

California State University, Northridge
Academic Affairs

2014/15 PLANNING FORM

This form is intended to present the plans for the whole college. Please briefly describe the processes and actions that your college will undertake in 2014/15 and up to three years beyond that address the planning actions below and how these connect to Academic Affairs' priorities of **academic quality** (access, assessment, research, learning-centered, and ongoing programs), **student engagement** (advising, retention, graduation rates, student involvement in faculty research, and **shared values** (CSUN Planning Priorities, collaboration, IT Vision@2015, Campus Sustainability Plan, and revenue enhancement). Indicate how your plans include assessment.

Our planning is done in the context of overall university planning. In order to effectively integrate our planning efforts, please refer to the following:

- [CSUN Planning Priorities](#)
- [The Campus Sustainability Plan](#)
- [IT Vision@2015](#)

The planning document should be no longer than seven pages, using 12-pt Times new Roman font, including one page that reflects on the college's achievement of outcomes set in last year's plan.

Initial drafts are due by **November 1, 2013**; **final drafts** are due by **December 20, 2013**.

Please submit planning documents by uploading to myCSUNbox only. (Deans will be provided access to an Academic Affairs 2014/15 Planning folder in myCSUNbox.)

Planning Actions

1. Demonstrating Student Success (through access, advising, retention, graduation rates, student involvement in faculty research, and assessment)
2. Supporting New Faculty
3. Demonstrating Integrated Planning: Actions to Meet IT Vision@2015 and the Campus Sustainability Plan
4. Increasing Basic and Applied Research and Sponsored Programs
5. Increasing Revenue Generation
6. Creating and Maintaining Partnerships with the Community

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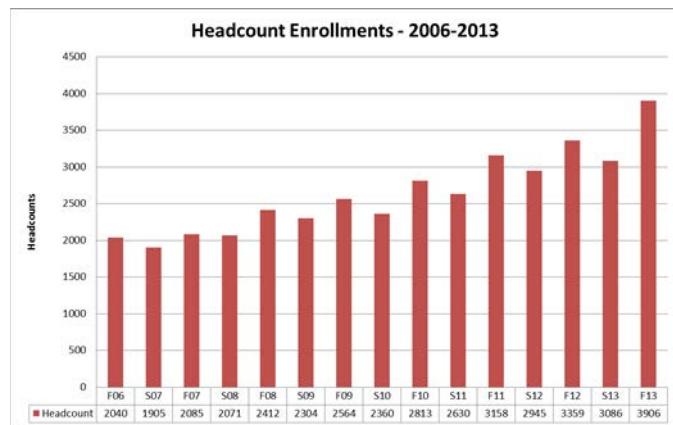
COLLEGE/UNIT: Engineering and Computer Science

REFLECTION ON OUTCOMES FROM 2013/14 PLAN (Priority #'s from 2013/14 plan)

