

Engineering H191 Engineering Fundamentals & Laboratory I (4 Credits)

Classrooms: HI 206, HI 324, or HI 346 Laboratories: Hands-on – HI 208; Computer – HI 342

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Introduction and Course Organization:

Engineering H191 is your first course in engineering problem solving and includes Engineering Fundamentals, Computer-Aided Design (CAD), and Engineering Laboratory. This course is the first in a three-course sequence of Honors Engineering Fundamentals & Laboratory and is coordinated with most Math courses (FEH Math 161A, Math 162A, and Math 151A) and the Physics 131I courses. This course meets four times each week for a 108-minute class period MTWR. During three out of the four class periods each week, the class will meet in the scheduled classroom (HI 206, HI 324, or HI 346) for a 108-minute session that will have a lecture component followed by a sketching or CAD component. For the fourth period each week, the class will go to lab (in HI 208) for a scheduled hands-on laboratory exercise on Tuesday, Wednesday, or Thursday except for the first week and the week of the Thanksgiving holiday.

Lectures will usually precede the laboratory work. Students requiring help with specific problems of the course should arrange individual meetings with their instructors or teaching assistants during office hours. Items of class management such as submission of problems, attendance, seat assignments, etc., will be handled by your instructor. Students should also note that smoking is prohibited inside all of the buildings on the OSU campus and that no food or drinks are allowed in the Engineering classrooms or labs.

Course Objectives:

The purpose of this course and the other courses of the sequence is to provide you with a knowledge of engineering fundamentals and graphics, engineering communication, engineering problem solving, the design process, how to make measurements, how things work, and experiences in a hands-on laboratory. The objective is to expand that knowledge to a point of maximum usefulness with respect to both your future academic work and professional career.

Successful students will be able to do the following: prepare size and shape descriptions of objects in multi-view orthographic projection, graphically display and manipulate numerical quantities, demonstrate sufficient skill to produce an engineering sketch and to make a drawing with CAD, to make a variety of size, voltage, current, and fluid property measurements, to know how to do traffic measurements, to know the basic elements of how gears and chains & sprockets transmit power, and to understand the fundamentals of AC and DC circuits including motors.

Course Grades:

Your performance will be measured by your ability to complete a series of daily assignments in sketching and the use of CAD, eight hands-on laboratory exercises and the associated required reports, two midterm exams, five announced quizzes, several unannounced hands-on lab quizzes, a hands-on laboratory practical exam, a comprehensive final exam, and a team design project. See the daily schedule that is presented elsewhere in this syllabus.

Course grades will be calculated according to the following weighted elements:

Daily Assignments (55 @ 0.4%)	22.0 %	Design Project	5.5 %
Lab Reports (8 @ 2.5%)	20.0 %	Electronic Journals (10 @ 0.3%)	3.0 %
Midterm Exams (2 @ 12%)	24.0 %	Lab Quizzes & Practical Exam	5.0 %
Quizzes (5 @ 1%)	5.0 %	Final Comprehensive Exam	15.5 %

A minimum grade of 50% is required in every major element (i.e., Daily Assignments, Quizzes and Exams, Design Project and Lab Work) to receive a passing grade in the course. For example, a student with less than 50% credit in "Daily Assignments" would not pass the course, even if the score in the other major elements of the course were above 50%. You must take each component of the course seriously and complete the assigned work. This policy is applied independently from the overall course calculation that appears in the online OSU Course Management System, Carmen.

The daily assignments referred to on the daily schedule are either included in the "Engineering H191 Drawing Packet Autumn 2007" that you must purchase, produced as a part of the CAD assignment, or will be distributed as hand-outs by your instructor. The daily assignments are normally graded on a 10-point scale. Assignments which are submitted on time, but which are incomplete, will be marked "Correct and Return" (C&R). C&R assignments may earn a maximum of 50% of the assigned points. Also, if an assignment is turned in late, but within 24 hours of the time due, its grade may be reduced by 30%. Assignments submitted after 24 hours past the time due may be given 0 points; however, they will be graded for accuracy. All course grades will be entered into Carmen. It is strongly suggested that you keep all your graded assignments in a 3-ring binder for future reference.

