

## *Course Syllabus*

### **RAMAPO COLLEGE OF NEW JERSEY School of Theoretical and Applied Science**

#### **Course Information**

Course Number INTD-101-12 CRN 40194

*A Brief History of Inventions*

Credit Hours: 4

Prerequisites and/or Co-requisites: None

Fall 2023

Class Meeting M-R, Time 4:10-5:50pm location: TBA

#### **Instructor Information**

Daniela Buna, Ph.D

Professor of Engineering Physics

Office: G116, tel: 2016847124

Office Hours: TBA

Dbuna@ramapo.edu

Mailbox Location: TAS

#### **Course Description**

First-Year Seminar (FYS) is the first course in the general education curriculum of Ramapo College of New Jersey and it serves as the introduction to general education and liberal learning. The goal of FYS is to develop students' critical thinking skills using open discussion, reading, writing, and experiential learning. This section, titled *A Brief History of Inventions* seeks to present a short history of the most important inventions and inventors that had a profound impact on the development of humankind. It also seeks to present the often forgotten category of women inventors and discuss their access to science education and employment across times. The student will be required to read sections of a book prior to the beginning of their freshman year and be prepared to write short 2 paragraphs essays about various topics selected by the instructor, participate in class discussions and watch/discuss short documentaries on the topic of inventions.

#### **Course Goals**

##### **The goals of the course are the following:**

- a. Present a list of inventions that impacted the development of mankind such as for example the printing press, the electric bulb, the steam engine or the Internet
- b. To explain in simple words and concepts the way these inventions work
- c. To present the contributions of women inventors: Yes, there are so many more brilliant women scientists and inventors other than Marie Curie
- d. To identify the scientific method steps used by each inventor in developing their product

By focusing on the goals above this course will emphasize various forms of critical writing, thinking, and reading and prepare you to be an active reader and thinker.

## Measurable Student Learning Outcomes

	Writing assignments	Quizzes	Class discussions	Field trip
Outcome 1: Interdisciplinary Analysis	X	X	X	X
Outcome 2: Experiential Learning			X	X
Outcome 3: International Perspective	X	X	X	
Quantitative Reasoning	X	X	X	

## Readings, Materials

The course is based on a list of selected readings from the textbook below and select websites content such as <https://www.invent.org/museum/>.

**Textbook: Time 100 Ideas that changed the World.**

**ISBN: 13: 978160320-170-4**

## Course Requirements

Be prepared to spend about four hours a week to complete the reading and writing assignments for this class.

Each week will have a short reading and writing assignment on a variety of assigned reading as shown in the class schedule.

All writing assignments will be scheduled and submitted by you on Canvas. The written submission must use the format as shown below:

APA      Good, T. L., & Brophy, J. E. (2002). *Looking in classrooms* (9th ed.). Boston: Allyn & Bacon. ISBN xxx.

**Classroom Participation** – The attendance is mandatory. Class participation is strongly encouraged. More than two unjustified absences lead to a 5% penalty of the final grade.

**Writing Assignments** – This class requires a weekly short essay on a topic based on the material presented in class and the assigned reading or activities. Essay - one page, double spaced, APA format references. All writing assignments are submitted on Canvas.

**Examinations, Laboratory/Studio, Library Research** – The class will include simple demonstrations of scientific principles and inventions. It will also include a visit to the Thomas Edison Museum in West Orange, NJ.

### Weekly Class Schedule

Week number	Content list	Reading assignment
Week 1	The ancient world (I). The alphabet, geometry, irrigation, Transport, building construction, power and machinery.	Textbook Reading Assignment: Pages 10-33.
Week 2	The middle ages (II). Islam, The magna carta, the technology of war	Pages 71-81, 82-88.
Week 3	Paper and printing, shipping and navigation, the compass. Class demonstrations of compass use.	Instructor notes.
Week 4	The scientific method and examples. Short list of scientific concepts such as speed, force, mass, time, etc. Discussion and examples.	Instructor notes.
Week 5	The age of enlightenment: electricity, Newtonianism, chemistry and Jane Marcet.	Pages 62-83
Week 6	Simple class demonstrations in mechanics.	Instructor notes
Week 7	The birth of industrialization: the telescope, the pendulum clock, iron rail tramways, small pox inoculation, photography, food canning, steam turbine, electric motors and electricity	Pages 87-107 Instructor notes

