1. **COURSE TITLE\*: Ohio Code Scholar**
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*: CSCI 1110**
3. **PREREQUISITE(S)\*: None** **COREQUISITE(S)\*: None**
4. **COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*:**  **3 (students can earn up to 18 credit hours)**

**LECTURE HOURS\*: 1** **LABORATORY HOURS\*: 4** **OBSERVATION HOURS\*: 0**

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

This course is designed to explore the engineering design process to create a functional robot from concept to final presentation. Students will research, design, assemble, wire, and program their own robot to perform specific tasks. Emphasis is placed on problem-solving, iterative design, and documentation of the process. Over the semester, students will maintain a detailed weekly engineering log, produce a formal research and reflection paper, and create a narrated process video explaining and demonstrating their work. The final project will be presented to the instructor and peers, demonstrating both technical skills and the ability to communicate complex ideas effectively. The specific project theme changes annually, ensuring students encounter new challenges and innovative applications of robotics each year**. This course is offered in connection with the Ohio Code Scholar program, a statewide initiative that engages students in hands-on coding, electronics, and robotics projects to build technical skills, creativity, and collaboration across K–12 and higher education. This course is repeatable for credit.**

1. **LEARNING OUTCOMES\*:**

By the end of this course, students will be able to:

1. **Apply the engineering design process** to plan, build, test, and refine a robotics project from initial concept to completion.
2. **Conduct and document research** relevant to robotics design, including technical specifications, programming requirements, and design constraints.
3. **Integrate hardware, software, and programming** into a functioning robotic system.
4. **Maintain a professional log** documenting weekly progress, challenges, solutions, and design changes.
5. **Produce a formal research and reflection paper** in proper APA format summarizing the project’s development, testing results, and lessons learned.
6. **Create a narrated process video** that visually documents and explains the entire build process.
7. **Present the completed project** through a final in-class or recorded presentation, demonstrating technical knowledge and communication skills.
8. **ADOPTED TEXT(S)\*:**

**None**

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.) \*\***

**All materials and supplies provided through the Ohio Code Scholar program grant if the student is a CCP student. If a student is not a CCP student, they will have to pay for the supplies.**

1. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

 B: 80 – 89

 C: 70 – 79

 D: 60 – 69

 F: 0 – 59

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific).***

| **Category** | **Description** | **Weight** |
| --- | --- | --- |
| **Weekly Engineering Log** | **16 entries (Weeks 1–16).** Each log must include: date, activities completed, challenges faced, solutions attempted, next steps, and any design changes. Logs should be detailed enough to track the process from start to finish. | **25%** |
| **Midterm Check-In & Interim Demonstration** | **Week 8**: Midterm written and verbal status update showing current progress, challenges, and planned solutions. Week 10: Demonstrate partially functional robot to instructor with design notes. | **10%** |
| **Final Reflective Paper** | **Week 15:** 3–5 pages describing the entire engineering process, including: introduction, research, design and build steps, testing, troubleshooting, and lessons learned. Must include properly formatted bibliography. | **25%** |
| **Process Video** | **Week 16**: 5–7 minute narrated video showing the robot build process from concept to completion. Must include visual evidence of each major stage (design, construction, testing, final performance) and a clear explanation of decisions made. | **20%** |
| **Final Presentation** | **Week 16**: in-class or recorded presentation showcasing the completed robot, summarizing key points from the paper and video, and answering instructor questions. | **10%** |
| **Professionalism & Participation** | On-time submissions, constructive peer feedback during workshops, and consistent engagement in class activities. | **10%** |

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

Classes may consist of lectures, class discussions, small group projects, videos, outside assignments and supplemental materials. Interactive hands-on projects are required.

1. **COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

Each instructor may vary the course outline but must cover specific material to meet the objectives of the learning outcomes. This material goes through each week of the semester, with weekly assignments to be given as the class progresses.Topics may be covered on different weeks.

**Week 1 – Course Launch & Project Overview – LO: 1, 4**

* Introduction to the Ohio Code Scholar program, expectations, grading.
* Overview of engineering design process.
* Set up engineering log format.

**Week 2 – Research Foundations– LO: 2, 4**

* How to conduct technical and market research for robotics.
* Begin logging weekly research activities.

**Week 3 – Defining the Project Goal – LO: 1, 2, 4**

* Select robot design concept.
* Identify required parts, materials, and tools.
* Log initial planning decisions.

**Week 4 – Research Documentation & Bibliography – LO: 2, 4, 5**

* Learn citation methods (MLA/APA).
* Submit working bibliography in log.

**Week 5 – Project Blueprint & Outline – LO: 1, 2, 4, 5**

* Create written outline of robot build plan.
* Include design sketches or CAD models.

**Week 6 – Prototype Planning & Draft Report – LO: 1, 3, 4, 6**

* Start initial construction or coding.
* Submit draft of paper introduction and methodology.

**Week 7 – Progress Review & Troubleshooting – LO: 1, 3, 4**

* Focus on problem-solving methods.
* Weekly log includes challenges and attempted fixes.

**Week 8 – Midterm Check-In – LO: 1, 3, 4, 5**

* Present current build status to instructor for feedback.
* Update paper with mid-project insights.

**Week 9 – Build Advancement – LO: 1, 3, 4**

* Continue assembly/programming.
* Add testing notes to weekly log.

**Week 10 – Interim Demonstration – LO: 1, 3, 4, 7**

* Demonstrate partially functional robot to instructor.
* Discuss any redesign needs.

**Week 11 – Refinements & Advanced Features – LO: 1, 3, 4**

* Implement improvements or stretch goals.
* Add technical explanations in log.

**Week 12 – Testing & Data Collection – LO: 1, 3, 4, 5**

* Run trials, record performance results in log.
* Add data analysis to paper.

**Week 13 – Final Build Completion – LO: 1, 3, 4, 6**

* Final adjustments to hardware/software.
* Start process video recording.

**Week 14 – Paper Writing Workshop – LO: 4, 5**

* Complete and refine final paper draft.
* Peer review and editing.

**Week 15 – Final Paper Due – LO: 4, 5, 6**

* **Submit completed paper with bibliography**.
* Continue process video editing.

**Week 16 – Final Presentations – LO: 1, 3, 4, 6, 7**

* **Present robot to class/instructor.**
* **Submit final process video and weekly logs**.

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

**16. FERPA: \***

Students need to understand that their work may be seen by others. Others may see students’ work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that their work may be submitted to other entities for the purpose of plagiarism checks.

**17. ACCOMMODATIONS: \***

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio’s Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431 X 2604.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.