

<b>ARCH 2100</b>	<b>VISUAL COMMUNICATION I</b>	<b>3 Credit Hours</b>
<b>Prerequisites</b>	<b>MATH 1100</b>	
<b>Goal</b>	To introduce the student to the basic drawing principles and techniques	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Be acquainted with the process of drawing as a means of communication and to graphic vocabulary techniques.</li> <li>2. Be able to express ideas through freehand drawings.</li> <li>3. Be familiar with orthographic drawings.</li> <li>4. Be familiar with paraline drawings.</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the use of drawing as a means of communicating ideas using graphic vocabulary.</li> <li>2. Produce freehand drawings with simple tools to express visual thoughts and perceptions.</li> <li>3. Describe the basic principles of orthographic drawing and paraline drawings.</li> <li>4. Use presentation rendering techniques: color pencils, markers, mixed media, and transfers.</li> </ol>	



<b>ARCH 2110</b>	<b>ARCHITECTURAL WORKSHOP</b>	<b>3 Credit Hours</b>
<b>Prerequisites</b>	<b>NONE</b>	
<b>Goal</b>	To introduce the student to practice on real and abstract models made of various model materials	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Understand the workshop tools and equipments useful for model making.</li> <li>2. Develop basic hand skills in model making.</li> <li>3. Develop details and simple models of selected elements of components of a building.</li> <li>4. Develop and train to make models of simple buildings and structure, which they design in their exercises.</li> </ol>	<p>The students should be able to :</p> <ol style="list-style-type: none"> <li>1. Use of hand tools and materials in carpentry, masonry and model making. Making mount board mobiles employing cubes, square pyramid, cylinder and cones.</li> <li>2. Produce space frame models using match sticks straw, steel wires, bamboo splits.</li> <li>3. Bring Texture applicability to murals and interior decoration.</li> <li>4. Produce elementary models indicating wall surfaces floral designs, ceilings, glass areas, lawn water, bodies, etc.</li> <li>5. Develop block models of small campuses using wood, thermacol mount board, soap, cork board, etc.</li> <li>6. Develop detailed model of a small building like branch bank / small residences / bus shelter / snack bar including landscape details.</li> </ol>	



<b>ARCH 2130</b>	<b>ARCHITECTURE AND SOCIETY</b>	<b>3 Credit Hours</b>
<b>Prerequisites</b>	<b>NONE</b>	
<b>Goal</b>	To explore the relationship between architecture and architectural design and society and how they are influenced by each other.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Establish a perspective of the role and influence of architecture in society and vice –versa other disciplines in the arts and science.</li> <li>2. Develop an understanding of how architecture is shaped by and reflects cultural values and social organization.</li> <li>3. Present a broad picture of issues and factors which influence architectural design.</li> <li>4. Begin an acquaintance with the history and development of architecture.</li> </ol>	<p>The students should be able to :</p> <ol style="list-style-type: none"> <li>1. Identify and describe the role and influence of architecture in society.</li> <li>2. Explain the role and influence of architecture in other disciplines in the arts and science.</li> <li>3. Describe the relationship between architecture and cultural values and social organization.</li> <li>4. Discuss some broad issues and factors which influence architectural design.</li> <li>5. Present an elementary description of the history and development of architecture.</li> </ol>	



<b>CECE 2110</b>	<b>Applied Mechanics</b>	<b>3 Credit Hours</b>
<b>Prerequisites:</b>	<b>PHYS 1200</b>	
<b>Goal</b>	To equip the student with an in-depth understanding of the principles of statics and dynamics and to provide him/her with the foundation necessary for other engineering courses.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Provide a thorough understanding of the basic principles of the equilibrium of rigid bodies and its importance for the design and analysis of structures</li> <li>2. Provide a basic understanding of the structural responses of various simple structures subject to static loads including trusses, frames, machines and beams</li> <li>3. Provide the basis for an understanding of the internal forces developing in statically loaded simple structures and their relevance to the integrity and soundness of such structures</li> <li>4. Assist students in gaining understanding of principles of motion of particles and bodies</li> <li>5. Train students to identify, formulate, and solve models in engineering design setting</li> <li>6. Help students understand the importance of verification and validation of engineering computations through simple analytical models</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Apply Newton's Laws and mathematic principles to solve static problems</li> <li>2. Calculate the forces acting on bodies by using equilibrium conditions</li> <li>3. Determine the stress, strain and the deformation due to loads which act on bodies</li> <li>4. Calculate the second moment of area, flexural stresses, and deflection of beams</li> <li>5. Calculate the internal and external forces for a body</li> <li>6. Resolve forces into their components and find the resultant of several forces</li> <li>7. Resolve a system of forces into an equivalent force-couple system or an equivalent single force</li> <li>8. Calculate torsional forces on bodies</li> <li>9. Statically analyze frames, trusses and machines</li> <li>10. Apply the principles of Newtonian and Eulerian models of motion of particles and rigid bodies</li> <li>11. Identify appropriate model abstractions and formulate mathematical models, including selection of motion parameters and constraints</li> <li>12. Select appropriate methods to solve models</li> </ol>	



