



College of Science, Engineering, and Mathematics

#3 Plan cycle - 3

Plan cycle 2022/2023

7/1/22 - 6/30/23

Introduction

The primary purpose of the College of Science, Engineering, and Mathematics (SEM) is to offer quality undergraduate and graduate programs and courses in science, engineering, and mathematics. Course offerings in the sciences, engineering, and mathematics are designed to satisfy requirements of degrees for science, engineering, or mathematics majors; for the core curriculum; and for the requirements of other degrees and programs.

In addition to courses and programs, the College of SEM is charged with the responsibility for providing expertise, resources, and additional learning opportunities necessary for each student to progress in meeting academic, personal, and career goals. Laboratories and equipment holdings are a necessary part in providing learning opportunities in science, engineering, and mathematics.

College of SEM faculty are encouraged to concentrate on excellence in teaching, as well as to pursue research, scholarly activity, and grant writing. Participation in community service activities such as science fairs, career days, engineering/science week, and talks are among activities encouraged to enhance community learning in science, engineering, and mathematics. Research areas related to the regional environment, local industries, as well as basic science also provide enrichment for science, engineering, mathematics, the University, and Southwest Louisiana.

Performance Objective 1 Departments in the college will complete sufficient graduates to maintain viable programs.

1 Assessment and Benchmark

Benchmark: CoSEM will produce a minimum of 200 completers in an academic year. Exceptions are made for certain necessary core areas.

1.1 Data

Academic Year	Department	Completers
2020-2021	BIOL	46
	CHPH	5
	ENCS	149
	MSCI	10
	Total	210
2021-2022	BIOL	52
	CHPH	7
	ENCS	122
	MSCI	8
	Total	189
2022-2023	BIOL	44
	CHPH	9
	ENCS	123
	MSCI	4
	Total	180

1.1.1 Analysis of Data

2020-2021:

For the academic year, CoSEM met the goal of having 200 completers. This goal may be more difficult to obtain in the next few years due to enrollment numbers going down.

2021-2022:

For the current academic year, CoSEM fell just short of the 200 completer mark. The Department of Mathematical Sciences decreased by 2, while chemistry and physics increased by 2. The major drop off was from the Department of Engineering and Computer Science which lost 27 completers; this could be due to lower enrollment showing right now.

2022-2023:

For the current academic year, CoSEM fell short of the 200 completers benchmark. The Departments of Mathematical Sciences and Biology dropped off, while Chemistry and Physics and Engineering and Computer Science had a marginal increase. The trend is in a downward slope.

1.1.2 Plan for Continuous Improvement

2020-2021:

To improve on these numbers recruitment needs to be increased for CoSEM. The college will also need to look into possibly lowering the number of completers to 180, though this decision should be made with more than one year of academic data.

2021-2022:

Recruitment materials have been increased as well as efforts for on-campus recruiting. The completer number will need to be discussed with the dean to see if it needs to be lowered.

2022-2023:

With a new Dean of CoSEM coming in a discussion will need to be had about enrollment and about possibly changing the benchmark for CoSEM completers. Also, the college did take a very active approach in recruiting going out to several different recruiting events throughout the parish and even a few in Texas.

Performance Objective 2 Departments in the college will offer sufficient courses to meet students' needs and to best utilize faculty resources.

1 Assessment and Benchmark

Benchmark: Student credit hours (SCHs) will be examined by looking at fluctuations in each department to determine needs in terms of instructors and class offerings.

1.1 Data

SCHs by Department:

Academic Year	Term	BIOL	CHPH	ENCS	MSCI
2020-2021	Summer 2020	610	755	657	963
	Fall 2020	5,435	4,416	5,110	6,101
	Spring 2021	5,186	4,059	4,845	4,487
	Total	11,231	9,230	10,612	11,551
2021-2022	Summer 2021	415	460	279	625
	Fall 2021	4,936	4,154	4,619	4,911
	Spring 2022	4,204	3,526	4,449	4,121
	Total	9,555	8,140	9,367	9,657
2022-2023	Summer 2022	383	421	271	593
	Fall 2022	4,622	3,806	4,747	4,810
	Spring 2023	4,254	3,583	4,930	3,872
	Total	9,259	7,810	9,948	9,275

1.1.1 Analysis of Data

2020-2021:

This data is being used as the baseline data for the College of SEM. Further data analysis will happen once more data comes in.

