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**Course Syllabus**

**Introduction to Engineering**

**Fall 2024**

**Instructor:** Ms. Susie Cunningham

**Email:** scunningham@bsu.edu

 **Office: Elliott 008-C**

**Classroom: BU219**

**Office Hours:**

**Mondays: 10:00 – 11:00 a.m.**

 **Noon – 2:00 p.m.**

**Tuesdays: 2:00 – 3:00 p.m.**

**Wednesdays: 10:00 – 11:00 a.m.**

 **Noon – 2:00 p.m.**

**Fridays: 10:00 – 11:00 a.m.**

 **Noon – 2:00 p.m.**

**Other times for offices hours may be made by appointment. Also, can email me at scunningham@bsu.edu.**

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**Description:**

**Introduction to Engineering explores a broad range of engineering and technology topics with their relationship to science and mathematics by solving real world problems. This hands-on course is designed to provide You interested in engineering and technology career opportunities to explore applications related to specialized fields such as mechanical, software, electronical, civil, aeronautical and astronomical engineering, among others. You will engage in research, development, planning, design, production, and project management. Classroom activities are organized to allow You to work in teams and use modern technological processes, software, and production systems to develop and present solutions to engineering problems.**

**Texts:**

 Web Pages

 Hand-outs

 Manuals

 Engineering Kits

**Course Methodology:**

 Course methodology will include **hands-on activities, lectures, outside readings, classroom discussion, and projects.** You will be **creating** various hands-on projects.

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**Student Evaluation:**

There will be **9 discussion questions over engineering topics, 10 homework assignments,** and **1 major final project**.

**Method of Grading:**

Grades will be based on a point system.

 **Points**

 Discussion Questions 45

 Homework Assignments 100

 Major Final Project 100

 **Total Points 245**

 Accumulated totals are then distributed into letter grades as follows:

 **A (93% - 100%)**

 **A- (90% - 92.9%)**

 **B+ (88% - 89.9%)**

 **B (83% - 87.9%)**

 **B- (80% - 82.9%)**

 **C+ (78% - 79.9%)**

 **C (73% - 77.9%)**

 **C- (70% - 72.9%)**

 **D\* (69% and below)**

**Classroom Policies:**

**Homework Assignments:** **Homework assignments** must be **turned in by the due date**. Assignments may be turned in earlier than the due date. **Any late homework** will **result** in a **reduced** **grade.** **(25% off for each day late.) Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday all count as days. A timeframe for a day constitutes from 12:01 a.m. – Midnight.**

**Absence prior to due Date:** Missing class (excused or not) prior to a test, or other due dates for homework assignments does not exempt the student from preparing and taking the test and/or submitting the required homework assignment on the due date. Exceptions may be granted in advance of class time and must be discussed with the instructor.

**Tardiness:** If you arrive more than 5 minutes late to class, you will be marked tardy. After arriving 20+ minutes late, you will be marked absent. **A student sleeping in class will be counted as an absence.**

**Academic Dishonesty:** (Refer to the Indiana Academy Handbook.)

In the event, a student turns in a computer program for a homework assignment or test that was not

originally written by the student, the homework or test will fall under the category of plagiarism. This will be considered a **serious offense**. You will be allowed to ask for help from other You if they are

working on a preannounced group project or the student needs assistance finding a syntax error or minor errors.

If a student does use code in a programming homework assignment or project that was obtained from the Internet, another programming source, or writing code that is similar in nature, the student **must put in a comment in the computer program with the source of where the code was obtained, otherwise this will be considered under the category of plagiarism.**

Furthermore, if a student writes a computer program for another student, the student “knowingly permitting one’s work to be submitted by another person as if it were the submitter’s original work” will also be penalized.

You cannot use **AI** to write your programs for you! You can use **AI** to help debug your programs.

Penalties will be assessed in accordance to the Indiana Academy Handbook.

**Communication- Come See Me:**

The best way to communicate with me is through email at **scunningham@bsu.edu**. My phone dings when I receive an email, and I can answer back via email through my phone. Generally, I do answer back almost immediately during work hours (unless I am teaching a course or on my way to class). I will always respond within 24 hours. (This does include the weekends.) Generally, I am more available late at night. Office hours will be posted

**Diversity and Inclusion:**

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff and student body. We are committed to ensuring that all members of the community are welcome through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge. As a reflection of Ball State’s commitment to respect, civil discourse, and the Beneficence Pledge, Inclusive Excellence at the Indiana Academy emerges as one of the priorities of our living and learning community. We strive to exist together respectfully and compassionately, creating an environment where every member can thrive. Unfortunately, there might be occasions when something occurs that disrupts our progress toward meeting these objectives. In this case, we encourage any member of the Academy community to file a Campus Climate Report (CCR) https://bsu.qualtrics.com/jfe/form/SV\_6mbRbL5acAntUTI. All reports will be taken seriously, and appropriate responses will be carried out by the Academy administration.

**Accommodations:**

If you need course adaptations or accommodations because of a disability, please contact me as soon as possible.  Ball State’s Disability Services office coordinates services for You with disabilities; documentation of a disability needs to be on file in that office before any accommodation can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

**Canvas Accessibility:**

Canvas provides a user experience that is easy, simple, and intuitive. Special attention has been paid to making Canvas screen-readable. The Rich Content Editor encourages users to create accessible content pages (i.e. text formatting is accomplished using styles). Canvas is designed to allow limited customization of colors and schemes to be accessible for all users. The National Federation of the Blind granted Canvas the Gold Level Web Certification in 2010.

