

# MESA Milestones

Featuring momentous affairs of the MESA program at Allan Hancock College

Spring 2017

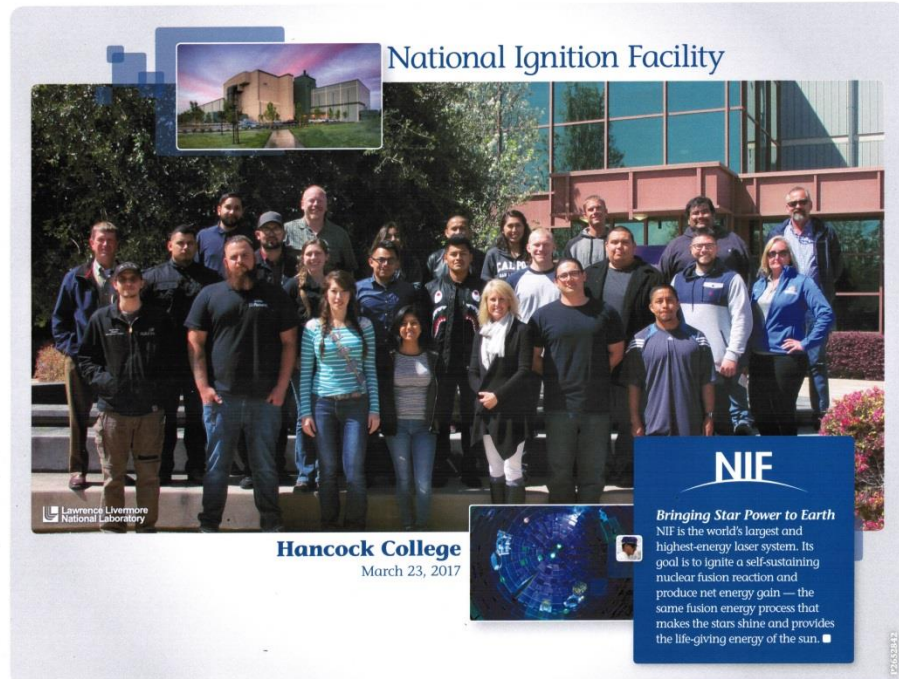
## Visiting Lawrence Livermore National Laboratory (LLNL) – Leading the Nation in Stockpile Science and Solutions for Our Most Challenging Security Problems

by Christine Reed, MESA Counselor/Coordinator

Through the initiative and family connections of Holly Nolan-Chavez, as well as the financial backing from MESA and Student Equity, AHC science and industrial technology students were offered an opportunity of a lifetime...to tour one of three of our nation's leading laboratory in science and technology. LLNL's mission is to strengthen the United States' security and reduce global threat from terrorism and weapons of mass destruction through developing vision, quality, integrity and technical excellence in the areas of biosecurity, counterterrorism, defense, energy, intelligence, nonproliferation, science, and weapons.

On March 23, twenty students and four staff/faculty had the honor of being hosted by some of the nation's top engineers and physicists to tour and learn about this "smartest square mile on Earth" (the laboratory site spans one square mile). Students were provided with a presentation on Finite Element Methods as well as a general history and overview of LLNL. Highlights of the tour included demonstrations and hands-on experiences at the Center for Microtechnology and Nanotechnology, the Additive Manufacturing unit, and the National Ignition Facility (pictured above). The National Ignition Facility is the world's largest and most energetic facility ever built with the most precise and reproducible laser as well as the largest optical instrument. The giant laser has nearly 40,000 optics that precisely guide, reflect, amplify, and focus 192 laser beams onto a fusion target about the side of a pencil eraser. NIF became operational in 2009 and is the size of a sports stadium – three football fields could fit inside.

"It was an AMAZING experience!" said all the students on the way home.



