



**Architectural and Engineering Design Department (AEDD) South Portland, Maine 04106**

**Title: Technical Illustration**

**Catalog Number: AEDD-205**

**Credit Hours: 3**

**Total Contact Hours: 60 Lecture: 30 Lab: 30**

**Instructor: Geneva Kimball**

**Email : gkimball@smccme.edu**

**Course Syllabus**

**Course Description**

This comprehensive course covers technical and perspective forms of three-dimensional drawing, one and two point perspective, shade and shadow, color, and rendering. Extensive sketching, a thorough understanding of technical drawing/graphic concepts, and hands-on experience promote the development of artistic talent as it relates to design.

Prerequisite(s): AEDD-100 or AEDD-105

**Course Objectives**

1. Generate accurate axonometric and isometric drawings.
2. Generate exploded views of assemblies from working drawings.
3. Generate one and two point perspective drawings from working drawings.
4. Integrate the effects of light, shade, and shadow.
5. Generate full-color renderings from working drawings and photographs.

**Topical Outline of Instruction**

1. Overview of course, explanation of examples, and the introduction of sketching techniques.
2. Line technique and values, depiction of surface textures.
3. Introduction of drawing mediums.
4. Generation of axonometric drawings.
5. Generation of isometric drawings.
6. Introduction of one point perspective drawing.
7. Introduction of two point perspective drawing.
8. Introduction of light and shadow.
9. Introduction of shading techniques.
10. Introduction of rendering techniques.

**Course Requirements**

1. Active attendance and participation.
2. Generation of all assigned drawings.
3. Development of a portfolio.

**Student Evaluation and Grading**

Work will be evaluated on content, quality, and timeliness. Weekly assignments are worth 60%, final projects are worth 30%, and attendance is worth 10%. I use the course portal to post and grade all assignments. It is available to you 24/7. I expect you to review your grades and notify me if there are any discrepancies or if you have a question about a grade or attendance.

**Text, Tools, and/or Supplies**

Recommended book: Architectural Graphics; Francis D.K. Ching

TOOLS: Sketch pad approx 11x17, pencils, drafting pens or sharpies 0.30, 0.50 and 0.70, straight edges (rolling ruler is highly recommended), scales, water colors or water color pencils or colored pencils, water color paper (if using a water color product).

**Department Policies**

1. Grading – grading policies may vary by instructor

A	4.00	9.3-10
A-	3.67	9-9.2
B+	3.33	8.7-8.9
B	3.00	8.3-8.6
B-	2.67	8-8.2
C+	2.33	7.7-7.9
C	2.00	7.3-7.6
C-	1.67	7.0-7.2
D+	1.33	6.7-6.9
D	1.00	6.3-6.6
F	0.00	>6.3 FAILURE
P	NONE	Equivalent to a "C" (2.0) or better
AF	0.00	Administrative Failure
I	None	Incomplete*
W	None	Official Withdrawal from course
NS	None	Failure to appear for any session of class

\*Incomplete grades are given at the discretion of the Instructor. Incomplete grades may only be given after an incomplete contract between the instructor and student has been signed and submitted to Enrollment Services. Students may withdraw from a class up to the twelfth week into the semester to avoid a failing grade. Make note of the class withdrawal deadline date and time in the student handbook and academic calendar on the portal.

