Experiencing the World of Innovative Micro Technology

by Christine Reed, MESA Counselor/Coordinator

Each semester the MESA Program offers STEM students the opportunity to envision their future as tomorrow’s scientists, engineers, biologists, or whatever their hearts’ desire through our industry field trips. We try to identify companies or organizations that would provide an experience for our students designed to expose them to life after the academics. What do they really want to be when they grow up? Where is their degree taking them? What does a career in STEM mean? Who can help them land their dream job – or at least one that will pay the bills and feel rewarding in one way or another? Through our industry field trips their worlds open up just a little bit wider.

In December 2012 we went small – micro small to be exact. We visited IMT, Innovative Micro Technology in Santa Barbara. IMT is a premier MEMS foundry and manufacturing service provider. What is MEMS you ask? It stands for Micro-Electro-Mechanical Systems and is basically miniaturized mechanical and electro-mechanical devices or structures. They can be relatively simple structures or highly advanced and complex systems. IMTs products have been used in applications for rare human cell sorting, cell filtration, and separation; hazard detection; drug delivery devices; gene chips and detection systems; gas, chemical, and environmental sensors; and much more.

Our students had an overview of the company’s products as well as the design and manufacturing processes. They met with engineers, managers, and production staff. They toured clean rooms and handled product. They ate lunch and picked the brains of the company’s product designers and visionaries. Their minds had the opportunity to explore the insights and reflections of today’s leaders in innovative technology. These are the small but grand moments that MESA is all about!

“A CERTAIN AMOUNT OF OPPOSITION IS A GREAT HELP TO MAN. KITES RISE AGAINST, NOT WITH THE WIND.”

BENJAMIN FRANKLIN
Finding Her Calling Early on in Life
by Janel Case, MESA Student, Biomedical Engineering

My interest in the science and engineering fields started early on in my life. One of the best memories from childhood is watching science fiction movies with my dad and being so engulfed in the possibilities of the universe. My curiosity grew to the extent that as I got older I would run my own small scale "experiments" ranging from growing plants in different soils to see if expensive brands had any upper hand over cheaper ones or feeding my various pets different types of food to see which kind they thrived on, keeping full records of my findings. Along with a strong commitment to school, I found myself in junior high dreaming of various schools and imagining myself as a fully educated woman with a Ph.D. in a science field that would contribute something to society. Graduating high school with honors and realizing I did not have the monetary means to go off to a university like I had always dreamed about felt like a setback. Being at a community college, for my first semester, felt like a detriment to my education. Despite this I began to reach out to other students and was referred by a student to a program called MESA. MESA has shaped my educational career. MESA has provided me with opportunities I would have otherwise missed on my own, an opportunity to work with other like-minded majors who have since become like family. With this kind of strong foundation I have been able to excel in my science, mathematics, and engineering courses.

A MESA field trip that stands out to me is the day we went to a biomedical engineering facility. On this trip we were able to see the inner workings of how the company ran and what the engineers did on a daily basis. Needless to say I fell in love with the work; at the time I was a biochemistry major who always felt hesitant about it. I had always felt caught between wanting to do research and being in the medical field. After this field trip I immediately switched my major, and I had never felt more secure with the decision.

Biomedical engineering applies both my love for research and the application to the medical field, which contributes something meaningful to society. After doing more research about the different concentrations of biomedical engineering I find myself undoubtedly curious about the application of stem cells and tissue engineering. After being in my first cellular biology class, I knew without a doubt that stem cells and tissue engineering is where I needed to be. In class I found myself absorbing the material and the learning came naturally. But I would have to say the largest contributing factor was a summer internship through the Bridges to the Baccalaureate program. The internship was at Cal Poly, San Luis Obispo in the biology department. I worked with a professor studying the effects of ethanol on muscle growth in rats. I helped with everything from rat care, to rat surgeries, down to the protein work done on homogenized muscle samples. I was a community college student in a lab full of graduate students willing to take the time to teach me every single lab technique they knew. I found myself loving lab work and gaining experience from an internship not offered to most community college students. The more classes I took and the more people I met the more I felt that no matter how hard it was getting, I was in the right place and on the right track.

