MINUTES

Attendees, Faculty:
Asif, Salman    Lake, Roger    Ren, Shaolei
Dumer, Ilya     Liang, Ping     Roy-Chowdhury, Amit
Farrell, Jay    Liu, Jianlin    Tuncel, Ertem (S)
Kim, Hyoseung   Liu, Ming      Wong, Daniel
Korotkov, Alexander    Mourikis, Anastasios

Absent, Faculty:
Abu-Ghazaleh, Nael    Hua, Yingbo    Tan, Sheldon
Balandin, Alexander   Karydis, Kos (LWOP)  Wang, Albert
Barth, Matthew (S)    Kassas, Zak     Yu, Nanpeng
Bhanu, Bir (S)        Mohsenian-Rad, Hamed  Zhu, Qi
Haberer, Elaine       Ozkan, Mihrri
Hackwood, Susan       Ren, Wei

Attendees, Staff:
Bill Bingham

1. Jay Farrell called meeting to order and determined a quorum was present.
2. Jay Farrell presented Ertem Tuncel with a 15 year UCR service award.
3. Minutes of 10/19/2016 meeting were unanimously approved.
4. Jay announced the BCoE Diversity Fellowship program and asked faculty to seek out candidates and encourage all personnel eligible to apply.
5. Discussion and vote of Undergraduate restructuring of undergraduate courses:
   • Remove CS 122A from list of EE technical electives.
   • Remove CS 130 from list of EE technical electives.
   • Remove EE 134 as a course and from the list of technical electives. Its curriculum has been incorporated within EE/CS 168.
   • Remove EE 140 as a course and from the list of technical electives. (In process of being removed already perhaps.)
   • Change ENGR 180W to ENGR 181W (This should already be in progress)
   • Remove EE 160 from the list of technical electives. It does not exist as a course.
   • Change total units to 83. Previous value was not correct.
   • Revise UCR catalog text to read as shown on the attached file.
6. Computational Materials search has been postponed until next year.
7. Discussion of “beautification project” for Winston Chung Hall. Faculty stated:
   • Photos should be evenly split between ECE and CSE topics.
   • Photos need not all be people, especially as the current set from each department has too little diversity.
   • Ninety photos (45 per department) is too much.
8. Meeting adjourned.

Announcements and Other items
Open Enrollment begins October 27, 2016 and will end on Tuesday, November 22, 2016 at 5:00 p.m.
Current Undergraduate Program Focus Areas

The electrical engineering undergraduate program offers the following focus areas:

1. Communications, Signal Processing and Networking: Fundamental and state-of-the-art theory and applications of communications, networking of devices, and related signal processing, involving information sources in the form of audio, video, image and text messages and transmission media of wire, wireless (radio frequency), fiber optics, etc.

2. Control and Robotics: Theory and design of control of systems and robots. Example applications include control systems in automotive, satellite, aircraft, computer hard drive, robotic manufacturing, autonomous robots, cell phone signal tracking, among others.

3. Intelligent Systems: Theory, design and development of systems capable of intelligent decisions. Example applications include video surveillance systems, intelligent transportation systems, and manufacturing automation.

4. Nanotechnology, Advanced Materials and Devices: Synthesis and characterization of advanced materials at nanometer scale, theory, design and fabrication of electronic and optoelectronic devices. Example applications include creation of ultra-fast low-power transistors, efficient solar cells for energy generation, high-density memory for smart phones and mobile services, and tiny devices for medical applications.

5. Power Engineering: Power electronics, AC and DC power and their conversion, electro-mechanical energy conversion, electric motors, large-scale power generation and transmission systems, long-distance transmission and distribution of electric power, design of motion control drive circuits for robotic and industrial automation systems, and other related topics.

6. VLSI Design and Systems Theory: Design and methodologies of very large scale, nanometer integrated circuits. Example applications include microprocessors, analog and mixed signal circuits, RF circuits for cell phones and wireless networks, system-on-chip and wireless networks, system-on-chip.

Proposed Undergraduate Program Focus Areas

The electrical engineering undergraduate program offers the following focus areas:

1. Communications, Signal Processing and Networking: Fundamental and state-of-the-art theory and applications of acquisition, processing, and transmission of digital signals and images over wire, wireless (radio frequency), fiber optics, etc. Example applications include speech processing and recognition, mobile communication using smartphones, fiber optical communication, image enhancement and compression.

