IAB Meeting Jan. 31, 2014

Mike Hatfield  Ajaib Bhadre  Pat Byrne

John Schofield  Joe Zills  Michael Troy

IAB Meeting  Jan. 31, 2014
First MS-CES Graduate

Shao Huadong
The 2-year-old Sonoma State University master's program in computer engineering started in 2001 with 35 students has graduated its first student, Huadong Shao of Rohnert Park. Shao was born in Xinjiang province, northwest China. While on campus, Shao worked as a teaching and lab assistant.
Big push for tech education in North Bay

Technology Roundtable leads the way

by Jill Tydesman
Assistant Editor

SONOMA COUNTY – Jeff von Raesfeld, chair of the North Bay Technology Roundtable education committee, has experienced first-hand the missing link in Sonoma County’s technology and science education programs.

A native of Sonoma County, he left the area to attend UCLA and get his bachelor’s degree in math and computer science and an MBA. Fortunately for the tech community, he decided to return after finishing his education.

“I wanted to come back to this area after I got my tech education, but many others do not,” says Mr. von Raesfeld, who is also an independent IT and business consultant. “NSTF members would like to see an increase of scholarly tech programs at the collegiate level.”

The North Bay Technology Roundtable, a regional organization of technology companies, educational institutions, and trade associations, has been pressuring for the launch of a Bachelor of Science in Engineering Science degree program at Sonoma State University to fill the undergraduate gap in engineering education.

“The North Bay needs a strong undergraduate program in engineering to develop and retain a skilled workforce,” says Mr. von Raesfeld. “Sonoma County businesses have indicated a continual need for engineering-savvy individuals.”

Saied Rahimi, PhD, dean of Sonoma State University’s School of Science and Technology, agrees that there is a definite need for a BS engineering program. “We would like to bring an undergraduate choice to the North Bay and form a bridge between programs such as the New Technology Foundation, High Schools, the Tech Academy at Santa Rosa Junior College, and Sonoma State Master of Science in Engineering Science program.”

Faculty at SSU’s School of Science and Technology unanimously approved a proposal laying out the merits of the BS engineering program as well as its curriculum and costs. The proposal has been passed to the Academic Policies and Education committees for approval and will need final approval from the CSU chancellor’s office before implementation. “We hope to have approval by the end of this spring semester and be admitting students by next spring,” says Dr. Rahimi.

SSU’s MS in Engineering Science program, which was launched two years ago and graduated its first student last semester, paved the way for the bachelor’s degree.

Despite difficult economic times in the tech industry, Dr. Rahimi believes the timing is right for the BS program. “When the economy is down and resources are not sufficiently abundant, this may be a good time to plan and implement the program. So, when the economy starts to turn around, the first graduates in 2018 will be ready,” he explains.

CREST program

Another program expected to boost interest in science and tech education is the New Center for Research and Education in Science and Technology (CREST). The following formation of a board of directors and appointment of a director.

“CREST will allow interactions between Sonoma State universities and private business,” says Dr. Rahimi. “Use of the facilities could particularly benefit telecom startups and other companies with limited funds.”

The Cerret Lab complex was opened in 2001 with about $8 million in equipment and facility costs coming from NSTF members and other private donations and $4 million from state funds. The lab contains $3 million worth of equipment including a scanning electron microscope, laser scanning confocal microscopy, atomic force microscope, auger spectrometer, and many more.$5 million worth of equipment including a scanning electron microscope, laser scanning confocal microscope, atomic force microscope, auger spectrometer, and more.

“This is the first time we’ve offered our science and tech facilities, short courses, and workshops at Sonoma State universities,” says Dr. Rahimi. He hopes to expand the CREST program to include biotechnology, electronics, long-distance learning, and on-site training of science and technology teachers.

Youth education

Another key issue the science and tech
Xandex gives SSU $75,000 for tech lab

BY JOY LANZENDORFER
STAFF REPORTER

ROHNERT PARK — Petaluma-based Xandex has funded a new laboratory at Sonoma State University designed for teaching faculty and students an icon-based programming language.

