SAM HOUSTON STATE UNIVERSITY

COLLEGE OF SCIENCE & ENGINEERING TECHNOLOGY

DEPARTMENT OF ENGINEERING TECHNOLOGY

COURSE SYLLABUS

ETEE 1340 ELECTRONICS TECHNOLOGY I

Fall 2017

Department: Engineering Technology
Course Name/ Title: ETEE 1340 02 Electronics Technology I - 80592
Semester: Fall 2017
Credit: 3 Hours (2-2 Format)
Location/Time: Pirkle 220 (Lecture) and Pirkle 140 (Lab), Tue/Thurs: 10:00am – 11:50am
Instructor: Iftekhar Ibne Basith
Office: Pirkle 420F
Email: iib002@shsu.edu
Phone: 936-294-4139
Office Hours: Tue/Thurs 12pm - 1pm or by appointment

Course Catalog Description: This course is designed to provide a general knowledge of electrical and electronic applications. Emphasis is on *electrical safety, power generation, DC circuits, metering instruments,* and *circuit-use applications*. Laboratory experiences will include "hands-on" circuit construction and basic troubleshooting.

Required Textbook: Pearson Custom Electronics Technology, Sam Houston State University ETEE 1340 Electronics Technology I, Pearson Prentice Hall, 2011. ISBN: 13 978-1-256-20944-7. ISBN 10: 1-256-20944-9.

Required Laboratory Workbook: Experiments in Electronics Fundamentals and Electric Circuits Fundamentals, 8th edition. David M. Buchla, Pearson Prentice Hall, 2010. ISBN: 978-0-13-506327-9.

Required Supplies: A notebook, A Texas Instruments scientific/engineering type calculator.

Course Objectives: Circuit analysis that constitutes the main pillars of Electrical/Electronics Engineering and Technology is based on mathematical techniques and is used to show the behavior of the electrical circuit model and ideal circuit components. This course is designed to provide a general knowledge of electrical and electronic applications. Emphasis is on *electrical safety, power generation, DC circuits, metering instruments,* and *circuit-use applications*. Laboratory hands-on experiments will include *circuit construction, soldering,* and *basic troubleshooting*.

- Learn the fundamental concepts of DC circuit analysis to understand the behavior of each ideal DC circuit element in terms of V (voltage), I (current), and P (power).
- Understand the constraints imposed on the voltage and current as a result of interconnecting the ideal circuit elements widely to design variety of circuits used in electrical /electronics/computer engineering technology programs.
- Troubleshoot a variety of basic DC (mostly) electronics circuits. You will also learn the knowledge of "The International System of Units" (SI).
- Learn how to use scientific notations to represent quantities while working with electrical units and metric prefixes. Recognize electrical hazards.
- Identify resistor values and select proper resistors for specific applications.
- Describe the nature of electricity and the force that moves current around a closed loop.
- Describe the relationship of voltage, current, and resistance. Demonstrate the application of OHM's law.
- Solve for missing voltage, current, resistance and power in series, parallel, and series-parallel circuits.
- Demonstrate knowledge of Kirchoff's law.
- Properly measure voltage, current, and resistance using analog and digital meters.
- Describe the basic theory of magnetism, AC voltage, and alternating current.

Class Structure and Attendance: This is an important fundamental class and your attendance is highly encouraged. *Lectures*, *in-class problems* and *discussions*, *laboratory experimental projects*, and *homework assignments* will constitute the structure of the course. The make-up labs and exams will be given only in the case of **documented physical illness** (**In this case, students must inform instructor at least 24 hours before the exam**).

Homework Assignments: Homework assignments will be available through SHSU Blackboard. The HW assignments will be automatically graded by blackboard system and be available to students after completion of each HW assignment. The HW assignments will not be available to the students after the due dates. No credit will be given for late/missed homework assignments. The best two HW will be counted **only** on the condition that you submit all the HW on time and within deadline. If you miss any single deadline for HW submission, then the average of the HW will be considered for your grade.

Blackboard Use: Presentations, course syllabus, Lab/HW assignments will be available in blackboard system. All the HW assignments will be completed through Blackboard systems. Please pay attention to the due dates.

Grading Scale: The final grade will be based on the following requirements.