**ACT**  
**English Language Center**  
**Course Outline**  
**Technical Communication (ENGL 2100)**  
**Credit Hours 3**  
**Lecture Hours 3**

### 1. Course Description

At the end of this course, the students will have learned to write on technical subjects for the practical needs of a special audience. They will also have learned to process information, objectively and persuasively, making use of information and communication technologies.

### 2. General Aims

- ♣ Develop clear and accurate written and oral presentation of business,
- ♣ technical and scientific information.
- ♣ Promote critical thinking, continuous self- assessment and peer review.
- ♣ Encourage independent research skills.
- ♣ Prepare students for their professional environment.

### 3. Learning Outcomes

At the end of the course, students should be able to:

- ♣ Analyze, synthesize, evaluate and interpret information and ideas.
- ♣ Write in a style appropriate to the technical purpose and audience.
- ♣ Identify and write various kinds of business and technical documents.
- ♣ Plan and manage writing projects in terms of drafting, designing, revising and editing documents.
- ♣ Write collaboratively, providing peers with constructive feedback on their work.
- ♣ Develop effective style and tone, following businesses and technical writing guidelines.
- ♣ Analyze charts, graphs, specifications, diagrams, etc. and respond orally and in writing.
- ♣ Design visually effective documents (e.g. layouts, formatting, incorporating graphics and visuals into documents)
- ♣ Prepare and deliver an effective mixed media presentation.

### 4. Resources

- a. McMurry, D.A. (2002). *Power Tools for Technical Communication*, Harcourt College Publishers.

#### Web sites

[www.-unix.oit.umass.edu/~pwtc/tw/lonks.html](http://www.-unix.oit.umass.edu/~pwtc/tw/lonks.html)  
<http://techpubs.com/resources.html>  
<http://garnet.indstate.edu/kliener/eng305t/lessons/04html>  
<http://www.prenhall.com/pfieffer>  
<http://www.english.vt.edu/~toomy/researchy.html>



### 5. Content Outline

- ♣ Written communication in a variety of formats (reports, business letters, memos, employment letters, resumes)
- ♣ Technical text such as definition, description, comparison, classification, instructions and cause and effect

- ♣ Making oral presentations.

## 6. Learning Activities

- ♣ Discussion: one-to-one, group
- ♣ Listen and take notes
- ♣ Speak to an audience
- ♣ Write formal reports, letters etc.
- ♣ Read and respond orally and in writing.

## 7. Assessment Outline

♣ Quizzes	5%
♣ Mid-semester Exam	20%
♣ Assignment (Report and Presentation) (Report 20% and Presentation 5%)	25%
♣ Final Exam	50%
<b>TOTAL</b>	<b>100%</b>

Final grades will be based on the following scale:

Letter Grade	Percentage Range	Grade Point
A	90-100	4.0
A-	85-89	3.7
B+	80-84	3.3
B	76-79	3.0
B-	73-75	2.7
C+	70-72	2.3
C	67-69	2.0
<b>Major Requirement</b>		
C-	60-66	1.7
<b>Major Elective</b>		
D	55-59	1.0
F	54 and below	0.0

## 8. Assessment Specifications

### 8.1 Quiz (5%)

There will be 1 quiz per semester. The quiz should be answered on the standard paper provided on a topic provided by the tutor. The approximate length of the quiz shall be 250 words, and written in 30 minutes of class time. Printed or electronic dictionaries can be used to minimize spelling mistakes.