*Come help us celebrate our students' success*

MESA/STEM STUDENT RECOGNITION RECEPTION

Friday, May 12, 2017 at 5:30PM

# Nothing is Impossible

by Bryant Cisneros, Mechanical Engineering Major

I am the fourth born in a family of five children. After graduating from high school in Mexico five years ago, my dream was to go to college in the United States. Growing up I strongly admired my father's hard work and skill involving mechanical work. Later in life, after working hands-on with mechanical work myself, I realized my true calling was to become a mechanical engineer. I decided to leave my home, family, and country to move to the United States to attend college and learn English as a second language. When entering the states I didn't understand nor speak any language other than Spanish. Learning English was quite a challenge, but I soon realized that nothing was impossible.

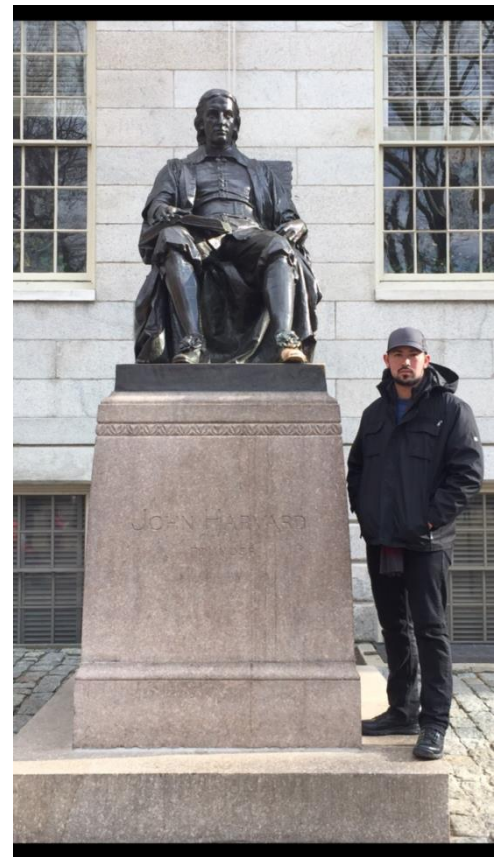
Although I had many disappointments and setbacks with my education due to the fact that English was new to me, I never gave up. I knew that in order to have the best education I would have to learn English and earn my degree here in the states. When I first enrolled at Allan Hancock College, I had to start in the lowest levels of general education courses. I started in ESL, and Algebra 1. In order to reach my goal I have been enrolled in college full-time and have also been working as a welder for five years to support myself along the way. Rigorous engineering courses and work as a welder has indeed been challenging to manage, but I have fixed my eyes on my dream. I have developed the ability to never give up no matter the odds.

Following my dream and leaving my country has helped me to realize my full potential. Thanks to my educational career now in the states, I have developed my true abilities. My leadership skills, determination, and will to become a mechanical engineer have been greatly strengthened. Throughout my career I have met many instructors and friends at AHC that have inspired me and helped me grow academically. Also, the MESA program has played a major role in my life because it has helped me greatly with book loans, tutors, study sessions, academic advice, and many other resources. My work opportunity as a welder has been a great experience for my life because it has allowed me to learn working skills related to my major. These challenges have caused me to think critically about any circumstance and to become better suited for my major. I also have been involved with a Hispanic Christian church here in Santa Maria where I serve as a translator. I also played the keyboard and taught basic guitar and drums classes. I volunteered at this church for four years and have learned to be a better person and to help the ones who are in need. I have met others in the states that also have Spanish as a first language and they are struggling to learn English. Because of my struggles in the past and the fact that I have overcome those struggles, I am able to express those trials and give them hope.

