

Dept - (BHES) Environmental Studies

1. For 2017-18 Submitted by:: Alicia De Toro
2. APRU Complete for: 2016-17
3. Program Mission Statement: The mission of the Environmental Studies/Science Department is to provide students with a diverse offering of classes that meet the transfer needs of students, prepares students for careers in industry as well as make them knowledgeable and strong stewards of the environment.
4. I.A.1 What is the Primary Focus of Your Program?: Transfer
5. I.A.2 Choose a Secondary Focus of Your Program?: Career/Technical
6. I.B.1 Number Certificates of Achievement Awarded: 9
7. I.B.2 Number Certif of Achievement-Advanced Awarded: 2
8. I.B.3 #ADTs (Associate Degrees for Transfer) Awarded:
9. I.B.4 # AA and/or AS Degrees Awarded: 6
10. I.C.1. CTE Programs: Impact of External Trends: Energy Management & Building Science (EM&BS) Program: Statewide Energy and Emission reduction legislation is creating career paths for students considering these industries. The EMBS program earned the Chancellor's Office CTE Stars award and Statewide recognition for placing 100% of 2017 academic year graduates into living wage careers relating to the degrees the student earned within 3 months of graduation. This was the highest rate in the State.

Environmental Resource Management & Pollution Prevention (ERM&P2) Program: Continued growth is seen in air & water quality, water resources, recycling & waste management, hazardous materials management, land use planning & redevelopment, and climate change mitigation & adaptation, driven by government mandates & economic opportunities. Trends affect both curriculum (content & course offerings) and enrollment management (number of course sections offered).

Wildlife Science (to be changed to Environmental Stewardship) Program: This program has suffered from low enrollment due to the narrow focus of the degree composition. The program is going through a redesign to broaden the subject matter to be more inclusive of the topics of the TOP code 0115- Natural Resource Management.

Facility And Sustainable Building Management (FSBM): Facility Management careers are growing as well. Projections from the International Facility Management Association (IFMA) show the average age of a practicing Facility Management professional is 49+years old. IFMA believes 30-50% of today's facility management professional will retire in the next 10 years. This provides many career placement opportunities for students pursuing formal education in the Facility and sustainable building space. De Anza currently has the only Facility Management program in California

11. I.C.2 CTE Programs: Advisory Board Input: EM&BS Advisory Board Input: Input from the Energy and Facility Management Advisory Board ( Dtd: December 14, 2017)  
The FSBM degree was a high priority recommendation of the advisory committee in 2017. The FSBM degree is truly interdisciplinary. It includes Business, Accounting, Computer Science and Real Estate courses in addition to Energy and Sustainable Building Management courses. This widens the range of students interested in this degree. Enrollment thus far in 2017/2018 has been strong. We will see our first program graduates in Spring 2018.  
Engagement with industry and student internships were also discussed. The industry values students with working experience in addition to classroom education. Carbon Lighthouse for EMBS and Signature Facility Services in the FSBM space. Both companies have hired De Anza graduates and are pleased with the preparation and readiness of our graduates. Programs such as this drive enrollment, completers and the % of students placed into living wage careers. These are all key performance indicators of the college, District, and State Chancellors office.

ERM&P2 Program: Curriculum and course content changes previously recommended by the Advisory Board has been approved by the college and will take effect Fall of 2018. Monitoring the effects of these changes with adjustments made as necessary will be the focus in 2018-19.

Wildlife Science (to be changed to Environmental Stewardship) Program: Due to the change in program oversight a new advisory board is being created to contribute to the direction of the program.

12. I.D.1 Academic Services & Learning Resources: #Faculty served:
13. I.D.2 Academic Services & Learning Resources: #Students served:
14. I.D.3 Academic Services & Learning Resources: #Staff Served:
15. I.E.1 Full time faculty (FTEF): 5
16. I.E.2 #Student Employees: 10
17. I.E.3 % Full-time : The FT:PT ratio for both ES and ESCI increased in 2016-17 compared to 2015-2016. The ration for ESCI increased from 0.1 to 0.2 and ES increased from 0.5 to 0.9. This change is most likely due to the return of a faculty from PDL.
18. I.E.4 #Staff Employees: 1
19. I.E.5 Changes in Employees/Resources: The only change in employees is the return of a faculty from PDL.
20. II.A Enrollment Trends: Over the past four years, enrollment for the ES/ESCI department has increased; year to year from 2012 - 2013 to 2015 - 2016 enrollment has increased. This year the department is down in enrollment. Overall enrollment is down 819 students (294 from ESCI and 525 from ES).
21. II.B.1 Overall Success Rate: The overall success rate for all students in the ES/ESCI department has remained consistent over the last four years ranging between 88% to 91% in ESCI and 70% - 72% in ES. This remained the same for ESCI, however, ES increased by 1%.
22. II.B.2 Plan if Success Rate of Program is Below 60%: N/A.
23. II.C Changes Imposed by Internal/External Regulations: EMBS: All new residential buildings must be Zero Net Energy by 2020; Commercial Buildings by 2030. This is driving jobs in clean energy sectors throughout the State. There is high demand for our graduates as evidenced by our 100% placement of graduates in career pathways last year.

