

# ETec471 Course Syllabus

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**Course:** ETec471 – Project Preparation

**Quarter:** Fall 2009

**Credits:** 2

**Instructor:** Todd Morton

**Office:** ET204

**Phone:** 360-650-2918

**Email:** Todd.Morton@wwu.edu

<b>Office Hours:</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
	9-11am	3-5pm	9-11am		9-11am

**Course Description:** Students define objectives and prepare project proposals for ETec474.

**Prerequisites:** ETec374, senior year. ETec474 must be taken during your last spring quarter before graduation. Therefore, this course should be taken during the autumn quarter preceding your last spring quarter.

**Course Goals:** To select and define a senior design project.

**Reference Books:**

- 'Microprocessor-Based Design', Michael Slater
- 'Embedded Systems Building Blocks', Jean Labrosse, R&D Publications
- 'The Art of Programming Embedded Systems', Jack Ganssle
- 'Embedded Microcontrollers', Todd Morton

**Computer and Internet Services:**

<http://eet.etec.wwu.edu>

**E-mail/Listservers:**

projects@etec.wwu.edu - Required

**Student Work and Evaluation:**

- Project Proposal – 1st Draft .....~5%
- Project Proposal - Final Draft.....~10%\*
- Preliminary Project Description .....~20%
- Final Project Description.....~40%\*
- Lab Notebook.....~10%
- Project Website .....~5%
- Course Participation .....~10%

\* - Must receive a grade of 80% or higher on these items to pass this course

**471 Deadlines**

- Project Proposal – 1st Draft .....October 16
- Project Proposal - Final Draft.....October 30
- Preliminary Project Description .....November 24
- Final Project Description..... December 10, 5:00pm

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**Project Proposal:** This is a written description of the proposed project. The proposal should be written as if it is directed to a review committee or management that makes the decision to provide funding. It should contain the following information:

- Project Title – A title that describes your project. It will be used in all documentation and communications.
- Abstract - A brief description of 'What the proposed project will do from the point of view of the application'. This description should be 1 or 2 paragraphs that can stand alone.
- Description of the project including product sketches, preliminary block diagram, and the function of the project. This is a more detailed description of 'What the proposed project will do' – from the designer's point-of-view.
- Background and Benefits of the proposed project. What is its application and how does it benefit the user. Include a comparison of competing or similar products and the critical specifications.
- Describe the societal and global impacts your project may have.
- How the project will be developed and demonstrated including the availability of resources (development tools, project components, and demonstration materials) and an initial description of task assignments for team projects.

Format: Maximum of 8 pages, 12-point font with 1-inch margins. Page number centered at bottom of page. First draft of the proposal must be double spaced. The final draft must be single spaced.

**Preliminary Project Description:** The preliminary project description should follow the project description outline provided by the instructor. Use the same format as the proposal. There is no maximum number of pages.

**Final Project Description:** Final draft of the project description. After this is turned in and accepted, the project must meet the functional requirements listed. The final project grade and the project completion grade will be based on how well your final project meets the requirements contained in this description.

**General Requirements:** The project must include both hardware and software components. Normally this means an embedded microcontroller but it could also be a CPLD/FPGA design or a PC application connected to hardware like LabView data acquisition system. The department can support the 9S08, 9S12, ZigBee, and the Coldfire microcontrollers from Freescale, along with some pSOC MCUs from Cypress. If another processor is used the student must provide the development support. Another thing to consider is the time required to learn a new assembly language and hardware resources.

The project proposed and described in the reviews and documentation package must be a final product. Note that the demonstration consists of a prototype of this final product. Therefore, OEM products such as an EVB board, may be used for demonstrations but not for the reviews and documentation. Consult the instructor if you plan to use an OEM product in the final product.

All projects must be accepted by the instructor based on the proposal. Projects can be done individually or in groups. For project groups, specific tasks must be assigned to each person and each person must have at least one hardware task and one software task.

**Lab Notebook:** During the development process, a lab notebook must be kept. It is a journal of your daily activities involving the project. It must contain:

- A schedule through the end of spring quarter, updated weekly
- All preliminary design sketches and analysis
- Testing data and conclusions
- Calls or trips to vendors, summaries of discussions with faculty, staff, or fellow students that contain vital information concerning your project.

All pages must be dated. The notebook must be bound and must be legible and written in ink. The contents of the lab notebook will be graded at the end of ETec471 and at the end of ETec474.

**Notes:**

- Turn in good quality copies of the final proposal and descriptions – I will keep them.
- For other project information see the ETec474 syllabus.
- Remember to start a notebook now.
- Student samples of the Proposal and Description can be found on the course website.