Fox Valley Technical College

10605146 Embedded Programming 2

Course Outcome Summary

Course Information

Description	Continues with topics from Embedded Programming 1 and further explores embedded controller systems operation, architecture, and programming. Students will lay the groundwork for future courses and electronic projects while experimenting with programming language concepts and interfacing.
Career Cluster	Science, Technology, Engineering and Mathematics
Instructional Level	Associate Degree
Total Credits	1.00
Total Hours	27.00

Types of Instruction

Instruction Type	Credits/Hours
Lab	1 Credit/27 Hours

Course History

Revised By	Todd Van De Hey (vandehet)
Last Approval Date	1/5/2015

Purpose/Goals

The goal of Embedded Programming 2 is to continue to build upon C programming and microcontroller concepts presented in Embedded Programming 1.

Pre/Corequisites

Prerequisite Embedded Programming 1 (10-605-145)

Learner Supplies

USB Storage Device (Jump Drive)

Employability Essentials

1. Act Responsibly - Apply ethical standards in both personal and professional behavior.

Status *Active*

2. Adapt to Change - Anticipate changes and positively respond to them.
Status *Active*

3. Communicate Effectively and Respectfully - Apply appropriate writing, speaking, and listening skills across various settings to engage diverse audiences.
Status *Active*

4. Think Critically and Creatively - Apply independent and rigorous reasoning that leads to informed decisions, innovation and personal empowerment.
Status *Active*

5. Work Collaboratively - Work collaboratively with others to complete tasks, solve problems, resolve conflicts, provide information, and offer support.
Status *Active*

Program Outcomes

1. Apply electronic theory to practice.
Status *Active*

Summative Assessment Strategies

1.1. TSA

Criteria

1.1. You mathematically analyze a circuit or system
1.2. You simulate a circuit or system
1.3. You construct a circuit or system according to schematics or other documentation
1.4. You perform circuit or system measurements to collect data
1.5. You analyze data to validate predicted outcome

2. Operate test equipment.
Status *Active*

Summative Assessment Strategies

2.1. TSA

Criteria

2.1. You demonstrate measurement of electrical and/or electronic signals
2.2. You demonstrate measurement of electrical and/or electronic quantities
2.3. You demonstrate measurement of electrical and/or electronic components
2.4. You use test equipment to generate electrical and/or electronic signals
2.5. You apply appropriate safety precautions

3. Build electronic circuits and systems.
Status *Active*

Summative Assessment Strategies

3.1. TSA

Criteria

3.1. You assemble a prototype for operation
3.2. You demonstrate soldering and de-soldering techniques
3.3. You apply appropriate antistatic precautions
3.4. You identify appropriate interfaces
3.5. You set up programmable devices and/or systems
3.6. You apply appropriate safety precautions

4. Evaluate the operation of electronic circuits or systems.

Status *Active*

Summative Assessment Strategies

4.1. TSA

Criteria

4.1. You determine the correct operation of circuits or systems
4.2. You identify incorrect operation of circuits or systems
4.3. You isolate causes of failures in circuits or systems
4.4. You correct failures in circuits or systems

5. Communicate technical information.

Status *Active*

Summative Assessment Strategies

5.1. TSA

Criteria

5.1. You interpret electrical and/or electronic diagrams
5.2. You create electrical and/or electronic diagrams
5.3. You interpret technical reports and documents
5.4. You use appropriate terminology in speaking and writing
5.5. You interpret documentation of electronic devices and systems
5.6. You locate necessary resources and pertinent information to perform work functions

Course Competencies

1. Program microcontrollers using the C programming language.

Status *Active*

Assessment Strategies

1.1. by completing assigned reading topics.
1.2. by completing assigned lab projects.
1.3. by completing unit exam.

Criteria

1.1. you have submitted and demonstrated completed lab projects.
1.2. you have completed the unit exam with a score of 70% or better.

Learning Objectives

1.a. Design functional sequential programs.
1.b. Utilize structures for branching and repetition.
1.c. Utilize modular programming techniques (functions).
1.d. Describe memory structures for arrays and strings.

2. Utilize microcontrollers to perform specific tasks.

Domain *Cognitive* ***Level*** *Applying* ***Status*** *Active*

Assessment Strategies

2.1. by completing assigned reading topics.
2.2. by completing assigned lab projects.
2.3. by completing the unit exam.

Criteria

2.1. you have submitted and demonstrated functional lab projects.
2.2. you have completed the unit exam with a score of 70% or better.

Learning Objectives

2.a. Configure and initialize basic microcontroller peripherals.
2.b. Construct microcontroller-based circuitry to perform a desired task.
2.c. Troubleshoot using hardware and software debugging techniques.

Grading Information

Quizzes (2)	30%	A = 90-100%
Lab Projects (8)	70%	B = 80-89%
		C = 70-79%
		D = 60-69%
		F = < 60%

Grant Award

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Course Learning Plans and Performance Assessment Tasks

Type	Title	Source	Status
PAT	Unit 1	Course	Active
PAT	Unit 2	Course	Active
LP	Unit 1	Course	Active
LP	Unit 2	Course	Active