faculty</b>	25	27
Support staff	16	24
Total	41	51
On-study leave	3	3
<b>Undergraduate Program</b>		
Enrolment (Y2-5)	940	410
Courses offered	123	83
Graduates	59	67
<b>Graduate Program</b>		
Enrolment	22	31
Courses offered	23	14
Theses completed	27	-
<b>Research</b>		
Grants	4	6
Contracts	1	10
Consulting	1	-
<b>Publications</b>		
Refereed Journals	21	36
Conference Proceedings	26	43

Two new faculty joined the department in 2011. Dr. Muhamed Waris in the structural Engineering. Dr. Ranjith Perera in the architectural Engineering program. Dr. In 2011 Eng. Mubarak Khamis AL Alawi finished his M.Eng (Construction Engineering and Management) from University of Alberta, Canada. The department also appointed Eng. Hamed Al-Maashani as a demonstrator in the Civil Engineering program.

The Department hosted an international workshop on Fire Safety Engineering and Management, March 7-9, 2011



## DEPARTMENT OF CIVIL ENGINEERING

### Faculty

### Academic Staff

**Prof. Khalifa Alari** *Professor and Head*  
Structures, Structural dynamics, Fire engineering, Construction materials.

**Prof. Amer Almas** *Professor and Deputy vice Chancellor for Postgraduate Studies and Research*  
Expansive soils, Soil stabilization, Calcined pozzolanic materials, use of by-pass waste materials and oil-contaminated soils.

**Prof. Nihal Hassan** *Professor, Architectural Eng. Program Coordinator*  
Environmental Design, Sustainable Architecture, Architecture in Hot-Arid Regions.

**Prof. Sami Alaha** *Professor and Dean of Postgraduate Studies*  
Highway materials; pavement design, maintenance and rehabilitation; recycling; soil stabilization.

**Dr. Abdullah Alaid** *Assoc. Professor*  
Rehabilitation of structures, Behaviour of RC, PC & composite structures, Application of Advanced Fibre Composites in Civil Engineering structures.

**Dr. Dulahid Ago** *Assoc. Professor and Head (Up to August, 2011)*  
*Pozzolanic materials, Concrete properties.* Shear walls, Computer aided design.

**Dr. Ali Alarth** *Assoc. Professor and Dean*  
Structural mechanics, Reliability and optimization, Concrete structures.

**Dr. Ali Aluaimi** *Assoc. Professor*  
Structural design and analysis.

**Dr. Hamed Alutaisi** *Assoc. Professor (up to March, 2011)*  
Applied environmental geoscience, Physically-based pore-scale modelling, Multiphase flow in porous media, Hydrogeology and hydroinformatics, Contaminant fate and transport, Soil sorption to organics and heavy metals.

**Dr. Hamed Ana** *Assoc. Professor*  
Wave boundary layers, Turbulence, Sediment transport, Hydroinformatics, Water resources management.

**Dr. Ossam Assan** *Assoc. Professor*  
Pavement materials; mixtures evaluation and design; Recycling of waste and by product materials; Environmental effect on pavement performance; Maintenance and rehabilitation of pavements.

**Dr. Mohammed Alghari** *Assoc. Professor*  
Seepage problems in soil and under dams, bearing capacity of foundations with structural skirts

**Dr. Alim Alraimi** *Assoc. Professor*  
Fibre reinforced concrete, Fracture mechanics & high strength concrete, Durability.

## Department of Civil and Architectural Engineering

**Dr. Bahaa Ameen** *Assoc. Professor*

Soil-Structure interaction, Expansive soils, Earthquake engineering & soil dynamics, Finite element analysis.

**Dr. Ibraheem Mandour** *Asst. Professor*

Urban designer, theorist and place making professional.

**Dr. Hani Al-Awad** *Asst. Professor*

Remote sensing and Geographical Information System (GIS), Hydrology.

**Dr. Mesham Eissa** *Asst. Professor*

Total building performance, building integrated systems, computational visualization and simulation tools in lighting design.

**Dr. Issa Al-Jarrah** *Asst. Professor and Assistant Dean for Training and Community Service*

Sound characterization of urban environment, Survey on community noise, Human behaviour in architectural facilities.

**Dr. Halid Al-Hamsi** *Asst. Professor*

Characterization of bituminous materials. Pavement design and maintenance.

**Dr. Maatouk Hachem** *Asst. Professor*

Energy conservation in buildings, Building science, Solar energy, HVAC design, Sustainable architecture.

**Dr. Mahad Al-Amin** *Asst. Professor*

Environmental Engineering, Water and Wastewater Treatment Technologies and Fluid Mechanics.

**Dr. Mohammed El-Awad** *Asst. Professor (up to June, 2011)*

Environmental fluid mechanics, Coastal environment, Water quality modelling, Risk management in environmental applications

**Dr. Mervat Al-Harati** *Asst. Professor (up to June, 2011)*

Architectural design, Spatial behavioural factors, Islamic history, urban design, building construction methods.

**Dr. Hani Al-Awad** *Asst. Professor*

Housing and neighbourhood design, culture environment and behavioural studies, urban design, planning and management.

**Eng. Hamed Al-Awad** *Lecturer*

Traffic and Transportation Engineering, transportation planning, traffic safety, driver behaviour, and accident analysis.

**Eng. Moataz Al-Awad** *Lecturer*

Construction Management

**Eng. Mohammed Al-Hariri** *Lecturer*

Engineering surveying and GPS applications.



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**Eng Saleh Al Aadi** *Lecturer*

Energy Conservation & Management in Buildings, HVAC Systems Design, Total Indoor Environmental Quality in Buildings and its impact on Occupants, Renewable & Sustainable Energy Applications in Buildings.

**Eng Ali Abdul Attar Al Ashmi** *Demonstrator*

**Eng Ahmed Al Maashani** *Demonstrator*

**Eng Anan Al Hatri** *Demonstrator*

Sustainability and green architecture.

**Technical and Support Staff**

**Mr Muleiman Alindi** *Chief Technician, Engineer*

**Mr Amil Al Aooi** *Technician, Engineer*

**Mr Uma Al Uaii** *Technician, Engineer*

**Mr Aou Al La'i** *Technician, Engineer*

**Mr Ahmed Ahman Aini** *Senior Technician*

**Mr Alem Al Uaii** *Technician*

**Ms Aa Al Har'i** *Technician*

**Mr Aiseer Al Iami** *Technician*

**Mr Mohsen Hanma** *Technician Architectural Engineering*

**Mr Ouel Meer Mari ar** *Technician*

**Mr Afeer Ulhuda** *Technician*

**Mr Indu Alilupul Alalage** *Technician*

**Mrs Afa Alahani** *Coordinator*

# Department of Civil and Architectural Engineering

## Committees

Table B2: Committee membership

Committee	Members
Accreditation Civil Engineering Program	HoD Dr. Hossam Hassan (Coordinator) Dr. AbdulaWahid Hago Dr. Mahad Bawain Dr. Yahia Mohamedzein Dr. Ahmed Sana Dr. Mohammed El Kamash Dr. Mohammed Al-Aghbary
Accreditation Architectural Engineering Program	HoD Prof. Awni Shaaban (Coordinator) Dr. Hesham Issa Dr. Ranjith Perera Dr. Maatouk Khoukhi Dr. Alaa Mandour
Coordinator	HoD Dr. AbdulaWahid Hago (Structures)(Coordinator) Dr. Shuaibu Garba (Architectural Engineering) Dr. Yahia Mohamedzein(Geotechnical) Dr. Hossam Hassan (Highway+ Surveying) Dr. Mahad Bawain (Hydraulics & Public Health) Mr. Sulieman Al-Kindi (Chief Technician)
Postgraduate Studies Research	Dr. Khalid Al-Shamsi (Coordinator) Dr. Mohamed Al-Aghbari Dr. Abdullah Al-Saidy Dr. Mahad Bawain
Department Academic Promotion	HoD (Chair) Prof. Ramzi Taha Prof. Awni Shaaban Dr. AbdulaWahid Hago Dr. Hossam Hassan Dr. Ali Al-Nuaimi Dr. Yahya Zain Dr. Salim Al-Oraimi Dr. Ahmed Sana Dr. Abdullah Al-Saidy



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**Student Disinfecting Committee**

HoD  
 Dr. AbdulaWahid Hago  
 Dr. Hossam Hassan  
 Dr. Ghazi Al-Rawas (Coordinator)  
 Dr. Alaa Mandour

**Secretary**

Dr. Hossam Hassan

**Seminars**

Eng. Mubarak Al-Alawi

**Student Societies & Editor**

Dr. Ghazi Al-Rawas

**Social Activities**

Dr. Mohammed Al-Aghbari  
 Dr. Alaa Mandour

**Staff Student Liaison**

HoD (Chair)  
 Dr. Abdullah Al-Saidy (Coordinator)  
 Dr. Salim Al-Oraimi  
 Dr. Hesham Eissa  
 +at least 6 student (two from each year selected by students)

**Strategic Planning**

HoD  
 Dr. AbdulaWahid Hago(Coordinator)  
 Prof. Awni Shaaban  
 Dr. Salim Al Oraimi  
 Dr. Ali Al-Nuaimi  
 Dr. Ahmed Sana  
 Dr. Mahad Baawain

**Industrial Disinfecting Board**

HoD  
 Dr. Issa Al-Harthy (Coordinator)  
 Prof. Awni Shaaban  
 Dr. AbdulaWahid Hago

**Staff Recruitment**

HoD  
 Dr. AbdulaWahid Hago (Coordinator)  
 Dr. Shuaibu Garba  
 Dr. Abdullah Al-Saidy  
 Dr. Mohammed Al-Aghbari  
 Dr. Mahad Bawain

**Publication**

Dr. Salim Ferwati (chair)  
 Dr. Hesham Eissa  
 Dr. Shaibu Garba  
 Eng. Hanan Al-Khatri

## Department of Civil and Architectural Engineering

### Undergraduate Curriculum

HoD (Chair)  
Dr. Yahya Mohamedzein (Coordinator)  
Dr. Khalid Al-Shamsi  
Dr. Ali Al-Nuaimi  
Dr. Ghazi Al-Rawas  
Dr. Shaibu Garba

### Examinations Committee

HoD (Coordinator)  
Dr. Khalid Al-Shamsi (Highways & Geotechnical)  
Dr. Hesham Issa (Architecture)  
Prof. Khalifa Al-Jabri (Structures)  
Dr. Ghazi Al-Rawas (Water & Environment)

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**DE D E DIE****ourses**

Table B3: Courses offered in Spring 2011

<b>Code</b>	<b>Title</b>	<b>Instructor</b>
AREN2111	Arch. Design I	Shaibo Garba
AREN2311	Arch. Drawing	Mohamed Mandour
AREN2411	History of Arch. I	Shaibo Garba
AREN3113	Arch. Design III	Hesham Eissa
AREN3313	Working Drawing	Mohamed Mandour
AREN3412	History of Arch. II	Mohamed Ferwati
AREN3806	Services I	Maatouk Khoukhi
AREN3812	Arch Acoustics	Hesham Eissa
AREN3814	Climate Resp. Design	Awni Shaaban
AREN3816	Bldg Mech. Systems	Maatouk Khoukhi
AREN4105	Graduation Project I	
CIVL2400	Practice& Ethics	Mahad Baawain
CIVL3036	Structures I	Khalifa Al-Jabri, Abdullah Al-Saidi
CIVL3046	Drawing II	Ahmed Qatan, Hossam Hassan
CIVL3066	Eng Hydrology	Ghazi Al-Rawas, Mohammed Elkamash
CIVL3076	Transportation Eng	Ramzi Taha
CIVL3096	Constrn Materials	Salim Al-Araimi
CIVL3106	Geotechnical Eng I	Mohamed Al-Aghbari
CIVL3216	Basic Mechanics	Abdelwahed Mohamed, Maatouk Khoukhi
CIVL4006	Prob & Statistics	Yahia Zein, Ghazi Al-Rawas
CIVL4016	Structures II	Salim Al-Araimi, Khalifa Al-Jabri
CIVL4046	Fluid Mechanics	Ahmed Sana
CIVL4206	Concrete Design	Ali Al-Nuaimi
CIVL5133	Soil Improvement	Mohamed Al-Aghbari
CIVL5142	Groundwater	Ahmed Al-Feteisi
CIVL5186	Water & Waste Mgmt	Mahad Baawain
CIVL5204	Engineering Economic	Khalid Al-Shamsi, Issa Al-Harthy
CIVL5206	Traffic Eng & Mgmt	Khalid Al-Shamsi

## Department of Civil and Architectural Engineering

CIVL5236	Prestressed Concrete	Ali Al-Harhi
CIVL5306	Specific. & Contract	Mohamed Mandour
CIVL5994	Research Project II	Mohammed Elkamash
CIVL5996	Project II	Ali Al-Nuaimi, Mohammed Elkamash, Hossam Hassan
CIVL5997	Research Project	Mohammed Elkamash
CIVL6150	Finite Element Metho	Ahmed Al-Feteisi
CIVL6165	Structures Rehab.	Abdullah Al-Saidi
CIVL6725	Phy-Chem. Processes	Mahad Baawain

Table B4: Courses offered in Fall 2011

Code	Title	Instructor
AREN3112	Arch. Design II	Mohamed Mandour
AREN3211	Arch. Design Theory	Shaibo Garba
AREN3312	Introduction to CAAD	Shaibo Garba
AREN3805	Environment III	Awni Shaaban
AREN3811	Bldg Const. Methods	Lama Ranjith Perera
AREN4114	Arch Design IV	Shaibo Garba
AREN4803	Profession. Prac Spe	Lama Ranjith Perera
AREN4808	Services III	Maatouk Khoukhi
AREN4813	Building Illuminatio	Hesham Eissa
AREN4817	Sanitary & Plumbing	Maatouk Khoukhi
AREN5106	Graduation ProjectII	Mohamed Mandour
AREN5106	Graduation ProjectII	Hesham Eissa
AREN5106	Graduation ProjectII	Ali Al-Harhi
AREN5106	Graduation ProjectII	Awni Shaaban
AREN5106	Graduation ProjectII	Maatouk Khoukhi
AREN5403	Omani Architecture	Mohamed Mandour
CIVL2400	Practice& Ethics	Mohamed Mandour
CIVL3002	Drawing I	Hanan Al Khatri, Aaliah Al Hashmi
CIVL3056	Surveying	Hossam Hassan, Ghazi Al-Rawas, Abdelwahed Mohamed
CIVL3086	Mech of Materials	Abdullah Al-Saidi + Issa Al-Harthy + Salim Al-Araimi



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CIVL3096	Constrn Materials	Salim Al-Araimi
CIVL4036	Highway Engineering	Khalid Al-Shamsi
CIVL4136	Environmental Eng I	Mahad Baawain
CIVL4146	Hydraulics	Ahmed Sana
CIVL4206	Concrete Design	Abdelwahed Mohamed Ali Al-Nuaimi
CIVL4216	Steelwork Design	Sayid Waris Ali + Khalifa Al-Jabri
CIVL4226	Foundation Engrg.	Mohamed Al-Aghbari
CIVL5096	Concrete Structures	Abdullah Al-Saidi
CIVL5106	Slope Stability	Mohamed Al-Aghbari
CIVL5132	Environmental Geotec	Yahia Zein
CIVL5146	Numerical Methods	Yahia Zein
CIVL5150	Remote Sensing	Ghazi Al-Rawas
CIVL5156	Cost Estimating	Ali Al-Nuaimi
CIVL5336	Constr Management	Ramzi Taha + Lama Ranjith Perera
CIVL5995	Project I	Ali Al-Nuaimi + Hossam Hassan + Ahmed Sana
CIVL6110	Advanced Concrete	Sayid Waris Ali
CIVL6380	Geoenvironmental	Yahia Zein
CIVL6760	Solid Waste & Sludge	Mahad Baawain

## Employment Status

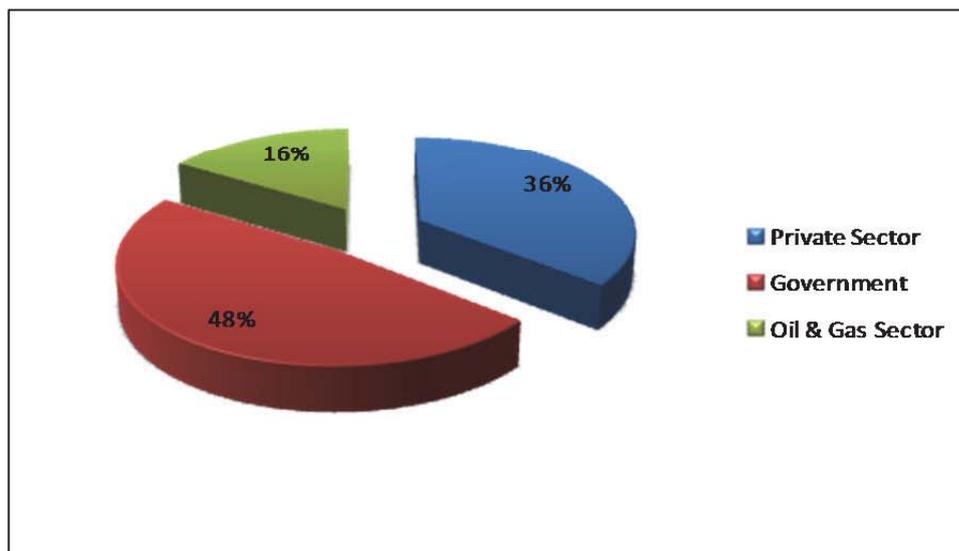


Figure B1: Job placement for the graduates of the last 11 years

# Department of Civil and Architectural Engineering

## D E DIE

### Student Enrolment

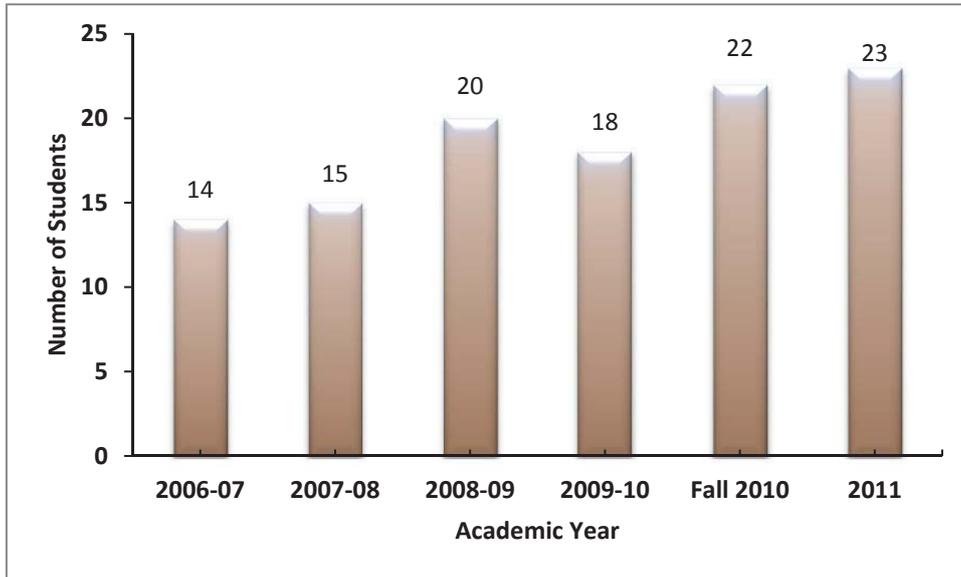


Figure B2: MSc. Students' enrolment for the past five years





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## Courses

Table B5: Postgraduate courses offered in year 2011

Semester	Code	Title	Instructor
Spring 2011	CIVL6150	Finite Element Method	Muhamed Bilal Waris
	CIVL6160	Advanced Steel Design	Abdullah Al-Saidi
	CIVL6750	Air Pollution Engineering	Mahad Baawain
	CIVL7000	M.Sc.Thesis	Khalid Al Shamsi
	CIVL7002	M.Sc.Thesis II	Khalid Al Shamsi
Fall 2011	CIVL6110	Advanced Concrete	Muhamed Bilal Waris
	CIVL6380	Geoenvironmental	Yaiya Zein
	CIVL6760	Solid Waste & Sludge	Mahad Baawain
	CIVL7000	M.Sc.Thesis	Khalid Al Shamsi

