

MSEnVE On-line Program, CSUF
Program Performance Review (PPR) Report

April 30, 2018

A three-member review committee (committee) was assigned to perform a *Program Performance Review* of the Master of Science in Environmental Engineering (MSEnVE) online program of California State University, Fullerton (CSUF). The team consisted of the following members:

1. Dr. James Choi, Department of Computer Science, CSUF
2. Dr. Monica Palomo, Civil Engineering Department, Cal Poly Pomona
3. Dr. Giridhar Upadhyaya, Carollo Engineers

The committee was provided with a self-study report, summarizing the following information:

- Mission and goal of the MSEnVE program
- Mission, goal, and environment of the Civil and Environmental Engineering Department (Department)
- Structure of the MSEnVE program
- Program achievements, recognition, and student learning outcomes (SLOs)
- Demand and enrollment status
- Faculty, courses, and research activities
- Resources and facilities
- Long-term plans

The committee met with the MSEnVE program coordinator, Civil and Environmental Engineering department chair, interim dean of the College of Engineering and Computer Science, interim associate dean of the College of Engineering and Computer Science, faculty members teaching the courses in the program, and current as well as former students of the program on April 27, 2018 to discuss the following:

1. Strengths of the program
2. Areas and aspects that need improvement
3. Actions that would help enhance the effectiveness of the program

Based on the information included in the self-study report and feedback from the individuals who were interviewed, the committee came to the conclusion that the MSEnVE program has been very successful in supporting its mission and achieving its goal, i.e., "To educate and prepare future leaders in the environmental engineering field." The program has gained remarkable national recognition within a short period of time. In 2017, the US News and World Report nationally ranked the MSEnVE program along with the other online program at CSUF (i.e., software engineering) 16th, while also nationally ranking the faculty credentials 3rd among all online engineering graduate programs. Solely based on peer-advertisement, the program has seen a growth of 75 percent in the number of applicants since the initiation of the program in 2012. Currently, with an average acceptance rate of 80 percent, 78 percent of the accepted students enroll in the program. Approximately 70 to 80 percent of the students complete the program in a timely fashion. The rapid growth of the program has resulted in as many as 120 students enrolling in some of the courses offered, which is remarkably higher than the graduate


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class size supported by the Department's policy (i.e., 30 students per class). To maintain the credibility of the program and quality of education, the committee suggests to limit the class size to 30 students, which will also be in agreement with the Department's policy.

The committee found the following aspects as the strengths of the program:

- Only online environmental engineering program in the region.
- Full-time faculty members teaching the courses.
- Coherent dedicated group of faculty members.
- Efforts to make the maximum use of technology to enhance teaching and learning experiences.
- Curriculum structured to address the needs of the students, who typically are working professionals.
- Responsive faculty members with timely, pertinent, and adequate guidance on coursework and career development.
- Consideration and opportunities for professional development of faculty members.
- Flexibility in offering hands-on project work/ thesis for interested students.

Though the program is highly successful, there are rooms for improvement. The committee recommends the following to further enhance the effectiveness of the program:

- Provide guidelines for faculty members to streamline lectures and notes to maintain consistency in teaching style, while ensuring easy flow of information to students.
- Offer deficiency courses in summer to prepare non-engineering students for the MSEnVE program before they enter into the program. These deficiency courses are recommended be completed before enrolling into the MSEnVE program.
- Offer additional elective courses.
- Include more hands on projects.
- Include more environmental modelling and design works in the courses.
- Include exercises that require the use of software typically used in environmental engineering (e.g., MATLAB, ArcGIS, CAD, HEC-HMS, OpenFOAM, WaterGems, and SewerCAD).
- Provide access to environmental engineering software through students' online portal.
- Facilitate peer group interaction right from the beginning of the semesters. Consider organizing an orientation meeting at the beginning of the semester and peer-help discussion sessions before the midterm and final exams.
- Connect to alumni for enhancing learning experience. In coordination with the alumni, organize field trips, tours, and invited lectures to provide hands on/field experience.
- Implement a system for internal evaluation of courses and the program.
- Implement contingency plans for covering emergency situations that may require long-term absence of a faculty. The plan should include options for substitute faculty/lecturer, faculty replacement, sharing of teaching materials, etc.
- Use funds collected through students' online course fee for enhancing learning experience. Examples of such experience include field trips, facility tours, access to software, and professional development of faculty and students.



04/20/2018