All laboratory hands-on exercises must be completed. All lab reports from the hands-on labs must be submitted whether they are late or not. Situations involving late reports or missed labs will be handled at the discretion of the TA and instructor. However, penalties can range from a 30% deduction to no credit.

Midterm exams will be given on the dates indicated in the daily schedule and will be scheduled for 100 minutes. The design project will be further described as the quarter progresses. The comprehensive final exam must be taken at the scheduled time (see daily schedule). No changes to the final exam schedule will be permitted except in genuine emergency situations.

Journal entries must be submitted electronically no later than 11:59 PM each Sunday or as otherwise prescribed by the online FEH Journal System (<http://feh.osu.edu/journals.html>).

CAD Computer Graphics Laboratory:

You will be using computer equipment in your regularly scheduled classroom (HI 206, HI 324, or HI 346) and will have access to the Hitchcock Computer Graphics Lab (HCGL) located in HI 342. These labs contain Windows-based personal computers, printers, and a variety of application software packages. You will use the computers to work on your daily assignments and to produce printouts. Although a site monitor may be available in HI 342 to help you with hardware, software, or printer problems, the monitor will not help you with assignment-related problems. On the other hand, your instructor and teaching assistants will be available during scheduled classroom hours. Open lab and assistance will also usually be available on Friday mornings in a room to be announced. You are to use only the software supplied in these labs; that is, you may not install any software onto or copy any software from the lab computers. **Food and drink are not permitted in the labs or classrooms.** Violation of these policies will result in expulsion from the classroom or lab and possible failure in the course.

Course Textbooks, Materials and Equipment:

The following course textbooks, equipment and materials are required.

Textbooks (*from the bookstore or UniPrint where indicated*):

- "H191 Bundle" of two texts together in a set including: "**Tools and Tactics of Design**", by Dominick, et al; and "**A Guide to Writing as an Engineer, 2nd Edition**", by Beer, et al; Wiley Custom Services, John Wiley and Sons, New York, 2007. (*Books may be purchased separately, but note that if the books are being purchased new, the bundle should be cheaper than purchasing the two new texts separately.*)
- "**Technical Graphics, 2nd Edition**", by Meyers, et al., Schroff Development Corporation, Mission, Kansas, 2007.
- "**An Introduction to Autodesk Inventor 2008 and AutoCAD 2008**", by Shih, Schroff Development Corporation, Mission, Kansas, 2007.
- "**Engineering H191 Drawing Packet Autumn 2007**", by Demel, et al., Fundamentals of Engineering for Honors Program, OSU, 2007. (*Available @ UniPrint in Tuttle Place*)
- "**The New Way Things Work**", by Macaulay, Houghton Mifflin Co., Boston, 1998 or 1988. (*The 1998 edition is preferred, but either edition may be used. Note that it will also be used next quarter and also that only access to this text is required.*)

Materials:

- Scale: 6" combination decimal inches and millimeters [Fairgate F561 79-102 or Staedtler-Mars 561 79-102]
- Lead holder: 0.7mm [Staedtler 925 07 – 0.7mm HB lead]
- Eraser: stick type [Staedtler-Mars 528 50]
Note: The first 3 items above are available packaged all together in a pocket protector at most of the bookstores. The price of the package for Autumn 2007 is about \$17.00.
- USB Storage/Flash Drive. *Note: 3GB storage space on a network drive accessible by FTP (File Transfer Protocol) from outside of class is provided by the First-Year Engineering Program.*
- 3-ring notebook(s) for the Inventor, Technical Graphics, and H191 Drawing Packet
- Pad (100 or 200 sheets) of green engineering problem paper