## Master's Students Projects

Table B6: Students' Projects 2011

Thesis Title	Supervisor	Student Name
Strengthening of Reinforced Concrete Beams in Flexure Using Textile Reinforced Mortar (TRM)	Abdullah AL-Saidi	Sofia Muhammed Al-Zadjali
A Comparative Study on Design Results of RC Members Subjected to Bending, Shear and Torsion Using ACI 318:2008 and BS8110:1997	Ali AL-Nuaimi	Iqbal Yakub Patel

## Department of Civil and Architectural Engineering

### EE

#### Grants

Table B7: Internal Grants held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
The potential of utilizing desiccant cooling system coupled with solar collector in the hot and humid regions of Sultanate of Oman	Dr. Maatouk Khokhi	3,030	SQU
Cultural DNA in Islamic Geometric Pattern Design and its effect on the commonality in Traditional Architecture in the Islamic World, with particular focus on Oman	Dr. Hesham Eissa	2,525	SQU
Systems Approach to Affordable Urban Housing in Oman	Dr. Shaibu Bala Garba	2,970	SQU
Performance Testing of Asphalt Mixes Containing Waste Materials	Dr. Hosam Hasan	3,775	SQU
Strengthening Historical Masonry Structures using Textile Reinforced Mortar (TRM)	Dr. Abdullah AL Saidy	2,975	SQU

#### Contracts

Table B8: Contracts held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
Sustainable and Beneficial Options for Reusing of 'Haya Water' Treated Wastewater : Phase 1 - Exploratory	Dr. Mahad Baawain	65,000	Haya Water
Removal of Toxic Organic Pollutants and By-Products Using Advanced Oxidation Processes and Nanotechnology	Dr. Mahad Baawain	133,400	The Research Council



## Publications

### Peer-reviewed Journal Papers

1. Al-Jabri, K. S. (2011). Modelling and Simulation of Beam-to-Column Joints at Elevated Temperature: A Review. *Journal of the Franklin Institute*, 348(7):1695-1716.
2. Al-Jabri, K. S., Al-Saidy, A. H., Taha, R., and Al-Kemyani, A. J. (2011). Effect of Using Wastewater on the Properties of High Strength Concrete. *Procedia Engineering*, 14: 370-376.
3. Al-Jabri, K., Taha, R.A., and Al-Saidy, A. (2011). Effect of Copper Slag as a Fine Aggregate on the Properties of Cement Mortars and Concrete. *Construction and Building Materials*, Vol. 25: 933-938.
4. Al-Jabri, M. and Baawain, M.S. (2011). Petrochemicals. *Water Environment Research*, 83(10): 1506-1524.
5. Al-Omairi, A., Baawain, M.S., Al-Futaisi, A. (2011). Wastewater Characterization in the Sultanate of Oman. *International Journal of Sustainable Water and Environmental Systems*, 3(2): 77-84.
6. Al-Saidy, A.H. and Al-Jabri, K.S. (2011). Effect of Damaged Concrete Cover on the Behavior of Corroded Concrete Beams Strengthened with CFRP Sheets. *Journal of Composite Structures*, 93:1775–1786.
7. Baawain, M.S., Gamal El-Din, M., Smith, D.W., and Mazzei, A. (2011). Hydrodynamic Characterization and Mass Transfer Analysis of an In-Line Multi-Jets Ozone Contactor. *Ozone: Science & Engineering*, 33(6): 449-462.
8. Hassan, H.F. and Al-Jabri, K. (2011). Laboratory Evaluation of Hot Mix Asphalt Concrete Containing Copper Slag Aggregate. *Journal of Materials in Civil Engineering*, American Society of Civil Engineers, ASCE, 23(6):879–885.
9. Hassan, H.F. and Al-Rawas, A. (2011). Laboratory Evaluation of Hot-Mix Asphalt Containing Petroleum-Contaminated Soil as a Surface Mix for Low-Volume Roads. *Journal of the Transportation Research Board*, No. 2205, Transportation Research Board of the National Academies, Washington, D.C., pp. 11–19.
10. Khoukhi, M. and Maruyama, S. (2011). Temperature and Heat Flux distributions through Single and Double Window Glazing Nongray Calculation. *Smart Grid and Renewable Energy*, 2(1): 21-26.
11. Mohamedzein, Yahia E.-A. and Al-Rawas, Amer A. (2011). Cement-Stabilization of Sabkha Soils from Al-Auzayba, Sultanate of Oman. *Journal of Geotechnical and Geological Engineering*, 29(6):999-1008.
12. Taha, R. A., Al-Jabri, K.S., and Al Wahaibi, T., (2011). Development of Cementitious Materials from Wastes and By-products Generated in Oman. *Journal of Materials Science and Engineering*; 5(4).

## Department of Civil and Architectural Engineering

### Chapters in Books

1. Baawain MS, Sana A, Al-Sabahi JN, Al-Wardy MM and Al-Yaqoobi AH (2011). Oil and chemical spills. In: Nriagu JO (ed.) Encyclopedia of Environmental Health, volume 4, pp. 231–239 Burlington: Elsevier.

### Conference Papers

2. Al-Dhamri, H., Melghit, K., Taha, R.A. and Ram, G. (2011). Utilization of By-Product from Petroleum Refinery in Portland Clinker and Cement Manufacturing. *Proceedings, 13th International Congress on the Chemistry of Cement*, Madrid, Spain, July 2011.
3. Al-Jabri, K. S., Al-Azri, M., Al-Ismaili, A., and Al-Jahwari, F. (2011). Finite Element Analysis of Beam-to-Column Joints at Elevated Temperatures. *The 6th International Symposium on Steel Structures*, 3-5 November 2011, Seoul, South Korea.
4. Al-Jabri, K. S., Al-Saidy, A. H., Taha, R., and Al-Kemyani, A. J. (2011). Effect of Using Wastewater on the Properties of High Strength Concrete. *The Twelfth East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-12)*, 24-26 January 2011, Hong Kong Special Administrative Region, China.
5. Al-Jabri, K., Ishtieh, A., Al-Kamyani, Z., Taha, R., Baawain, M.S., Al-Shamsi, K. (2011). Use of FCC Spent Catalyst as Partial Replacement of Cement or/and Fine Aggregates in Cement Mortars. *International Symposium on Cement & Concrete Materials*, Ningbo, China, November 2011.
6. Al-Rawas, G. (2011). Flash Floods in Oman. *Tropical Cyclones: Preparedness and Risk Reduction*, UNESCO and Oman Water Society, June, 2011, Muscat, Sultanate of Oman.
7. Al-Siyabi A., Jesil A., Sarkar J.P., Baawain M.S., Feroz S. "Solar Photo Catalysis to Remove Organics in a Flat Plate Reactor", International Conference on Harnessing Technology: Challenges & Opportunities in GCC States. *Renewable Energy Resources*, Muscat, Oman, February 2011.
8. Baawain, M.S. (2011). Groundwater Recharge with Treated Wastewater Effluents in Oman: Solution for Saline Water Intrusion or Contamination of Groundwater Aquifers? *Water Convention: Singapore International Water Week Conference*, Singapore, July 2011.
9. Baawain, M.S. (2011). Wastewater Reuse Applications in Oman: Current Practice and Future Trends. *Wastewater Reuse Asia*, Bangkok, Thailand, August 2011.
10. Baawain, M.S., Al-Jabri, M. (2011). Characterization of Wastewater Sludge in Oman. *4th Kuwait Waste Management Conference & Exhibition*, Kuwait, October 2011.
11. Elkamash, M.K. and Baawain, M.S. (2011). Hydrodynamic Simulations to Investigate Protection Alternatives against Jellyfish Ingress. *20th Canadian Hydro-technical Conference*, Ottawa, Canada, June 2011.
12. Garba, S. B. (2011). Incorporating Time and Change in EBS Research. *The Death and Life of Social Factors Conference*, College of Environmental Design, University of California, Berkeley April 29-May 1st, 2011.



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13. Khoukhi, M. and Al-Maqbali, A. (2011). Stack pressure and airflow movement in high and medium rise buildings. *Medgreen 2011-LB Conference*, April 14-16, 2011, Beirut, Lebanon.
14. Khoukhi, M., Al-Jabri, K. and Mandour, A., (2011). Airflow Simulation and Smoke Movement in High Rise Buildings. *International Workshop on Fire Safety Engineering and Management*, March 7 to 9, Muscat, Oman.
15. Mandour, M. (2011). Decoding History: Past, Present and Future (The Case of Newly Urbanized Gulf Cities), *UIA*, Sep 2011, Tokyo, Japan.
16. Mandour, M. (2011). Perspective Versus Perspectives. *Geutech , Muscat Conference*, Muscat, 2011
17. Mandour, M. (2011). The Gulf cities in Transition. *Geutech, Muscat Symposium*, Muscat 2011.
18. Sana, A. (2011). A Numerical Scheme to Study Oscillatory Boundary Layers. *The Second International Conference on Numerical Analysis and Optimization*, January 3-6, 2011, Muscat, Oman.
19. Sana, A. and Baawain, M. (2011). Assessment of Seawater Quality along Northern Coast of Oman. *The Sixth International Conference on Asian and Pacific Coasts (APAC 2011)*, December 14-16, 2011, Hong Kong, China.
20. Shaaban, A.K. (2011). Thinking sustainable, overall urban Concepts in Oman. *Towards Sustainable Urbanization Patterns in Oman*, Gutech German University Of Technology, 4-5 June 2011.

#### Technical Reports

1. Alshamsi, K. and Hassan, H. (2011). Evaluation of Warm Asphalt Mixtures using Local Materials from Oman. *3rd Progress Report, Sultan Qaboos University*, January 2011.
2. Baawain MS, Sana A, Al-Yahyai R. (2011). Sustainable and Beneficial Options for Reusing of "Haya Water" Treated Wastewater: Phase 1 – Exploratory Study, 1st Progress Report, Haya Water, July 2011.
3. Baawain MS, Sana A, Al-Yahyai R. (2011). Sustainable and Beneficial Options for Reusing of "Haya Water" Treated Wastewater: Phase 1 – Exploratory Study, 2nd Progress Report, Haya Water, September 2011.
4. Taha, R., Bawain, M., Al-Jabri, K., Al-Shamsi, K., and Al-Futaisi, A. (2011). Beneficial Applications of Spent Catalysts and Charcoal Generated by Mina Al-Fahl and Sohar Refineries, *Final Report, Research Grant No. CR/ENG/CIVL/09/01*, December 2011, Department of Civil and Architectural Engineering, Sultan Qaboos University, Oman.

## Department of Civil and Architectural Engineering

### E I I E

#### Seminars

1. Al-Riayami K (2011). Development of wind speed map for different regions of Oman. 19 December 2011.
  2. Al-Lawati H (2011). Numerical modeling of the response of floating breakwaters to wave action. 25 December 2011.
  3. AL-Sabti A (2011). Sustainable and Beneficial Options for Reusing of "Haya Water" Treated Wastewater: Phase 1 – Exploratory Study. 31 December 2011.
  4. AL-Harthy Y (2012). Experimental Study of the Performance of Plastic Pipes Buried in Dune Soil. 3 January 2012.
- AL-Mazroui K (2012). Comparison between required and provided reinforcement quantities in villa design in Muscat area during the period 2000-2005. 10 January 2012.

#### Workshops

1. Baawain MS. (2011). Introduction to Environmental Engineering, 24-27 April 2011, Sultan Qaboos University.
2. Victor R, Iqbal, Kotagama H (2011). Environment Impact Assessment (EIA), Centre for Environmental Studies and Research (CESAR), Sultan Qaboos University, 5-8 June, 2011.

#### Invited Lectures

1. Al-Rawas G. (2011). Geographic Information Systems (GIS) Center, University of Lund, Sweden, 15 September, 2011.
2. Al-Rawas G (2011). Tropical Cyclones: Preparedness and Risk Reduction, UNESCO Collaboration with Oman Water Society, June 21, 2011, Muscat, Sultanate of Oman.
3. Al-Rawas G. (2011) Flash Floods in Oman, Ministry of Regional Municipalities and Water Resources, April 9, 2011, Muscat, Sultanate of Oman.
4. Al-Rawas G. (2011) EUMETSAT Satellite Application Course (ESAC-VI), EUMETSAT, February 6-18, 2011, Muscat, Sultanate of Oman.
5. Baawain MS. (2011). Artificial Neural Network Modeling of Air Pollution around Sohar Industrial Port Area, in Celebration of World Environment Day, Centre of Environmental Studies and Research (CESAR) Sultan Qaboos University, 5 June, 2011.



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## Students' Activities

1. Participation of the students and staff from Architectural Engineering Program in The Research Council (TRC) Eco-House Competition.
2. The Exhibition of Build Oman, organized by Civil and Architectural Engineering Society (CAES) in the period 12-13 December, 2011.
3. VECSiD (Visual Exploration of Culture Style in Design), joint international collaborative project funded by GSCT-KAIST-Korea. Directed by Professor Jihyn Lee (KAIST-South Korea) and Dr. Hesham Eissa, Sultan Qaboos University.
4. Selected group of Students from Civil and Architectural Engineering Society (CAES) organized "The Junior Engineer Competition" for The International School of Chouefat – Muscat in 26 October 2011.



# Department of Electrical Computer Engineering

Website: <http://www.su.edu.om/Electrical>

Department of Electrical  
Computer Engineering





# Department of Electrical and Computer Engineering



## MM

The Department of Electrical and Computer Engineering is the largest department in the College of Engineering and offers BSc, MSc, and PhD degrees in electrical and computer engineering. The department also collaborates with the Mechanical and Industrial Engineering Department in offering BSc degree in Mechatronics Engineering. All programs offered by the Department are fully accredited by the American Board for Engineering and Technology (ABET).

Table C1: Summary

	<i>FL2009-FL2010</i>	<i>SP2011-FL2011</i>
<b>Faculty</b>	29	33
Support staff	13	17
Total	42	50
On-study leave	6	4
<b>Undergraduate Program</b>		
Enrolment (Y2-5)	780	710
Courses offered	121	125
Graduates	111	114
<b>Graduate Program</b>		
Enrolment	60	59
Courses offered	8	6
Theses completed	4	3
<b>Research</b>		
Grants	9	7
Contracts	12	6
Consulting	5	2
<b>Publications</b>		
Refereed Journals	54	43
Conference Proceedings	32	39

The faculty of the Department is engaged in teaching and academic advising of a fairly large student population and is also quite active in all types of research and administrative activities. With a fairly large research output in all formats of publications and being the recipient of several internal and external research grants and contracts in collaboration with the local industries and organizations, the Department is a masthead of excellence in the College of Engineering.

Our students, along with our staff, are the backbone of our department's achievements and are also engaged in academic and professional activities.



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## DEPARTMENT OF ELECTRICAL ENGINEERING

### Faculty

During the period January 2011-December 2011, two new faculty members joined the Department: Dr. Medhat Hussein as assistant professor in the Computer Systems and Networks track and Dr. Nasser Hosseinzadeh as associate professor in the Power Systems and Energy track. Three of our colleagues have rejoined the department after completion of their PhD studies overseas: Dr. Amir Arshad Abdulghani and Dr M.Bait-Suweilim as assistant professors in the Communications and Signal Processing track, and Mr. Samir Al-Busaidi as lecturer in the Communications and Signal Processing track.

### Academic Staff

**Dr Mohamed Abdulhaoua** *Professor, Head of the Department*

Computer Networking, Wireless Mobile Networks, Parallel Architectures, Performance Modelling and Evaluation.

**Dr Adel Bastli** *Professor, Director University Quality Assurance Office*

Power electronics, electric drives, renewable energy, and power system analysis

**Dr Adour Doucen**, *Professor, Director Communication and Information Research Centre*

Fiber optic communication & optical networking, integrated electronics, computerized instrumentation and measurement.

**Dr Ibrahim Metwalli**, *Professor*

Electromagnetic fields, coronas, transients in power systems, power quality, overvoltage protection, gas-insulated switchgear and lines, stray-current corrosion, hazards of lightning strikes.

**Dr Saleh M. Alia**, *Professor*

Forecasting, prediction, optimization & application of artificial intelligence techniques.

**Dr Fahim**, *Associate Professor, Assistant Head of the Department*

Digital system design & test, fault-tolerant computing, system modelling & analysis, coding theory & error detection.

**Dr Abdullah Aladi** *Associate Professor, Dean of Admissions and Registration*

Electrical machines, drives, power electronics, power quality, interference and high voltage.

**Dr Abdulnasir Rossen**, *Associate Professor, Assistant Dean for Undergraduate Studies*

Digital signal processing, biomedical signal processing, digital communication, artificial intelligence and neural networks.

**Dr Rif Mali**, *Associate Professor*

Energy policy and planning.

**Dr Eadailat**, *Associate Professor*

High voltage engineering, power quality, application of signal processing to power systems.