As the saying goes "follow the path less traveled," and for me and my family, going to college is that path. Coming from a third generation immigrant family, college was the last thing on my parents' minds. From working two jobs in factories and in the fields of seasonal fruit, the only thing my parents were concerned with was making ends meet. School was a not a priority for my parents; my mother had roughly a junior high education and my father had only completed high school. Having no one to guide me through college, the process started as a rough one. My first semester I enrolled in courses I did not need, and I did not know the proper way to study or handle my workload. The next semester I found myself at the counselor's office every day I had a question; I found myself meticulously planning all my classes two or three semesters in advance. I found myself excelling in classes I never imagined I would; I started to see positive changes in myself and I began to see myself mature. I am proud of this progress I've made over my couple of years at my community college. I'm proud to see that in classes like chemistry and calculus I've pushed myself to receive A's. Being a first generation college student has not been easy; at times, my only guide has been my own trial and error. It's been an inspiring journey every step of the way; whether feeling the pressure of my course load and rising to the challenge, to finding the perseverance to try harder when it's not going quite like I'd like it to. It's been a constant test of self-control, will power, and drive. Over the two years I've been at my community college, I've watched myself change in ways I can't help but be proud of, and achieve things I never thought I would. I feel that I have now been prepared for the next step in my educational career.
Taking Time Out to Read Something Other Than Textbooks and Lab Manuals
_by Alyssa Zuniga, MESA/STEM Club President_

The MESA/STEM Club has been very busy this semester with fundraising and social events; from planning barbecues and bake sales to hiking Point Sal and rehearsing a dance for the MESA reception. One of the events we are particularly proud of is when we read to the children at the Children’s Center on Dr. Seuss’s birthday. The kids were energetic and hilarious and we had our hands full the whole time we were with them. Our events in the works include a Diversity Day bake sale, a Friday Night Science barbecue, a car wash, and an end-of-the-year bonfire. All proceeds raised through fundraising efforts go towards providing our members with scholarships.

We encourage all AHC students to get involved with activities outside of the classroom and make a difference. The purpose of the MESA/STEM Club is to provide a collaborative learning atmosphere for students where they can work together and help, support, and guide one another. The MESA/STEM Club offers a pipeline of extracurricular activities to support the efforts of students who have the potential to excel in the fields of math, engineering, science or computer science; however, the club welcomes all AHC students.

Having the Needed Support and Following His Dreams
_by Jesus Vivar, MESA Student, Computer Science_

I am fortunate to say that I have a very supportive and encouraging family that has helped me as much as they could to achieve my educational goals. My name is Jesus Vivar and I am majoring in computer science. I was raised by a single mother who struggled to raise four daughters and two sons. I am the second youngest of my family and the first to pursue higher education. Growing up I remember my mother telling us, “vas a la escuela o vas a trabajar?” which means either you go to school or go to work. I always felt it was her way of encouraging us to stay in school and avoid living the way she did. Throughout my life I’ve been really fortunate to have found people besides my family that believe in me. During my last year in high school I had made up my mind of not going to any university because it would be hard and expensive. When my AVID teacher for the last two years at Santa Maria High School heard me say it, she sat down with me and convinced me to keep going. The day to register for class at Allan Hancock College she grabbed my hand and took me straight to a counselor. I will never forget that day.

When I started Allan Hancock College I didn’t know what to major in, I just wanted something fast and easy. After taking a few classes I found that fast and easy was not interesting, so I changed my major to Computer Engineering/Computer Science. The Engineering class I took at Allan Hancock College was really challenging for me but I thanked the counselor at Allan Hancock College that showed me the way to the MESA program. There I was overwhelmed by all the resources offered and especially by all the students taking the same classes I was in. Study groups with the MESA students really made it much easier for me to get through all my engineering class. I am happy to say that I made it this far not only because of my determination to achieve a higher education, but also because of wonderful people that I met at Allan Hancock College who encourage students to go the extra mile and accomplish their dreams. If everything goes well in fall 2013 I will be attending Cal Poly – San Luis Obispo, which is the scariest thing for me. I know that the career I have chosen will not be easy but in the long run I know it will pay off.
Conflicting with an Instructor?
by Christine Reed, MESA Counselor/Coordinator

Sometimes in your college career, you may feel like a certain instructor is “too hard” or you “just don’t like him/her.” Most everyone experiences not getting along or enjoying or agreeing with a specific instructor’s teaching style or methods at some point. It is part of the journey, and what you learn about yourself while addressing the situation will give you the skills to succeed in life. Below is some information that may help should you find yourself in this situation.

An instructor may seem “too hard” because...

- she/he wants you to develop advanced thinking skills that can help you succeed in life.
- she/he believe deeply in the subject she/he is teaching and want you to truly benefit from the material. It may seem as if she/he is pushing you to completely understand the information and/or develop the skill(s).
- you may not be used to her/his teaching style. It may be new and unfamiliar. But if you are patient, you may actually end up appreciating it by the end of the semester.
- you may not have developed the skills at this time the course requires to succeed. It may be to your benefit to take a prerequisite or an advisory course before you attempt the course again.

If you find yourself not liking an instructor, you should...

- first, sort out what it is that you don’t like about the instructor. Is it her/his personality, mannerisms, or teaching techniques? Or is it the subject matter, the amount of work required in the course, or the grading policies?
- consider your options.
  - You can drop the class, and seek out information from peers about instructors that you may enjoy more. Make sure to discuss this option with your counselor first to see how it may affect financial aid, future enrollment, etc.
  - Talk to the instructor to get to know her/him better and/or peers who enjoy the instructor and look for positive things about her/him.
  - Just stick with it and do your very best. You may be surprised at how much you learn about yourself in this situation that you can apply to many areas of your life.
  - You can meet with the instructor to get further clarity on their policies and practices.
  - You can talk to the instructor about your concerns.
  - If you feel your rights are being violated in some way, speak to the instructor and/or division dean immediately.
- remember that your education is, just that, your education, and you are the only one that can control how you react to certain situations and the only one to gain from reaching your dreams.

Rising to Her Expectations
by Alyssa Zuniga, MESA Student, Biochemistry

As a high school student I was not involved in extracurricular activities. I challenged myself academically by taking AP classes and I attempted my best in them, but I can safely say I did not prove to anyone that I was a leader. I began, but failed to follow through with, several things: the Animal Protection Club, the school newspaper, and marching band. While I was very interested in all of these things, I never strived to lead other students. After graduating high school I entered my first full-time semester at Allan Hancock College with renewed determination to make myself an outstanding transfer applicant. This did not last long. As the only person around me who would suffer from my own destruction, I did not feel that this was enough reason to push myself. I continued on my path of being average. Enter the MESA program about a year into my time in college. I was now surrounded by students who
were not only above average; they put everything they had into being the best that they could be. Naturally, I stayed away until I was only slightly less intimidated. Eventually, the mind-set of successful students began to rub off on me. Up to this point, I had been seriously underestimating the amount of time and work required for success in my intended major and overestimating my ability to be successful with minimal effort. Once I realized my problem, I renewed my previously renewed determination. I began volunteering for small leadership roles here and there. The Happy Valley Leadership Conference in Santa Cruz, a student lunchton with the president of my college, and other opportunities that were given to me. However, I began to feel that I could do more. I joined the MESA Club fall of 2011, ran for treasurer and won! My year as treasurer was comfortable and I was pleased with the result of my effort in the club. The idea of running for president the next year began staking a place in my mind.

The decision to run was not easy. I understood that the responsibilities extend beyond raising scholarship money. I was expected to be the kind of student that I was so intimidated by when I first joined the MESA program. I was volunteering for the responsibility of setting an example of good leadership to other students, including, but not limited to, time management, correctly prioritizing responsibilities, and meeting deadlines. These are all characteristics I have struggled with in the past. If I could not exhibit these qualities, how could I expect other members to? I knew that becoming the president meant I would have to change certain aspects of my work ethic that had been holding me back from being very successful. I had to raise myself to a higher caliber of responsibility that I had never before considered myself to be capable of. My year as president is not yet over, but already I see the changes I had desired in myself, and I am beginning to see the results come full circle as these qualities rub off on other members of the club, just as they had with me.

Taking Responsibility for the Opportunities His Mother Desired

by Adair Camacho, MESA Students, Computer Engineering

I was born in the city of Huajuapan de Leon, México to a single mother of eighteen on January, 14, 1992. In 1994, we moved to the United States (or as it’s called down there, El Norte) in hopes of finding the American dream. My mother planned to work and earn enough money so that we would eventually be able to afford a house in México for my grandmother and ourselves. Sadly that dream never came; I guess having a child really changes one’s priorities. When my mother saw all of the opportunities that I had here, in the USA, she decided to stay. I’ll have to be honest it wasn’t easy, I still remember when she had to wake up at five in the morning to go to work and returned home late in the afternoon. It’s been almost two decades since then but her dream, my dream, is still alive. I still want to build that house for my
grandmother but I don't plan on leaving the U.S. anytime soon. As an AB 540 student, I have faced many challenges when it comes to my education. One example that comes to mind is my decision to attend Allan Hancock College instead of attending a university directly from high school. I felt, and continue to feel, that the continuation of my education was my responsibility as I didn’t want to place a financial burden on my parents. I’m currently in my third year at Hancock and I am happy to report that my parents have not spent all their money on my studies. I will always remember that my mother sacrificed so much in order for me to succeed that I feel compelled to move forward. I feel that I owe her at least that much.

I hope to pursue my goal as a computer engineer, tinkering with electronics. I can’t remember how many times I’ve tried to fix something only to leave it in a worse state than when I started. Despite some setbacks, I always manage to learn something. One example is my old desktop that I tried to fix, broke, and ultimately fixed. It is currently my backup desktop. I originally wanted to become a computer engineer so that I could one day open my own business designing and selling electronics. I felt that I could build a better consumer electronic, one that would not break so easily. I still do but it’s not my main driving force anymore. I will be content with a good paying job that I enjoy, everything else will stem from that. If I ever do decide to follow through with my business idea, it will most likely be after I’ve gained plenty of experienced in the field and it would most likely be located here on the Central Coast. Whether I open a business or not, I realize that attempting to open any type of business, large or small, will be an extraordinary challenge. It’s for that reason that I hope to graduate from college as close to being debt free as possible. This is why I’m working on and applying to as many scholarships as I can. Even though I would like to one day have a business of my own, I won’t beat myself up if I’m unable to. I’ll be happy with contributing something to the Linux community, a free and legal software community. For now though, I’m concentrating on my school work so that one day I’ll be able to prove to my mother and myself that the dream is real.

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.

"MESA sets high standards while providing the academic tools needed for helping students to succeed. This deceptively simple approach is effective and has produced remarkable results."

Henry T. Yang, Chancellor, UC Santa Barbara

Visit our website at www.hancockcollege.edu; click on MESA under Quick Links
STEM/MESA/Bridges Activities, Spring 2013

*Workshops are open to all AHC students. For more information, contact the STEM Center, MESA or Bridges program.*

- January 31—Internship in Nanosystems Science, Engineering, and Technology (INSET) informational presentation. (12:45-1:45 pm; M-311)
- February 7—FAFSA Step-by-Step. Learn how to fill out your financial aid paperwork correctly. (12:45-1:45 pm; M-311)
- March 08—Technical Writing Workshop (1:00-3:00 pm; M-106)
- March 18-23—Spring Break (All Centers will be closed for break)
- March 20-21—UCLA Campus Exploration Overnight Trip. For more information, contact Dorine at ext. 3446.
- March 28—Pearls of Wisdom! Come learn about the do’s and don’ts of transferring from past AHC Cal Poly transfer students. (12:45-1:45 pm; M-311)
- April 16— Math & Science Teaching Initiative (MSTI) Fellows Panel. Come find out about math & science teaching from students at Cal Poly! (5:00-6:30 pm; H-105)
- April 26—Ethics Seminar presented by Rachel Hornstein of UCLA and Mary Ellen Lewis of AHC. (1:30-3:00 pm; M-310)
- May 1—Try Teaching Symposium. Come find out what steps you need to take to become an educator! For more information or to reserve a seat, please contact: Ashley Brackett at ext. 3549 (4:00-7:00 pm; G-106)
- May 2—Professionalizing Yourself! Learn to walk, talk, dress & act for the professional world. (12:45-1:45 pm; M-311)
- May 10—MESA Student Recognition Reception. Come celebrate your AHC MESA transfer students. For tickets or more information, contact Dorine Mathieu at ext. 3446.

**You’re Outta Here Workshop**

For STEM students who are planning on transferring Fall 2013 & want to know all the next steps to successfully transition to the four-year university, don’t miss this workshop! Mandatory attendance for MESA Fall 2013 transfer students.

April 11—Presenter: Ashley Brackett (12:45-1:45 pm; M-311)

April 24—Presenter: Christine Reed (6:30-7:30 pm; STEM Center)

May 3— Presenter: Ashley Brackett (12:00-1:00 pm; W-18)

May 6—Presenter: Christine Reed (12:45-1:45 pm; H-105)

**STEM Center; Monday-Thursday** 8:30 am- 6:30 pm & **Friday** 8:30 am- 4:00 pm; N-Annex 108

**MESA Center; Monday-Wednesday** 9:00 am- 6:00 pm; **Thursday** 9:00 am– 5:00 pm & **Friday** 9:00 am- 2:00 pm: W21

**Bridges to the Baccalaureate:** STEM Center (N-Annex 108)