Software:

- Autodesk Inventor® 2008 and AutoCAD 2008 software. *Note: A copy of the software for your personal use is provided by the First-Year Engineering Program.*

Useful FEH Program Web Sites:

- <http://feh.osu.edu> FEH Program main web page
- <http://carmen.osu.edu> OSU Carmen main web page
- <http://www.howstuffworks.com> A useful reference web site

ENG H191 Course and University Policies:

Lab Policies and Safety Rules are intended minimize the opportunity for accidents or injuries during any 2-hour Hands-on Laboratory session. Please note that all tools, equipment, and materials assigned to a team must be returned and formally accounted for at the end of each lab session. Failure to return any OSU item will result in a grade of incomplete for the entire team until the item is found or otherwise accounted for, and the situation will taken to the Committee on Academic Misconduct.

The Lab Safety rules are:

- No dangling jewelry or loose clothes.
- No open-toe footwear of any kind. (You will be asked to leave and return with closed-toe shoes).
- Be careful with sharp corners.
- Eye protection will be provided and required for some lab activities.
- Recall location of phone and first-aid kit.
- Report ALL injuries to the lab instructor.
- No food or drink in the lab. (You will be asked to leave and return without food or drink).

Carmen: Online Course Management System: Carmen is OSU's course management system. Carmen may be accessed at: <http://carmen.osu.edu>. For Troubleshooting: Call 688-HELP (especially for passwords) or go to: <http://telr.osu.edu/carmen/help/index.htm>.

Uses

- Check the "News" items for any course-related or on-campus activities announcements
- Check your grades from the "Grades" link on the main toolbar in Carmen
- Check your syllabus & daily assignment list from the "Content" link & view instructional team contact information from the Syllabus
- Access other evaluation tools: Journals, some Quizzes, and Purdue Visualization Tests from the Carmen web page.
- Access materials for the course including class presentations and supplemental information including exam study guides, video resources, assignment seed files, helpful websites, and common questions and answers about the team projects from the "Content" link on the main toolbar.

Academic Misconduct such as cheating or plagiarism will be reported using official University procedures. Policies and procedures can be found in the Code of Student Conduct available online in several places including http://studentaffairs.osu.edu/resource_csc.asp. The Code of Student Conduct is also printed in the Student Handbook and Student Telephone Directory. Copies may be obtained from the Office of Student Judicial Affairs, 2050 Drake Union.

- All cases of suspected misconduct must be reported to the University Committee on Misconduct. Any students observing misconduct should report such to the course instructor.
- The Code of Student Conduct defines Academic misconduct to include
 - Violation of course rules
 - Providing or receiving information during quizzes or exams
 - Submitting plagiarized work of any kind (e.g., written, computer produced, hand-drawn, etc.)
 - Falsification, fabrication, or dishonesty in reporting research results
- As a student, you need to know that faculty members are obligated to report all misconduct cases to the University Committee on Academic Misconduct. Not reporting is not an option.
- For purposes of Academic misconduct in any reported cases in any Engineering course, the College of Engineering's Associate Dean for Academic Affairs will act as the Department Chair.
- It is acknowledged that the First-Year Engineering Program encourages collaboration among students on some assignments from time to time. However, when an assignment is identified as an individual assignment, the work turned in by an individual must be his or her own individual product.

A Test that Faculty May Use to Determine Individual Product:

- Can you explain and demonstrate how you did each step or element of a problem or exercise?

- Is the work shown in your own words and terms?
- Can the team members work together to understand concepts and explain things to each other?
- Can a team member produce the end product for himself or herself as an individual or explain the process involved?

Excerpt from the Code of Student Conduct, Section 3335-23-04 Prohibited conduct:

Any student found to have engaged in the following conduct while within the university's jurisdiction, as set forth in Section 3335-23-02, will be subject to disciplinary action by the university.

