Syllabus for EET 101 Introduction to Electronics

LEC INSTRUCTOR: _________________ OFFICE: ________ PHONE: (856)-222-9311 ext. _____

LAB INSTRUCTOR: _________________ OFFICE: ________ PHONE: (856)-222-9311 ext. _____

PREQUISITES / COREQUISITES: MTH 075 or High School Algebra Proficiency
(EET101 cannot be taken after passing EET121)

SEMESTER CREDIT HOURS: 3

COURSE DESCRIPTION:
This course explores the fields of electronics and computers for those who have no experience in these fields. It includes circuit components, Ohm’s Law, basic DC and AC circuits, and an introduction to power supplies, transistor and integrated circuit amplifiers and opto-electronic communications. Laboratory experiments cover these topics and verify lecture theory. The laboratory also introduces measurement techniques using a multimeter, function generator, oscilloscope and computer simulation using circuit analysis software.

COURSE MEETINGS: 2 Days per Week for 2 Hours Each.

1st day: ¾ hours is for HW, Question/Answer session
1 ¼ hrs is for Lecture

2nd day: 2 hours is for Lab

RATIONALE:
Introduction to Electronics is required in the technical preparation part of the A.A.S. Degree in Electronics Engineering Technology as a prerequisite for Circuits I (EET121) if a student does not have previous circuit background. This course is part of the Electronic Engineering Technology program and Computer Servicing and Networking Technology option. This A.A.S. Degree Program and Option prepare residents of Burlington County to qualify for job opportunities as an electronic technician.

This course can also be used as an elective in other technology programs to give students a well-rounded background of the basics of electrical laws and a survey of the various areas of electronics with practical hands on labs.

This course can also be used by someone considering exploring the field of Electronics and wants to gain an insight of what Electronics is about and how this knowledge can be applied to the real world. Through labs with practical applications, the course provides a survey of the various areas of electronics and an introduction to the courses offered in the program.
The Electronic Engineering Technology program and this course, is transferable to Drexel’s, NJIT’s or FDU’s BS degree in Engineering Technology.

The Computer Servicing & Networking Technology option for the EET degree and this course, is transferable to Drexel’s BS degree in Engineering Technology (with Mechanical concentration); or NJIT’s BS Degree in Engineering Technology with the Computer Option.

REQUIRED TEXT and 3 Ring Binders:


Two ½ “ 3 Ring Binders to hold the Lectures, HW, Labs and Test Equip. Instr. Guide.

EVALUATION:

A. Three (3) absences are permitted per term. Students are expected to be on time and stay for the full duration of the class, otherwise they may be marked absent. If a student’s absences exceed 3 days (10%), the instructor may impose a penalty of up to 10% of the final grade.

B. Academic misconduct that disrupts the learning process in class such as excessively leaving the classroom for cell phone conversations can affect the final grade.

C. Calculation of the Final Grade Point Average

<table>
<thead>
<tr>
<th>Test Grade Average</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW Grade Average</td>
<td>20%</td>
</tr>
<tr>
<td>Lab Grade Average</td>
<td>30%</td>
</tr>
</tbody>
</table>

| Labs 4, & 11, All Tests and Surveys will be kept for Assessment |

FINAL GRADE BREAKDOWN

<table>
<thead>
<tr>
<th>A</th>
<th>100 to 90</th>
<th>C</th>
<th>74 to 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>B+</td>
<td>89 to 85</td>
<td>D</td>
<td>69 to 65</td>
</tr>
<tr>
<td>B</td>
<td>84 to 80</td>
<td>F</td>
<td>below 65</td>
</tr>
<tr>
<td>C+</td>
<td>79 to 75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Electronics Engineering Technology program, which has a Computer Servicing & Networking Technology option, is accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET

ABET • 415 North Charles Street, • Baltimore, MD 21201 • Phone: (410)-347-7700
http://www.abet.org

The Electronics Engineering Technology program and Computer Servicing & Networking Technology option

Program Mission Statement

The mission of the Rowan College at Burlington County Electronics Engineering Technology program and Computer Servicing & Networking Technology option is to produce graduates who are able to obtain employment as a technician or transfer to a four-year college. In addition, our graduates will be technically competent, able to communicate effectively, work well with others and demonstrate professionalism.

