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

Title: Print Reading	**Catalog Number: AEDD100**
Credit Hours: 3	**Total Contact Hours: 60 (Lecture: 30, Lab: 30)**
Instructor: Roger Aschbrenner	**email: raschbrenner@smccme.edu**

Course Syllabus

Course Description

This survey course will cover math, scales, multiple view conventions, line conventions, dimension practices, and symbols used in technical graphics within the manufacturing, architectural, civil, structural, electrical/electronic, and architectural mechanical and plumbing industries.

Course Objectives

After successfully completing the course, the student will be able to:

- Convert between fractions, decimal, and metric measurements
- Interpret the shapes of objects represented orthographically
- Apply hidden features to orthographic drawings using proper line types
- Identify line types used in technical graphics
- Create proper technical sketches to ASME drawing standards
- Identify scales used in drawings in various fields of technical graphics
- Identify symbols used in drawings in various fields of technical graphics
- Identify standard paper sizes and series
- Interpret mechanical drawings used in manufacturing and welding
- Interpret architectural drawings used in building construction
- Interpret civil drawings used in land design
- Interpret structural drawings used in steel buildings and structures
- Interpret electrical drawings used in building construction and manufacturing
- Interpret heating and air conditioning drawings used in construction
- Interpret plumbing drawings used in construction

Topical Outline of Instruction

1. Introduction, tools and text
2. Measurement, Metric and U.S. Customary standards
3. U.S. Customary and decimal equivalents
4. Scale, general overview of use and concept
5. Introduction to industries using technical drawings
6. Overview of prints in mechanical design
7. Overview of prints in architectural design
8. Overview of prints in structural design
9. Overview of prints in civil design
10. Overview of prints in electrical and electronic design
11. Overview of prints in heating, air-conditioning and plumbing

Course Requirements

Students will be required to attend class regularly and complete all work sheets, homework, sketches, reading assignments, quizzes and exams.

Student Evaluation and Grading

Final grade will be calculated from Home Work (25%), Quizzes (30%), Tests, (40%), Attendance (5%).

Text, Tools, and/or Supplies

All students need a standard eight digit calculator (not a finance calculator), and fractional, decimal, and architectural scales. An electronic PDF of the Technical Graphics Standards Manual for the Architectural and Engineering Design Department will be provided to each student. Additional handouts will be provided for individual units.

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	8.3-86
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 3-9 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

Each semester students receive a $20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. 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. 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 e-mail to helpdesk@smccme.edu.

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.

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 (usually 75 percent of course meeting times; please check with the Registration Office). To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct.

Lesson Plan

Unit 1 Conversions

Metric vs. Imperial
Learn/revisit standard methods to convert between commonly used units of measurement
Resources: Conversion sheet
Videos: Conversions.html, MetricVsImperial.html, ScalesDisciplines.html

Unit 2 Areas and Volumes

Identify the unique characteristics of basic geometry to help facilitate the process of extracting information from graphics.
Learn/revisit formulas to calculate areas and volumes of objects by simplifying the basic geometric shapes that make up that object.
Resources: Geometry_formulas.pdf, Properties of Common Triangles.pdf
Videos: 2C01-RecTankVol.html, 2C02-RoundedTankVol.html, 2C05-GallonsLitersRounded.html, 2C06-18Percent.html, 2C07-GroundWater.html, 2C08-DumpBody.html, 2C09-MilesKilometers.html, 2C10-HouseVolume.html, 2C11-RoofRafter.html

Unit 3 Scales and Measurement

Learn to read and use Architectural, Engineering and Mechanical scales
Resources: Scales B-Size.pdf, Scales-engineering-bsize.pdf
Videos: Scales-Fractional.html, Scales-Arch_1-1-2_3.html, Scales-Arch_1-2_1.html, Scales-Arch_1-4_1-8.html, Scales-Arch_3-8_3-4.html, Scales-Arch_3-16_3-32.html, ScalesMetric.html, Scales-DecimalInch.html, Scales-Engineering-10.html, Scales-Engineering-20.html, Scales-Engineering-30.html, Scales-Engineering-40.html, Scales-Engineering-50.html, Scales-Engineering-60.html

Unit 4 Lines and Lettering

Understand the importance of standards to the technical graphics industry.
Resources: Technical Graphics Standards Manual, Graphic Standards
Videos:

EXAM 1 – Covering Units 1-4

Unit 5 Orthographic Projection

Learn to read and understand how to project multi-view drawings using 3rd angle projection methods.
Videos: Lines and Views

Unit 6 Sections

Understand how to read section views, when sections views are necessary and how the line work in the drawing must change to turn a view into a section view.
Resources: Technical Graphics Standards Manual – Sections.
Videos:

Unit 7 Dimension rules

Mechanical ASME standard dimension rules
Architectural dimension rules
Resources: Technical Graphics Standards Manual
Videos: Basic dimension rules – mechanical, Basic dimension rules-architectural

EXAM 2 – Covering Units 1-7

Unit 8 Architectural

We will learn how to read and understand the terminology, symbols, standards associated with architectural design discipline by reviewing a variety of architectural plans. Students will be able to determine quantities or "take-offs" of materials based on the conversions and areas and volumes units.

Unit 9 Civil

We will learn how to read and understand the terminology, symbols and standards associated with the Civil design discipline by reviewing a variety of civil and landscaping plans.

Unit 10 Electrical

We will learn how to read and understand the terminology, symbols and standards associated with the Electrical design discipline by reviewing a variety of electrical plans

Unit 11 Plumbing

We will learn how to read and understand the terminology, symbols and standards associated with the Piping and Plumbing design discipline by reviewing a variety of piping and plumbing plans

Unit 12 Structural

We will learn how to read and understand the terminology, symbols and standards associated with the Structural design discipline by reviewing a variety of Structural plans

EXAM 3 – Covering Units 1-12