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**Course Syllabus**

**Introduction to Engineering**

**Fall 2025**

**Instructor:** Ms. Susie Cunningham

**Email:** scunningham@bsu.edu

 **Office: Elliott 008-C**

**Classroom: BU219**

**Canvas: https://indianaacademy.instructure.com**

**Office Hours:**

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**Mondays: Noon – 1:00 p.m.**

 **3:00 – 5:00 p.m.**

**Tuesdays: 10:00 – 11:00 a.m.**

**Wednesdays: Noon – 1:00 p.m.**

 **3:00 – 4:00 p.m.**

**Thursdays: 10:00 a.m. – Noon (Via Zoom. Will need an appt for Zoom link.)**

**Fridays: Noon – 1:00 p.m.**

 **3:00 – 4:00 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 students 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 or do your homework 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 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.) Office hours are posted

**Ball State University Beneficence Pledge:**

Ball State University aspires to be a university that attracts and retains outstanding faculty, staff, and students. Ball State is committed to ensuring that all members of the campus community are welcome through our practice of valuing the varied experiences and worldviews of the people whom we serve. We promote a culture of respect and civil discourse as evident in our Beneficence Pledge. As a reflection of Ball State’s commitment to respect, civil discourse, and the Beneficence Pledge, inclusiveness 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.

**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 students 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>

## 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 11, 2025:**

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

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

**Civil and Industrial Engineering:**

Learn basics of industrial engineering.

**HW #1 will be due on August 15, 2025 (10 pts.) – Build Water Ride.**

**Electrical and Computer Engineering:**

**Weeks of August 18th, 25th, & September 1, 2025:**

You will be introduced to Arduinos.

(September 1st & 2nd is the Labor Day weekend extended.)

**HW #2 will be due on August 25, 2025. (10 pts.)**

**HW #3 will be due on September 5, 2025. (10 pts.)**

**Discussion Question #1 (5 pts.) – Due August 21st.**

**Discussion Question #2 (5 pts.) – Due August 28th.**

**Discussion Question #3 (5 pts.) – Due September 5th.**

**Mechanical Engineering:**

**Weeks of September 8th and 15th, 2025:**

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

**HW #4 will be due on September 12, 2025 (10 pts.)**

**Discussion Question #4 (5 pts.) – Due September 11th.**

Learn basics of drafting on a computer system.

Students will learn how to use the 3D printers.

**HW #5 will be due on September 19, 2025 (10 pts.)**

**Discussion Question #5 (5 pts.) – Due September 18th.**

**Aeronautical and Astronomical Engineering:**

**Weeks of September 22nd and 29th, 2025:**

You will learn basics of Aeronautical and Astronomical engineering.

**HW #6 will be due on September 26, 2025. (10 pts.)**

**Discussion Question #5 (5 pts.) – Due September 25th.**

(Fall Break will be October 6th & 7th, 2025)

**HW #7 will be due on October 10, 2025. (10 pts.)**

**Discussion Question #5 (5 pts.) – Due October 10th.**

**Structural Engineering:**

**Week of October 13, 2025:**

You will learn basics of structural engineering.

**HW #8 will be due on October 17th, 2025 (10 pts.)**

**Discussion Question #8 (5 pts.) – Due October 16th.**

**Designing a Project:**

**Week of October 20, 2025:**

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

**HW #9 will be due on October 24, 2025. (10 pts.)**

**Discussion Question #9 (5 pts.) – Due October 23rd.**

**Weeks of October 27th, November 3rd, 10th and 17th, 2025:**

You will complete work on their major final projects.

**HW #10 will be due on November 19, 2025. (5 pts.) (Check point for Major Final Project.)**

**Week of November 24th, 2025:**

Thanksgiving Break!

**Week of December 1, 2025:**

You will make final revisions to their major projects.

**Week of December 8, 2025:**

You will present their final major projects.

**ALL FINAL PROJECTS will be due on December 8, 2025! (100 pts.)**