Week 8	Discussions of inventions and simple class demonstrations in mechanics and electricity.	Instructor notes
Week 9	Engines: Newcomen, Watts, water-power, windmills, internal combustion.	Instructor notes
Week 10	Visit to the Thomas Edison museum, West Orange.	
Week 11	Women Invent: a presentation of select inventions	Instructor notes
Week 12	New modes of transportation: beginning of flight, ships, railways,	Instructor notes
Week 13	The Early 20th century: atomic physics, Sonar, special theory of relativity, liquid-rocket fuel, the white-out, Empire State Building, IBM, sources of energy	Pages 107-117
Week 14	Mid to end of 20th Century: the telephone, the laser, cinematography, the automobile, the Internet	Pages 118-128 and instructor notes

**Grading Policy:** 50% writing assignments, 50% quizzes. **Grade scale:**

A  $\geq$  95%

90%  $\leq$  A- < 95%

85%  $\leq$  B+ < 90%

80%  $\leq$  B < 85%

75%  $\leq$  B- < 80%

70%  $\leq$  C+ < 75%

65%= $\leq$ C<70%

60%= $\leq$ C-<65%

55%= $\leq$ D+<60%

50%= $\leq$ D<55%

F<50%

Important deadlines regarding Ad/Drop and Withdraw are listed on the Ramapo page at:

<http://www.ramapo.edu/academic-calendars/>

College policy states that students must notify faculty within the first three weeks of the semester if they anticipate missing any classes due to religious observance.

### **Electronic Forms of Communication:**

In accordance with college policy, I will use your Ramapo college email address (@ramapo.edu) to communicate with you about all course-related matters.

### **Policy on Academic Integrity:**

Students are expected to read and understand Ramapo College's Academic Integrity Policy, which can be found online in the *College Catalog* ([http:// www.ramapo.edu/catalog](http://www.ramapo.edu/catalog)).

Members of the Ramapo College community are expected to be honest and forthright in their academic endeavors. Students who are suspected of violating this policy will be required to meet with the faculty member and/or be referred to the Office of the Provost.

### **Electronic devices:**

Laptop computers are not to be used during on campus class unless arrangements have been made in advance with the instructor. Cell phones, cameras, iPods are not to be used during class. For virtual classes, monitoring conditions will be discussed during lecture.

### **Sexual Misconduct**

Ramapo College is committed to fostering a safe, productive learning environment. Title IX and our college policy prohibit discrimination on the basis of sex or gender. Sexual misconduct — including harassment, domestic and dating violence, sexual assault, and stalking are prohibited.

The College encourages anyone experiencing sexual misconduct to talk to someone about what happened, so they can get the support they need and our college can respond appropriately.

If you wish to speak confidentially about an incident of sexual misconduct, please contact the Counseling Center at [201-684-7522](tel:201-684-7522) or [201-684-6666](tel:201-684-6666) during nights and weekends. If you wish to report sexual misconduct or have questions about policies and procedures regarding sexual misconduct, please contact the College's Director of Title IX at [201-684-7220](tel:201-684-7220).

The College is legally obligated to investigate reports of sexual misconduct, and therefore it cannot guarantee the confidentiality of a report, but it will consider a request for confidentiality and respect it to the extent possible.

As a faculty member, I am also required by our College to report incidents of sexual misconduct and thus cannot guarantee confidentiality, but I will respect your privacy and only share the information with those who have a duty to respond. Should I become aware of an incident involving sexual misconduct, I must provide our Title IX Coordinator with relevant details such as the names of those involved in the incident.

### **Students with disabilities:**

Ramapo College is committed to providing reasonable accommodations for all persons with disabilities. If you are eligible for classroom accommodations as an individual with a disability, you are required to affiliate with The Office of Specialized Services (OSS) locating in the C Wing in room C205. OSS phone number is 201-684-7514, email is [oss@ramapo.edu](mailto:oss@ramapo.edu) and website is [www.ramapo.edu/oss/](http://www.ramapo.edu/oss/). If you need course adaptation or accommodations because of a disability that has been documented with the Office of Specialized Services, please make an appointment with me.

For more information, please go to *College-wide policies*:

<https://www.ramapo.edu/fa/arc/college-wide-policies-courses>

**College Closings/Special announcements: 201-236-2902**