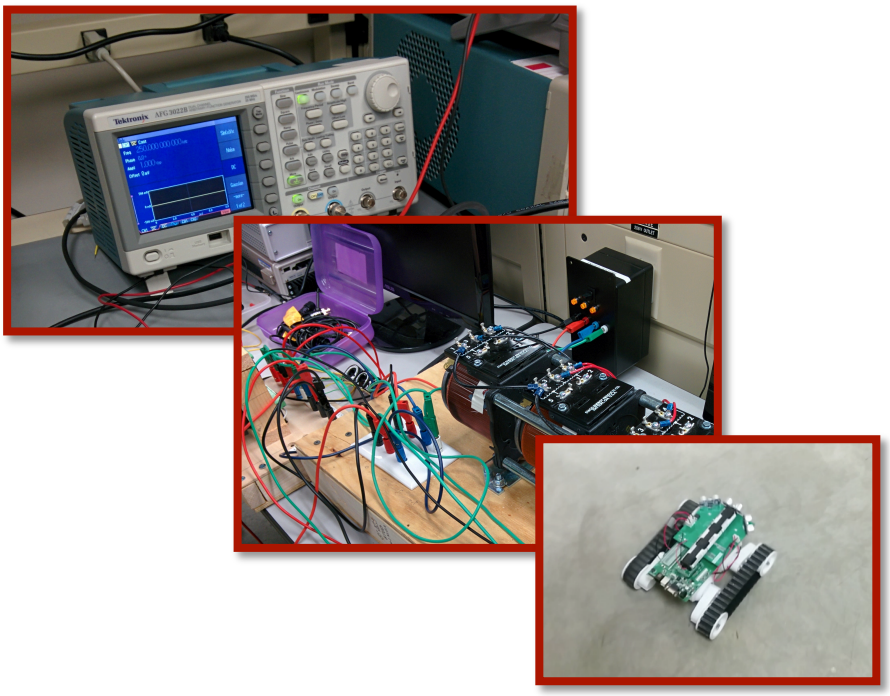
Sophomore Year Handbook

2015 –2016

Arkansas
Mentoring
Program for
Electrical
Engineering &
Related
Studies



Our Purpose

- To equip underclassmen EE students with the resources they need to have a successful academic experience and career path through the University of Arkansas
- To provide an opportunity for upperclassmen and underclassmen interaction which will foster mutually beneficial relationships and academic progress

AMPEERS is the peer-mentoring program developed by the Gamma Phi Chapter of Eta Kappa Nu (HKN), the IEEE honor society located at the University of Arkansas. This handbook is a resource for sophomore students to make their transition into the EE department both smooth and enjoyable.

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Introduction

What is Eta Kappa Nu?

Eta Kappa Nu (HKN) is the honor society associated with IEEE for Electrical and Computer Engineering. On the University of Arkansas campus we comprise the Gamma Phi Chapter. Since the requirements to join HKN are found in academic success and leadership abilities, the society is in charge of student activities related to these areas. HKN is offering AMPEERS to welcome incoming sophomore students into the EE department, providing a resource where you can learn more about topics such as research, coursework, career planning, tutoring, etc. As an academic society, HKN is also the student organization responsible for offering tutoring sessions throughout the year.

What are the requirements to join HKN?

To join HKN you must complete the following before the initiation ceremony at the end of each semester:

- Be a junior or senior by credit hours, a graduate student, or an EE/CE faculty member
- Be in the top **quarter** of your junior class or in the top **third** of your senior class
- Attend **two** social events and **one** service project
- Create HKN signature board (as seen on the right)
- Pay the initiation fee of $80

Meet The Mentors

1. **Brian Nance**

Hometown: Conway, Arkansas

Focus: Power (as of right now…)

Fun Fact: I'm a rock climber!

Internship/Job Experience: PE intern at Fisher Arnold, Inc.

2. **Ian Coulter (President of PELS)**

Hometown: Grapevine, Texas

Focus: Power

Fun Fact: Also know as Eon

Internship/Job Experience: EE Intern for CH2M Hill Engineering

3. **Alex Moushegian**

Hometown: Dallas, Texas

Focus: Power

Fun Fact: I love to play the guitar!