The laboratory, which will be located in Darwin Hall, will be open to 10 faculty members for a two-day workshop January 22 and 23. The program will then open to students the following fall.

Xandex donated $75,000 to SSU as part of the fundraising the school has been doing for its master of computer and engineering science program. ARM Systems in Rohnert Park also donated $3,000.

"The lab came out of the discussion we had with industry leaders about funding the masters program," says Saeid Rahimi, dean of the school of natural sciences. "Considering the shortage in the workforce, the new laboratory will teach students a skill that will increase their chances of employment in research-oriented industries regardless of the field."

The new lab will be used by undergraduates and graduates alike to teach LabVIEW, a graphical language by National Instruments. This icon-based language in which no code is written, uses icons chosen from a pallet that are then connected to each other. WHILE loops; FOR loops; IF, THEN statements; timing; and many other programming components are icon driven.

"We are supportive of promoting high tech in the north bay," says Kamran Shamsvari, president and CEO of Xandex. "It is an important and integral part of the community."

For more information, call 707-664-2171.
SSU weighs bachelor's in engineering

By BOB NORBERG
THE PRESS DEMOCRAT

Sonoma State University officials are moving forward on creating an undergraduate engineering program that would prepare students for technical careers at such companies as Agilent Technologies and Advanced Fibre Communications.

The program at the largely liberal arts university would bridge gaps between high school and junior college science education and SSU's postgraduate science engineering program.

"There is a missing link in the technology education in the

TURN TO SSU, PAGE E2
SSU hits the cutting edge

Students attend a lecture at the recently-remodeled Salazar Hall at Sonoma State University in Rohnert Park. The class, Math 142, "Discrete Structures," is one of many that will take advantage of the upgraded facility. The county's telecommunications industry donated funds for high-tech equipment and classroom renovations.
"This is essential for the growth of the industry in the area. And it will serve not only this area, but the state and the nation."

JAGAN AGRAWAL, director, Masters Program in Computer Science and Engineering

SSU gets its master's

After 3 years of planning, telecom-oriented master's program starts this fall

BY BOB RUBERG

The Press Democrat

After three years of planning and at a cost of more than $50 million, the first such center in the Sonoma Valley, which will join SSU's traditionally liberal arts courses, is set to open.

And in addition to teaching books, the students will be working in laboratories equipped with $100,000 in lasers, microscopes and other equipment.

And out of those labs will come research leading to new technologies that will benefit the region's telecommunications industry.
Telecom leaders urge SSU to adapt

Industry seeks more local talent

by ROB NORBERG

Sacramento

The demand for high-tech workers is so great that Sonoma State University should tailor its undergraduate program to the telecommunications industry, an industry group is recommending.

"The school system needs to adapt to the needs of our current economy," said Michael Troy, who heads the North Bay Technology Roundtable. "We're looking at recruiting in India for local jobs. Why not recruit in Sonoma County?"

But to Sonoma State students earning degrees in mathematics, computer sciences and applied physics, having a job lined up even before they graduate.

"We are hiring students out of the computer science program," said Troy, who is president and chief executive officer of KnowledgePoint in Petaluma, a manufacturer of human resources software. "They have jobs before they even put on a cap and gown!"

Sonoma State administrators said that instead of a new program, the university could consider making changes to the existing science degree programs to make them more relevant to local companies.

But more of that should even be considered until the new Masters in Computer and Engineering Sciences.

See SSU, Back page
SSU needs an engineering bachelor’s degree

For many of Sonoma County’s graduating high school seniors, the pursuit of higher education provides an opportunity to learn specific skills toward obtaining an entry-level position in local industry. Enterprising students can take advantage of private-sector opportunities including internships, work-study programs, and summer fellowships. Sonoma County’s high-technology industry, in particular, provides a multitude of such opportunities for capable students. However, for local students interested in local high-tech careers, a crucial piece of the puzzle remains missing: an accredited bachelor’s degree in engineering.

