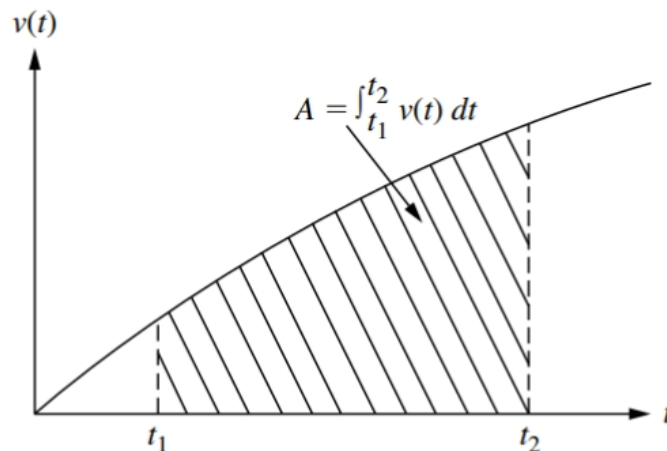


# Physics 120 Mathematics for Physics Syllabus

Fall 2018

- Instructor:** Kurt DeGoede, Professor of Engineering and Physics
- 161 B Esbenshade Hall
  - (717) 361-1380, anytime
  - [degoedek@etown.edu](mailto:degoedek@etown.edu), anytime
  - Cell: (717) 419-9568 (text)  
8:00 AM – 10:00 PM (no calls between 1:00 PM Saturday and 4:00 PM on Sunday please).
- Office Hours:** M Tu W Th 2:00-3:20.  
Or by appointment. Please feel free to stop by my office anytime, if I am not available when you stop by please leave a note on the whiteboard.
- Class Hours:** **MWF** 12:30 – 1:50 in Esbenshade 164
- Prerequisites:** An eagerness to develop practical analytical skills and a passion for problem solving.
- Textbook:** **Introductory Mathematics for Engineering Applications (978-1-118-14180-9)**
- Recommended:** Just in Time: Algebra & Trigonometry for Early Transcendental Calculus (0-321-67103-1).
- Course Objectives:** Prepare students for success in the engineering curriculum by (1) developing a foundation in applied mathematics. Students will (2) master essential analytical skills prerequisite for the study of calculus, physics and engineering science (see list of specific skills below). Students will (3) develop a proficiency in Matlab, and the study skills required throughout the engineering curriculum. (*ABET Outcomes 1 and 7*)



**Specific Skills:****Foundational Skills:**

F1 – Basics: (FE1) JiT: ch1 & 10

**Primary Skills** (Must master F1 before moving to P skills)

P1 – Lines: (FE2/3a) JiT: ch3 & 4; MAE: ch1

P2 – Quadratic and higher order polynomial equations: (FE2/3b) JiT: ch2 & 4; MAE ch2

P3 – Forward Trigonometry: (FE4) JiT: ch5 & 15; MAE: ch3 & 6

P4 – Inverse Trig and Logarithms: (FE5) JiT: ch 6-9.

**Required Skills** (Must master P skills before moving on to R skills.):

R1 – Functions: (FE6) JiT: ch11 & 12; MAE: ch6

R2 – Vectors: MAE ch4

R3 – Complex Numbers: MAE ch5

R4 – Systems of Equations: MAE ch7

**Supplemental Skills** (Must pass all R skills before moving on to S skills):

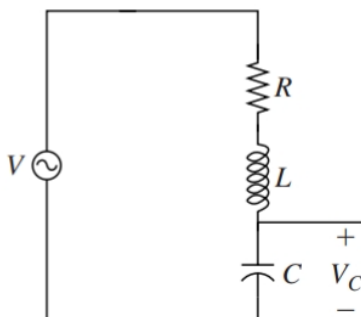
S1 – Derivatives: MAE ch8

S2 – Integrals: MAE ch9

S3 – Differential Equations: MAE ch10

**Assessments:** To pass an objective you must score an average of at least 80% on the assigned 5-10 analyses/problems in a test environment. **Exam problems are assessed as correct or not – no partial credit.** All Exam problems will be randomly sampled from assigned HW sets (50-100 problems)

*Final Exam:* To retain a grade of C- or better, you must correctly complete 11 of 15 randomly selected problems from a core group of 80-100 F and P skill problems. You may also take up to 4 skill assessments.



Students will not be able to leave the room during exams. It will be the students' responsibility to ensure that any devices with the ability to connect to the internet are not within reach during exams (cell phones, apple watches, etc.).

