



ANNUAL REPORT
ACADEMIC YEAR 2010-2011



C. DEPARTMENT OF APPLIED SCIENCE

1. Staff and Staff Development

1.1. Staff Profile (Academic)

NO.	SPECIALIZATION	TOTAL
1	Applied Biology	21
2	Applied Chemistry	27
3	Environmental Science	5
4	Physics (Common)	15
Grand Total		68

1.2. Staff Profile (Technicians)

NO.	SPECIALIZATION	TOTAL
1	Applied Biology	11
2	Applied Chemistry	13
3	Environmental Science	0
4	Physics (Common)	5
Grand Total		29

1.3. Staff Qualifications

DEGREE	NO. OF STAFF (Omanis and non-Omanis)	IN-PROGRESS (OMANI STAFF)
Bachelor	13	
Master	41	
Doctoral	33	2
Others, please specify Diploma	8	

- * For the In-Progress column, specify the Omani staff members sent for further studies
- Suad Soud Al-Kindi (Chemistry)
 - Wafa Mustafa Al-Lawati (Chemistry)



1.4. Staff Development
 (Seminars and Workshops Conducted and Attended by Staff Members)

Applied Biology

NO.	DATE	TOPIC	RESOURCE SPEAKER	DETAILS OF THE SEMINAR
1	18-22 June	Academic Training	Dr. Maher Khodur	<p>Ministry of Manpower-sponsored International Academy, Al-Ghubra</p> <p>A number of knowledge and ideas regarding training and teaching were presented and discussed. The main aim of the workshop was to prepare people with enough work experiences to work as trainers and give them the skills to deliver the knowledge they have with the modern ways of teaching.</p> <p>Different lecture sessions about good planning strategies, methods of delivering and practising of certain topics, how to think in a positive way, how to prepare a good training programme and the characteristics that a good trainer should have were given through with different practical exercises.</p>
2	22 May	International Chemistry year conference	Multiple	<p>IWC-National Committee-sponsored College of Law, Sultan Qaboos University</p> <p>Specific sessions attended:</p> <ol style="list-style-type: none"> 1. History and Arab Contribution in the chemistry 2. Involvement of chemistry in different area in particular in some governmental sectors 3. Approaches toward better way of conducting chemistry in institutes (dry lab instead of wet one)
3	01-02 May 2011	Improving curriculum,	Dr Chada-lavada Prabu	Educational Technology Center-sponsored



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		instruction & work ethics	Mr Diosdado Aler II* Mr Amando Singun ,Jr Dr Maria Elisa Linda T. Cruz Dr Maximo Roger Pua Mr Russel Diona Ms. Faiza Awladthani	MPH, Higher College of Technology Participants: Specific sessions attended: 1. Framework in an Objective and Outcome – based Education system 2. Instructional Design* 3. Writing Instructional Objectives 4. Test Construction 5. Proposed Student – led Tutor Group* 6. Re-Aligning the course Delivery Plan to HCT’s Pedagogical Frame work : A Proposal 7. The Perfect 10 8. Ethics at Workplace and Work values
4	01 May	Pedagogical course goals, objectives and learning outcomes	Dr. Maximo Pua	Applied Biology Section-sponsored M213, Higher College of Technology Review of Bloom’s taxonomy in writing general objectives and specific outcomes. Discussion of action verbs for each level in the cognitive learning taxonomy, which are essential and vital in the preparation of course delivery plan and assessment tools.
5	01 May	Test construction and multiple choice questions	Dr. Maximo Pua	Applied Biology Section-sponsored M213, Higher College of Technology The importance of test construction in the teaching and learning process was discussed. Review of actual experience of staff members in designing test. Introduce the staff to design effective questions, lecturers where taught how to write multiple choice questions.



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

				The lecturers were given a lecture-discussion and workshop on three strategies or approaches in improving teaching and learning.
6	30 April	E-learning orientation	Mr. Indika Fernando	<p>Educational Technology Center-sponsored New Bldg, Higher College of Technology</p> <p>Introduce the staff to the appropriate way of E-learning usage i.e. login procedures, navigating in e-learning Homepage, uploading course materials, creating learning activities (quiz), online submission of assignments, chat and forum and also about security issues.</p>
7	24-26 January 2011	Conference on Education for Sustainable Development in support of Cultural Diversity & Biodiversity	Multiple	<p>The Oman National Commission for Education Culture and Science Al Bustan Palace Hotel</p> <p>A conference to mobilize more international concern of disappearing cultural diversity and biodiversity loss, and increase awareness of its importance and the consequences of its disappearance or loss.</p>
8	16 January	Counseling workshop	Mr .Ehab Al-Haj	<p>MPH, Higher College of Technology</p> <p>Counselling on how to improve personal skills related to career. Criteria to accept employees by the employer. Employment related issues were discussed.</p>
9	18-22 December 2010	Implementing and Organizing National	Multiple (speakers from UN)	<p>Ministry of Foreign Affairs-sponsored Diplomatic Club, Ministry of Foreign Affairs</p>



		Monitoring Program to Monitor Radioactive Substances		A workshop comprised lectures and seminars to discuss the importance of having an authority to monitor the radioactive substances in Oman. These substances can be in the medical field and in the industry, therefore a regulation must be implemented for safe practice.
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Applied Chemistry

