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Ahmet Palazoglu  
Chair, Assembly of the  
Academic Senate  
Faculty Representative,  
UC Board of Regents

Academic Senate

Office of the President  
1111 Franklin Street  
Oakland, CA 94607

[senate.universityofcalifornia.edu](http://senate.universityofcalifornia.edu)

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March 26, 2026

Katherine S. Newman  
Provost and Executive Vice President  
University of California

Re: Approval of UCD Online Master of Engineering in Water Resources Engineering

Dear Provost Newman:

In accordance with the Universitywide Review Processes for Academic Programs, Units, and Research Units (the “Compendium”), and on the recommendation of the Coordinating Committee on Graduate Affairs ([CCGA](#)), the Academic Council has approved the UC Davis division’s proposal to establish an online self-supporting Master of Engineering in Water Resources Engineering.

Because this is a new degree title, and the Assembly of the Academic Senate is not meeting within 30 days of CCGA’s approval, Council must approve the program per [Senate Bylaw 125.B.7](#).

I am enclosing CCGA’s report on its review of the new program, and respectfully request that your office complete the process of obtaining the President’s approval.

Please do not hesitate to contact me if you have additional questions.

Sincerely,

Ahmet Palazoglu  
Chair, Academic Council

cc: Academic Council  
UCD Division Chair Russ  
UCD Senate Division Executive Director Arevalo  
Director of Academic Planning and Policy Corona  
Senate Executive Director Lin



Academic Senate

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COORDINATING COMMITTEE ON GRADUATE AFFAIRS

Partho Ghosh, Chair  
[pghosh@ucsd.edu](mailto:pghosh@ucsd.edu)

January 18, 2026

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Ahmet Palazoglu  
Academic Senate Chair

Dear Chair Palazoglu,

At its December 3 meeting, CCGA reviewed the proposal for a self-supporting online Master of Engineering in Water Resources Engineering from the Davis Division. After discussion, the proposal was approved 10-0-2.

The proposed program aims to help water resources engineers expand their skills and knowledge of their discipline or enable others to develop knowledge of a new discipline through advanced study in water resources engineering. The proposed program is designed for, in particular, working professionals who hold an undergraduate degree in civil and environmental engineering or a related field (e.g., other engineering disciplines, or hydrologic sciences) and who are looking to more rapidly advance their career or move in a new career direction. The program will also accommodate recently matriculated students interested in graduate study. This program will consist of asynchronous, online courses such that students can access the materials during times that are not already dedicated to work or personal activities. Students will also have the ability to interact with instructors through synchronous office hours. Depending on the needs of a particular course, discussion boards on Canvas, Slack, etc. can aid in asynchronous interactions, and help to connect students with each other. Given the global need to manage freshwater resources, the program is open and beneficial to local, regional, national, and international students. Given the extensive concerns regarding water resources in the western U.S., and especially California, the program should also have a substantial regional appeal and impact.


The CEE Department has a long history of leadership on water resources

issues of relevance to the State and beyond. The CEE Department was founded in 1965 and was among the original departments of the UC Davis COE. The graduate program in CEE predates the department by three years. Notably, the first cohort of graduate students admitted to the program were in two disciplinary areas, one of which was Water Resources Engineering. The program has since evolved to encompass five disciplinary areas, with water resources remaining a core strength. CEE graduates who focus on water resources have gone on to take major roles at critical state agencies. For example, UC Davis CEE graduates include the current Deputy Director of the State Water Project and the State Climatologist for the Department of Water Resources. CEE faculty have consistently led major initiatives to address water resources issues, including long service as the director of the Tahoe Environmental Research Center (TERC), the Center for Watershed Science (CWS), and the Center for Water-Energy Efficiency (CWEE). Particular disciplinary strengths of CEE include hydrology, environmental fluid dynamics, water resources planning & management, and limnology. While California has no shortage of interesting and critical water resources issues to address, the UC Davis CEE efforts have increasingly taken on global water challenges, from the Arctic to the Antarctic. Building on the efforts of the past, the newest generation of faculty are keeping UC Davis CEE at the forefront of impactful water resources engineering research. The proposed program complements our existing program, in which water resources is a disciplinary area within CEE, but it will bring a more practice-oriented approach to the course content that is tailored to working professionals to provide them with practical knowledge that will allow them to enter or advance in the field.

Four reviewers considered the proposal. Overall, they were generally supportive of the proposed program. However, they raised a number of concerns, questions and suggestions, which are summarized in the Lead Reviewer's report (attached). Also in that report are the responses from UC Davis lead contact Professor Holly Oldroyd, which were substantive, thorough, and persuasive. UCPB also reviewed the proposal and supported its approval. The UCPB review is attached.

CCGA's approval is the last stop of the Academic Senate side of the Systemwide review and approval process except when the new degree title must be approved by the Senate. I submit this proposal for your review; please do not hesitate to contact me if you have further questions regarding it.

Sincerely,

A handwritten signature in black ink, appearing to be 'P. Ghosh', with a long horizontal stroke extending to the right.

Partho Ghosh  
CCGA Chair

cc: Academic Senate Chair Palazoglu  
Academic Senate Vice Chair Scott  
Academic Senate Executive Director Lin  
Academic Senate Assistant Director LaBriola  
Academic Planning and Research Analyst Procello  
CCGA Members  
UCD Dean of the Graduate Division Delplanque  
UCD Senate Executive Director Arevalo  
UCD Senate Analyst Adams

## CCGA Review of UC Davis proposal for a SSGPDP in Water Resources Engineering

### Recommendation

Overall, the four external reviewers are generally supportive of the proposed program. However, they raised a number of concerns, questions and suggestions, which are summarized below along with the response from the UC Davis lead contact Professor Holly Oldroyd. Professor Oldroyd's substantive response is thorough and persuasive. I recommend approval of the proposed program.