A. Academic misconduct

Any activity that tends to compromise the academic integrity of the university, or subvert the educational process. Examples of academic misconduct include, but are not limited to:

1. Violation of course rules as contained in the course syllabus or other information provided to the student; violation of program regulations as established by departmental committees and made available to students;
2. Knowingly providing or receiving information during examinations such as course examinations and candidacy examinations; or the possession and/or use of unauthorized materials during those examinations;
3. Knowingly providing or using assistance in the laboratory, on field work, or on a course assignment unless such assistance has specifically been authorized;
4. Submitting plagiarized work for an academic requirement. Plagiarism is the representation of another's work or ideas as one's own; it includes the unacknowledged word-for-word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas;
5. Submitting substantially the same work to satisfy requirements for one course that has been submitted in satisfaction of requirements for another course, without permission of the instructor of the course for which the work is being submitted;
6. Falsification, fabrication, or dishonesty in reporting laboratory and/or research results;
7. Serving as, or enlisting the assistance of a substitute for a student in the taking of examinations;
8. Alteration of grades or marks by the student in an effort to change the earned grade or credit;
9. Alteration of academically-related university forms or records, or unauthorized use of those forms; and
10. Engaging in activities that unfairly place other students at a disadvantage, such as taking, hiding or altering resource material, or manipulating a grading system.

Source: http://studentaffairs.osu.edu/resource_csc.asp

Ten Suggestions for Preserving Academic Integrity: The following suggestions will help you preserve academic integrity by avoiding situations where you might be tempted to cheat or you might be perceived to be cheating.

1. **ACKNOWLEDGE THE SOURCES THAT YOU USE WHEN COMPLETING ASSIGNMENTS:** If you use another person's thoughts, ideas, or words in your work, you must acknowledge this fact. This applies regardless of whose thoughts, ideas, or words you use as well as the source of the information. If you do not acknowledge the work of others, you are implying that another person's work is your own, and such actions constitute plagiarism. Plagiarism is the theft of another's intellectual property, and plagiarism is a serious form of academic misconduct. If you are ever in doubt about whether or not you should acknowledge a source, err on the side of caution and acknowledge it.
2. **AVOID SUSPICIOUS BEHAVIOR:** Do not put yourself in a position where an instructor might suspect that you are cheating or that you have cheated. Even if you have not cheated, the mere suspicion of dishonesty might undermine an instructor's confidence in your work. Avoiding some of the most common types of suspicious behavior is simple. Before an examination, check your surroundings carefully and make sure that all of your notes are put away and your books are closed. An errant page of notes on the floor or an open book could be construed as a "cheat sheet." Keep your eyes on your own work. Unconscious habits, such as looking around the room aimlessly or talking with a classmate, could be misinterpreted as cheating.