NO.	DATE	TOPIC	RESOURCE SPEAKER	DETAILS OF THE SEMINAR
1	January 5, 2011	Constructivism as a paradigm for teaching and learning	Dr. Maximo Pua	A lecture-discussion and workshop on three strategies or approaches in improving teaching and learning
2	May 2-3, 2011	Symposium on Enhancing Technological Education and Providing Quality service: Improving Curriculum, Instruction and Work Ethics		Seminar Workshop on: Framework in an Objective and Outcome – based Education system Instructional Design Writing Instructional Objectives Test Construction Proposed Student – led Tutor Group Re-Aligning the course Delivery Plan to HCT's Pedagogical Frame work : A Proposal The Perfect 10 Ethics at Workplace and Work values
3	30 April	E-learning workshop	Mr. Indika Fernando	Introduce the staff the appropriate way of E-learning usage. Also guide them how to upload assignment ion E-learning portal as well as quiz.
4	Unspecified date	Using the smart board workshop	ETC	Introduce the staff the usage of smart board and for them to be able to use it as a tool for teaching.
5	May 15-19, 2011	Practical Management Skills	Mrs. Fatima Talib	The training focused on four main themes: an overview of management: its principles/operations, its specific



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

				<p>functions, managerial skills, and new trends in management such as 'power' and 'ethics'; leadership was the second theme of the workshop with special focus and emphasis; planning: strategic, operational, and performance indicators was the third theme of the course with comparison between different models and their practicality; personal development and time management was the last theme in the training course.</p> <p>Also we involve in practical exercises on decision making and communication in addition to group discussions and theoretical presentation of latest studies and statistics in leadership and management. The course included international examples and examples from experiences in the gulf-region on management and business leadership in addition to examples and success stories from history especially Islamic history and "sira".</p>
6	May 22, 2011	Chemistry in Our Life (IYC Symposium)	Dr. Mohammed Ali (MAO) Mr. Saleh Zoumat (SMZ)- Speaker	Introducing to staff the importance of Chemistry as part of our daily living.
7	May 23-27, 2011	Analytical Instruments Workshop (local workshop for Chemistry laboratory Technicians)	Mr. Tobias Rempillo, Mr Alexander Lugto and Subramanian Sudalaimuthu	The Post Equipment Operation Workshop was conducted primarily to teach Technical Staff the proper operation of the following analytical equipment: colorimeters, UV-Visible spectrophotometers, flame photometers, polarimeters, Fourier transform infrared spectrophotometer (FTIR), and high performance liquid chromatograph. A secondary objective was to allow the



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

				Technical Staff to gain confidence in the operation of said equipment with minimum supervision. With the knowledge and skills gained, the Staff becomes multifunctional and can be relied upon to effectively discharge Lab Technician's duties and responsibilities when assigned in the Instrumentation Laboratory (M104).
8	January 2011	Microsoft Outlook	Ms. Saba A.J. Sulaiman Ms. Rosa Maria Baesa (RMB)	A workshop in the familiarization of the features of Microsoft Outlook.
9	February 21-25, 2011	First Aid Medic Course	Ms. Saba A.J. Sulaiman (SAS)	A workshop that informs and educate staff on the First Air methods that can be done during cases accidents that First Aid can be used. With special focus on lab accidents.

Environmental Science

NO.	DATE	TOPIC	RESOURCE SPEAKER	DETAILS OF THE SEMINAR
1.	1 st May 2011	Pedagogical Course Goals, Objectives and Learning Outcomes and Test Construction Constructivism as a Paradigm for Teaching and Learning	Dr. Maximo Roger A. Pua	Re-orientation of lecturers on how to write course goals, objectives and learning outcomes which are essential and vital in the preparation of course delivery plan and assessment tools. The lecturers were taught how to write multiple choice questions. The lecturers were given a lecture-discussion and workshop on three strategies or approaches in improving teaching and learning
2	2 – 3 May 2011	Re-aligning the Course Delivery Plan to HCT's Pedagogical	Dr. Maximo Roger A. Pua	A proposal on how the course can be aligned to the pedagogical framework of the college which may help in attaining the vision and mission of the college



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		Framework: A Proposal		
3	11 th – 12 th Oct 201	4 th International conference on Tourism in Destinations	Attended Dr. Afraa	1. Tourism, livelihoods, local economic development and human resources. 2. Responsible tourism in a world of finite resources 3. The responsible tourist 4. Responsible destinations and marketing
4	12/12/2010	Global Warming and Climate Change	Attended Dr. Afraa	A symposium on the Global Warming and Climate Change and issues related therein

Physics Unit

NO.	DATE	TOPIC	RESOURCE SPEAKER	DETAILS OF THE SEMINAR
1	16/5/2011	Visiting Exova LTD. LLC (Muscat, Oman)	Mr Zuhair	To get an idea about the nature of work and to prepare for industrial visits by the student.
2	12/3/2011	Visit to National Biscuits Company, Rusayl	Mr Zuhair	To get a preliminary details of production process that may be useful for the Engineering as well as Science students.
3	2-3 May	Improving Curriculum, Instruction, and Work Ethics		Symposium on Enhancing Technological education and Providing Quality Service
4	9 May	A Brief work-shop on "Operation and Management of E-Learning portal in HCT.	Zuhair A. salmeen	A workshop was conducted for the Physics staff on the way to utilize the most of the portal and how to prepare quizzes and assignments in the HCT's e-learning portal
5	2/5/2011	Improving Curriculum and Educational Frame Work in an	<u>Dr. C. Rama Chandra Prabhu</u>	A workshop aimed to improve curriculum and educational framework.