Program Educational Objectives

“The Electronics Engineering Technology program and Computer Servicing & Networking Technology option prepare graduates who, during the first few years after graduation, should be able to:

1. Establish productive careers utilizing technical and professional skills to support design, implementation, application, manufacturing, sales and maintenance of electrical, electronic and computer systems.

2. Participate in life-long learning and continuous improvement opportunities through the pursuit of advanced degrees and other professional development opportunities.

3. Demonstrate awareness of the ethical responsibility of the profession in a diverse global environment.”
Student Outcomes

Graduates of the Electronics Engineering Technology program and Computer Servicing & Networking Technology option should be able to:

a. apply the knowledge, techniques, skills, and modern tools of the discipline to engineering technology activities;

b. apply knowledge of analog and digital electronics, computers, networks, mathematics and science to technical problems or projects;

c. conduct standard laboratory tests and measurements, and to analyze and interpret experiments;

d. function effectively as a member of a technical team;

e. identify the characteristics of, analyze and solve technical problems;

f. apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to use appropriate technical literature;

g. express a commitment to address professional development thru conferences, seminars, courses and the pursuit of advanced degrees;

h. express a commitment to address professional and ethical responsibilities, including societal and global issues and a respect for diversity; and

i. recognize a commitment to quality, timeliness and continuous improvement.

* j. apply circuit analysis and design, computer programming, associated software, analog and digital electronics, and microcomputers, and engineering standards to the building, testing, operation, and maintenance of electrical/electronic(s) systems.

* k. apply the principles of physics or chemistry to electrical/electronic(s) circuits in a rigorous mathematical environment at or above the level of algebra and trigonometry.

* Outcomes j. and k. are program specific outcomes from the document: CRITERIA FOR ACCREDITING ENGINEERING TECHNOLOGY PROGRAMS: Effective for Reviews During the 2014-2015 Accreditation Cycle and are not part of the general ABET Student Outcomes (a. - i.).
## EET 101

### Course Learning Outcomes with Means of Assessment and Expected Performance Criteria

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>Performance Criteria: A minimum of 70% of students will achieve at least a 70% for the following activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students should be able to:</td>
<td></td>
</tr>
<tr>
<td>1. conduct laboratory tests and</td>
<td>a) <strong>Lab 4</strong> Parallel Circuit Measurements and Multisim Analysis (Correct answer)</td>
</tr>
<tr>
<td>measurements on passive and IC</td>
<td>b) <strong>Lab 11</strong> A Karaoke IC Power Amp with Mic. and mp3 player Inputs (Correct answer)</td>
</tr>
<tr>
<td>circuits</td>
<td></td>
</tr>
<tr>
<td>2. express a commitment to address</td>
<td>a) <strong>Survey #1</strong> on how many are planning on obtaining an AAS in EET or CS&amp;NT degree (Over 70% positive response)</td>
</tr>
<tr>
<td>professional development thru:</td>
<td>b) <strong>Survey #2</strong> on how many are committed to planning on continuing professional development thru conferences, seminars, courses and the pursuit of advanced degrees (Over 70% positive response)</td>
</tr>
<tr>
<td>1. planning to obtain an EET or</td>
<td></td>
</tr>
<tr>
<td>CS&amp;NT degree</td>
<td></td>
</tr>
<tr>
<td>2. responding positive to commit</td>
<td></td>
</tr>
<tr>
<td>to continue professional</td>
<td></td>
</tr>
<tr>
<td>development thru conferences,</td>
<td></td>
</tr>
<tr>
<td>seminars, courses and the pursuit</td>
<td></td>
</tr>
<tr>
<td>of advanced degrees</td>
<td></td>
</tr>
</tbody>
</table>