Neil Gilbert  
CCGA Lead reviewer

### Summary of External Reviewers' Major Concerns, Questions and Suggestions:

#### CONCERNS

- A. No discussion of how to manage academic rigor within a fully asynchronous online program in the age of AI – particularly for a capstone project involving a “topical review,” Will there be proctored testing? These are challenges in education at nearly all levels and for all types of programs and disciplines. Canvas has detectors for AI and plagiarism that will be used. However, we acknowledge that AI is getting increasingly difficult to detect. Specifically regarding the Capstone: The structure of the capstone should reduce the likelihood that a student would use AI and if so, undetected. For example, the written portion will be stratified from beginning to the end including how to find sources, how to read papers and synthesize information, creating an annotated bibliography, drafting outlines, and then by sections with intermediate deadlines and deliverables. Basically, there will be a lot of assignments as opposed to one paper they turn in at the end. The theory is that by breaking it down into smaller pieces and incorporating peer review it will not only help with the writing training, but it will also discourage reliance on AI. This approach works well in our in-person Capstone where we see little to no AI use because we can see the improvements over the course of the quarter and the imperfections in the final version. In addition, there will be peer review and an online presentation with Q&A where they will be expected to demonstrate some depth of knowledge on the spot. We also presume that students want to participate and learn a new topic—likely beneficial to their job/career objectives—and use it as an opportunity to practice communication skills. At the end of the day, we assume that students will come seeking knowledge and skills, especially currently in jobs or looking to change careers. There will not be proctored testing.
- B. Concern about staffing the program with faculty compensated for taking on overload. The proposal does not seem to take sabbaticals and research buyouts into consideration or the difficulty of faculty maintaining a long-term commitment based on course overloads. Some lack of clarity about whether teaching in the program can be used as course buyouts from the state supported programs, and if so the implications. The program will be offered by faculty or working professionals (which could include postdoctoral scholars) with a generous incentive program. We think this will provide enough instructors to maintain the program. Changing instructors will work fairly smoothly since much of the online material (if not all) will have been developed already. Not all faculty will offer courses as an overload and may have the opportunity to instead buyout percentages of a normal load at the Department Chair's discretion, as detailed in the proposal's compensation plan. Also keep in mind that teaching an overload in an online program with materials that are already developed, will be a much smaller addition one's teaching load than an overload with in-person courses would be. TA

support can also help reduce the overall effort required as the program grows. It should be noted that research buyouts are not the norm and rare for CEE at UC Davis.

- C. Concern about the mechanics of online advising and mentoring of students, particularly those who may come least prepared. How will the program support students with backgrounds other than CEE or hydrology? Also, how to compensate for the lack of personal networking in online programs. We will have a graduate advisor (staff) for the program and one faculty advisor per 15-20 students, similar to our in-person course-based MS program. With the program structure, there are not too many options needing a lot of individualized advising for coursework. Students with non-engineering backgrounds will have to take background undergraduate courses (or demonstrate proficiency in those topics) either prior to starting or concurrently in the first few quarters. These background courses (or equivalents) can be taken at any accredited university either in-person or online. To compensate for the lack of personal interactions. Students will be invited to the Society of Water Resources and Environmental Engineering Graduate Students (SWEGS) annual Showcase. This is a half-day event with faculty, graduate students, and industry/agency professionals. There are typically a few talks, a panel discussion, and poster sessions where the graduate students showcase their work and network. The WRE M.Eng. students will be encouraged to attend. We will also create a dedicated communication platform (e.g., Teams, Slack, or discord community) for students to connect. On an opt-in basis students can choose to share phone numbers etc. for other group chats or more personalized communications. Over time, we can work to incorporate more in-person opportunities, as we have adequate resources to do so.
- D. Is there a letter of commitment for the \$744K departmental startup funding? The committed funds come from the Campus not the Department. The campus approvals provided the checkpoints on this implicitly, especially the review and approval of the budget reviews from UC Davis Budget and Institutional Analysis (BIA) office. We can get a letter if needed.
- E. Table 5 does not include a few programs, such as Sacramento State that serves working professionals in the region and Stanford (M.S. in Civil and Environmental Engineering). To our knowledge, these institutions do not have a dedicated online master's program in Civil and Environmental Engineering or Water Resources Engineering. Stanford offers online courses for a certificate but not a full program (at a cost of \$65,000 minimum), and Sac State offers some in-person MS courses in the evenings to accommodate local working professionals.
- F. Current curriculum does not appear to include many environmental and ecology components -- an important realm of understanding for contemporary water resources engineering needs. We agree that ecology is an important aspect for water resources engineering. As such, some courses will include ecology-related topics, for example, Water Quality, Water and Environmental System Engineering, Hydrology, Applied Water Resources Simulations, Water Resources Management, and potentially others. There is no way that a graduate program in Water Resources Engineering can cover all relevant and important topics, and the Capstone provides an avenue for students to explore any of these. It should be noted that before we started the proposal, we sent a list of proposed course descriptions to several local industry/agency contacts and asked for feedback on topics/skills they see necessary but might not be included. Everyone we communicated with was very positive about the proposed courses and thought the program would be highly valuable to their respective agencies/companies.
- G. For financial aid, having only 5% return to aid seems low considering that the UC requires graduate programs that have PDST to return 33% to aid (only from the supplemental tuition, however). The current SSGPDPs at UC Davis are not transparent and so benchmarking this value is difficult. Since we have no state support, we encompass all the risks. First, we need to make sure the program is

viable and later, we can readdress this percentage as the program grows. PDSTs are specifically linked to state programs and all that entails in terms of financial risk ownership. It's worth reiterating that the program and budget model have been approved by BIA and at the campus level.

## QUESTIONS

- A. Are international students allowed/encouraged to enroll while overseas? Yes. Providing opportunities for international students to learn the principles of water resources engineering is one of the benefits of having an asynchronous program, especially during times when visas may be more difficult to obtain. Students from certain countries might not be able to enroll, and we will work campus partners for the appropriate approvals. The Continuing and Professional Education program (CPE) is leading this effort.
- B. Will synchronous office hours be adjusted to allow for various time zones? Yes, as much as possible. We will look at the enrollment and try to accommodate as many students as we can within reason. However, students will know they are enrolling in a program that is based in California and should have reasonable expectations for this. For some, office hours may be at less desirable times.
- C. What structured opportunities will allow students to network with each other? The level of structured opportunities for students to network with each other will vary by course, depending on the needs of the course and abilities for times to align between students. We can set up other avenues for those who want to work together can (see above). Some of this will happen in office hours. The Capstone will have peer review components that will also provide structured interaction. That said, this is an asynchronous online degree program, not a hybrid program, and so we don't want to impose synchronous interactions if that is something that a student doesn't want or cannot accommodate for whatever reason.

