

1) Functional Description (written)

- a. Introduction - A short overall description of the project (from proposal).
- b. Description and sketch of all project hardware and applications. Include maximum dimensions.
- c. Detailed functional description with a block diagram of the project hardware, including:
 - Microprocessor/Microcontroller type.
 - μ C/ μ P resources used. (A/D, SCI, PA, Bus system, etc)
 - Memory types and sizes.
 - Description of other major components/peripherals required.
 - External interrupts used and required external hardware.
 - Important signal/bus labels and all signal directions.
 - Power Supply, with source type, input voltage(s), output voltage(s), Max. Output current(s).
 - A system block diagram if multiple PCBs are used or it is a part of a larger system.
- d. Description of the software requirements, including:
 - Programming language(s)
 - Module description.
 - Real-time kernel and tasks
 - Major algorithms.
 - OEM Software.
- e. Detailed written description of the user interface requirements, including:
 - Sketch of the user interface layout (displays, LEDs, switches, keypads etc.).
 - User interface description. Include state diagrams and description for all buttons, and displays.
- f. Detailed written description of the communication protocol and communication standards used.

2) Development Plan (written)

- a. Written sequence and description of project development tasks
 - Weekly schedule showing tasks to be completed winter and spring quarters.
 - Any potential delivery problems for critical parts.
- b. A description of the required development hardware and software. Include the source.
 - μ P Software development tools, lab equipment, extra lab space.
- c. A description of the demonstration prototype and materials.
 - Construction methods (solder, wire-wrap, enclosures, etc.).
 - Standalone prototype or prototype using a development board.
 - Posters/Props.
 - Extraordinary items (Motorcycles, Environmental chambers, etc.).
- d. Sustainability Design Issues
 - Power consumption, waste issues, hazardous materials, etc

3) Electrical Specifications (list)

- a. Project specifications (as required):
 - Accuracy, Resolution, Range.
 - Industry Standards.
 - Data rate, sampling rate, etc.
 - Communications protocol and standards.
 - Applicable FCC, UL, FDA requirements.
- b. Power requirements.
 - Source description:
 - Batteries (type and estimated life).
 - AC power (Wall transformer or internal transformer, safety plan).
 - Total Worst-case Power dissipation (Itemized dissipation to be included with the parts list)..

ETec471 Project Description Outline

- c. Special environmental requirements
 - Operating temperature range (required).
 - Humidity, vibration, etc. only if required by the project.
- d. PCB size limits (Including height limits).

4) Preliminary Parts List (list)

- Includes costs, lead times, power dissipation, and sources.