

## **Department of Civil and Environmental Engineering Course Equivalencies (CEs)**

**Department Approved 11/17/2022**

**Office of the Provost Final Approval 02/23/2023**

**For Tenure-track faculty, see the [Variable Workload Guidelines](#) which address thesis supervision**

- This course equivalency policy for the Department of Civil and Environmental Engineering is based on the faculty's desire to maintain delivery of a rigorous and experiential curriculum to our students while allowing adequate time for high quality research and meaningful service.
- This policy applies to all forms of instruction including: (1) in-person, remote (synchronous), online (asynchronous) and hybrid forms of delivery; (2) courses with lecture, discussion, laboratory and/or studio components; and (3) pedagogical techniques such as active-learning, project-based, service-learning, communication-intensive, etc.
- This policy applies to courses taught by the departmental faculty with CEE, ENGR and CEMS prefixes.
- Each faculty member is expected to teach at least one required undergraduate course per year.
- A faculty member is expected to update courses they teach routinely and may have a new course preparation once every two to three years. An extra 0.5 course equivalency in rare occasions may be given for preparing and teaching a new required undergraduate course, which has not been offered in the department before and involves a significant active/project-based/service-learning component. This accommodation is not applicable in instances where a faculty member already has a reduced teaching load during their probationary period.
- Note that externally funded research may provide a course release from the annually agreed upon workload arrangement. Any releases need to be discussed and approved by the Chair the Spring prior to a given academic year. Faculty should reference the [CEMS Faculty Workload and Teaching Policy](#) for buyout details. In addition, the Department follows the Variable Workload Guidelines (see Appendix) when assigning total teaching load for tenure track faculty.
- In general, a course equivalency of 1.0 represents 12% effort.
- In general, a 1.0 course equivalency equates to a lecture-based, 3-credit 1XXX through 7XXX course section that is run (generally requires meeting minimum enrollment, which is typically 15 for courses at and below 4XXX level and 5 at and above 5XXX level). Project-based and/or active-learning courses typically receive a partial GTA support, and with that, are typically assigned the same course equivalency as an equivalent lecture-based course.
- Course equivalencies of 1-, 2-, 3- and 4-credit courses with laboratory components are generally determined by the Chair based on the number of laboratory sections, method of delivery, and provided support (e.g. graduate teaching assistants, lab assistants). Most courses with a laboratory component typically receive some GTA support. A 4-credit course

(e.g., CEE 2000, CEE 3530) taught as a single section with a 1-credit embedded lab is typically a course equivalency of 1.33. A 2-credit lab course with a recitation and three lab sections (e.g., CEE 3610, CEE 3810) is typically a course equivalency of 1.0.

- Independent study courses have no course equivalence but are classified as supplemental work and shall be accommodated as outlined in the Collective Bargaining Agreement: by adjusting the workload of the faculty member.
  - Graduate: IS courses will count towards the research workload
  - Undergraduate: IS courses must be approved by the Dean. If necessary for a student to graduate, such courses can result in reduced advising or service load.
- MS/PhD theses have no course equivalence but count towards advising or research and can result in adjusted teaching workload per the variable workload guidelines in the appendix.
- Senior/honors thesis supervision for TT faculty are considered part of scholarship. For NTT faculty, they have a 0.1 course equivalency and must be approved by the Dean.
- The department's philosophy is to offer courses of small enough size that facilitate effective interaction among students and the instructor(s) while meeting the department's obligation to deliver the undergraduate and graduate curricula including service courses. In cases where the enrollment is over 80, a 3-credit course will be 2.0 course equivalency.
- Faculty who teach more than 700 student credit hours (SCH) on load calculated after the add drop date in a single semester, will be provided with a one-course equivalency the following semester which will count as an overload. If a faculty member is teaching overloads in the semester where they are over 650 students, only those SCH on load are considered.

## **Appendix - Tenured and Tenure-Track Faculty Workload Guidelines**

### **Introduction**

Although there are multiple definitions for the term workload, it is most often defined as the amount of work to be performed in a given period of time. Given the mission of a university is the creation and dissemination of knowledge, the work to be done is primarily research and teaching and the time span, is assumed to be an academic year. Formally, workload for tenured and tenure-track faculty at UVM is subdivided into teaching, academic advising, research and scholarship, and service per the collective bargaining agreement (Article 16.4). The Department Chair is responsible for assigning faculty workloads annually, subject to approval by the Dean. The Department is committed to supporting the teacher-scholar model for its faculty. Each tenured and tenure-track faculty member is expected to be both an effective teacher in their sub discipline and active scholar in their research area, complemented by university and professional service. The Department also supports the overarching expectation and responsibility of faculty in their commitment to continued development and application of practices that foster diversity and inclusion and the values of *Our Common Ground*<sup>1</sup>. The following workload guidelines have been developed to support these goals.