## SUGGESTIONS

- A. Course sessions and projects, supplemented by regular in-person courses and meetings that are held over a weekend. Requiring in-person could limit those who can benefit from an online program and would create inequity issues. That said, we certainly see the value in having some in-person courses/units. As the program evolves, we may be able incorporate in-person courses or activities on a weekend. This would likely require with additional costs to students such that we can sustain the personnel required for meaningful efforts. We have discussed various opt-in opportunities for in-person or direct student interactions above.
- B. Capstone projects involving work with industry partners. Industry partners can be hired as instructors for the Capstone. Our in-person MS program has a structured option for students to do a project (under the supervision of a faculty advisor and one less course) vs the structured Capstone course. For the Water Resources and Environmental Engineering students, about 30-50% choose the Capstone course over the project or traditional M.S. thesis route. We have considered this choice approach and one versus the other for the online M.Eng. We certainly see different benefits of the industry project approach in terms of practicing new knowledge from the program in projects. However, many working professionals already have project experience (though not necessarily with new knowledge), and someone coming straight from an undergraduate program might not. We also see benefits for the Capstone course in terms of formally learning and practicing various forms of communication skills. Ultimately, providing students the choice between the two might be best option long term. However, this will be difficult to administer in terms of having enough industry partners, having a standardized scope, and ensuring that a student is not just doing their regular job for credit in the program. Ultimately, we decided to start with the Capstone course for these reasons, but providing the project option

could be something we add at a later time when the program grows, has a higher profile, and we can financially support more staff, faculty and TAs to support those efforts.

Reviewer #1 E

The proposal is well-written, grounded in the needs of the water resources engineering industry and community, and rooted in the expertise of the department that is recognized throughout the U.S. and globally. The faculty submitting the proposal have built preliminary networks of contributors and demonstrated sufficient research to make a solid case for the program.

Overall, I believe that with some tailoring and potential partnerships, the program can provide a novel contribution that enhances offerings for education in the field of water resources engineering.

1. The long-term sustainability of contributions from faculty is likely to be a challenge and I highlight this as a main point of consideration for the proposed program. The proposal notes that any contributing fulltime faculty will teach courses through overload. While the overload compensation is competitive, given that faculty in the department are likely already very busy, it's not clear that this is sustainable. Based on my experiences in several universities engaging faculty in externally funded projects through summer salary and overload, maintaining long-term faculty commitments may be challenging and assuming that can happen for all full-time faculty contributors across 6 years is optimistic. There is no accommodation in the proposal for sabbaticals or research engagements that typically divert faculty. By years 4 or 5, the committed full-time faculty may not be able to fulfill overload contributions. We will have industry partners, faculty from other universities (there is no reason they must be UC Davis faculty), and sometimes postdocs to help fill in the gaps. Once the material is generated, the teaching effort will likely be lower than that for a traditional class given that there will be no need to prepare for or give lectures. Additionally, not all will choose to teach as an overload, some will be able to negotiate with the Department Chair to potentially buy out courses.

As a remedy, I would suggest that in later years, the budget include hiring of full-time teaching faculty who could cover several courses and reduce the need for other department faculty overload. This would reduce revenue, but it appears that the program could still result in net revenue generation and likely be more sustainable. The provost is considering ways that the revenues from a SSGPDP can be used to hire a Professor of Teaching to teach several courses in the program. That said, we also want to provide students with a diversity of faculty expertise and experience. Basically, we want students to take classes from more than just 2-3 different instructors throughout the program.

2. Related, within the description of Diversity, Equity, and Inclusion offerings, it's not clear that the proposed support will be adequate. In my experience with online courses that serve first-generation and underrepresented students, it is very challenging to connect with such students online. Serving underrepresented or first-generation students requires more attention and time. I would anticipate that to truly address needs of underrepresented students, a dedicated program advisor would need to provide additional support for qualified students across the cohorts. We have a dedicated program advisor in the budget. We will accept students with an undergraduate degree with a GPA above 3.0 to ensure they are likely to be successful in the program.

Within the proposal, I did not see a mention of Individualized Learning Programs (or similar terminology used at UC Davis) noted. Are such resources available and anticipated? The program will have a staff

program advisor as well as faculty advisors to help students plot their programs of study. We have a fairly structured curriculum and so there is not much to personalize. Additionally, students will have access to many resources that our campus students have in terms of library support, mental health wellness support, writing center support, faculty office hours, etc.

The estimated student to faculty ratio is not noted in the proposal, but numbers of faculty and students are noted. The actual ratio will likely vary between classes and when students choose to take them.

3. The program description includes no details for assumptions of likely attrition, though the budget does. What would be the expected attrition from an online program? Is there a plan to help with this? Is the 7.5% attrition assumption benchmarked in data for online curricula? This is the best estimate we got from CPE. Of course, we want to limit attrition and will gain as much information from students and faculty as we can to revise the program as needed and if possible.

4. For short-term funding, it is noted that \$744k of funds will be available in year 1 from the department for startup expenses. Was this detailed in the proposal? I did not see a letter of commitment that specified these funds in the appendix. Such funds would be needed for marketing, preliminary curriculum development, and other expenses prior to the first cohort. These funds are from the Provost's Office and are implicitly committed since the program has been approved at the campus level. We can get a letter if needed.

By comparison to other programs as described in the proposal, the proposed tuition rate is high. The program will need to demonstrate unique value to attract students. Additionally, as noted previously in these review comments, the program may need to hire or identify a dedicated full-time faculty member to cover some courses. This would reduce revenue, but sufficient revenue seems to remain to continue the program. We considered the question of tuition rate extensively. There are many different models out there like charging for cheaper 1-unit modules (UC Berkely), to having the lowest cost to attract the highest number of students (computer science at Georgia Tech), to having higher costs but fewer students. The rate we chose is comparable to online programs for CEE in California which has a wide range (e.g., UC Riverside \$38k - \$71k at USC). We believe that with UC Davis's reputation in Water Resources Engineering and the State of California's innovation on water issues (centered largely in Sacramento), we can pull from a unique, local expertise that creates extra value in our program that will be attractive to students.

