Long Beach City College - Program Review

Program Review 2015-16 - Engineering

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PR 2A - Enrollment Data:

Enrollment continues to maintain through the dips and modestly increase through the years. In response the program has been able to offer Circuits (Engr 17 & 17L) and Statics (Engr 35) together every semester for a couple of years now, instead of offering one in the fall and the other in the fall, which really slowed down the progress of some engineering students. The program is also offering two Engineering Computer Programming courses (Engr 54) for the first time next spring due to increasing demand. We hope that this is only the beginning; plans to reach out to local middle schools and high schools in order to generate more student demand are in the works. The program also wishes to bring back Engineering Drafting (Engr 3A/B) which is an essential part of the Engineering AS degree. To do so, the department plans to coalesce these two courses – Engr 3A and Engr 3B – into a single transferrable course, and to accept Draft 51A as a prerequisite; this will begin a bridge between Drafting, Engineering Technology, and Engineering that is long overdue. As demand increases, the program is looking at its own new facilities to determine how to accommodate engineering labs rather than imposing upon the physical science facilities and staff.

PR 2B - Achievement Data:

: Success and retention rates in the engineering program traditionally have been much higher than those in the math program. This is due to the maturity level of students entering the program, wherein calculus and physics have already been mastered. However there is an evident dip in success and retention in this past year that the department will assess and respond to accordingly. The sample numbers are small and hence the data will be highly responsive, but it is a concern.

PR 2C - HR (Staffing) Data:

The department has been able to hire two women with masters in engineering who – beyond contributing to the math program – can provide much valuable energy, ideas, and work towards enhancing the engineering program and growing its significance in the education community in the area. These hires will contribute greatly to the program plans to liaison with local K-12 schools as well as university engineering programs in order to set students' sights on the program as they progress along an engineering education path. New engineering courses such as Dynamics and Materials Science have been created to be run by Curriculum so as to prepare for future demand. These two new hires along with the hiring of a 10-month Administrative Assistant has helped out our program tremendously.

PR 3A - SLO - summary of collected program data:

At this point no engineering program SLO data has been collected. SLO data is planned to be collected beginning in Spring 2016.

PR 3B - SLO - uses in program improvement :

There is no data to which to respond, so this has yet to be done.

PR 3C - SLO - action/ change based on results:

This has yet to be considered.

PR 4A - Projects/ Strategies-development & change:

The goals/projects of the department have not changed that much, but much progress has been made. One "new" goal, Student Success, has actually been created to house a number of projects from other goals, and serves to better focus and organize the department's efforts in this area. Another goal, Math Education, is very new and is in response to the need for effective math teachers in the community, the current educator effort that has begun campus-wide, and the low enrollment numbers this sequence of classes has been suffering for the past two years.

PR 4B - Projects/ Strategies - results:

These goals are listed according to the projects reported in the Math/Engineering department plan; as such, those goals not pertaining to the Engineering program shall be missing.
Goal #1: Improve Support of Part-Time and Full-Time Faculty – A need was perceived, long in growing, that, as the procedural tasks of the college became more involved and our students and faculty took to communicating almost exclusively online, it would better serve our faculty members if all information relevant to their tasks be consolidated onto one math department