## Department of Electrical and Computer Engineering

**Dr. Aïcal Mnif**, *Associate Professor*

Control systems and robotics.

**Dr. Hassan Bousef**, *Associate Professor*

Intelligent and adaptive control, fuzzy control applications to electric machine drives and power systems, large-scale systems, nonlinear control and biologically-inspired algorithms in control, high performance motion control of electric machines.

**Dr. Joseph Berase**, *Associate Professor*

Microwave antennas & propagation.

**Dr. Ahar Hrii**, *Associate Professor*

Signal and image processing and analysis, nonlinear filtering, adaptive filtering, image coding, artificial intelligence, hardware implementation of DSP algorithms.

**Dr. Mohammed Hafi**, *Associate Professor*

Tracking of non-linear dynamic systems, adaptive control, tracking and control of robotics.

**Dr. Mounir Bouguenda**, *Associate Professor*

Renewable energy, power systems planning, power systems production, energy management.

**Dr. Asser Ossein Adeb**, *Associate Professor*

Electrical power systems

**Dr. Li M. Laati**, *Assistant Professor*

Fiber optic sensors & communication, renewable energy.

**Dr. Li I. Hidhani**, *Assistant Professor*

Network security.

**Dr. Mer. I. A. Si**, *Assistant Professor*

Computer architecture, statistical signal processing, adaptive signal processing

**Dr. Mer. I. Inai**, *Assistant Professor*

Power systems: control and operation, multi-agent systems: application of control to power systems, optimization techniques and applications to power systems.

**Dr. Mir M. Dul Hani**, *Assistant Professor*

Wireless and mobile communication, signal processing and information technology.

**Dr. Daoud I. Ri**, *Assistant Professor*

Communication and computer networks.

**Dr. Ahad Ait Higinah**, *Assistant Professor*

Modelling and simulation, discrete event system specification (DEVS), cellular space modelling, artificial intelligence, database and software engineering.

**Dr. Medhat Ussein Hmed Adalla**, *Assistant Professor*

Computer engineering, computer systems, real-time systems, parallel processing



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**Dr Mohammed Iqbaladi** *Assistant Professor*

Renewable energy and distributed generation, distribution systems, demand-side management, power system operation and planning, power system economics.

**Dr Mohammed Haidouailem**, *Assistant Professor*

Communication systems and antennas.

**Dr Muhammad Idrisi**, *Assistant Professor*

Signals and systems, communications, signal processing, speech processing, image processing.

**Drasser Umaa Arhuni**, *Assistant Professor*

Wireless communication, digital signal processing, optical CDMA, wireless sensor networks, applications of signal processing.

**Dr Ariamil**, *Assistant Professor*

Computer architecture, parallel processing, digital systems, computer arithmetic, data encryption, information technology.

**Dr Idris Adir**, *Assistant Professor*

Electromagnetic compatibility and RF communications system.

**Mr Amir Idris Usaidi** *Lecturer*

Telecommunications.

**Mr Saleem Idris Inai**, *Lecturer*

Control.

**Mr Ahmed Idris Maashari** *Lecturer (on study leave)*

Computer networking, microprocessors and software developments.

**Mr Hassan Idris Alati**, *Lecturer (on study leave)*

Antennas and propagation, wireless communication.

**Mr Ashid Idris**, *Lecturer (on study leave)*

Power electronics.

**Mr Aid Idris** *Lecturer (on study leave)*

Communication and control systems

## Department of Electrical and Computer Engineering

### Technical and Support Staff

Engr. Saleem Al Ashdi, *Department Technician Superintendent*

Engr. Halaf Alfi, *Senior Engineer A*

Engr. Amer M. Alalushi, *Senior Engineer B*

Engr. Saleh Alaidi, *Senior Engineer B*

Engr. Mousaf Alhuaili, *Senior Engineer B*

Engr. Muleiman Alinani, *Engineer A*

Engr. Mas Eissa Eira, *Engineer B*

Engr. Mona George, *Engineer B*

Engr. Asema Alaiti, *Engineer B*

Mr. Daniel Dutun, *Chief Technician A*

Mr. Muleiman Alalani, *Lab Supervisor A*

Mr. Mohammed Alarrasi, *Lab Supervisor B*

Mr. Malik Alachirama, *Lab Supervisor C*

Mr. Ifta Uaruddin Mohammed, *Technician*

Mrs. Alia Alahri, *Technician C*

Mrs. Sarah Alahri, *Department Coordinator*

Mrs. Aila Alasani, *Department Coordinator*





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## Committees

Table C2: Committee membership

Committee	Members
Accreditation Curriculum Committee	Dr. F. Mnif ( <i>chair</i> ) Prof. M. Ould-Khaoua, Dr. J. Jervase, Dr. A. Ahmad, Dr. E. Feilat, Dr. A. Malik, Dr. N. Hosseinzadeh, Dr. T. Jamil, Dr. Z. Nadir, Dr. A. Al-Habsi, Dr. D. Al-Abri, Dr. M. Al-Nadabi, Dr. L. Khriji (invited), Dr. M. Shafiq (invited), Mr. S. Al-Rashdi, Mr. I. Mohammed
Final Year Projects	Dr. L. Khriji ( <i>chair</i> ) Dr. H. Yousef, Dr. M. Al-Badi, Dr. D. Al-Abri, Mr. S. Al-Hinai, Mr. J. Al-Balushi, Mr. K. Al-Oufi, Mr. A. Teirab
Teaching Facilities	Dr. H. Yousef ( <i>chair</i> ) Dr. M. Shafiq, Dr. M. Hussein, Mr. S. Al-Rashdi, Mr. K. Al-Oufi, Mr. S. Al-Kalbani
Human Resources	Dr. A. Al-Lawati ( <i>chair</i> ) Prof. M. Ould-Khaoua, Prof. S. Al-Alawi, Prof. H. Bourdoucen, Dr. H. Yousef, Dr. A. Al-Habsi, Dr. A. Al-Hinai, Dr. F. Bait-Shiginah
Industrial Advisory Board	Prof. M. Ould-Khaoua ( <i>chair</i> ) Prof. S. Al-Alawi, Dr. J. Jervase, Dr. A. Al-Hinai
Industrial Outreach Committee	Dr. M. Bouzguenda ( <i>chair</i> ) Dr. A. Al-Shidhani, Dr. M-Al-Badi, Mr. S. Al-Hinai, Mr. D. Adutwun
Publications	Dr. T. Jamil ( <i>chair</i> ) Dr. F. Bait-Shiginah, Dr. M. Al-Badi, Mr. S. Al-Sinani, Mr. I. Mohammed, Mrs. R. George

## Department of Electrical and Computer Engineering

### Research Postgraduate Studies

Prof. I. Metwally (*chair*)  
Prof. S. Al-Alawi, Prof. H. Bourdoucen,  
Dr. E. Feilat, Dr. M. Shafiq, Dr. M. Bait-Suweilam,  
Dr. M. Hussein

### Student Advising

Dr. A. Ahmad (*chair*)  
Prof. S. Al-Alawi, Prof. H. Bourdoucen,  
Dr. A. Al-Habsi, Dr. D. Al-Abri, Dr. N. Tarhuni,  
Dr. A. Malik, Dr. Z. Nadir, Dr. N. Hosseinzadeh,  
Dr. J. Jervase

### Student Societal Activities

Dr. N. Tarhuni (*chair*)  
Dr. A. Al-Hinai, Dr. A. Al-Shidhani,  
Mr. Y. Al-Shueili, Mr. N. Hamza

### Student Staff Liaison

Dr. A. Ahmad (*chair*)  
Prof. M. Ould-Khaoua  
2 students from each cohort

### Strategic Planning

Prof. M. Ould-Khaoua (*chair*)  
Dr. A. Ahmad  
All Committee Chairs  
Mr. S. Al-Rashdi

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Table C3: Courses offered in Spring 2011

Code	Title	Instructor	no of students
ECCE2016	Circuit Analysis I	Mohammed Yousry	41
ECCE2016	Circuit Analysis I	Adel Mohamedein	42
ECCE3015	Electrical Engineering Fundamentals	Mohammed Al-Badi	35
ECCE3015	Electrical Engineering Fundamentals	Adel Mohamedein	32
ECCE3015	Electrical Engineering Fundamentals	Mohammed Al-Badi	37
ECCE3016	Circuit Analysis II	Mounir Bouzguenda	35
ECCE3016	Circuit Analysis II	Tariq Jamil	47
ECCE3022	Electromagnetics I	Zia Nadir	55
ECCE3036	Measurements and Instrumentation	Hassan Yousuf	32
ECCE3036	Measurements and Instrumentation	Mounir Bouzguenda	33
ECCE3142	Signals and Systems	Lazhar Kheriji	36
ECCE3152	Electronics I	Ali Jawad Al Lawati	34
ECCE3152	Electronics I	Ali Jawad Al Lawati	28
ECCE3206	Digital Logic Design	Ali Al-Shidhani	39
ECCE3206	Digital Logic Design	Tariq Jamil	42
ECCE3206	Digital Logic Design	Afaq Ahmad	33
ECCE3206	Digital Logic Design	Ali Al-Shidhani	44
ECCE3352	Electrical Technology	Abdullah Al-Badi	23
ECCE4022	Electromagnetics II	Joseph Jervase Yak	44
ECCE4080	Seminar and Field work	Salim Al-Hinai	11
ECCE4080	Seminar and Field work	Salim Al-Hinai	27
ECCE4080	Seminar and Field work	Salim Al-Hinai	32
ECCE4122	Analog and Digital Communication	Muhammed Al-Nadabi	37
ECCE4126	Principles of Digital Communications	Nasser Tarhuni	21
ECCE4142	Digital Signal Processing	Lazhar Kheriji	34
ECCE4142	Digital Signal Processing	Abdulnasir Hossen	48
ECCE4157	Electronics II	Zia Nadir	30
ECCE4157	Electronics II	Hadj Bourdoucen	31
ECCE4227	Embedded Systems	Ali Al-Shidhani	34
ECCE4227	Embedded Systems	Amur Al-Habsi	36
ECCE4242	Computer Networks I	Dawood Al-Abri	35
ECCE4254	Operating Systems	Mohamed Ould-Khaoua	13
ECCE4255	Applied Prog. and Algorithms for Eng.	Fahad Bait Shiginah	26
ECCE4312	Power System Analysis I	Amer Al-Hinai	29

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ECCE4316	Power System Analysis II	Amer Al-Hinai	26
ECCE4356	Electrical Machines I	Mohammed Yousry	45
ECCE4357	Electrical Machines II	Mohammed Yousry	21
ECCE4416	Linear Control Systems	Mohammed Shafiq	37
ECCE4416	Linear Control Systems	Faical Mnif	27
ECCE4422	Digital Control Systems	Faical Mnif	48
ECCE4456	Sensors and Sensor Systems Design	Lazhar Kheriji	41
ECCE5004	Engineering Management and Econ. I	Saleh Al-Alawi	36
ECCE5004	Engineering Management and Econ. I	Saleh Al-Alawi	34
ECCE5008	Project Management	Arif Malik	37
ECCE5009	Project (Part I)		8
ECCE5099	Project (Part II)		209
ECCE5124	Wireless Communication	Nasser Tarhuni	21
ECCE5125	Advanced Communications Lab	Muhammed Al-Nadabi	20
ECCE5162	Microwave Engineering	Joseph Jervase Yak	18
ECCE5213	Fault-Toler Comp Sys	Afaq Ahmad	20
ECCE5223	Advanced Embedded Systems	Amur Al-Habsi	37
ECCE5235	Advanced Computer Lab	Dawood Al-Abri	18
ECCE5252	Software Engineering	Fahad Bait Shiginah	21
ECCE5302	Power System Protection	Eyad Feilat	32
ECCE5303	Power Distribution System Eng.	Eyad Feilat	42
ECCE5332	High Voltage Engineering	Ibrahim Metwally	19
ECCE5432	Programmable Logic Control Systems	Mohammed Shafiq	37
ECCE5464	Advanced Power Electronics	Adel Gastli	35
ENGR2216	Fortran Programming	Afaq Ahmad	26
ENGR6911	Engineering Manag.	Arif Malik	26
MCTE4210	Power Elec. & Drives	Adel Mohamedein	34

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Table C4: Courses offered in Fall 2011

Code	Title	Instructor	No. of Students
ECCE2016	Circuit Analysis I	Midhat Ahmed	34
ECCE2016	Circuit Analysis I	Mohammed Shafiq	38
ECCE3015	Electrical Engineering Fundamentals	Mounir Bouzguenda	33
ECCE3015	Electrical Engineering Fundamentals	Mohammed Al-Badi	38
ECCE3015	Electrical Engineering Fundamentals	Mohammed Al-Badi	37
ECCE3016	Circuit Analysis II	Nasser Hosseinzadeh	40
ECCE3016	Circuit Analysis II	Nasser Hosseinzadeh	32
ECCE3016	Circuit Analysis II	Nasser Hosseinzadeh	32
ECCE3022	Electromagnetics I	Joseph Jervase Yak	38
ECCE3022	Electromagnetics I	Mohammed Bait Suwailam	33
ECCE3036	Measurements and Instrumentations	Hassan Yousuf	27
ECCE3036	Measurements and Instrumentations	Mounir Bouzguenda	25
ECCE3142	Signals and Systems	Abdulnasir Hossen	28
ECCE3152	Electronics I	Nasser Tarhuni	38
ECCE3152	Electronics I	Nasser Tarhuni	41
ECCE3206	Digital Logic Design	Sayyid Samir Al-Busaidi	20
ECCE3206	Digital Logic Design	Afaq Ahmad	32
ECCE3206	Digital Logic Design	Midhat Ahmed	30
ECCE3206	Digital Logic Design	Tariq Jamil	29
ECCE3352	Electrical Technology	Abdullah Al-Badi	20
ECCE4022	Electromagnetics II	Ibrahim Metwally	26
ECCE4080	Seminar and Field work	Salim Al-Hinai	32
ECCE4080	Seminar and Field work	Salim Al-Hinai	1
ECCE4122	Analog and Digital Communications	Muhammed Al-Nadabi	20
ECCE4122	Analog and Digital Communications	Muhammed Al-Nadabi	33
ECCE4122	Analog and Digital Communications	Muhammed Al-Nadabi	32
ECCE4157	Electronics II	Zia Nadir	34
ECCE4227	Embedded Systems	Amur Al-Habsi	36
ECCE4227	Embedded Systems	Ali Al-Shidhani	28
ECCE4242	Computer Networks I	Dawood Al-Abri	29
ECCE4256	Engineering Design	Ali Al-Shidhani	19
ECCE4312	Power System Analysis I	Amer Al-Hinai	19
ECCE4316	Power System Analysis II	Amer Al-Hinai	22
ECCE4356	Electrical Machines I	Mohammed Majdi	35
ECCE4357	Electrical Machines II	Mohammed Majdi	31
ECCE4416	Linear Control Systems	Faical Mnif	38
ECCE4416	Linear Control Systems	Mohammed Shafiq	24
ECCE4436	Industrial Control	Hassan Yousuf	25

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ECCE4467	Power Electronics	Adel Gastli	30
ECCE5004	Engineering Management and Econ.	Arif Malik	22
ECCE5004	Engineering Management and Econ.	Arif Malik	34
ECCE5009	Project (Part I)		92
ECCE5099	Project (Part II)		8
ECCE5112	Antennas and Wave Propagation	Joseph Jervase Yak	20
ECCE5123	Optical Communication	Hadj Bourdoucen	20
ECCE5143	Advanced DSP	Lazhar Kheriji	19
ECCE5164	RF Communications Circuits	Zia Nadir	13
ECCE5214	Advanced Logic and Comp. Interf.	Afaq Ahmad	27
ECCE5223	Advanced Embedded Systems	Amur Al-Habsi	18
ECCE5231	Industrial Networks and O. Systems	Midhat Ahmed	15
ECCE5232	Computer Architecture I	Tariq Jamil	29
ECCE5242	Advanced Computer Networks	Mohamed Ould-Khaoua	28
ECCE5282	Network Security	Dawood Al-Abri	25
ECCE5302	Power System Protection	Eyad Feilat	22
ECCE5322	Electrical Power Systems Quality	Eyad Feilat	34
ECCE5332	High Voltage Engineering	Ibrahim Metwally	28
ECCE5433	Modern Control Systems	Faical Mnif	29
ECCE5452	Computer Aided Instrumentation	Hadj Bourdoucen	26
ENGR2216	Fortran Programming	Mohammed Shafiq	23
ENGR2216	Fortran Programming	Afaq Ahmad	22
ENGR2216	Fortran Programming	Dawood Al-Abri	27
MCTE3110	Electronics	Lazhar Kheriji	30
MCTE3210	Electromechanical Sys. & Actuators	Mohammed Majdi	29
MCTE3261	Object Oriented Programming	Fahad Bait Shiginah	26