Mid-term Test (Best of Two)	**20%**
Final Exam	**20%**
Laboratory Experiments	**30%**
Homework Assignments (Best Two of Minimum Five)	**10%**
Attendance, Observed performance, Attitude	**10%**
Project Presentation	**10%**
Total	**100%**

Percentage range	Grade
90 – 100	A
80 – 89	B
70 – 79	C
60– 69	D
0-59	F

Classroom Rules of Conduct: Students will avoid doing behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, obstructs the mission of the university. Cellular *telephones* and *pagers* must be turned off before class begins. Students are prohibited from *eating in class*, *using tobacco products*, *making offensive remarks*, *reading newspapers*, *sleeping*, *talking at inappropriate times*, or *engaging in any other form of distraction*. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

Why Electric/Electronics Circuits and Labs?

- *"ABET, national accrediting agency for schools of engineering and technology has indicated that knowledge of electricity is important for a well-balanced engineering/technology education and hence it is a component in all accredited engineering technology curricula."*
- *"Knowledge of electricity is simply a tool that you as a technically educated person about to enter the twenty-first century should have. Given the growth in things electrical over the past five decades, we can easily guess that the future will see a compounding of that problem. You definitely need this knowledge to deal with computers, electronics & communications, digital signal processing, and electrical power over a career of 40 +years."*

ETEE 1340 02 Electronics Technology I			
Week	**Date**	**Subject**	**Reading References**
1	8/24	Introduction to the Course and Safety **Ch 1.** Quantities and Units	 Textbook pp. 4-22
2	8/29 8/31	**Ch 1.** Quantities and Units **HW#1** (**Due Following Week**) – ONLINE **Ch 2.** Voltage, Current, and Resistance Shock & Hazard Power Tools Video	Textbook pp. 4-22 Textbook pp. 24-74
3	9/5 9/7	**Ch 2.** Voltage, Current, and Resistance Shock & Hazard Power Tools Video **HW#2** (**Due Following Week**) – ONLINE Introduction to Testing Equipment, Breadboard (Prototype Board), Digital/Analog Multimeters and Power Supply - Electrical Safety	Textbook pp. 24-74
4	9/12 9/14	**Ch 3.** Ohm's law, Energy, and Power **HW#3** (**Due Following Week**) - ONLINE	Textbook pp. 76-114
5	9/19 9/21	Lab #1 (**Due Following Week**) Lab #2 (**Due Following Week**)	Workbook pp. 19-38
6	9/26 9/28	Lab #3 (**Due Following Week**) Lab #4 (**Due Following Week**)	Workbook pp. 39-46
7	10/3 10/5	**Exam # 1 (Chapter 1, 2 and 3)** **Project Mid-Presentation**	Best of Luck
8	10/10 10/12	**Ch 4.** Series Circuits **HW#4** (**Due Following Week**) – ONLINE **Ch 5.** Parallel Circuits	Textbook pp. 116-169
9	10/17 10/19	Lab #5 (**Due Following Week**) Lab #6 (**Due Following Week**)	Workbook pp. 51-60 Workbook pp. 51-60
10	10/24 ***10/26***	**Ch 5.** Parallel Circuits **HW#5** (**Due Following Week**) – ONLINE Lab #7 (**Due Following Week**)	Textbook pp. 171-218 Workbook pp. 65-75
11	10/31 11/2	**Ch 6.** Series Parallel Circuits **HW#6** (**Due Following Week**) – ONLINE	Textbook pp. 220-283
12	11/7 11/9	Lab #8 (**Due Following Week**) Lab #9 (**Due Following Week**)	Workbook pp. 65-75 Workbook pp. 81-85
13	11/14 11/16	**Exam # 2 (Chapter 4, 5 and 6)** **Ch 7.** Magnetism & Electromagnetism **HW#7** (**Due Following Week**) – ONLINE **Ch. 8** Introduction to Alternating Current and Voltage **HW#8** (**Due Following Week**)	Best of Luck Textbook pp. 285-313 Hand-outs will be provided
14	11/21 11/23	Power and Energy (DC vs. AC) **HW#9** (**Due Following Week**) ***Thanksgiving Holiday, No CLASS***	Hand-outs will be provided
15	11/28 11/30	Lab #10 (**Due Following Week**) Final Project Presentation	Workbook pp. 91-101
17	***12/4 - 12/7***	**FINALS (Chapters 7, 8 and Last Lecture)**	Best of Luck

Course Content and Lab Schedule: The tentative course content schedule will include the following topics. Depending upon extra handouts//homework assignment explanations, ***the tentative course content may be shifted slightly later in the semester***.

