

ETec474 Course Specifications

Catalog Information

Course Number and Title: ETec474 – Microcomputer-Based Design

Credit Hours: 4

Course Description: Analysis and design of smart microcomputer-based instrument and control systems. Design and implementation of a microcomputer-based system.

Prerequisites: ETEC 374, 471, EET major or written permission. ETec474 must be taken during your last spring quarter before graduation.

Prerequisite Outcomes: Must have accepted project proposal and description document and be able to design a stand-alone microcontroller-based system.

Schedule Information

Quarter: Spring 2007

Meeting Times and Rooms

Days	Times	Instructor	Room(s)
TR	12:00-1:50	Todd Morton	ET333

Lab Fee: \$42

Enrollment Limit: 18

Student Resources

Student Syllabus: <http://eet.etec.wvu.edu/etec474/474sp07syl.pdf>

Course Website: <http://eet.etec.wvu.edu/etec474/index.html>

Facilities and Materials

Required Text(s): None

Lab Equipment: Misc. access to EET labs as required for project

Software: Misc. as required for project

Course Outcomes

1. Be able to complete an embedded product design to meet project requirements.
2. Can produce a well written circuit description, a clear, complete and accurate schematic and parts list.
3. Understands a typical product development cycle and apply project management skills to develop a project from requirements to prototype demonstration.
4. Understands the importance of and practices good teamwork skills including communication, leadership, and collaboration. Show respect for each team member's opinions, experience, heritage, education, position, and gender.
5. Able to plan and execute work that is accurate, complete, timely, and reliable.
6. Participates and performs well in the oral design reviews. Clear, well organized presentations and can make meaningful contributions to other student reviews.
7. Makes a commitment to the course project, project team, and project leader. Attends meetings and supports the needs and goals of the course.
8. Understand the importance of coding conventions, software ownership ethics, including plagiarism, licensing, and copyrights.
9. Understands the need for completing and delivering quality work in a timely manner.
10. Motivated and capable of expanding one's knowledge by researching and applying new electronics parts, software, and systems that have not been covered in previous coursework.

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Courses Contribution to the Program Outcomes

P – Primary to the purpose of the course. Course contains significant instruction and opportunities for practice.

S – Secondary to the purpose of the course. Course contains limited instruction and opportunities for practice.

N – Not a significant part of this course.

Program Outcome		Course Contrib	Applicable Course Outcome(s)
a	An appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines.	S	1, 6, 10
b	An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology	P	1, 10
c	An ability to conduct, analyze and interpret experiments and apply experimental results to improve processes	S	1, 10
d	An ability to apply creativity in the design of systems, components or processes appropriate to program objectives	P	1, 2, 3, 6, 10
e	An ability to function effectively on teams,	P	3, 4, 6, 7
f	An ability to identify, analyze and solve technical problems	P	1, 6, 10
g	An ability to communicate effectively,	P	2, 3, 4, 6
h	A recognition of the need for, and an ability to engage in lifelong learning	S	10
i	An ability to understand professional, ethical and social responsibilities	S	3, 4, 6, 7, 8, 9
j	A respect for diversity and a knowledge of contemporary professional, societal and global issues,	S	4
k	A commitment to quality, timeliness, and continuous improvement	P	1, 2, 3, 5, 6, 9
A	The application of circuit analysis and design, computer programming, associated software, analog and digital electronics, and microcomputers to the building, testing, operation, and maintenance of electrical/electronic(s) systems	P	1, 6, 10
B	The applications of physics or chemistry to electrical/electronic(s) circuits in a rigorous mathematical environment at or above the level of algebra and trigonometry	N	
C	The ability to analyze, design, and implement control systems, instrumentation systems, communications systems, computer systems, or power systems	S	1
D	The ability to apply project management techniques to electrical/electronic(s) systems	S	1, 3, 4, 6, 7
E	The ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of electrical/electronic(s) systems	N	

Outcome Assessment Tools

1. Project and Career Module Senior Survey

2. Reviews, Demonstrations, Course Participation, Lab Notebook, Construction, Completion, Teamwork