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### Employment Status

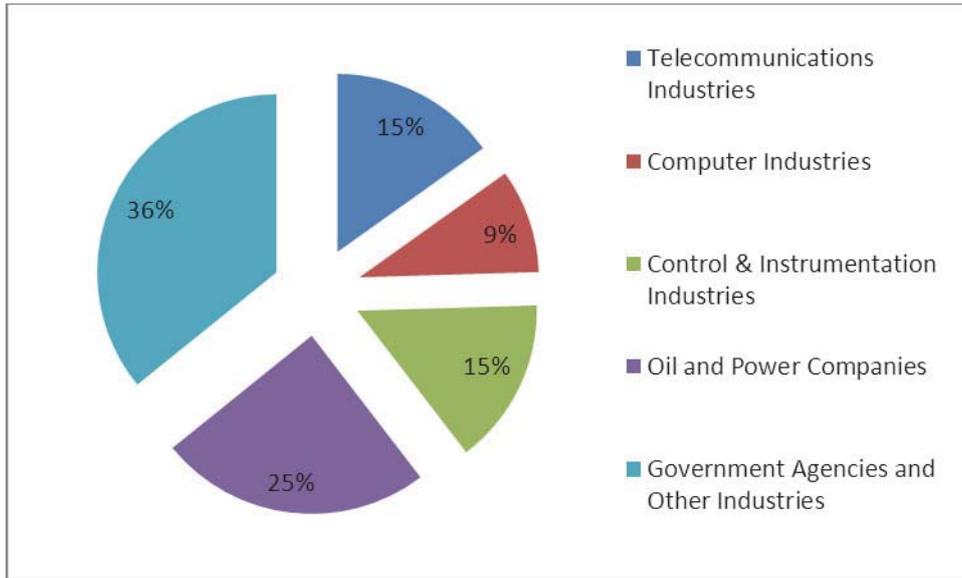


Figure C1: Job placements for the graduates of last 5 years

# Department of Electrical and Computer Engineering

## D E DIE

### Student Enrolment

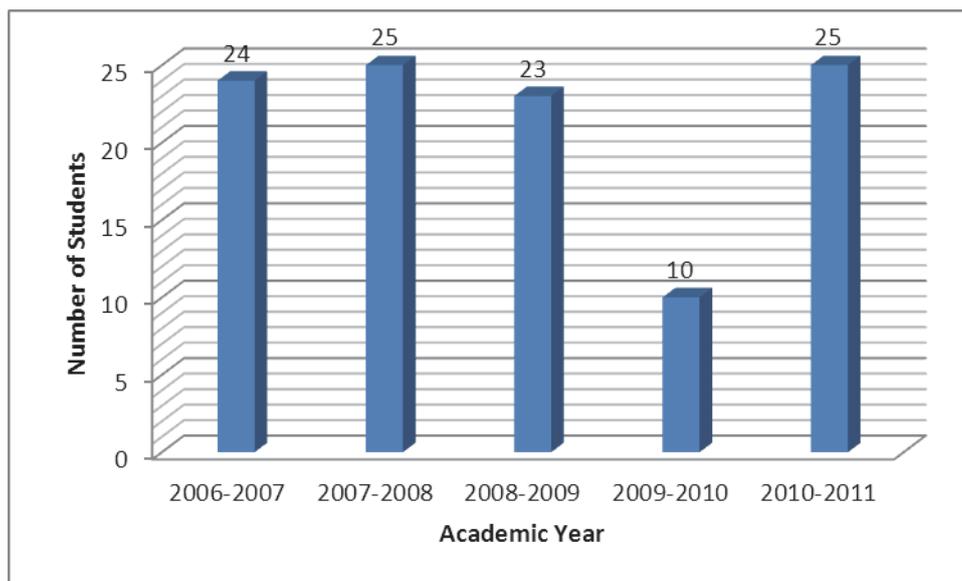


Figure C2: MSc. Students' enrolment for the past five years

### Courses

Table C5: Postgraduate courses offered in year 2011

Semester	Code	Title	Instructor
Spring 2011	ECCE6132	Linear Systems Theory	Hassan Yousuf
	ECCE6284	Reliability & Fault-Tolerant Systems	Afaq Ahmad
	ECCE6492	Selected Topics in Control	Mohammed Shafiq
Fall 2011	ECCE6134	Special Topics in Communications	Zia Nadir
	ECCE6261	Advanced Modeling and Simulation	Fahad Bait Shiginah
	ECCE6335	Special Topic in Power Engineering	Eyad Feilat



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## PhD Students Projects

Table C6: Students' projects

Project Title	Supervisor	Student Name
Inter-vehicle Communication Networks for Reduction of Road Traffic Accidents: Design and Analysis	Prof. Hadj Bourdoucen	Osama Hussein Rahman

## MSc Students Projects

Table C7: Students' projects

Project Title	Supervisor	Student Name
Performance Evaluation of the Extensible Authentication Protocol (EAP) for authentication in IEEE802.11 networks.	Dr. Ali Al Shidhani	Adil Al Awadhi
Empirical M.P.L. (Maximum Permissible Loss) modeling for outdoor wireless links	Dr. Zia Nadir	Mahmood Al-Rashdi
Spectrum sensing in radio cognitive networks	Prof. Hadj Bourdoucen	Sheikha S. Al-Mazrouei
Design of a TFI-OFDM Ultra-Wideband Standard Receiver	Dr. Joseph Jervase	Salem Al Arafati
Modeling of Impulse UWB antennas for Radar & Communication Applications	Dr. Joseph Jervase	Abbas Teirab
Characterization of Propagation Pathloss- A Case study of Muscat, The City of Oman	Dr. Zia Nadir	Asaad Saoud Ahmed Al Ruqeshi
OFDM Peak-to-Average Power Ratio Reduction Techniques	Dr. Naser Tarhuni	Mohammed Masoud Ali Kashoub
Radio Resource Management for Wireless Networks	Dr. Naser Tarhuni	Dawood Khalfan Abdullah Al Brashdi

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Reduction of Distribution system Losses in Mazoon Electricity Company	Prof. Ibrahim A. Metwally	Y.M. Al-Mahroqi
Modeling and Measurement of EM Radiation Fields from Mobile Base Stations at SQU	Prof. Hadj Bourdoucen	Ahmed Musallam Ahmed Al Mahri
Real time Automatic Speech Recognition System	Dr. Tariq Jamil	Ali Zahran Salim Al-Bimani
Provisioning of Telecommunication Services in the Rural Areas of the Sultanate of Oman	Prof. Hadj Bourdoucen	Ahmed Hassan Al Hadabi
Study and Simulation of 3GPP Long Term Evolution (LTE) Radio Network	Prof. Hadj Bourdoucen	Mohammed Ahmed Suleiman Al-Abdulsalam

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Table C8: Internal Grants held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
Environmental Impact of Large-Scale Renewable Energy Projects on the Envisaged Expansion in Power Generation in Main Interconnected System of Oman	Dr. Arif Malik	1475	SQU
Design of New Technologies for Micro Inverters for Solar Photovoltaic (PV) Applications	Dr. Mounir Bouzguenda	2000	SQU
Design of class E power amplifiers with EER linearization technique	Dr. Zia Nadir	4905	SQU
Nonlinear Position Tracking controller for Robot Manipulator	Dr. Muhammad Shafiq	3250	SQU
Discrimination of Parkinsonian Tremor from Essential Tremor using New Different EMG Signal Processing Techniques	Dr. Abdulnasir Hossen	2000	SQU
Study and Evaluation of Wireless Automation	Dr. Nasser Tarhuni	5648	SQU
Transcription of Algorithms Used for Fault-Diagnosis of Systems into Computer Programs	Dr. Tariq Jamil	1210	SQU

Table C9: External grants held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
Study of Installation of Single-Phase transformers in Specific Locations of MJEC's Network	Dr. Abdullah Al-Badi	7500	Majan Electricity Company
Effect of 220 KV Power Line from Sur Power Station to Sur Grid Station on A buried gas pipeline	Dr. Abdullah Al-Badi	12000	Oman Electricity Transmission Company

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Amal Steam Project Electrical Power System and Harmonic Study	Dr. Amer Al-Hinai	17370	Petroleum Development Oman
Impact of heavy industrial consumers OETC Grid	Dr. Mohammed Al-Badi	16500	Oman Electricity Transmission Company
Blackout Investigation due to Transformer – Bushing Failures at JBB Ali Grid Station	Dr. Eyad Feilat	15000	Mazoon Electric Company
Design and Optimization of High-speed Optical Modulators and Systems	Prof. Bourdoucen H., Dr. Al Lawati A. (SQU), Dr. Rahman A Dr. Grattan K. (City Univ. London)	29,000	British Council (UK)
Conversion Investigation of Omani Distribution Overhead Power Lines to Underground Cables	Prof. Ibrahim Metwally	49013	The Research Council Oman

### Contracts

Table C10: Contracts held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
PDO Power System Electrical Losses Optimization Study	Dr. Amer AL Hinai	38450	Petroleum Development Oman
Clearance between 33 KV overhead power lines and flow lines	Dr. Abdullah Al-Badi	10000	Petroleum Development Oman



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## Publications

### Refereed Journal Papers

1. Al-Badi,, A. Malik, A. and Gastli, A. 2011. Sustainable Energy Usage in Oman - Opportunities and Barriers Renewable and Sustainable Energy Reviews 15: 3780–3788.
2. Al-Badi, A. Al-Badi, M. Al-Lawati, A, and Malik, A.S. 2011. Economic Perspective for PV Electricity in Oman, Energy 36: 226-232.
3. Al-Badi, A. 2011. Wind Power Potential in Oman. International Journal of Sustainable Energy 30(2):110–118.
4. Al-Badi, A. 2011. Hybrid (solar and wind) energy system for Al Hallaniyat Island electrification. Journal of Sustainable Energy 30(4):212–222.
5. Ahmad, A. and Hayat, L. 2011. Selection of Polynomials for Cyclic Redundancy Check for the use of High Speed Embedded – An Algorithmic Procedure. *WSEAS Transactions on Computers*, 10(1): 16-20.
6. Ahmad, A. 2011. Divisibility Situations in a Signature Analyzer Implementation. *WSEAS Transactions on Circuits and Systems*, 10(9): 299-308.
7. Alajmi, A.F., Saad E.M. and Awadalla, M. 2011. Hidden markov model based Arabic morphological Analyzer. *International Journal of Computer Engineering Research* 2(2): 2141- 2149.
8. Albadi, M.H. and El-Saadany, E.F. 2011. Comparative Study on Impacts of Wind Profiles on Thermal Units Scheduling Costs. *IET: Renewable Power Generation*, 5: 26-35.
9. Amer F.Z., El-Garhy A., Awadalla M., Rashad S. and Abdien A. 2011. A real-valued genetic algorithm to optimize the parameters of support vector machine for classification of multiple faults in NPP. Accepted for publishing in Nukleonika, international journal of nuclear Research. Issue 4, 2011.
10. Mahmoud, A.E., Ammar, R. and Awadalla, M. 2011. Parallel ICA Algorithms and its Performance. *International Journal of Computer and Their Application*, 18(1): 28-36.
11. Awadalla, M. and Darwish, R. 2011. Quality of Service Constrained Task Mapping and Scheduling Algorithm for Wireless Sensor Networks. *International Journal of Computer Engineering Research* 2(1): 8-18.
12. Awadalla, M., Ismaeil, I.I. and Sadek, M. 2011. Spiking Neural Network-Based Control Chart Pattern Recognition. *Journal of Engineering and Technology Research* 3(1): 5-15.
13. Awadalla, M. and Anees, B. 2011. Developing Spring-Roll Dielectric Elastomer Actuator System Based on Optimal Design Parameters. *International Journal of Computer Science Issues*. 8(5-2): 46-56.
14. Bait-Suwailam M.M. and Ramahi, O.M. 2011. Ultra-wide Band Mitigation of Simultaneous Switching Noise and EMI Reduction in High-Speed PCBs Using Complementary Split-Ring Resonators. *IEEE Trans. on Electromagnetic Compatibility*, PP(99):1-8 .
15. Bouzguenda, M. 2011. A comparative study of hybrid diesel solar PV–wind power systems in rural areas in the Sultanate of Oman. *International Journal of Sustainable Energy*. iFirst: 1-12.
16. Chodhury, T., Hosseinzadeh, N. and Berndt, C. 2011, Artificial neural network application for predicting in-flight particle characteristics of an atmospheric plasma spray process, *The International Journal of Surface and Coatings Technology*, 205: 4886-4895.

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17. El Mahallawy, A.A. , Yousef, H.A, El-Singaby, M.I., Madkour, A.A. and Yousef, A.M. 2011. Robust Flight Control System Design Using H<sub>∞</sub> Loop-shaping and Recessive Trait Crossover Genetic Algorithm, *Expert Systems With Applications*, 38: 169-174
18. Ghommam, J. and Mnif, F. 2011. Cascade Design for Formation Control of Nonholonomic Systems in Chained form. *The Journal of the Franklin Institute*, 348: 973-998.
19. Hesamzadeh, M.R., Biggar, D. and Hosseinzadeh, N. 2011. The TC-PSI indicator for forecasting the potential for market power in wholesale electricity markets. *International Journal of Energy Policy*. 39(10): 5988-5998.
20. Hosseinzadeh, N., Mayer J. and Wolfs P.J. 2011. Rural Single Wire Earth Return Distribution Networks – Associated Problems and Cost-Effective Solutions. *International Journal of Electrical Power and Energy Systems*, 33(2): 159-170.
21. Hesamzadeh, M.R., Biggar, D.R., Hosseinzadeh, N. and Wolfs, P.J. 2011. Transmission Augmentation with Mathematical Modelling of Market Power and Strategic Generation Expansion Part I. *IEEE Transactions on Power Systems*. 26(4): 2040-2048.
22. Hesamzadeh, M.R., Biggar, D.R., Hosseinzadeh, N. and Wolfs, P.J. 2011. Transmission Augmentation with Mathematical Modelling of Market Power and Strategic Generation Expansion, Part II. *IEEE Transactions on Power Systems*. 26(4): 2048-2057.
23. Hesamzadeh, M.R., Hosseinzadeh, N. and Wolfs, P.J. 2011. Transmission augmentation with the competition benefit modelling of additional transmission capacity. *Australian Journal of Electrical and Electronic Engineering*, 8(2): 105-118.
24. Hesamzadeh, M.R., Hosseinzadeh, N. and Wolfs, P.J. 2011. A bilevel formulation of transmission planning problem in liberalised Electricity markets. *Australian Journal of Electrical and Electronic Engineering*, 8(2): 119-128.
25. Jamil, T. 2011. Design of Arithmetic Circuits for Complex Binary Number System. *Journal of the American Institute of Physics*, 1373: 83-97.
26. Malik, A.S. 2011. Justice to Nature and to the Disadvantaged. *World Futures*, 67:106-114
27. Metwally, I.A. 2011. Comparative Measurement of Surge Arrester Residual Voltages by D-dot Probes and Dividers. *Journal of Electric Power Systems Research (JEPSR)*, 81: 1274-1282.
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## Books

1. Jamil, T., and Mohammed, I. 2011. *Introduction to Digital Logic Design*. Lambert Academic Publishing, ISBN-13: 978-3845476254.

## Chapters in Books

1. Hesamzadeh, M.R., Biggar, D.R., Hoseinzadeh, N. and Soder, L., Transmission Investment in Liberalized Electricity Markets in the Context of Market Power, *Advances in Energy Research*, Volume 7, Nova Science Publishers, NY, USA (Book Chapter)
2. Hesamzadeh, M.R., Biggar, D.R. and Hoseinzadeh, N., The Application of High Performance Computing Technologies in Studying the Strategic Behaviours of Electricity Market Players, *Advances in Energy Research*, Volume 7, Nova Science Publishers, NY, USA (Book Chapter)

## Department of Electrical and Computer Engineering

### Conference Papers

1. Al-Badi, A. Hybrid Energy Systems for Applications in Eco-Houses. 2nd IEEE Latin American Symposium on Circuits and Systems, Colombia, Bogota, 23-25 February 2011.
2. Al-Badi, A. Al-Toobi, M., Al-Harthy, S., and Al-Hosni, Z. Techno-Economic Analysis for a Hybrid Stand-alone Power Generation. International Conference on Power Electrical Systems (PES), 22-25 March 2011, Sousse, Tunisia.
3. Al-Badi, A., Al-Moudi, A., Metwally, I., Al-Wahaibi, A., Al-Ajmi, H, and Al-Bulushi, M. Losses Reduction in Distribution Transformers" International Multi-Conference of Engineers and Computer Scientists 2011 (IMECS 2011), Hong Kong, 16-18 March, 2011.
4. Ahmad, A. 2011. How to Learn and Simulate Universal Product Code - an Information Redundancy Technique. In: *Proceedings of The International Information Systems Conference, IISC-2011*. Sultan Qaboos University, Muscat, Oman, 11 -12 October 2011.
5. Ahmad, A. 2011. On Design Of 8-Bit CRC Circuits Equipped With Primitive Characteristic Polynomials. In: *Proceedings of IEEE International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT-2011)*. Aligarh, India, 17-19 December, 2011.
6. Ahmad, A. and Al-Abri, D. 2011. Design of a Pseudo-Random Binary Code Generator via a Developed Simulation Model, In: *Proceedings of the Second International Joint Conference on Advances in Engineering and Technology, AET-AEE (Advances in Electrical and Electronics) 2011*, Noida, India, 20-21 December 2011.
7. Al-Badi, A.H., Elmoudi, A., Metwally, I.A., Al-Wahaibi, A., Al-Ajmi, H. and Al Bulushi, M. 2011. Losses Reduction in Distribution Transformers. In: *Proceedings of the International MultiConference of Engineers and Computer Scientists (IMECS 2011)*. Hong Kong, 16-18 March 2011.
8. Albadi, M.H., Al-Badi, A.H., Al-Lawati, A.M. and Malik, A.S. 2011. Cost of PV Electricity in Oman. In: *Proceedings of IEEE GCC Conference & Exhibition*. United Arab Emirates, Dubai, 19-22 February 2011.
9. Al Maashri A., DeBole M., Yu C.L., Narayanan V. and Chakrabarti C. 2011. A Hardware Architecture for Accelerating Neuromorphic Vision Algorithms. In: *Proceedings of IEEE Workshop on Signal Processing Systems*. Beirut, Lebanon, 4-7 October 2011.
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11. Bait-Suwailam, M.M., Yousefi, L. and Ramahi, O.M. 2011. Analytical Models for Artificial Complementary Resonators. In: *Proceedings of the European Microwave Conference*. Manchester Central, Manchester, UK, 9-11 October 2011.
12. Bait-Suwailam, M.M., Siddiqui, O.F. and Ramahi, O.M. 2011. Artificial Complementary Resonators for Mutual Coupling Reduction in Low-Profile Microstrip Antennas. In: *Proceedings of the European Microwave Conference*. Manchester Central, Manchester, UK, 9-11 October 2011.
13. Bait-Suwailam, M.M. and Ramahi, O.M. 2011. Mitigation of Electromagnetic Field Leakage from Apertures and Enclosures using Electromagnetic Bandgap (EBG) Structures. In: *Proceedings of IEEE Electromagnetics Compatibility (EMC) Symposium*. San Diego, California, August, 2011.
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15. Chowdhury, M., Hosseinzadeh, N. and Shen, W. 2011. Fuzzy logic systems for pitch angle controller for smoothing wind power fluctuations during below-rated wind incidents. In: *Proceedings of IEEE PES Power-Tech 2011*. Trondheim, Norway, 19-23 June 2011.
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17. DeBole M., Yu C.L., Al Maashri A., Cotter M., Chakrabarti C. and Narayanan V. 2011. FPGA-Accelerator System for Computing Biologically-Inspired Feature Extraction Models. In: *Proceedings of Asilomar Conference on Signals, Systems, and Computers*. Pacific Grove, California, 6-9 November 2011.
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20. Feilat, E.A. 2011. Voltage flicker estimation using ESPRIT-based method. In: *Proceedings of the 2011 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT2011)*. Jordan, Amman, 06-08 December 2011.
21. Feilat, E.A. and Bouzguenda, M. 2011. Medium-term load forecasting using neural network approach. In: *Proceedings of IEEE PES Innovative Smart Grid Technologies- Middle East (ISGT- ME 2011)*. Jeddah, Saudi Arabia., 17-20 December 2011.
22. Ghommam, J., Bouterra, Y. and Mnif, F. 2011. Distributed Backstepping Control for Synchronization of Networked class of Underactuated Systems: A Passivity Approach. In: *Proceedings of IEEE Mediterranean Control Conference*.
23. Hesamzadeh, M.R. and Hosseinzadeh, N. 2011. Derivation of a mathematical model for ex ante study of market power using the worst-Nash equilibrium concept and MILP approach. In: *Proceedings of the 17th Power Systems Computation Conference (PSCC'11)*. Stockholm, Sweden, August 22-26, 2011.
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25. Jamil, T. 2011. Automatic Attendance Recording System Using Mobile Telephone. In: *Proceedings of the 19th IEEE Telecommunications Forum*. Belgrade, Serbia, 22-24 November 2011.
26. Jamil, T. 2011. An Introduction to Complex Binary Number System. In: *Proceedings of the 4th International Conference on Information and Computing Science*. Phuket, Thailand, 25-27 April 2011.
27. Kestur, S., Irick, K.M., Park, S., Al Maashri A., Narayanan V. and Chakrabarti C. 2011. An Algorithm-Architecture Co-design Framework for Griding Reconstruction using FPGAs. In: *Proceedings of the 48th Design Automation Conference*. San Diego, California, 3-7 June 2011.
28. Korki, M., Vu H.L., Heng Foh, C., Lu, . and Hosseinzadeh, N., 2011. Design and Performance of Low Voltage PLC Networks for Smart Grid Applications. In: *Proceedings of the First International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies (ENERGY 2011)*. Venice/Mestre, Italy, 22-27 May 2011.
29. Korki, M., Hosseinzadeh, N., Vu, H.L., Moazzeni, T. and Heng, F.C., 2011. A Channel Model for Power Line Communication in Smart Grid. In: *Proceedings of IEEE PES Power Systems Conference & Exhibition (PSCE'2011)*. Phoenix, Arizona, USA, 2011.

