MESA Milestones

Featuring momentous affairs of the MESA program at Allan Hancock College

Spring 2018

AHC Female Engineering Students Attend: WIN THE FUTURE

by Christine Reed, MESA Counselor/Coordinator

On March 17, five Allan Hancock College female students studying engineering attended the fourth annual Silicon Valley Women in Engineering conference titled WIN THE FUTURE. This one-day learning and networking experience for students, professors, and women leaders is hosted by San Jose State University and is packed with Tech Talks, professional development workshops, career panels, and an Innovation Showcase. Keynote speakers included Maggie Johnson - Director of Education at Google, Darlene Solomon – Chief Technology Officer at Agilent Technologies, and Lakecia Gunter – Chief of Staff & Technical Assistant to CEO at Intel.

AHC Engineering Students - Celina Mendez, Bianca Aleman, Annalise Ketz, Christina Hinson, Rebecca Rodriguez; Christine Reed

Workshops offered learning experiences on assertive communication, winning future jobs, interpersonal skills in the workplace, negotiations skills, and planning for career success. Information was presented on emerging technologies such as energy generation and management, cybersecurity, wearable and medical devices, augmented/virtual reality, disaster response and warning, smart transportation, next-generation diagnostics, artificial intelligence, smart homes and manufacturing, and personalized medicine.

For more information on this conference visit http://siliconvalleywie.org/.

Unlocking Luncheons – Calling Female Engineering Students!

Do you feel outnumbered by your male peers in your classes? Or ever felt like you had to prove yourself more than your male peers? On behalf of Allan Hancock College's E3 program (Enticing, Engaging, and Empowering Women in Engineering), Unlocking Luncheons offered every other Friday starting March 16th through May 11th from 1:00 PM – 2:00 PM at M-136. Our luncheon meetings center on the unique challenges women in STEM face and strategies for excelling in a male dominated field as discussed by author, Karen Purcell, in her book, Unlocking Your Brilliance: Smart Strategies for Women to Thrive in Science, Technology, Engineering, and Math. Every other week, the group reviews a chapter from Purcell's book. Students learn from and share with female peers their experiences in a safe and supportive environment.

What's provided:

- A copy of Purcell's book
- Lunch and refreshments
- A Starbucks gift card for every luncheon you attend

For more information, contact Christine Reed at creed@hancockcollege.edu

A new MESA/STEM Center that will serve as the nucleus of STEM student learning on campus!

The proposed MESA/STEM Academic Success Center will create a new space on campus for both MESA students and other STEM majors to collaborate and learn. Hancock has a proven track-record of excellence in supporting students in science and math-based majors with a multi-pronged approach that addresses foundational factors shown to affect student success and retention: financial need, academic skills and study habits, social involvement with peers and meetings with faculty, and motivation/commitment to career and academic goals. On this foundation, other factors – quantitative skills, confidence in those skills, family support, and commitment to the college – are strengthened.

Together, the two programs serve more than 400 students annually and the program is housed in one of Hancock's temporary structures, a modular building relocated from Vandenberg Airforce Base over 15 years ago. The new MESA/STEM Academic Center will double the capacity - allowing for additional students to be served and providing a state-of-the art academic success environment – so that our students today may become tomorrow's future STEM leaders.

Allan Hancock College Foundation is seeking partnerships and industry collaborations for this vision – with naming opportunities available.

Construction costs are estimated at $500,000. The center includes an interactive study center, a learning laboratory, a collaboration classroom, a resource library and work room, and a decompression lounge.

For more information, contact the AHC Foundation at (805) 922-6966 ext. 3621.