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		Objective and Outcome based Education System		
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Departmental Level

NO.	DATE	TOPIC	RESOURCE SPEAKER	DETAILS OF THE SEMINAR
	30.04.2011	E-Learning Orientation	Mr. Indika Fernando	Introduce the staff the appropriate way of E-learning usage. Also guide them how to upload assignment on E-learning portal as well as quiz.

1.5. Staff to Student Ratio

SPECIALIZATION	SEMESTER	CERTIFICATE	DIPLOMA	HIGHER DIPLOMA	BACHELOR
Chemistry	First	1:36	1:32	1:27	1:21
	Second	1:30	1:27	1:29	1:23
	Third	1:26	1:16	1:20	1:15
Biology	First	1:27	1:27	1:23	1:19
	Second	1:28	1:25	1:28	1:20
	Third	1:23	1:12	1:16	1:12
Physics (Common)	First	1:27	1:29		
	Second	1:26	1:22		
	Third	1:35	1:13		
TOTAL					

1.6. Number of Active Students

SEMESTER	STUDENTS IN CERTIFICATE	SPECIALIZATION	STUDENT'S PER LEVEL		
			DIPLOMA	HIGHER DIPLOMA	BACHELOR OR
First	196	Chemistry	126	98	63
			106	123	56
Second	187	TOTAL	99	115	45
			331	336	164
Third	164	Biology	62	50	30
			57	59	39
TOTAL		TOTAL	51	61	35
			170	170	104



2. Student and Student Activities

Student Profile

SPECIALIZATION	SEMESTER	Dismissal	Probation	OJT	Graduation	Total
Applied Biology	First	0	4	5	17	
	Second	2	17	17	7	
	Third	..**	12	7	16*	
Total		2*	33	29	40*	
Applied Chemistry	First	1	10	26	28	
	Second	5	24	53	21	
	Third	..**	29	26	40*	
Total		6*	63	105	89*	
Grand Total		8*	99	134	129*	

SPECIALIZATION	SEMESTER	Dismissal	Probation	OJT	Graduation	Total
Certificate	First	17	55	-	1	
	Second	5	33		-	
	Third	..**	41		1	
Total		22	129		2	
Applied Biology	First	0	4	5	17	
	Second	2	17	17	7	
	Third	..**	12	7	16*	
Total		2*	33	29	40*	
Applied Chemistry	First	1	10	26	28	
	Second	5	24	53	21	
	Third	..**	29	26	40*	
Total		6*	63	105	89*	
Grand Total		25*	225	134	131*	

* The number of students will increase/change by the end of sem-III, 2010-2011

** The number of dismissals in sem-III, 2010-2011 will be known only after the announcement of results.



Student Activities (Workshops, Seminars, Competitions, Open Day, Industry Visits, etc.)

Departmental Level

NO.	DATE	ACTIVITY	DETAILS OF THE ACTIVITY
1	15.11.2010	Physics Open Day in SQU	Students of Science Club participated in the open days with their projects
2	13.12.2011	Global Warming Symposium	4 lecturers, from SQU, Environment Society of Oman and HCT presented lectures on global warming to students and staff
3	13.02.2011	OMC open day	Students of Science Club participated in the open days with their projects
4	13.06.2011	Ceremony	Certificates distribution to Science Club members
5	Throughout the year	Meeting with school students	Students from schools come to visit the science club and discuss ideas on running activities,

Applied Biology

NO.	DATE	ACTIVITY	DETAILS OF THE ACTIVITY
1	22/06/2011	Visit to Biotechnology Research Laboratory, Rumais	<p>Introduce the students into Biotechnology lab and how it is look like in reality. Furthermore, give them a tour around the research laboratory. The research laboratory contains of four rooms namely; extraction room, Gel electrophoresis room, PCR room and sequencing room.</p> <p>Indeed, expose the students to the main differences between the used methods in DNA extraction in their practical and Qiagen extraction kit. Each student has been provided with extraction guideline from Qiagen kit.</p> <p>Few questions have been raised by students such why the extraction in research mainly from leave instead of fruits and why liquid N2 is used as a part of process. Of course, all the questions have been answered.</p> <p>Since HCT lab is not facilitated with gel documentation, an illustration of visualizing the DNA by such device.</p> <p>Lastly but not least, the students have exposed to most used instrument including automated micropipette and by now the students have an idea how biotechnology major is applied in our research in Oman.</p>
2	18/6/2011	Visit to Al-Jazera Plastic	For testing Bio-plastic efficiency and prepare plastic bags. Two project IIB students had joined this trip