Internship/Job Experience: EE Intern at FutureFuel

4. **Alec Walter (HKN Corresponding Secretary)**

Hometown: Bentonville, Arkansas

Focus: Electromagnetics/Biology

Fun Fact: Spiritual animal is a British man…

Research Experience: REU for Tera-hertz Cancer Imaging

5. Andrew Kiefer

Hometown: Keller, Texas

Focus: On graduating…

Fun Fact: Got to be in the newspaper for choking on a Jawbreaker

Internship/Job Experience: Distribution Planning for Oncor Electric

6. Miles Wassner

Hometown: Greenbriar, Arkansas

Focus: No idea…graduating?

Fun Fact: Loves to hunt and be outdoors

Internship/Job Experience: Facilities Engineer for ConocoPhillips

7. Lexi LaMott (SWE Conference Chair)

Hometown: Tyler, Texas

Focus: Electrical Project Management

Fun Fact: SWE Region C 2016 Conference Chair (it's in Fayetteville!)

Internship/Job Experience: Plant Engineer for Flint Hills Resources

8. Chris Matthews (Vice President IEEE)

Hometown: Lee's Summit, Missouri

Focus: Renewable Energy

Fun Fact: Is friends with Kenny George's daughter

Research Experience: REU for Renewable Power & Grid Stability

9. Sarah Jagessar (Recording Secretary of HKN)

Hometown: Nassau, The Bahamas

Focus: Power & Control Systems

Fun Fact: Has been playing the trumpet for 10 years

Internship/Job Experience: None…but I am also a math major!

10. Mitchell Malone (Vice President of HKN)

Hometown: Dallas, Texas

Focus: Power

Fun Fact: I love to cook! (ask me about my guacamole)

Internship/Job Experience: HV Engineer for LyondellBasell

11. Brett Schauwecker (previous HKN officer)

Hometown: Lenexa, Kansas

Focus: Power

Fun Fact: President of the Running Club

Internship/Job Experience: EE Intern for Burns & McDonnell

12. Kenny George (President of HKN)

Hometown: Prairie Grove, Arkansas

Focus: Power Electronics

Fun Fact: He has a daughter!

Internship/Job Experience: PE Design Engineer for APEI/CREE

13. Abdulaziz Alghanem

Hometown: Riyadh, Saudi Arabia

Focus: Power

Fun Fact: Knows more about English grammar than Arabic!

Research Experience: Piezoelectric Power Harvesting

14. Raul Meana

Hometown: Panama, Panama

Focus: Renewable Energy & Power Electronics

Fun Fact: Likes to surf

Internship/Job Experience: SIGSA-SA

15. Kyle Phipps (AMPEERS Coordinator for HKN)

Hometown: Ozark, Missouri

Focus: Graduating

Fun Fact: My favorite animal is a hippo

Internship/Job Experience: I&C Engineer for Black & Veatch

16. Zach Zelenka

Hometown: Fayetteville, Arkansas

Focus: Power Electronics

Fun Fact: I can do a mean Donald Duck impression

Internship/Job Experience: Intern with Delta Group Electronics, Inc

Internships & Career Fairs

Internships

Through your next 3 years in the EE department you will notice that professors, upperclassmen, and career advisors stress the importance of internships. Internships offer unique opportunities to see what it's like to work in different industries and electrical engineering careers. Added benefits of internships are that they usually offer some income, various cities and locations to experience, and one-on-one interactions with engineers of different focuses. A great place to find companies that offer internships is the…

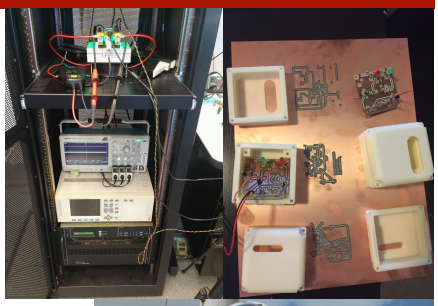
STEM Career Fair

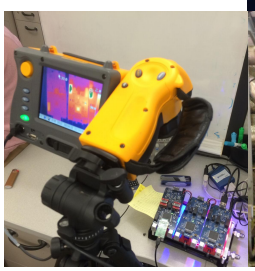
What is the STEM fair? It is an event that happens once a semester where companies recruit students for internships and jobs! Many of the AMPEERS mentors found internships and now have potential job offers thanks to the STEM fair, and they can help you prepare for it!

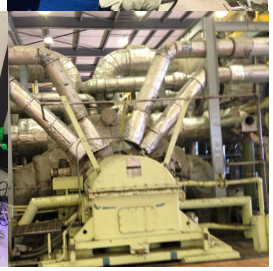
Ask your mentor about:

- What to wear
- Which companies will be there
- The 30-second elevator speech
- Resumé preparation resources
- How to handle internship interviews
- How to communicate with professionals
- The Pre-STEM Mixer

Approximately 110 companies will be attending the fair so you have plenty of opportunities to explore! On the right are pictures from some of the mentors during their most recent internships!