2. Work submitted that does not meet standards will be given and "N/A Resubmit". Instructions on how to correct your work will be provided through "Redlines" (comments by instructor). All "Redlines" must be addressed before resubmitting the assignment. NO PARTIAL credit will be given unless all Redlines have been corrected.
3. **Late work** will drop a letter grade per week late. Assignments turned in more than 4 weeks late will result in a failing grade for that assignment. Completion of all assignments is required.
4. Any student who submits work done by someone else will at the least, receive a failing grade for that assignment and must redo the assignment. Should the instructor see fit, the student involved will be reported to the Dean of Students in violation of the Student Code of Conduct which will result in the student receiving a failing grade for the class.
5. Any activity, conversation or behavior that is not considered appropriate for the classroom or professional environment will result in the request that the behavior cease. If it does not, the student(s) involved will be dismissed from class and referred to the dean of Students and may not return to class until they have met with the Dean of Students, Department Chair and Instructor.
6. Use of cell phones, and other electronic devices during class which are not for class purposes is prohibited. Cell phones **do not** need to be turned off, but should be set to **vibrate** or **silenced** during class. Class time is for class activities only.
7. Personally owned computers are not required to be successful in this program, however they are highly recommended. All students have access to free Autodesk software downloads available at <http://students.autodesk.com/>. If you do not have access to your own computer to complete your homework, computer labs are available during open building hours 8:00 AM – 9:30 PM M-F. At least 6-9 hours of homework time outside each 3 credit course is normal and to be expected.
8. Hours for faculty members are posted on the faculty member's door. You may also make appointments with faculty via e-mail.
9. Only SMCC E-mail addresses will be used by faculty to communicate to students. E-mails between student and faculty must meet the following criteria:
  - a. The subject line has the **class code** along with a reference to the e-mail subject

- b. E-mails must be signed with the student's full name as it appears on the class list.

See the full e-mail etiquette policy in **R:\General\Department Policies**.

10. **Attendance policy** – attendance is taken at the beginning of each class. If the student is late for a class it is the responsibility of the student to review their attendance and make sure that they have been marked Tardy rather than absent. There are no excused absences. Students are either present or absent.
  - a. **For classes that meet once a week** – no more than 3 unexcused absences are allowed **total**, no more than 2 classes may be missed **in a row**. A student who misses a class will receive a warning e-mail; if two weeks in a row are missed without communication the student will receive an Administrative Fail (AF) for the class. A student who has a total of 3 classes will receive an AF.
  - b. **For classes that meet twice a week** – no more than a total of 5 unexcused absences are allowed; no more than 3 classes may be missed **in a row**. If a student fails to attend two classes in a row he/she will receive a warning e-mail. If no correspondence has been made and the student fails to show for the third class in a row, the student will receive an AF for the class. Students that have missed a total of 5 classes will receive an AF.
  - c. It is the responsibility of the student to make sure to get the course materials and assignments that were covered during his/her absence. Assignment due dates **WILL NOT BE ADJUSTED DUE TO AN ABSENCE**. See late work policy above.
11. All students are expected to take notes and maintain them for reference purposes throughout the class and future classes. Students must also be responsible for their own backup of course work. If work is lost it is **NOT** the AEDD responsibility to replace or find it.
12. All work must follow the Technical Graphics Standards Manual for the AEDD. A copy of the manual has been placed in R:\Standards Various Sources

### **End-of-Course Evaluation**

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 PM following the last day of the class. You will receive an email to your student email account when course evaluations are available.

### **ADA Syllabus Statement**

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call 207-741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

## **SMCC Pay-for-Print Policy**

### **Per Page Costs**

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The cost varies depending upon page size and whether printing is done in black and white or color.

- a. There is a \$0.10 per page fee for standard 8.5" by 11" black and white documents.
- b. The reverse sides of duplex (double-sided) documents are free.
- c. There is a \$.50 per page fee for standard 8.5" by 11" color documents.
- d. There is a \$.20 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) black and white documents.
- e. There is a \$1.00 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) color documents.

Duplex charges (printing on both sides of a page) work in the following fashion: One page is \$0.10, two pages are \$0.10, three pages are \$0.20, and four pages are \$0.20, etc. The flipsides are free, but another sheet of paper is \$0.10. Please be aware that a document with any color at all (when printed to a color printer) will by default be printed in color. You are responsible for setting the print job to print black and white if you do not need color. For directions, please go to the IT Help tab in My SMCC.

