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Electrical Engineering

November 10th, 2010



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About Me

- Tony Kmitta
 - ArcelorMittal Burns Harbor
 - Process Control Engineer, Power Station and Central Dispatch
 - BSEE, Purdue Calumet, 2007
 - MSE, Electrical Engineering, Purdue Calumet, 2008
 - Focus: Software and Controls



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Electrical Engineering History

- 1700s, Benjamin Franklin, Alessandro Volta, Luigi Galvani
- Understand the nature of an unseen, unnamed energy
- Kites, frogs' legs, zinc, salt water





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History (cont.)

- 1800s, Ampere, Faraday, Ohm, Oersted
- Electrical properties charge, resistance, potential, and current and the dynamics among them
- Charles Wheatstone, Samuel F. B. Morse – electrical communication
- Telegraph lines and telephone
- 1904 – John Ambrose Fleming's diode tube harnessed the electron in a revolutionary way
- Electronics was born

Are you an Electrical Engineer?



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- Do you:
 - Enjoy taking things apart, seeing how they work, and then putting them back together again
 - Wonder what makes your computer compute
 - Interested in how power gets to your house
 - Strong interest in math and science



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Electrical Engineering in College

- Harder?
- Basics from engineering
- Motors
- Magnetism
- Radio waves
- Computer programming
- Micro controller programming
- Power systems
- Control systems
- Network communications
- Circuit design and Analysis



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Job Tasks

- Design, create, maintain, test, enhance
 - Digital or Analog circuits
 - High voltage power grid
 - Power generation techniques
 - Model simulation
 - Program web pages, HMIs, reports, programs
 - Databases
 - Control processes, robots
 - IT



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Benefits

- Average starting salary bachelor's degree
 - Computer Engineering \$60,396
 - Electrical Engineering \$59,512
- *NACE Fall 2010 Salary Survey for the Class of 2010
- Outlook for EE is good
 - Fun projects to work on
 - Creativity and research

If you ever get bored of being a technical Master of Electrical Engineering



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- Business sector: Manager, Division Manager, CIO, Vice President of Operations
- Project Management
- Law school – Patent lawyers (high demand)
- Graduate school – Teach
- You could even go to another field of engineering