### Relationship of Course Learning Outcomes (#) to Student Outcomes (a, b, c…)

<table>
<thead>
<tr>
<th>Course Outcome #</th>
<th>Student Outcomes - Graduates should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>c. conduct standard laboratory tests and measurements, and to analyze and interpret experiments</td>
</tr>
<tr>
<td>2</td>
<td>g. express a commitment to address professional development thru conferences, seminars, courses and the pursuit of advanced degrees</td>
</tr>
<tr>
<td>Unit &amp; Week #</td>
<td>Topic</td>
</tr>
<tr>
<td>--------------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| 1 | **Conduction, Current, and Voltage**  
Lab 1 - Building and using a Continuity Tester |
| 2 | **Resistance, Prefixes, Ohm’s Law, and Power**  
Lab 2 - Resistance Color Code, Use of DMM to Measure Resistance, and use of Ohm’s Law to Determine Resistance.  
**Test 1** |
| 3 | **Series Circuits**  
Lab 3 - Series Circuit Measurements and an Introduction to circuit simulation software - Multisim analysis of the Series Circuit |
| 4 | **Parallel Circuits**  
Lab 4 - Parallel Circuit Measurements and Multisim analysis  
**Test 2** |
| 5 | **Introduction to Alternating Current and Voltage**  
Lab 5 - Introduction to the Function Generator and the Oscilloscope |
| 6 | **Capacitance Properties and Capacitive Reactance**  
Lab 6A - How Capacitive reactance changes with Frequency  
Lab 6B – Coupling & Bypass Cap Properties to DC+AC Waveforms  
**Test 3** |
| 7 | **Transformers, Diodes, and the Power Supply.**  
Lab 7 - Using the DMM to test the Diode and to Build a Full Wave AC Power Supply for Auto Accessories |
| 8 | **The Bipolar Transistor and Transistor Amplifiers**  
Lab 8 - Use the DMM to test the BP Transistor and to Build a 1 Transistor Headphone Speaker Amplifier  
**Test 4** |
| 9 | **Junction and MOSFET Transistors and Amplifiers**  
Lab 9 - Build a MOSFET Parabolic Dish Microphone - Headphone Amplifier |
| 10 | **Integrated Circuits, the Non-Inverting Operational Amplifier & IC Power Amps**  
Lab 10 - Build an IC Power Amp with a Microphone Input |
| 11 | **The Inverting Operational Amplifier and the Karaoke IC Power Amplifier**  
Lab 11 - Build a Karaoke IC Power Amp with Mic. and mp3 Player Inputs |
| 12 | **Optoelectronics and Light wave Communications**  
Lab 12-TX – Light Transmitter Voice Communicator  
Lab 12-RX – Light Receiver Voice Communicator |

**Note:** The Minimum Pace is 1 UNIT per WEEK.
COURSE MATERIALS:

1. **Required Text:** (Purchase)
   

2. **Required Calculator:** (Purchase)
   
   A *Scientific Calculator* will be mandatory
   
   **Cell phone calculators are not allowed for tests!**
   
   It should have Rectangular to Polar conversion. (R↔↔↔↔P Buttons) for future courses. See Calculator page for further details.

3. **Lectures:** (Purchase in RCBC bookstore for a nominal fee.)

4. **HW/Reading packet:** (Purchase in RCBC bookstore for a nominal fee.)
   
   The HW Packet will generally include:
   
   Questions and problems usually follows the order of topics in the Reading Assignment.

5. **Laboratories:** (Purchase in RCBC bookstore for a nominal fee.)
   
   For each unit there will be a laboratory.
   Laboratories will generally include:
   
   1. Objectives
   2. List of Supplies
   3. Introduction / Set Up
   4. Protoboard Layout & Check-Off Sheet where applicable.
   5. Data
   6. Calculations and / or Questions
   7. Conclusion

6. **Two ½ " Three-Ring Binders:** (In RCBC bookstore for a nominal fee.)
   