5. Other Suggestions: Related to the observation on the relative program cost, one suggestion for the program proposers to consider is some arrangement for in-person offerings during the degree. As an example, the University of British Columbia's professional Masters in Public Health program includes a distributed option, with online courses and projects, supplemented by regular in-person courses and meetings that are held over a weekend. This type of arrangement better supports a very important benefit for graduate studies: networking. In-person offerings help create a closer cohort of student colleagues that can have lasting effects for careers. While in-person attendance may not be achievable for all, there could be various ways to incorporate. This could be one way that the program enhances its unique value. We responded to much of these questions above, and it is something we could have expanded upon more in the proposal. To further supplement for courses, we could create a M.Eng.-specific event with the with the annual SWEGS Showcase if there is a critical mass of online students who RSVP. This could include a fieldtrip to see local water infrastructure and/or a networking coffee with students and instructors. This additional add-on for the showcase is something we can incorporate in the first year or later depending on



foundation in how to write a term paper. Since COVID-19, many undergraduate programs cut back on their writing instruction, and many entering students need rudimentary help in how to write. The program's capstone will culminate with a written report and oral presentation, but how much writing instruction and iterative feedback will be provided to the students? The document says students "will receive training in technical writing" but how will this be accomplished? My many experiences with peer feedback on writing finds that it is generally more "cheerleader" like than fully constructive. In my experience, only very dedicated, iterative, professor involvement with draft upon draft is able to improve writing, and this time commitment is very hard to scale with class size. It is also hard to document and reward the instructor time commitment here. What we hear regularly from our advisory committees is that they want students who can understand deeply and communicate well, but these are very hard things to teach, particularly when many students do not have the same baseline writing experience as students of ~10 years ago. Some of these questions regarding the Capstone are addressed above with additional specificity here. The writing instruction will include reading assignments and discussions on crafting research, structure of a paper (from sections down to sentences), story arcs, word choice for scientific writing, etc. Intermediate assignments where they can apply the new information from class throughout the quarter will help them learn the process of writing. For example, a poster will help them start to synthesize information and organize ideas into a story. Another example is having individual sections of the written assignment due throughout the quarter with peer-review and revisions, will help them learn and practice skills in steps over the quarter. They will have a presentation with Q&A with the expectation that they have gained knowledge on their topic. Peer-review will be assigned and so can be monitored for quality (and graded) without too much work (cheerleaders are usually easy to spot). As the program grows, TA support will help, and additional sections/instructors can be added as needed. This course is a great course for Postdocs to gain some teaching experience and a great opportunity for involvement with industry partners.

Beyond writing, AI is also capable of reading and summarizing papers and of generating computer code and appropriate analysis and discussion to go with it. I taught a fully-online snow modeling class this past quarter, and was amazed at the level of AI-generated work turned in. Class design and development must take this in mind and must carefully think about the learning objectives and the most fair and efficient way to assess these objectives. Many students enrolling in online programs have a myriad of other commitments (work, family, etc.) and decide to cut corners in the online class in ways that seriously detract from their learning. This is a major challenge to maintaining academic rigor. We agree, and we know that what this looks like exactly will vary between courses. This is an issue we are trying to understand and manage for all aspects of teaching and even research at the university broadly—graduate, undergraduate, online, and in person.

A second concern is how will the program support students with backgrounds other than CEE or hydrology. The report states that the program will encourage diversity, and that there will be a list of prerequisites, and that counselors will meet with students to explain what additional classes to take and what might count as substitutions to get students with a variety of backgrounds into the program. Our MS program is very popular with students who did not get a BS in CEE but who want to enter the work field in engineering. Therefore, we have an extremely wide range of backgrounds. This is something to think through in designing the program, as there is a tremendous workload in (a) communicating with students about their specific missed prerequisites before entering the program and (b) ensuring that students take any missing classes if they were allowed to enter the program with a contingency. For example, our program requires Fluid Mechanics as a prerequisite, which is not offered in local community colleges, so

we frequently allow students to take Fluid Mechanics their first quarter enrolled. With an online-only program, this sort of thing will be more difficult. We also get MS students with a wide diversity of backgrounds for our in-person program, and those without an engineering degree can take some of those prerequisite courses concurrently with graduate courses (this is why we call them *background courses* and not prerequisites in the degree requirements). These background courses are a part of their MS degree requirements and can be waived by a faculty advisor if the student can show they proficiency in fundamental material, by the topics being covered in other courses they have on their transcripts. We are taking a similar approach for the online program. We also want to recognize that incoming students may have gained necessary proficiency from work experience. For example, if someone with an B.S. in environmental science has been working with on hydrological or hydraulics projects for several years, they probably have a sufficient background in fundamental fluid mechanics. This would be assessed by a faculty advisor, likely in conversation with the student regarding their knowledge and confirmed with their employer. Students without an engineering degree, can take background courses from our institution or another program from an accredited university. If students are parttime, the concurrent enrollment in a background course doesn't make sense. Ultimately, we want the students in our program to be successful and part of that is assessing their readiness, while not creating excessive barriers.

Finally, I would recommend checking out the UCSB Bren School Master's program, with their capstone project. They have industry partners with real problems, and the industry partners invest in the advising and collaboration of the students. This is substantially more work than what is outlined in the UC Davis proposal, but I believe the Bren School approach offers potentially more resilience to the rise of AI, particularly if the students' current employers are invested in the projects and results. [The Bren School does have a great capstone. It is something we are considering as the program grows and we better understand the students' needs \(see additional comments regarding this question above\).](#)

- **Adequacy of the size and expertise of faculty to administer the program**

I think that the size and expertise of the faculty is sufficient to administer the program as it was envisioned, but I think that it may not be sufficient given the real issues I have outlined above. How will program faculty members of the capstone committees be compensated? How will faculty who advise prospective students with varying backgrounds and prerequisites be compensated? [See above regarding faculty size.](#) Regarding the Capstone committee compensation, this will be addressed depending on the amount of effort as per the compensation plan.