### 8.2 Mid-semester Exam (20%)

Time: 1 hour

Content: One writing task of 300 words covering any topic covered up to the MSE. Refer to the delivery plan.



### 8.3 Final Exam (50%)

Time: 2 hours

Content: Q 1. A guided task based on an item that was taught during the course.  
Q 2. Free writing. The nature of the task determines the length.

### 8.4 Assignment (25%)

Assignment shall be research-based and can be done by individual students or by a group. The outcome shall be a written report and an oral presentation.

The assignment should include the following:

1. *Secondary Research*: Literature review using books and the internet to discuss the research topic. The literature review should include student's own words, direct quotes, and paraphrasing of the information s/he has searched.

### Written Report (20%)

- The report must consist of:
  - Title page (Cover page)
  - Introduction, Body, Conclusion, and Recommendation
  - References & Appendixes
- The Body of the report should be approximately 500 words. The Introduction, Conclusion and Recommendations sections are additional.
- An outline of the report is due 2 weeks after the topic is issued.
- The first draft is due 2 weeks after that.
- The final draft is due before their presentation.
- The reference list should include at least three sources.
- The report must be word-processed, double-spaced on *A4* paper with one inch margins and size *12 Times New Roman or Arial* font.

### Grade Criteria:

- A) Report (20%)
- B) Oral Presentation (5%)

See also the appendix on marking criteria

### 9. Course Policies

**Attendance:** Attendance and active participation in class activities are required. Irregular attendance will be dealt with according to item 75 in section 8 of the "College Bylaws for Technical Colleges" (Ministerial Order No. 72/2004). Students must have an official sick leave



from a government hospital or written, signed permission from the HoD/HoC. Three incidences of lateness (exceeding 5 minutes) will be considered one absence.

**Late Assignment:** For late submission of assignments, students need a legitimate reason and they need to inform the instructor in advance of the reason. Otherwise, assignments will be marked down by 5% (e.g. 80% will be 75%).

**Plagiarism and Cheating:** Plagiarism is the presentation of another person's work, words, or ideas as if they were one's own. It ranges from an entire assignment which is not the student's own work to specific passages within an assignment which are not the student's own work but taken from a source without acknowledgement. Students are responsible for ensuring that they understand and follow the principles of proper documentation and scholarship.

Cheating is usually understood as copying from another student. However, it also includes a student or a group of students, using or attempting to use unauthorized aids, assistance, material, or methods in assignment, reports, presentations and/or examinations. If an instructor determines that the student has cheated and /or plagiarized, the college will take punitive action and a grade of zero will be assigned for the affected assignment, report, presentation, or examination.





<b>ARCH 2120</b>	<b>MATERIALS AND METHODS OF CONSTRUCTION I</b>	<b>3 Credit Hours</b>
<b>Prerequisites</b>	<b>PHYS 1200</b>	
<b>Goal</b>	To provide the student with the knowledge on various systems and components of a building and the materials and its applications used for the same.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Be familiar with building materials and construction techniques</li> <li>2. Be acquainted with building standards and code requirements</li> <li>3. Work collaboratively</li> <li>4. Think critically</li> </ol>	<p>The students should be able to :</p> <ol style="list-style-type: none"> <li>1. Identify and describe the use of different construction materials</li> <li>2. Identify and describe some construction techniques.</li> <li>3. Identify the building standards regulating construction in the region and describe some of the requirements of the local building code.</li> <li>4. Conduct experiments on materials, analyze the results, document the experiment and evaluate the outcomes.</li> <li>5. Work collaboratively by participating in a design team.</li> </ol>	