When & Where is the STEM Fair?

September 30th, 2015

10:00 AM – 12:00 PM & 1:00 PM – 4:30 PM

Bud Walton Arena

Resources

Brian Henderson - bwhenderson@uark.edu

Razorback Career Link - https://uark-csm.symplicity.com/students/

Career Development Center - http://career.uark.edu

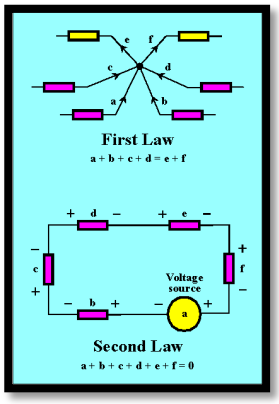
Companies:
http://career.uark.edu/new/events/stem/StemFairRegistered.asp

Classes

Circuits I

Topics that will show up in future courses:

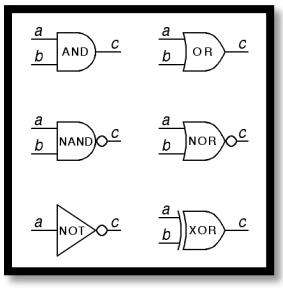
- **Kirchhoff's Voltage Law (KVL)**
- **Kirchhoff's Current Law (KCL)**
- **Ohm's Law**
- **How to write lab reports**



Digital Design

Topics that will show up in future courses:

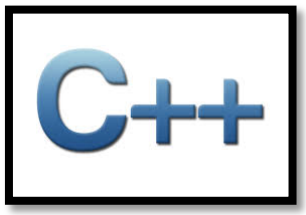
- **Programming in VHDL**
- **Digital Logic**



Programming Foundations I

Topics that will show up in future courses:

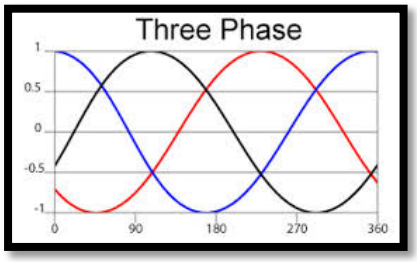
- **Data types** (int, double, char, etc),
- **Loops** (for, while)
- **If-statements**



Circuits II

Topics that will show up in future courses:

- **Phasors**
- **3-Phase power (Delta and Wye circuits)**
- **Calculating impedance values**
- **Applying LaPlace Domain techniques**



Undergraduate Research

Professor: Dr. Roy McCann

Type of Research: Analysis and development of algorithms for real-time implementation using FPGAs and DSPs to control power electronic circuits in three-phase systems

Requirements: Students will need to have taken the following courses: MATH 2584, MATH 3083, ELEG 2114, ELEG 2904, CSCE 2004

Professor: Dr. Juan Balda

Type of Research: Power electronics and its multiple applications to electric power systems. Undergraduate students will work with a graduate student in a current research topic of the Sustainable Smart Electric Energy Systems (SSEES) Laboratory

Requirements: Students need to have a GPA of 3.0 or higher

Professor: Dr. Omar Manasreh

Type of Research: Experimental and theoretical optoelectronic properties of III–V semiconductors, nanomaterials, and related devices

Requirements: Students merely need to be willing and have the desire to perform research

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Professor: Dr. Alan Mantooth

Type of Research: The MSCAD group is looking for top undergraduate students with an interest in integrated circuit (IC) design and computer-aided design (CAD). Students will have the opportunity to be a part of several areas in the IC/CAD process. These areas include: PCB design, probe station training, high precision measurement techniques, packaging training, benchtop testing, and extreme environment testing.

Requirements: It is beneficial for students to have successfully completed Circuits I, II for basic lab experience and Electronics I, II for design experience, but any student willing to learn will find work in the circuit design or CAD group rewarding

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Professor: Dr. Magda El-Shenawee

Type of Research:
1) Antenna design, fabrication and measurements.
2) Terahertz imaging of excised breast cancer tissues, electronics, materials and concealed weapons.

Requirements: Students must be currently taking or have taken Electromagnetics. Students interested in antenna design will need to have taken the Antennas course.