3. **DO NOT FABRICATE INFORMATION:** Never make-up data, literature citations, experimental results, or any other type of information that is used in an academic or scholarly assignment.
4. **DO NOT FALSIFY ANY TYPE OF RECORD:** Do not alter, misuse, produce, or reproduce any University form or document or other type of form or document. Do not sign another person's name to any form or record (University or otherwise), and do not sign your name to any form or record that contains inaccurate or fraudulent information. Once an assignment has been graded and returned to you, do not alter it and ask that it be graded again. Many instructors routinely photocopy assignments and/or tests before returning them to students, thus making it easy to identify an altered document.
5. **DO NOT GIVE IN TO PEER PRESSURE:** Friends can be a tremendous help to one another when studying for exams or completing course assignments. However, don't let your friendships with others jeopardize your college career. Before lending or giving any type of information to a friend or acquaintance, consider carefully what you are lending (giving), what your friend might do with it, and what the consequences might be if your friend misuses it. Even something seemingly innocent, such as giving a friend an old term paper or last year's homework assignments, could result in an allegation of academic misconduct if the friend copies your work and turns it in as his/her own.
6. **DO NOT SUBMIT THE SAME WORK FOR CREDIT IN TWO COURSES:** Instructors do not give grades in a course, rather students earn their grades. Thus, instructors expect that students will earn their grades by completing all course requirements (assignments) while they are actually enrolled in the course. If a student uses his/her work from one course to satisfy the requirements of a different course, that student is not only violating the spirit of the assignment, but he/she is also putting other students in the course at a disadvantage. Even though it might be your own work, you are not permitted to turn in the same work to meet the requirements of more than one course. You should note that this applies even if you have to take the same course twice, and you are given the same or similar assignments the second time you take the course; all assignments for the second taking of the course must be started from scratch.
7. **DO YOUR OWN WORK:** When you turn in an assignment with only your name on it, then the work on that assignment should be yours and yours alone. This means that you should not copy any work done by or work together with another student (or other person). For some assignments, you might be expected to "work in groups" for part of the assignment and then turn in some type of independent report. In such cases, make sure that you know and understand where authorized collaboration (working in a group) ends and collusion (working together in an unauthorized manner) begins.
8. **MANAGE YOUR TIME:** Do not put off your assignments until the last minute. If you do, you might put yourself in a position where your only options are to turn in an incomplete (or no) assignment or to cheat. Should you find yourself in this situation and turn in an incomplete (or no) assignment, you might get a failing grade (or even a zero) on the assignment. However, if you cheat, the consequences could be much worse, such as a disciplinary record, failure of the course, and/or dismissal from the University.
9. **PROTECT YOUR WORK AND THE WORK OF OTHERS:** The assignments that you complete as a student are your "intellectual property," and you should protect your intellectual property just as you would any of your other property. Never give another student access to your intellectual property unless you are certain why the student wants it and what he/she will do with it. Similarly, you should protect the work of other students by reporting any suspicious conduct to the course instructor.
10. **READ THE COURSE SYLLABUS AND ASK QUESTIONS:** Many instructors prepare and distribute (or make available on a web site) a course syllabus. Read the course syllabus for every course you take! Students often do not realize that different courses have different requirements and/or guidelines, and that what is permissible in one course might not be permissible in another. "I didn't read the course syllabus" is never an excuse for academic misconduct. If after reading the course syllabus you have questions about what is or is not permissible, ask questions!

Source: <http://oaa.osu.edu/coam/ten-suggestions.html>

Reference: <http://oaa.osu.edu/coam/faq.html>

Students with Disabilities: Course materials and exercises can be made available in alternative formats. Please contact the instructor or the Office for Disability Services (ODS) at 292-3307 for further information.

The ODS facilitates exam accommodations in cooperation with instructors. To make exam accommodations, you must meet with your instructor(s) at the beginning of each quarter to discuss your disability and exam accommodation arrangements. Your instructor(s) may choose to provide you with the appropriate exam accommodation(s) in the classroom or at another site under his/her supervision. You have three exam options available to you:

1. Take the exam with the class
2. Take the exam with appropriate accommodations, if you and the instructor agree to a time and place.
3. Schedule your exams at ODS.

Test accommodations may include but are not limited to:

- Adaptive technology
- Extended time
- CCTV
- Computer
- Reader
- Scribe
- Scanned exams
- Braille
- Large print
- Distraction reduced space
- Raised table
- Tape recorded exam

For exam accommodations through ODS:

- Obtain "Proctor Checklist" from ODS for each course. New Proctor Checklists must be obtained each quarter. They do not transfer from quarter to quarter.
- Have instructor fill out the "Proctor Checklist" completely including signatures required (refer to specific instructions on the back of the form). Incomplete checklists may result in exams not being scheduled.
- Give instructor the pink copy of the checklist after being completed and before bringing the white and yellow copies to ODS.
- Mark on the checklist(s) the accommodations that are appropriate for each exam. Accommodations may not be made available to you on the day of the exam if you did not indicate them on the checklist(s).
- Personally bring (do not mail) all completed Proctor Checklists to ODS at the beginning of each quarter to schedule exams for the entire quarter or at least within five days of your exam or quiz. You are more likely to get your accommodations, equipment, or space that you need.