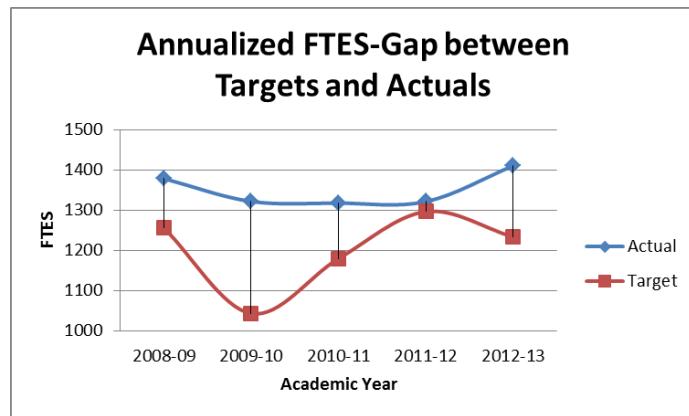
1. During the 2012/13 AY we implemented a hybrid process for First and Second Semester Freshmen where we see them in both a small group setting as well as individually. 744 FTF were advised in fall 2012 and 895 FTF in fall 13. So far the process has worked well with minor tweaks along the way. We will continue to use this process in 2014/15 because it allows us to provide holistic advisement to all of our students without having to increase the professional staff in the Student Services Center. Several departments received CQF funding for student assistants and peer lab assistants. Graduation rates have improved by offering extra sections of key required program courses and proactive student advisement. The recent ABET accreditation visit reaffirmed our work in supporting student success in all our programs.
2. New faculty received an extra year of reduced teaching loads to help establish their research. We continue to provide them with start up funds of \$ 25 K each and opportunities to interact with industry partners to secure grants and contracts through design clinic projects. The ongoing brown bag series program in the college allows all faculty (including new faculty) to share their research activities and expand collaboration. It should be noted that the two most recent research fellowship recipients in the college are Prof. Youssef (f'11 hire) and Prof. Durgesh (f'12 hire)
3. The college has identified the locations that will best serve the needs of the college for a shared centralized machine shop. This will be created by expanding the existing machine shop (JD 1615) into the wood shop (JD 1572). This would require the removing of a shared wall and an office, moving and adding utilities, and finding alternate space for the research currently in the wood shop area etc. The CECS IAB members have been approached with a list of needed equipment in the shared space. Meanwhile the college is at capacity and will need additional dedicated research space to meet campus priorities to increase research productivity.
4. With funding from the College's [AIMS²](#) grant we have provided 112 iPad's to 84 students and 28 faculty and staff from CSUN, GCC and COC; a unique program within the myCSUN tablet initiative. CECS IS continues to work with CSUN IT to find viable solutions to address graphical software needs in the zero/thin client environment and make more software available in the myCSUNsoftware (virtual software library).
5. The top priorities for the college include: Scholarships, student project support, faculty support and equipment. Philanthropic support to the college in 2012-2013 was \$ 711 K and \$ 1.3 M in the previous year.
6. Faculty are actively engaged in applied research and sponsored programs bringing in approximately \$ 2.25 M in grants and contracts during the past year. Several departments are working closely with the Tseng College to create self-support programs to serve diverse audiences and generate additional revenue for the college.

2014/15 PLANNING FORM

1. Demonstrating Student Success (through access, advising, retention, graduation rates, student involvement in faculty research, and assessment)



2013- a 56.52 % increase compared to the past year. In fall 2011 the College's actual FTES was used in the calculation of the annualized FTE target (1297 FTES) with accompanying one-time funding. The college's annualized FTE targets for the current year represent a step in the right direction; however we still have a significant structural gap when it comes to meeting the projected demand without sustained baseline funding to cover our FTES.



Invariably programs reach their assigned targets well before the start of classes and we end up having to request permission to add additional sections to meet demand every semester for the past couple of years. Student success is dependent on their ability to get into required major classes. With a more realistic FTE target upfront students can plan their schedules better resulting in timely graduation. For 2014-15 it is important that our college FTE targets are reasonable and commensurate with the growth in our programs. Given the explosion in enrollment the college has been closely monitoring admissions criteria of incoming international students – especially at the graduate level to ensure quality. In fall 2013 approximately 57 % of the international graduate students and 28 % of the international undergraduate students were enrolled in programs in the college. The college had the highest enrollment of international students at CSUN at n=751 (34. 8% of the total) followed by COBAE at 34.1%. Internally we have taken several steps to ensure that international students are advised

Total headcount enrollment in the college's programs is robust and reflects the trends of the past five years (over 62 % growth from fall 2008 to fall 2013). During the past year the college's enrollment has increased by 16 % for a headcount of 3,906 students as of census fall 2013. This is the largest percent increase among CSUN's colleges and the second largest in terms of raw headcounts. FTF enrollment increased from a headcount of 414 in fall 2012 to 648 in fall 2013. In fall 2011 the College's actual FTES was used in the calculation of the annualized FTE target (1297 FTES) with accompanying one-time funding. While our summer offerings have been increasing over the past few years we still really need to have more realistic AY FTE targets to meet students' needs. It should be remembered that the growth in program headcounts and average unit loads taken by our students requires additional FTES to satisfy majors in the college's programs. These are not GE or service FTES.

appropriately so that they can be placed in the correct classes. However, the sheer workload is overwhelming department chairs and staff alike. Following a meeting between the deans of CECS and COBAE and Student Affairs we have identified several areas that need follow up and attention. Some of these are operational in nature and require forms to be filled out for international students for various sponsoring entities that could be addressed centrally in Student Affairs without burdening the colleges. Others are more time consuming and require the evaluation of curricular content to determine equivalencies and placement in relevant classes.