## Department of Electrical and Computer Engineering

30. Mahjoub, S., Mnif, F. and Derbel, N. 2011. Adaptive VSS Control for Under-actuated Manipulators. In: *Proceedings of SSD'11*. Sousse, Tunisia, 20-23 March 2011.
31. Malik, A.S., Bouzguenda, M. 2011. Smart Grid Capacity and Energy Saving Potential – A Case Study of Oman. In: *Proceedings of IEEE PES Innovative Smart Grid Technologies Middle East 2011*. Jeddah, Saudi Arabia, 17-20 December 2011.
32. Malik A. and Bouzguenda, M. 2011. Smart Grid Capacity and Energy Saving Potential – A Case Study of Oman. In: *Proceedings of the Innovative Smart Grid Technologies (ISGT) - Middle East*. Jeddah, Saudi Arabia, 17-20 December 2011.
33. Nadir, Z. 2011. Seasonal Pathloss Modeling at 900MHz for Oman. In: *Proceedings of the International Conference on Telecom Technology and Applications (ICTTA2011)*. Sydney, Australia, 2-3 May 2011.
34. Ramahi, O.M., Boybay, M.S., Siddiqui, O.F., Yousefi, L., Kabiri, A., Attia, H., Bait-Suwailam, M.M. and Zhao R. 2011. Metamaterials: An Enabling Technology for Wireless Communications. In: *Proceedings of the 29th PIERS Symposium*. Marrakesh, Morocco, 20-23 March, 2011.
35. Salmi, T., Bouzguenda, M., Gastli, A. and Masmoudi, A. 2011. Design and Analysis of a Transformerless Microinverter. In: *Proceedings of the Innovative Smart Grid Technologies (ISGT) - Middle East*. Jeddah, Saudi Arabia, 17-20 December 2011.
36. Shafiq, M., Yousef, H. and Iqbal, M.. 2011. Time-Efficient Control Law for Position Tracking of Robotic Arm. In: *Proceedings of the 6th IEEE Conference on Industrial Electronics and Applications (ICIEA 2011)*. Beijing, China, 21-23 June 2011.
37. Shafiei, H., Khonsari, A., Mirzasoleiman, B. and Ould-Khaoua, M. 2011. Reuse-Attack Mitigation in Wireless Sensor Networks, In: *Proceedings of the IEEE International Conference on Communications*. Kyoto, Japan, 5-9 June 2011.
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39. Tarhuni, N., Elmusrati, M.S. and Abouda A.A. 2011. Two -State Discretized Transmit Power Control For Ad-Hoc Sensor Networks. In: *Proceedings of the 3rd International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)*. Budapest-Hungary, 2011.

### Technical Reports

1. Al-Hinai, A. and Feilat, E. 2011. Review of Harmonic Study of Kauther Depletion Compression Project. for Petroleum Development Oman, (PDO), 2011.
2. Al-Hinai, A. 2011. Amal Steam Project Electrical System and Harmonic Study. for Petroleum Development Oman, (PDO), 2011.
3. Al-Hinai, A., Feilat, E., Al-Badi, A., Al-Badi, M., and Al-Nasseri, H. 2011. Review of Harmonic Study of Kauther Depletion Compression Project. for Petroleum Development Oman, (PDO), December 2011
4. Metwally, I.A. 2011. Investigation of five blackouts due to transformer-bushing failures at JBB Ali Grid Station. Mazoon Electricity Company, Muscat, Oman.
5. Nadir, Z., Touati, F. and Jervase, J. 2011. Design of class E power amplifiers with EER linearization technique, Internal Research Grant Technical Report, Sultan Qaboos University, Sultanate of Oman.



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## E I I E

### Seminars

1. Al Shidhani, A.A. "Engineering design process", SQU, Oman, 16 October 2011.
2. Al Shidhani, A.A. "Engineering design process, standards and constraints", SQU, Oman, 11 October 2011.
3. Bait-Suwailam M. M. Oral Presentation Skills, SQU, Oman, 19 October 2011.
4. Ahmad A. Technical Writing and Referencing, SQU, Oman, 26 October 2011.
5. Ahmad A. Why to Choose Electrical and Computer Engineering Branch, SQU, Oman, 22 March 2011.
6. Ahmad A. More About Electrical and Computer Engineering Curriculum, SQU, Oman, 23 March 2011.
7. Albadi, M H. Introduction to Engineering Ethics, SQU, Oman, 16 November 2011.
8. Nadir, Z. PSPICE/ORCAD, SQU, Oman, 1 November 2011.
9. Metwally, I.A. Flow Electrification in Electric Power Apparatus and Pipelines, University of Poitiers (Groupe Electrofluidodynamique, CNRS - Universit de Poitiers – ENSMA), Poitiers, France, 20 April 2011.
10. Bourdoucen H. Free and Open Source Software Deployment: Experience and Future, SQU, Oman, 10 October 2011.

### Cooperation with local and foreign organizations

1. Bourdoucen, H. Scientific Visit to City University, London on September 2011, funded by the British Council.
2. Bourdoucen, H. Cooperation with ITA to setup a mirror server and build a research lab for Open and Free Source Software, 2011.
3. Metwally I, Member of the Ph.D. Jury Committee at University of Poitiers (Groupe Electrofluidodynamique, CNRS - Universit de Poitiers – ENSMA), Poitiers, France on 19 April 2011.
4. Jamil, T, Member of the Technical Program Committee for the International Symposium on System-on-Chip (SoC'11) held in Tampere, Finland during October 31-November 2, 2011.

### Workshops

1. Al-Hinai A. & Feilat, E. "Electrical Power System Modeling & Analysis", SQU, March 21-23. 2011
2. Bourdoucen H., Organized with ITA the LPIC1 certification course January 15-26, 2011.
3. Bourdoucen H., Organized a workshop on LabVIEW at SQU, Oman, Spring 2011.
4. Bourdoucen H., Symposium on "Unlicensed Software, Definition and Alternatives", invited speaker, October 10, 2011. SQU, Oman.

## Department of Electrical and Computer Engineering

### Invited Talks

1. Malik A (2011) Systems Approach; Discounting and Sustainable Development: A Need to Think Globally and Act Globally. Caledonian (University) College of Engineering, Oman, 10 December 2011.
2. Ahmad A (2011) Dimensions in testing: Nano-scale – further challenges for quality electronic products. IEEE International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT-2011), held at AMU, Aligarh, India, December 17 – 19, 2011.
3. Jamil T (2011) An Introduction to Complex Binary Number System, a tutorial presented at the Fourth International Conference on Information and Computing Science, held at Phuket, Thailand during April 25-27, 2011.
4. Bourdoucen H., 2011. The Strategic Directions of Free and Open Source Software. , Invited as a Keynote speaker to the Symposium on Open Source Software, Organized by the College of Arts & Applied Sciences, Dhofar University, December 26, 2011.

### Students Activities

1. Information technology scientific gathering, February 2011.
2. PC formatting course, March 2011.
3. Scientific trip to Omani naval base, March 2011.
4. Engineering sport day, March 2011.
5. Engineering gathering, March 2011.
6. IEEE Middle East conference in Qatar, April 2011.
7. IEEE event, May 2011
8. Gulf Technology Exhibition
9. Microcontroller short course, October 2011.
10. MATLAB short course, October 2011.
11. Short lecture about “Engineering Design Technique”, October 2011.
12. Pspice short course, November 2011.

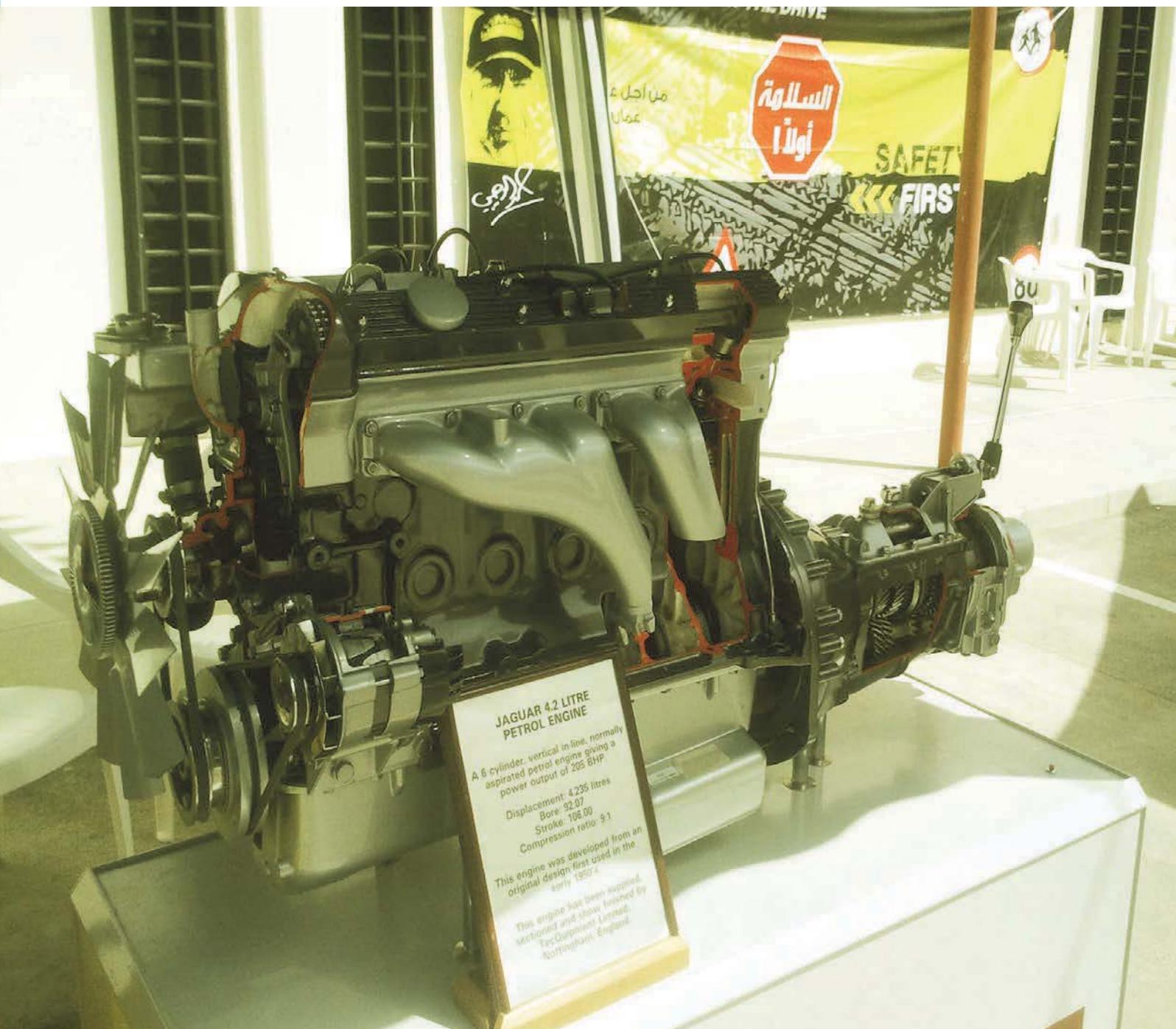




# Department of Mechanical Industrial Engineering

Website: <http://www.su.edu.om>

Department of Mechanical Engineering





## Department of Mechanical and Industrial Engineering



### MM

Welcome to the Department of Mechanical & Industrial Engineering, College of Engineering at Sultan Qaboos University, Sultanate of Oman. The Department offers Mechanical Engineering and Industrial Engineering programs at Bachelor, Master and Doctoral levels. In addition, the Department offers a joint degree program in Mechatronics Engineering with the Department of Electrical and Computer Engineering. The aim of this booklet is to provide the constituents with the information about the Department.

Our curriculum is designed to produce graduates who can become future leaders for industry, academia, government and society in Oman whose vision is founded upon fundamental knowledge, creative and analytical skills, local/regional perspective and ethics. Through a nice blend of course work and projects, the Department endows students with the ability to apply knowledge of science, mathematics and engineering to work effectively in multidisciplinary teams, provide leadership and technical expertise, and practice engineering with concern for society and environment. Our undergraduate programs are of world class standard and ABET accredited. In Fall 2008, the Department started to offer Ph.D. programs in Mechanical and Industrial Engineering.

Table D1: Summary

	FL2009-SP20010	FL2011-SP2011
<b>Academics</b>		
Faculty	26	27
Support staff	24	24
Total	50	51
On-study leave	2	3
<b>Undergraduate Program</b>		
Enrolment (Y2-5)	550	411
Courses offered	73	83
Graduates	96	96
<b>Graduate Program</b>		
Enrolment	16	48
Courses offered	17	14
Theses completed	-	-
<b>Research</b>		
Grants	4	6
Contracts	18	10
<b>Publications</b>		
Refereed Journals	48	36
Others	62	43

Our staff is actively engaged in fundamental and applied research works. The research projects are either internally funded by the university or externally by the industries of Oman. Some of key projects in-progress include Well-bore Tubular Expansion, Multiphase Flow Metering, Solar Car, Soccer Playing Robot, Swellable Elastomers, Environmental Pollution, Smart Systems, Project Management, Simulation, Ergonomics, etc. In Spring 2009, a 'Test Rig' a unique facility was inaugurated in the Engineering Research Lab to support the oil industry. In addition, faculty members and staff are involved in providing consultancy services to the industries, particularly on environmental issues.

Our goal is to provide students with a balance of intellectual and practical experience that enables them to serve a variety of societal needs. We also strive to

provide avenues for excelling in research to our faculty/staff to serve society. The Department is proud of its alumni, many of whom are holding leading positions at government ministries, major national and international companies and corporations, academic institutions in Oman and the region.



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## DEPARTMENT OF MECHANICAL ENGINEERING

### Faculty

**Dr. Saifullah Al Saifi**, Assistant Professor, HoD  
Fluid Mechanics, Computational Fluid Dynamics, Multiphase flow

**Dr. Saifullah Ahmed Al Saifi**, Professor  
Monitoring of pollutants in the atmosphere, outdoor air quality, modelling and chemistry of ozone formation, modelling of the dispersion of air pollution in the atmosphere, neural network and statistical analysis, liquid desiccant air dehumidifier, water desalination, renewable energy.

**Dr. Asneem Al Saifi**, Associate Professor  
Engineering Design & Analysis, Composite Materials, FEM, Vibration Analysis

**Dr. Mahmoud Al Saifi**, Associate Professor  
Thermo-Fluids, Renewable energy

**Dr. M. Al Saifi**, Associate Professor  
Computer integrated manufacturing, mechatronics, computer aided design

**Dr. Amal Al Saifi**, Associate Professor  
Contact / Friction, Engineering Design, Nano Technology

**Dr. Khalid Al Saifi**, Associate Professor  
Project Management, Design, Nano-Composites

**Dr. Asseel Al Saifi**, Assistant Professor  
Fluids Mechanics, Thermodynamics

**Dr. M. Al Saifi**, Assistant Professor  
Modeling and Simulation, Control of Dynamic Systems and Robotics.

**Dr. Saifullah Al Saifi**, Assistant Professor  
Engineering Design, Applied Materials and Manufacturing, Failure Analysis and Reliability.

**Dr. Mohammed Al Saifi**, Assistant Professor  
Operations Research, Production Planning and Control, Simulation Models.

**Dr. I. Al Saifi**, Assistant Professor  
Manufacturing Systems Design, Agility and Reconfiguration

**Dr. Mahmoud Al Saifi**, Assistant Professor  
Industrial Engineering and Management

**Dr. M. Al Saifi**, Assistant Professor  
Materials Science and Engineering, Corrosion, Severe plastic deformation of metallic materials, crystallographic texture and microstructure engineering

## Department of Mechanical and Industrial Engineering

**Dr. Haled Oher**, *Assistant Professor*

Modelling and Control of Dynamic Systems, Assistive Technologies, Rehabilitation Engineering, Mechanics of Mobile Robotics.

**Dr. Dullah Er**, *Assistant Professor*

Vibration and Control, Kinematics and Dynamics of Mechanical Systems, Machine Tool Chatter, Robotic Applications

**Dr. Hefi Ri i**, *Assistant Professor*

Stochastic Optimization, Logistics & Supply Chain Management, Maintenance Optimization

**Dr. Uan i a**, *Assistant Professor*

Production planning and control, Supply chain management, Quotation and negotiation strategy

**Dr. Amanathan Runachalam**, *Assistant Professor*

High Speed Machining, Micro machining using non-conventional techniques, Nanomaterials and Metal matrix composites.