Laboratory Instructions

Laboratory Assignments: There are regular labs will be announced by the instructor during the lectures for this course. All laboratory project assignments must be completed for your lab grading. You must obey departmental laboratory safety rules & policies. ***You must attend and successfully complete each lab.*** Before each Lab, please prepare yourself enough by reading the objective, procedure and theory from the required workbook pages. LAB reports due dates are provided in the tentative schedule. Make sure you write clearly and neatly! If you miss any LAB you will lose points (30) for that corresponding LAB (**make up labs are only allowed in case of documented illness**).

Note: *It is the student's responsibility to arrange make-up labs with the instructor/TA. Make-up labs may be considered with a report proven medical reason.*

Rules and Recommendations for Effective and Safe Use of the Laboratory and Work Benches in Pirkle 140 (Electronics Lab)

1. ***DO NOT turn on the power before the instructor checks your circuit!***

2. Use the coat racks for neat laboratory appearance as well as safety. Do not place coats or book bags on workbenches.

3. Refrain from drinking beverages in the laboratory. The hall may be used for intervals of relaxation.

4. ***The lab bench must be cleaned and all wires must be returned to the hooks provided in the lab room before leaving the room.***

5. Report all component and equipment failures to your Instruct or lab TA. Neglecting to report faulty equipment causes problems for the next group that uses the bench and may result in injuries.

6. When using the instruments ***DO NOT STACK THEM,*** as the combined heat may cause component failure.

7. Place all of the trainer units, transformers, motors, DMMs, resistors, inductors, capacitors, etc., back to their original places and/or *original rated* boxes after you are done with the laboratory.

8. ***All power switches should be turned off before leaving the lab bench.***

9. Rings and other jewelry, which may cause a potential hazard, must be removed before working in the laboratory.

10. No individual should operate equipment in the laboratory until the appropriate examinations are passed and/or demonstrations by instructor are safely observed.

Laboratory Experiments

Lab1: Metric Prefixes, Scientific Notation, and Graphing. (pp. 19-26)
Procedure: Fill out blanks and tables 1-7
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1-6

Lab 2: Laboratory Meters and Power Supply. (pp. 31-38)
Procedure: Fill out blanks and tables 1-11
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1-6

Lab 3: Measurement of Resistance. (pp. 39-42)
Procedure: Fill out blanks and tables 1- 6
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1-6

Lab 4: Voltage Measurement & Reference Ground. (pp. 43-46)
Procedure: Fill out blanks and tables 1- 6
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1- 5

Lab 5: Ohm's Law (pp. 51-54)
Procedure: Answer questions 1 - 7
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1- 5

Lab 6: Power in DC Circuits. (pp. 57-60)
Procedure: Answer questions 1 - 6
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1-6

Lab 7: Series Circuits (pp. 65-68)
Procedure: Answer questions 1 – 9
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1- 5

Lab 8: The Voltage Divider (pp. 71-75)
Procedure: Answer questions 1-10
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1-5

Lab 9: Parallel Circuits (pp. 81-85)
Procedure: Answer questions 1 – 9
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1- 5

Lab 10: Series - Parallel Combination Circuits (pp. 91- 95)
Procedure: Answer questions 1 – 12
Conclusion: Summarize what you have learned from this lab experiment in short form
Evaluation and Review Questions: Answer the questions 1- 5

Lab Submission Procedure

*Take a picture of the workbook pages after the lab is completed, review questions answered and signed by the instructor; convert this to single page pdf; name the file as "**LABNUMBER_LASTNAME_SAMID_ETEE 1340_02_FALL2017**" and upload in the blackboard. **NO email submission** is accepted. Only one **single pdf** file is accepted; **no picture** files, **no multiple** files. You can use the app "**CamScanner**" for this purpose. Download it free from app store and use it.*

General Safety Procedures – Introduced by the instructor	
I. Introduction: How Electricity Works a. Conductors b. Insulators c. Grounding	II. Hazards of Electricity a. Electrical shock b. Electrical burns c. Electrical fires d. Case Studies of Electrical Accidents
III. Types of Electrical Hazards a. Working on energized (hot) circuits b. Loose connections c. Frayed or missing insulation d. Missing ground prongs on plugs e. Water and electricity don't mix f. Damaged power tools g. Ungrounded equipment h. Improper use of extension cords	IV. How to Protect Yourself from Electricity a. General electrical safety rules b. Properly grounded electrical circuits c. Ground fault protection near water sources d. Insulated power tools e. Proper housekeeping f. Don't overload circuits
V. Soldering Hazards a. General soldering safety rules b. Proper handling of soldering equipment	

