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 Department Chairs/Program Leads: Please press the edit symbol in the right-hand corner to update. Below, the text in bold corresponds both to the name of the box when editing this page and also to the first-column on the APRU worksheet. If you have questions, please contact: papemary@fhda.edu. 

▼  **Dept - (BHES) Environmental Studies** 

2018-19 Annual Program Review Update Submitted By: Anita Muthyala-Kandula

APRU Complete for: 2018-19

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 makes them knowledgeable and strong stewards of the environment. We hope to engage students in the study of climate change, natural resources, energy, pollution, and environmental issues. Our goal is to create awareness and advocacy for protecting our environment and ultimately human health.

I.A.1 What is the Primary Focus of Your Program?: Transfer

I.A.2 Choose a Secondary Focus of Your Program?:
Career/Technical

I.B.1 Number Certificates of Achievement Awarded: 15

I.B.2 Number Certif of Achievement-Advanced Awarded: 10

I.B.3 #ADTs (Associate Degrees for Transfer) Awarded:

I.B.4 # AA and/or AS Degrees Awarded: 11

I.B.5 Strategies to Increase Awards : - The Energy Management Building Science program placed ES 4- Energy the Environment and Society, an IGETC GE transferable class into curriculum to draw students to the major. We are now using ES 1 and ES 4 to attract undecided and undeclared students to our two AS Degree major programs.

- The introduction of the Facility and Sustainable Building Management(FBSM) AS degree in 2017 has resulted in increased enrollment and completers. Our first FSBM majors will graduate in

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June 2019.

- The WST CTE program is currently in the process of deletion and faculty are working on creating a more comprehensive Environmental Science COA, COAA, and AA/AS certificate and degree track that will include the concepts covered in the WST program, yet also allow for broadening the requirements to include other aspects of Environmental Science through the use of existing courses.

I.C.1. CTE Programs: Review of Perkins Core Indicator and SWP Outcomes Metrics:

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
 2016-2017- 578 enrolled students; 43 class sections= 13.44 students/class; 2 COAs awarded
 2017-2018- 517 enrolled students; 27 class sections= 19.15 students/class; 7 COAs; 5 COA-A; 6 AS Degrees awarded
 Through 2 Quarters of 2018-2019, EMBS is averaging 31 students per scheduled class- over 10 more students per scheduled class!
 We are conservatively projecting student awards in the 18- 25 range for the academic year.

For the Environmental Resource Management & Pollution Prevention (ERM&P2) program, all core indicators are successfully above corresponding negotiated levels per the latest Perkins Core Indicator Report (2019-2020). This has been the case (the Program exceeding all negotiated levels) for at least the previous three years running. The highest levels of success (exceeding over negotiated levels) are seen in Core Indicators 5a and 5b, Nontraditional Participation and Nontraditional Completion. The ERM&P2 program has been awarded a Strong Workforce Star (which recognizes excellence in student outcomes among CTE programs) the last two years running (2018 and 2017).

I.C.2 CTE Programs: Labor Market Demand and Industry Trends ::

Energy Management & Building Science (EMBS)-Facility and Sustainable Building Management- In the San Jose metropolitan area- there 30 Facility Management job postings for every 1 Qualified candidate. De Anza has the only Facility Management program and AS Degree in Northern California. Students are being offered internships upon completion of AS Degree. In many cases, internships turn into full time job offers after a short period of time. This is a Strong Workforce Key Performance indicator.

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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). Key relevant recommendations are to 1) expand the introductory course (ES50) from 3 to 4 units to provide a firmer foundation for student success and 2) expand the global warming/climate change course (ES 64) from 2 to 4 units to better prepare and equip students for the rapidly expanding job and career opportunities now available in the field in terms of monitoring and quantifying the levels of greenhouse gas emissions, reducing those emissions, observing and quantifying the effects of climate change, and adapting to the changes being caused now and in the future by climate change.

I.D.1 Academic Services & Learning Resources: #Faculty served:

I.D.2 Academic Services & Learning Resources: #Students served:

I.D.3 Academic Services & Learning Resources: #Staff Served:

I.E.1 Full time faculty (FTEF): 5.1

I.E.2 #Student Employees:

I.E.3 Ratio % of Full -time Faculty Compared to % Part-time Faculty Teaching: The ratio of FT to PT has increased as FT faculty have returned from sabbatical

I.E.4 # Staff Employees: 1, no change

I.E.4 #Staff Employees:

I.E.5 Changes in Employees/Resources: The only change in employees is the return of a faculty from PDL.

II.A Enrollment Trends: Just as elsewhere on campus as the number of sections is decreasing the number of students is also proportionately decreasing. Our productivity has increased as scheduling is more intentional and enrollment in the Energy Management & Building Science (EMBS) and Facility and Sustainable Building Management (FBSM) is continuing to grow largely due to strong recruiting efforts of the concerned faculty.

II.B Overall Success Rate: The overall success rate for all students in the ES/ESCI department has remained consistent over the last



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four years ranging between 87% to 91% in ESCI and it has increased in ES from 70% - 75%.

III.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.

III.A.1 Growth and Decline of Targeted Student Populations:

2017-18 Enrollment: ESCI/ES department enrollment of targeted student populations is comparable to that of the college.