The EE Department offers a variety of different undergraduate research opportunities. Performing research allows you to interact with faculty on a new level and learn about areas of EE not found in the classroom. If you are enrolled in the Honors College, you have to write a thesis based on a project or research to be able to graduate with honors. Don't be afraid to meet with professors to discuss the research opportunities that they offer! To the left are just some of the professors you can conduct research with.

EE Student Organizations

IEEE (Institute for Electronics and Electrical Engineers)

IEEE is the most prominent professional organization for electrical engineers around the world. It is solely responsible for publishing the most technical articles than any other organization. The IEEE organization at the U of A is responsible for hosting a number of social events where students can network with professionals and take tours of many industrial sites.

Contact: Chris Matthews - cmmatthe@uark.edu

PELS (Power Electronics Society)

Power electronics is a critical area of electrical engineering. The field focuses on producing more efficient methods of power consumption and transmission for all applications. The PELS organization at the U of A is responsible for bringing guest speakers to the campus so that students can broaden their knowledge about the electrical engineering world in both research and industry.

Contact: Ian Coulter - iscoulter@uark.edu

Arkansas Robotics Club (ARC)

The Arkansas Robotics Club offers the opportunity to design and build a robot to compete in the IEEE Region 5 Conference Robotics Competition! At last year's conference in New Orleans, teams had to design robots that would use photography to navigate through a maze as fast as possible.

Contact: Alex Moushegian – aamoushe@uark.edu

SWE (Society of Women Engineers)

Spanning all engineering fields, SWE is an organization for both men and women that empowers women to achieve full potential in careers as engineers. Lexi LaMott, a fellow EE student and SWE Conference Chair, is organizing the National Conference that will be held in Northwest Arkansas this upcoming February!

Contact: Lexi LaMott - adlamott@uark.edu

Tau Beta Pi

Another organization that spans all engineering fields, Tau Beta Pi is a prestigious honor society that offers greater exposure for academic recognition and opportunities such as scholarships and study abroad experiences.

Contact: Kenny George - jkg001@uark.edu

Outside of HKN, there are many other student organizations that offer opportunities for academic, research, and leadership experience. Most of the AMPEERS mentors are either officers or members of these organizations. Ask your mentor about their involvement and if you take interest in any of these organizations you can contact the representatives listed. (They are all AMPEERS mentors!)

Places of Interest

Some Places to Eat & Drink

Shown in **BOLD** are the places where you are likely to bump into fellow EE students!

American/Burgers/Pizza:
- **Hugo's** (Best Burgers in Town)
- Grubs
- Jim's Razorback
- Foghorns
- **Green Submarine**

Asian:
- **A Taste of Thai**
- Formosa
- Ginger

Barbeque:
- **Penguin Ed's**
- Lucky Luke's
- Sassy's Red House

Coffee:
- **Onyx Coffee Lab**
- Common Grounds
- Mama Carmen's

Food Trucks:
- **The Green Goat**
- Nomad's Natural Plate
- Baller Foodtruck
- Kona Coast
- Coco's Lebanese Café
- Kind Kitchen

Italian:
- **Pesto Café**
- **Geraldi's**
- Fresco Cafe

Mediterranean:
- **Tangiers** (falafels, gyros, & tea)

Tex-Mex:
- **Mango's**
- Burrito King
- **La Huerta**
- **The Flying Burrito**

Other:
- **Hawaiian Brian's**
- **Rick's Bakery** (Donuts & Kolaches)

Some Places to Study

- The EE Lounge in BELL
- Ozark Hall study rooms
- Fayetteville Public Library
- Café's (see Places to Eat & Drink)
- Architecture building (also for naps)
- Mullins Library
- Fine Arts Library (Kyle works here!)

Contact Information

HKN 2015 Officers

President	Kenny George	jkg001@uark.edu
Vice President	Mitchell Malone	mgmalone@uark.edu
Treasurer	Moises Guerra	maguerra@uark.edu
AMPEERS Coordinator	Kyle Phipps	kaphipps@uark.edu
Web Correspondent	Spencer Nelson	sxn013@uark.edu
Recording Secretary	Sarah Jagessar	ssjagess@uark.edu
Corresponding Secretary	Alec Walter	abw006@uark.edu

HKN Fall 2015 Events

- Founders Day – October 28th

- HKN New Member Initiation – December (exact day TBD)

Useful Links

HKN websites:
National – www.hkn.org
UofA – rso.uark.edu/hkn (coming soon)

IEEE websites:
National – www.ieee.org
UofA – rso.uark.edu/ieee