2. Control, Robotics and Machine Intelligence: Theory and design of control of systems and robots, and systems capable of intelligent decisions. Example applications include control systems in automotive, satellite, aircraft, computer hard drive, robotic manufacturing, autonomous robots, cell phone signal tracking, computer vision and intelligent transportation systems.

3. Embedded Systems and VLSI: Theory, design and methodologies of embedded system using microcontrollers, very large scale, nanometer integrated circuits. Example applications include smart home appliances, Internet of Things, microprocessors, analog and mixed signal circuits, RF circuits for cell phones and wireless networks, system-on-chip and wireless networks, system-on-chip.

4. Nanotechnology, Advanced Materials and Devices: Synthesis and characterization of advanced materials at nanometer scale, theory, design and fabrication of electronic and optoelectronic devices. Example applications include creation of ultra-fast low-power transistors, efficient solar cells for energy generation, high-density memory for smart phones and mobile services, and tiny devices for medical applications.

5. Power Engineering: Power electronics, AC and DC power and their conversion, electro-mechanical energy conversion, electric motors, large-scale power generation and transmission systems, long-distance transmission and distribution of electric power, design of motion control drive circuits for robotic and industrial automation systems,
New (SOC), application specific integrated circuits (ASIC).

2. Upper-division requirements (81 units)
   a) EE 100A, EE 100B, EE 105, EE 110A, EE 110B, EE 114, EE 115, EE 116, EE 132, EE 141, EE 175A, EE 175B
   b) CS 120A/EE 120A, CS 120B/EE 120B
   c) ENGR 180W
   d) Twenty (20) units of technical electives (chosen with the approval of a faculty advisor) from CS 122A, CS 130, CS 161, CS 168/EE 168; EE 117, EE 123, EE 128, EE 133, EE 134, EE 135, EE 136, EE 137, EE 138, EE 139, EE 140, EE 144, EE 145/ME 145, EE 146, EE 150, EE 151, EE 152, EE 153, EE 155, EE 160, EE 162, EE 165, ENGR 160

The choice of technical electives must ensure that the upper division requirements include at least one coherent sequence of at least three (3) electrical engineering courses to ensure depth in one area of electrical engineering.

2. Upper-division requirements (81 units)
   a) EE 100A, EE 100B, EE 105, EE 110A, EE 110B, EE 114, EE 116, CS 120A/EE 120A, CS 120B/EE 120B, EE 132, EE 141, EE 175A, EE 175B
   b) One of EE 128 and EE 155
   c) ENGR 181W
   d) Sixteen (20) units of technical electives (chosen with the approval of a faculty advisor) from CS 161, CS 168/EE 168; EE 115, EE 117, EE 123, EE 128 (if not chosen as a required course in b) above), EE 133, EE 135, EE 136, EE 137, EE 138, EE 139, EE 144, EE 145/ME 145, EE 146, EE 150, EE 151, EE 152, EE 153, EE 155 (if not chosen as a required course in b) above), EE 162, EE 165, ENGR 160

To ensure depth, the choice of technical electives must include at least one coherent sequence of at least three (3) electrical engineering courses (lead course plus two additional) in one focus area of electrical engineering, as defined below.

- Communications, Signal Processing and Networking. Lead Course: EE 141.
  Sequence Courses: EE 115, EE 117, EE 128, EE 146, EE 150, EE 152, ENGR 160.
- Control, Robotics and Machine Intelligence. Lead Course: EE 132.
  Sequence Courses: EE 128, EE 144, EE 145, EE 146, EE 151, EE 152, ENGR 160.
- Embedded Systems and VLSI. Lead Course: EE 128.
  Sequence Courses: EE 135, EE 165, CS/EE 168, CS 161, ENGR 160.
- Nanotechnology, Advanced Materials and Devices. Lead Course: EE 133.
  Sequence Courses: EE 117, EE 134, EE 135, EE 136, EE 137, EE 138, EE 139, EE 162, EE 165, EE 168, ENGR 160.
- Power Engineering. Lead Course: EE 155.
  Sequence Courses: EE 123, EE 128, EE 153, ENGR 160.