### **How does it work?**

The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, the Academic Achievement Center, Noisy Lounge and technology labs). Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up.

### **Refunds**

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

### **Why is SMCC charging for printing?**

The pay-for-print system is an effort to control escalating printing costs. Charging for printing helps offset the increasing cost of supplies and encourages students to conserve resources. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an email to [helpdesk@smccme.edu](mailto:helpdesk@smccme.edu).

Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account.

**Add-Drop Policy**

Students who drop a course during the one-week “add/drop” period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

**Withdrawal Policy**

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the fall and spring semesters and the second through ninth week of twelve-week summer courses. This period is pro-rated for shorter-length courses.

To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Enrollment Service Center (no phone calls, please). The designation “W” will appear on the transcript after a student has officially withdrawn. A course withdrawal is an uncompleted course and may adversely affect financial aid eligibility. Failure to attend or ceasing to attend class does not constitute withdrawal from the course. There is no refund associated with a withdrawal.

**Plagiarism Statement**

Adherence to ethical academic standards is obligatory. Cheating is a serious offense, whether it consists of taking credit for work done by another person or doing work for which another person will receive credit. Taking and using the ideas or writings of another person without clearly and fully crediting the source is plagiarism and violates the academic code as well as the Student Code of Conduct. If it is suspected that a student in any course in which s/he is enrolled has knowingly committed such a violation, the faculty member should refer the matter to the College’s Disciplinary Officer and appropriate action will be taken under the Student Code of Conduct. Sanctions may include suspension from the course and a failing grade in the course. Students have the right to appeal these actions to the Disciplinary Committee under the terms outlined in the Student Code of Conduct.

**Technical Illustration Lesson Plan**

**Unit 1**      **Introduction to technical illustration:** Tools and supplies; technical graphic standards; Architectural drawing systems

Line work, lettering and line types; hand drawing layout instructions; correct use of mechanical pencil, straight edge, and pen; review of orthographic projection as it relates to mechanical drawings and architectural drawings.

Reading: Chapter 1-3

In class: sketching and construction line layout of arch plan and elevations and mechanical multi-view drawing. Line work and lettering will be emphasized.

**Homework 1A:** Create a title block icon

**Homework 2A:** Layout Construction lines for the mechanical multi-view assignment.

**Homework 3A :** Layout construction lines for the architectural multi-view assignment.

**Unit 2**      **Line work, lettering and shading**

Reading: Chapter 1-3

In class: techniques on using multiple line weights to create drawing depth and improve readability. Add various widths of ink to both your mechanical and architectural multi-view drawings.

**Assignment 2A & 3A:** Complete the architectural and mechanical multi-view drawings with techniques used in class.

### **Unit 3**     **Paraline Drawing**

Reading: Chapter 5, Paraline drawings pg.85-100

In class: paraline and isometric drawing exercises. Layout of construction lines for homework project will be started.

**Assignment 2B & 3B:**

**Project 2B** – Create isometric views of the 2A assignment, with separate views for each part and the bolt assembly.

**Project 3B** – Create a plan oblique out of the floor plan from assignment 3A.

### **Unit 4**     **One and two point perspective layout and grids**

Reading: Chapter 6

In class: 1 point perspective concepts and layout. 1 point perspective freehand sketching, center of vision, distance and cone of vision

2-point perspective concepts and layout. There will be a focus on interior and exterior distance, center of vision, viewing plane, and cone of vision.

**Homework 4A:** Create a 1-point perspective grid. Plot on B or C size.

**Homework 4B and C:** Create an interior OR an exterior 2-point perspective grid.

Grids should either be generated with CAD or with light, straight line work that will be easily read.