**Dr. Asr I inai**, *Assistant Professor*

Operation Research, Production Scheduling

**Mrs. Asra I Mas ari**, *Lecturer*

Pursuing Doctoral Program

**Issam Mahfoodh**, *Lecturer*

Preparing for Doctoral Program

**Aroo I ah ari**, *Lecturer*

Pursuing Doctoral Program

**Mohamed I a ati**, *Demonstrator*

Pursuing Master Program

### Technical and Support Staff

**Dr. Siegfried Raut ein**, *Technical Expert*, Mechanical Engineering

**Dr. Ulaiman I aidani**, *Research Associate*, Al-Hail Desalination Lab

**Ilal I Ismail**, *Research Associate*, Fluids Mechanics & Thermodynamics

**Mohammad I adhrami**, *Department Superintendent*, Solid Mechanics, Ergonomics and CIM Labs

**Aeed Asser I Mughair**, *Senior Engineer*, Materials Lab, Al-Hail Desalination Lab

**Mohammad li I adhrami**, *Lab Engineer*, Fluid Mechanics Lab

**Aaisal I hatri**, *Lab Supervisor*, Thermodynamics Lab

**Ami I ulti**, *Lab Engineer*, Mechanical Systems, Control & MIE Computer Lab



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**Abdullah Al Murrani**, *Lab Engineer*, CIM Lab and Ergonomics

**Abdelhak Al Atmi**, *Lab Engineer*, Mechantronics

**Abdasser Al Ali**, *Lab Engineer*, Al-Hail Desalination Lab

**Abdullah Al Alami**, *Senior Engineer*, Workshop

**Abdullah Al Alami**, *Senior Support Engineer*, Workshop

**Abdullah Al Alami**, *Assistant Mechanic*, Workshop

**Moosa Al Amadani**, *Technician*, Workshop

**Mohammed Al Alami**, *Support Engineer*, Workshop

**Mahfoudh Al Alami**, *Technician*, Workshop

**Abdullah Al Alami**, *Trainee Technician*, Workshop

**Abdullah Al Alami**, *Carpenter*, Workshop

**Abdullah Al Alami**, *Technician*, Workshop

**Abdullah Al Alami**, *Technician*, Workshop

**Marshal Miranda**, *Technician*, Workshop

**Moadh Al Alami**, *Storekeeper*, Department's store

**Asma Al Alami**, *Coordinator*

## Department of Mechanical and Industrial Engineering

### Committees

Table D2: Departmental Committee membership

Committee	Members
Department Board	Dr. Nabeel Al-Rawahi (Chair) Dr. Nasser Al-Azri All academic staff Dr. Siegi Trautwein Mohamed Al-Hadhrani
Department Curriculum and Accreditation Committee	Dr. Nabeel Al-Rawahi (Chair) Dr. Yousef Zurigat Prof. Sabah Al-Sulaiman Dr. Tasneem Pervez Dr. Jamil Abdo Dr. Zahid Qamar Dr. Mahmoud Tahat Dr. Amer Al-Yahmadi Dr. Abdullah Al-Shabibi Dr. Nasser Al-Azri Dr. Majid Al-Maharbi Dr. Mohammad Khadem Dr. Khalid Al-Zebdeh Dr. Mahmoud Al-Kindi Dr. Maki Rashid Dr. Ibrahim Garbie Dr. Nassr Al-Hinai (Others as required)
Administrative Coordinators	Dr. Majid Al-Maharbi Dr. Mahmoud Al-Kindi Dr. Jamil Abdo
Final Year Project Coordinators	Dr. Nasser Al-Azri Dr. Khalid Goher Dr. Khalid Al-Zebdeh
Department Postgraduate Studies and Research Committee	Prof. Sabah Al-Sulaiman (Chair) Dr. Jamil Abdo Dr. Maki Rashid Dr. Mahmoud Tahat Dr. Amer Al-Yahamdi Dr. Nabeel Al-Rawahi
Department Publications Committee	Dr. Jamil Abdo (Chair) Dr. Nasser Al-Azri Dr. Mahmoud Al-Kindi Nasra Al-Maskari



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**Department Recruitment Committee**

Dr. Nabeel Al-Rawahi (Chair)  
Prof. Sabah Al-Sulaiman,  
Dr. Mahmoud Al-Kindi  
Dr. Abdullah Al-Shabibi  
Dr. Zahid Qamar  
Dr. Nasser Al-Azri  
Dr. Nasr Al Hinai  
Dr. Amer Al Yahmadi

**Department Academic Committee**

Dr. Seigi Trautwein (Chair)  
Dr. Mahmoud Al-Kindi  
Dr. Mahmoud Tahat  
Dr. Maki Rashid  
Dr. Khaled Goher  
Mohamed Al-Hadhrani

**Industrial Advisory Board I**

Dr. Nabeel Al-Rawahi (Chair)  
Dr. Amer Al-Yahmady  
Prof. Sabah Al-Sulaiman  
Dr. Tasneem Pervez  
Dr. Zahid Qamar  
Dr. Nasser Al-Azri  
Dr. Majid Al-Maharbi  
Dr. Mahmoud Al-Kindi

**Student Society**

Dr. Majid Al-Moharbi  
Dr. Ibrahim Garbie

**Student Staff Liaison Committee**

Dr. Nabeel Al-Rawahi (Chair)  
Dr. Majid Al-Maharbi  
Dr. Ibrahim Garbie  
Dr. Nasser Al-Hinai  
Dr. Khaled Goher  
Nasra Al-Maskari  
2 Students from each cohort

**Social Activities Committee**

Dr. Nasser Al-Azri (Chair)  
Dr. Mohammad Khadem  
Dr. Nasser Al-Hinai

**External Liaison Committee**

Dr. Nabeel Al-Rawahi (Chair)  
Dr. Mahmoud Al-Kindi  
Dr. Zahid Qamar

**Department Strategic Planning Committee**

Dr. Nabeel Al-Rawahi (Chair)  
Dr. Zahid Qamar  
Dr. Tasneem Pervez  
Dr. Yousef Zurigat  
Dr. Amer Al-Yahmadi  
Dr. Mohammed Khadem  
Dr. Ibrahim Garbie

## Department of Mechanical and Industrial Engineering

### Industrial Training Alumni Committee

Dr. Abdullah Al-Shabibi (Chair)  
Dr. Majid Al-Maharbi  
Dr. Mahmoud Al-Kindi

### Exhibition Committee

Dr. Khaled Al-Zebdeh  
Dr. Khaled Goher

### Seminar Committee

Dr. Khaled Goher (Chair)  
Dr. Nassr Al-Hinai

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Table D3. Courses offered in Spring 2011

Code	Title	Instructor
MEIE2102	Statics	Nabeel Al-Rawahi
MEIE2129	Basic Mechanics	Nasr Al-Hinai, Majid Al-Maharbi
MEIE3102	Solid Mechanics	Sayyad Qamar, Khalid Alzebdeh
MEIE3104	Draw & Comp Graphics	Hilal Al-Ismaili
MEIE3108	Creative Decisions	Yasser El Yokda
MEIE3121	Dynamics	Khalid Ghoher
MEIE3142	ThermodynamicsII	Nasser Al-Azri
MEIE3161	Mat.Sci.	Majid Al-Maharbi
MEIE3198	Seminar I	Khalid Ghoher
MEIE3212	Methods Eng. & Work	Ibrahim Garbie
MEIE3261	Product Develop.	Salih Akour
MEIE3270	Operations ResearchI	Hamdi Bashir
MEIE4101	Comp.Aid.Mech.Design	Jamil Abdo
MEIE4122	Eng. Sys.&Control	Saif Al-Hiddabi, Amur Al-Yahmedi
MEIE4141	Fluid Mechanics	Nabeel Al-Rawahi
MEIE4144	Heat Trans.	Yousuf Zurigat
MEIE4183	Num. Methods	Sabah Al-Sulaiman
MEIE4192	Comp. Apply.Eng	Farooq Al Jahwari
MEIE4198	Seminar II	Khalid Ghoher
MEIE4201	Ergonomics & safety	Mohammad Khadem
MEIE4262	Manuf. Proc.	Yasser El Yokda, Salih Akour
MEIE4267	Ind. Automation	Maki Rashid
MEIE4272	Simulation Models	Mohammad Khadem
MEIE4285	Engineering Economic	Ibrahim Garbie
MEIE4286	Mang. for Eng.	Mohammad Khadem
MEIE5013	Refrigeration & A.C	Mahmoud Tahat
MEIE5101	Eng. Vibration	Tasneem Pervez
MEIE5146	Renewable Energy	Mahmoud Tahat
MEIE5149	Capstone Design	Jamil Abdo
MEIE5161	Adv. Mat. Tech.	Sayyad Qamar
MEIE5188	Business & Entrepre.	Mahmood Al-Kindi
MEIE5193	ME Project I	Khaled Goher
MEIE5194	ME Project II	Nasser Al-Azri

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MEIE5232	Reliability Engineering	Hamdi Bashir
MEIE5265	Comp. Integr. Manufa	Maki Rashid
MEIE5291	IE Project I	Khalid Alzebdeh
MEIE5292	IE Project II	Khalid Alzebdeh
MEIE5295	Seminar	Khalid Goher

Table D4: Courses offered in Fall 2011

Code	Title	Instructor
MEIE3141	Thermodynamics I	Sabah Al-Sulaiman, Mahmoud Tahat
MEIE3161	Material Science	Majid Al-Maharbi
MEIE4182	Applied Mathematics	Sayyad Qamar
MEIE5124	Condition Monitoring & Diagnosis	Abdullah Ozer
MEIE4181	Instrumentation & Measurements	Abdullah Ozer
MEIE4221	Quality Control	Sujan Piya
MEIE4281	Probability & Stats	Maki Rashid
MEIE5261	Industrial Engineering Design	Ibrahim Garbie
MEIE5286	Supply Chain Manage	Mohammad Khadem
MEIE5292	IE Project II	Khalid Alzebdeh
MEIE5295	Seminar	Nasr Al-Hinai
MEIE4141	Fluid Mechanics	Yousuf Zurigat
MEIE2102	Statics	Abdullah Al-Shabibi
MEIE2129	Basic Mechanics	Nasr Al-Hinai
MEIE3121	Dynamics	Amur Al-Yahmedi
MEIE3122	Machine Dynamics	Khaled Goher
MEIE3159	Thermo fluids	Mahmoud Tahat
MEIE3198	Seminar I	Nasr Al-Hinai
MEIE4101	Comp. Aid. Mech. Design	Jamil Abdo, Nasra Al Maskari
MEIE4285	Engineering Economic	Maki Rashid
MEIE4286	Mang. for Eng.	Sujan Piya
MEIE5110	Applied Finite Elements	Tasneem Pervez
MEIE3104	Draw & Comp Graphics	Arunachalam Ramanathan
MEIE4141	Fluid Mechanics	Nabeel Al-Rawahi
MEIE4183	Num. Methods	Sabah Al-Sulaiman
MEIE5193	Project I	Khaled Goher
MEIE5282	Applied Statistics	Mahmood Al-Kindi
MEIE5287	Project Management	Khalid Alzebdeh
MEIE3104	Draw & Comp Graphics	Arunachalam Ramanathan
MEIE4183	Num. Methods	Nasser Al-Azri



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MEIE4198	Seminar II	Nasr Al-Hinai
MEIE4222	Production Planning	Mohammad Khadem
MEIE4223	Facilities Planning	Ibrahim Garbie
MEIE4262	Manuf. Proc.	Arunachalam Ramanathan
MEIE5291	IE Project I	Khalid Alzebdeh
MEIE2129	Basic Mechanics	Riyadh Zaier
MEIE3102	Solid Mechanics	Khalid Alzebdeh
MEIE3104	Draw & Comp Graphics	Hilal Al-Ismaili
MEIE3141	Thermodynamics I	Mahmoud Tahat
MEIE4101	Comp.Aid.Mech.Design	Jamil Abdo
MEIE4182	Applied Mathematics	Sayyad Qamar, Arunachalam Ramanathan
MEIE4271	Operation Research 2	Chefi Triki
MEIE5194	Project II	Nasser Al-Azri
MEIE5122	Applied MultiBody Dynamics	Amur Al-Yahmedi
MCTE5191	Project I	Jamil Abdo
ENGR1600	Workshop I	Siegfried Trautwein

## Employment Status

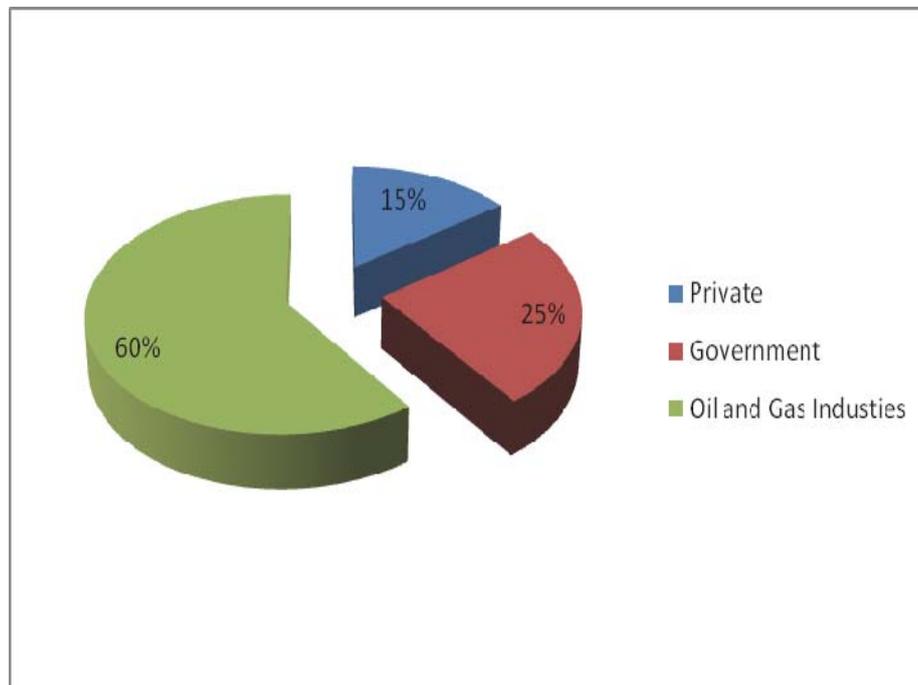


Figure D1: Job placement for the graduates of the last 10 years

## Department of Mechanical and Industrial Engineering

### D E DIE

#### Student Enrolment

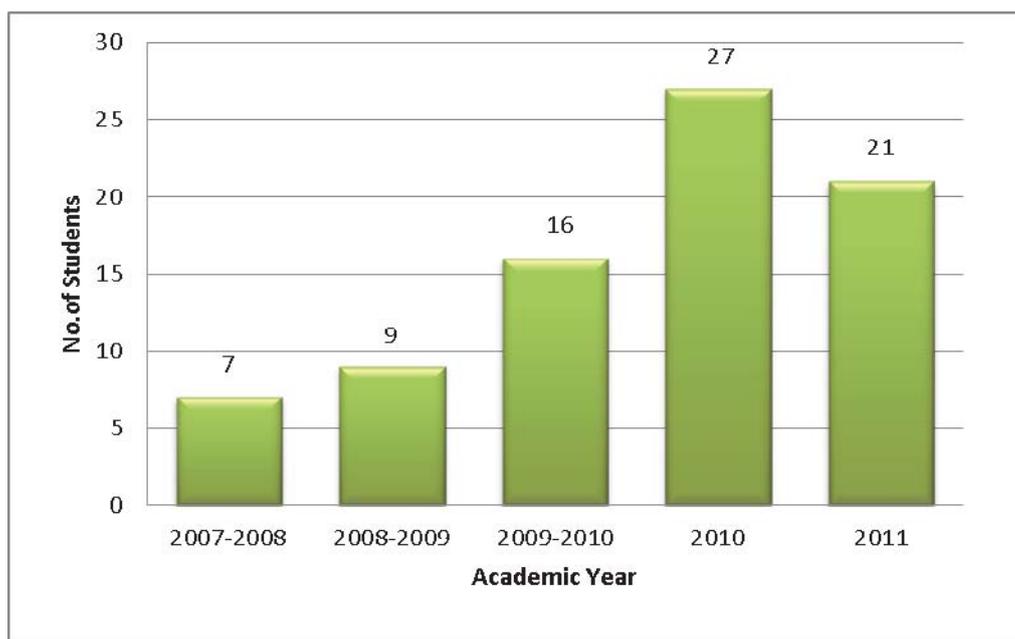


Figure D2: MSc. and PhD Students' enrolment for the past five years

#### Courses

Table D5: Postgraduate courses offered in year 2011

Semester	Code	Title	Instructor
Spring 2011	MEIE6105	Advanced Engineering Material	Sayyad Qamar
	MEIE6108	Advanced Vibrations	Tasneem Pervez
	MEIE6111	Advanced Eng. Measurement Systems	Riyadh Zaier
	MEIE6208	Reliability Engineer	Hamdi Bashir
	MEIE6212	Directed Studies	Jamil Abdo
	MEIE7000	Research Project	Yousuf Zurigat
	MEIE8001	PhD Thesis	Yousuf Zurigat



Fall 2011	ENGR6001	Project Engineering & Management	Khalid Al Zebdeh
	MEIE6004	Adv. Numerical Meth.	Nasser Al Azri
	MEIE6017	Advanced Fluid Dynamics	Yousuf Zurigat
	MEIE6206	Applied Optimisation	Chefi Triki
	MEIE6212	Directed Studies	Jamil Abdo
	MEIE7000	Research Project	Yousuf Zurigat
	MEIE8001	PhD Thesis	Jamil Abdo

## Master Students Projects

Table D6: Students' projects

Project Title	Supervisor	Student Name
Reduction of Automotive Brake System Squeal Based on Finite Element Analysis and Design of Experiment Technique	Dr.Jamil Abdo	Mutasem Rashid Faddah
Causes of Delay in Construction Projects in the Oil and Gas Industry in Oman	Dr.Hamdi Bashir	Mohammed Rashid AL Ruqaishi
Minimizing Pop-out Phenomenon Effect in Solid Expandable Tubular Systems	Dr.Tasneem Pervez	Idris AL Siyabi
Cost Estimation Practices Prevalent In The Construction Sector In Oman	Dr.Khalid Alzebdah	Mabruka AL Siyabi
Modelling and Simulation of Dynamics of Stick-Slip Phenomenon in Tube Expansion	Dr.Tasneem Pervez	Omar Said AL-Abri
An Investigation into Issues Related to the Productivity of Workers in the Oil and Gas Sector in Oman	Dr.Hamdi Bashir	Khalida Al-Hakmani