FSBM: In Facility Management, pending retirement of a large percentage of practicing Facility Managers will create a vacuum of job opportunities to fill. The Facility Management industry approached the Foundation for California Community Colleges to support the education and preparation of a new wave of qualified Facility Management professionals to step into this void. De Anza College currently has the first and only Facility Management AS Degree program in the State Community College system.

Environmental Resource Management & Pollution Prevention : No changes were imposed by internal/external regulations.

Wildlife Science (to be changed to Environmental Stewardship) Program: No changes were imposed by internal/external regulations.

24. III.A Growth and Decline of Targeted Student Populations: ESCI enrollment in targeted student populations increased in the last year. African American, Filipino, and Pacific Islanders had no change in composition, while Asian and Native American increased and Latino/a decreased slightly. Although ES enrollment in targeted student populations remained the same this year when compared to last the composition of students of Filipino and Asian descent increased.
25. III.B Closing the Student Equity Gap: The Equity Gap in the ES department over the past year has decreased from 13 to 12 percentage points and in the ESCI department remained at 8 percentage points.
26. III.C Plan if Success Rate of Targeted Group(s) is Below 60%: Target population success rates exceed 60% in all areas of ES and ESCI.

27. III.D Departmental Equity Planning and Progress: The ES/ESCI department is committed to addressing the equity gap. The departments provide textbooks, computers and dedicated spaces for student use in the Kirsch Center. Instructors have been using the facilities on campus including the Cheeseman ESA - as an alternative to off campus field trips. They have also been incorporating more hands on lab activities to make material more relevant. Instructors are making off campus field trips, when scheduled, both optional and at no cost to students including trips to the Monterey Bay Aquarium and the Marine Mammal Center.
28. IV.A Cycle 2 PLOAC Summary (since June 30, 2014): 0
29. IV.B Cycle 2 SLOAC Summary (since June 30, 2014): 0
30. V.A Budget Trends: The ES/ESCI budget has remained constant for the past several years. We are able to access Perkins funding and SWPI funding which has enabled us to strengthen our CTE programs and the student experiences in them.
31. V.B Funding Impact on Enrollment Trends: With the resource assistance available through SWPI funding and Perkins funding we are hoping to grow enrollment in our CTE programs. We also hope to continue to attract students to our traditional class offerings and to ensure these students are retained and successful.
32. V.C.1 Faculty Position(s) Needed: None Needed Unless Vacancy
33. V.C.2 Justification for Faculty Position(s): We would need to replace any vacancies due to retirement to sustain the department's commitment to closing the equity gap, and in recruiting, retaining and ensuring the success of all students, and educating and engaging students in current and very relevant environmental issues.
34. V.D.1 Staff Position(s) Needed: Replace vacancy
35. V.D.2 Justification for Staff Position(s):: The ES/ESCI department has one staff member and the loss of this position would be very detrimental to the functioning of the department.
36. V.E.1 Equipment Requests: Over \$1,000
37. V.E.2 Equipment Title, Description, and Quantity: NEW:

Wildlife Science (to be changed to Environmental Stewardship) Program:

Computers: 25 new laptops (capable of running ESRI ArcGIS desktop software), ESCI software (including ArcGIS, ArcCatalog, and online ArcGIS) charging and storage cart, HP Designjet plotter printer, HP color laserjet printer, GPS handheld units, plant and animal models, ongoing lab supplies (Beakers, Erlenmeyer flasks, microscope slides, microscope coverslips, lamps (for a photosynthesis expt), disposable gloves, and necessary drying racks); camera/projection microscope, educational videos, on-going field supplies (measuring tapes, scales, buckets, gloves, boots, calipers, etc). Waist and hip waders and other necessary tools for pond restoration and other ecological restoration work such as a storage shed replacement with necessary electrical replacements, tractor, a minimum of 40 cubic yards of organic soil fill, and building materials for a composting system. Water, air, and soil sampling equipment including aquatic nets, thermometers, contaminants and the water cycle lab aid, LaMotte Soil Science Field Testing Outfit Model AM-31, air and water sampling and processing kit, density flow model, oil test paper, etc., and updated animal trapping cameras.