The lack of an undergraduate engineering program in Sonoma County undermines efforts toward establishing a local high-tech work force. While Sonoma State University’s new Master’s Degree program in Computer and Engineering Science, scheduled to begin this fall, will significantly improve the local pool of qualified high-tech workers, a gap in the educational continuum at the undergraduate level will continue to force potential workers seeking higher education to leave Sonoma County.

The absence of an undergraduate engineering program also forces local high-tech employees to endure lengthy commutes to complete a bachelor’s degree—a substantial barrier to educational access. For these reasons and others, local high-tech companies must recruit talent from outside Sonoma County. Consequently, both private industry and local workers are deprived of valuable opportunities, and the region’s status as a supportive business environment is threatened.

Thus, based on concerns for both educational quality and economic vitality, the Employer and Economic Development Committee of the Workforce Investment Board recommends the establishment of an undergraduate engineering program at Sonoma State University.

The high-tech sector’s unique demand for continuous innovation has generated an unprecedented demand for local students and recent graduates with engineering or technology skills. For example, according to the 2000 Sonoma County Annual High Tech Report, the annual growth rate for information technology jobs during the 1993-99 period was 18.7%, more than five times greater than the county’s overall employment growth rate of 3.4%.

Moreover, the average high-tech annual wage in 1999 was $56,892, far exceed.
Business Education & Training

Telecom Valley calls for BS in engineering at SSU

by Jeff Quackenbush
Staff Reporter

ROHNERT PARK — Key figures in ecom Valley note the proposed gradu-
level computer and engineering sci-
e program at Sonoma State Univ-
er is a step in the right direction but add
it more is needed.

They say the master's degree pro-
gram will make recruitment and reten-
tion of experienced engineers a bit easier.

“We have a couple of people who go
campus for additional training,” says John Schofield, president and
O of Advanced Fibre Commu-
nics, which employs some 150 engineers
Petaluma. “The big issue is that it's too
to go anywhere for more training, so
ny are not taking anything on.”

Paul Segre, vice-president and gen-
al manager of Alcatel USA in Petal-
na, agrees. “We send a fair number of
ple to UC Berkeley for classes, but
it's not an easy commute,” he says.
attel has 248 engineers in the north
y, excluding co-operative education
ents and recent graduates.

“It’s important to be able to bring
one in with a bachelor's degree and
graduate-level courses and de-
es,” he adds.
SSU adds engineering degree

ROHNERT PARK, June 7, 2004 – Sonoma State University will offer a bachelor of science degree in engineering science in fall 2005. The university plans to add two faculty members who will join the two professors already teaching courses for the master’s program. Additionally, there will be adjunct faculty members comprised of North Bay high-tech executives and other technology experts.

“Initially, we will start small with about 20 undergraduate students, growing to about 100 in the major in four years,” says Saeid Rahimi, PhD, dean of the university’s School of Science and Technology. The master’s program has 55 students.
CONTINUED FROM PAGE E1

Rahimi, dean of the SSU School of Science and Technology.

"The start-up costs are included in the infrastructure of the existing master's program," Rahimi said. "Without the master's program, this would not be possible."

It would require hiring two new faculty members, at a cost of about $170,000, Rahimi said. Most of the classes would be taught by instructors from the master's program and adjunct faculty from high-tech companies.

Jagan Agrawal, chairman of the existing SSU science engineering post-graduate program, said the new program is tailored specifically for Sonoma County.

"The program is designed to be highly focused in electronics and communications, which is the center of so much of the high-tech industry here," Agrawal said.

The new, four-year program would be broad enough to prepare graduates to work for many of Sonoma County's high-tech companies, from telecommunications to equipment manufacturing.

It would be tied closely to SSU's existing master's program in computer and engineering science, sharing faculty and the Cerent Engineering Science Center in the newly remodeled Salazar Hall.

The science center is equipped with about $2.5 million in state-of-the-art scientific equipment, including laser scanning and atomic force microscopes and telecommunications equipment.

The master's program, entering its third year, was created at the request of North Bay tech industry, which donated $3.5 million in equipment and financial aid.

At the same time, tech companies asked SSU, which is largely a liberal arts college, to also consider an undergraduate degree program.