   Put in *Binder #1*, The Lecture and HW/Reading Packets, and bring *Binder #1* to the Lecture and Lab. classes.
   
   Put in *Binder #2*, The Laboratories packet, and bring Binders #1 and #2 to the Laboratory class.

7. **USB Flash Drive.** Bring to lab
College Policies:
In order for students to know their rights and responsibilities, all students are expected to review and adhere to all regulations and policies as listed in the College Catalog and Handbook. These documents can be accessed at [http://www.rcbc.edu/publications](http://www.rcbc.edu/publications). Important policies and regulations include, but are not limited, to the following:

- College Attendance Policy
- Grading Standards
  - Withdraw (W) and Incomplete Grades (I & X)
  - Withdrawal date for this semester
- Student Code of Conduct
  - Academic Dishonesty/Plagiarism and Civility
- Use of Communication and Information Technology

Office of Student Support and Disability Services:
RCBC welcomes students with disabilities into the college’s educational programs. Access to accommodations and support services for students with learning and other disabilities is facilitated by staff in the Office of Student Support (OSS). To receive accommodations, a student must contact the OSS, self-identify as having a disability, provide appropriate documentation, and participate in an intake appointment. If the documentation supports the request for reasonable accommodations, the OSS will provide the student with an Accommodation Plan to give to instructors.

For additional information, please contact the Office of Student Support at 609-894-9311, ext. 1208, disabilityservices@bcc.edu, or [http://www.rcbc.edu/studentsupport](http://www.rcbc.edu/studentsupport).
**ATTENDANCE POLICY**

Board Attendance Policy for Fall 2014 and beyond

“Students are **required to attend all classes, clinical, laboratory, and studio sessions for the full duration** of each instructional session.”

When a **student** exceeds a **ten-percent absence rate**, **grade penalties for absence** will be imposed, **not to exceed 10% of the final grade**.

(10% absence rate = **3 days for a class that meets twice per week**)

Under the new policy, there are **no longer excused absences**. Also, even **if all work is accomplished**, the **grade penalty for excessive absence may be imposed**.

Note: Attendance will be taken during Lecture and Lab.

A student who is **Late or leaves Early** will be marked accordingly.

**Poor Attendance will affect your grade.** See pages 10, 11, and 15.

Students are responsible to complete all missed course work for any type of absence.

**Students should set up a buddy system.** Get phone # of at least one classmate to find out what is missed if absent, and to go over HW and study together.

1\(^\text{st}\) Person’s Name: ___________________________ Phone # ______________

2\(^\text{nd}\) Person’s Name: ___________________________ Phone # ______________

Absences will not be counted in those cases where alternates to classroom activities are assigned during instructor attendance at professional conferences or meetings (e.g., NJEA Convention).

**ACCOMODATION FORMS**

Students who want to request Accommodation Forms should contact the Office of Student Support and Disability Services. The Coordinator is Donna Kaklamanos at ext. 1803. Her E-mail is Dkaklamanos@bcc.edu. Her Assistant can be reached at ext. 1208.
PROFESSIONAL BEHAVIOR EXPECTATIONS

Students are expected to have a professional attitude in class as indicated by the following:

1. **Good attendance**
2. **Be on time for class and stay for the full duration.**
3. Prepared for class. ie. HW complete
4. Turn in assignments on time
5. Participate in class discussions but not talk out of turn.
6. Be an active lab group participant.
7. Have good lab work habits by:
   1. Turning off equipment.
   2. Putting parts back, and particularly resistors in their proper partition in the resistor drawer.
   3. Cleaning up lab benches and pushing in chairs when done.
8. Be respectful and courteous to other students and the instructor. Give assistance to other lab groups if they ask for help.

UNACCEPTABLE / DISRUPTIVE BEHAVIOR

Disruptive behavior can include but is not limited to:

1. **Excessive talking in class** when the instructor or another student is talking. There should be only one person talking at a time in class. The Instructor or a student...not both.

