Introduction

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Does it pay to listen to Edison?

“I never did a day’s work in my life. It was all fun.”

Thomas Alva Edison
Wizard of Menlo Park
How much does an education cost these days?

Do you understand the value of your degree?
Recitation Management Issues
ENGR 1202 E01
The Historical and Contemporary Contributions of Electrical and Computer Engineering to Society

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Subjectline: ENGR 1202 E01: <your name>: <topic>

Recitation: ENGR 1202 E01 meets Tues 6.30-7.45 p.m. CHHS 380

Office hours: Following the recitation or by appointment via email to my assistant

Assistant: Jerri Price
Office: Woodward Building Rm. 246
Email: jerri.price@uncc.edu

No student will do poorly due to lack of access to this instructor
**Course Overview**
This recitation is to provide a general introduction to Electrical and Computer Engineering (ECE) and the historical and contemporary contributions that it has made to the lives we live. For example, the contributions that ECE has made in developing power generation systems, lighting, radio, TV, computers, internet, cell phone technology are not always well understood by students when they first arrive at UNCC. In addition, in this course you will learn about the research interests of some of the faculty and through this some vision to the future contributions of computer engineering (CompE) and electrical engineering (EE). General curriculum issues, learning styles, accreditation, student honor code and other topics will also be addressed that will help you to better navigate your time at UNCC.

**Course syllabus**
- Review the historical development of Electrical and Computer Engineering
- Understand the impact of ECE related technology on society
- Obtain an overview of contemporary issues in Electrical and Computer Engineering

**Course Objectives**
- To become more aware of the contributions that the ECE disciplines have made to society.

**Anticipated outcomes**
- Articulate the historical and contemporary contributions of electrical and computer engineering in verbal and/or written format
Course agenda
The proposed list of topics and the approximate week that they will be covered are listed below. However, both are subject to change based on the interests of the class and my travel. Assume that the class will be meeting each week unless it is announced otherwise.

Week 1: Introduction
Week 2: Departmental advising (Learning styles)
Week 3: Historical overview of ECE
Week 4: Understanding the societal impact of technology
Week 5: Contemporary issues in ECE #1
Week 6: Contemporary issues in ECE #2
Week 7: Contemporary issues in ECE #3
Week 8: Contemporary issues in ECE #4
Week 9: Contemporary issues in ECE #5
Week 10: Contemporary issues in ECE #6
Week 11: Overview of course and discussion

Approximate Outline: Topics and/or order subject to change
Grading
The ENGR 1202 E01 recitation is part of the ENGR class and will be 30% of that final grade split into the elements shown below.

- Professionalism: 10%
- Homework assignments (Cliff graded): 25%
- Participation: 30%
- Final Paper: 35%

Final Paper: There will be a short paper (4-6 pages) covering a topic addressed in the recitation. The papers will be graded for both readability and content. Some students may be asked to make a short presentation.

ENGR 1202 E01 Attendance and Participation:
Regular ENGR 1202 E01 attendance is expected. Attendance and proper participation in the class case are integral parts of the recitation.

Homework Assignments:
You are expected to submit your homework during lecture. All homework must be prepared on sheets of paper in your writing unless specified otherwise only on one side, and the other side must be blank. All homework must include a cover page which includes your name, class, instructor, submission date and homework set number. As explained in class, the homework is cliff graded.
Who am I and why am I qualified to do this job?
Scotland

Important Scottish Engineers/Inventors
- Alexander Bain, (1818-1903), fax machine
- John Logie Baird, (1888-1946), television
- Alexander Graham Bell, (1847-1922), telephone
- Robert Watson-Watt, (1892-1973), invented radar
- Ian Watson, (1951- ), first cloned mammal