Taking Things Apart to Learn

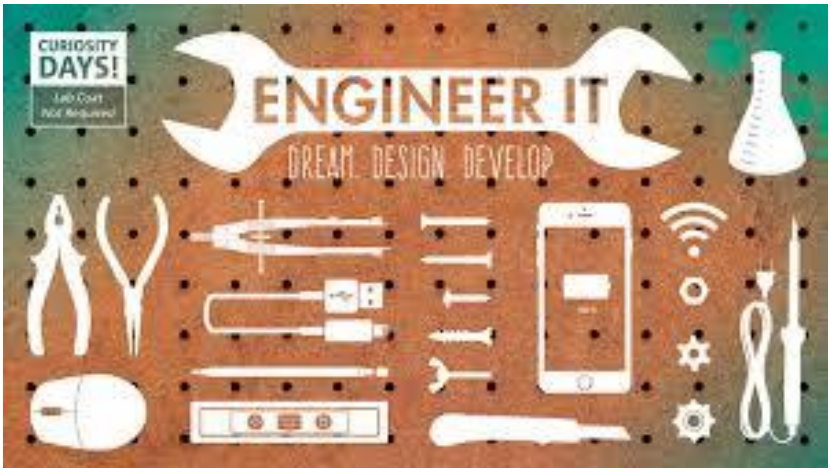
by Raul Gonzalez, MESA Student, Mechanical Engineering

My parents migrated from Mexico to the U.S. before I was born; returned to Mexico after I was born and then before I was two years old they came back to the U.S. to stay permanently. Both of my parents never finished high school. My mom only finished the fourth grade. My dad had slightly more education; he made it to the sixth grade. When we arrived here we moved in with my aunts. We spent the next six years living with two of my aunts and their kids. The house was always full of kids running around and playing.

By the age of 12, I enjoyed taking things apart and learning how things worked. When I did take things apart such as small remote-controlled cars when they stopped working, I would generally take the small DC motor out. I didn't really make anything with it, but I would just turn it on and off and wonder how it made the tires spin, but because I generally used brute force to take these apart it was not possible to put things back together.

It was around this time that I joined the MESA in my junior high school. I learned how much I enjoyed making thing, and not just taking things apart. It was fun and I felt proud when my projects would win in a competition. I had stopped going to MESA freshmen year, but I started again in my sophomore year. At that point I was still unsure of what I wanted to pursue for a career. Because I am the oldest of 6 siblings and because my cousins for the most part dropped out of high school and looked for jobs, I never had a person that I could go ask about college life, so when I did have questions about college I would ask counselors and teachers. I am glad that I asked them about college because they pointed in the right direction. It wasn't until I started to explore career options and asking my MESA instructors about what an engineer did that I learned that an engineer's job consisted of all three of the things that I really enjoyed: taking things apart, learning how they worked in order to make them better and developing things. That's when I decided I wanted to become an engineer. I chose mechanical engineering because I do not want to focus on single area of engineering. My main career goal is to be able to build stuff that will in some way help better our everyday lives. I hope to accomplish this by helping build new gadgets and being able to test their limits and eventually breaking them and then learning how and why they failed to improve them.

Advice I can give students - do your homework; even if it's not required or you feel like you know all the material well just from lecture. The homework is great practice for the test, and sometimes it's worth just as much as an exam. At times it may feel like a lot of work, but, remember getting started is sometimes the hardest part of getting things done.



Although any STEM major is demanding, taking breaks is necessary and also important so we can unwind and take a break from our school work to avoid burnout which can lead to things such as depression and a high anxiety. If it has gotten to that point, seek help. The school has great resources to help students deal with these feelings. Also, you have nothing to lose from seeking help.

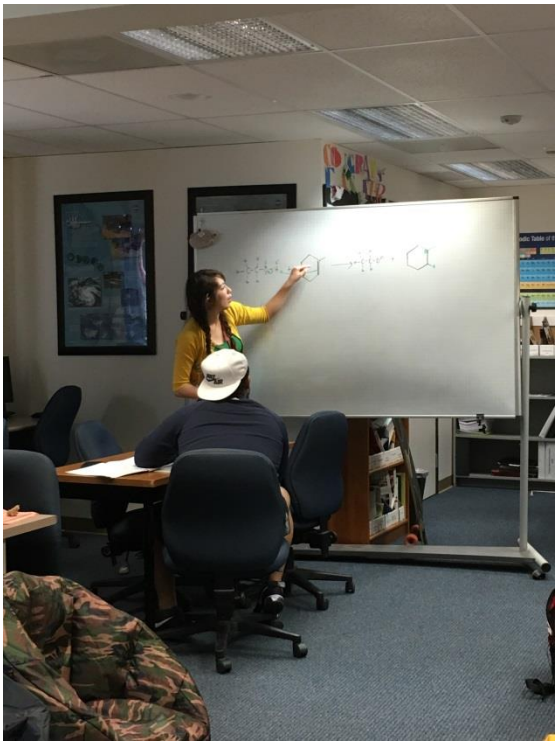
Dal Bello Deliberations

by Dom Dal Bello, Engineering Professor

If you could do one thing that would help you pass a class, would you? Two things? Here are five, not necessarily in order, that can be big academic game-changers:

Start homework right away. Do not wait to do your homework; begin as soon as we cover the material in class. This will allow you to start thinking about the problems as soon as possible, and get your mind cranking away at it subconsciously. Thinking about it… have you ever had something come to your mind out of the blue that you first encountered weeks ago? It could not have come to your mind if you had never encountered it. If you started the first homework problem on Day 1 it was covered in class, even if you do not finish it on the first sitting, it will likely come back to you over time, and maybe you will actually solve it.

Work with others. You need to be making connections with others. Very few of us can work alone and master the material. You need to talk about the material, and bounce ideas off of others. I would not have been as successful in college without having a good group of study partners. Some of you are definitely NOT working with others, which means you are not doing as well as you could be doing. Even someone just pointing out to you that you forgot to multiply by 2 is a big help. Group members should have the same motivation and work ethic.



Come to office hours. If you can't come to the scheduled office hours, make an appointment. I was on campus 70 hours last week (Monday through Sunday), so it was hard not to find me.

Read the book. Look at your textbooks. They explain things in a different way. They are also good models in how you should do things (e.g., every one of your textbooks has arrowheads at both ends of dimension lines).

Repetition. Seeing something once, or even twice, is NOT enough to master it. Read, take lecture notes, do homework, do extra problems…

And then consider if your study habits and time management is actually working for you. You need to monitor how you are doing, and if you could be doing better, do something about it – now, not next week.

Every one of you can do this stuff. But it takes time, effort and studying smart.

What Motivates Me

by Elide Herrera, MESA Student, Biochemistry

I'm a first-generation, parent-student attending my last semester at Allan Hancock College. I will transfer to Cal Poly, San Luis Obispo in fall 2018 to major in Biochemistry and get an excellent foundation for my research and teaching career goals. I've always been fascinated with science, and all the progress scientists have made to understand and work with our perfectly imperfect world that I would love to contribute to by doing research. I've also had some fantastic professors along my educational journey who have influenced who I am and what I pursue. Because of that, I want to do the same for others by becoming a teacher. I've already had the opportunity to work as a tutor and found it very fulfilling, which confirms that teaching is a right career path for me. I am already considering attending graduate school after I earn my bachelor's degree to focus my studies and find better career opportunities.

My educational journey has been interesting due to financial circumstances and personal decisions I have made. First, my family and I immigrated to the United States when I was thirteen years old. My education, especially during the first years, became more challenging because of the language barrier. Although I struggled, I continued to work arduously to learn English and succeed in my classes to graduate from high school with honors. Due to a lack of information about financial aid, I did not go to university straight from high school and decided to go to community college first. Then, during my first year at Hancock, I became a mother. Since then, I've been learning so much about responsibility, patience, and persistence. Having my daughter motivates me, even more, to pursue higher education. I not only want to succeed to make my parents proud and make all their sacrifices worth it, but I now need to do it so that I can provide, along with my husband, a better future for our daughter and family. It has been challenging to manage the life of a mother and student at the same time, but I continue to work hard to be the best mother, wife, and student that I can be. I would not be here if it weren't for all the support I receive from my family, friends, professors, and programs such as MESA, STEM, and EOPS.

Engineers Week Celebrations

by Angelica Eulloqui, MA, MESA/STEM Counselor

ENGINEERS WEEK:

FEBRUARY 18-24, 2018

A WEEK-LONG EVENT, A YEAR-LONG COMMITMENT

The MESA Program and STEM Center were happy to celebrate Engineers Week 2018! This year's events included an ice cream social, study session, a guest speaker and a luncheon. We week kicked off with a Spring Welcome in the MESA Center; students had the opportunity to mingle with peers while enjoying pizza. On the following day, in efforts to reinforce the importance of academic excellence and encourage studying, the STEM and MESA centers provided students with a fun interactive study environment, where student made hot coco and enjoyed nutritious snacks. On this day students were also informed of the importance of practicing healthy habits to maintain a healthy life style. During the ice cream social, students were encourage to invite a female to attend the event, in order to continue to inspire females to pursue engineering degrees and to expose them to the services that MESA /STEM offer. To conclude Engineers Week, Elsa Reyes, from Raytheon, visited Allan Hancock College and shared with our students her path to becoming a Software Engineer and landing a job with Raytheon. She provided our student with an inspiring talk and great advice for their academic journey and future careers. We plan to continue to encourage our students to excel in their journey to becoming engineers and we look forward to next year's Engineers Week!

Dream: Become a Formula 1 Engineer

by Esteban Carrillo, MESA Student, Mechanical Engineering

I like to believe that my passion for engineering began as a kid while playing with Hot Wheels. From an early age in my life, I remember being interested in the way cars look and function. During my junior high and high school years I became a part of the AVID college-bound program where I was highly motivated to further my education at a four-year institution. As I approached my senior year, I knew I had to make the nerve-wracking decision of what I wanted to do with myself after high school. Around the same time I had already received my driver's license and my first car, so naturally I found mechanical engineering to be the match for me.

My passion for cars clearly had an influence on this decision, but I have always been very particular in my work and in what I become involved in. So as much as I was concerned with choosing the right career for myself, I also wanted to choose something that would both engage and challenge me. I did not want to settle for selecting a path of minimal work. I understood that engineering would be the right compromise for me because it is both fascinating and difficult all at once.

The fall semester after graduation I immediately enrolled full-time at Allan Hancock College. Like most unexperienced college students, I was unorganized in the way I used my time. I was quick to rush home after class was over and I did not make full use of the resources available on campus. When my engineering classes soon became increasingly difficult, I realized I had to be in the right environment in order to maximize my chances of being successful and the MESA Center was the answer. Here I found a supportive family away from home. They were able to provide me with helpful resources such as tutoring, book rentals, access to computers and a reliable place to study. More importantly, the staff and faculty have always motivated me to keep moving forward. I genuinely believe that the faculty and staff at Allan Hancock care about us students, and I am proud of being a part of such a special program. As for me, the engineering program at Allan Hancock College has molded the man I am today. With my limited exposure to engineering coursework, I often find myself trying to apply my knowledge and make sense of the world aro und me through science and mathematics. I have also grown more confident in my potential as a student and as a future employee.

In the near future I plan on transferring to a four-year university to receive my bachelor's degree in mechanical engineering. Graduate school is up for discussion depending on how burnt out I am or how much I am in debt. As of now, my dream is to become a Formula 1 engineer because of my enthusiasm for motored vehicles. But because I understand having a background in engineering will give me the option of exploring more fields, I do not want to limit myself to the automotive industry. Regardless, I am excited about what the future may hold for me.

Developing Competence or the Illusion of Competence

Source: A Mind for Numbers – how to excel at Math and Science by Barbara Oakley, PhD

Are you really learning material at a level that allows you to understand how to solve problems and apply concepts across topics and disciplines or are you simply memorizing and parroting information that will not give you the knowledge base necessary to develop and sustain competencies necessary in your STEM major? Simply going through the motions or relying on solutions manuals when completing assignments and cramming material without spaced repetition will result in surface, superficial learning. Developing competency in material requires an investment in time, spaced repetition and recall, and a desire to understand material using through a variety of means. Take these steps to build a solid foundation of understanding each new topic and concept in your courses:

Enroll! STEM Students
STEM 100 – Success Strategies in STEM

- Learn about career options in STEM
- Develop effective learning strategies in STEM
- Plan academically using college resources
- Network within the STEM discipline