Additionally, neither "senate faculty" nor industry professionals have substantial skills and training in online specific education. How will these skill sets be developed and supported? Particularly if there is a rotating cast of instructors? [The development of online material will be done in partnership with the UC Davis Continuing and Professional Education \(CPE\) They will help generate compelling online material and train instructors in online education. The asynchronous online material will be the foundation. Instructors will hold office hours and interact directly with students in a similar way as we do for all our courses. Instructors can also work with the UC Davis Center for Educational Effectiveness to learn additional skills and strategies. They will provide individual consultations if desired \(many of our CEE faculty have done this, including some of us leading this M.Eng. proposal\). They will also create a faculty group training/workshop if we request. They have done this for many specific topics over the years.](#)

CPE website

[https://cpe.ucdavis.edu/?utm\\_medium=DIS&utm\\_source=GA&utm\\_campaign=BRANDCAMPAIGN25&sf=DIS&tracking=BRANDCAMPAIGN25\\_DIS\\_GA\\_DEMO\\_NA\\_NA\\_ProspectiveStudents&utm\\_content=NA\\_GA\\_DEMO](https://cpe.ucdavis.edu/?utm_medium=DIS&utm_source=GA&utm_campaign=BRANDCAMPAIGN25&sf=DIS&tracking=BRANDCAMPAIGN25_DIS_GA_DEMO_NA_NA_ProspectiveStudents&utm_content=NA_GA_DEMO)

Center for Educational Effectiveness website: <https://cee.ucdavis.edu/>

- **Adequacy of the facilities and budgets**

Similar to my answer above, I believe that facilities and budgets are sufficient for the program as outlined, but if the program is to maintain academic rigor, more finances likely need to be devoted to writing instruction and to human contact hours to actually teach and adequately evaluate the students. We have set out the plan as best as possible at this stage but do recognize that we may need to make revisions and strategize to optimize student experience, maintain financial viability, and retain/recruit instructors. Specifics are addressed throughout.

- **Applicant pool and placement prospects for the graduates**

The program's applicant pool will likely vary widely depending on how much the program is able to accommodate students without an undergraduate engineering degree. This tradeoff should be assessed. Regarding the plots of available jobs for graduates, which say that more than 6 jobs are available for every M.S. graduate, I am suspicious about the relevance of these calculations to the real world. The numbers for Washington state say we have 36 jobs per graduate, and while our students generally all get jobs, they usually don't have such a wide range of selections. (They generally have 1-2 potential jobs per graduate.) We are relying on the market assessment from CPE for these estimates because it is not our expertise. Their analyses show it is achievable.

With regards to placement and professional networks, I am unclear how online guest lectures expand students' professional networks. Most students do not stay on zoom to chat. Networks, in particular, rely on in person connections, and I think that finding a way to make these in person connections is critical to success in this aspect of any online program. For example, having a few days to a week in person gathering (like a conference) for students to present their capstone projects and meet employers would be a critically important program asset. This could be timed when undergrads are away and there is space to house people on campus inexpensively. In our programs, we have found that nothing online is able to replace the value of in person connections. See above responses to similar comments.

XX

Reviewer #3 T

Overall this is a strong proposal. Some questions/suggestions are described below.

**Quality and academic rigor of the program**

The program will consist of asynchronous courses delivered through the *Canvas LMS*. Synchronous office hours will be offered. The courses provide both breadth and depth for a focus in water resources

engineering, including computational hydraulics, water quality, and hydrology. Students must take 5 required courses and 4 electives (4 units each) for a total of 36 units. The proposed 3 quarters (9 months) to complete the degree at full-time is comparable to other Master's programs requiring 3 quarters or 2 semesters (9 months).

The current in-person M.S. degree in CEE at UC Davis requires 9 courses, each 4 units, for a total of 36 units. Students focusing on Water Resources and Environmental Engineering in the in-person M.S. program are required to choose 3 courses from a list (compared to 5 for the online M.Eng.), and the rest are electives. The current M.S. targets recent B.S. graduates and emphasizes theory and research skills, while the new M.Eng. degree will be more applied and target students who have some work experience in the field.

**Academic integrity** is important to address especially given the online administration of the program. There should be more discussion of this given the ability of AI to complete engineering assignments, including the advanced mathematics, modeling, and writing required at the graduate level. The proposal indicates that *“assessment will generally focus more on student projects and assignments and less on high-stakes exams”* and that *“instructors will be encouraged to use assignments in which students submit video essays or presentations to help verify identity.”* The proposal also says *“Most projects will take the form of a topical review”*. This needs further clarification and attention. Video submissions may help but can still be scripted in advance and could be time-intensive to review. A solid evaluation of students' quantitative skills (including computational skills) and qualitative skills is needed for a robust M.Eng. program. [Yes, this is a challenge. See our above responses.](#)

Questions:

- Will there be proctored testing? How else will student learning be robustly evaluated? [There will not be proctored testing.](#)
- Will M.Eng. students be allowed to continue for a Ph.D? [Students can apply to the Ph.D. program.](#)
- The M.Eng. has 5 required courses instead of 3 for the current M.S. (the rest are electives). Will this be changed after more online options are developed? [Potentially. We will evaluate the program yearly and consider student evaluations. We will make updates to the degree requirements as needed.](#)

### **Adequacy of the size and expertise of faculty to administer the program**

There are 8 faculty and 1 emeritus faculty who are committed to participating in the program and have the required expertise. The classes required for the M.Eng. are half taught by faculty and half by professionals in the field, and these are based mostly on existing courses.

Coordination with faculty currently teaching those courses is needed. More of the electives will be taught by faculty.

Faculty will create and **teach classes on overload**, where teaching *“counts as a Category II outside activity and as part of the allowable outside activity time commitment.”* Faculty are compensated similar to teaching a summer course or outside consulting. The proposal later says that *“Senate faculty may also be able to teach in the WRE program via buyout of other course commitments”*, but later it says *“we do not anticipate any course buyouts (i.e., reduced teaching in the state-supported program).”* Later again the proposal says, *“Faculty participating in the SSGPDP may choose to teach courses as buyouts or as an*

overload with financial compensation (see [Appendix E: Compensation Plan](#)), with the expectation being that most are taught as overloads.” This needs further clarification. [We have a response to this question above.](#)

Questions:

- Why is buyout allowed? Won't it hurt the state supported programs, where faculty are already expected to teach 1 course per quarter? Allowing buyouts and then hiring lecturers to staff courses for the current in-person M.S. or for current undergrad courses doesn't seem like a good outcome. The new M.Eng. will also put extra teaching burden on faculty – despite being compensated for the teaching, it may reduce research progress and mentoring of graduate students. [Buyouts must be approved by the Department Chair ensuring that neither the undergraduate or graduate teaching suffer. There is currently room to support some of this because buyouts are rare in our department. In addition, once the course material is generated, teaching an online course will be less time that a traditional lecture course, so an overload is not a full overload. We can use SSGPDP funds for a lecturer. We have found that lecturers we attract are often great instructors.](#)

### **Adequacy of the facilities and budgets**

The online program will not require on-campus facilities except for job fairs or the annual student showcase which are existing events. The courses will require additional TA and reader support at about 10 positions per year.