webpage. All instructors will know where to go to get their questions answered and the department will thus work in a more organized manner. A mentoring program to provide support for newly hired part-time instructors is also in the works. Finally, informal assessment of student success has led to the idea of course-by-course support provided by faculty for faculty. Such support will be in the form of course material sharing, class strategies, and informal seminars.
Progress has been achieved on this project. Currently there is a Moodle site with links to various resources such as sample syllabi, FAQs, etc. to serve all instructors, whether veterans or newly hired adjunct faculty. Also scheduled January 22nd 2016 is the department's very first adjunct faculty orientation wherein tenured faculty members shall discuss with their part-time peers how to navigate the processes of LBCC; lunch will be provided by Pearson reps who will get the chance to introduce the latest version of ALEKS tutorial software to those who attend.
Goal #2: Improve Student Success – Certain departmental projects fit together and so during department planning this new category was created to house these efforts. Chief among them is the desire to continue to expand the Workshop effort into the regular Fall and Spring semesters in order to achieve greater student success. The increase in student success due to the Winter/Summer workshops has been well documented, and in light of this the department sees the wisdom of providing this teaching/learning model to more and more students. Working within the limitations of the new V building, the latest plan – to be implemented in Fall 2016, contingent upon requested resources – is to run dual workshops within the double section classrooms, supported by laptops that students may borrow in order to work within the flipped workshop environment. Many more supporting efforts can be found delineated within the department plan.
Goal #5: The department takes student scheduling concerns very seriously and are motivated to implement prudent adjustments to better serve our student population. Efforts are being made to work with other departments to avoid unnecessary scheduling conflicts, to put in place an efficient conflict-free schedule for the engineering and science students, and to better schedule our hybrid courses to serve our part-time students and accommodate their busy schedules. A committee is meeting over Winter 2016 break in order to redesign the year round schedule to best implement not only our current course innovations but to also cater to our various student needs. Workshops, daily meeting schedules for remedial students, lecture/workshop designs shall all be considered.
Goal #7: Enhance and expand the engineering program - Although the engineering program is now modestly expanding, this may merely indicate the fluctuations of demand it has experienced for years up to this point in time. Currently there is new energy and desire to build a more robust and attractive engineering program that will draw in local students who have been inspired to enter careers as engineers. Plans include visiting local middle and high schools to inspire students about engineering, create new courses and labs to better mirror industry needs, and to work together with other programs on campus such as Engineering Technology and Robotics in order to better capture and focus our students' journeys along their education pathways.
Goal #8: Improve and Institutionalize the Assessment of SLOs – The department contributes to the college-wide SLO data collection and assessment. Course committees, formed years ago, are now more active in SLO data collection and are now meeting quasi-regularly to discuss results. The department as a whole is also active in meeting to discuss student success in general as well as staying current with math education in department meetings and also "Mathing Over Lunch", another Student Equity grant that funds colleagues to read assigned publications to discuss over lunch. The SLO effort has reminded this department to meet more regularly in order to share best practices and innovative ideas, as well as the future of math education at the community college level.
Goal #9: Expand and Improve the Role of the Math Success Center – Past data has already shown that the MSC has improved the student success rates of the math program. Requiring Math 815, Math 110, and Math 130 students to either attend workshops or work on a DLA in the Center according to a prescribed schedule has had the desired effect of introducing students to the benefits found in the MSC, including videos, tutors, and the workshops themselves. Students may also study together in an enclosed room designed for this purpose if they'd prefer. Currently the MSC is proposing the embedding of tutors into classes and scheduling study sessions with students in the hopes of increasing student success in all math classes. The computer lab has not been utilized to its potential as yet, and plans are in the works for that component as well.
Goal #10: Create Greater Team Spirit – For the rest of these goals to be realized, the department needs to work together; the better the sense of team, the better the results, which leads to greater student success as well. Past hiring has caused the department full time teacher ranks to swell to 30, over one-third of which is probationary. With this young new talent has come fresh new energy and enthusiasm. These new faculty members are contributing greatly to the team feel of the department, and it is infectious. After a hiatus of over two decades, the department has already hosted two department get-together potlucks, and many lunches in the new Bistro as well. The faculty wants to spruce up their new working environment with decorations and wall murals, and are excited about contributing to Science Night again. And the MSC is no slouch with Moises Gutierrez building up team camaraderie with instructors, tutors and staff. Teamwork is finally kicking in at the math department.
Goal #11: Continue to Commit to College Promise – The department believes in the philosophy of the College Promise effort and continues to provide whatever is needed. Classes have been added, semester schedules changed, and input has been provided at many Promise Pathways meetings, and this effort will continue on into the future. Department faculty members also realize the value of exchanging ideas with their colleagues both in the high schools and at the universities. Currently there have been new additions from the department to this effort. In particular, the engineering faculty members have met with their colleagues from LBCC and from State, which bodes well for that program. College Promise is a terrific platform from which to launch the current alternative math pathways as well.
Goal #13: Math/Technology Building – We are now housed in this newest building at LBCC and are already seeking minor

redesigns to fit our department's vision for the future. Current ideas beyond the predictable hitches in the new building include converting our double section classrooms into Workshop environments and beautifying our working spaces (students and faculty) with inspiring scenes that reflect the incredibly rich history and future that mathematics possesses.

PR 4C - Projects/ Strategies - future plans:

As indicated previously, the program plans to liaison with local K-12 and university programs in order to light up engineering as an exciting career choice for our local kids of our community and beyond. We wish to also liaison with local industries to ensure that our students get what they need to compete in the field of their choice. Working with other programs on campus will definitely help the department achieve these goals.

PR 5 - Dept - how does it fit into big picture?:

The Engineering program is currently pressured by many entities at the college, from the faculty members within the department on up to the administrators of the college and beyond. This is partway due to the nationwide push to create "homegrown" scientists and engineers. The goals of the college – equity and community – and of the President – student success and workforce development – are strongly supported by a vibrant and successful Engineering program. The department patiently waits as two new engineering faculty members get comfortable in their new careers as math/engineering instructors at LBCC to begin seriously growing the engineering program. The department put in a request for circuits lab equipment that will be funded for the Fall 2016 semester. The program has also experienced a modest increase (Engr 17 and Engr 35 both offered every semester, two sections of Engr 54 next Spring). And engineering faculty have joined in the College Promise effort and have already begun building bridges to LB State and LBCC's CTE program. LBCC possessing a robust engineering program, strategically placed as it is in geographically in the midst of industry, is definitely a goal for which to strive.

Project/ Strategy and Resource Needed