Energy Management:

- " Storage cabinets with locks to store SWF Equipment purchased in 2017-2018- \$5,000
- " Two Tesla Powerwall batteries for ES 51A Sustainable Energy Systems lab class- \$12,500
- " One Small Wind Turbine for new ES 51A Sustainable Energy Systems lab class- \$8,500
- " Phase 2- Kirsch Center Energy management system enablement with District facilities team- \$20,000
- " Renewable Energy Management program showcase - Program Outreach and Awareness - Kirsch Center exhibit- \$5,800
- " Facility Management Planning Software Package- \$15,500

ERM&P2 Program: ERM&P2 Program: All in sufficient quantities to support established class sizes which range from 24 to 40.

Equipment: Air monitoring equipment; greenhouse gas detection units; water quality assessment kits; stormwater sampling equipment; soil sampling & classification kits; radiation, microwave, &

EMF detectors; mobile/handheld weather stations; HazMat test kits; indoor air quality sampling & assessment equipment; industrial hygiene monitoring devices.

Software: Associated with above equipment, plus software dealing with Environmental Management/Environmental Compliance, Environmental Impact Assessment, Environmental Site Assessment, and Sustainable/Eco Design.

Computer: 25 new laptops/tablets to be used in ERM&P2 classes and labs.

Basic Educational Materials: Videos, training aids, reference/technical books, etc.

Miscellaneous Lab & Field Supplies & Safety Equipment (gloves, boots, buckets, eyewear, etc.).

Other: Storage units for safe and secure storage of purchased equipment and supplies.

Replace/ Upgrade:

25 New Laptops/Tablets to be used in ALL EMBS Lab classes (5 total lab classes);  
10 Voltmeters/ Ampmeters; 10 Temperature Probes; Upgrade Thermal Imaging Camera; SCADA Kit for Marcraft RS 3000- HVAC Lab Panel; SCADA Kit for Marcraft GT 1000- Solar PV Technology Panel; Five Multimeters/Clamp Meters; Three Oscilloscopes for measuring electrical sine waves in EMBS Lab classes; Educational signage for KCES Solar Demonstration Lab; Upgrade/ Improve KCES basic toolbox- Screwdrivers, wrenches, socket wrenches, etc

38. V.E.3 Equipment Justification: Energy Management and Building Science: All Equipment requested will support the program goals of increased enrollment and completers and the preparation of living wage jobs for students upon graduation. Allowing students to take classroom education outside the classroom to a lab or real life career setting is critical to student success.

Environmental Resource Management & Pollution Prevention Program: Equipment is needed to properly train students in this CTE program for jobs and careers in the fields of environmental protection and resource management, fields which are heavily dependent upon field and lab work. Without this equipment, students will lack critical training looked for in the real world. The program's Advisory Board recommends continued expanded training using the latest equipment as a critical need.

Wildlife Science (to be changed to Environmental Stewardship) Program: The equipment that is being requested will be used to enhance and broaden the subject matter of the degrees. Some of the equipment currently used in the program is outdated and must be replaced. The transitioned program will integrate a stronger use of the Kirsch Center and surrounding living lab spaces, including the pond, which requires additional equipment. In addition, there will be the inclusion of Geographic Information Science as an environmental tool, which will allow for the design of professional quality deliverables in the format of posters and other documents.

39. V.F.1 Facility Request: None  
40. V.F.2 Facility Justification: None  
41. V.G Equity Planning and Support: The ES/ESCI department is committed to addressing the equity gap. The departments provide textbooks, computers and dedicated spaces for student use in the Kirsch Center. Instructors have been using the facilities on campus - including the Cheeseman ESA as an alternative to off campus field trips as they have come to realize that off site field trips can make the learning experience less equitable. Instructors have also been incorporating more hands on lab activities to make material more relevant. They are making off campus field trips both optional and free-of-cost to students. Training opportunities through the staff development and equity offices would benefit the faculty to have a better understanding of what they can do to further reduce the equity gap.  
42. V.H.1 Other Needed Resources: None  
43. V.H.2 Other Needed Resources Justification: None  
44. V.J. "B" Budget Augmentation: B Budget augmentation would help us enrich the classroom experience for students and enable us to provide more hands-on lab activities for students both in the general education classes as well as our career technical education classes.

45. V.K.1 Staff Development Needs: N/A
46. V.K.2 Staff Development Needs Justification: None
47. V.L Closing the Loop: The ES/ESCI department are committed to their goal of decreasing the equity gap and increasing student success , meeting the transfer needs of students, preparing students for careers in Energy Management and Building Science and Environmental Resource Management and Pollution Prevention and educating all our students to be strong stewards for environmental issues.
48. For 2016-17 Submitted by: Alicia De Toro
49. Last Updated: 03/23/2018
50. #SLO STATEMENTS Archived from ECMS: