

UNIVERSITY OF SOUTH ALABAMA



Les Barnett, Director
2015

CFITS Industry Partners

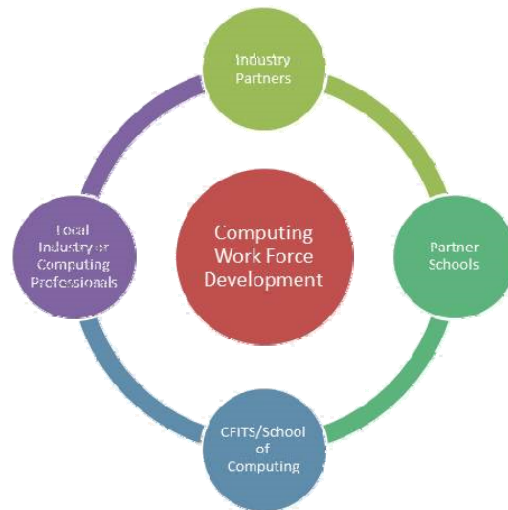
INDUSTRY
PARTNER
PROGRAM



CENTER FOR FORENSICS,
INFORMATION TECHNOLOGY,
AND SECURITY

with the
SCHOOL OF COMPUTING

INDUSTRY PARTNERS



Structurally, the Partnership connects the Center for Forensics, Information Technology, and Security (CFITS) to each Industry Partner.

Administration Support

Les Barnett, Director, CFITS

Dr. Alec Yasinsac, Dean, School of Computing

Melissa Smith, Senior Instructor and Recruiter, School of Computing

INDUSTRY COLLABORATION INITIATIVES

CFITS partners with the SoC Advisory Board, consisting of about 20 area businesses that give of their time and resources to improve the entire School of Computing here at USA. These Advisory Board member companies participate in accreditation, technology transfer, public/private educational partnerships, promotion, K-12 initiative, research, endowments, and industry outreach, as well as providing a source of internships for SoC students.

In addition to the Advisory Board member companies, CFITS has established relationships with other Industry Partners since meeting the work force needs of the broader industry requires knowledge of their various applications of computing. Services are provided through a variety of initiatives, including the following:

Senior Capstone Project

Each graduate from the SoC completes a course entitled "Senior Project" as their educational capstone in their chosen area of study. These include all five Majors of Computer Science, Cyber Assurance, Information Systems, Information Technology, and Health Informatics. All of these are infused with our focus on Information Assurance/Cyber Security. Our Industry Partners are invited to offer projects for these students in their senior year, as one objective is to replicate a real world experience.

Student Placement

Our school is fortunate in these times of high unemployment to be experiencing high demand for our students. The goal in this or any other environment is to match well educated individuals with employment opportunities. Our Industry Partners have contact with these students in many ways, including Career Days and other opportunities provided especially to our IPs.

Internships

Students work up to 20 hours per week at your business. The intern arrangement is between the Industry Partner and the University. We are both involved in the selection of the student.

Managed Interns

A USA professional (PhD or Masters-level individual) will manage a team of interns who will work for you, at the university, on a well-defined project submitted by you. The Industry Partner gets a distinct managed resource. This process will create a pool of applicants, trained and skilled in your business, from which to select new staff. The managed team may be extended after the project, creating a separate resource for the Industry Partner.

Contract Work

As a matter of technology transfer, CFITS negotiates and manages well-defined, short or long term projects as contracted tasks with industry partners. These contracts may engage the wide array of capabilities of CFITS-associated faculty, staff, students, and where appropriate, facilities.

INDUSTRY COLLABORATION INITIATIVES, cont.

Joint Research Projects

CFITS solicits and conducts joint projects with academic and industry partners that focus on research, knowledge discovery, and innovation. Our investigators can lead proposal preparation, participate as full partners, or offer subcontract support on federal, local, and foundation grant programs as well as conducting sole source research activities for industry partners.

Staff Development

The School of Computing offers five undergraduate programs, a masters program, and a PhD.

Courses offered to continue the education of your staff:

- CS—Computer Science
- CY—Cyber Assurance
- IS—Information Systems
- IT—Information Technology
- HI—Health Informatics

Information Assurance training

- Specific Courses
- IA Minor

Graduate programs

- MS—Information Systems
- MS—Computer Science
- PhD in Computing

Contracted Courses

- Your personnel only
- Examples focus on your work

Center of Academic Excellence

USA CFITS in the School of Computing is host to the Center. In 2014, the Department of Homeland Security and the Department of Defense designated USA as a CAE In Information Assurance / Cyber Defense, a seven year designation which met rigorous new criteria.

Development

CFITS and the SoC recognize the important role we have to play in the community. We realize that what we do is not possible without the support of our Industry Partners.

In addition to the various initiatives, Industry Partners can provide financial help with a variety of funding opportunities.

- ACM/Alumni Banquets—sponsor your SoC graduate employees
- Tuition Reimbursement
- Room Naming
- Activity Sponsorship
- Make Presentations to Partner Schools as part of our CFITS K-12 CS STEM Initiative

K-12 Computer Science STEM Initiative

The following pages describe elements of the CFITS & School of Computing's K-12 Computer Science STEM Initiative. Industry Partners play a key role in the success of this important effort.

- Industry Partner presentations—A representative presents your business, your industry, and why computing is important to you.
- Industry Professional presentations—One of your employees who is a degreed computing professional presents his job, career, and the great opportunity computing is.
- Industry Partner Tours—About your business with a focus on computing.

CFITS' PARTNER SCHOOL PROGRAM

INITIATIVES

GenCyber: Inspiring the Next Generation of Cyber Stars! The GenCyber program provides summer cybersecurity camp experiences for students and teachers at the K-12 level. The goals of the program are to help all students understand correct and safe on-line behavior, increase diversity and interest in cybersecurity and cybersecurity careers, and improve teaching methods for delivering cybersecurity content in K-12 computer science curricula. GenCyber camps are open to all student and teacher participants at no cost. Funding is provided jointly by the National Security Agency and the National Science Foundation.

K-12 STEM Initiative: Implementation of our SoC K-12 Initiative "*Math, Science, and Computing Initiative Project (4.1)*" is intended to increase the pool of qualified high school graduates in the area from which to recruit undergraduate students. Engaging industry partners that showed specific interest in K-12 math and science education accelerated the development of our program, with implementation in the Fall of 2012.

CIS Dual Enrollment in Alabama Public High Schools: CFITS is fully engaged in the broad effort to improve education in Science, Technology, Engineering and Math, the STEM disciplines. The US Bureau of Labor Statistics reports that over two in three new STEM related jobs will be in computing. This reality fuels our commitment to help bring about inclusion of Computer Science dual enrollment as a science requirement option for graduation in public high schools across Alabama.

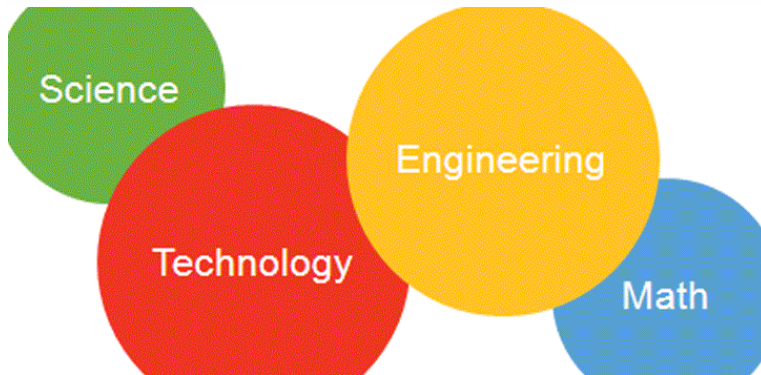


K-12 Robotics: Support for robotics learning experiences in K-12 has and continues to be utilized as a tool to enhance the integration of STEM educational concepts into our schools. We continue to support such activities as BEST, FIRST, and LEGO, as well as various tech fairs and summer camps. Our investigators also participate as judges and educators in many robotics educational and competitive activities.

GOALS

1. Improve retention of grade level STEM skills in our Partner School students.
2. Educate K-12 students in Computer Science.
3. Create employable individuals in the sciences.
4. Help address the CyberSecurity work force needs of our nation.
5. Impart the importance of Learning Objects as a teaching tool in the STEM fields of learning and to quantify the impact on similar student groups.
6. Establish the cost effectiveness of each activity, while improving the value of each.
7. Build a pool of STEM proficient high school graduates from which to recruit successful college students ready and able to participate in the School of Computing degree programs.