2. Based on Jan 18, 07 Division meeting with the Academic Vice President, **ALL CELL PHONES ARE to be TURNED OFF During Class (Not Set to Vibrate)** If you are expecting an important call, let the instructor know ahead of time and sit by the door.

   **Excessive trips out of the classroom for cell phone conversations, snacks, bathroom, smoking, etc. during class can result in a failing grade as covered in the board policy on attendance. These matters should be taken care of outside of class time.**

3. **Other Inappropriate activities** include computer email, chat-rooms, online shopping, etc.; cell phone activities, playing games, listening to CD’s, MP3s, or iPod’s during Lecture or Lab.

These items represent Prohibited Conduct as outlined in the RCBC Student Code of Conduct. Under the sanctions, the student could be **expelled from the class and receive an F grade.**
LAB GRADE: Lab Grade Maximum is 10 Points & Counts 30% of Final Grade

1. **Day One**
   Remove staples from Lab Packet. Put separated Lab Packet into Binder #2. (Staple labs separately when turning in.)

2. **Lab Double Check System:**
   a. **1st Check Off** is worth 5 points and is given when:
      Initial data and calculations are correct.
      The lab must be set up for first check off so if there are any mistakes, the set up can be checked for errors.
   b. **The conclusion** is worth 2 Pts. of the 2nd Check-off, or 20% of the total lab grade. The conclusion must be typewritten using the format shown on page 12. At the end of the lab turn in your group’s conclusion to the lab instructor for evaluation & only leave lab after the instructor returns the marked-up conclusion.
   c. **2nd Check Off** is worth an additional 5 points and is given when:
      The lab report is complete, neat, and handed in on time.

3. **Attendance:** Attendance will be taken during lab. Students must stay for the full duration based on Board Policy, unless they complete the entire lab and have permission from the instructor to leave early.
   Points will be taken off Lab grade for time missed during Lab.

4. **Lab Due Date:** Labs are due the next lab period for full credit.
   Labs turned-in 1 week late will be penalized 1 point (1 letter grade).
   Labs turned-in 2 weeks late will be penalized 2 points (2 letter grades).
   Labs more than 3 weeks late will be penalized 3 points (3 letter grades).

5. **Make-up labs** There will be one day near the end of the semester when make-up labs can be done. Full credit will be given for a make-up lab provided the instructor’s signature with the date is on the lab, and if handed in one week after performing the lab. This is important because to receive credit for a make-up lab you must have this signature and date.

6. **Multisim** analysis of some labs is worth 1 pt. of the 5 points in the second check-off or 10% of the total lab grade unless noted.

For a complete lab, two signatures are required and a maximum of 10 points given. If a lab is not handed-in no points will be given for that lab.

**Enter your lab grade points in table below:**

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>8.</td>
<td>9.</td>
<td>10.</td>
<td>11.</td>
<td>12.</td>
</tr>
</tbody>
</table>

Drop Lowest Score  
Total Points =

Lab Average = Total Points ÷ Number of labs assigned.

Lab Grade Average will count 30% of the final grade.
Labs Conclusion Format

The Lab Conclusion is 20% of the Lab Grade.

Use the following format when typing your lab conclusions:

<table>
<thead>
<tr>
<th>Lab # - Lab Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course – Section</td>
</tr>
<tr>
<td>Date:</td>
</tr>
<tr>
<td>Name 1</td>
</tr>
<tr>
<td>Name 2</td>
</tr>
<tr>
<td>Name 3</td>
</tr>
<tr>
<td>(add’l names)</td>
</tr>
</tbody>
</table>

Notes relating to the lab conclusion may be handwritten during the lab period for reference when typing the final version. Use proper written English sentence structure & grammar. Discuss all topics on the conclusion page in a relevant and technical fashion. The length of the conclusion should be between \( \frac{3}{4} \) and 1 page. After completing the typed conclusion at the end of the Lab session, print it and turn it in to the instructor. Then, wait for instructor’s evaluation before leaving the lab.