The student is directed to the "[Exam Accommodations](#)" portion of the Office for Disability Services for the most current information on ODS exam accommodations, including rules and procedures for Scheduling Exams, Lateness, Illness, No Show, Cancellation, and Rescheduling Policies. Failure to notify ODS of cancellations or changes of scheduled exam times may result in the possible loss of exam accommodations through ODS.

SOURCE: http://www.ods.osu.edu/services_exam.asp

Ohio State Sexual Harassment Policy: The University administration, faculty, staff, student employees, and volunteers are responsible for assuring that the University maintains an environment for work and study free from sexual harassment. Sexual harassment is unlawful and impedes the realization of the University's mission of distinction in education, scholarship, and service. Sexual harassment violates the dignity of individuals and will not be tolerated. The University community seeks to eliminate sexual harassment through education and by encouraging faculty, staff, student employees, and volunteers to report concerns or complaints. Prompt corrective measures will be taken to stop sexual harassment whenever it occurs.

SOURCE: <http://hr.osu.edu/policy/policy115.pdf>

Student Permission for Program Publicity: During your participation in the First-Year Engineering Program, photographs, printed material, and videotapes may be made for the purpose of informing the university community and the general public about activities in the College. Student images in the above media may be used to promote College programs and to make public announcements of student accomplishments and those of other students. If you do not wish for your image to be used, please contact Ms. Winnie Sampson in 244K Hitchcock Hall or at Sampson.38@osu.edu.

Daily Schedule and Assignment List:

Date Of Class	Read Before Class	Topics to Be Covered in Class	Problem Started in Class	Dwg. Number	Dwg. Due
9/19	TG Ch.1 INV Ch.1	Course Introduction - Graphics: the language of design, TG Chapter 1 - Examples: Sketches (OP & Iso), drawings (OP), models.	BLOCKS* (Sketch), A5* & DEV-1*	1 2 (CP)	1
9/20	INV Ch.2	INV Chapter 2 - Parametric Modeling - shape, size	Chapter 2 Ch.2 – EX. 2	3 4	2, 3
9/24	TTD Ch. 3	Teamwork & Project Mgmt., Team Building Exercise, Assessment - Basic Graphics	Team Agreement	5	4
9/25 or 9/26	TG Ch.2 & 3.1-3.9, 3.13	Projection systems: Orthographic and Isometric (OP Sketches - use MSP)	T13 TG 2.7 & 2.20	6 (CP) 7	5, 6
9/26 or 9/25 or 9/27	Lab Write-up, TW p. 8-23	Eng. Lab #1– Team Design, Build, Compete Lab Write-up	No Report	Lab #1	
9/27 or 9/26	TG Ch.4.1-4.2, INV Ch.3	Review Isometric Sketching (Iso sketches – use ISP), INV Chapter 3 - Constructive Solid Geometry	TG 2.22, 2.29, 2.37 & 2.39 Chapter 3	8 9	7, 8
10/01	TG Ch. 12	QUIZ: Modeling & TG Chapters 1 & 2 Sketched Charts & Graphs –Use MSP	TG 12.10 &12.11 CHART 2	10 11 (CP)	9, 10
10/02 or 10/03	WE p. 1-10, 141-153	Computer generated Charts & Graphs Use of EXCEL	G69 G71A	12 (CP) 13 (CP)	11, 12
10/03 or 10/02 or 10/04	Lab Write-up, WE p. 91-98	Eng. Lab #2 – Highway Spot Speed Checks Lab Write-up and notes in WE	Report Required	Lab #2	
10/04 or 10/03	INV Ch.3	Review Constructive Solid Geometry Missing Lines with Isometrics (Use ISP)	Ch.3 – EX. 2 ML-1	14 15 (CP)	13, 14
10/08	INV Ch.4	INV Chapter 4 - Model History Tree Assessment - Learning Styles	Chapter 4 Ch. 4 – EX. 3	16 17	15, 16
10/09 or 10/10	TG Ch. 5	Section Views	SECT-1 G18b	18 (CP) 19 (CP)	17, 18
10/10 or 10/09 or 10/11	Lab Write-up, TW p. 18-49, 78-81	Eng. Lab #3 – Mechanical Components (Springs & Levers; Gears; Sprockets & Chains) Lab Write-up	Report Required	Lab #3	Lab #2
10/11 or 10/10	TG Ch. 5	QUIZ: TG Chapter 5, Section Views Sections – Assemblies & Conventions	T55 F21	20 (CP) 21 (CP)	19, 20
10/15		First Midterm - Modeling, Orthographic & Isometric Views & Sections - 100 minutes (Dwgs. 1 – 20)			
10/16 or 10/17	INV. Ch. 5	INV Chapter 5 - Parametric Constraints	Chapter 5 Ch. 5 – EX. 3	22 23	21, 22
10/17 or 10/16 or 10/18	Lab Write-up	Eng. Lab #4 – Viscosity Lab Write-up	Report Required	Lab #4	Lab #3
10/18 or 10/17	TG Ch. 6, p. 1-17,23-29	Introduction to Dimensioning	DIM-1 G23	24 (CP) 25 (CP)	23, 24