2021-2022:

Based on the baseline data gathered from 2020-21, CoSEM is down on average about 1,476.25 SCHs. This is about 100 students when looking at a 15-SCH load for students.

2022-2023:

Based on the data trends the only department that saw growth was Engineering and Computer Science; this could be due to a push to allow students to take some cross-disciplinary coursework, as well as a department wide push for minors. Overall, CoSEM is down about 300 SCHs. This accounts for about 20-30 students based on a 15-SCH load for students.

1.1.2 Plan for Continuous Improvement

2020-2021:

No plan for continuous improvement due to the data being a baseline. Will expand further in next years report.

2021-2022:

The plan for improvement is to offer fewer sections of certain courses. For example, work has begun on trimming down course offerings in several departments as well as putting certain courses on once-a-year rotations.

2022-2023:

The plan is to still continue trimming back course offerings and plans are in place for the next academic

year to have courses on rotations and in certain cases have alternative courses so that students aren't affected by all of these rotations.

Performance Objective 3 Departments in the college will recruit sufficient majors in their departments in order to sustain their degree programs.

1 Assessment and Benchmark

Benchmark: CoSEM will increase recruitment by 5% per year.

1.1 Data

Academic Year	Department	Enrollment
2020-2021	BIOL	372
	CHPH	67
	ENCS	810
	MSCI	52
	Total	1,301 (Baseline)
2021-2022	BIOL	317
	CHPH	68
	ENCS	728
	MSCI	48
	Total	1,161 (-10.8%)
2022-2023	BIOL	296
	CHPH	61
	ENCS	697
	MSCI	39
	Total	1,093 (-5.9%)

1.1.1 Analysis of Data

2020-2021:

The data above is the starting point for CoSEM. We will start judging enrollment and recruitment after this academic year.

2021-2022:

The benchmark wasn't met for CoSEM this year. Overall, there was a 10.8% drop in enrollment, so recruitment efforts didn't work as well as they should have.

2022-2023:

The benchmark wasn't met again for CoSEM this year. Overall, the college went down about 5.9% in enrollment. It is better than the previous year's 10.8% drop but still trending in a downward slope versus an upward or straight line.

1.1.2 Plan for Continuous Improvement

2020-2021:

Work with the baseline data and try to increase it by 5% every year.

2021-2022:

To increase recruitment, we need to increase recruiting supplies (i.e., giveaways, flyers, brochures, etc.). We also need to be present at any and all recruiting opportunities.

2022-2023:

With a new dean of CoSEM coming in, we will need to have a meeting to setup a strategy to best help the college stabilize and make sure it's in good shape for the future. The college this past year did make every effort to go to all recruiting events possible and made sure to have giveaways and other materials for students interested in CoSEM programs.

Performance Objective 4 Demonstrate student success.

1 Assessment and Benchmark

Benchmark: 35% of graduates will have at least one coop or internship experience in their field by the time of graduation as well as a job in their field.

1.1 Data

Academic Year	# of Students Participating in Co-op	Completers	Percentage
2020-2021	20	210	9.5%
2021-2022	25	189	13.2%
2022-2023	38	181	20.99%

1.1.1 Analysis of Data

2020-2021:

The data shows that just less than 10% of students participated in co-ops or internships for the College of SEM. The primary factor here is that students don't have to sign up for internships and the college cannot force industry to take interns.

2021-2022:

The data shows that just over 10% of students participated in a co-op or internship for CoSEM. This is an improvement over last cycle's numbers. However, the college is trying to figure out how to show a more accurate number of co-op or internships for the college.