There is no similar undergraduate degree program within 40 miles of SSU, and the two most complete programs, at San Jose State and Cal State Sacramento, are 100 miles away.

The new program would begin with 20 students, but grow to about 160.

If approved, SSU would create a new Department of Engineering Science within the SSU School of Science and Technology, which would include both the undergraduate and graduate programs, with Agrawal as department chairman.

There are now about 1,300 students in the School of Science and Technology.

You can reach Staff Writer Bob Norberg at 521-5266 or bnorberg@pressdemocrat.com.
ROHNERT PARK

**SSU science school renamed**

To reflect its new high-tech curriculum, Sonoma State University has changed the name of its science department.

SSU faculty have voted to change the name of the School of Natural Sciences to the School of Science and Technology.

As the high-tech industry has moved into Sonoma County the past decade, SSU has founded a new master's program in computer and engineering science, added applied physics to its undergraduate program, expanded its focus on biotechnology, and is building new engineering science labs.

Dr. Saeid Rahimi, the dean of the School of Science and Technology, said the new name better describes the high-tech aspects of the program.

—Bob Norberg
Tech bust thins class ranks
Enrollment in computer-related courses drops as job prospects dwindle

By BOB NORBERG
THE PRESS DEMOCRAT

Like most college students nearing graduation, Mostafa Sadrallai is worried about the job market — except his concerns are magnified by the fact that his field is in a high-tech industry suffering a horrible downturn.

"Yeah, it seems like the market is not too great right now," said Sadrallai, a junior at Sonoma State University majoring in computer science.

But while Sadrallai likes technology too much to turn back now, the fallout from the depressed high-tech job market is causing declines in enrollment in tech education throughout Sonoma County, from after-school tech programs for high schoolers to SSU’s new master’s program.

"Two years ago when the dot-commies were doing great and enrollment took a spike, we were the golden child. We could do no wrong," said Cyndi Reese, chairwoman of Santa Rosa Junior College’s computer sciences department.

But a sharp drop in enrollment over the past year “has cast a gray cloud over our department. We don’t know what will happen in the future,” she said.

The culprit is the loss of jobs, which has dissuaded students from taking tech classes. Some laid-off technology workers are going back to school to improve their skills, but not in the numbers educators expected.

In Sonoma County, 5,000 jobs have been eliminated in the past two years at some of the region’s highest-profile companies, including Agilent Technologies, Cisco Systems, Nokia, Next Level Communications, Optical Coating Laboratory Inc. and Advanced Fibre Communications.

The technology layoffs are continuing. Nationwide, 23,300 tech jobs were cut in January and February, according to Chicago-based job placement company Challenger Gray & Christmas.

The fallout is being felt by Sonoma County tech education programs that target students preparing for the immediate job market.

Over the past school year, almost 300 fewer students have signed up for technology classes at local schools, educators say. Some
“We are going to be prepared when the economy comes back full steam.”

SAEID RABINIL, SSU dean of the School of Science and Technology

Grad student Thoen Mylvaganam tests a dual-pumped erbium doped optical amplifier while Tim McKenna looks on in the Keck Lab at Sonoma State University. Optical amplifiers are used to increase the strength of an electronic signal so it doesn’t degrade over long distances.
Graduate Program
MS-CES Information
Number of graduates – year by year

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<th>2004</th>
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<td>8</td>
<td>5</td>
<td>6</td>
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</table>

Total number of graduates = 56

Total number of students who took graduate level courses = 122
MS-CES graduates (After graduation)

Ph D at Univ of Southern California
Ph D at Univ of California, Davis
Cisco Systems
Alcatel Lucent
Calix Networks
Tellabs
Technovus
Model N Inc.
Nortel Networks
CyberTran International, Oakland, CA
L3 Communications
PNI Corporation
Sigmatel
Caldive International
Caymus   and other leading technology companies in North Bay, Silicon Valley and elsewhere
MS-CES Theses and Projects
Theses

