

EGG101-02 Introduction to Engineering Science (3 credits)
Fall 2017 Semester

1. General Information

Instructor: **Dr. Damu Radhakrishnan**, 204 Resnick Engineering Hall
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Lecture: M/R 8.00 – 9.15AM, WH221

Office Hours: M 11.00 – 12.15PM

2. COURSE DESCRIPTION (as it appears in the current catalog)

This entry-level course provides students with an overview of the engineering sciences. Equal emphasis is placed on the three fields of engineering in which SUNY New Paltz offers degree programs; Electrical Engineering, Computer Engineering, and Mechanical Engineering. Each module offers hands-on learning experiences through projects.

3. STUDENT LEARNING OUTCOMES

At the completion of this course, the successful student will have demonstrated:

- I. A basic exposure to the knowledge and skills foundational to the application of electrical, computer, and mechanical engineering.
- II. Creative planning, execution, and evaluation of an engineering project where designs meet realistic constraints.
- III. Preliminary skills necessary to concisely and professionally analyze and convey observation based results and outcomes of their work both individually and in groups using engineering knowledge and skill.

4. ABET OUTCOMES

- a) An ability to apply knowledge of mathematics, science, and engineering.
- b) An ability to design and conduct experiments, as well as to analyze and interpret data.
- c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
- d) An ability to function on multidisciplinary teams.
- e) An ability to identify, formulate and solve engineering problems.

- f) An understanding of professional and ethical responsibility.
- g) An ability to communicate effectively.
- h) The broad education necessary to understand the impact of engineering solutions in a global, economical and societal context.
- i) A recognition of the need for, and an ability to engage in lifelong learning.
- j) A knowledge of contemporary issues.
- k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Mapping between the ABET Program Outcomes and this Course

Student outcome	Course learning outcome	Level of contribution 3 = strong; 2 = moderate; 1 = marginal
a) Ability to apply mathematics, science and engineering principles.	I, II	1
c) An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	II	1
g) Ability to communicate effectively.	III	2
k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	II	2

5. Required Resources

The Arduino Starter Kit (Official Kit from Arduino with 170-page Arduino Projects Book) by Arduino

Available in the **SUNY New Paltz Bookstore** or online:

amazon.com
adafruit.com
sparkfun.com
Others

https://www.amazon.com/The-Arduino-Starter-Kit-K000007/dp/B009UKZV0A/ref=sr_1_1?ie=UTF8&qid=1466432607&sr=8-1&keywords=the+arduino+starter+kit

6. Schedule of Activities

See separate file for schedule of activities and updates

7. Grades

Type of Assessment	% of Grade
Professional Engineering Assignments	25
Engineering Exercises	20
Quizzes	15
Projects	35
Participation	5
	100

Assignment	Description	Points	SLO	Type
A1	Intro memo	5		PEA
A2	Ethics - paper	5	III	PEA
A3	Interview plan	0.5		PEA
A4	Tech Memo 1 – Basic Electricity Micro Controller & Programming	5		EE
A5	Tech Memo 2 - Photovoltaics Motors Actuators	5		EE
A6	Quiz 1 – Basic Electricity & Micro Controller - Programming	5	I	Q
A7	Tech Memo 3 - Sensors	5		EE
A8	Quiz 2 – Sensors Motors Actuators	5	I	Q
A9	3D Beam design & print	5	II	EE
A10	Quiz 3 - SolidWorks	5	I	Q
A11	Interview write up	4.5		PEA
A12	Beam bending write up - formal report	20	I, II, III	P
A13	Challenge project demo & write up	15	II	P
A14	Final - Reflection	10	III	PEA
	Participation	5		
	Total	100		

Marking System

A	90-100
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60-64
C-	55-59
D+	50-54
D	45-49
F	0-44

Assignments / Projects / Engineering Exercises

There will be multiple assignments, projects, and engineering exercises conducted in class in this course. Each assignment, project, or exercise will be conducted in a group of 2-3 students unless otherwise instructed. At the completion of each assignment, project, or exercise, each student will be required to submit a summary written assignment specified by the instructor. Each student must submit a unique written assignment. It is expected that the written assignment by students who worked together will be similar, but each student should bring a unique perspective and style to the written assignment. If the instructor feels 2 or more students have submitted the same written work, each student will receive a grade of zero (0) for the assignment. Written assignments should be professionally prepared and adhere to all formatting instructions provided.