## Department of Mechanical and Industrial Engineering

### E E

#### Grants

Table D7: Internal Grants held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Status
Characterization and Analysis of Elastomer Seals in Petroleum Applications	Sayyad Zahid Qamar	3,950	SQU
Machine Learning Approaches to decision making and motion generation of humanoid robots	Riadh Zahir	3,950	SQU
Horizontal drill string dynamics: Mathematical Modeling & Experimental Simulation	Mahmoud Tahat	3,925	SQU
Environmental Assessment study: Monitoring and Assessment of Sick Building Syndrome (SBS) Indicators.	Sabah AL Sulaiman	4,350	SQU
Nano-enhanced drilling fluids: Synthesis, testing by developed setup and optimization for improved performance.	Jamil Abdo	3,950	SQU
Experimental Study of Conical Hydro-Cyclone for Treatment of Produced Water	Nabeel Rawahi	3,000	SQU
Micromechanical Modeling of Mechanical Behavior and Strength of Cellular Solids	Khalid Zebdah	3,800	SQU

Table D8: External grants held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Status
Assessment of work Environment of Manufacturing Processes and Design of Factory Layout	Dr. Khalid AL-Zebdah	9,283	IIC
An evaluation of the leading competitor's technology with a view to transferring a similar technology to WJ Towel (Part A)	Dr. Maki Rashid	24,000	IIC



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The implementation of a bespoke hazard analysis and hygiene improvement process (Part B)	Dr. Maki Rashid	26,430	IIC
Development of Nano-enhanced drilling fluids for adaptable performance and stability in HTHP conditions	Dr. Jamil Abdo	71,622	PDO

## Contracts

Table D9: Contracts held by faculty members in year 2011

Research Title	Principal Investigator	Budget	Funded
Investigation of Integrated Sustainable Building Cooling System	Dr. Yousef Zuriqat	54,700	TRC
Occupational Health & safety Issues Affecting Workers Performance in Omani Industries	Dr. Ashraf Shikdar	97,550	TRC

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- Abdul-Wahab, S.A., Reddy, K.V., Al-Weshahi, M.A., Al-Hatmi, S. and Tajeldin, Y.M. 2011. Development of a Steady-State Mathematical Model for Multistage flash (MSF) Desalination Plant. *International Journal of Energy Research*, Article is published online in 2011.
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- Abdul-Wahab, S.A., Sappurd, A. and Al-Damkhi, A. 2011. Application of California Puff (CALPUFF) Model: A Case Study for Oman. *Clean Technologies and Environmental Policy*, 13(1):177-189.
- Abdul-Wahab, S.A. 2011. Selling Solar: The Diffusion of Renewable Energy in Emerging Markets. *The International Journal of Environmental Studies*, 68(4):585-586.
- Al-Hinai, N. and ElMekkawy, T. 2011. An Efficient Hybridized Genetic Algorithm Architecture for The Flexible Job-Shop Scheduling Problem. *Flexible Services and Manufacturing Journal*, 23:64-85.

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21. Qamar, S.Z., Pervez, T. and Al-Moharbi, A.D. 2011. Fracture Prediction of Extrusion Die Modeled as Pressurized Cylinder with Internal Crack. In: *Proceedings of the 1st International Research/Expert Conference Trends in the Development of Machinery and Associated Technology (TMT 2011)*. Prague, Czech Republic, 12-18 September 2011.



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22. Qamar, S.Z., Pervez, T., Al-Kharusi, M.S.M. and Akhtar, M. 2011. Material Characterization of Water-Swelling and Oil-Swelling Elastomers. In: *Proceedings of the 1<sup>st</sup> International Research/Expert Conference Trends in the Development of Machinery and Associated Technology (TMT 2011)*. Prague, Czech Republic, 12-18 September 2011.
23. Rashid, M. K. 2011. Fuzzy Modeling and RFID to Enhance Drilling Projects Selection. In: *Proceedings of the 14<sup>th</sup> IASTED International Conference on Artificial Intelligence and Soft Computing (ASC 2011)*. June 2011.
24. Shikdar, A.A., Garbie, I.H and Khadem, M.K. 2011. Development of a Smart Workstation for an Assembly Task. In: *Proceedings of the 2011 International Conference on Industrial Engineering and Operations Management (IEOM 2011)*. Kuala Lumpur, Malaysia, 22-24 January 2011.
25. Shikdar, A.A., Garbie, I.H. and Khadem, M.K. 2011. Development of a Smart Workstation for an Assembly Task. In: *Proceedings of the 2011 International Conference on Industrial Engineering and Operations Management*. Kuala Lumpur, Malaysia, 22-24 January 2011.
26. Tahri, T., Douani, M., Bettahar, A., Abdul-Wahab, S.A. and Amoura, M. 2011. Comparison between two models in predicting the condensation vapor mixture in the condenser of seawater greenhouse. In: *Proceedings of the 7<sup>th</sup> International Conference on Computational Heat and Mass Transfer (ICCHMT)*. Turkey, Istanbul, 18-22 July 2011.
27. Zaier, R. 2011. Bio-Inspired Locomotion Controller Design for Legged Robots. In: *Proceedings of the 14<sup>th</sup> International Conference on Climbing and Walking Robots*. Paris, France, 6-8 September 2011.

#### Technical Reports

1. Abdul-Wahab, S.A. 2011. Experimental Study of Solar Stills under Oman Climatic Conditions: Inverted Absorber Solar Stills for Production of Fresh Water in Remote Areas. Internal Research Grant Technical Report, Sultan Qaboos University, Sultanate of Oman.
2. Khadem, M., Bashir, H., 2011. Facility Layout design for Voltamp LLC. External Consultancy Technical Report, Industrial Innovation Center, Sultanate of Oman.
3. Qamar, S.Z., Pervez, T. 2011. Design and Fabrication of Test Facility for Longevity Testing of Elastomer Seals. for Petroleum Development Oman (PDO), December 2011.
4. Pervez, T., Qamar, S.Z., Al-Abri, O.S., Khan, R., Al-Jahwari F.K. and Trautwein, S.E. 2011. Testing and Finite Element Analysis of Expandable Tubulars for 8.1/2" Pass Thru Deep Gas Wells - Phase 2. for Petroleum Development Oman (PDO), March 2011.
5. Pervez, T., Qamar, S.Z., Al-Abri, O.S., Khan, R., Al-Jahwari F.K. and Trautwein, S.E. 2011. Testing and Finite Element Analysis of Expandable Tubulars for 8.3/8" Wells. for Petroleum Development Oman (PDO), December 2011.

## Department of Mechanical and Industrial Engineering

6. Zaier, R., Al-Yahamadi, Abdo, J., and Pervez, T. 2011. Machine Learning Approaches to decision making and motion generation of humanoid robots. Internal Research Grant Technical Report, Sultan Qaboos University, Sultanate of Oman.

### Events

#### Invited papers

1. Al Kindi, M., Six Sigma as a Quality tool in manufacturing Sohar Aluminum
2. Al Kindi, M., Improving Waiting Time in SQU Hospital Pharmacy using Six Sigma with IE Student (Mustafa Al Balushi)

#### Cooperation with local and foreign organizations

1. Rashid, M., Development of Economic and technological Strategy for Reducing the PET Bottles Cost", T.J Towel (2011-Present)

#### Short courses

1. Rashid, M., "Basic LabVIEW for Industrial Automation", March 2011.

#### Seminars

1. Ozer, A., Vibration Control of Flexible Robot Manipulators, Conference Hall, SQU, 2<sup>nd</sup> October 2011.
2. Ozer, A., Experimental Implementation and Analysis of Robotic Metal Spinning, Conference Hall, SQU, 2<sup>nd</sup> October 2011.



# Department of Petroleum Chemical Engineering

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## Department of Petroleum and Chemical Engineering



### SUMMARY

To cope with societal evolvement and ever growing industrial demands, the Department has undergone a major restructuring. Two new programs have emerged: one in Petroleum and Natural Gas Engineering (PNGE) and the other in Chemical and Process Engineering (CHPE). Since then, the student intake to the Department has exceeded 80 students, from an old figure of 20 to 30 previously.

Responding to local demands has directed the Department into the universal new trends: student learning based education. The Petroleum and Natural Gas Engineering program obtained substantial equivalency to the corresponding petroleum programs in US for 6 years while the Chemical and Processing Engineering program recently has been accredited fully similar to any US University.

Since 2008, PCE has started development of integrated curriculum for both CHPE, and PNGE Programs. In this curriculum, the knowledge will be attached to domain of courses instead of single course. The flow of knowledge within each domain will be presented to the students from the beginning. The evaluation of each domain will be conducted separately and then all domains will contribute to the overall assessment of the program.

Table E1: Summary

	SP2011	FL2011
Faculty	18	18
Support staff	10	10
Total	29	28
On-study leave	0	0
Undergraduate Program		
Enrolment (Y2-5)	284	337
Courses offered	50	51
Graduates	63	6
Graduate Program		
Enrolment	25	28
Courses offered	4	5
Theses completed	5	5
Research		
Grants		11
Contracts		
Consulting		
Publications		
Refereed Journals		40
Others		30

The Department has started M.Sc of Petroleum and Natural Gas (PNGE) since 2003, and PhD programs for Chemical and Process Engineering CHPE and PNGE from academic year 2009/2010. Both programs are also now offering M.Sc (with courses option) and the CHPE program will start M.Sc (with thesis option) in fall 2012.

Faculty as well as technicians have also taken part in doing research, providing laboratory services and consultancy. The Department is currently working hand in hand with the College Administration and the Oil and Gas Research Centre to expand the Engineering Research Laboratories (ERL). ERL will be hosting three major research projects of Thermally-Assisted Gas-oil Gravity Drainage, Formation Damage and Chemical Profile Control (CPC). In chemical engineering, a modern gas-solid reactor and a sophisticated GC are in function. Thus the strong infrastructure and tradition of engaging in quality research have resulted in a number of publications in renowned international journals and conference proceedings.



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## DEPARTMENTAL PROFILE

### Faculty

Currently, the Department consists of a total of 19 academics consisting of 6 associate professors, 13 assistant professors.

Dr. Yahya M. Al-Wehaibi, Assistant Professor and Head of Department  
Reservoir simulation, multi contact miscible gas injection, first-contact miscible WAG injection, thermal injection, neural magnetic resonance

Dr. Ali Soud Al-Bemani, Associate Professor  
Well testing, reservoir engineering, rock and fluid properties and computer application in petroleum engineering

Dr. Gholamreza Vakili-Nejad, Associate Professor  
Applied Statistical and Chemical Thermodynamics, Applied Hydrocarbon Thermodynamics, Characterization of Petroleum Fluids, Nanofluids, Nanothermodynamics

Dr. Rashid S. Al-Maamari, Associate Professor  
EOR, wettability, hydrocarbon contamination of groundwater, treatment and utilization of oilfield produced water

Dr. Farouq Sabri Mjalli, Associate Professor  
Process modeling and control, Green Engineering

Dr. Khalid Hilal Al-Rawahi, Assistant Professor  
Mineral resources, geology, genesis, supply and demand analysis, modeling, and forecasting techniques

Dr. Hamoud K. Al-Hadrami, Assistant Professor  
Simulation modeling and geological modelling, Drilling engineering, Formation evaluation

Dr. Majid A. Al-Wadhahi, Assistant Professor  
Reservoir simulation, 3-phase flow in porous media, artificial neural network

Dr. Baba El-Yakubu Jibril, Associate Professor  
Heterogeneous catalysis, adsorption

Dr. Adel M. Al-Ajmi, Assistant Professor  
Mining engineering and rock mechanics

Dr. Talal K. Al-Wahaibi, Assistant Professor  
Multiphase flow and mixing, Flow in porous media, Drag reducing polymers

Dr. Abdul Aziz R. Al-Hashmi, Assistant Professor  
Petroleum reservoir engineering and petrochemical engineering

Dr. Jamil Naser, Assistant Professor  
Environmental Engineering, A, Heavy metals contamination, Desalination, Engineering Education

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Dr. Mohammad Al-Abri, Assistant Professor  
Water Treatment, Nanotechnology and Green Engineering

Dr. Rashid S. Al-Hajri, Assistant Professor  
Heterogeneous catalysis, petroleum reservoir engineering and petrochemical engineering

Dr. Omar Houache, Assistant Professor  
Chemical & Process Engineering, and Process Safety

Dr. Alaa Al-Muhtaseb, Associate Professor  
Chemical Engineering, waster water treatment, biofuel

Dr. Mohammad Ahmad, Associate Professor  
Environmental Process Engineering, Chemical Engineering

### Technical and Support Staff

Said Soud Al-Omeiri, Chief Technician

Nasser Mohammed Al-Mandhary, Department Technician Superintendent

Sabri Salam Al-Khusaibi, Department Superintendent

Hamdan Bin Saif Al-Amri, Lab Supervisor

Ike Fernandez Siruno, Senior Engineer

Nayyar Afzal, Lab Supervisor

Salim Ali Al-Mazrui, Lab Supervisor

Adel Awadh Al-Rubkhi, Technician

Sheikha Salim Al-Hajri, Coordinator



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## Committees

Table E2: Committee membership

Committee	Members
Appointment Committee	Dr. Yahya Al-Wahaibi (Chair) Dr. Abdulaziz Al-Hashmi Dr. Hamoud Al-Hadrami Dr. Jamil Naser Dr. Talal Al-Wahaibi
Board Secretary	Dr. Rashid Al-Hajri
Book & Library Coordinator	Dr. Mohamed Al-Abri
Chief Technician & Labs Supervisor	Mr. Nasser Al-Mandhari
Curriculum & Accreditation Committee	Dr. Yahya Al-Wahaibi (Chair) Dr. Baba Jibril Dr. Omar Houache Dr. Rashid Al-Maamari
Exam Review Committee	Dr. Jamil Naser Dr. Majid Al-Wadhahi
In-house Industrial Training Coordinator	Dr. Farouq Mjalli (Chair) Dr. Rashid Al-Hajri
Postgraduate Studies & Research Committee	Dr. Talal Al-Wahaibi (Chair) Dr. Gholamreza Vakili Dr. Majid Al-Wadhahi Dr. Mohammad Ahmad
Seminar Coordinator	Dr. Khalid Al-Rawahi
Social Committee	Dr. Khalid Al-Rawahi
Staff-Student Liaison	Dr. Hamoud Al-Hadrami
Strategic Planning & Development Committee	Dr. Mansoor Al-Harty (Chair) Dr. Alaa Al-Muhtaseb Dr. Khalid Al-Rawahi Dr. Majid Al-Wadhahi
Timetabling Officer	Dr. Baba Jibril Dr. Rashid Al-Maamari
SCHEME Society	Dr. Adel Al-Ajmi
SPE Society	Dr. Rashid Al-Hajri

## Department of Petroleum and Chemical Engineering

### UNDERGRADUATE STUDIES

#### Courses

Table E3: Courses offered in Fall 2011

Code	Title	Instructor
CHPE2211	Organic Chemistry	Simon Cammevev
CHPE3101	Materials Engineering	Jamil Naser
CHPE3102	Engineering Thermodynamics	Alaa Al-Muhtaseb
CHPE3103	Professional Practice	Baba Jibril
CHPE3112	Principles of Chemical Processes	Jamil Nasser
CHPE3302/10	Fluid Flow	Talal Al-Wahaibi
CHPE3302/20	Fluid Flow	Talal Al-Wahaibi
CHPE3402	Heat Transfer	Abdulaziz Al-Hashmi
CHPE4112/10	Chemical Engineering Thermodynamics	Ghomareza Vakili
CHPE4112/20	Chemical Engineering Thermodynamics	Ghomareza Vakili
CHPE4212/10	Unit Operations I	Rashid Al-Hajri
CHPE4212/20	Unit Operations I	Rashid Al-Hajri
CHPE4302	Desalination	Mohammed Al-Abri
CHPE4312/10	Chemical Engineering Lab I	Mohammed Al-Abri
CHPE4312/20	Chemical Engineering Lab I	Mohammed Al-Abri
CHPE4712/10	Chemical Engineering Lab II	Talal Al-Wahaibi
CHPE4712/20	Chemical Engineering Lab II	Talal Al-Wahaibi
CHPE4812	Special Topics I	Omar Houache
CHPE5112/10	Chemical Process Control	Farouq Mjalli
CHPE5112/20	Chemical Process Control	Farouq Mjalli
CHPE5312	Project I	Abdulaziz Al-Hashmi
CHPE5312	Project I	Alaa Al-Muhtaseb
CHPE5312	Project I	Baba Jibril
CHPE5312	Project I	Baba Jibril
CHPE5312	Project I	Farouq Mjalli
CHPE5312	Project I	Ghomareza Vakili
CHPE5312	Project I	Jamil Naser
CHPE5312/70	Project I	Mohammad Ahmad
CHPE5312/120	Project I	Mohammad Ahmad
CHPE5312	Project I	Mohammed Al-Abri
CHPE5312	Project I	Omar Houache
CHPE5312	Project I	Rashid Al-Hajri
CHPE5312	Project I	Talal Al-Wahaibi
CHPE5412/10	Plan & Process Design	Mohammad Ahmad



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CHPE5412/20	Plan & Process Design	Mohammad Ahmad
CHPE5612	Process Safety	Omar Houache
PETM3006	Engineering Geology	Khalid Al-Rawahi
PNGE3111	Chemistry for Petroleum Engineering	Abdulaziz Al-Hashmi
PNGE3112	Introduction to Petroleum & Natural Gas	Hamoud Al-Hadrami
PNGE3202/10	Numerical Methods	Alaa Al-Muhtaseb
PNGE3202/20	Numerical Methods	Alaa Al-Muhtaseb
PNGE4101	Statistics for Engineers	Adel Al-Ajmi
PNGE4212	Drilling Technology	Hamoud Al-Hadrami
PNGE4312	Drilling Technology Lab	Hamoud Al-Hadrami
PNGE4412	Reservoir Engineering	Rashid Al-Maamari
PNGE5103	Engineering Economy	Ibrahim Garbie
PNGE5112	Production Engineering	Yahya Al-Wahaibi
PNGE5115	Project I	Majid Al-Wadhahi
PNGE5122	Introduction to Rock Mechanics	Adel Al-Ajmi
PNGE5203	Management for PCE	Khalid Al-Rawahi
PNGE5212	Secondary Oil Recovery	Shahab Ayatollahi

Table E4: Courses offered in Spring 2011

Code	Title	Instructor
CHPE2211	Organic Chemistry	Ilham Kirm
CHPE3101	Materials Engineering	Jamil Naser
CHPE3102	Engineering Thermodynamics	Ibrahim Ashour
CHPE3103	Professional Practice	Baba Jibril
CHPE3112	Principles of Chemical Processes	Jamil Naser
CHPE3211/10	Applied Physical Chemistry	Gholamreza Vakili
CHPE3211/20	Applied Physical Chemistry	Gholamreza Vakili
CHPE3212	Chemical Process Industries	Ilham Kirm
CHPE3302/10	Fluid Flow	Tala Al-Wahaibi
CHPE3302/20	Fluid Flow	Tala Al-Wahaibi
CHPE3402	Heat Transfer	Abdulaziz Al-Hashmi
CHPE4102	Polymers	Mahmoud Abdelgoad
CHPE4114/10	Computer Aided Design	Baba Jibril
CHPE4114/20	Computer Aided Design	Baba Jibril
CHPE4402	Natural Gas Process	Ibrahim Ashour
CHPE4412	Process Heat Transfer	Mahmoud Abdelgoad
CHPE4512/10	Chemical Reaction Engineering	Rashi Al-Hajri
CHPE4512/20	Chemical Reaction Engineering	Rashi Al-Hajri

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CHPE4612	Unit Operation II	Ibrahim Ashour
CHPE4612	Unit Operation II	Mohammed Al-Abri
CHPE5207	Petroleum Refining	Abdulaziz Al-Hashmi
CHPE5212/10	Chemical Engineering Lab II	Farouq Mjalli
CHPE5212/20	Chemical Engineering Lab II	Farouq Mjalli
CHPE5512	Project II	Abdulaziz Al-Hashmi
CHPE5512	Project II	Baba Jibril
CHPE5512	Project II	Farouq Mjalli
CHPE5512	Project II	Gholamreza Vakili
CHPE5512	Project II	Ibrahim Ashour
CHPE5512	Project II	Ilham Kirm
CHPE5512	Project II	Jamil Naser
CHPE5512	Project II	Mahmoud Abdelgoad
CHPE5512	Project II	Mohammed Al-Abri
CHPE5512	Project II	Rashid Al-Hajri
CHPE5512	Project II	Talal Al-Wahaibi
PETM3006	Engineering Geology	Said Al-Omairi
PETM3006	Engineering Geology	Khalid Al-Rawahi
PNGE2102	Basic Mechanics	Majid Al-Maharbi
PNGE3202	Numerical Methods	Farouq Mjalli
PNGE3212	Rock & Fluid Properties	Hamoud Al-Hadrami
PNGE4101/10	Statistics of Engineers	Adel Al-Ajmi
PNGE4101/20	Statistics of Engineers	Adel Al-Ajmi
PNGE4512	Formation Evaluation	Hamoud Al-Hadrami
CHPE4612	Well Testing	Rashid Al-Maamari
PNGE4712	Reservoir Simulation	Majid Al-Wadhahi
PNGE5102	Health, Safety & Environment	Mohammed Al-Abri
PNGE5103/10	Engineering Economy	Khalid Al-Rawahi
PNGE5103/20	Engineering Economy	Khalid Al-Rawahi
PNGE5203	Management for PCE	Mansoor Al-Harthy
PNGE5215	Project II	Majid Al-Wadhahi
PNGE5412	Field Processing of Natural Gas	Yahya Al-Wahaibi

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### Employment Status

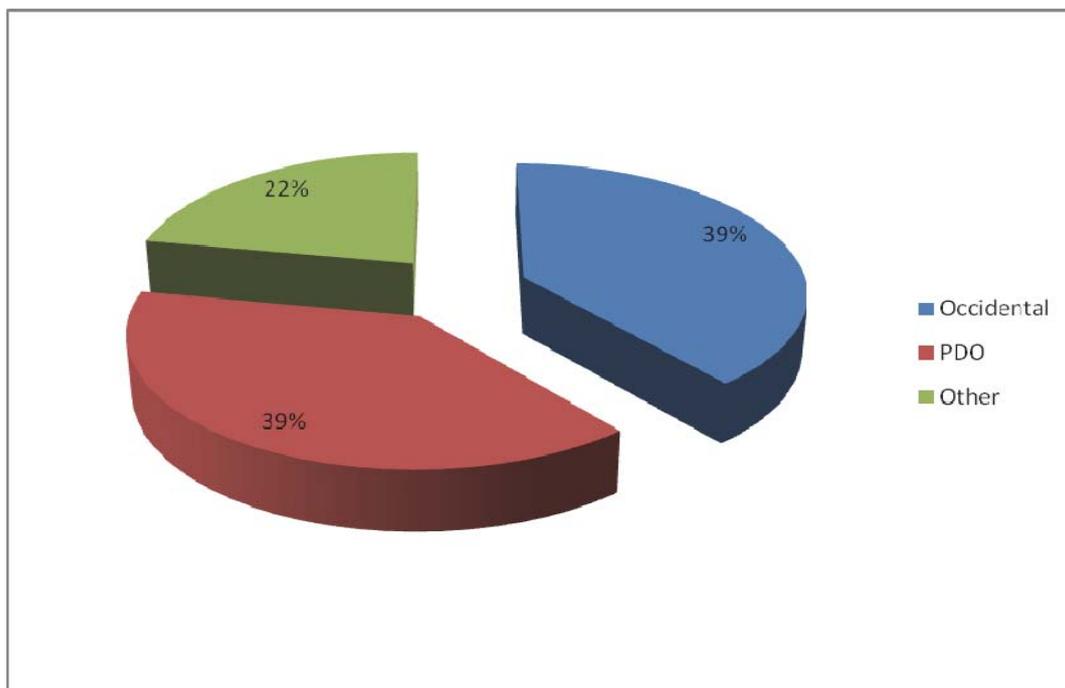


Figure E1: Job placement for the graduates of the last 5 years

## Department of Petroleum and Chemical Engineering

### POSTGRADUATE STUDIES

#### Student Enrolment

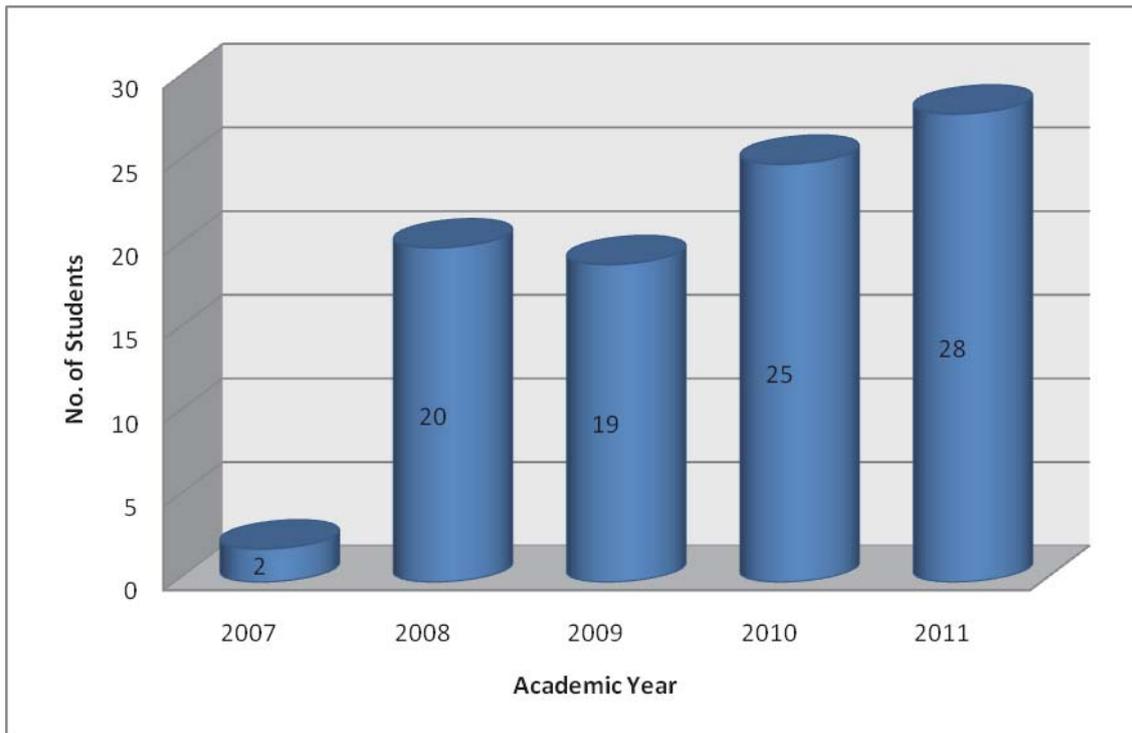


Figure E2: MSc. Students' enrolment for the past five years

#### Courses

Table E5: Postgraduate courses offered in PCE.

Semester	Code	Title	Instructor
Fall 2011	PNGE6001	Transport Process	Shahab Ayatollahi
	PNGE6002	Advanced Reservoir Engineering	Shahab Ayatollahi
	PNGE6103	Applied Reservoir Simulation	Majid Al-Wadhahi
	PNGE7000	Research Project	
	PNGE8001	PhD Thesis	
Spring 2011	PNGE6108	Thermophysical Properties of Oil & Gases	Gholamreza Vakili
	PNGE6900	Special Topics	Mutasem Al-Raisi
	PNGE7000	Research Project	
	PNGE8001	PhD Thesis	



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## M. Sc. Students' Projects

Table E6: Student projects

Project Title	Supervisor	Student Name
Klinkenberg Corrected Gas Permeability Correlation for Shuaiba Formation. "An Experimental Investigation for use in Conventional Core Analysis in Shuaiba Formation"	Rashid Al-Maamari	Reham Al-Jabri
Liquid Permeability Correlation for Shuaiba Formation: "An experimental investigation for predicting liquid permeability from conventional core analysis results in Shuaiba formation."	Rashid Al-Maamari	Iman Al-Balushi
Characterization of Omani Light Oil Using Multiple Wells Fluid PVT Analysis	Dr. Gholamreza Vakili	Aayda Mosoud Al-Kusaibi
Anionic Surfactant (AES7-58) for Enhanced Oil Recovery: A Case Study (Lekhwaier Field)	Dr. Yahya AlWahaibi	Azza Abdullah Al-Kalbani
Improvement of Sweep Efficiency in Steam Flooding Project in Field A in Middle East	Dr. Yahya AlWahaibi	Amer Said Al-Baloushi

## Department of Petroleum and Chemical Engineering

### RESEARCH

#### Grants

Table E7: Internal Grants held by faculty members in year 2011

Research Title	Principal Investigator(s)	Budget (RO)	Funded By
Experimental and Theoretical Investigation of Pressure Drop and Hold-up during Dual Continuous Oil-Water Flows	Dr. Yahya Al-Wahaibi	3,950	SQU
Predictive Model to Predict Oil-Water Flow Characteristics with Polymers	Dr. Talal Al-Wahaibi	3,800	SQU
Comparison of Structural Packing Performance with Sieve Type Trays Columns in Gas Industries	Dr. Farouq Mjalli	3,575	SQU
Study of Asphaltene Precipitation from Omani Crude Oils using SARA Analysis and Modelling	Dr. Abdulaziz Al-Hashmi	3,950	SQU

Table E8: External Grants held by faculty members in year 2011

Research Title	Principal Investigator(s)	Budget (RO)	Funded By
In-situ Analytic Upgrading of Omani Heavy Crude Oil during Steam Injection	Dr. Baba Jibril	132,800	TRC
Areej Vegetable Oils Company Spent Bleaching Earth "Characterization, Oil Recovery/Conversion to Biodiesel and Regeneration"	Dr. Baba Jibril	7,917	IIC
KCL Formation Damage Study	Dr. Hamoud Al-Hadrami	27,690	OOC (EP)
Formation Damage Control & Mitigation Services for MEDCO	Dr. Hamoud Al-Hadrami	51,000	MEDCO
Oman Cables Industry (Investigating Cable Swelling)	Dr. Baba Jibril	800	OCI
Wellbore Damage (skin) Measurements for Occidental Mukhaizna Plugs	Dr. Hamoud Al-Hadrami	1,950	OOI
Formation Damage Services	Dr. Hamoud Al-Hadrami	69,312	PDO



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## Publications

### Refereed Journal Papers

1. Abu-Jrai, A., Yamin, J.A., Al-Muhtaseb, A.H. and Hararah, M.A. 2011. Combustion characteristics and engine emissions of a diesel engine fueled with diesel and treated waste cooking oil blends. *Chemical Engineering Journal*, 172: 129-136.
2. Albadarin, A.B., Al-Muhtaseb, A.H., Al-Iqtaah, N.A., Walker, G.M., Allen, S.J. and Ahmad, N.M. 2011. Biosorption of toxic chromium from aqueous phase by lignin: mechanism, effect of other metal ions and salts. *Chemical Engineering Journal*, 169: 20-30.
3. Albadarin, A.B., Al-Muhtaseb, A.H., Walker, G.M., Allen, S.J. and Ahmad, N.M. 2011. Retention of toxic chromium from aqueous phase by H<sub>3</sub>PO<sub>4</sub>-activated lignin: Effect of salts and desorption studies. *Desalination*, 274: 64-73.
4. Albadarin, A., Mangwandi, C., Walker, G., Allen, S.J. and Ahmad, M.N. 2011. Biosorption Characteristics of Sawdust for the Removal of Cd(II) Ions: Mechanism and Thermodynamic Studies. *Chemical Engineering Transactions*, 24: 1297-1302.
5. Al-Khashman, O.A., Al-Muhtaseb, A.H. and Ibrahim, K.A. 2011. The date palm (phoenix dactylifera L.) leaves as indicator of atmospheric heavy metal pollution in arid environment. *Environmental Pollution*, 159: 1635-1640.
6. Alkindi, A., Al-Wahaibi, Y., and Muggeridge, A. 2011. Experimental and Numerical Investigations into Oil-Drainage Rates during Vapor Extraction of Heavy Oils. *SPE Journal*, 16(2): 343-357.
7. Al-Kindi, A., Al-Wahaibi, Y., Branko B., Muggeridge, A. 2011. Investigation of Longitudinal and Transverse Dispersion in Stable Displacements with a High Viscosity and Density Contrast between the Fluids. *Journal of Contaminant Hydrology*, 120-121: 170-183
8. Al-Maamari, R.S., Hirayama, A., Shiga, T., Sueyoshi, M.N., Al-Shuely, M., Abdalla, O.A. E. and Kacimov, A.R. 2011. Fluids' dynamics in transient air sparging of a heterogeneous unconfined aquifer. *Environmental Earth Sciences*, 63(6): 1189–1198.
9. Al-Muhtaseb, A.H., Altarawneh, M., Almatarneh, M. and Poirier, R.A. 2011. Theoretical Study on the Unimolecular Decomposition of Thiophenol. *Journal of Computational Chemistry*, 32: 2708–2715.
10. Al-Muhtaseb, A.H., Ibrahim, K.A., Albadarin, A.B., Khashman, O.A., Walker, G.M. and Ahmad, N.M. 2011. Remediation of phenol-contaminated water by adsorption using Poly (methyl methacrylate). *Chemical Engineering Journal*, 168: 691-699.
11. Al-Muhtaseb, A.H. and Altarawneh, M. 2011. Theoretical study on thermochemical parameters of chlorinated isomers of acetophenone. *Computational and Theoretical Chemistry*, 966: 38-43.
12. Al-Sulaimani, H., Joshi, S., Al-Wahaibi, Y., Al-Bahry, S., Elshafie, A. and Al-Bemani, A. 2011. Microbial biotechnology for enhancing oil recovery: Current developments and future prospects. *Biotechnology, Bioinformatics and Bioengineering Journal*, 1(2): 147-158.
13. Altarawneh, M., Al-Muhtaseb, A.H., Dlugogorski, B.Z., Kennedy, E.M. and Mackie, J.C. 2011. Rate Constants for Hydrogen Abstraction Reactions by the Hydroperoxyl Radical from Methanol, Ethanol, Acetaldehyde, Toluene, and Phenol. *Journal of Computational Chemistry* 32: 1725-1733.
14. Altarawneh, M., Al-Muhtaseb, A.H., Almatarneh, M., Poirier, R.A., Assaf, N.W. and Altarawneh, K.K. 2011. Theoretical Investigation into Competing Unimolecular Reactions Encountered in the Pyrolysis of Acetamide. *Journal of Physical Chemistry A*, 115: 14092–14099.
15. Al-Wahaibi, T. and Angeli, P. 2011. Experimental study on interfacial waves in stratified horizontal oil-water flow. *International Journal of Multiphase Flow*, 37(8): 930-940.

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16. Al-Wahaibi, Y. and Al-Hadrami, A. 2011. The influence of high permeability lenses on immiscible, first- and multi-contact miscible gas injection. *Journal of Petroleum Science and Engineering*, 77(3-4): 313-325.
17. Al-Wahaibi, Y., Al-Wahaibi, T. and Abdel-Goad, M. 2011. Characterization of pH-sensitive Polymer Microgel Transport in Porous Media for Improving Oil Recovery. *Journal of Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 33(11): 1048-1057.
18. Bakry, A., Al-Salaymeh, A., Al-Muhtaseb, A.H., Abu-Jrai, A. and Trimis, D. 2011. Adiabatic premixed combustion in a gaseous fuel porous inert media under high pressure and temperature: novel flame stabilization technique. *Fuel*, 90: 647-658.
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2. Vakili-Nezhaad, G.R. 2011. Complex Fluid Phase Equilibrium Modeling and Calculations. In: Tadashi, M. (Ed.). *Application of Thermodynamics to Biological and Materials Science*, INTECH International Publishers, pp. 483-512.

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## Department of Petroleum and Chemical Engineering

### OTHER ACTIVITIES

#### Society of Chemical Engineers

1. The 6<sup>th</sup> Chemical Engineering Open Day
2. Special Courses/Workshops
  - a. Hysys Program, 18 July 2011
  - b. Excel Program, 15-29 September 2011
  - c. Photoshop Program, 1-7 August 2011
  - d. Flash Program 2 October – 5 November 2011
3. Challenge of Engineering Competition, 5 October 2011
4. Seminar on Engineering Project Management, 16 November 2011
5. The Chemical Engineering night



#### Society of Petroleum Engineers

1. Engineering induction week
2. Open day For SPE-Members (participant)
3. Week of societies ( participant)
4. Week of specializations
5. Charity party in SQU-H
6. Women if field experience by schlumberger
7. Geology Exhibitions