Questions:

- Will in-person students be allowed to take the online courses as part of their CEE degree? Especially for new courses that don't exist in other forms on campus, there may be interest. Will there be a separate tuition charge for these students? [It is currently unclear what is/not allowed per campus policy on this. Generally, our M.S. students can take up to two non-engineering courses but that is not the same question. The M.Eng courses will have new course codes to differentiate them, but if the classes are similar, on-campus students should take the in-person version. However, we will offer some different classes that may be of interest to our on-campus students. This is something we should seek for Campus directive on.](#)
- Is tuition prorated based on # of units taken each semester? [Yes.](#)
- Does tuition change over the years for those who wish to spread out the courses? [Ideally, no, but may change.](#)
- Is there a time limit to complete the degree? [Time to degree limits are set by Campus policy. However, they may make SSGPDP-specific policy if more programs exist.](#)
- Is there an in-state vs out-of-state tuition difference? [No since it is not state-supported.](#)
- Are the online students who have taken a course allowed to be a TA or reader the following year? [This is something to consider and may be a great pool for TA/reader candidates. We are not aware of a campus policy for SSGPDP students for being TAs.](#)

### **Applicant pool and placement prospects for the graduates**

The estimated enrollment of **54** students per year seems high. The current in-person M.S. degree has 29 students in water resources or environmental engineering *combined* – but this includes water quality, air quality, fluid mechanics etc. [We are relying on the market assessment from CPE that says it is achievable.](#)

We expect to get a different pool of students for the SSGPDP, and the current in-person enrollment is not necessarily reflective of the potential enrollment.

For financial aid, having only **5% return to aid seems low** considering that the UC requires graduate programs that have PDST to return 33% to aid (only from the supplemental tuition, however). We commented on this above in terms of state support and risk, but it is something we may be able to increase over time.

There should be a discussion of **international students** in the proposal, regarding remote engagement while overseas, access to synchronous activities, etc. No data on international students was included in the enrollment estimates either. We discussed this more above but will accommodate as many students as we can within reason.

**Job placement** prospects seem good at the California state level in particular given state needs in water resources. The program will invite students to in-person career fairs for those able to access those. The program will also provide potential connection through lecturers who are professionals in the field. International students will not benefit from these in the same way.

Questions: We addressed these three questions more thoroughly in the summary.

- Are international students allowed/encouraged to enroll while overseas? **Yes.**
- Will synchronous office hours be adjusted to allow for various time zones? **As much as possible.**
- What structured opportunities will allow students to network with each other?

XX

Reviewer #4 R

Overall, I am pleased that UC Davis is floating this program as the market analysis seems to indicate the need. It will also help the Department – and the University – widen its impact. I am supportive of this proposal.

You had asked for my thoughts on the quality and academic rigor of the proposed program, the size and expertise of faculty, the adequacy of the facilities and budgets, and how well the proposal addresses the information called for in the reviewer guidelines. I will respond to these items briefly.

(1) Faculty Teaching and Advising

I find the faculty teaching and advising to be reasonable. The instruction is augmented by practitioners from industry and state agencies who I assume will be paid the same overload rate. **Yes, they will.** The inclusion of external instructors will be an important aspect of this program as running the entire program on tenure and tenure track (T-TT) faculty will be too much of a burden on them. The T-TT faculty would need to do some whetting to make sure that all the instructors are delivering courses at a level that is reflective of the standards of UC Davis so as to maintain the reputation of the program. **The course development will be overseen by T-TT faculty.** I see evidence of mentorship support provided by experienced faculty for some beginning instructors, and this will be very important for the future of the program.

(2) Faculty Advising

Funds for a managing director for this program have been budgeted. The proposal states the “ default compensation for the faculty program director is in terms of course release. It is assumed that proper oversight of the program will require one course release for the faculty program director...” I think this would be fine but may have to be revisited with time especially if the scope of this position may evolve. At present, the faculty advising and the support for the 4-credit course capstone course seem adequate to me. *We will certainly revisit many aspects over time, including the director compensation and duties.*

(3) Facilities and Staff Support

I think facilities are not a consideration in this program. There seems to be adequate provision for support for additional TA support based on enrollment numbers.

(4) Financial Accessibility

The financial program articulated in the proposal is well thought out. “CPE will provide marketing efforts to attract students to the program...The Department will provide all related content information and ensure the rapid response to changes in the market for the demand of the content. Department will pay for costs out of the program budget.” I did not see this explicitly in the program budget. Marketing costs can be very significant especially in the first few years despite the program’s reputation and high ranking. Secondly, as the program is building up and working towards equilibrium numbers, it would be important to support the instructors with TA resources even if the enrollment numbers are not reaching target values. *The budget is difficult to parse. Revenues from the program, as it develops, can be used for TA/reader support. We can structure this over time as we see needs and we see in what ways TAs can be the most impactful.*

Impacts on Related State-supported Programs

I agree with the proposal that the program will primarily target and benefit those populations that would not come to the campus for a regular MS degree. Thus, current state-supported programs should remain largely unaffected.

(6) Admissions Criteria

Given that the admission process is the same for this proposed program as it exists for current applicants, I see no issues with admission criteria.

