

CERTIFICATE IN PRODUCT MANAGEMENT FOR ENGINEERING LEADERS, ONLINE PROGRAM

Program Learning Outcomes for the Certificate in Product Management for Engineering Leaders

Upon completing the certificate in Product Management for Engineering Leaders, students will be able to:

1. Employ ethical-technical decision making; understand the susceptibility of engineering teams and organizations to ethical failure and devise creative technical solutions that are constrained by ethics-based boundaries.
2. Apply the fundamental principles of data science, machine learning, and statistics to engineering decision making, and cast a vision for product management in an Industry 4.0 framework.

Requirements for the Certificate in Product Management for Engineering Leaders, Online Program

The certificate in Product Management for Engineering Leaders is a graduate certificate. For general university requirements, please see [Certificates: Graduate-Level](https://ga.rice.edu/graduate-students/academic-opportunities/certificates/) (<https://ga.rice.edu/graduate-students/academic-opportunities/certificates/>). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/) (<https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/>). Students pursuing the certificate in Product Management for Engineering Leaders must complete:

- A minimum of 4 courses (10-12 credit hours, depending on course selection) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- A minimum of 9 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- An internship practicum (RCEL 541). Students may substitute RCEL 541 *INTERNSHIP PRACTICUM FOR ENGINEERING* (1 credit hour) with a fourth course (i.e., the certificate elective) worth 3 graduate semester credit hours. If the student opts to take a certificate elective instead of the internship practicum, that elective course must be a standard or traditional course (with a course type of lecture, seminar, laboratory, lecture/laboratory).¹
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the *Policies* tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.

- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor or, where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate's [Official Certifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/) (<https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/>). Additionally, these course substitutions must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Code	Title	Credit Hours
Total Credit Hours Required for the Certificate in Product Management for Engineering Leaders		10-12

Certificate Requirements

Code	Title	Credit Hours
Core Requirements		
RCEL 503	ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0	3
RCEL 504	ETHICAL-TECHNICAL LEADERSHIP	3
RCEL 506	APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS	3
Internship Practicum		
Select 1 course from the following: ¹		1-3
RCEL 541	INTERNSHIP PRACTICUM FOR ENGINEERING LEADERS ¹	
Certificate Elective ¹		
Total Credit Hours		10-12

Footnotes and Additional Information

- ¹ Students may substitute RCEL 541 *INTERNSHIP PRACTICUM FOR ENGINEERING LEADERS* (1 credit hour) with a fourth course (i.e., the Certificate Elective) worth 3 graduate semester credit hours. (See **Please Note** below.) If the student opts to take the Certificate Elective, that elective course must be a standard or traditional course (with a course type of lecture, seminar, laboratory, lecture/laboratory) from the George R. Brown School of Engineering and Computing. Courses offered by the George R. Brown School of Engineering and Computing include the following subject codes: BIOE, CEVE, CHBE, CMOR, COMP, DSCI, ELEC, ENGI, GLHT, INDE, MECH, MSNE, RCEL, SSPB, and STAT. Please see <https://courses.rice.edu> for more information.

Certificate Elective

Please Note

Certificate of Engineering Management and Leadership (CEML) students, pursuing either the *Engineering Project Management (EPM)* or the *Product Management for Engineering Leaders (PML)* graduate certificate, should work with their Program Advisor to identify and clearly document their internship practicum or certificate elective course. When the student opts for the Certificate Elective, the Program Advisor and [Official Certifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/) (<https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/>) should

enter the approved course substitution into Degree Works. Students and their academic advisors should clearly document the course to be taken as they individualize student CEML certificate plans.

Certain restrictions apply for international students:

- Online Certificate of Engineering Management and Leadership (CEML) students, pursuing either the *Engineering Project Management (EPM)* or the *Product Management for Engineering Leaders (PML)* graduate certificate, that are international students living outside of the U.S. may not take on-campus and in-person courses.
- On-campus Certificate of Engineering Management and Leadership (CEML) students, pursuing either the *Engineering Project Management (EPM)* or the *Product Management for Engineering Leaders (PML)* graduate certificate, that are international students must be sure to meet the full-time semester 9 credit hour minimum for on-campus instruction to meet visa requirements.

Policies for the Certificate in Product Management for Engineering Leaders, Online Program

Program Restrictions and Exclusions

Students pursuing or seeking admission into the Certificate in Engineering Management and Leadership (CEML) program, whether in the certificate in *Engineering Project Management (EPM)* or the certificate in *Product Management for Engineering Leaders (PML)*, and regardless of which program option (whether on-campus or online) should be aware of the following program restrictions:

- Students must apply to either the on-campus or online CEML program and are admitted into one program cohort or the other.
- Current international Rice students pursuing a professional (or terminal) master's degree program **on-campus** and one of the **online** CEML programs must meet Residency requirements during their master's degree program.
- Current international Rice students pursuing a professional (or terminal) master's degree program **online** *may not* pursue one of the **on-campus** CEML programs due to Residency requirements.
- Current international Rice students pursuing a PhD degree program and one of the **online** CEML programs must meet Residency requirements during their PhD degree program.
- Current Rice students pursuing a PhD degree program must apply for and be accepted into the CEML program (whether on-campus or online) *before* enrolling in more than one course from the CEML curriculum that satisfies Certificate requirements.

