



**Introduction to Engineering  
Abbott Lawrence Academy  
2018-2019**

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**COURSE SYLLABUS OVERVIEW**

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**Teacher:** James Muthig

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**Office Hours :** Tuesday 2:45 to 4 PM

Classroom: 209

Cell: (207) 206-6102

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**Course Description:**

This course provides first year engineering students with the communication skills needed in college and throughout their careers and introduces them to the profession of engineering. Computer skills, basic engineering concepts and best practices, report generation, public speaking, leadership and teamwork skills, and computer-aided engineering software, CAD, MatLab, and Circuit Design Software are covered.

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**Materials:**

- Scientific Calculator
- Notebook with Dividers
- Personal Computer (not a Chromebook) with Internet Access Capability
- AutoDesk Inventor Software (provided)
- Multisim 14.0.1 Circuit Design Software (provided)
- PLTW Digital Mini-System (provided)
- Arduino and associated IDE, i.e. Sketch (provided)

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**Means of Evaluation:** The list below generally describes the assignments that each student will be expected to complete during the course.

Your ALA grade during non-Merrimack class time will be a weighted average based on the following breakdown:

Assessments (Product and Content Knowledge)	50 %
Notebooks/Classwork (Process)	30 %
Homework (Responsibility)	20 %

**Assessments (Product):** The typical written test and quizzes you are accustomed to here at ALA :).

**Assessments (Content Knowledge):** Similar to your Merrimack component we will be spending a significant amount of our ALA class time on project based activities, i.e. engineering problem statements, ethics papers, etc...

**Notebooks/Classwork (Process):** You are required to maintain a neat and organized notebook for both the Merrimack and ALA components to the course. Notebook checks may be instituted at my discretion.

**Homework (Responsibility) :** Homework will be assigned for three reasons. To complete the remainder of the Activity assigned during a specific class, to continue your work on an assigned project (checked for a homework grade) or an occasional supplemental assignment. Homework should be complete to the best of your ability and completed as assigned. Occasionally, you will encounter a question that you will not understand. Leaving answers blank is not acceptable.

**Late Policy:** Late or resubmitted homework assignments may be turned in until the day the exam has been given covering the material for the assignment. Late is considered the after I collect the assignment in class. Late work turned in up to one day after the due date will receive a letter grade reduction. After one day, the maximum grade possible is 60%.

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**Grading Scale:**

- 90-100% = A
- 80-89% = B
- 70-79% = C
- 65-69% = D
- 0-64% = F

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**Class Procedures:**

- Being on-time AND prepared for class. Since we have a very tight schedule it will be imperative for you come to class, get your equipment out, log into mypltw and begin work in a timely fashion.
- PATIENCE- There are approximately 24 of you and one of me! Please use the online resources for the activity you are on if I am assisting someone else or simply cannot get to you right away. When you are really stuck, simply move on to the next assignment until I can get to you.
- Clean up. Please do not leave any of your equipment out for others to play with.
- Hands OFF. Do not touch any equipment that is not yours. RESPECT!!!
- Cell Phone use **is not permitted** unless permitted by the instructor.
- Downloading the Circuit Design Software used in class on a PC or Mac at your home (please see me if this is an issue).
- Proper use of the Cloud to store computer generated files, i.e. Multisim, Autodesk, Excel, etc... Remember, an Emergency on your part, i.e. "I can't find my file!", does NOT constitute an emergency on my my part. Always SAVE your electronics files in TWO locations, preferably to a removable storage device and the Cloud. Do **NOT** rely on the local computer you are using for the day to store you data.

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**ABSENCES-** You are responsible for seeing me if you are absent from class. If the absence is known ahead of time please see me beforehand for work you will be missing. Please check the class webpage for tentative homework assignments.

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**ALA Course Outline:**

**Foundations**

- Safety in the Engineering Workplace
- Engineering Notation and SI Prefixes
- Review of Dimesional Analysis

**Use of Technology in Engineering**

- Mechanical Computer Aided Design Software- AutoDesk
- Electrical Computer Aided Design Software- Multisim
- Application of Statisitics in Engineering- MATLAB
- Introduction to Computer Engineering and Coding - Python

**Communication in Engineering**

- The Engineering Design Process
- Developing a Well Written Problem Statement
- Reseaching a Problem
- Effective Communication and Presentation Skills

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**Classroom Expectations:**

- 1) Respect your classroom, your classmates, yourself, and your teacher
- 2) See Classroom Procedures above.

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**Uniform:**

Students are to be in uniform at all times. The uniform consists of an ALA black or maroon polo, khakis, and closed-toed shoes. Other acceptable garments include crew neck sweaters, fleeces, cardigans, or ALA track jackets in black, maroon, navy, or white. These garments must be solid colored and should not have any designs or stripes. Polo shirts must always be worn underneath these garments. Hooded sweatshirts and denim are not allowed in any way. Student cannot wear these garments through their arms. Students who have any concerns regarding uniforms should reach out to any ALA teachers or administrators who will help resolve any issues discretely.

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**Special Needs, Academic Honesty, Misc:**

All students who have special needs please let me know as soon as possible.

All other policies regarding academic honesty and student contact can be found in your student handbook and are in compliance with this class as well as any other and will be the guidelines for behavior and policies in this room. Any student caught cheating or plagiarizing will be given a zero on that assignment.

**Electronics Policy:**

All MP3 players, cell phones, and food must remain outside of the classroom unless permission is given by the instructor. Unless students ask for such permission, these items will be confiscated.

**TEACHER's MESSAGE:**

Welcome to Introduction to Engineering offered here at Abbott Lawrence Academy AND at Merrimack College. I look forward to working with you through the challenges of your engineering course ALA and MC. If you feel you need some flexibility in these policies, please feel free to come and speak with me or email me at [jmuthig@lawrence.k12.ma](mailto:jmuthig@lawrence.k12.ma) or [jmuthig3@gmail.com](mailto:jmuthig3@gmail.com). I am very interested in your input and, most importantly, I want you to succeed in your first engineering class.

**Intro to Engineering and Parent Acknowledgement**

I have read and understand the Digital Literacy class policies:

Student: \_\_\_\_\_ Date: \_\_\_\_\_

I have read and understand the Digital Literacy class policies:

Student: \_\_\_\_\_ Date: \_\_\_\_\_