Academic Dishonesty: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

Student Absences On Religious Holy Days Policy: Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student who is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

Disabled Student Policy: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

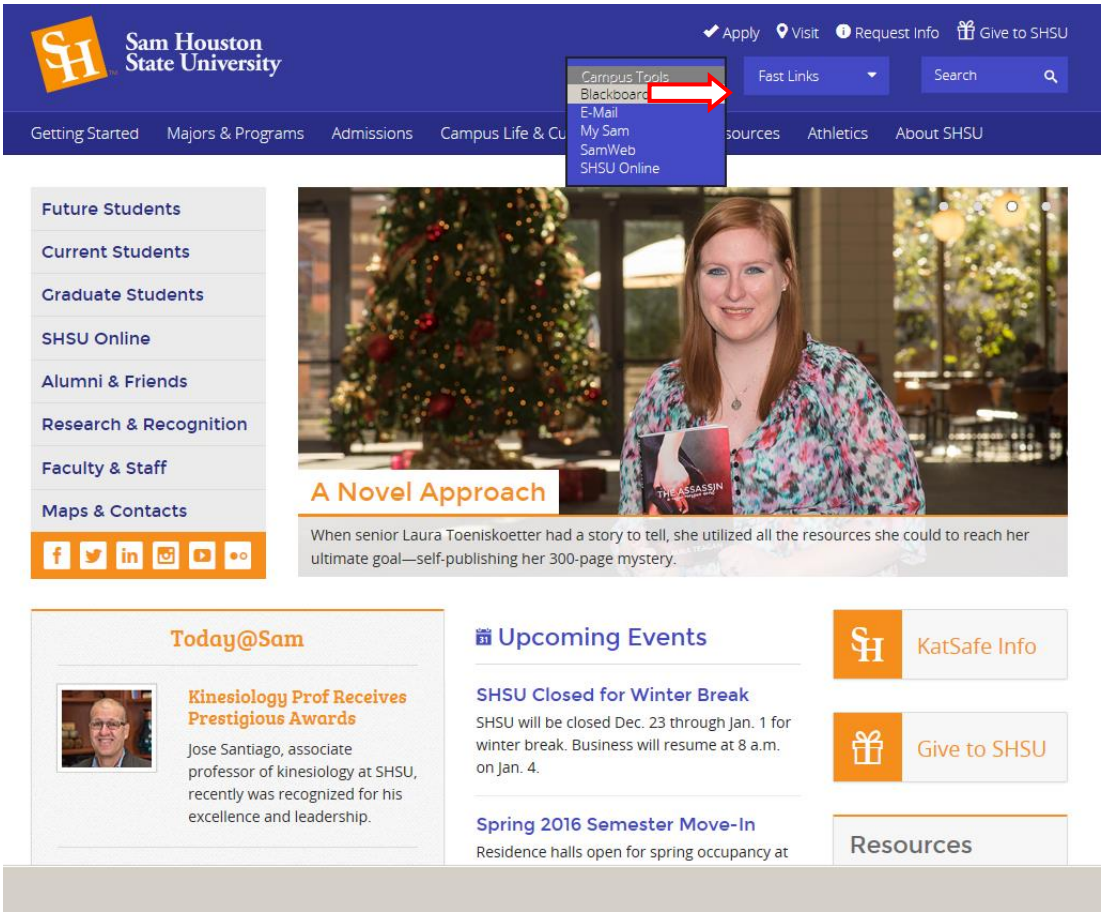
http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf

Tobacco Policy: In order to promote a healthy, safe, and aesthetically pleasing work, educational, and living environment, Sam Houston State University (SHSU) will endorse a smoke free and tobacco free environment. The primary purpose of this policy is to establish guidelines prohibiting smoking and the use of all tobacco products. Tobacco products include cigarettes, cigars, pipes, smokeless tobacco, and all other tobacco products. This policy applies to all faculty, staff, students, employees of contractors, and visitors of Sam Houston State University on the premises of the university.

Visitors in the Classroom: Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

"The above schedule, policies, and assignments in this course are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students."