After many long nights and devoting the majority of my time to become a Mechanical Engineer, I have been accepted to Cal Poly, San Luis Obispo! Hard work and dedication definitely pays off, but one must not lose patience because in life, great things do not happen overnight. Never give up on your goals, and you will always see results with time. My career goal is to become a mechanical engineer. Creating, building, and discovering new mechanical tools and inventing products have always been of great interest to me. I would like to use my mechanical engineering skills as a missionary helping people in third world countries. In addition to that, I would like to develop industrial machinery that will help people to become self-sufficient and make their lives easier. I choose these goals because I look forward to use my engineering skills by helping people in different parts all over the world. Over the years I have learned to always have a

positive attitude accompanied with strategies even if failure gets in the way.

Reading the book "Mindset" by Carol S. Dweck, has helped me to realize how most of us create mindsets over the years that are completely wrong



## 10 Tips for Engineering Students

<https://www.youtube.com/watch?v=ep7dLUDxAtU>

and do not get us anywhere. We tend to relate failure to chaos in our lives. However, that's not true. You can either decide to stay where you are, or stand up with a positive attitude or learn what you did wrong and identify a different strategy to attack future problems. Dweck states in her book that geniuses are made. I believe that we are born with different abilities and talents. However, if we want to succeed in our classes and become professional in what is our passion then we must work towards such goals. We need to devote quality time to study, and not only that, but making sure we understand the material in depth. As I stated before, I have had many setbacks throughout my education. Nevertheless, I have learned the importance of broadening my horizon and constantly grow as a person with each day, consistently remaining goal-oriented. My determination and passion for mechanical engineering has led me to overcome those barriers and to move to the United States in hope of a better future for myself, as well as for my family.

## SESMC

### Scholarships in Engineering, Science, Mathematics and Computer Science



SESMC is an Allan Hancock College program, funded by the National Science Foundation - Scholarships in Science, Technology (NSF/STEM), and Engineering Program - in which academically qualified students with financial need can be awarded up to \$6,000/year in scholarships. Along with the scholarship and other perks such as priority seating of some STEM field trips, and membership in a professional organization, each SESMC Scholar is provided with a Faculty Mentor. AHC students in the following STEM fields are eligible to apply: *Biology, Chemistry, Geological Sciences, Physics, Computer Science, Engineering, and Mathematics.*

SESMC is in its 5<sup>th</sup> year at Allan Hancock College and has awarded scholarships to 60 individual students. Each year, approximately 20 scholarships are awarded and if a SESMC Scholar maintains eligibility, the scholarship is renewable for a second year.

Minimum eligibility requirements include:

- Be a citizen of the United States, a national of the United States, an alien admitted as a refugee under section 207 of the Immigration and Nationality Act, or an alien lawfully admitted for permanent residence
- Demonstrate financial need for the awarded year
- Be an AHC student and enroll *full-time* (at least 12 units) at AHC during each semester of the award (funding allows you to focus on school)
- Declare a major pursuing a bachelor's degree in one of the following fields: *Biology; Chemistry; Geological Sciences; Physics; Computer Science; Engineering; and Mathematics*
- Have successfully completed Math 331 (Algebra 2), or equivalent, at time of application and be eligible to take a 100-level Math course in the next term
- Enroll in – or intend to enroll in – two or more courses each semester appropriate to earning a STEM degree
- Have a GPA of at least 2.7 (cumulative)
- Must not have already received a bachelor's degree.

Applications are typically available in spring term and due in April. This year the deadline for applying is April 28. Please see: <http://ah-engr.com/sesmc/> for more info.

**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](#)





## Things Happen for a Reason

by Esther Lopez-Cruz, Civil Engineering major

Things happen for a reason, and I would say that's true. When I was in high school, applying for colleges and scholarships as an AVID student was a must. We were prepared throughout our high school years to apply for a four-year university by taking AP classes and doing extracurricular activities. As a first generation attending college and being able to afford a four-year university in my family was out of our reach. As it got closer to the days where I would find out what college I would go to I became anxious and yet extremely happy. However, later all those feelings would turn into disappointment and sorrow.