Find more information by visiting the [Canvas Voluntary Product Accessibility Template (VPAT)](https://www.canvaslms.com/accessibility). <https://community.canvaslms.com/t5/Accessibility/Accessibility-within-Canvas/ba-p/261501>

**Indiana Academy Mask Policy:**

The Indiana Academy will follow [Ball State University’s mask policy](https://www.bsu.edu/-/media/www/departmentalcontent/emergencypreparedness/covid19/recovery%20plans/student%20return%20to%20campus%20plan_11-16-2020_full.pdf?la=en&hash=C46E28697410544B454D667609AA24BE6C7BAA9F) (see Section IV). This may change throughout the year.

## Class Participation:

## Unless instructed otherwise, you will need to be working on items relating to the classroom homework/topic during the class time.

## Indiana Academy Wireless Device Policy:

Pursuant to Indiana Code 20-26-5-40.7, The Indiana Academy for Science, Mathematics and Humanities prohibits student use of wireless communication devices for non-instructional purposes in the classroom. As such, any and all portable wireless devices, that have the capability to provide voice, messaging, or other data communication between two or more parties, must only be used for academic purposes directly tied to the classroom activity or related educational task. Exceptions to this wireless device policy are eligible through academic accommodations, individualized education programs, or with instructor approval permitting the use of a wireless device for justification related to health, safety, and/or well-being. The improper use of a wireless device in an active classroom setting is subject to disciplinary action including but not limited to; a verbal warning, temporary seizure of said device by a school official, an unexcused absence for the class in question, written communication to parent/guardian, among other elevated consequences for repeated improper use.

**No game-playing, movie-watching, e-mail, or IM’ing will be allowed in class -- doing so will result in a recorded absence for that day.**

## Blue circuit board

## Tentative Class Activity and Assignments

**Projects in Engineering**

**What is an Engineer?**

**Week of August 12, 2024:**

What is an engineer? How many types of engineers are there?

**HW #1 will be due on August 19, 2024 (10 pts.)**

**Mechanical and Software Engineering:**

**Week of August 19, 2024:**

Learn basics of mechanical engineering using a Mindstorms Lego Robotics kit.

**Discussion Question #1 (5 pts.)**

**Mechanical and Software Engineering, cont.:**

**Week of August 26, 2024:**

You will continue working on their projects and programming specific parts.

You can continue with the Mindstorms Lego Robotics kit or change to using Tetrix or Vex Robotics kits.

**HW #2 will be due on August 28, 2024 (10 pts.)**

**Discussion Question #2 (5 pts.)**

**Chemical Engineering:**

**Week of September 2, 2024:**

(September 2nd and 3rd is an extended weekend for Labor Day.)

You will be given the opportunity to experience a simple hands-on task designed to demonstrate what a chemical engineer does. This task will be non-volatile.

**HW #3 will be due on September 6, 2024. (10 pts.)**

**Discussion Question #3 (5 pts.)**

**Electrical Engineering:**

**Week of September 9, 2024:**

You will be introduced to Arduinos.

**HW #4 will be due on September 15, 2024. (10 pts.)**

**Discussion Question #4 (5 pts.)**

**Electrical Engineering, cont.:**

**Week of September 16, 2024:**

You will continue working with Arduinos.

**HW #5 will be due on September 23, 2024. (10 pts.)**

**Discussion Question #5 (5 pts.)**

**Civil and Industrial Engineering:**

**Week of September 23, 2024:**

You will be introduced to a drafting package(s).

**HW #6 will be due on September 30, 2024. (10 pts.)**

**Discussion Question #6 (5 pts.)**

**Civil and Industrial Engineering:**

**Week of September 30, 2024:**

You will continue working on drafting project.

**Discussion Question #7 (5 pts.)**

**Civil and Industrial Engineering, cont:**

**Week of October 7, 2024:**

(October 7th and 8th is an extended weekend for Fall Break.)

You will finish drafting project.

**HW #7 will be due on October 11, 2024. (10 pts.)**

**Aeronautical and Astronomical Engineer:**

**Week of October 14, 2024:**

You will learn basics of Aeronautical and Astronomical engineering.

**HW #8 will be due on October 20, 2024. (10 pts.)**

**Discussion Question #8 (5 pts.)**

**Designing a Project:**

**Week of October 21, 2024:**

You will design out a major project and subject it for approval.

**HW #9 will be due on October 25, 2024. (10 pts.)**

**Discussion Question #9 (5 pts.)**

**Weeks of October 28th, November 4th,11th and 18th, 2024:**

You will complete work on their major final projects.

**HW #10 will be due on November 18, 2024. (5 pts.) (Check point for Major Final Project.)**

**Week of November 25th, 2024:**

Thanksgiving Break!

**Week of December 2, 2024:**

You will make final revisions to their major projects.

**Week of December 9, 2024:**

You will present their final major projects.

**ALL FINAL PROJECTS will be due on December 9, 2024! (100 pts.)**