### **Teaching**

The teaching load should support effective teaching, which is critical to the department's mission. A major component of the teaching load is defined in terms of courses taught per year. However, in engineering the teaching load also includes a significant amount of graduate and undergraduate student research supervision. It is the totality of these efforts that constitutes the teaching load. Based upon our research, a typical base teaching load for a research active engineering faculty ranges from 2 to 4 courses per year. The supervision of students conducting research, time devoted to the design of new courses, class size<sup>2</sup> and the availability of teaching assistants<sup>2</sup> should also be considered in determining the number of courses a faculty member will teach in an academic year.

### **Research and Scholarship**

To support a continuation and growth in impactful scholarship and research activities by the department's faculty, the workload should also consider a faculty member's level of research productivity. Faculty with higher levels of research productivity should be provided a lower teaching load in recognition that higher levels of research productivity require more effort directed towards research activities. Research productivity is evaluated based on research outputs and activities that enable research. The main indicator of research productivity is the publication of original research articles in major peer-reviewed journals as described in the department's RPT guidelines. The preparation and submission of grant applications for competitive external funds is considered an important research enabling activity that will also be considered in determining workloads. Other indicators of research productivity may include, but are not limited to, the publication of books, book chapters, peer-reviewed conference proceedings, patents, the submission of articles to peer reviewed journals, and the acquisition of grants and contracts. Evaluating research productivity on the quantity of products or their quality

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<sup>1</sup> UVM's *Our Common Ground* values: <http://www.uvm.edu/president/?Page=miscellaneous/commonground.html>

<sup>2</sup> Refer to the UVM Department of Civil and Environmental Engineering Course Equivalency Guidelines for further information.

is exceedingly difficult; therefore, it is incumbent upon individual faculty to provide evidence of the quality of their publications and other possible indicators of research productivity to the department chair as part of the annual review process.

### **Quantitative Indicators for Evaluating Annual Teaching Workload**

The table below defines five levels of research productivity for tenured and tenure-track faculty in the department based on the number of graduate students supervised and publication of peer-reviewed journal papers. These metrics were chosen as indicators of research productivity because graduate student supervision and publishing are expected from all tenured and tenure track faculty, are relatively simple metrics to track, and broadly measure effort and performance. Other indicators are important for gaining a full understanding of a faculty member's research effort and productivity. Any additional indicators and supporting information should be documented during the annual review process and will be considered by the chair in determining the final research productivity level used for assigning the annual teaching workload.

<b>Tenure Track Teaching Workload</b>	<b>Research Productivity Level</b>	<b>General Research Productivity Level Indicators <sup>a</sup> (averaged over past 3 years)</b>
1+1 ≥ 1 required course	Very High	<b>6 or more:</b> <ul style="list-style-type: none"> <li>• full-time graduate students <sup>b</sup> <i>and</i></li> <li>• peer-reviewed journal publications <sup>c,d</sup></li> </ul>
2+1 ≥ 1 required course	High	<b>4 or more:</b> full-time graduate students <sup>b</sup> <i>and</i> <b>3 or more:</b> peer-reviewed journal publications <sup>c,d</sup>
2+2 ≥ 2 required courses	Moderate	<b>2 or more:</b> <ul style="list-style-type: none"> <li>• full-time graduate students <sup>b</sup> <i>and</i></li> <li>• peer-reviewed journal publications <sup>c,d</sup></li> </ul>
3+2 ≥ 3 required courses	Low	<b>1 or more:</b> <ul style="list-style-type: none"> <li>• full-time graduate students <sup>b</sup> <i>and</i></li> <li>• peer-reviewed journal publications <sup>c,d</sup></li> </ul>
3+3 ≥ 4 required courses	Very Low	<b>Less than 1:</b> <ul style="list-style-type: none"> <li>• full-time graduate students <sup>b</sup> <i>and</i></li> <li>• peer-reviewed journal publications <sup>c,d</sup></li> </ul>

<sup>a</sup> These indicators are provided as a general reference point for faculty to understand differences in research activity level using two common and relatively easy to track metrics. Many other indicators of research productivity and effort are possible and should be considered by the faculty and department Chair in determining research activity levels.

<sup>b</sup> Number of research-engaged, externally supported (including self-paying), graduate students (project or thesis-based MS or PhD students) supervised by a faculty member. The department recognizes that research-engaged graduate students may also be supported occasionally as graduate teaching assistants to provide teaching opportunities for PhD students, assist in carrying out the department's teaching mission, to provide temporary support when external funding is unavailable, and through internal awards. Research-engaged graduate teaching assistants, internally funded graduate research assistants, and self-funded graduate students will count towards the number of graduate students in this table provided that a subset of the graduate students are supported through external awards. Co-advised graduate students will generally be counted at a rate of one half; however, the department recognizes that co-advising arrangements take many forms. Faculty members should document their specific role in co-advising graduate students during the annual review process so that an appropriate level of graduate student supervision can be determined.

<sup>c</sup> Other scholarly products may also be considered in this metric. It is incumbent on the faculty member to provide evidence of the quality and impact of other products to the chair for determining their equivalence to the number of peer-reviewed journal publications.

<sup>d</sup> The number of publications includes those where the faculty member or a student they supervise is the lead author. Research collaborations that result in publications with additional (possibly many) authors are encouraged. Many journals now require that authors state the contributions of each author. Faculty should provide the chair with information concerning their contribution to collaborative works to determine an appropriate research productivity level.

**Department of Computer Science Course Equivalencies (CEs)**  
**Department Approved 10/06/2022**  
**Office of the Provost Final Approval 02/23/2023**

**Definitions:**

- CE = course equivalent.
- Projects-based course: A course where at least 30% of the final grade is determined by a project.
- Active learning course: A course where at least 30% of in-class activity is *student-driven*-including group work, flipped classroom, student debates, etc.

**Policies:**

1. For project-based or active learning courses, we define each credit of instruction in sections with up to 60 enrollments to be 1/3 CE. For online courses that use project-based or active learning, this threshold is 45 enrollments. For all other courses this threshold is 80 enrollments for 1/3 CE. Each credit of instruction in sections with enrollments exceeding these thresholds is counted double. Enrollments are to be determined at the end of the add/drop period.
2. Online instruction may be assigned by the Chair in consultation with Faculty. In case a section is taught with both in-person and online students, and online enrollments reach a threshold of 15 for CS 1X XX sections and 10 for all others, the section is counted double. This does not apply to students registered for an in-person section but those attending remotely.
3. Course sections that are not intended for general enrollment (e.g., Independent Study, Research, and Thesis sections) are recognized as voluntary and are taught at the discretion of Faculty with approval by the Chair and Dean.
4. Periodic new course preparation is considered part of standard teaching workloads. But in exceptional cases, with approval by the Chair and Dean, new required undergraduate course preparation may be part of a Faculty member's assigned instructional workload percentage. Examples of major new course preparation include conversion of a group projects-based courses to online format, where the organizational work required to adapt the online format to course logistics far exceeds normal course material and delivery preparation.
5. Non-tenure track faculty, who teach more than 700 student credit hours (SCH) on load calculated after the add drop date in a single semester, will be provided with a one-course equivalency typically applied in the following semester. If a faculty member is teaching overloads, SCH are calculated from the total SCH multiplied by the appropriate ratio of onload/offload course equivalencies.
6. In the CBA Section 16.4.b, we interpret "(8) courses a year for two (2) consecutive academic years" to mean 24 credits per year for two consecutive academic years, and "they will be

assigned no more than seven (7) courses” to mean they will be assigned no more than 21 credits, etc.

## **Department of and Electrical & Biomedical Engineering Course Equivalencies (CEs)**

**Department Approved 10/19/2022**

**Office of the Provost Final Approval 02/23/2023**

**For Tenure-track faculty, see the [Variable Workload Guidelines](#)**

1. This course equivalency policy for Biomedical Engineering and Electrical Engineering courses is founded on each faculty member's responsibility to maintain delivery of a rigorous and experiential curriculum to our students, while allowing adequate time to pursue high quality research and perform meaningful service. It applies to online courses, hybrid courses, and in person courses.
2. In general, each faculty member is expected to teach at least one required undergraduate course per academic year. In addition, each faculty member is expected to teach at least one elective each year. Tenure-track faculty are expected to teach at least one graduate-only course at least every two years.
3. In general, an established faculty member is expected to routinely update the courses that they teach and may have a new course preparation once every two years.
4. In general, a course equivalency of 1.0 represents a 12% work-load effort. For example, a faculty member with an annual teaching workload comprising 36% of their total effort, is expected to teach three (3.0) course equivalents per annum.
5. Note that externally funded research may provide a course release from the annually agreed upon work-load arrangement guided by the variable workload guidelines in the appendix. Any releases need to be discussed and approved by the Chair the Spring prior to a given academic year. Faculty should reference the CEMS Faculty Workload and Teaching Policy for course buyout details.
6. In general, a 1.0 course equivalency equates to a lecture-based, 3-credit 0xx, 1xx, 2xx, or 3xx-level course section that is run (and generally requires meeting a minimum enrollment of 20, 15, 10, or 5 students, respectively) without a teaching assistant.
7. Course equivalencies of 1, 2, 3, 4 and 6-credit courses with laboratory components are generally determined by the Department Chairperson based upon factors such as, but not limited to:
  - the number of laboratory sections being run,
  - the method of instructional delivery,
  - the provided teaching support (e.g., teaching and/or lab assistants, etc.), and
  - course enrollment
8. Because EBE courses range from 1 to 6 credit hours, there can also be a range of credit hours associated with a particular faculty member's course load. For example, a ``2-2'' course load can be met with a credit hour total ranging from 11 to 14 credit hours which, in turn, could translate into between 2 to 5 distinct classes or sections (with 4 being nominal). In addition, courses with enrollments exceeding 80 students will be considered to have twice the nominally