A few days before heading out to my new school, new life, what I was working hard for, had completely vanished within a few hours. Unexpectedly my financial aid was not given out on time, and I was dropped from all my classes for which I was registered. It was like a slap in the face to me and my parents. This didn't stop me though and has not stopped me on pursuing a higher education.

Even though there were more affordable options to continue my education, I was stubborn about going to a four-year university. Shortly after I came to my senses and realized that attending AHC was the best option for my family and me. Hancock became my home for the next 2 then 3 and then 4 years. At first I was not happy about staying and attending Hancock. Seeing all my classmates and friends starting the university made me a little envious. I started my first year at Hancock as a Business major and started taking all the required classes to transfer. The plan was to transfer within two years. After my first year, I realized that Business was not for me. The material I was learning in the business classes was not as interested as math. It took me a few years and a few majors to finally find what I really wanted to do. After taking my first math class at Hancock with one of the best instructors, Ms. Chung, I gained so much confidence in my math skills that an excitement for the discipline began to develop within me. I thought to my myself, "hey, you're not so bad at it."

My older brother, who is a Mechanical Engineering major, persuaded me to go into the engineering field. He insisted that I would be good at it and that I would like engineering. After finishing pre-calculus with Ms. Chung and realizing I didn't want to do Business, I went for it and followed my brother's and dad's advice and started off my second year as a Engineering major. I took Calculus in the summer and, after taking that class, my mind just blew. Math can be very gnarly and I found that out after Calculus 1. But it made me want to continue cranking numbers and deriving equations.

Even though females in STEM disciplines are as academically prepared and as successful as their male counter parts, they do not experience as high satisfaction, academic self-efficacy, and self-esteem as males. "Traditional assumptions about career options for women have been reinforced in society and have projected stereotypes that discourage talented women from continuing in engineering careers."

*Journal of Engineering Education, October 2014, p. 602*

It took me a few majors to know exactly what kind of engineering I wanted to do. At first I went for Agriculture Engineering; why not I grew up surrounded by it and my dad owned a small farming business? In the summer of 2016 I took my first engineering classes at Cuesta, it was Engineering Statics. I took the class for 6 weeks; let me tell you it was hard with no time to slack off. I truly enjoyed the class. It was a lot of work, but I loved the subject. As I went further

into Statics and learned more about it, I became interested in how it applied to the real world. It was then that I finally had found what I really want to do - Civil Engineering. I would like to be part of maintaining the foundation for our modern society by just improving things such as the water faucets or driving through amazing bridges.

Now that I am older, I have come to understand why my parents have worked so hard for their children. Their sleepless nights and their scrapped hands of the hard labor from farming will soon be just memories and they will no longer have to work so hard for us. I think it's time for me to show my parents that their hard work is paying off and soon I will be able to offer them a better living. My parents are my motivation and my strength on why I want to continue aiming higher in my education and becoming an Engineer. I am half way there to reach my goal. I am currently still unsure where I will be attending in the fall, but wherever I go, I will still have my eyes firm on my goal. I have been accepted for admissions in fall 2017 to Cal Poly - SLO as a Civil Engineer. I am excited for the upcoming months where I will start my upper division courses. I am one step closer in becoming the first Engineer in my family.

"I experienced different communication styles many times between my male peers and me. It just didn't seem to match. But they needed diversity – a women's perspective. They needed a splash of pink in the project. And it paid off in the grade we received as a team."

*Cesia Cazares, AHC MESA/Cal Poly MEP Alum, Mechanical Engineering*

## Did You Know?

The American Society for Engineering Education reports that in 2014, only 19.9 percent of the engineering degrees awarded in the nation were received by females. At Allan Hancock College, from fall 2010 through fall 2015, women enrolling and declaring engineering as a major ranged between only 8.6% and 16.7% of the total students declaring this major. Of AHC MESA students who transferred to university in an engineering program from fall 2012 to fall 2015, only 27.3% were women of the total students transferring in engineering.

## Primary factors why females succeed in Engineering

*Christine Reed, fall 2016 sabbatical research project*

Believe there is no option of failure – must accomplish their goal to provide better future for family and self

Believe that if they work hard, anything is possible – not a matter of predetermined natural talent

Believe in their ability to overcome challenge and finish what they started

Don't accept prevailing cultural norms as limitations or affect confidence levels, but use as a driving force

Comfortable being an outsider and of the minority

Recognizes that finding interest in certain topics of engineering serve as reminders of their passion for the profession

Engaged in resources and strong support systems

Have other females to lean on and for which they can gain strength and motivation



# Roll up your sleeves and experience what Industrial Technology has to offer!

by Cynthia Holm, Part Time Instructor, AHC Industrial Technology Department

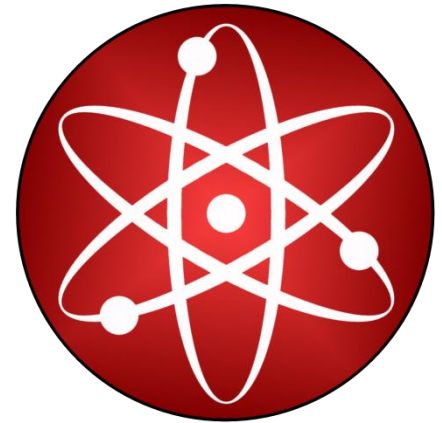


The Industrial Technology department is offering, for the first time ever, a special workshop *Introduction to Industrial Technology*. This program which began in March and will run through May was funded through the Career Technical Education Act (CTEA) and originally designed to target female high school interested in entering Science, Technology, Engineering, and Mathematics (STEM) careers--but it has become so much more!

This seven-week long experience intensive class has students delving into everything from architecture to welding and just about everything in between. Three hour weekly sessions taking place in the recently constructed Industrial Technology labs and give the students a “tip of the iceberg” look at what potential there is, not only in the extensive technology class offerings at Allan Hancock College, but the world of potential for future careers in the technology fields.

In the recent workshop on architecture the students learned about great female architects and about the variety of great careers that can be pursued with even a minimal amount of training in architecture. Best of all, the students had the opportunity to experience open structure architectural design with their own hands. Building individual and group structures which demonstrated that design, form, and function be integrated with strength and beauty to build careers.

This message of the ability to reach STEM careers through Industrial Technology is not just being sent to high school students. To the surprise of the developers of this workshop, half the students enrolled are educators and counselors. All of them want to gain a better understanding of what Industrial Technology and Allan Hancock College can offer all of their students.



Demonstration what Industrial Technology has to offer all students is the overall goal. I am the instructor and the daughter of an Electrician/Carpenter, and I am thankful that I was able to be exposed to that type of work at a young age. It gave me confidence to enter the United States Air Force as a mechanic and continue my work in the manufacturing industry, most recently as the Environmental, Health and Safety Office for a large manufacturing facility on the central coast. I hold a B.S. in Industrial Technology and a M.A. in Vocational Education.

Due to the success of the program, there are plans in the works to have an annual summer workshop. Keep your eyes open for that opportunity!!!







## Let US Succeed Together

by Mino Morales, Mathematics major

I was born in Jakarta, Indonesia in a middle-class family of Chinese heritage. Since I was a little kid, I always dreamed of pursuing a higher education. I would imagine myself as a doctor that can cure all kinds of rare and chronic diseases. So, when I graduate from high school, I asked my father to send me to college to be a doctor, but he was mad with my decision. He felt a large amount of money would be waste without any possibility of scholarship, government help, or student loans. Moreover, he was worried and concerned that I would end up a spinster.

In 2002, I decided to migrate to United stated for a better future. When I met my sweet husband in 2007, I thought to myself that finally I can fulfill my life by getting married and start a family. Then, in 2009, I gave birth to my first daughter, Amanda, a tiny preemie of 2 lbs. 8 oz. However, due to her Lung Chronic Disease, she passed away on February 12, 2012; one day before her third birthday. That time was a very dark moment for me and my husband; we felt our life had fallen apart. All of our savings was gone and we were in a very bad situation financially and emotionally. We decided to move from Los Angeles to

Santa Maria to start anew. My husband found a job, and I went back to my former job as a waitress.

I hated my job, my boss like to screamed at me, and forbid me to talk to any customers. I talked to my husband about quitting after six months of horrendous torture at my workplace and I told him of my idea to pursue a higher education. I am so surprised when he supported me because in our culture women are not supposed to have an education; they are just made to have babies and household work. Therefore, I am so happy to have a new goal in life to brighten our future. Nevertheless, I am pleased to say that as a mother of five, I can still pursue my dream to obtain a doctorate degree in Biology. I believe that my new goal would enable me to fulfill my desire for a better future and expand my capacity to help others.

I have been an Allan Hancock College student since spring 2014, and I am a proud recipient of SESMC Scholarship for two years. I want to give my special thanks to MESA for all the help they have provided me throughout my school year. I love being able to seek advice from Christine, and I enjoy the great conversations I have with Dorine. MESA is a strong support program for any student to excel in their education goal. I hope my story can encourage my entire fellow students to be strong in pursuing their dreams and never give up. Let us succeed together!!!

## CHECK THIS OUT Allan Hancock College Science & Engineering Club

The club's primary purpose is to connect with industry professionals and expand students' education. As club members, students promote camaraderie and communication within the science and engineering departments by organizing lectures, peer advising, fundraisers, ASBG participation and field trips.

Interested in participating? Visit the STEM or MESA Center for more information.

## 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](http://www.hancockcollege.edu); click on MESA under Quick Links

### **Spring 2017 STEM/MESA/Bridges Activities**

- **Feb 2— Professional Skills Development** In Collaboration with Cal Poly SLO (6:00pm-7:00pm; W-31)
- **Feb 3— PIPELINES Internship Application Workshop** (2:00pm-3:00pm; W-23)
- **Feb 6 — FAFSA Workshop** (12:30pm-1:30pm; G-106B)
- **Feb 16 — MESA/STEM Spring Welcome** (11:30am-1:30pm; MESA Center W-21) Pizza provided!
- **Feb 21-24— Engineering Week** Stop by the STEM & MESA Centers for activities all week
- **Feb 22— Allan Hancock College Foundation Scholarship Due**
- **March 3— Recognizing and Managing Burnout** (10:00am-11:00am; W-23)
- **March 4— AMATYC Round 2** (10:00am-12:00pm; M-310)
- **March 20-24— Spring Break**
- **March 21— Cal Poly Campus Tour:** Contact MESA ext 3446 for sign ups
- **March 22-23— National Ignition Facility Tour** Contact MESA ext. 3446 for sign ups
- **March 30 —Makerspace** Liquid Nitrogen Ice Cream in Collaboration with AHC Library (Library Front Patio, Starting at 12pm)
- **April 14— BTTB Ethics Seminar** (1:00pm-3:00pm; G106)
- **April 21—You're Outta Here Workshop\*** (9:45am-10:45am; W-23)
- **April 26—You're Outta Here Workshop\*** (5:30pm-6:30pm; W-23)
- **May 5— Friday Night Science:** Free & open to the community
- **May 12— STEM/MESA Student Recognition Reception.** Come celebrate your AHC STEM/MESA transfer students. For tickets or more information contact Dorine Mathieu ext. 3446
- **May 25— AHC Foundation Scholarship Awards Banquet**
- **May 26— Commencement Ceremonies**
- **June 1 — UCLA Campus Tour** Sign ups in MESA Center

\*For students who are planning on transferring fall 2017 & want to know all of the next steps to successfully transition from AHC to the four-year university, don't miss this workshop! Mandatory attendance of **one** session for MESA and STP fall 2017 transfer students.