Abbreviations: TG – Technical Graphics, 2nd Ed., TW – The New Way Things Work, INV – Parametric Modeling with Inventor 2008, TTD – Tools and Tactics of Design, WE – Writing as an Engineer, 2nd Ed., MSP – Multi-view sketch paper, ISP – Isometric sketch paper, CP – Course Packet, * - Handout provided in class.

Date Of Class	Read Before Class	Topics to Be Covered in Class	Problem Started in Class	Dwg. Number	Dwg. Due
10/22		Dimensions & Scaling	DIM- 7 1-3,2-4,3-3	26 (CP) 27 (CP)	25, 26
10/23 or 10/24		QUIZ – TG Chapter 6, Dimensioning Functional Dimensioning w/ Finished Surfaces	G25-A G26	28 (CP) 29 (CP)	27, 28
10/24 or 10/23 or 10/25	Lab Write-up, TW, p. 256- 259, 266-281	Eng. Lab #5 – DC Electricity & Motors Lab Write-up	Report Required	Lab #5	Lab #4
10/25 or 10/24	INV. Ch.6	INV Chapter 6 – Geometric Construction Tools Functional Dimensioning	Chapter 6 Ch. 6 – EX. 3 B25	30 31 32 (CP)	29, 30
10/29	TG Ch. 6, p. 18-22	Fits and Tolerances	A26 G29	33 (CP) 34 (CP)	31, 32, 33
10/30 or 10/31	INV Ch. 7	Multiple assembly fits INV Chapter 7 – Relationships and the BORN technique	TOL-3B Chapter 7	35 (CP) 36	34, 35
10/31 or 10/30 or 11/01	Lab Write-up, TW p.284-7	Eng. Lab #6 – AC Electricity & Power Systems Lab Write-up	Report Required	Lab #6	Lab # 5
11/01 or 10/31	TG Ch. 7	Surface control symbols Geometric dimensioning and tolerancing	T72 AD-1B	37 (CP) 38 (CP)	36, 37
11/05	Ethics Module & Case Quiz	QUIZ – TG Chapter 6, Fits & tolerances Engineering Ethics	Case Quiz Post Quiz	39 (OL) 40_41(OL)	38, 39
11/06	TG Ch. 8 INV Ch. 8	Fastening & Joining INV Chapter 8 – Part Drawings & Assoc. Functionality	FD-1B G32c Chapter 8	42 (CP) 43 (CP) 44	40_41, 42, 43
11/07 or 11/06 or 11/08	Lab Write-up	Eng. Lab #7 – Materials, Joining, and Beam Bending, Lab Write-up	Report Required	Lab #7	Lab # 6
11/08 or 11/07	INV Ch.10 INV Ch.12	INV, Chapter 10 – Symmetrical Features in Design INV, Chapter 12 – Assembly Modeling – Collar (Detail 1) & Base Plate (Detail 3)	Chapter 10 Ch.12 Dtl. 1 Ch. 12 Dtl. 3	45 46 47	44
11/12		** Veteran's Day Holiday – No Class **			
11/13 or 11/14	TG Ch. 9	QUIZ: TG Chapter 8, Fastening & Joining Production or Working Drawing Set	A31 Set	48_49(CP)	45, 46, 47
11/14 or 11/13 or 11/15	Lab Write-up, TW p. 24-25, 64, 372	Eng. Lab #8 – Measurements Lab Write-up	Report Required	Lab #8	Lab #7
11/15 or 11/14	TG Ch. 9 INV Ch.12	Reading a working drawing set INV Chapter 12 – Assembly Modeling	B33.1 set Ch.12 Assy.	50 (CP) 51_52	48, 49
11/19		Second Midterm Exam – Dimensions, Tolerancing & Fastening - 100 minutes (Dwgs. 21- 47)			
11/20	INV Ch.12	Working Drawing Set: Assembly w/Bill of Material and Dimensioned Details of Each Part	*Handout	53_54_55	50, 51_52
11/21	INV Wkg Dwg Set	Working Drawing Set – Rocker Arm Device			53_54_55, Lab #8
11/22		** Thanksgiving Day Holiday – No Class **			