Monday	Wednesday	Friday
August 27	29	31
Welcome <b>F1 Presentation</b>	Coaching	<b>P1 Presentation</b>
September 3	5	7
No Class (Labor Day)	Coaching	Assessments
10	12	14
<b>P2 Presentation</b>	Coaching	Coaching
17	19	21
Assessments	<b>P3 Presentation</b>	Coaching
24	26	28
Coaching	<b>P4 Presentation</b>	Coaching
October 1	3	5
Coaching	Coaching	No Class (Fall Break)
8	10	12
Assessments	<b>R1 Presentation</b>	Coaching
15	17	19
Assessments	<b>R2 Presentation</b>	Coaching
22	24	26
Coaching	Assessments	<b>R3 Presentation</b>
29	31	November 2
Coaching	Coaching	Assessments
5	7	9
<b>R4 Presentation</b>	Coaching	Assessments
12	14	16
<b>S1 Presentation</b>	Coaching	Assessments

	19	21	23
S2 Presentation		Coaching	No Class (Thanksgiving)
	26	28	30
Coaching		Assessments (Pre-FE)	S3 Presentation
December 3	5		30
Coaching		Assessments (Pre-FE)	Coaching

**Grading:**

Pass one P skill	D-
Pass two P skills	D
Pass three P skills	D+
Pass all four P skills*	C (* and the 7/10 on Final 10)
Pass one R skills	C+
Pass two R skills	B-
Pass three R skills	B
Pass all four R skills	B+
Pass one S skills	A-
Pass ANY two S skills	A

**Adjustment 1:** This will be a fast paced course and it is critical that every student attend every class session. If you have more than 2 unapproved absences your course grade will be reduced by 1/3 of a letter grade.

**Adjustment 2:** Participating in daily out-of-class work is essential to your success in this course. If you do not satisfactorily complete 80% of daily discussion assignments, your grade will be reduced by 1/3 of a letter grade.

**Adjustment 3:** At the end of the semester, to retain a grade of C- or better you must correctly complete 7 of 10 problems randomly selected from a set of 80 core F and P skill problems. You will have three opportunities to complete this task: on the last two assessment days or on the final exam date.

**Ethics:** Students are to act in accordance with the Pledge of Integrity:

I pledge to respect all members of the Elizabethtown College community, and to act as a responsible member of the College community. I pledge to respect the free exchange of ideas both inside and outside the classroom. I pledge to represent as my work only that which is indeed my own, refraining from all forms of lying, plagiarizing, cheating, and academic dishonesty.

As members of the Elizabethtown College community, we hold each other responsible in the maintaining of these values.

and the NSPE code of ethics (Cannons attached, with 2018 Etown Rules of Practice)

Students will be asked to reaffirm their commitment to the pledge and the code with their signature on each exam. Dishonest practice can result in failure of the course and possibly expulsion from the college.

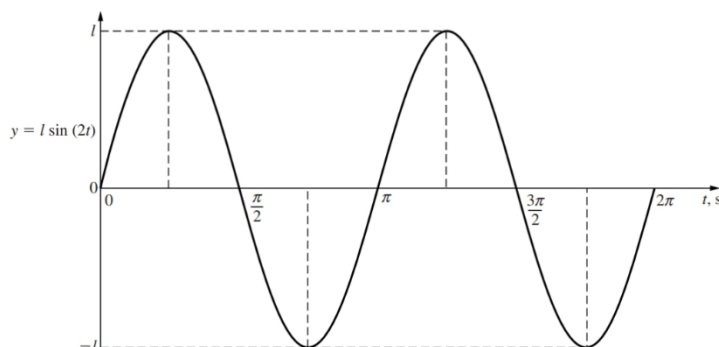
All work should represent each student's individual efforts. **Students are encouraged to discuss assignments with other students and/or the instructor, however submitted assignments should reflect the student's own work and understanding.**

Any solution obtained from any source should be properly referenced.

**Re-Grading:** Written requests, with full rationale, for re-grading of all course-work will be accepted the next class period after original materials are returned to the students.

**Elizabethtown College welcomes otherwise qualified students with disabilities to participate in all of its courses, programs, services, and activities.** If you have a documented disability and would like to request accommodations in order to access course material, activities, or requirements, please contact the Director of Disability Services, Lynne Davies, by phone (361-1227) or e-mail [daviesl@etown.edu](mailto:daviesl@etown.edu). If your documentation meets the college's documentation guidelines, you will be given a letter from Disability Services for each of your professors. Students experiencing certain documented temporary conditions, such as post-concussive symptoms, may also qualify for temporary academic accommodations and adjustments. As early as possible in the semester, set up an appointment to meet with me, the instructor, to discuss the academic adjustments specified in your accommodations letter as they pertain to my class.