(7) Financial Viability Analyses

I have no questions with the financial viability analysis except to caution about marketing costs as note earlier. If the Department has to bear these costs, there should be a plan in place. *Campus has committed to the marketing costs.*

Further points for consideration:

- The ability to offer courses in summer would help both with reduced graduation times for learners and provide instructors to earn/supplement their salaries in summer. *This is a good point and something we can consider as the program grows, but for now, we want to keep resources targeted on the academic year.*
- Similarly, the ability to offer capstone course in all semesters would be a plus. *We worked it out and with the current model a student can take it in their last or second-to-last quarter. That said, as the program grows, offering it every quarter might make sense, and it’s something to consider. It would help keep the class sizes manageable if/when we have a much larger program.*

- It was not clear to me if on-campus students could take these courses meant for online learners, and how that would affect the program. We discussed this more above, but the answer is not currently clear in terms of Campus policy.



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Academic Senate

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UNIVERSITY COMMITTEE ON PLANNING AND BUDGET (UCPB)  
Robert Brosnan  
[rjbrosnan@ucdavis.edu](mailto:rjbrosnan@ucdavis.edu)

November 13, 2025

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CAMPUSES

- Berkeley
- Davis
- Irvine
- UCLA
- Merced
- Riverside
- San Diego
- San Francisco
- Santa Barbara
- Santa Cruz

Partho Gosh  
Chair, CCGA

RE: UC Davis Master of Engineering in Water Resources Engineering Self-Supporting Graduate Degree Program Proposal

Dear Partho,

MEDICAL CENTERS

- Davis
- Irvine
- UCLA
- San Diego
- San Francisco

UCPB reviewed the proposed self-supporting, fully online M.Eng. in Water Resources Engineering at its October meeting and recommends approval. The program is professionally oriented with a capstone, targets working professionals, and is projected to become self-supporting by Year 3 with significant net revenue thereafter. Before final approval, the campus should reconcile inconsistent enrollment projections (54 vs. 48 students), ensure adequate budgeting for increased library digital-resource demands, and confirm sufficient senior-faculty involvement given that only two assistant professors are currently listed for developing nine new courses.

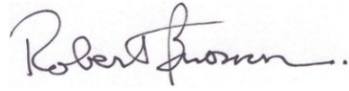
NATIONAL LABORATORIES

- Lawrence Berkeley
- Lawrence Livermore
- Los Alamos

Although the proposed program differs markedly from the existing state-supported, research-focused, in-person M.S. in Civil & Environmental Engineering, members nonetheless noted substantial overlap in water-resources content and that the self-supporting program would repurpose materials originally developed with state funds. In light of this overlap and the current fiscal climate, the committee raised a broader policy concern that self-supporting programs with similar learning outcomes could, over time, enable the displacement of state-supported offerings.

With these caveats, UCPB supports approval.

Sincerely,

A handwritten signature in black ink that reads "Robert Brosnan." The signature is written in a cursive style with a period at the end.

Robert Brosnan  
Chair

cc: UCPB

**UCPB Proposed Self-Supporting Professional Degree Program Review  
Template**

Name and Location of Program:

**Master of Engineering (M.Eng.) in Water Resources Engineering,  
UC Davis, College of Engineering (COE), Department of Civil &  
Environmental Engineering.**

Lead reviewer(s):

**Richard Desjardins**

Academic justification:

**The program aims to provide advanced education and training in water resources engineering for working professionals and others through flexible, online delivery. It addresses critical state, regional, and global challenges in sustainably managing freshwater under current and future climate stressors. The curriculum emphasizes a mix of fundamental and applied topics, including management approaches, project management, communication skills, and hands-on experience with industry-standard models in hydrology, hydraulics, and systems engineering. It includes a tailored capstone experience for synthesizing information, critical thinking, and technical communication. Instructors include UC Davis faculty, industry experts from consulting firms, and professionals from agencies like the Army Corps of Engineers and the CA Department of Water Resources. The program offers a minimum 9-month time-to-degree for full-time students, with flexibility for part-time study.**

Planning and Budget overview:

1. Proposed initial tuition and any rate of increase:

**Initial total program tuition is \$40,000 (\$1,111 per unit for 36 units). The budget assumes constant tuition for simplicity, but modest periodic increases are anticipated to align with rising program costs, subject to UCOP approval procedures.**

2. Target enrollments for years 1-3:

~27 (about half of target)	Progress to target	54
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3. Projected net revenues for years 1-3:

(\$15,577)	(\$49,194)	\$68,639
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**Note: These are net program income figures after expenses (e.g., faculty compensation, staff support, course development, financial aid). The program is projected to become self-supporting by the end of Year 3, with positive net revenue thereafter. Cumulative payback of initial campus investment occurs within the first 5 years. By Year 5-6, annual net revenue exceeds \$900,000.**

4. Proposed indirect cost rate (IDC):

**Not explicitly stated as an IDC rate. Revenue sharing is outlined in the MOU: Net revenue to the unit (College of Engineering) is split 80% to the Department of Civil & Environmental Engineering and 20% retained by the COE Dean’s Office. A standard SSGPDP assessment covers campus services like Canvas access. Student Services Access Fee (Level II) is included in the budget at \$37.50/student/year for library usage.**

Detailed areas of review:

5. How was the proposed IDC rate determined? Does the proposed rate appear to cover all indirect costs (facilities, IT, etc.)? What are the space needs of the program?

**The IDC rate is not explicitly determined or labeled as such in the proposal. Revenue sharing (80% department/20% college) and assessments (e.g., Student Services Access Fee for library and IT) are used to cover indirect costs. The rate appears to cover facilities, IT, and other overhead via these mechanisms, as the budget includes allocations for instructional design, enrollment management, and campus services like Canvas. Space needs are minimal to none, as the program is fully online with no on-campus classroom requirements. Recording facilities are provided through CPE**

(UC Davis Continuing and Professional Education) and UC Davis Academic Technology Services.

6. What are the proposed uses of net revenues? How will they supplement [enhance] state-funded programs? Are there other ways that the program, if successful, will benefit the UC mission (e.g., filling a need not covered by state-supported programs)?