Abbreviations: TG – Technical Graphics, 2nd Ed., TW – The New Way Things Work, INV – Parametric Modeling with Inventor 2008, TTD – Tools and Tactics of Design, WE – Writing as an Engineer, 2nd Ed., CP – Course Packet, OL – Online in Carmen, * - Handout provided in class.

Date Of Class	Read Before Class	Topics to Be Covered in Class	Problem Started in Class	Dwg. Number	Dwg. Due
11/26	TG Ch. 13	2 Person Design Project – Introduction to Design Process, Brainstorming, and Preliminary Design	Design Project	*Score Sheet	
11/27		Design Project (Evening – Review for Lab Practical Exam)			
11/28		Assessment - Basic Graphics; Lab Practical Exam (25 minutes) Design Project			
11/29		Design project competition Review & Wrap-up			Score Sheet
12/01-03		Study for final exam			
Tuesday 12/04		Comprehensive Final Examination: 7:30 Sections – 5:30 to 7:18 PM, in Room HI 224 9:30 Sections – 9:30 to 11:18 AM, in your regular classroom 1:30 Sections – 5:30 to 7:18 PM, in your regular classroom 3:30 Sections – 3:30 to 5:18 PM, in your regular classroom			

Accrediting Board for Engineering and Technology (ABET) - Program Criteria:

ABET Criteria	Introduced in FEH program		
	Autumn	Winter	Spring
Engineering programs must demonstrate that their graduates have:			
(a) an ability to apply knowledge of mathematics, science, and engineering	Yes	Yes	Yes
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	Yes	Yes	Yes
(c) an ability to design a system, component, or process to meet desired needs	Yes	Yes	Yes
(d) ability to function on multi-disciplinary teams	Yes	Yes	Yes
(e) an ability to identify, formulate, and solve engineering problems	Yes	Yes	Yes
(f) an understanding of professional and ethical responsibility	Yes		Yes
(g) an ability to communicate effectively	Yes	Yes	Yes
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context			
(i) a recognition of the need for, and an ability to engage in life-long learning	Yes		Yes
(j) a knowledge of contemporary issues			
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	Yes	Yes	Yes