Important Scottish Scientists
- David Brewster, (1781-1868), optics
- Robert Brown, (1773-1858), discoverer of Brownian Motion
- James Dewar, (1842-1923), low temperature physicist
- Joseph Lister, (1827-1912), pioneered antisepsis techniques
- James Clerk Maxwell, (1831-1879), electromagnetic theorist
- John Boyd Dunlop, the modern rubber tyre
- Alexander Fleming, (1881-1955), isolated Penicillin
- James Bowman Lindsay, (1799-1862), constant electric light bulb
- Charles Macintosh, (1766-1843), patented waterproofing
- Kirkpatrick MacMillan, (1813-1878) the bicycle
- Alfred Nobel (1833-1896) invented dynamite
- John Shepherd-Barron, inventor of the ATM

Other Important Scottish Inventions
- Robert Angus Smith, (1817-1884) discovered acid rain
- William Thomson, Lord Kelvin (1824-1907), improvements to the steam engine
- Robert Watson-Watt, (1892-1973), invented radar
- John Lister, (1827-1912), pioneered antisepsis techniques
- James Watt, (1736-1819), improvements to the steam engine
- James Chalmers, (1799-1862), adhesive postage stamp
- Robert Davidson, (1892-1973), invented radar
- John Loudon McAdam, modern road construction
- William Murdoch, (1754-1839), pioneer of gas lighting
- John Shepherd-Barron, inventor of the ATM
- James Simpson, introduced chloroform into surgery
Borehamwood Research Center

Scotland

University of St Andrews
St Andrews, Fife, KY16 9AJ, Scotland

Postgraduate

Undergraduate

GEC
Europe

Post-doctoral work

Superlec
CRNS - UMI
Second Research Group

Borehamwood Research Center

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Worldwide hotel reservation services
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Director, Research Development
Director, Intellectual Property
General Manager, In-situ Products

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Summary of *In-situ* Business Plan
Asia
Bellwether Instruments, LLC

In-situ Process Control for Semiconductors
Mission: To provide Places of incubation for the Entrepreneurial Spirit
Summary of Achievements

**Education**
- Recognized for excellence in teaching with multiple teaching awards
- Teaching effectiveness is 4.0-4.5/5.0 for undergraduate/graduate courses
- Graduated seven (7) PhD and ten (10) MSc students and supported over 15 postdocs since joining Georgia. >30 undergraduate students through the lab.

**Administrative**
- Leadership positions in both academia and industry

**Research**
- Typically raised funds of ~$860K/year (over $6M in total) since arriving at Georgia Tech. Raised ~$20M prior to joining Georgia Tech.
- 300 refereed articles (H-Index 34) and over 300 technical presentations

**Professional/Industry Service**
- Founded the International Conference on Solid State Lighting
- Fellow of the International Society for Optical Engineering (SPIE)
- Received a National Small Business Association Tibbets Award at the White House for contributions to the SBIR program

**Recent honors**
- Faculty Fellow in the Sam Nunn Security Program, based in the Center for International Strategy, Technology and Policy at Georgia Tech as part of the MacArthur Foundation’s Science, Technology and Security Initiative.
Does it pay to listen to Edison?

“Hell, there are no rules here -- we’re trying to accomplish something.”

Thomas Alva Edison
Professors also have lives outside the class…
Poetry

Mind Games

Looking out the window I see a grid of blocks in which people’s lives are played out bisected by a chasm that separates one from the other; a thin wall with the muffled sounds of someone else’s life; ‘et domus sua cuique tutissimum refugium’.

But soon, this pattern breaks up into the ‘fractus’ that Mandelbrot saw. The blocks lose the structure of a ‘English man’s home’, ‘Going Green and Back to Nature’ again; becoming a tapestry that slowly metamorphoses into a giant checker board.

The shadow of a cloud pauses over the land, touching an irrigation circle, like a hand ready to move a piece but as it stalls, it evaporates, leaving only the work of the farmer that continues to grow throughout this season, ready for the harvest; straw for our houses.

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Looking in the mirror

Ferguson | 傅的傅太
Ian | 奕的奕奕采神
Thomas | 曦的曦晨

What do you see?

Still Life

Balanced forms, prefect in harmony and composition, ripe. The light, shadows and reflections, defines depth and color, accentuating the truth. Later, the sun has gone and the fruit is turning. The dust has settled on a forgotten exercise. But, ‘it is still life’ and the truth seems more complete.

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