allocated course equivalency. Likewise, 6-credit courses will be considered to have twice the course equivalency allocated to 3-credit courses having the same enrollment. For non-lab courses, there may be adjustments to this equivalency per the attached guidelines.

9. Faculty who teach more than 700 student credit hours (SCH) on load calculated after the add drop date in a single semester, will be provided with a one-course equivalency the following semester which will count as an overload. If a faculty member is teaching overloads, SCH are calculated from the total SCH multiplied by the appropriate ratio of onload/offload course equivalencies.
10. Items that do not count toward teaching-based course equivalency include, but are not limited to:
  - Individualized / Independent study mentoring. If more than 5 students are signed up for an independent study course, then a(n) (advanced) special topics course should be offered instead.
  - Honors Theses or Capstone Design mentoring.
  - Advising undergraduate and/or MS/PhD students is already accounted for in UVM Service and Research efforts, respectively.
  - Leading College or Departmental service efforts related to learning, such as the EBE graduate student seminar, is considered part of a Service load.

#### **EBE Workload Equivalency Guidelines for Large Classes without Laboratories**

The Department is committed to high quality teaching and learning. As a result, we are committed to keeping class sizes small when possible. Small class size is defined as fewer than 40 students. Situations could arise, however, where a larger main section with smaller sections or significant graduate student teaching support will be as impactful as many small sections. For example, when there is one expert in the field, and GTAs as support will allow us to open the course to more students.

In cases where the Department, the Department Chair, and the Dean agree that a larger section (over 80) is the best approach for a course without a laboratory component, the following policy applies.

1. With GTA support of 20 hours/week, the course will be equivalent to 1 course.
2. If the course breaks into recitations of 40 students or fewer and the recitation instructors are primarily in charge of grading, the course is equivalent to 1 course.
3. For those teaching 40 student recitations (1 hour/week), each recitation is equal to 1 credit.
4. Otherwise, the course is equivalent to 2 courses.

**Department of Mathematics and Statistics Course Equivalencies (CEs)**  
**Department Approved 09/15/2022**  
**Office of the Provost Final Approval 02/23/2023**

Addressing Collective Bargaining Agreement Article 16.15 and 16.16, the following course equivalency policy will apply.

In what follows, replace “Chair” with “Director of Statistics Program” when applying these policies to Statistics faculty.

1. **Section sizes and course equivalencies for all modalities:**

A 3.0 credit course of less than 80 students is 1.0 CE. A 4-credit course is 1.33 CE.

If the (actual) enrollment of a class of any modality is greater or equal to 80, its course equivalency will double (for example, a 3-credit course of 80 students or over will count as 2 CE, and a 4-credit course of 80 students or over will count as 2.66 CE).

During the annual evaluation meeting, the Department Chair and the faculty member will discuss estimated enrollment numbers for the courses that the faculty member may be assigned. Any later significant changes to courses’ estimated enrollment numbers should be discussed between the Chair and the faculty member (per CBA Sec. 16.1).

2. **On-Line Instruction:** Selection of courses to be delivered in full or in part in an on-line format will largely be determined by the faculty offering the course, in consultation with and with approval of the Chair. The Chair will not assign an instructor to teach in an on-line format without consulting the instructor (unless in-person classes are not possible), and a faculty member may not offer a course in an on-line format without the Chair’s consent. In accordance with the CBA, all faculty offering on-line instruction should be sufficiently trained in on-line teaching, and if needed take additional training at UVM while on contract, prior to delivering on-line instruction.
3. No unofficial courses will be considered. Student(s) must register for a MATH/STAT X81, X93, X94, X95, HON 288, or an existing Math/Stat course with a special section assigned for independent study purposes. The faculty member will ask the chair to create these sections as needed.
4. Independent study courses have no course equivalence but are classified as supplemental work and shall be accommodated as outlined in the Collective Bargaining Agreement: by adjusting the workload of the faculty member.
  - Graduate: IS courses will count towards the research workload or advising of graduate students.
  - Undergraduate: IS courses must be approved by the Dean. If necessary for a student to graduate, such courses can result in reduced advising or service load.
5. MS/PhD theses have no course equivalency but count towards advising or research and can result in adjusted teaching workload per the department’s variable workload guidelines.