Admission

Admission to the Certificate in Engineering Management and Leadership (CEML) is open to current degree-seeking Rice graduate engineering students. No formal application is required. Students must declare the graduate certificate using the *Declaration and Change of University Certificate Form (GR)* available in [ESTHER \(https://esther.rice.edu/\)](https://esther.rice.edu/). Declaration of the certificate requires the student to obtain the approval of their director of graduate studies (in the degree program to which they have been admitted) as well as approval from the appropriate certificate advisor for the university certificate program.

Admission to the Certificate in Engineering Management and Leadership (CEML) is also open to non-degree-seeking students. Admission to graduate study in CEML is open to qualified students holding a BS or a

BA degree in a quantitative field from an accredited institution. The CEML certificate governing committee will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

The Certificate in Engineering Management and Leadership (CEML) program exists as two distinct offerings, with both an on-campus and online option. Students must apply to either the on-campus or online CEML program and are admitted into one program cohort or the other. The admission standards are the same for both programs.

Applications for the Certificate in Engineering Management and Leadership (CEML) program are due by **October 30** for spring admission and **April 30** for fall admission. When completing the online application, candidates will be asked to submit the following items electronically to the Graduate Admissions Committee by each program's deadline outlined above.

- Transcripts from all undergraduate and graduate schools attended.
- All student applicants must upload an unofficial transcript to the application and also send an official copy of their transcripts.
- A Statement of Purpose is required for all applicants. This statement should clearly and succinctly summarize the applicant's past academic and professional experience and achievements, discuss their motivation for seeking the graduate certificate in Engineering Management and Leadership, and explain or articulate their future goals. The applicant should also briefly discuss any other factors they might want the Admission Committee to consider while reviewing their application (e.g., personal background, work experience, leadership roles, etc.).
- At least two letters of recommendation should be requested from at least two individuals, preferably professors, research advisors, or direct supervisors, who are familiar with the applicant's technical skills in engineering, science, or computer science. An applicant may submit more than two letters of recommendation, but no less than two must be submitted with their application.
- Graduate Record Examination (GRE) scores are optional for all applicants. If an applicant has relevant industrial experience, the Admissions Committee will factor in work experience and the recommendation of the applicant's current supervisor in lieu of any GRE scores when evaluating the application. Furthermore, at least one of the recommendation letters must be from a supervisor and should speak to the applicant's technical and communication promise/ability and any relevant industrial experience should be highlighted in the applicant's resume. If taking the GRE, applicants should have their scores sent directly to Rice University using code: 6609 (GRE subject tests are not required).
- TOEFL/IELTS scores are required for all international students that have not conferred a degree from an English-speaking University. The code to send the electronic scores is: 6609
 - TOEFL score, the minimum is 90 on the iBT and 600 on the paper-based TOEFL.
 - IELTS score, the minimum is 7.
 - This requirement is automatically waived for eligible applicants who upload their transcript from an English-speaking University into this application showing a degree in-progress or conferred.
- CV/Resume - applicants should upload their most current Curriculum Vitae or Resume.
- The application fee of \$85. The fee can be paid either by credit card or electronic check. At this time, the Rice Center for Engineering Leadership is not considering application fee waivers. Payment of

the application fee cannot be deferred until time of enrollment. The application will be processed only when the application fee has been received.

In some instances, upon completion of the Certificate in Engineering Management and Leadership (CEML) program, whether in the certificate in *Engineering Project Management (EPM)* or the certificate in *Product Management for Engineering Leaders (PML)*, a standalone graduate certificate recipient may wish to apply for the Master of Engineering Management and Leadership (MEML) degree. For more information, please see the *Opportunities* tab.

Financial Aid

No financial aid is available from Rice University for students in the graduate Certificate in Engineering Management and Leadership (CEML) program.

Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Requests for transfer credit must be approved for Rice equivalency by the appropriate academic department offering the Rice equivalent course (corresponding to the subject code of the course content) and by the Office of Graduate and Postdoctoral Studies (GPS). Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the certificate in Product Management for Engineering Leaders should be aware of the following program-specific transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the program's course requirements.

Additional Information

For additional information, please see the Rice Center for Engineering Leadership website: <https://www.rcelconnect.org/>.

Opportunities for the Certificate in Product Management for Engineering Leaders, Online Program

Stackable Certificate Option for Rice Graduate Certificate Students

In certain situations and with some graduate degree-granting programs, Rice graduate certificate students may use the credits earned toward that standalone graduate certificate credential toward a specific Rice graduate degree, unless specifically prohibited by the General Announcements.

To do so, Rice graduate certificate students in good standing may apply to a Rice graduate degree-granting program. If they do so within three (3) years of completing the Rice graduate certificate, upon acceptance and with certain approvals, they may petition to apply eligible coursework from the Rice graduate certificate to the Rice graduate degree-granting program. For credits earned toward the certificate to count toward the graduate degree, students must complete the graduate degree within the time-to-degree boundaries defined in the General Announcements, based

on the start term of the graduate certificate. In this way, the standalone graduate certificate is *stackable* toward a Rice graduate degree.

In this option, graduate certificate students completing the *standalone* Certificate in Engineering Project Management or the *standalone* Certificate in Project Management for Engineering Leaders may apply for admission into the Master of Engineering Management and Leadership (MEML) degree program. These two standalone graduate certificates are *stackable* toward the MEML degree.

Additional Information

For additional information, please see the Rice Center for Engineering Leadership website: <https://www.rcelconnect.org/> and the Master of Engineering Management and Leadership (MEML) website: <https://www.rcelconnect.org/meml/>.