Document Specs. for Lab Conclusion:

- **font size:** 14 point font
- **font type:** Arial, Courier
- **line spacing:** between 1.5 and 2 (double)
- **margins:**
  - left = 1.0”
  - right = 1.0”
  - top = 1.0”
  - bottom = 1.0”

Note:
Use the paragraph above as an example of the proper format.
Lab Conclusion Instructions

- Each **lab group** will submit **one Conclusion with the names of all group members.**
- Names of lab partners must be put at the top of each member’s lab,
- No group may leave early until the lab conclusion is typed, handed-in, evaluated by the lab instructor, returned to the lab group, changes made, and copies made for each lab group member.
- Any group that doesn’t get to the conclusion by the end of the lab period should hand it in at the next class session (lecture or lab). The marked-up lab conclusions will be handed back at the following class session.
- Each member of a lab group must hand-in their own lab, with lab partners names at the top, and a corrected copy of the lab conclusion attached at the end.
- **One member must also attach the instructor’s marked up conclusion at the end.**
- Conclusions may NOT be shared between groups.

Lab Grading

<table>
<thead>
<tr>
<th>Missed Lab time (late or left early)</th>
<th>-1 point for each ½ hour.</th>
<th>1 – 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive consultations with lab instructor (or other lab groups).</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Your name missing on top of first page of lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Missing lab partner(s) names on top of first page of lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Missing marked up evaluated conclusion</td>
<td>1/2</td>
<td></td>
</tr>
<tr>
<td>Sloppy work</td>
<td>up to 2</td>
<td></td>
</tr>
<tr>
<td>Calculations missing or incomplete</td>
<td>up to 2</td>
<td></td>
</tr>
<tr>
<td>No steps in calculations (answers only)</td>
<td>up to 2</td>
<td></td>
</tr>
<tr>
<td>Calculations with missing units</td>
<td>up to 1</td>
<td></td>
</tr>
<tr>
<td>Questions not answered or answered incorrectly</td>
<td>up to 2</td>
<td></td>
</tr>
<tr>
<td>Graphs/plots not done or labeled improperly</td>
<td>up to 1</td>
<td></td>
</tr>
<tr>
<td>No conclusion</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Conclusion not typed or wrong format</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Conclusion answered with incomplete sentences and/or incorrect grammar</td>
<td>up to 1</td>
<td></td>
</tr>
<tr>
<td>Incorrect or irrelevant statements for Questions or Conclusion</td>
<td>up to 2</td>
<td></td>
</tr>
</tbody>
</table>

**Grading may seem strict at the beginning, so put in your best effort to get a good grade.**
HOMEWORK GRADE: Maximum Grade is worth 5 Points and counts 20% of Final Grade

1. Question/Answer Session Grading:

At the beginning of the question/answer session, I will walk around and issue a HW grade based on its state of completion, neatness, and that all steps to problem solutions are shown.

If HW is not consistently done by the HW session the instructor may give an unannounced quiz at the beginning of the period. The pop quizzes, if given, will count 5% of the final grade.

**HOMEWORK GRADING:**

<table>
<thead>
<tr>
<th>HW Grade</th>
<th>for</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 4 ½ Pts</td>
<td></td>
<td>100 to 90</td>
</tr>
<tr>
<td>4 ½ to 4 Pts</td>
<td></td>
<td>90 to 80</td>
</tr>
<tr>
<td>4 to 3 ½ Pts</td>
<td></td>
<td>80 to 70</td>
</tr>
<tr>
<td>3 ½ to 3 Pts</td>
<td></td>
<td>70 to 60</td>
</tr>
<tr>
<td>3 to 0 Pts</td>
<td></td>
<td>60 to 0</td>
</tr>
</tbody>
</table>

1.) HW turned-in 1 week late will be penalized 1 point.

2.) HW turned-in 2 weeks late will be penalized 2 points.

3.) HW more than 3 weeks late will be penalized 3 points.

4) HW with no calculation steps will lose up to 50% off HW grade.