**The College is willing to accommodate individual religious beliefs and practices.** It is your responsibility to meet with the class instructor in advance to request accommodation related to your religious observances that may conflict with this class, and to make appropriate plans to make up any missed work.



**Fine Print:** The preceding information represents the *intent* of the course and is subject to change at the discretion of the instructor.

## Elizabethtown Engineering Program Code of Ethics

- I. Hold paramount the safety, health, and welfare of fellow students.**
- II. Perform project tasks and assignments only in the areas of their competence.**
- III. Submit assignments only in an objective and truthful manner.**
- IV. Act for team members, instructors, or employers as faithful agents or trustees.**
- V. Avoid deceptive acts.**
- VI. Conduct themselves responsibly, ethically, lawfully, and in line with the integrity policy so as to enhance the honor, reputation, and usefulness of the profession and college's engineering department.**

### Professional Obligations (Etown Engineering Students)

- 1. Engineering students shall be guided in all their relations by the highest standards of honesty and integrity.**
  - A. Be honest about your mistakes.
  - B. Do not cheat on exams or assignments.
  - C. Do not plagiarize or falsify data.
  - D. Do not aid or abet another student in unethical behavior.
- 2. Engineers shall at all times strive to gain the knowledge to serve the public's interest.**
  - A. Your goal in class should be to gain knowledge to justify your intended degree, not just to obtain a high grade.
  - B. Work for the advancement of society and the profession by engaging in the community, and recruiting youth to the engineering profession.
  - C. Inform professors of unethical requests from other students.
- 3. Engineers shall avoid all conduct or practice that deceives other students, instructors, or the public.**
  - A. In lab work, be truthful with ALL data, even if it is not favorable.
  - B. All assignments should be your own original work unless otherwise noted.
  - C. Do not finish and submit team projects without the approval of ALL your other team members.
- 4. Engineers shall not disclose confidential information concerning their own group work to any person outside of their group except for the professor.**
  - A. Do not put individual assignments in your public folder.
  - B. Do not spread the word of quiz questions or unannounced assignments to later sections of a course.
  - C. Engineering students who are or have been a TA shall not disclose information about tests and grades of other students.
  - D. Do not disclose or use information learned from the internships that have to do with processes, or techniques of production.
- 5. Engineering students shall not be influenced in their scholastic duties by conflicting interests.**
  - A. Do not attempt to receive a favorable grade or recommendation by establishing an unprofessional relationship with a professor.
  - B. In peer assessments or as a TA, do not allow friendships or grades to sway judgment.
  - C. Do not attempt to gain favor in class or for assignments through flattery of professors.

6. **Students should not attempt to gain advancement by downgrading other students' work or by other questionable methods.**
  - A. Credit should be awarded where it is deserved when submitting group work.
  - B. If another student does exceptional work, do not take credit for it if it is not your work.
  - C. If another student is performing inadequate work, calmly confront them about it before addressing it to the professor.
  - D. Students shall not sabotage the projects or advancements done by other students.
  - E. Do not blame group members for their own behavior.
  - F. Do not blame professors or staff for their grades.
7. **Engineering students should not attempt to injure the reputation of the engineering department or the reputation of professors and engineers in the department.**
  - A. If other engineering students are injuring the reputation of the department, you should inform the head of the department or the professor of their actions.
  - B. Every student in the department's actions should coincide with the integrity policy of the college to avoid degrading the department.
  - C. Students shall report malicious activities to the Head of the Engineering Department, or appropriate instructor. Yet, the student shall not tell others of the issue.
8. **Engineering students should accept personal responsibility for all of the work they do for the department and for their group.**
  - A. Students shall act truthfully when accused of misconduct.
  - B. Blame for violations of the integrity policy should not be placed on the department or professors, but rather on the individual who committed them.
  - C. Students should also accept the blame if their group submits unethical work because it is their responsibility to ensure any submission with their name on it is held to high ethical standards.
9. **Engineering students shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.**
  - A. Students shall not steal programs or work from other engineers or students from the internet through illegal networks.
  - B. Students shall properly cite information in all manners of presentation such as research papers, essays, PowerPoints, etc.

*Obligations written by Etown Engineering students Class of 2021  
Cannons adapted from: <https://www.nspe.org/resources/ethics/code-ethics>*