6. Senior/honors thesis supervision for TT faculty are considered part of scholarship. For NTT faculty, they have a 0.1 course equivalency.

## Course Equivalency Guidelines

### School of Engineering

10/18/2012\*

*(\*applicable to only the Department of Mechanical Engineering as of AY23-24)*

- 16.17 The School of Engineering (SoE) offers professional degrees in 4 separate engineering disciplines that must each satisfy the requirements of the *Accreditation Board for Engineering and Technology* (ABET). Accordingly, the SoE faculty have curricular responsibilities that are more extensive than those facing faculty in most other degree programs. These extra responsibilities include offering engineering design courses, which at the senior level entails solving real engineering problems in a team-based project that frequently involves interactions with local industries and municipalities. Mentoring a senior design project is usually a significant undertaking for a faculty member, although this varies considerably depending on the nature of the project. These factors, together with the additional responsibilities of supervising graduate students, honors theses, and independent studies, mean that it is essentially impossible to devise a universal formula for determining a faculty member's workload in the SoE. In the past, workloads have been determined by the SoE Director in consultation with each individual faculty member and with the Head of the engineering program to which the faculty member contributes. The same approach will be taken in the future. That is, workloads will be developed in a consultative manner taking into account the specific nature and amount of the work involved in an individual's set of tasks, whether there is any TA and/or grader support available, and the magnitude of the faculty member's teaching commitments over the prior 3 years. In particular, to the degree possible, the workloads of research productive faculty will be commensurate with those of engineering faculty at other research intensive universities. Instructional credit for these activities will be explicitly defined in terms of %FTE on the workload form.
- 16.18 With regard to the specific issue of large enrollment classes, any class with large enrollment and/or that involves intense preparation will be considered an increased load as decided by the SoE Director in consultation with the faculty member concerned and the relevant Program Head.
- 16.15 With regard to the specific issue of selection and instruction of courses designated as on-line, selection of courses will largely be determined by the faculty offering the course, in consultation with and with approval of the Director. The Director will not assign an instructor to teach in an on-line format without the instructor's consent, and a faculty member may not offer a course in an on-line format without the Director's consent. All faculty offering on-line instruction must first receive training in on-line teaching, at University Expense, prior to delivering on-line instruction. When possible, student feedback and performance from sections taught in an on-line format will be compared to student feedback and performance in sections of the same course taught in face-to-face format. This will be used as a basis for determining the most appropriate format for future offerings of the course, to ensure high quality and effective course offerings.

**Department of Physics Course Equivalencies (CEs)**  
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<b>Course</b>	<b>Credits</b>	<b>Enrollment</b>	<b>CE</b>
All 3-credit courses with an enrollment of less than 90 students.	3	<90	1.0
All 4-credit courses with labs folded into the course with an enrollment of less than 90 students.	4	<90	1.5
Large enrollment courses such as PHYS 1400, 1450, 1500, (1550 <sup>*</sup> ), 1600, 1650.	4 (3 <sup>*</sup> )	90 or more	2.0 (1.5 <sup>*</sup> )
Extremely large courses: ASTR 1400/1405.	3	200 or more	2.0
PHYS 1510, 1560; all 1-credit seminar courses.	1	<90	0.33
ASTR 1400 LAB.	1	48 or fewer	0.167

These equivalencies conform to the following guidelines:

1. The base value is 1.0 CE for 3-credit courses, and 1.5 CE for 4-credit courses.
2. A one-credit course involving significant preparation is weighted at 0.33 CE.
3. Laboratory courses with UTA or GTA support are weighted at 0.167 CE.
4. All courses with an enrollment of 90 or more are worth an additional 0.5 CE. An enrollment of 90 is chosen as the cutoff since that is the capacity of the Active Learning classroom (Innovation E330). Therefore, 0.5 CE will be added for a completely full active learning course.
5. An additional 0.5 CE is added for extremely large courses with 200 or more students.
6. <sup>\*</sup>Exception: 1.5 CE are given for PHYS 1550, which is a 3-credit course with an enrollment above 90. This is consistent with rules 1 and 4.