5) Sloppy HW will lose up to 40% off HW grade.

Enter your Homework Points in the table below:

1. ______ 2._______ 3. ______ 4._______ 5._______ 6._______
7. ______ 8._______ 9._______ 10._______ 11._______ 12._______

Drop the lowest score. Total Points =__________

HW Grade Average = (Total points ÷ Number of HW assignments) x 20.

The HW Grade average will count 20% of the final grade.
TEST REQUIREMENTS: Test Grade Average Counts 50% of the Final Grade

1. Tests must be taken on time.

2. All cell phones must be Off NOT Vibrate and put in back pack during the test. You cannot use cell phone calculators for the test.

3. You cannot leave the class during a test. If you leave the class during the test, the test will be collected.

4. You will be allowed to take one late test at end of the term with No Penalty.

5. For 2 or more late tests 10% will be deducted.

6. No low test grades will be dropped.

7. One retest will be given to replace your lowest grade if it is below 80%. This will be given at the end of the term. The maximum score is 80%

Enter your test grades in the table below:

1. _____  2. _____  3. _____  4. _____  5. _____

Total Test Points = _________

Test Average = Total Test Points ÷ Number of Tests

The test Grade Average will count 50% of the final grade.

OTHER FACTORS AFFECTING FINAL GRADE AVERAGE:

If a student has attendance, cell phone, or inappropriate computer activity problems during lecture or lab, he/she can lose as much as 5% off the final grade for minor disturbances, or an F Grade for consistent major disturbances.

Items to improve Final grades:

1. Professional attitude for: Outstanding Attendance, on time, class contributions, and willingness to help others.
   Add up to ½ point to Final grade.

2. Build approved kit outside of class and give a presentation to class. Add up to 20 points to lowest test grade.
CALCULATIONS OF FINAL GRADE POINT AVERAGE:

Test Grade Average:  ______ x .50 = ______
HW Grade Average:  ______ x .20 = ______
Lab Grade Average:  ______ x .30 = ______

Final Grade Point Average = ______

GRADES:

A. To pass the course all units must be taken.

The grade is based on all Three items listed below:

All Three conditions must be met to receive a particular grade.

1. All Tests taken,
2. Minimum grade point average, and
3. Minimum number of labs completed. (A & B Labs Count as 1 Lab)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Final Grade Pt. Avg.</th>
<th>Tests Taken</th>
<th>Minimum Number of Labs Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 to 90</td>
<td>All</td>
<td>11</td>
</tr>
<tr>
<td>B+</td>
<td>89 to 85</td>
<td>All</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>84 to 80</td>
<td>All</td>
<td>10</td>
</tr>
<tr>
<td>C+</td>
<td>79 to 75</td>
<td>All</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>74 to 70</td>
<td>All</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>66 to 65</td>
<td>All</td>
<td>9</td>
</tr>
<tr>
<td>F</td>
<td>below 65</td>
<td>1 or more</td>
<td>less than 9</td>
</tr>
</tbody>
</table>

B. Explanation:

For example, for a C grade you must take all Tests, complete at least 9 labs, and have a 70% (minimum) Final grade point average.

If you took all Tests, had an 83% Final average (qualifying for a “B” grade) but only completed 9 labs your grade would be a “C+”.

In other words, all Three conditions must be met. Grade point average, all Tests taken, and a minimum number of labs completed to receive a particular grade.
EXPLANATION OF OTHER GRADES

1. If a D grade is received it will not satisfy the prerequisite requirement for the next course and it is not transferable to other colleges.

2. An F grade is assigned if any one of the Four conditions for a D is not met. An F can also be given for cheating, excessive absences, game playing, or academic misconduct. **Academic misconduct includes any misconduct or behavior of a student which disturbs the learning process in class.**

3. An “I” (Temporarily Incomplete) is rarely issued. An “I” grade will only be issued for a student that was unable to show up for the last week due to a documented emergency.