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		Company, Nizwa	
3	15/6/2011	Visit to Centre for Agriculture and Livestock Research, Bahla.	The B.Tech students for the course Plant Biotechnology & pathology visited the Date Palm tissue culture laboratory. The students were exposed to Plant tissue culture lab organization, various techniques of plant tissue culture like Sterilization techniques, plant tissue culture media preparation, preparation of explants, sub culturing, inoculation of explants, Factors affecting plant in-vitro. They also had an insight observation of <i>in-vitro</i> grown plants in culture room, acclimatization process, and green house conditions for <i>in-vitro</i> grown plants.
4	8/6/2011	Visit to Sur Hospital	For health information on prevalence of Iron-deficiency Anemia (IDA) in the Sultanate of Oman. Students get help for their objective
5	4/6/2010	Visit to Quality Assurance Center/Ministry of Fishery	For analysis of smoke-liberated mercury. This was a mission to 3 students for two programs of project IIB
6	30/3/2011	Visit to laboratory of Chemical Analysis in Oil Refinery Company, Muscat	Exposing the students for chemical analysis of biofuel
7	21/03/2011	Polymerase Chain Reaction	Students are exposed to the applications of PCR in the Biotechnology Laboratories of SQU
8	14/3/2011	Visit to Centre for Agriculture and Livestock Research, Bahla	The B.Tech students for the course Plant Biotechnology & pathology visited the Date Palm tissue culture laboratory, Pathology laboratory and Entomology laboratory. a. The students were exposed to Plant tissue culture lab organization and various techniques of plant tissue culture b. Collected certain specimens from Entomology lab., and had a informative discussion about the Date palm pathogen Dubas insect. c. At pathology lab they observed various plant pathogens and identified certain pathogen and were exposed to isolation of plant pathogen procedures.
9	9/3/2011	College of Agriculture and Marine Sciences, Sultan Qaboos University	Familiarize our students with the techniques, procedures, researches and instruments involved therein.



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

10	2/3/2011	Agricultural and Animal Research Center, Ministry of Agriculture, Rumais	Familiarize our students with the instruments and researches involved in different departments in the center. Researches involved: a. Nutrition and food (they followed the steps of research on vitamin C determination in dates.) b. Soil researches c. Molecular Biology
11	9/11/2010	Visit to the Al-Khadra Plastic Company, Al-Swaiq.	For introducing students on plastic recycling, food contamination during processing, especially poultry, because the company does have a poultry farms and slaughter house. No. of students were 14 male and female in the course of Pollution and its control
12	12/10/2010	Gulf Mushroom, Barka	Familiarize our students with the procedure of bed preparation, cultivation, harvesting, and marketing of mushroom.

Applied Chemistry

NO.	DATE	ACTIVITY	DETAILS OF THE ACTIVITY
No Industrial visits were conducted within the academic year 2010-2011 for the following reasons:			
<ol style="list-style-type: none"> 1. Due to the many holidays in semester 1. 2. Because of the large number of students (e.g. about 90 students in 3 sections of QA and QC) in semester 2. 			
Time constraint.			

Physics Unit

NO.	DATE	ACTIVITY	DETAILS OF THE ACTIVITY
1	16/5/2011	Visiting Exova LTD. LLC (Muscat, Oman)	To get an idea about the nature of work and to prepare for industrial visits by the student.
2	12/3/2011	Visit to National Biscuits Company, Rusayl	To get a preliminary details of production process that may be useful for the Engineering as well as Science students.

3. Programs

The Applied Sciences department is currently running three programs; Applied Biology and Applied Chemistry. There is an aim to run three new programs; Environmental Sciences, Biotechnology and Industrial hygienist and health/safety environment.



Applied Biology (Biotechnology) Specialization

Applied Biology is taught as a specialization offering three qualifications, diploma, higher diploma and B-Tech. A market study conducted in 2008 revealed that this program should offer more courses that relate to restoration and preservation, production and manufacturing of biological components and food technology. For this reason, the section has been actively engaged in designing a whole new program entitled “Biotechnology” to suit the market needs in order to prepare Oman in the future should the oil revenues decrease or run out completely. The study is expected to complete within a few months and submitted to the board of trustees by the end of 2011. The human and physical resources are currently available to run this program. Once it is approved and running, the “Applied Biology” program will be phased out gradually. It is worth noting here that LNG (Liquefied Nitrogen Gas) has donated funds for the purchase of equipment to support the “Biotechnology” program which are expected to arrive within the next few months (Tender 61/2010). The Ministry has also floated Tender 3/2011 to renovate a biology/chemistry laboratory specifically for student’s biotechnology projects.

Applied Chemistry Specialization

Applied Chemistry is taught as a specialization offering three qualifications, diploma, higher diploma and B-Tech. This specialization is well equipped and designed to meet the ongoing market needs, however, there is more room for improvement. Students especially males have a 100% record of obtaining jobs.

It is worth noting here that LNG has donated funds for the purchase of equipment to support students projects which are expected to arrive within the next few months (Tender 63/2010). The Ministry has also floated Tender 3/2011 to renovate a biology/chemistry laboratory specifically for student’s projects.