2022-2023:

The data shows that CoSEM did not meet the benchmark again; however, the college has increased every year.

1.1.2 Plan for Continuous Improvement

2020-2021:

The best way to get a better representation of how many students are participating in co-ops/internships is to make a course that is zero credit hours, so that students don't have to pay for the course at all and the college receives this valuable data.

2021-2022:

The internship courses are being promoted better. What needs to be done next is to have a discussion with all coordinators for the college to help get a more realistic number of students who are participating in the co-op or internship experience.

2022-2023:

The internship courses have been promoted better in the Spring of 2023 and is looking better for the Summer of 2023 (20 enrolled in ENGR 350 and 6 enrolled in CHEM 490). Changes need to be made to Computer Science Internship/Co-Op courses to help boost enrollment, as well as the Departments working on how to coordinator internships with the new Dean of CoSEM.

Performance Objective 5 Improve the CoSEM's financial resources.

1 Assessment and Benchmark

Benchmark: Attract a minimum of \$100,000 external funding per year.

1.1 Data

Academic Year	Grants	Total Amount Funded

2020-2021	Board of Regents Grant, Lamp Grant, Code.org, PCI, LaACES, and LaSpace	\$436,000
2021-2022	Board of Regents Grants, Lamp Grant, Code.org, PCI, LaACES, LaSpace, LBA, NPCA, and Contracts Educational Foundation	\$237,000
2022-2023	Board of Regents Grant, Lamp Grant, Code.org, LaACES, LaSpace, TIRE, PCI, NPCA, and Donations (25k)	226,000

1.1.1 Analysis of Data

2020-2021:

CoSEM applied for multiple grants and has one board of regents grant that will be funded that will help with the electrical engineering and computer science programs (grant written by Dr. Davarkia). CoSEM also renewed our LAMP grant which will help the Academic and Computing learning center with hiring tutors from minority groups. The college as a whole has reached it's goal for grants for the 2020-2021 academic year. Other grants include the LaACES and LaSpace grants with Dr. Li as well as several subcontracted grants with the department of engineering and computer science.

2021-2022:

CoSEM has several continuing grants as well as has received multiple other grants over the past year. For example, Dr. Li was awarded a Board of Regents grant of his own, as well as another LaACES grant. We also had some private grant funds from NPCA and a continuation of PCI grant and funding from the Contracts Educational Foundation. The college also saw Dr. Hale get awarded a grant from the Louisiana Bee Association, as well as continuation of the LAMP grant and Code.org grant.

2022-2023:

CoSEM had several continuing grants such as the PCI, NPCA, Lamp and Code.org grants. The college also received several grants for one time spending over the year, such as the TIRE grant, LaSpace Senior Design grant, and the LaACES grant, as well as got another Board of Regents Grant funded for Dr. Rosti. The college also saw several donations from local industry from \$1,500 to \$10,000, totaling about \$25,000. So the benchmark was met, however the college hasn't quite had the same funding as the 20-21 academic year.

1.1.2 Plan for Continuous Improvement

2020-2021:

To improve further, we need to make sure that we continue getting board of regents grants and expand outward to other types of grants so that the college can grow. We currently have other professors in the departments of chemistry & physics as well as in engineering and computer science working on grant applications for the upcoming academic year. We need to work on getting all departments involved in grant writing.

2021-2022:

To improve on external funding, we need to get more proposals to the Board of Regents. We had two from the college, one from engineering, and one from physics. We did succeed at getting another department involved in grant writing; however, the college would like to see other faculty members in biology try for grant funding as well as other departments bolster their efforts for external funding.

2022-2023:

To improve external funding, the College will work with several of the new professors from both Engineering and Chemistry to increase the number of proposals that the college applies for. This past year the college has seen proposals from faculty who haven't been active in several years such as some faculty in biology and chemistry and physics. Will also work on strengthening the relationship with local industry to help get some funding for more industry related proposals.