SHSU Blackboard: Please see below. All the course documents are located under "Course Documents" tab.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SamWeb
SHSU Online
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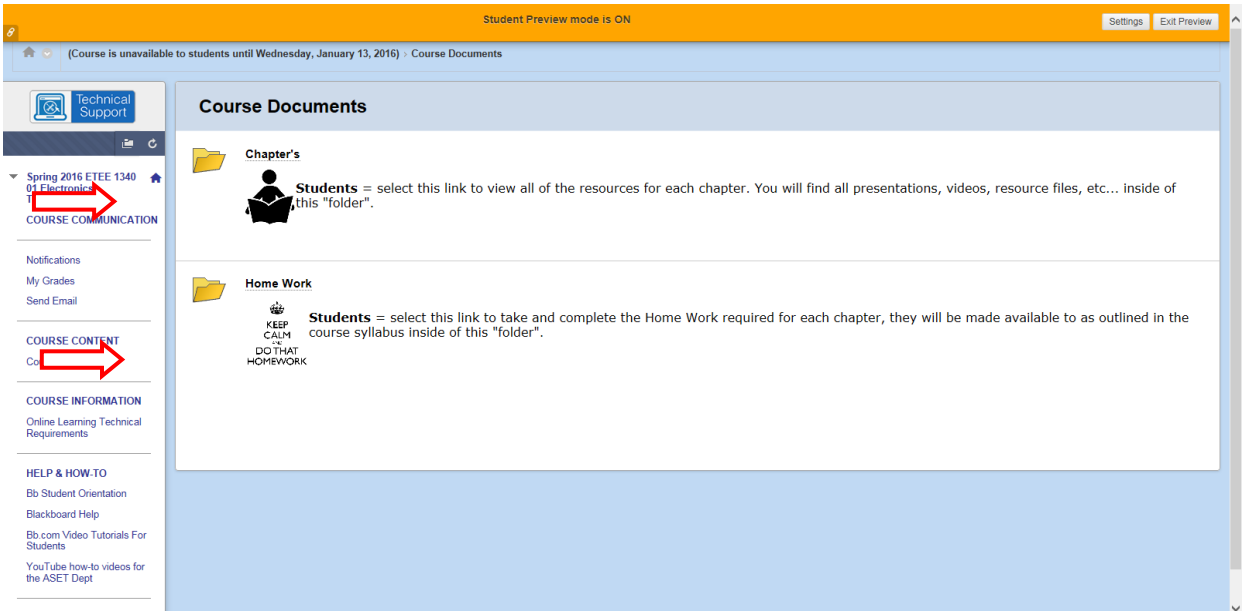
Getting Started
Majors & Programs
Admissions
Campus Life & Cu
sources
Athletics
About SHSU
Future Students
Current Students
Graduate Students
SHSU Online
Alumni & Friends
Research & Recognition
Faculty & Staff
Maps & Contacts
A Novel Approach
When senior Laura Toeniskoetter had a story to tell, she utilized all the resources she could to reach her ultimate goal—self-publishing her 300-page mystery.
Today@Sam
Kinesiology Prof Receives Prestigious Awards
Jose Santiago, associate professor of kinesiology at SHSU, recently was recognized for his excellence and leadership.
Upcoming Events
SHSU Closed for Winter Break
SHSU will be closed Dec. 23 through Jan. 1 for winter break. Business will resume at 8 a.m. on Jan. 4.
Spring 2016 Semester Move-In
Residence halls open for spring occupancy at
KatSafe Info
Give to SHSU
Resources


Student Preview mode is ON
Settings
Exit Preview
(Course is unavailable to students until Wednesday, January 13, 2016) › Course Documents
Technical Support
Spring 2016 ETEE 1340
COURSE COMMUNICATION
Notifications
My Grades
Send Email
COURSE CONTENT
COURSE INFORMATION
Online Learning Technical Requirements
HELP & HOW-TO
Bb Student Orientation
Blackboard Help
Bb.com Video Tutorials For Students
YouTube how-to videos for the ASET Dept
Course Documents
Chapter's
Students = select this link to view all of the resources for each chapter. You will find all presentations, videos, resource files, etc... inside of this "folder".
Home Work
KEEP CALM AND DO THAT HOMEWORK
Students = select this link to take and complete the Home Work required for each chapter, they will be made available to as outlined in the course syllabus inside of this "folder".