   The “I” grade can only be assigned upon mutual agreement between the student and instructor if everything except the last week of work has been completed, and the student fills out the “Incomplete” form. The student must complete work within 30 days of the beginning of the next term, otherwise that “I” will automatically become an F.

   The student must fill out the “I Contract” to receive an I grade.

4. **Withdraw** - If a student finds it necessary to withdraw from the course he/she **must do so before the ninth week** by notifying the instructor and registrar and by completing the withdrawal form.

   After the ninth week the student will receive a grade based on work in the course. Do not expect to withdraw the “last day” of the course to avoid a failing grade. **Check with the registration office for the last day to withdraw.**

5. An “X” or (extended incomplete) grade will be given for a final grade only if a student requests it and **fills out the “extended incomplete” form.** The “X” will become an F if the student does not retake the course within one year.

6. A “ST” (Stopped attending) grade will be given for a student that stopped attending and as a consequence did not complete enough work to Pass. It has the same consequences (i.e. GPA) as an F and is recorded on the transcript. In addition, it can have financial implications with Financial Aid and student loans.
**CALCULATORS:**

**During the first two weeks calculators will not be allowed for tests.**
The students will be given two weeks to purchase a calculator if they
don’t already have one. After that the students will be **required to**
bring them to **Class for Labs and Tests.**

| **Cell phone calculators are not allowed for tests.** |

Useful features to look for when shopping for a calculator:

**Common Functions:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1/x$</td>
<td>$X\leftrightarrow Y$</td>
</tr>
<tr>
<td>$x^2$, $\sqrt{x}$</td>
<td></td>
</tr>
<tr>
<td>$y^x$, $\sqrt[y]{x}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>represents powers of 10 notation</td>
</tr>
<tr>
<td>Log $X$, $10^x$,</td>
<td>D↔R (Conversion between Degrees and Radians.)</td>
</tr>
<tr>
<td>Ln $x$, $e^x$, $\pi$</td>
<td></td>
</tr>
</tbody>
</table>

**Trig Functions:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sin</td>
<td>Arc Sin, Inv Sin or Sin$^{-1}$</td>
</tr>
<tr>
<td>Cos</td>
<td>Arc Cos, Inv Cos or Cos$^{-1}$</td>
</tr>
<tr>
<td>Tan</td>
<td>Arc Tan, Inv Tan or Tan$^{-1}$</td>
</tr>
</tbody>
</table>

A convenient feature is **Rectangular to Polar coordinate conversion.** **R↔P button**

Example of work saved by using this feature:

**Rectangular to Polar:** $a + jb \Rightarrow M = \sqrt{a^2 + b^2}; \ \theta = \tan^{-1} \frac{b}{a}$

**Polar to Rectangular:** $M \cos \theta + jM \sin \theta \Rightarrow a + jb$
**SUGGESTED STUDY PLAN:**

1. Attend the lecture, lab sessions and the question/answer sessions.

2. Bring to Lecture Binder #1, containing the lecture and HW Packets.

3. Bring to Lab Binder #1 containing Lec. and Binder #2 containing the Labs, and Instruction Guides for the Test Equipment.

4. Read over all your lecture notes.

5. Read the reading assignment given for the first Topic.

6. Answer the homework questions associated with this Topic.

7. Read the reading assignment given for the next Topic.

8. Answer the homework questions associated with this Topic.

9. Continue this format until all homework questions are answered.

10. Review the study guide HW questions, lecture notes, and labs for the test (Study a minimum of 1 Hour.). If there are no HW questions on a certain part of the lecture notes, do not assume they won’t be on the test.

**RATIO OF CLASS TIME TO STUDY TIME**

The ratio to class time to study time is expected to be 1:2. Therefore, for the 4 credit hours of class time, **8 hours of study time are required**.

A student with **12 course credits** should allocate **24 hours of study time** (outside of class time) for a total time allocation of 36 hours / week.

Do not expect to pass all your classes if you work full time (40 hrs/week) AND have enrolled in a full time class load of 12 or more credits.