#### ***Final projects assigned:***

*#1 – Architectural design study – includes final version of assignments 3A, 3B, 3C and 3D. Final versions should include some aspects of the following: details, shading/shadow, color, and drawing context (furnishings, trees, people, landscaping etc.)*

*#2 – Process drawing (see process drawing Unit 8)*

*#3 – Student's choice of the following:*

*One point*

*Two point*

*Isometric*

*Oblique*

**NOTE:** *Proposals for design project must be submitted and approved by instructor by the start of Unit 6.*

*#4 – Freehand drawing and rendering. Have fun with this!*

**Unit 5**      **One point perspective**

Reading: Chapter 6

In class: Practice using the one point grid in class by creating walls, windows, doors, furnishings, architectural features etc. Begin the construction lines for the one point perspective assignment.

**Assignment 3C:** Create a one point perspective of one of the rooms from assignment 3A. Include all molding details, furnishings and light fixtures.

**Unit 6**      **Two point perspective**

Reading: Chapter 7

In class: Practice sketching 2-point perspectives using the grid. Begin construction lines for assignment 3D.

**Assignment 3D:** Select an appropriate exterior OR interior 2-point perspective view of the arch assignment 2A. Add all architectural details.

**Unit 7**      **Lighting and shadows**

In class:

1. Shadow casting: artificial light and natural light  
Parallel rays vs. cone rays.
2. Begin shadow studies of previous assignments

**Homework 5A:** Photocopy and apply shadows to the elevations from assignment 3A; plan oblique or isometric assignment 2B and 3B; one –point perspective assignment 3C; two-point perspective Assignment 3D.

**Unit 8**      **CLASS CRITIQUE**

Bring in all projects you have either started or finished for a class peer critique. All students are required to participate. You will be graded by me based on your project progress and your critique participation. Class critique grade cannot be made up.

**Unit 9**      **Rendering with color**

Reading: Handout

In class:

1. **Assignment 6A:** Know your color medium; create a color wheel; common color combinations. Do a color study of assignment 2A. Add color to it and make notes as you go. Try different combinations of color and techniques. Keep all your work.

**Homework 6B:** Bring in a photograph or magazine image that you find aesthetically pleasing. It should be of something real like a building, furniture, a mechanical or industrial object, car etc. IT MUST BE A PHOTO, **NOT** SOMETHING ILLUSTRATED.

**Unit 10**     **Rendering with color cont.**

Reading: Chapter 8

In class:

1. Transfer photo onto paper – enlarge or reduce as needed. Grid technique and carbon copy technique will be shown in class.
2. Do a color study of the transferred image. One color study should be an objective approach, the other a subjective approach.
3. Begin your color studies

**Final Project:** Make photocopies any of the projects from this semester that you plan on applying color to for a final project. Do color studies and use those color studies to formalize your color composition for the final project submittal. You may need to transfer a project you've already drawn onto water color paper to prepare it for the final submittal. Bring all your color studies to the next class for feedback and a grade.

**Unit 11**     **Process drawings**

Reading: handout

In class:

1. Process sketch or visual instructions: Using any of the technical illustration tools that you have learned from class, create a series of sketches that illustrates a process or provides visual instructions with steps. A good example of this is the Lego assembly instructions or the images you see in an airplane safety pamphlet. You can also select a more everyday task to illustrate like how to properly fillet a fish or load a dish washer etc.

**Assignment 7A:** Using the idea sketches and thumbnail sketches you created in class, begin to formalize your process drawing into a finished product. Use the best Technical Illustration drawing techniques to illustrate your instructions. Final version of the process drawing is due as a final project.

**Unit 12**     **Freehand sketching and observation drawings**

Reading: Chapter 10

In class: Picture window; sketching exercises designed to improve your freehand sketching ability; scaling tools. We will go to a location to sketch outside structures if the weather cooperates, or indoor spaces if the weather is poor.

**Homework 8A:** Using the techniques from class, free hand sketch a room, building, or other of your choice. Add shading, shadow, color etc. to enhance.

**Unit 13**     **Final drawings are due**

Pot luck snacks and beverages will be provided as we look approvingly on our semester projects.