How Thingamajigs Work? Moving Beyond the Technical Lingo
Syllabus FSEM 1111 30
Fall 2007

Course Description. This course is actually an academic enrichment program that is intended to cultivate problem solving through critical evaluation and skill building through hands-on activities. *How Thingamajigs Work* is appropriate for students of any discipline who are just curious about how things work. The course will be conducted in an informal educational environment where students are expected to participate in the discussions on assigned topics and integral activities. The activities will include information gathering, discussions, hands-on technical activities, and team competitions that are specially designed to improve the students understanding of the modern technology. Instead of spoon-feeding the students with information, they will be expected to gather information about topics of interest from all the sources available to them. Then the students will be challenged with designing and building a working model of a technical device from odds and ends.

Assessment: Students will be evaluated through various reports, both analytical review article on selected topics and reports on technical device projects. Process skills will be assessed by their level of creativity; ability to produce working model of technology devices. Reports will be evaluated for their quality, student's grasp of the basic scientific principles (factual information), logical reasoning, and clarity and completeness in describing the process and procedures involved in the projects.

Attendance	200 points
Quizzes	200 points
Reports	200 points
Oral Presentation	200 points

Instructor's Information:
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Class information:
Class will meet in Olin Hall 103 on Mondays and Wednesdays from 12:00 to 1:50 pm.

Required Course Items:

Texts/manuals:	Popular Science
Media:	howstuffworks.com, chemistry.beloit.edu

Tentative Course Schedule

Week of	Topic	Assignments
Sept. 10th	Introduction to the course Processors and definitions Components of a PC.	Put together a component list (shopping list) for building a ***Gaming and Media Creation*** quality desktop PC under $1000. All components must be available locally, and the list must be in the form of Excel Spread Sheet, detailing Manufacturer, Model and part number, Price, Vendor for each component and brief reasoning for the choice of motherboard, CPU and Video card etc. **Due Sept. 17th.**
Sept. 17th	Anatomy of a Computer Components and functions	
Sept. 24th	Anatomy of a computer continued….. Discussion.	
Oct. 1st	What is light? Electromagnetic Radiation.	Write a short paper on the pros and cons about the exposure to Microwave Radiation. **Due Oct. 8th.**
Oct. 8th	What is HDTV? *Anatomy of a CRT rear projection TV.* *Projection TV:* *CRT, LCD, DLP, GLV, and LCoS….* the facts	Write a short paper on the various visual image technologies discussed in class. Compare and contrast each form. **Due Oct 16th.**
Oct. 15th	How to build a Hover Craft. Discussion: Components and mechanics.	Gather information on how a Swamp Buggy works. Propose a well thought plan showing a sketch of the craft with all components clearly marked. **Due Oct. 22th.**
Oct. 22rd Oct. 29th	Discussion: Refining plans, component list, building Hover Craft.	Building the craft.
Nov. 5th	Team competitions	Build a working model of a radio receiver from household items and tune it to a radio station.
Nov. 13th	Team competitions Oral Presentation: 30 minutes per team.	Write a report describing the basic principles of a Radio Receiver, useful hints about alternate materials and methods, and an instruction manual clearly explaining the procedure for building the device. **Due Nov. 15th.**