• Steven Olson, "Machine Learning Characterization and Optimized Search in Peg Solitaire Game Play"
• Adolfo Duarte, "Efficient Algorithm to Dynamically Control the State of Polarization in a Fiber Communication System"
• Ray Ubelhart, "Integrated Mode Field Transformer Optimized for Coupling InP Based Planer Devices to Single Mode Optical Fibers”
• Roopinder Grewal, "Performance Evaluation of a Global Mobility Management Scheme Under Single and Multiple Foreign Region Scenarios”
• Sridevi Battula, "Output Buffering with Limited Shared Buffers in Asynchronous Transfer Mode (ATM) Switches”
• Xiaoming Lu, "Adapting Finite Automata to Solve Combinatorial Problems”
• Ethan Stone, "Optimized Parallel Balanced Sorting Algorithm in a Coarse Grained Model”
MS-CES Master’s projects 1

- Maruthi Goli, "Recommender Systems Using Collaborative Filtering"
- David Bozarth, "A Record/Playback Method for Simulating a Device-Under-Test"
- Bruce Beauchamp, "Data Mining of Extremism on the World Wide Web"
- Steven Bottarini, "Graph recognizer For Tablet PC"
- Antonio Martinez Navarro, "Pen Based Whiteboard Sharing Application"
- Hyun-Ji Chung, "Cooperative Mapping Diversity in Wireless Relay Networks"
- Raksha Gundaralahalli, "Resource Optimization Using Network Flow and Greedy Algorithms"
MS-CES Master’s projects 2

• Rama Muthukumaraswamy, "Design and Development of Tablet-PC Based Mathematical Expression Recognition Software”

• Saloni Gupta, "Cache Simulation and Modeling”

• Xiaochun Lu, "IEEE 802.16 (WiMAX) Security Mechanism and Implementation”

• Annalakshmi Pasupathy, "Implementation and Evaluation of Routing Protocols in MANET”

• Jie Sha, "Development of Vector Signal Generator and Analyzer as Virtual Instruments”

• Srilatha Tangirala, “Disambiguation of Citation of Author Names in Digital Bibliography”
MS-CES Master’s Projects 3

- Krithika Krishnarajan, "Test Runner Test Case Management and Execution Tool"
- Brendan Illingworth, "A Study in Non-Contact Voltage Measurement"
- Kevin Nishinaga, "Handwritten Japanese Character Recognition Using Tablet"
- Renato Vasquez-Campos, "Stack of Communication Protocols for Wireless Sensor Networks"
- Kevin Halpin, "Characterization and System Performance Analysis of a Fiber Optic Rotary Joint"
- Thanh-Hieu Nong, "A Broadband Packet Switch Architecture Based on the Starlite Switch"
- Wei Zhang, "Active Mode-Locked Fiber Ring Lasers"
MS-CES Master’s Projects 4

- Sandhya Manthena, "Design and Development of an OMCI Protocol Analyzer in a PON Network”

- Mari Rajakumari, "Design and Development of a Pen-Interfaced Table Developer”

- Betty Zhang, "Implementation and Analysis of Optimized Periodic Balanced Sort Algorithm”

- Phuong Nguyen, "Design of a Micro-Processor Based Power Meter for a Switched Distributed Antenna Based on Radio Over Fiber Networks for Mobile Communications”

- Narasimha Bettini, "Analysis of Optical Jitter in High Capacity Optical Transmission”

- Bala Bhuvanagiri, "Monitoring Fiber Nonlinearity in High Capacity Optical Communication Systems”
MS-CES Master’s Projects 5

- Jie Liu, "Relations Between System Performance Parameters In Ultra Long Distance Fiber Optic Communication Systems”
- Robert Maciukiewicz, "Optimization of the Fiber Length in a Bi-directional Pumping Type Erbium-Doped Fiber Amplifier (EDFA)”
- Misty Sabina, "Design and Construction of an Optical Amplifier Using Erbium Doped Fiber”
- Seetha Pillai, "Hardware Implementation of Advanced Encryption Standard (AES)”
- Mahta Haghi, "Bit-pattern dependency of Optical Noise and Error Rate Estimation for Low Probabilities”
- Thasen Mylvaganam, “Image compression”