<b>CERE 2201</b>	<b>RENEWABLE ENERGY IN CONSTRUCTION</b>	<b>Credit Hours</b>	<b>3</b>
<b>Prerequisites</b>	<b>Physics II</b>	<b>Co requisites</b>	<b>None</b>
<b>Goal</b>	<b>To enable the student to understand the sources of energy and use of renewable energy for building design for optimum use of natural resources.</b>		
<b>Objectives</b>		<b>Outcomes</b>	
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Understand the existing sources of energy, their use for human consumption and future repercussions.</li> <li>2. Understand the concept of renewable energy and its importance for built environment in Oman.</li> <li>3. Understand sources of renewable energy to be used in buildings, their relevance and adoptability for buildings in Oman.</li> <li>4. Understand installation, operation and maintenance of sources of renewable energy in design of buildings in Oman.</li> <li>5. Acquire basic knowledge about energy efficient buildings and ecological building design.</li> </ol>		<ol style="list-style-type: none"> <li>1. Discuss and review the current sources of energy, environmental sustainability and interrelations among energy, environment and society.</li> <li>2. Evaluate different sources of clean renewable energy; solar, wind, wave, tidal, ocean thermal energy, geothermal, biomass and ethanol fuel.</li> <li>3. Explain sustainable design and green building strategies and their implementation into mainstream construction practices.</li> <li>4. Identify and explain energy efficient and recycled materials, system and technologies for their use in construction.</li> <li>5. Explain passive design of buildings in Oman for minimal use of conventional non-renewable sources of energy.</li> <li>6. Demonstrate application of solar energy in buildings; explain different types of solar thermal systems available in Oman.</li> <li>7. Perform installation, orientation and operation of solar panels, PV systems in buildings and other structures.</li> <li>8. Evaluate and compare the utilization of conventional energy and solar energy, bring out comparison in the form of energy audit.</li> <li>9. Demonstrate and explain concept of using wind energy in buildings, discuss different types of wind turbines.</li> <li>10. Perform installation, orientation and operation of wind turbines in buildings.</li> <li>11. Explain basic requirements to achieve energy efficient building and ecological building design.</li> </ol>	



<b>ARCH 2210</b>	<b>ARCHITECTURAL DESIGN I</b>	<b>4 Credit Hours</b>
<b>Prerequisites</b>	<b>ARCH 2110</b>	
<b>Goal</b>	To introduce the student to a rich design vocabulary and to provide him/her with an understanding of space, systems of order, and graphic-communication skills of the design professions.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Understand the basic principles and elements of design.</li> <li>2. Comprehend the transformation, translation and reading of ideas derived from specific visual arts or literature.</li> <li>3. Be able to perceive and visualize ideas.</li> <li>4. Understand the building program.</li> <li>5. Be able to conceptualise form in two and three dimension.</li> </ol>	<p>The students should be able to :</p> <ol style="list-style-type: none"> <li>1. Use graphic-communication skills that allow for definition of concept.</li> <li>2. Utilize quick visualization and analysis tools such as sketching, collage and diagrams.</li> <li>3. Demonstrate quality craftsmanship in model making, using materials such as wood and paper.</li> <li>4. Define the basic principles and elements of design.</li> <li>5. Describe a building program.</li> <li>6. Develop and design a project with single space and use - small span Horizontal movement - single bay for the below said project. Produce full project presentation including site plan, Floor plans, sections, elevations, Views and building models.</li> </ol> <p><b>EXAMPLES OF DESIGN PROJECT:</b>  <b>Toilet for a physically handicapped person / Hostel room/kitchen/Shop/Workshop/pavilions/ snack bar/ bed room, etc.</b>  <b>Residence/ petrol bunk/ fire station/ police station/ motel /etc.</b></p>	



<b>CELS 2100</b>	<b>Engineering Surveying</b>	<b>3 Credit Hours</b>
<b>Prerequisites:</b>	<b>PHYS 1200</b>	
<b>Goal</b>	To provide the student with basic principles of Surveying	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Provide an introduction to and understanding of the principles and procedures used in elementary surveying</li> <li>2. To enable the student to</li> <li>3. Develop the ability to observe and record angles and linear measurements</li> <li>4. Understand the method of producing a plan from survey field work</li> <li>5. Gain an experience to work as a team member and cooperate and exchange ideas during fieldwork.</li> <li>6. Develop the skills and personal qualities necessary to use surveying instrument with confidence</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Apply the knowledge and understanding gained in real practice</li> <li>2. Carry out basic surveying work</li> <li>3. Use the surveying instruments in field with confidence in elementary surveying</li> <li>4. Observe and record the angles and linear measurements</li> <li>5. Produce a plan from survey fieldwork data</li> </ol>	



<b>CECE 2220</b>	<b>Theory of Structure I</b>	<b>3 Credit Hours</b>
<b>Prerequisites:</b>	CECE 2110	
<b>Goal</b>	To provide the student with the basis for structural analysis to enable him/her to predict and understand the behavior of structures	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Analyze determinate structures</li> <li>2. Analyze indeterminate structures</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Identify, formulate and solve appropriate models to analyze the behavior of structures</li> <li>2. Apply the moment and area methods, virtual work method, plane and space frame method, and deflection of plan frame method to analyze the behavior of determinate structures</li> <li>3. Apply the slope deflection method and moment distribution method to analyze the behavior of indeterminate structures</li> </ol>	



<b>ARCH 2200</b>	<b>VISUAL COMMUNICATION II</b>	<b>3 Credit Hours</b>
<b>Prerequisites</b>	<b>ARCH 2100</b>	
<b>Goal</b>	To provide the student with presentation skills using mechanical means and with the basic principles and techniques of Measured drawing, perspective drawing and sciography.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Be acquainted with the process of drawing and with the graphic vocabulary used throughout his/her course of study.</li> <li>2. Be familiar with drawing equipment and materials.</li> <li>3. Be familiar with measured drawing.</li> <li>4. Be familiar with perspective drawing.</li> <li>5. Be familiar with sciography.</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the process of drawing using graphic vocabulary.</li> <li>2. Produce measured drawing for a buildings.</li> <li>3. Produce perspective drawing using different techniques.</li> <li>4. Produce Sciography for architectural elements and buildings.</li> <li>5. Use drawing equipment and materials with emphasis on pen and ink drawing</li> </ol>	



<b>ARCH 2310</b>	<b>ARCHITECTURAL DESIGN II</b>	<b>4 Credit Hours</b>
<b>Prerequisites</b>	<b>ARCH 2210</b>	
<b>Goal</b>	To introduce the student as how design principles and knowledge are used in solving multiple space and units, medium span buildings and create spaces and buildings responding to human anthropometrics.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to :</p> <ol style="list-style-type: none"> <li>1. Introduce the student to fundamental design skills and formal ordering systems in architecture.</li> <li>2. Introduce the student to the theories of human behaviour and human scale in design.</li> <li>3. Explore the relationship between interior and exterior space.</li> <li>4. Understand the basic structural principles.</li> <li>5. Communicate ideas.</li> <li>6. Explore the above said design process by solving in multiple space and units with simple horizontal and vertical movements and single level planning.</li> </ol>	<p>The students should be able to :</p> <ol style="list-style-type: none"> <li>1. Describe the fundamental design skills and formal ordering systems in architecture.</li> <li>2. Describe the theories of human behaviour and human scale in design.</li> <li>3. Analyze and describe the relationship between interior and exterior space.</li> <li>4. Describe the basic structural principles.</li> <li>5. Present ideas graphically and orally.</li> <li>6. Perform spatial studies of some buildings.</li> <li>7. Develop and design a project with single level planning in small scale, small span and simple horizontal and vertical movement by applying the above said outcomes for the project listed below. Produce full project presentation including site plan, Floor plans, sections, elevations, Views and building models.</li> </ol> <p><b>EXAMPLES OF DESIGN PROJECT:</b>  <b>Residential buildings/ Institutional buildings/banks/ nursery or primary schools/ primary health center/ school for children with learning disabilities/neighborhood market /etc.</b></p>	



PHIL 2108	<b>Business Ethics</b>	3 Credit Hours
Prerequisites:	None	
Goal	To equip the student with the highest ethical standards that will guide him/her through real life dilemmas.	
<b>Objectives</b>	<b>Outcomes</b>	
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Understand the concept of value</li> <li>2. Understand Islamic and Omani values</li> <li>3. Understand, appreciate and respect ethnic and cultural diversity</li> <li>4. Gain the highest work ethics</li> </ol>	<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Define the concept of values</li> <li>2. Define how values develop</li> <li>3. Understand the effects of religion and society on values</li> <li>4. Understand the effects of Islamic and Omani values on work ethics</li> <li>5. Define the concept of ethnic and cultural diversity</li> <li>6. Understand the importance of ethnic and cultural diversity for society and the world</li> <li>7. Work with people from different ethnicities/cultures</li> <li>8. Function in a moral and ethical manner in his/her life</li> </ol>	

