Undergraduate Program
BS-EE Information
### SHIP Projects Supervised by ES Faculty in 2011, 12, & 2013

http://www.sonoma.edu/scitech/hs/

<table>
<thead>
<tr>
<th>Year</th>
<th>Student &amp; High School</th>
<th>ES Faculty Mentor(s)</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>2013</td>
<td>Evan Barnell, Montgomery High School</td>
<td>Dr. Ali Kujoory</td>
<td>End-to-End Electronic Communication System</td>
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<td></td>
<td>Audrey Chan, Pathways Charter School</td>
<td>Dr. Jack Ou</td>
<td>Applications of Digital Signal Processing in Music</td>
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<td></td>
<td>Alex Hong, Santa Rosa High School</td>
<td>Dr. B. Ravikumar</td>
<td>Machine Learning Using EEG Data</td>
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<td>2012</td>
<td>Waleed Atallah, Technology High School&lt;br&gt;Jessica McCready, faculty at Orchard View School</td>
<td>Dr. Ali Kujoory</td>
<td>Solar-to-Electrical Energy System Design</td>
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<td>Nick Rose, Analy High School</td>
<td>Dr. Jack Ou</td>
<td>ECG Measurement System</td>
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<td>Kelly Jackson, Petaluma High School</td>
<td>Farid Farahmand</td>
<td>Water Quality Measurement Design</td>
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<td>Akash Desai, Maria Carrillo High School&lt;br&gt;Cheyenne Rahimi, Analy High School</td>
<td>Dr. Saeid Rahimi &amp; Dr. Lynn Stauffer</td>
<td>Computer-Controlled Solar Tracker</td>
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# ES Summer Research Program in 2013

<table>
<thead>
<tr>
<th>Funders</th>
<th>Students</th>
<th>Projects (supervised by ES faculty)</th>
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<tbody>
<tr>
<td><strong>Agilent Technologies</strong></td>
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<td></td>
<td>Joshua Disbrow, ES</td>
<td>EEG Keyboard</td>
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<td></td>
<td>Hamidou Drammeh, ES</td>
<td>ADC-DAC Design &amp; Applications</td>
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<td>Chio Saephan, ES</td>
<td>Microstrip Coupled Line Band-Pass Filter Design</td>
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<td><strong>Green Music Center</strong></td>
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<td>David Tran, CS</td>
<td>Digital Signal Processing</td>
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<td></td>
<td>Alberto Martos &amp; Eric Waugh, ES</td>
<td>Soundscape</td>
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<tr>
<td><strong>NASA &amp; ES Dept</strong></td>
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<tr>
<td></td>
<td>Alberto Martos, ES</td>
<td>Fabrication Coupled BPF on PCB</td>
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<td></td>
<td>Scott Parmley, ES</td>
<td>ADC-DAC with ICs</td>
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<td></td>
<td>Eric Waugh, ES</td>
<td>3D Printer</td>
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<tr>
<td><strong>SST &amp; SCOE</strong></td>
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<td></td>
<td>Evan Barnell, SHIP</td>
<td>End-to-End Communication Circuits</td>
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<td></td>
<td>Audrey Chan, SHIP</td>
<td>Acoustic Measurements of GMC</td>
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<tr>
<td></td>
<td>Alex Hong &amp; Cliff Tai, SHIP</td>
<td>Applications of EEG</td>
</tr>
</tbody>
</table>

ADC = Analog to Digital Conversion, CS = Computer Science, DAC = Digital to Analog Conversion, EEG = Electroencephalograph, ES = Engineering Science, SCOE = Sonoma County Office of Education, SHIP = SSU High School STEM Summer Internship Program, SST = School of Science & Technology
Selected List of Undergraduate Student Projects

• A. Fierros, C. Wei, B. Hanley, “CCAB-Copeland Creek Aquatic Bank”, 2010.
• C. Dennison, K. Connelly, “FOCS-Fair Osborn Climate Station”, 2010.
• B. Benvaldo, “Fall Detection with the BT-Box”, 2012.
Project Showcases/Research

Presenting Research Papers
Attending Conferences
Field Trips
Project Examples
Design Cycle - High-tech Projects

Evaluation Board & Breadboard Circuit

IC Schematic Design in Eagle

IC Board Design in Eagle

Sample Waveform

Final Project

Final PCB
Remote Power Monitoring Station

2nd Prize – Digilent Competition

Project Examples
High tech industries look to Sonoma State

The booming telecommunications industry in Sonoma County and other high tech companies here have approached Sonoma State University officials for help filling high tech positions, says Susan Kashack. The director of News and Information for SSU says the high tech companies say they are having trouble finding qualified people to fill the growing number of positions available.

Part of the problem, Kashack says, is that it’s expensive to work here and therefore difficult to draw people from other areas. “They want engineering students right out of the university,” she says.

In response to this demand, SSU is developing a curriculum for a masters degree program in Computer and Engineering Sciences, Kashack says.

At the same time SSU continues to provide programs tailored to the wine industry here. At the request of the wine industry and recognizing the unique local demand, SSU launched a Wine Business program two years ago. This came with the help of a $1.25 million endowment from the wine industry.

There’s a bachelor of arts program focusing on wine business management, marketing, accounting and public relations, and a professional development program for current wine industry employees, Kashack says.

Subjects taught include marketing in foreign countries, the impact of globalization, foreign exchange and even creating wine labels. These classes are “tremendously popular,” Kashack says.

The wine program and the upcoming engineering program are the school’s “two biggest mover-and-shaker programs,” says Kashack.

There are other areas of keen interest as SSU moves into the new millennium. Currently under construction is the $40 million Schulz Information Center, a high tech library and technology center slated to open in the fall of 2000.

Additionally, expectations are high over a proposed concert hall on the campus. Fundraising is moving along with $26 million raised toward the $47 million project. Construction is expected in the next two years with the performance center seen as a place for student music programs, art events and festivals. The facility will also be the home of the Santa Rosa Symphony.
IAB Membership & Bylaws

• Form a small organizational group
  ➢ Propose vision, bylaws
  ➢ Identify gaps in membership
  ➢ Propose meeting frequency
  ➢ Seek nominations for IAB Chair/Co-Chairs
  ➢ Other…

• Other topics, suggestions?
Discussion Items

• SSU engineering/community interaction and collaboration

• Support engineering education at SSU

• Student recruitment

• Curriculum and academic standards
1. SSU engineering/community interaction and collaboration

- Publicizing department's existing engineering lecture series
- Internship opportunities for EE students
- SSU/industry research collaboration and technology transfer
- SSU hosting annual forum by industry leaders addressing current and future state of technology
- Potential for a North Bay High-Tech Hub and Think Tank
- Short courses, training, and certificate programs for industry employees
A High-Precision Real-Time Movement Monitoring System for Treatment Evaluation of Parkinson Disease

Dr. Farid Farahmand
AITIS LABORATORY
http://faridfarahmandresearch.blogspot.com/
Our Designed
Wearable Blue-tooth Based Sensor
Department of Engineering Science
BS Electrical Engineering
MS Computer & Engineering Science

CSU Academic Budget Allocation

FTES (Full Time Equivalent Student): 15 units
enrollment counts as one FTES
2. Support engineering education at SSU

- Advocating donation of equipment, materials and supplies
- Organizing creation of student scholarships and support funds
- Support for faculty research and start-up funds
- Advocacy for Endowed faculty positions and professorships
- Volunteer instructors from industry
3. Student recruitment

- Disseminating SSU EE program information in local tech community
- Graduate student recruitment
- Working with the local community colleges and high schools
- Linking company websites to centers for engineering education, highlighting EE program at SSU
- Focusing on recruitment of quality students
4. Curriculum and academic standards

- Strengthening existing curriculum (undergraduate and graduate)
- Possible future enhancements and expansions
- Preparing for ABET accreditation
5. Other Discussion Items?
Thank you!
Meeting Agenda

2:30    Reception, meeting faculty and students; student projects
3:00    Meeting Starts
3:05    Board Member Introductions
3:15    Remarks by President Armiñana
3:20    Electrical Engineering Program and Department Background
3:30    IAB: Membership and Bylaws
3:40    Discussion of Goals, Projects and Creation of Task Forces
4:00    Break
4:10    Continue Discussions
4:50    Meeting Adjourned, Tour of Facilities