College enrollment of African American students is 4 %; ES is 6 % and ESCI is 3 %

College enrollment of Filipino students is 7 %; ES is 8 % and ESCI is 6 %

College enrollment of Latinx students is 25 %; ES is 23 % and ESCI is 21 %

College enrollment of Pacific Islander students is 1 %; ES is 1 % and ESCI is less than 1%

III.A.2 Targeted Student Populations: Growth and Decline: ESCI

enrollment in targeted student populations increased in the last year. African American, Asian, Native American and Pacific Island students remained consistent. Filipino students increased in both ES (4% to 8%) and in ESCI (5% to 6%) while Latinx students increased in both ES (22-23%) and ESCI (16% to 21%) .

III.B.1 Closing the Student Equity Gap: Success Rates: Success

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rate for ESCI African American: 73% • Latinx: 77% • Filipinx: 87% • Pacific Islanders: 75%• Asian: 92%• White 85% ; Success rate for ES African American: 38% • Latinx: 69 %• Filipinx:74% • Pacific Islanders:38% • Asian: 81% • White 82%

III.B.2 Closing the Student Equity Gap: Withdrawal Rates:

Withdraw rate for ESCI African American: 12% • Latinx: 12 % • Filipinx: 5 % • Pacific Islanders: 25%• Asian: 3 %• White 5% ; Success rate for ES African American: 27 % • Latinx: 14 %• Filipinx: 15 % • Pacific Islanders: 19 % • Asian: 10 % • White 7 %

III.B.3 Closing the Student Equity Gap: 2017-18 Gap: For ESCI

success rates using defined parameters were
 13 - 14 : 73, 82, 86, 83 vs. 93, 88
 14 - 15 : 88, 85, 90, 95 vs. 94, 87
 15 - 16 : 80, 83, 83, 82 vs. 91, 88
 16 - 17: 76, 79, 83, 88 vs. 89, 86
 17 - 18 : 73, 77, 87,75 vs 92, 85

For ES success rates using defined parameters were

13 - 14 51, 64, 75, 80 v 82, 73
 14 - 15 39, 64, 70, 66 v 79, 70
 15 - 16 41, 64, 72, 78 v 79, 69
 16 - 17 58, 63, 73, 84 vs 80, 75
 17 - 18 38, 69, 74, 38 v. 81, 82

III.C Action Plan for Targeted Group(s): All faculty will participate in early identification of students struggling in class. They will reach out provide feedback, identify resources the students can avail themselves of, and direct them to our division counselor for additional help.

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 to use in the Kirsch Student Resource 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.

III.E Assistance Needed to close Equity Gap: Yes

III.F Integrated Plan goals: current student equity data and action plan:

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IV.A Cycle 2 PLOAC Summary (since June 30, 2014): 100

IV.B Cycle 2 SLOAC Summary (since June 30, 2014): 100

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.

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.

V.C.1 Faculty Position(s) Needed: None Needed Unless Vacancy

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.

V.D.1 Staff Position(s) Needed: Replace vacancy

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.

V.E.1 Equipment Requests: Over \$1,000

V.E.2 Equipment Title, Description, and Quantity: Please see attached equipment list. Items needed to assist students in learning and mastering subject material include but is not limited to ongoing Lab supplies such as: Beakers, Erlenmeyer flasks, microscope slides, microscope cover slips, disposable gloves, live organisms, prepared specimin slides, educational models and kits; Ongoing Field Supplies : i.e. measuring tapes, scales, buckets; educational videos; 40 cubic yards of organic soil fill and building materials for composting system; Water, air & soil sampling equipment including aquatic nets, LaMotte Soil Science Field Testing Outfit Model AM-31; Dell Latitude Laptop Computers; EMS Online Simulation Lab software-8972-H0; EMS Software licenses; High Resolution HVAC Graphics Package; Peer Tutors; Pyrometers; Potentiometers; Faculty Additional Pay Special Projects; Professional Development/ Conferences; Air monitoring units; Greenhouse Gas Detectors; Water Quality Assessment Kits; Stormwater sampling kit; Soil sampling & classification kit; Radiation, microwave & EMF detectors; Soil sampling &

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classification kit; Radiation, microwave & EMF detectors; HazMat Test kits; Indoor Air Quality Assessment kits; Basic Educational Materials: Videos, training aids, reference/technical books; Lab & Field Supplies & Safety Equipment (gloves, boots, buckets, eyewear, etc); Software: Env mgmt/compliance; impact & site assessment, sustainable/eco-design); Professional Development: Training & Conferences; Non-Instructional Salaries: Peer Tutors; Industrial Hygiene Monitoring Devices; Mobile/handheld weather stations

V.E.3 Equipment Justification: The equipment that is being requested will be used to enhance and broaden the subject matter that the students are being exposed to. The ES/ESCI programs already integrate a stronger use of the Kirsch Center and surrounding living lab spaces, including the Chesseman Environmental studies area and the natural environments it contains, 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.

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.

V.F.1 Facility Request: None

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V.F.2 Facility Justification: None

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.

V.H.1 Other Needed Resources: None

V.H.2 Other Needed Resources Justification: None

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.

V.K.1 Staff Development Needs: N/A

V.K.2 Staff Development Needs Justification: None

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.

Last Updated: 04/02/2019

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