Environmental Sciences Specialization

This specialization is expected to run as soon as the laboratories and equipment are available. It will be taught as a specialization offering three qualifications, diploma, higher diploma and B-Tech. The program was set by experts representing Oman’s top Industries expected to provide jobs for many graduates. It is worth noting here that LNG has donated funds for the purchase of equipment to support students projects which are expected to arrive within the next few months (Tender 60/2010). The Ministry has also floated Tender 3/2011 to renovate an Environmental students and instrumentation laboratories specifically to cater for this program.

Industrial Hygiene/Health and Safety Environment Specialization

The above program has been approved by the Board of Trustees in 2010 to be implemented as a separate section entitled “IHSE”. This program is expected to offer the following qualifications: Diploma in Safety to produce Safety Technicians; Bachelor’s Degree in Industrial Hygienist and Bachelor’s degree in Health, Safety and Environment. It is also expected to offer 3000 jobs for male graduates as per the results of the market survey conducted in 2009. This program is expected to run in January 2012 if the appropriate human and physical resources are provided before January 2013.



Laboratory Schools Specialization

This specialization is catered for the needs of the Ministry of Education to graduate school laboratory technicians serving schools all over Oman. The specialization offers a Diploma qualification. It offers courses such as biology, chemistry, physics and lab safety. The students also as part of their graduation requirement have to undergo training in schools. This is the only current specialization in the department that enrolls one intake of students per year compared to the other specializations which enroll two intakes of students per year.

Physics Unit

Physics is not offered as a specialization to science students. It is run as a program consisting of basic physics courses to cater for the needs of the current specializations such as biology, chemistry and environmental sciences. It also serves the Engineering department for their students in the first year. Recently, the Ministry has floated Tender 39/2011 for the purchase of equipment and Tender 40/2011 for the renovation of its laboratories in order to develop the unit.

4. Physical Resources

Current Resources (laboratories, preparation rooms and stores)

Biology Laboratory 1	M303	Chemistry Laboratory –NL1	144
Biology Preparation Room	M304	Chemistry Preparation Room	143
Biology Laboratory 2	M305	Chemistry Laboratory –NL2	142
Microbiology Laboratory	M102	Physics Store	M205
Biology Store	M301	Physics Laboratory 1	M206
Chemistry Laboratory 1	M106	Physics Preparation Room	M208
Chemistry Preparation Room	M107	Physics Laboratory 2	M209
Chemistry Laboratory 2	M108	Book Store	141
Analytical Laboratory	M104	Chemical store	C102

Staff Rooms

S.No	Room Number	Room Occupant	Room Size	Number of Staff Occupying
1	M215	Head of Department	Large	2
2	M217	Lecturers	Large	8
3	M115	Lecturers	Medium	6
4	M116/M117	Lecturers	Large	8
5	M118	Lecturers	Large	8
6	M119	Examination Committee	Medium	6
7	M241	Head of Section - Chemistry	Small	2
8	M242	Head of Section - Biology	Small	2
9	M247	Head of Section - Envi Sci	Small	1
10	M202	Unit Coordinator - Physics	Small	2
11	M203	Technicians	Small	3



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

12	M313	Lecturer	Medium	4
13	M149	OJT/EPT Coordinators	Small	2
14	M151	Lecturers	Large	11
15	M136	Registrar/Timetable Coordinators	Large	5
16	M137	Asst Lecturers	Large	3
17	M135	Technician Rooms	Large	8 at a time

Equipment Received 2010-2011

Applied Biology

NO.	DATE RECEIVED	DESCRIPTION	COMMENTS
1	27.10.11	Electronic stethoscope	In working condition
2	27.10.11	Hematocrit centrifuge with reader	In working condition
3	27.10.11	Digital oral thermometer	In working condition
4	27.10.11	Fat-o-meter	In working condition
5	27.10.11	Reaction timer	In working condition
6	27.10.11	Blood glucose meter	In working condition
7	27.10.11	Spirometer	In working condition
8	27.10.11	Otoscope set	In working condition
9	27.10.11	Ophthalmoscope set	In working condition
10	27.10.11	Tuning fork set	In working condition
11	27.10.11	Touch-test two-point discriminator	In working condition
12	27.10.11	Urinometer	In working condition
13	27.10.11	Extraction apparatus set up	In working condition

Applied Chemistry

NO.	DATE RECEIVED	DESCRIPTION	COMMENTS
1	31/10/2010	Melting point apparatus, Stuart Model SMP-10	In working condition; stationed in Block C
2	31/10/2010	Conductivity meter, Mettler Toledo Model EL 30	In working condition; stationed in Block B
3	31/10/2010	Laboratory Trolley	In working condition; two units stationed in Block B; one unit in Block A.



Equipment Expected to Receive

Applied Biology

NO.	DATE EXPECTED TO RECEIVE	DESCRIPTION	COMMENTS
1	AY 11/12	Incubator shaker	From LNG
2	AY 11/12	Vortex	From LNG
3	AY 11/12	Hot plate (magnetic stirrer)	From LNG
4	AY 11/12	pH meter	From LNG
5	AY 11/12	Hybridization oven	From LNG
6	AY 11/12	Thermal cycler	From LNG
7	AY 11/12	Classic thermal cycler	From LNG
8	AY 11/12	Micropipettes	From LNG
9	AY 11/12	Transilluminator UV light	From LNG
10	AY 11/12	Microcentrifuge	From LNG
11	AY 11/12	Centrifuge with cooling system	From LNG
12	AY 11/12	Mini-bio-rad cell for electrophoresis	From LNG
13	AY 11/12	Wide-bio-rad cell for electrophoresis	From LNG
14	AY 11/12	Haematology analyzer	From LNG
15	AY 11/12	CO2-incubator	From LNG
16	AY 11/12	Microplate reader	From LNG
17	AY 11/12	Microplate shaker	From LNG
18	AY 11/12	Ultrasonic processor for low-medium applications with accessories	From LNG
19	AY 11/12	Filtration system	From LNG
20	AY 11/12	Kjeldahl digestion system	From LNG
21	AY 11/12	Kjeldahl distillation unit	From LNG
22	AY 11/12	Rotary evaporator	From LNG
23	AY 11/12	Analytical standard weight balance	From LNG
24	AY 11/12	Protein/nucleic acid blotting with accessories	From LNG
25	AY 11/12	Plant growth chamber	From LNG
26	AY 11/12	Extraction apparatus	From LNG
27	AY 11/12	Carbon dioxide monitor	From LNG

Applied Chemistry

NO.	DATE EXPECTED TO RECEIVE	DESCRIPTION	COMMENTS
1	31/12/2011	Blender - 2 units	AY2011-2012 sectional budget item
2	31/12/2011	Blower, Hot air- 2 units	AY2011-2012 sectional budget item
3	31/12/2011	BOD incubator	AY2011-2012 sectional budget item



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

4	31/12/2011	Calorimetric thermometer	AY2011-2012 sectional budget item
5	31/12/2011	Centrifuge, benchtop	AY2011-2012 sectional budget item
6	31/12/2011	Colorimeter, digital- 8 units	AY2011-2012 sectional budget item
7	31/12/2011	Desktop PC system- 5 units	AY2011-2012 sectional budget item
8	31/12/2011	Digital ultrasonic cleaning bath	AY2011-2012 sectional budget item
9	31/12/2011	Ducted chemical storage cabinet	AY2011-2012 sectional budget item
10	31/12/2011	Ductless chemical storage cabinet- 4 units	AY2011-2012 sectional budget item
11	31/12/2011	Heating mantle, 250 ml- 10 units	AY2011-2012 sectional budget item
12	31/12/2011	Laboratory oven	AY2011-2012 sectional budget item
13	31/12/2011	Melting point apparatus, digital- 5 units	AY2011-2012 sectional budget item
14	31/12/2011	Microwave digestion system	AY2011-2012 sectional budget item
15	31/12/2011	Photocopying machine	AY2011-2012 sectional budget item
16	31/12/2011	Printer, dot matrix, 80 column- 3 units	AY2011-2012 sectional budget item
17	31/12/2011	Printer for PC system- 5 units	AY2011-2012 sectional budget item
18	31/12/2011	Syringe cleaner, heated	AY2011-2012 sectional budget item
19	31/12/2011	Ultrapure water system	AY2011-2012 sectional budget item
20	31/12/2011	Vacuum pump FTIR	AY2011-2012 sectional budget item
21	31/12/2011	Water bath, boiling, regulated, 6 holes- 4 units	AY2011-2012 sectional budget item

Environmental Science

NO.	DATE EXPECTED TO RECEIVE	DESCRIPTION	COMMENTS
1	Summer 2011	One (1) Gas Chromatography-Mass Spectrometer	Review of bids (Tender 60-2010) has been done by a committee convened by the HoD of DAS. Results of review have been submitted.
2	Summer 2011	One (1) Atomic Absorption	Same as above



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		Spectrophotometer	
3	Summer 2011	One (1) UV-Vis Spectrophotometer	Same as above
4	Summer 2011	One (1) High Performance Liquid Chromatography	Same as above
5	Summer 2011	Three (3) Oxygen Meter	Same as above
6	Summer 2011	Two (2) pH Meter	Same as above
7	Summer 2011	One (1) BOD Testing Apparatus	Same as above
8	Summer 2011	One (1) One (1) PC Compact COD	Same as above
9	Summer 2011	Three (3) Salinity Meter	Same as above
10	Summer 2011	One (1) Digital Sound Level Meter	Same as above
11	Summer 2011	One (1) Automatic Flow Control Hi Vol Air Sampler	Same as above
12	Summer 2011	Two (2) Analytical Balance	Same as above
13	Summer 2011	Three (3) Hygrometer	Same as above
14	Summer 2011	Two (2) Soil Test Kit	Same as above
15	Summer 2011	Three (3) Plankton Collection Net	Same as above
16	Summer 2011	Three (3) Pocket Weather Tracker	Same as above
17	Summer 2011	Two (2) Light Meter	Same as above
18	Summer 2011	Five (5) Compass barometer	Same as above
19	Summer 2011	One (1) Drying and Sterilizing Oven	Same as above
20	Summer 2011	One (1) Fume hood Cover	Same as above
21	Summer 2011	Five (5) Sedgewick Rafter Slide and Whipple Grid	Same as above
22	Summer 2011	Three (3) Square Grid Quadrant	Same as above
23	Summer 2011	One (1) Total Organic Carbon Testing Apparatus	Same as above
24	Summer 2011	One (1) Turbidity Meter	Same as above
25	Summer 2011	Five (5) Transect Line	Same as above
26	Summer 2011	Three (3) Thermometer	Same as above
27	Summer 2011	Two (2) Flow Meter	Same as above
28	Summer 2011	One (1) Epifluorescent Microscope	Same as above
29	Summer 2011	One (1) CO Detector	Same as above
30	Summer 2011	One (1) Distillation Apparatus	Same as above
31	Summer 2011	One (1) Refrigerator	Same as above
32	Summer 2011	Three (3) Compound Microscope	Same as above
33	Summer 2011	One (1) Deionizer	Same as above

Physics Unit

NO.	DATE EXPECTED TO RECEIVE	DESCRIPTION	COMMENTS
1-	Jan 2012	Laboratories renovations and supply of equipment to perform the following experiments. Mechanics: · Hooke's Law · Newton's Laws of Motion	Included in Tenders 39 /2011 & 40/2011for Laboratories renovations and supply of equipment



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		<ul style="list-style-type: none"> · Friction · Centripetal Force · Pendulum · Projectile Motion · Conservation of Momentum · Impulse · Archimedes Principle · Rotational Inertia · Conservation of Angular Momentum · Universal Gravitational Constant · Harmonic Oscillation · Conservation of Energy · Materials Stress-Strain 	
2-		Thermodynamics <ul style="list-style-type: none"> · Ideal Gas Law · Electrical Equivalent of Heat · Heat Engine Cycle · Blackbody Radiation 	Included in Tenders 39 /2011 & 40/2011for Laboratories renovations and supply of equipment
3-		Waves, Light and Optics <ul style="list-style-type: none"> · Waves · Vibrating String, standing waves · Polarization of Light, polarimeter · Interference and Diffraction of Light · Atomic Spectra · Refractive index by prism 	Included in Tenders 39 /2011 & 40/2011for Laboratories renovations and supply of equipment
4-		Electricity and Magnetism <ul style="list-style-type: none"> · Resistivity · Ohm's Law · LRC Circuits · LRC Resonance · Faraday's Law · Charge of an Electron · Magnetic Force on Wires · Magnetic Fields of Coils · Earth's Magnetic Field · Speed of Light · Coulombs Law · Hall Effect 	Included in Tenders 39 /2011 & 40/2011for Laboratories renovations and supply of equipment
5-		Modern Physics <ul style="list-style-type: none"> · Measurement of Alpha, Beta, & Gamma Rays Emissions · Measurement of Half-life · Compton Scattering · X-ray Fluorescence 	Included in Tenders 39 /2011 & 40/2011for Laboratories renovations and supply of equipment



5. Main Challenges

AREA	MAIN CHALLENGES	SUGGESTIONS FOR IMPROVEMENT
Applied Biology	Number of semesters in one academic year	Having three short semesters causes various problems, instead two long semesters (cancelling of semester 3) will allow delivery and covering the modules according to the plans.
	Lecturers (Advisors) involved during student's registration of subjects.	Many times the advisor ends up registering the advisee in various subjects because of internet related problems. Proper coordination and better communication are needed.
	Laboratories	<ul style="list-style-type: none"> a. The laboratories benches and cupboards need renovation, they are becoming very old. b. Separation and construction of a new laboratory for project courses to minimize interference with the normal classes during the day.
	Laboratory supplies and equipment	<ul style="list-style-type: none"> a. Optimizing requisition system in order that certain consumables are available when need. b. Collaboration or official tie-up with SQU or other colleges and universities for the use of their facilities. c. Prioritize budget allocation for expensive equipments. d. Designation of teaching staff to verify equipment conditions and needs
	Text books	Students should be encouraged to use text books and not to depend on handouts. Currently we can not depend fully on the library, so at least we should give text books to the students for each subject.
	Office Supplies and Equipment	Prioritize certain office supplies



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		<p>such as LCDs and other instructional aids.</p> <p>Prioritize request for office furniture such as file cabinets especially for new staff.</p> <p>Increase budget for office supplies and equipment that have a high demand e.g. stationery, writing materials, etc.</p>
	Library sources	<p>a. Request for more Applied Biology and Biotechnology references and journals.</p> <p>b. Request for subscription to online references.</p>
	Self making and marking of papers	Centralised examination system
	<p>The section in the current days is developing a Biotechnology in several fields including genetic engineering, tissue culturing of various products such as culturing of date palms in a test tubes; Production of biogas, bio-fuel, Food Technology, Algal Biotechnology, etc.</p> <p>The challenges involve different biological options so as to obtain a large scale of high quality for the different commercial products that might meet the need of Omani market, in order to contribute in development of Oman economy, that intersect and crisscross with main goals, objectives, MISSION and VISSION of the HCT.</p>	<p>a. To improve the suggestions and the challenges, we need proper plan and standard rules and administrators to organize and apply all the plans.</p> <p>b. We need advanced facilities and equipment in standard laboratories.</p> <p>c. We need real practice of team work (members of one family); by furnishing some sort of communication based on love and respect of all members, stretching of stronger hands to help the weak link, space for recreation and motivation.</p> <p>d. We need human resources who believe in deeds more than words, multidisciplinary thinkers, characterized by ethics, sincerity, honesty, and integrity and sacrificial.</p> <p>e. One of the main requirements is to provide the Department/section with updated library having recent books, regular periodical journals and recent publications.</p> <p>f. We need suitable environment for the staff, other workers, as well for students; continuous</p>



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

		tension and pressure and work under fearful definitely does NOT enhance the yield and reduce the level of the performance.
	Maintenance of files (electronic and printed) for each programme e.g. New programme, Lab Schools.	Improve policy and system for regular updating of files, whether centralized or individually.
	Maintenance of Drosophila mutant cultures and other microbial culture during summer.	Delegation of a technician that will maintain cultures during the long staff break
	Condition of the animal house	<ol style="list-style-type: none"> a. Keep one lecturer in charge of animal house. b. Separate Poultry from Animal house. We can have fertilized chicken eggs for embryo cultures. c. Propose a construction of an appropriately designed animal house and laboratory.
	Slow learners and repeaters	<ol style="list-style-type: none"> a. Need to have extra classes or special classes to concentrate on slow learners. b. Proposed Student – led Tutor Group
	Lack of Biotechnology Laboratory. Currently biotechnology practical is running in microbiology lab which is a very crude method.	Propose construction of a stand-alone biotechnology laboratory.
	Maintenance of files (electronic and printed) for each programme e.g. New programme, Lab Schools.	Improve policy and system for regular updating of files, whether centralized or individually.
	Maintenance of Drosophila mutant cultures and other microbial culture during summer.	Delegation of a technician that will maintain cultures during the long staff break
	Condition of the animal house	<ul style="list-style-type: none"> • Keep one lecturer in charge of animal house. • Separate Poultry from Animal house. We can have fertilized chicken eggs for embryo cultures. • Propose a construction of an appropriately designed animal house and laboratory.



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

AREA	MAIN CHALLENGES	SUGGESTIONS FOR IMPROVEMENT
Applied Chemistry	Not enough labs	More labs (some are already in the pipeline)
	Not enough equipment	Some equipments already ordered; Official tie-up with SQU or other labs/ ministry for use of facilities (already done in a limited way by individual staff)
	Delay in acquiring chemicals	Streamlining of procedures for procurement of chemicals
	Poor quality of material in the library (especially research-oriented) and lack of databases	Official tie-up with SQU or other libraries
	Not enough time to cover all outcomes	Increase semester length by removing summer semester
	Frequent changes in academic rules	More time for implementation of new rules; Prompt modification of by-laws
	Poor student-teacher ratio	Employ more qualified staff and offer better financial packages
	Too much work pressure for staff and students (short semester/ too many exams); Not enough avenues for enjoyment (for staff as well as students)	Entertainment centre or recreation room for students (and staff)
	Not enough spaces in the college for relaxation (for students and staff); Inculcating habit of reading and self-study form material other than handouts.	Setting up a reading room for students

AREA	MAIN CHALLENGES	SUGGESTIONS FOR IMPROVEMENT
Physics	The Physics Units provides services to both Science and Engineering departments. It accommodates more than 700 students in each semester. As it is known all physics subjects must have practical sessions, and the unit has only two laboratories that can accommodate a total of 40 students in each session.	Due to what is mentioned a minimum of on extra laboratory is required in addition to the two existing ones.
	Almost all the equipments in the	A new set of modern equipments



HIGHER COLLEGE OF TECHNOLOGY
ANNUAL REPORT
ACADEMIC YEAR 2010-2011

	laboratories are more than 15 years old.	are required to update the physics laboratories to be inline with and satisfy the new developments in the various fields in the Industrial Sectors.
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AREA	MAIN CHALLENGES	SUGGESTIONS FOR IMPROVEMENT
Environmental Sciences	<p><u>Physical Resources:</u></p> <ul style="list-style-type: none"> • Construction of laboratories for the practical aspects of teaching and learning • Acquisition of fixtures, materials, chemicals and equipment that are essential in running the laboratories <p><u>Curriculum and Instruction:</u></p> <ul style="list-style-type: none"> • Design, Development, Review and Approval of the Program Curriculum • Design, Development and preparation of instructional / teaching materials and students' handouts <p><u>Human Resources:</u></p> <ul style="list-style-type: none"> • Recruitment of qualified laboratory technician • Recruitment of additional and qualified teaching staff 	<p>Inclusion in the fiscal budget for physical-resource improvement of the College by the Ministry of Manpower and approval of its implementation</p> <p>Prioritization in the list of items for deliberation and approval by the Office of the Director General of Occupational Standards and Curriculum Development of the Ministry of Manpower, of the review and approval of the program curriculum</p> <p>Time allotted for the preparation of the teaching and students' materials by the lecturers should be included in the official timetable of the lecturers.</p> <p>Active involvement of the HoS of the section and or her qualified representatives in the review of applicants' curriculum vitae, interview, deliberation and final approval of the hiring of staff.</p>