Quizzes

There will be periodic quizzes given throughout the semester. These quizzes will be given during class and cannot be made up. You must be present in the class room in order to take and receive credit for each quiz.

Final Exam: Thursday – December 21, 2017 (8.00-10.00)

The only exam in this course will be at the end of the semester. It is designed to provide you with an opportunity to demonstrate that you were actively engaged in all of the engineering activities that took place. It will be held during the assigned final exam time for this course as specified on the schedule.

8. Course Policy Statements:

- **Attendance** at each scheduled class period is mandatory for each student. A missed class is a class without a written medical excuse or without discussing a valid reason with the instructor before the class is missed. Each student is allowed one (2) unexcused absences. Anyone missing more than two (2) classes during the semester will be penalized on their final course grade. An absence may be excused at the instructor's discretion provided that the student submits, in writing, the reason for the absence from an appropriate authority (e.g.

physician, school official, etc.). Documentation must be submitted prior to the next scheduled class period.

- **Participation:** In addition to being present, all students are expected to participate during class. Participation includes but is not limited to: active participation during group activities in class, active listening and asking questions during instructor/TA lead examples, and active participation during project competitions.
- **Missed Coursework:** All coursework is your responsibility. There are no excuses for handing in coursework late. Coursework will be graded as late if not handed in on the due time/date, which is at the beginning of the class period on the due date. Coursework will be penalized one letter grade (10 %) for each day it is late beginning the minute the assignment was due.
- **Rescheduling:** There is no rescheduling unless emergencies arise related to medical or family matters. Rescheduling is contingent on the student presenting both documentation describing the reason(s) for the absence and contact information for the person providing the document(s).

9. Campus-wide Policy Statements

1. Academic integrity policy statement: Students are expected to maintain the highest standards of honesty in their college work. Cheating, forgery, and plagiarism are serious offenses, and students found guilty of any form of academic dishonesty are subject to disciplinary action. New Paltz's policy on academic integrity is found at http://www.newpaltz.edu/ugc/policies/policies_integrity.html, and several excellent resources to help with avoiding plagiarism are available on the Sojourner Truth Library's website: <http://lib.newpaltz.edu/assistance/plag.html>.

2. Reasonable accommodation of individuals with disabilities statement: Students needing classroom and/or testing accommodations related to a disability should contact the Disability Resource Center (Student Union, Room 210, 845-257-3020) as close as possible to the beginning of the semester. The DRC will then provide students' instructors with an Accommodation Memo verifying the need for accommodations. Specific questions about services and accommodations may be directed to Deanna Knapp, Assistant Director (knappd@newpaltz.edu).

3. Veteran and Military Services statement: New Paltz's Office of Veteran and Military Services (OVMS) is committed to serving the needs of veterans, service members and their dependents during their transition from military life to student life. Student veterans, service members or their dependents who need assistance while attending SUNY New Paltz may refer to www.newpaltz.edu/veterans; call 845-257-3120, -3124 or -3074; or stop by the Student Union, Room 100 South.

4. Computer and network policies statement: Users of New Paltz's computer resources and network facilities are required to comply with the institutional policies outlined in the Acceptable Uses and Privacy Policy (<https://sites.newpaltz.edu/csc/policies/acceptable-uses-and-privacy-policy/>).

5. Identity verification policy statement for online courses: New Paltz's Online Identity Verification Policy is designed to verify that students enrolled in our online courses and/or programs are the ones who take the courses, complete the programs, and receive the academic credit. See http://www.newpaltz.edu/ugc/policies/policies_onlineverification.html for the complete policy.

10. Information on Electronic SEIs

You are responsible for completing the Student Evaluation of Instruction (SEI) for this course and for all your courses with an enrollment of five (5) or more students. I value your feedback and use it to improve my teaching and planning. Please complete the online form during the period [**Nov. 29 – Dec. 12**]

11. Important Dates (reference: Academic Calendar fall 2017)

9/10/17 Last day to add/drop a course
10/17/17 Mid-Point of Fall 2017 Semester
11/3/17 Last day for course withdrawal
11/6/17 Black Solidarity Day
11/10/17 Last day for student elected satisfactory/unsatisfactory option
11/20/17 Last day to withdraw from college without failing grades for the semester

11/29/17 SEI open period begins
12/8/17 Senior Design Expo
12/11/17 Last day of classes
12/12/17 Final day to submit SEI
12/14/17 Common Exam Day
12/21/17 End of Fall 2017 Semester