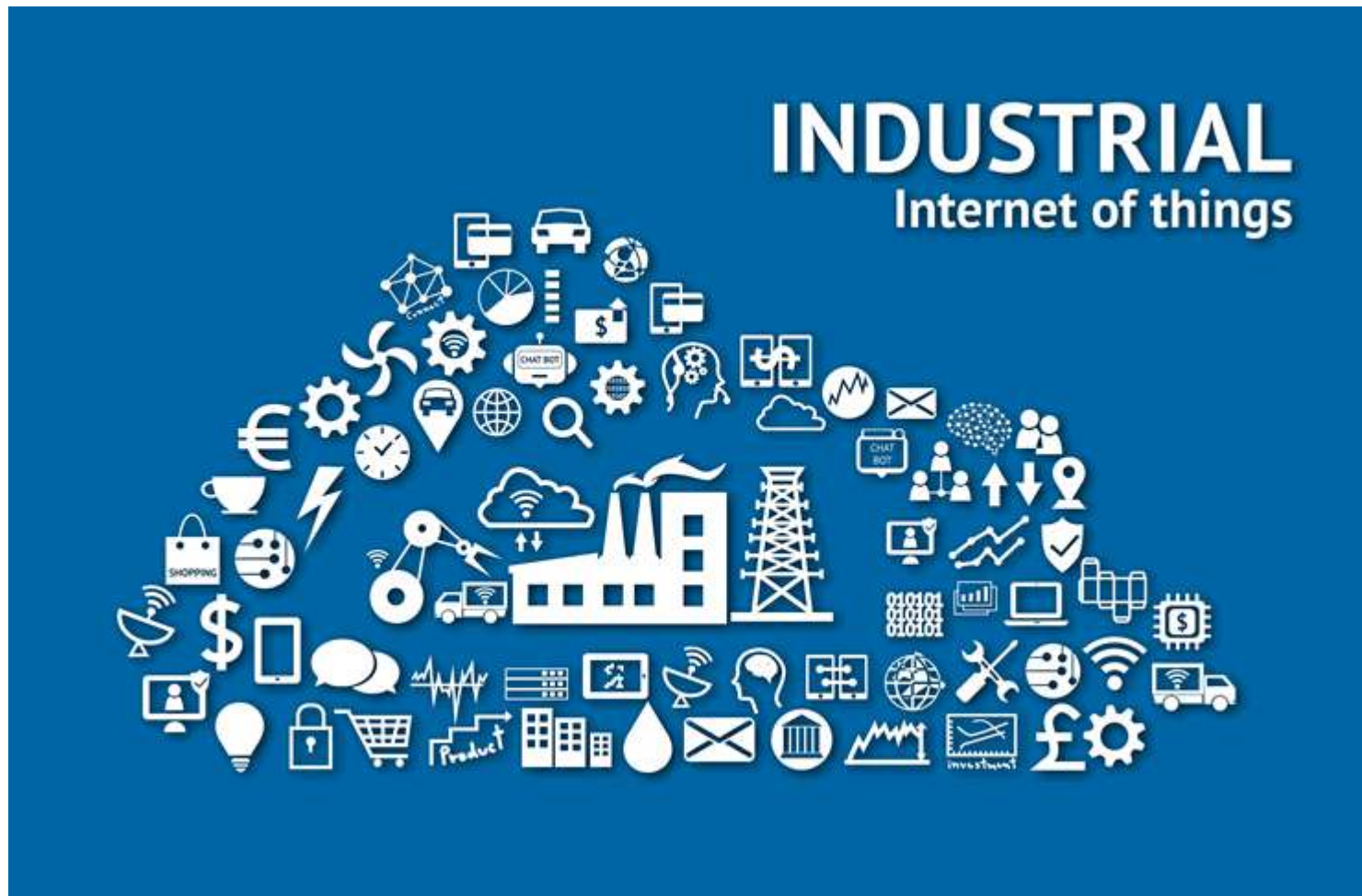Rossville High School
Agriculture Curriculum Guide
Introduction to Industrial Internet of Things

Introduction to Industrial Internet of Things

This course introduces students to the Industrial Internet of Things (IIoT). Students will explore industry 4.0 technologies such as artificial intelligence (AI), human to robot collaboration, big data, safety, electrical, sensors, digital integration, fluid power, robot operation, measurement, CAD, CNC, additive manufacturing, print reading, and technical mathematics. Students will complete hands-on labs, virtual simulations, projects, and critical thinking assignments to help prepare for SACA C-101 Certified Industry 4.0 Associate I - Basic Operations certification exam. In addition, this course will include an online OSHA-10 hour certification program in which successful completion results in students earning their OSHA-10 General Industry certification.

- DOE Code: 7220
- Recommended Grade Level: Grade 9-12
- Recommended Prerequisites: Principles
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a Directed Elective or Elective for all diplomas
- One of the courses specified in the sequence of courses for all Career Clusters and all of Indiana's College and Career Pathway Plans.

Domain - Industry 4.0

Academic Standard	Learning Activities	Assessment(s)
7220.D1.1 Identify the components of the Industrial Internet of Things (IIoT).	Students will take notes while listening to lectures on safety	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper ● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.2 Recognize that IIoT is the building block for Smart Manufacturing and Digital Integration.	Students will observe through modules and video example	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper

		● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.3 Recognize how equipment monitoring plays a major role in predictive maintenance, lean manufacturing, and quality.	Students will learn what parameters they need to monitor to indicate premature wear or failure.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper ● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.4 Demonstrate how Industry 4.0 concepts are changing the manufacturing world.	Students will do worksheets covering said standard.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper

		● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.5 Execute basic setup, adjustment & operation of automated machines that may include; CNC, robotics, 3D Printers, laser engraving, etc.	Students will be split into groups and practice using all of the listed equipment.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper ● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.6 Discuss multiple aspects of industrial prints/drawings that are used in manufacturing.	Students will learn to draw and read muliview and projection drawings.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper

		● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.7 Demonstrate an understanding of technical math, US customary, metric system, and metrology.	Students will convert between the two.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper ● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.8 Recall content pertaining to General Industrial Safety to successfully obtain the OSHA 10 Hour General Industry Certification.	Students will complete the online 10 Hour OSHA training course.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper

		● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.9 Recall fundamental content to meet/exceed the cut-score for the SACA (Smart Automation Certification Alliance) C-101 Certified Industry 4.0 Associate - Basic Operations - Silver Certification.	Students will complete all modules pertaining to the SACA program.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper ● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning
7220.D1.10 Demonstrate skills to obtain the SACA C-101 Certified Industry 4.0 Associate - Basic Operations - Gold Certification at a 100% of skill standard.	Students will complete the necessary programming.	● Tests (essay, multi-choice, t/f, etc) ● Quiz (vocab, concept, section) ● Film summary/critique ● Lab Reports ● PowerPoint Presentation, Posters, Pamphlets, Essay, Research Paper

		● In class discussion q and a *Any or all assessments listed can be utilized to effectively gauge student learning