Exploration of Production Technology (TSA)

Syllabus and Course Information

# Instructor Information

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| --- | --- | --- |
| Instructor | Email | Office Location & Hours |
| **Nathan Sims** | Nathan.Sims@SarasotaCountySchools.net | Bld. 4, RM 408  M-F 3:30-4:30pm |

# General Information

## Description

This course is an advanced application of the Engineering Design Process and other applications. It explores various manufacturing-based career clusters and technologies. Students will be tasked with solving complex problems and utilizing software and other technologies that may fall outside of the explicit scope of this course. Students taking this course should be prepared to supplement in-class activities with self-directed learning.

Additionally, this class has an associated Career Technology Student Organization (CTSO) in the form of the Technology Student Association (TSA). The purpose of a CTSO is to enhance student learning through contextual instruction, leadership and personal development, applied learning, and real-world application.

**Participation in the Technology Student Association (Club) is strongly encouraged.**

## Expectations and Goals

By the end of this course, students should be able to complete several technology related tasks. The following list is extensive, but not exhaustive:

* Create documents, presentations, and network using Microsoft Office365
* Use the internet as an effective research tool
* Navigate the Windows10 Operating System
* Solve problems effectively using the Engineering Design Process
* Understand basic engineering principles
* Make precise measurements using the proper tools
* Read and follow complex written instructions
* Demonstrate the abilities and apply the design process.
* Demonstrate the abilities to use and maintain technological products and systems.
* Demonstrate the abilities to assess the impact of products and systems.
* Identify evolving technologies of production systems.
* Perform special skills unique to manufacturing technology.
* Express knowledge of factors that impact manufacturing technology and practices.

**Course Resources:**

* **Youtube.com**
* **Typing.com**
* **Autodesk.com**
* **TSAweb.org**
* **Floridatsa.org**
* **Learn.Unity.com**

# Course Materials

## Recommended Materials

This course is designed to function as a paperless classroom utilizing Office365, OneNote, and Microsoft Teams. However, some general school supplies are recommended:

* Standard or mechanical pencils with erasers
* A pocketed folder for storing sketches, drawings, and loose papers
* **CHEAP** Earbuds or Headphones
* Ruler

## Technology: Engineering Our WorldTextbook

**Technology: Engineering Our World, 8th Edition**

By: John B Gradwell and Malcolm Welch

ISBN: 978-1-63563-471-6

**Technology: Engineering Our World** emphasizes science and math concepts to show introductory students how these concepts have been used to develop technologies. This text explains how technology impacts our everyday lives and explores the responsibilities—both social and environmental—that come with the development and use of technology.

## Software

### Office

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Description automatically generatedThis class relies heavily on the use of Office365, Microsoft Teams, and Microsoft OneNote.

Office365 is provided to all students free of charge by the school district. It is recommended that student install these applications on home computers and laptops as available or use their web-based alternatives.

To access these resources, students should log into MySCS and click the Office365 icon.

### CAD

This course utilizes Computer Aided Design (CAD) software such as:

* AutoCad Inventor
  + Not free. Students will be provided license keys and written instructions if they wish to install this software at home (optional).
* Fusion360
  + Free for students: <https://www.autodesk.com/education/edu-software/overview>

# Course Schedule

| Quarter | Topic | Exercises |
| --- | --- | --- |
| 1st | Introduction | uCertify, Account Creation, |
| 2nd | CAD | Basic Drafting, The Design Process, Autodesk Inventor, Part & Working Drawings, TSA Projects (Student Choice) |
| 3rd | Engineering | Manufacturing and Transportation, CO2 Dragsters, TSA Project (Student Choice) |
| 4th | Robotics | Coding, Robotics, Automation, TSA Project (Student Choice |

# Grading Criteria

| Category | Weight | Description |
| --- | --- | --- |
| Participation | 50% | Students begin the quarter with 100 Employability points. Students who are off task, not following classroom procedures, fail to complete bellwork, and/or are otherwise in violation of the Panther Pact will receive one verbal warning. Subsequent warnings will result in the loss of 1 employability point, per offence. |
| Assignments/  Quizzes | 20% | General classroom assignments and tasks that do not constitute a long-term project will fall into this category. |
| Projects | 30% | Long terms engineering projects that may take one or more weeks to complete. These projects will be done using student Engineering Design Journals, kept in OneNote. |

## Homework

Traditional homework is not assigned, however, students who have missing or late work should use the supplied on-line resources to finish late work on the own time.

## Late Work

Work will be accepted until the final day of the grading quarter. I do not reduce points for late work, though work turned in late may reduce a student’s Employability grade for the quarter.

## Technology Student Association

This is my first year here at SMS and I am very excited to pick up where this incredible chapter left off! Expectations are high and they will stay that way, but I have nothing but confidence we are going to have an amazing year!

If you have questions about how you and/or your child may get involved, please visit our chapter website at [www.smstsachapter.weebly.com](http://www.smstsachapter.weebly.com) or have your student meet with me to request a membership form.

Thank you for taking the time to review this information with your student.

Sincerely,

Nathan Sims, SMSTSA Advisor

