



Projects TE1

First Semester 2020



General Instructions

The projects will be done **individually** or in **pairs** at most.

The date to submit the report in digital version (Word and PDF) and oral presentation (a YouTube link with a video) is February 2nd until midnight (one day before the exam). The digital report and YouTube link will be sent to the following mail:

ingles@ing.usac.edu.gt

In the subject of the message of the mail students must include the following phrase: "Proficiency project, Technical English #", instead of the last symbol, place the number of course you are taking the exam about. In the body of the message place the names and ID's of all the member or members included in the project.

On the other hand, the written version of the report will be turned in during the exam (February 3rd) in a **letter size blue folder** with fastener and a cover page identifying at least: name or names of the members, ID numbers (of the university), date, affiliation and the phrase "Proficiency project, Technical English #".

The following rubric must be included on the cover page:

Presentation	/ 15
Introduction	/ 15
Objectives	/ 15
State-of-the-art (Theory)	/ 10
Conclusions	/ 15
Annexes	/ 5
References	
Oral Presentation	/ 25

You will choose **ONLY ONE PROJECT** according to your career (or the closest one) or your partner's career (in case you did it in pairs).

Environmental Engineering

Environmental Laws in Guatemala

Objective: To learn and explain the most important environmental laws in Guatemala

Activity: To investigate and understand the environmental laws in Guatemala.

Description:

- Each student or students will investigate the different types of environmental laws that exist in Guatemala.
- Each student or students will state the importance of these types of laws in Guatemala.
- Each student or students is going to investigate different enterprises that controls that these laws are applied in Guatemala
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed)
- A brochure may also be included summarizing your investigation.

Technical English

Environmental Engineering

- Subject:

Environment

- Topic:

Environmental problems

- Objective:

To know the major environmental problems, their causes, effects and strategies to prevent them.

- Description:

The project consists on researching an environmental problem. For example: air pollution, overpopulation, water pollution, etc.

For it you should interview people with a survey (10 questions and 10 surveys). For example, these questions can be:

- How the problem affects you in an everyday basis?
- Can you contribute in preventing this problem?

As part of your project you should include a “manual” where you explain the problem’s causes and effects and what strategies can be implemented to decrease its impact.

- Procedure:

The students are going to develop a Manual with the strategies that can be implemented to decrease the impact of the environmental problem with images, showing the causes and effects.

The purpose is to show, through a presentation done in Power Point how to prevent the problem.

The process must be described in a clear way in English and the students will also have to explain the causes, effects and one example of a real case in Guatemala.

- Students will present also a written investigation about the environmental problem they choose, and this must include:

1. Index

2. Introduction
3. Objectives (1 General and 3 specifics)
4. Environmental problem's Manual
5. Conclusions (coinciding with the objectives)
6. Annexes (surveys)
7. Bibliography
8. CD with the presentation

- In the same way, the students have to present a VIDEO explaining the Environmental problem and the prevent strategies.

Mechanical and Mechanical Industrial Engineering

Choose one of the following topics

Thermal Treatments (Heat Treatment in metals)

Objective: To learn and explain the different types of thermal treatments in metals.

Activity: To investigate and show how thermal treatments are applied in metals.

Description:

- Each student or students will investigate the different types thermal treatments in metals.
- Each student or students will explain each type of thermal treatment and how they are applied to metals and how their mechanical properties change.
- Each student or students is going to investigate different enterprises that do this kind of work in Guatemala.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed)
- A brochure may also be included summarizing your investigation.

Thermochemical Treatments

Objective: To learn and explain the different types of thermochemical treatments in metals.

Activity: To investigate and show how thermochemical treatments are applied in metals.

Description:

- Each student or students will investigate the different types thermochemical treatments in metals.
- Each student or students will explain each type of thermochemical treatment and how they are applied to metals and how their mechanical properties change.
- Each student or students is going to investigate different enterprises that do this kind of work in Guatemala.
- The students will write a written report that includes the following:

- **Front Page**
- **Index**
- **Introduction**
- **Objectives**
- **Investigation**
- **Conclusions**
- **Annexes**
- **References**

- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed)
- A brochure may also be included summarizing your investigation.

Civil Engineering

Choose one of the following topics

Types of Steel

Objective: To learn and explain the different types steels.

Activity: To investigate and explain the variations of carbon in steel.

Description:

- Each student or students will investigate the different types thermal treatments in metals.
- Each student or students will explain each type of thermal treatment and how they are applied to metals and how their mechanical properties change.
- Each student or students is going to investigate different enterprises that do this kind of work in Guatemala.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.

Hardness Tests and Mechanical Properties

Objective: To learn and explain the different types of hardness test

Activity: To describe the different hardness test and explain the different mechanical properties.

Description:

- Each student or students will investigate the different types of hardness test.
- Each student or students will explain the mechanical properties of materials.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**

- **Introduction**
- **Objectives**
- **Investigation**
- **Conclusions**
- **Annexes**
- **References**

- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.

Destructives Test and Nondestructive Test

Objective: To learn and explain the different tests that a material can undergo.

Activity: To investigate and explain the destructive and nondestructive tests.

Description:

- Each student or students will investigate the different types of destructives tests.
- Each student or students will investigate the different types of nondestructive tests.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.

Electric, Electronic and Mechanical Electric Engineering

Electromagnet

Objective: To learn and explain how an electromagnet works.

Activity: To investigate and make an electromagnet lighting a bulb.

Description:

- Each student or students will investigate how an electromagnet works and describe it.
- Each student or students will make a sample of it working.
- Each student or students will investigate how this can be applied to engineering
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.

Science and System Engineering

Installing an IDE

Objective: To investigate, install and display an IDE in a computer.

Activity: To learn how to install an IDE and display a window where mathematical functions are done.

Description:

- Each student or students will investigate how to install an IDE.
- Each student or students will create a tutorial on how to install an IDE.
- Each student or students will create a window displaying mathematical functions such as addition, subtraction, division and multiplication.
- The window need to create another window showing the answer, a close button, a create button.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.

Industrial and Mechanical Industrial Engineering

Statistical Report

Objective: To learn and explain how excel can be used for statistical purposes.

Activity: To go out in the field and create a survey and pass it on into the clients of a cafeteria and report their results.

Description:

- Each student or students will create a survey with 10 questions asking them how they grade the service, the food and what will they want or expect in a cafeteria.
- Pass the survey at least to 20persons in 2 different cafeterias.

- Each student or students will report the results in excel creating a graph per question and explain thus giving recommendations if possible of the results.
-
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**
- A power point presentation is also required where this will only contain necessary information (images, tables, graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.
- A copy of the survey must be included in the report and the groups need to show during the presentation the surveys pass onto the clients.

Chemical Engineering

Chemistry Labs Instrumentation

Objective: To know the instrumentation used in the labs

Activity: To investigate the name and usage of the different instruments used in chemistry labs of the school of engineering.

Description:

- Each student or students will research at least 6 different instruments used in the lab, how to use them, the margin of error of each instrument and other important issued about them.
- Each student or students will explain the different instruments; they will prepare posters, banners with the pictures and explanations of all of them.
- The students will write a written report that includes the following:
 - **Front Page**
 - **Index**
 - **Introduction**
 - **Objectives**
 - **Investigation**
 - **Conclusions**
 - **Annexes**
 - **References**

- A power point presentation is also required where this will only contain necessary information (images, tables, and graphs, long texts are not allowed).
- A brochure may also be included, summarizing your investigation.