**Net revenues will fund program operations, including instructor compensation (senate and non-senate faculty), staff salaries (e.g., graduate program coordinator at 50% FTE, accounts manager), TA/Reader support, course development/refresh, marketing, enrollment coaching, financial aid (5% return-to-aid), and payback of initial campus investment. They will enhance state-funded programs by providing overload compensation to faculty, allowing them to maintain teaching loads in existing undergraduate and graduate programs while generating additional resources (e.g., discretionary funds for research). The program benefits the UC mission by filling a gap in online, professional-focused water resources engineering education (no other UC campus offers this), promoting accessibility for working professionals, and addressing societal needs like climate-resilient water management not fully covered by state-supported programs.**

7. How are any potential negative impacts on state-funded programs and the research mission of the UC mitigated?

**Faculty primarily teach on an overload basis (counted as allowable outside activity, up to 312 hours/year), ensuring no reduction in state-supported teaching loads. Senate faculty oversight and industry instructors minimize reliance on existing faculty. No new tenure-track hires are needed, and the program uses non-state funds. It has no significant adverse effect on the in-person state-supported MS program in Civil & Environmental Engineering, as it targets different audiences (working professionals via online modality). Research mission is unaffected, as overload teaching is similar to summer courses and revenues benefit existing programs.**

8. Describe disposition and compensation of **faculty** serving the program. What is the proposed ratio of UC Senate faculty to non-UC adjunct faculty? For the former category, differentiate between ladder rank and P/LSOE. How will UC Senate

faculty be compensated? On-load (i.e., course buyout), overload, or some combination thereof?

**Senate faculty (primarily ladder-rank; no specific differentiation for P/LSOE) provide oversight, develop/teach about half the courses, and serve on committees. Non-senate/adjunct faculty (up to 5 part-time lecturers from industry/agencies) teach the other half. Ratio: Approximately 50% senate to 50% non-senate. Senate faculty are compensated via overload (default, as "off-load" outside activity) or on-load buyout/swap (1/8th of academic year salary/benefits, per COE policy). Compensation examples: \$30,000 for new course development (4 units), \$20,000 for teaching (adjusted for TA/Reader support), \$20,000 for full refresh. Faculty may opt for discretionary funds instead of salary (up to \$100k limit). Committee service: \$100/hour rate or as campus service (no compensation).**

9. Describe how the program will ensure accessibility and encourage diversity.

Note: these concerns may be addressed through return-to-aid used for need-based fellowships, although programs may address accessibility and diversity in a variety of ways and UCPB does not set a standard return-to-aid percentage.

**Accessibility: Fully online, asynchronous delivery with flexible part-time options (up to multiple years to complete); no foreign language requirement; accommodations for diverse learners through UC Davis Strategic Plan for Diversity and Inclusion. Diversity: Aligns with UC Davis Strategic Vision; targets first-generation/low-income students via outreach to UC/CSU alumni, advertising at diverse institutions, and inclusive high-impact practices (e.g., capstone peer review). Return-to-aid: 5% of budget for need/merit-based fellowships/scholarships. Additional aid: Federal loans (Stafford/Grad Plus up to cost of attendance), external fellowships, employer tuition support. Program monitors diversity metrics annually with Graduate Diversity Officer.**

10. Describe the market analysis used to justify demand and price point for the proposed program. Will the program compete with others in the system? What are projected percentages of California resident, domestic non-resident, and international students in the program?

**Market analysis (by CPE): National demand for master's in water-related fields ~550/year (conservative estimate from civil/environmental engineering completions); job growth 7-13% over next decade; ~10,000 new postings in 2023 (14.6% increase from decade ago); in CA, 6.3 jobs per new master's graduate. Price point (\$40,000) is above median peer tuition (\$27,750) but justified by UC Davis's #1 U.S. ranking in environmental engineering and faster time-to-degree (9 months full-time). Differentiators: Water-specific focus, online flexibility, applied skills. No direct competition within UC (UCLA offers broader Sustainable Water Engineering; no other UC water-focused online). Projected residency percentages: Not specified; analysis assumes primarily domestic (focus on CA/southwestern U.S. demand), with potential international but no breakdown provided.**

11. Describe relevant consultation and assessment from lower levels of review, external assessments of the proposal, and the like.

**Consultations: Unanimous CEE (Department of Civil & Environmental Engineering) faculty vote; letters of support from UC Davis deans, alumni board, students, potential instructors (e.g., industry/agency experts), and other UC programs. Senate review: Davis Division Academic Senate (approved by Graduate Council May 23, 2025); input from Library Committee, Committee on Planning and Budget (concerns on faculty numbers, course development). BIA (Budget & Institutional Analysis) review: Positive on financial viability, but notes enrollment inconsistency, need for refined cost projections, robust financial aid plan. External: Market analysis by CPE; discussions with industry (e.g., Army Corps, CA DWR) for curriculum alignment.**

12. Any other planning and budget concerns?

**Enrollment projections inconsistent (proposal: steady-state 54; BIA notes 48; budget models 54, impacting ~\$200k annual revenue). Initial years show net negative income, with campus investment payback by Year 5. BIA recommends refining costs, building reserves, and robust financial aid during UCOP fee approval. Library: Potential increased demand for digital resources/consultations; allocate revenue accordingly. No new space/equipment needed, but ensure budget covers growing license costs for databases/journals.**

13. Any academic-quality or related concerns to flag for CCGA?

**Faculty load: Only 2 assistant professors listed among core faculty; may need more senior faculty to support promotion/pre-tenure faculty. Course development: Concerns over timeline and workload for creating 9 new online courses. Quality assurance: Senate oversight required; capstone evaluation by 2-member committee (instructor + faculty). Diversity monitoring and online cohort-building provisions should be evaluated for effectiveness.**

14. Are there specific areas of concern that the mandated review after the third year of operation ought to capture?

**Actual vs. projected enrollment (resolve 48 vs. 54 inconsistency); financial viability (net revenue, reserve building, fee adjustments); diversity metrics (enrollment/completion rates for underrepresented groups); faculty workload impacts (overload/buyout balance, negative effects on research/state programs); student satisfaction (online cohort formation, peer learning); academic outcomes (capstone quality, job placement rates).**

Conclusions and recommendation:

**The program is well-justified academically and addresses a critical societal need with strong market demand. Financial projections show self-sufficiency by Year 3, with revenues enhancing existing programs. Concerns around enrollment inconsistencies and faculty support are minor but should be monitored. Recommend approval,**

**with a focus on resolving enrollment figures and strengthening financial aid/diversity plans during UCOP fee review. The third-year review should prioritize enrollment, finances, and diversity outcomes.**