PROGRAM ORIGIN



The K-12 STEM Partner School Program is the result of the K-12 STEM Initiative of the USA School of Computing Advisory Board, and continues to be actively supported by the efforts of the Promotion Special Interest Group of that Board.

Implementation of our School of Computing K-12 STEM Initiative - the *“Math, Science, and Computing Initiative Project (4.1)”* - was intended to increase the pool of qualified high school graduates in the area from which to recruit growth of our programs in the SoC.

School of Computing programs here at USA are widely recognized across all university disciplines by college associations as well as government associations at the federal, state, and local levels. In 2011 our efforts were recognized with designation as a Center of Academic Excellence in Information Assurance Education by the Department of Defense and Homeland Security, a designation which was renewed in 2014.

The state of Alabama’s efforts in workforce development are partially driven by efforts in economic development, and we at SoC and CFITS are part of that effort. With the Department of Labor reporting that through 2018, 71% of all jobs in STEM fields will be in computing, it becomes clear why so much demand exists for our graduates.

Currently, there are three jobs for each computing graduate. The Department of Labor projects this to continue into the future.

By engaging industry partners who demonstrate specific interest in K-12 math and science education, we can accelerate the development of this program, which began in Fall 2012.

This program endeavors to improve student success in *all* STEM disciplines, with a substantially increased number of high school graduates both STEM capable and Computer Science aware.

The National Science Foundation and the Department of Homeland Security certified our membership in the Cyber Corps®: Scholarship for Service (SFS) community for January 2013 - December 2021.

MEASURING RESULTS

There is a wide acceptance of the fact that STEM competence among US High School graduates, including Alabama High School graduates, is not up to world standards. Among educators, the need to improve STEM education to world standards has been addressed at the federal, state and local levels, and is well accepted as a real problem in workforce development.

What is less widely recognized is the fact that here in the U.S., over 2/3 of STEM job openings for college graduates today and through 2020 are predicted to be in the computer sciences.

If the U.S. stays on its present course, of this total of nearly 140,000 jobs in computing, less than 50,000 students who fill them will graduate in the U.S., and of those 50,000 many will be foreign nationals.

The opportunity for our High School graduates in this field is very large, and dependent on the quality of STEM education we provide our young people. To this end, there are many efforts all across the country to generate student interest in STEM education, and growing recognition of the dominant prospects in the computer sciences at the college degree level.

One challenge we all face is budget cuts. For that reason alone, we must measure the impact of these efforts, and their efficacy for each learning activity. There is wide excitement among students, teachers and parents about robotics camps, as evidenced by their widespread growth. However, they are not always managed in such a way that their impact on STEM learning can be measured.

The CFITS, working with our Partner Schools has developed a protocol for measuring the impact of each learning activity that is part of our effort. The initial elements include:

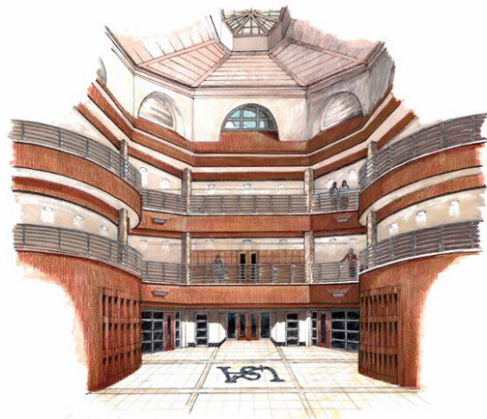
- Measuring each activity in terms of student time “immersed” in the activity, called “immersion units.”
- Keeping accurate and true costs of each activity, divided by each school, grade, class and per student.
- Employing each activity with whole grades of students in a given Partner School, or where not possible, an entire class.
- Keeping accurate records of the frequency of each activity by “immersion units” within each grade or class, by year.

Shelby Hall

at the University of South Alabama
University Blvd. and Old Shell Road



Shelby Hall's atrium



University of South Alabama

CFITS | Center for Forensics, Information Technology & Security

150 Jaguar Drive, Mobile, Alabama (251)460-6390