- **Work a key problem all the way through on paper**. Don't look at the solution until you are absolutely sure you are at a stopping point with the problem and you have explored all possible solutions. Don't skips steps or skim through because you think you "already got it." Make sure each step makes sense to you. Explain each step to a study buddy if possible.
- **Do another repetition of the problem, paying attention to the key processes**. Practice, practice, practice makes permanent. Your brain is a muscle, pump it up.
- **Take a break**. Study another subject, exercise, listen to music, shower - just do something different. Give your brain time to continuing processing the material when you are not actively focused on it.
- **Sleep.** Before you go to sleep for the night, work the problem one more time, and then put it away for the night and rest.
- **Do another repetition.** As soon as you can the next day, work the problem again. Your understanding should be deeper. Complete similar problems and gauge their difficulty for you (they should come easier). Now focus your energy on parts of the material that are most difficult for you. Deliberately practice these parts. Seek help from instructors, tutors, and study buddies to confirm your understanding and to assist you in moving through any parts of the material where you feel stuck or off track.
- **Add a new problem.** Pick another key problem and beginning working on it in the same way that you did the first key problem. Repeat steps 1 – 5 on this new problem, and after you become comfortable with that problem, move on to another. As you move from one key problem to another, repeating the steps, you are building a solid foundation of understanding in each topic and concept as you go.
- **Do 'active' repetitions.** Mentally review key problem steps/material in your mind while doing something active such as walking, exercising, showering, driving, etc. You can also use spare minutes to review as you are waiting for the bus, sitting in the passenger seat of a car, or twiddling your thumbs until a professor arrives in the classroom. This type of active rehearsal helps strengthen your ability to recall key ideas when you are solving homework problems or taking a test.

Additional Realities and Tips to Consider ~

- Recalling material is more effective than rereading it
- Mental retrieving of material is more powerful than other forms of learning
- Testing in itself is a powerful learning experience
- Secure a copy of the syllabus in your courses, know them and begin reading the textbook at least two weeks before the class begins
- Read the material before you begin working on assigned homework – don't skip the reading and just start on problem-solving
- Attend class, take notes, and review your notes the following day and before the next class begins
- Time with the professor asking questions is critical to understanding the material
- Rework exam questions that you missed during test time

The **Mathematics, Engineering, Science Achievement (MESA) Program** is an academic program that provides a wide range of support services and activities aimed at fostering student achievement and increasing the success and participation they experience while pursuing a degree in mathematics, engineering, computer science, biology, architecture, kinesiology, or other science-based programs. MESA enables students to prepare for and graduate from a four-year university with a math-based degree. It also seeks to increase the diverse pool of transfer-ready community college students who are prepared to excel as math, engineering and science majors. Through the program, students develop academic and leadership skills, increase educational performance, and gain confidence in their abilities to compete academically and professionally.

Visit our website at www.hancockcollege.edu; click on MESA under Quick Links

Spring 2018 STEM/MESA/Bridges Activities

· **Jan 17—ESTEEM UCSB Campus Tour** Sign ups in MESA Center
· **Feb 2— Internship Workshop for STEM Students** (1:30pm-2:30pm; W-18)
· **Feb 8— Professional Skills Development** In Collaboration with Cal Poly SLO (6:00pm-8:00pm; M-438)
· **Feb 9 — Financial Aid and Scholarship workshop for STEM Transfers** (1:00pm-2:30pm; W-18)
· **Feb 13— PIPELINES Internship Application Workshop** (4:00pm-5:00pm; W-18)
· **Feb 20-23— MESA/STEM Spring Welcome & Engineering Week**
Stop by the STEM & MESA Centers for activities all week
· **March 1— Recognizing and Managing Burnout** (5:00pm-6:00pm; W-18)
· **March 16-17— Silicone Valley Women in Engineering Conference**
· **March 19— SESMC Cal Poly Campus Tour**: Contact MESA ext 3446 for sign ups.
· **March 21-22— National Ignition Facility Tour** Contact MESA ext. 3446 for sign ups,
· **April 4 —Makerspace** Liquid Nitrogen Ice Cream in Collaboration with AHC Library
· **April 6-8 — MESA leadership conference Happy Valley Santa Cruz California**
· **April 13 —Scholarship Strategies for STEM Students** (1:30pm-2:30pm; W-18)
· **May 4— Friday Night Science:** Free & open to the community. More information? Contact ext. 3836.
· **May 11— MESA/STEM Student Recognition Reception.** Come celebrate your AHC MESA/STEM transfer students.
· **May 30-31—Intuitive Surgical Systems and UC Berkeley Industry/Campus Tour**
· **June 7th— PA²T♀H Network Mixer** for more information contact MESA at ext. 3664

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