FAMU-FSU
College of Engineering

# Lecture #1:
# Course Introduction

**EEL 3003**
**Introduction to Electrical Engineering**
**Summer Semseter, 2013**

**Instructor: Dr. Michael Frank**





## Administrative Announcements

- First day of class! Two handouts today:
  - Course Syllabus
  - Prerequisite Acknowledgement Form
    - Make sure you sign it & turn it in to me before you leave
- Outline of Today's Lecture:
  - 1. Overview of Electrical Engineering
    - Some Major Subfields
    - Some Example Applications
      - ECE Senior Design Projects in 2012-13
  - 2. Go Over Syllabus
  - 3. Start First Lesson – Basic Concepts, Circuit Laws
- Today's Homework Assignment:
  - Read Ch. 1 of Textbook
  - Practice: Homework Problems 1.1-1.3.

# EEL3003L – Laboratory Sections

- Section 01:
  - Day/time:
    - Tue. 12:45 – 3:30 pm.
  - Location:
    - A-325
  - Instructor:
    - Indranil Bhattacharya
  - Email:
    - BhattIn@eng.fsu.edu
- Section 02:
  - Day/time:
    - Wed. 3:45 – 6:30 pm
  - Location:
    - A-325
  - Instructor:
    - Soumak Mookherjee
  - Email:
    - sm09s@my.fsu.edu



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# 1. Overview of Electrical Engineering

- A major field of modern engineering, with many active subfields, including:
  - Electronic devices & circuits
    - Analog & digital
  - Solid-state circuits
    - ASIC/VLSI design
  - Computer engineering
    - Microprocessors & microcontrollers
    - Reconfigurable logic
    - Embedded systems
  - Control systems
  - Electric power systems
    - Grid technologies
    - Photovoltaics
    - Battery technologies
  - Electric machines
    - Motors & generators
  - Sensors
    - Electromechanical, etc.
  - Optoelectronics
  - Communications
    - Wired & wireless
    - Analog & digital
    - Information theory

# Examples: Senior Design Projects

- Overview slides from 2012-13 projects involving ECE students



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# 2. Go Over Course Syllabus

- Core course topics:
  - DC Circuit Analysis
  - AC Circuit Analysis
  - Transient Analysis
  - Filters
  - AC Power
  - Operational Amplifiers
  - Semiconductors & Diodes
  - Transistors *etc.*
- Additional topics as time permits:
  - Electric machines
  - Communications
  - Digital systems
  - Electronic instrumentation

# Syllabus, *cont.*

- Grading policies:
  - Grade breakdown:
    - In-class assignments: 15%
    - Quizzes based on HW: 25%
    - Midterm Exam: 30%
    - Final Exam: 30%
  - Letter grade scale:
    - A ≥ 90% > B ≥ 80% > C ≥ 70% > D ≥ 60% > F.
    - Absolutely **NO** curving or rounding of scores.



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# Syllabus – Additional Class Policies

- Attendance is mandatory & will be taken each class.
  - More than 3 unexcused absences will result in being dropped from / failing the course.
  - Absences can only be excused via a letter signed by Associate Dean Perry.
- In-class assignments may be given without notice.
  - These will be graded, albeit sometimes leniently.
- Homework assignments are just for practice – they are not graded,
  - **BUT**, there will be a short in-class quiz based on each homework, which *will* be graded.
  - If you do not do the homework (and check your solutions), it's unlikely you can pass the quizzes.

# 3. First Technical Lesson – Basic Concepts, Circuit Laws

- Review basic concepts in electrical physics:
  - The electron & its properties
  - Key basic quantities:
    - Charge
    - Current
    - Energy
    - Voltage
    - Power
  - More quantities later…
- Circuit terms/notation
  - Joins, nodes, branches
  - Icons for voltage sources, resistors, capacitors
- Basic circuit laws:
  - Power law: $P = IV$
  - Kirchoff's Current Law
  - Kirchoff's Voltage Law
  - Ohm's law: $V = IR$