Some of the steps that would improve advising for this group of students include:

- 1) All international students majoring in engineering should be required to arrive at least 2 weeks prior to the start of classes to allow time for the required testing (ELM/MPT, CPT and EPT) as well as an introduction to the University registration system and the prerequisite structure. Without this period, the first semester gets normally wasted by taking unnecessary courses just to make up the 12-unit visa requirement. Also, the loss of one semester forces these students into untenable positions with respect to their scholarship requirements.
- 2) There needs to be a mandatory orientation session where not only the University policies and procedures are presented, but also the norms for interactions with the faculty and staff, in particular, are discussed.
- 3) A meeting should be convened with the cultural attaché of the sponsoring embassies to alert them of the requirements for the engineering programs, the prerequisite structure and the associated minimum time to degree for the students.

At the undergraduate level we have been proactively addressing the preparation of incoming international students so that they are placed in appropriate classes. Without additional staff support for international advisement we will be unable to effectively support the often time consuming advisement needs of undergraduate international students. The college plan that requires all FTF to be individually advised by dedicated advisors in the college's Student Services Center is working very well and we have expanded workshops and tutoring to help improve retention. See the 2013/14 outcomes section for a summary of the results. Additional detailed information is available if needed. Recently several undergraduate programs in the college were reviewed for accreditation by ABET and received very positive comments from the review team for our efforts to advise, mentor, and support students which improves retention and their progress to graduation. In particular, the following were cited as programmatic strengths across the college's accredited programs: Quality of our academic programs, our students, our efforts to enhance student learning, dedication and commitment of our faculty and staff, strong industry support , program educational objectives that effectively meet the needs of our constituents, and excellent labs and facilities A couple of course redesign proposals (Comp 110/L and ME 209) from the college were funded by the CO during the summer and should result in improved student performance as the revisions are implemented.

Transfer student advising continues to be done at department level as we have in past years. The HSI-STEM grant in the college (www.ecs.csun.edu/aims2) has several elements that support transfer student retention including tutoring, mentoring, and engagement of cohort students in research. Other strategies that we will be exploring to improve retention and time to graduation include: 1. Provide students opportunities for scholarships so they work less outside of school, 2. Provide students with additional advisement opportunities, 3. Utilize CQF and grant funding to select better prepared students to serve as tutors and graders in key lower division classes, 4.

Offer workshops through the professional student chapters where students can interact with other students, 5. Interaction with professionals and experts during conferences organized by the College's Centers 6. Provide opportunities for students to actively participate in research, in regional and international competitions, and in events such as the annual senior design project showcase. 7. Provide opportunities for students to work closely with faculty and co-author publications and presentations. See www.ecs.csun.edu for more detailed information about these events and their positive impact on our students.

2. Supporting New Faculty

During the past year the college was allocated one faculty position. Since fall 2011 we recruited 12 new faculty members to the college but suffered the loss of two recent hires (2012) that left CSUN this summer. For 2014-15 the college is anticipating recruiting eight new faculty (including two roll-over positions from 2013-14). It is really important for the college to sustain the momentum with additional hires at competitive salaries (at a minimum it needs to be comparable to sister campuses in the CSU) when we are experiencing rapid enrollment growth and the loss of senior faculty to retirements and resignations. We have pressing needs across the college and we have reached critical levels in a few departments that are struggling to meet rapidly growing enrollments while confronting faculty attrition. We need a minimal investment of 10 new positions in 2014-2015 to meet emerging and future needs, especially as we seek to improve our research productivity.

Our new faculty hires have been working closely with their respective department chairs and colleagues to orient them to the CSUN culture. A series of events including a one on one meeting with the dean, a luncheon with college leaders, and an introduction to the college industry advisory board have been organized to orient the new faculty. We feel it is especially important for our new hires to be connected with our industry supporters so that they can explore suitable applied research projects. The “Tuesdays@Noon” – research brown bag lunch series initiated in fall 2012 provides a forum for all faculty members in the college to make presentations on their research interests. This helps increase interactions between the new faculty and colleagues in the college to make them feel at home and explore opportunities for interdisciplinary collaboration. . The college initiated a brown bag series in fall 2012 to showcase the research of our faculty beginning with the new hires from fall 2011 or later (which has been the first major wave of hiring in the past six years). To date a total of 23 research seminars have been delivered indicating the breadth and scope of the research by our faculty. See <http://www.ecs.csun.edu/ecs/docs/BrownBagSeriesfall2013.pdf> for the most recent seminar schedule. The seminars reflect the work of the faculty through funded research projects, design clinics, and grants and contracts. Some of the seminars have led to inter-disciplinary collaborations across departments and other colleges. Efforts such as this need to be nurtured and supported to improve research productivity. A team of the new faculty from the college and the dean made a presentation on “Improving Your Business through Innovative Research & Development: CSUN’s Capabilities in Advanced Manufacturing, Software Engineering and Renewable Energy”, LA Economic Development Corporation, Los Angeles, October 2013.

In addition here are some strategies that we have implemented to support new faculty: 1. Provide start-up funds to new faculty members (presently we provide \$ 25 K/faculty with the college

covering 50 % and the balance from Academic Affairs), 2. Reduction in teaching load from one year to two years, 3. Provide help with teaching techniques through CIELO, 4. Introduce new faculty to industry, 5. Meet with new faculty individually to discuss research goals and grant proposals, 6. Publicize faculty activities college-wide, 7. Encourage new faculty to develop an individual research plan that includes seeking externally funded grants and contracts, and 8. Encourage travel to grant agencies such as the NSF and DOE using start-up funds.

However, challenges remain; especially with the modest start-up funding package, lack of staff support with grant writing etc., and lack of research laboratory space for new faculty. Given the cost of engineering equipment, start-up funds need to be significantly higher, at least of the order of \$100K. With regards to research space, our departments will do everything we can internally to see how they might be able to accommodate research needs while being challenged for instructional laboratory space. This poses a challenge given the college's growth. The college will continue to monitor its space carefully, multi-purposing rooms so that they can serve instructional and research needs to the extent possible. Increasing applied research, grants and contracts in the college to support President Harrison's vision of "doubling" our research productivity over the next five years will require an institutional commitment of additional space and resources. A full-time staff position to support faculty with grant writing, forms, reporting etc., would be very helpful and free up faculty to focus on their research.

3. Demonstrating Integrated Planning: Actions to Meet IT Vision@2015 and the Campus Sustainability Plan

CECS Information Systems will continue to work with CSUN IT in finding an acceptable solution that will be able to handle the graphical nature of the software in the zero/thin client environment. This solution also has to make fiscal sense, and it needs to be one that would work all the time. We do plan to have approximately 20% of the labs in this type of environment in the next 3 years. There has been good response to the virtual software library. CECS will continue to make more software available in the myCSUNsoftware (virtual software library).

CECS will be involved with the pilot testing of the campus-wide printing solution. This will help the students by them having to just have a print quota (purchased or otherwise) that they can use in most buildings on campus, which includes the Library.

Assuming the University is willing to commit to freshman cohorts taking iPad based GE courses by 2015; our CS department is willing to commit to a serious investigation of moving COMP 100 to be iPad-based. Across the college we will continue to expand greater use of e-texts in suitable courses. For example as part of the myCSUNtablet initiative, MSE227 (Engineering Materials) an EM and MSE core course, as well as a service course for other departments in the CECS was revised to provide lecture notes on iPad; tools to visualize concepts such as crystal structure, 3D of imperfections in materials, phase diagrams; teaching supplement and aids such as short video and demo of concepts, design problems, solution to examples, quizzes etc.,

We have several faculty and students who are actively engaged in the campus wide sustainability initiatives. The College has various courses in the CM and MSE programs related to

Sustainability. Some of our faculty members are on the Green Core Committee contributing to the academic aspects of the sustainability initiative and running projects in support of the sustainability initiative. A new senior design project in support of providing a solar-powered charging station for electric vehicles on campus is one of the outcomes. Another faculty member is working with a group of students on a smart parking system for the campus with an anticipated production date by 2015. The work of this group is under review by the LA Clean Tech Incubator for potential inclusion as one of their portfolio companies.

4. Increasing Basic and Applied Research and Sponsored Programs

There has been a steady increase in the number of research proposals submitted by faculty in the college to government agencies, private foundations and corporations resulting in funded grants and contracts (on the average approximately \$ 2.5 M/year since 2011). Faculty will continue to actively seek funding through grant proposals to various government agencies including the NSF, DOE, DOD and the USDE. With the assistance of the College IAB, faculty have been successful in obtaining grants and contracts to support design clinics; we are also exploring industry support for indirect use of supervised labs and faculty technical expertise through workshops and seminars. The College has three active Centers that enable faculty to connect with industry and attract grants and contracts. The Energy Research Center hosted its second annual conference in May 2013 and the Center for Innovation and Entrepreneurship co-hosted a conference on Innovation in June 2013. With the advent of LACI we anticipate that several faculty will be actively involved in research activities with startups in clean tech. As mentioned previously in section 2, an investment in additional research space and resources is necessary to further expand and grow our research activities.

5. Increasing Revenue Generation

The top priorities for the college include: Scholarships, student project support, faculty support and equipment. The College Development Office will be working to secure funding by working with three different types of donors. They are: Foundations, corporations and individuals. In 2014-2015 we will be increasing our activity to identify and solicit individuals with significant personal resources and a desire to support CECS and we will continue to work with foundations and corporations including members on the College's Industrial Advisory Board. Northrop Grumman Corporation recently named us as a Core University Partner- a distinction that places us in a select group of schools leading to increased funding opportunities for our students and faculty. Aerojet-Rocketdyne and Boston Scientific have both signed the President's LEAP Compact agreement committing to ongoing support for a variety of activities that enhance our educational programs.

The Center for Engineering and Computer Science Research and Education along with the Energy Research Center and the Center on Innovation and Entrepreneurship housed in CECS have several programs in place to generate and increase revenue from external sources. Ongoing events include the offering of PE and FE workshops to assist engineers seeking licensing, and design clinic projects in a variety of areas. The Honors Co-Op program is doing very well with additional industry sponsors joining the program in 2013. As a result of the collaboration with one of our IAB members we now have a partnership with WellPoint for an ongoing project on

Enterprise Computing. The initial design clinic contract is for \$ 140K. On the average the design clinic projects supported through our Centers brings in approximately \$ 200K annually to support faculty and students working on research projects. Details may be found in the annual Center Reports submitted to Academic Affairs. Last year we successfully attracted six corporate sponsors (approximately \$ 9K in total funding) for our annual senior design project showcase event. We expect to increase this in 2014. These funds are held in a separate account to support student projects and travel to various regional and national competitions.

Several departments in the college are working actively with the Tseng College to create/offer courses for working professionals. These programs have the potential to bring in additional revenue to the college and improve visibility for our programs. In CECM, the department is working with the Tseng College to offer courses in Construction Management, namely CM610, CM602 and CM603. Other efforts include work to establish a certificate program in Construction Management and eventually a Masters in Construction Management; and to offer a self-supported Masters in Civil Engineering degree. The ECE Department plans on offering a Master's degree program in Electrical/System Engineering completely on-line. The ME department is working on a new mechatronics certificate program proposal in collaboration with CSU Chico, for controls/robotics working professionals. The ME department is also working on an Engineering Tools certificate program to provide engineers with additional/advanced skills.

The ME department acquired funds from the companies to support the department and the college (Haas Automation, Lockheed-Martin Aeronautical, Northrop-Grumman, etc.). The ME department is working with ECS Development Director to acquire a new department vehicle for use by senior design project teams. The CECM department hosts a Golf Tournament for fundraising on an annual basis. The generated funds continue to help meet the financial obligations of the CM program. The department will continue to ask for additional resources from the Industry Liaison Council for the CM program. Cohort I of the MS in Assistive Technology for Engineering was completed and equipment startup funds spent in 2011/12 in the amount of \$ 32K are being recovered in 2013/14. These funds will be used to partially fund the remodeling and refurnishing of conference rooms JD 1568 and JD 4440 that was deemed necessary for the ABET visit. Discussions are underway to determine when a second cohort for the MS ATE can begin. Additional discussions are underway to restart the Engineering Management Online program under the MSEM department. Additionally, facilities usage by a movie studio production company generated \$ 8K.

6. Creating and Maintaining Partnerships with the Community

The college has hosted two very successful alumni networking nights during the past two years that attracted over 100 participants in 2013. Plans are underway to form an alumni chapter to work closely with the college. The college organized a donor-scholar reception in 2013 to increase interaction between scholarship recipients and their donors. This was very popular and we plan to continue this event on an annual basis.

Faculty and staff in the college are actively involved with colleagues in the College of Education on grants, and activities involving STEM in K-12. The ECE Department through the AIMS² project plans to reach out to the local elementary schools and high schools. Just recently the

ECE department agreed to be the technical advisor for Calabasas High School on a project to develop courses in robotics. A formal letter of support was provided by the ECE department. The ECE Department supports an open engineering day, where public and prospective students can visit laboratories and listen to short lectures. This was done in the past and seemed very successful. The ASME student chapter has hosted several successful outreach events including a Young Engineer's day to promote careers in Engineering.

The newly formed Engineering Management Student Association (EMSA, 2011) in the MSEM department is a very successful platform for offering undergraduate and graduate students the opportunity to network with industry professionals, and gain further insights into the EM profession and available career options. To increase student exposure to industry and new methodologies and techniques MSEM faculty invite guest speakers on a regular basis to their courses. The IEEE-HKN Honor Society has been very active in a variety of service activities at local high schools and two of the officers attended the national student leadership conference in March. Students across the college are encouraged to participate at Career Center Resume Workshops and the bi-annual Techfest Event. The latter attracts several alumni from our programs who provide information sessions and offer career guidance to potential recruits.

Several faculty across the college are getting involved in the LACI initiative. The conferences organized by the College's Centers in Innovation and Energy Research are examples of growing partnerships with the community. Recently a team of faculty from the college was invited by the LA Economic Development Corporation (LAEDC) to make a special presentation on Innovative R&D projects at CSUN in Renewable Energy, Software Development, and Advanced Manufacturing and opportunities for regional business development.

As mentioned in Section 5 the College has a growing list of Corporate Partners with companies such as Northrop Grumman, Aerojet-Rocketdyne and Boston Scientific to name a few. JPL recently announced that a Senior Engineering Manager and a member of the College Industry Advisory Board would serve as the University Relations Manager for our College. This is an exclusive relationship allowing our students and faculty to work on funded projects with JPL scientists and provides enhanced career opportunities for our graduates. As an example, CSUN is home one of the 13 university teams NASA has selected for collaborative projects to develop and demonstrate new technologies and capabilities, and spur innovation in communication, navigation, propulsion, science instrument and advanced manufacturing for small spacecraft. A group of faculty team from the ECE department is leading a team of students to construct a cubesat called 'CSUNSat1'. This is a 10-centimeter-by-10-centimeter-by-20-centimeter satellite, roughly the size of a shoe box and weighing about five pounds, to carry a JPL energy storage experiment into low earth orbit, or about 500 miles above the Earth's surface. Over the course of several months, the satellite will downlink data from the experiment to a ground station on the roof of Jacaranda Hall. The CSUN team is responsible for the mechanical construction of the satellite, the design of the radio, sensor electronics and power system, along with all the satellite's main computer programming.