

Procedures for Obtaining Approval for Concurrent Undergraduate and Graduate Degree Programs

Concurrent undergraduate and graduate degree programs can provide opportunities for well-qualified ISU juniors and seniors to apply for a program leading to both a masters and bachelors degree at the end of a fifth year of study. Students interested in research may apply for a graduate research assistantship during their fourth and fifth years of study. Individualized concurrent degree programs are available.

The following material describes the procedures to obtain approval for a recognized concurrent undergraduate and graduate degree program when both the undergraduate and graduate majors have already been approved. For students pursuing a concurrent undergraduate bachelor's degree and graduate degree, a maximum of 6 graduate credits can be double counted for both the bachelor's degree and the graduate degree subject to the Program of Study committee approval.

The proposal will be reviewed by the Graduate Curriculum and Catalog Committee, by the Graduate Council, by the Graduate College, and by the Dean of the Graduate College.

The Proposal for Concurrent Degree Programs

The proposal for concurrent degree programs should include the following information:

1. Name of the programs or majors: Software Engineering (SE), Computer Engineering (CPRE)
2. Name of the degrees: Concurrent BS (SE), MS (CPRE)
3. Name of the department(s) which administer(s) the program: Electrical and Computer Engineering (ECpE)
4. Rationale for the concurrent degree program: Currently, there is no approved path for undergraduate SE students to enroll in a concurrent BS/MS program. Students wanting to pursue this option must submit a proposal for approval. So far, three undergraduate SE students submitted proposals and were approved. With the growing size of the undergraduate SE program, and since there is no graduate SE program, we anticipate a growth in the number of students who will be interested in the concurrent program. This program will help SE students to pursue graduate degrees and complete their degrees faster.

This will also help the ECpE department to increase the number of graduate students in general, and domestic graduate students in particular.

5. Admission procedures and requirements:

Students currently enrolled in the undergraduate Software Engineering program at ISU and classified as seniors may be eligible to apply for Concurrent BS (SE)/MS (CPRE) degree program. Students should apply with exactly one semester remaining in their undergraduate programs.

For concurrent BS/MS admission, the student must have a cumulative GPA of 3.3 or better. Admitted students must have no more than 18 credits remaining to complete the requirements for the bachelor degree during the concurrent semester. Application procedures are available on the ECpE website.

6. Requirements of the program:

(a) The program requires thirty (30) credit hours.

(b) Up to one (1) semester of concurrent enrollment is allowed (the semester in which the student has both undergraduate and graduate standing).

(c) Up to six (6) credits of graduate level coursework taken while an undergraduate during the semester of concurrent enrollment may be double counted toward both their undergraduate and graduate program of study.

(d) Up to nine (9) credits of graduate level coursework taken while an undergraduate that will NOT be counted toward their undergraduate program of study may be transferred; the coursework must have a grade of B or better.

(e) Student will take at least three (3) credits of graduate level courses during concurrent enrollment.

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7. Expected enrollment: 2-5 students per year
8. If not already addressed, answer the following:
 - a. How will the undergraduate degree plan and graduate program of study be developed?
Once the student is accepted into the concurrent program, ECpE graduate advising will help develop the PoS.
 - b. When will the student have a major professor?
Each student admitted to the concurrent BS/MS program will be assigned a temporary advisor (the DOGE). By the end of the second semester (the semester after the concurrent semester) the student must have a major professor.
 - c. Will graduate assistantships be provided?
The department does not guarantee graduate assistantships to MS students. However, students may apply for teaching assistantships. Major professors may offer research assistantships to qualified students.
 - d. Will a thesis be required?
The BS/MS program can be taken in one of two modes: thesis and non-thesis.
 - e. Who will be responsible for the administration of the program?
ECpE DOGE
 - f. How much time is required to complete the program? Show a sample semester-by-semester plan.
It is expected that students will complete the program within 2 semesters after graduation with a BS degree.
Please see the attached sample semester by semester plan
 - g. Will students be allowed to double count credits? If so, how many?
Yes. Up to 6 credits.
9. Attach memos showing approval by appropriate department and college committees, faculty, and administrators.

Please see the attached documents:

- Approval from the Software Engineering director, Dr. Akhilesh Tyagi
- Approval from the ECpE DOGE on behalf of the ECpE graduate committee
- Approval from the College of Engineering
- Approval from the ECpE Curriculum Committee
- Approval from the College of Engineering Curriculum Committee

10. Proposal Contact

ECpE DOGE (Dr. Ahmed Kamal)

kamal@iastate.edu

**Concurrent Bachelor of Science in Software Engineering/Master of Science (non-thesis) in
Computer Engineering- 30 credit hours***

Concurrent semester

SE 492 – Senior Design Project II – 2 credits

Com S 509 – Software Requirements Engineering – 3 credits**

SE 421 – Software Safety Analysis – 3 credits**

Stat 330 – Probability and Statistics for Computer Science – 3 credits

Gen Ed Elective – 3 credits

Total Credits – 14

Semester 2

Cpr E 525 – Numerical Analysis of High Performance Computing – 3 credits

Cpr E 528 – Probabilistic Methods in Computer Engineering – 3 credits

Cpr E 550 – Distributed Systems and Middleware – 3 credits

Cpr E 554 – Distributed Systems – 3 credits

Total credits: 12

Semester 3

Cpr E 556 – Scalable Software Engineering – 3 credits

Cpr E 557 – Computer Graphics and Geometric Modeling – 3 credits

Com S 512 – Formal Methods in Software Engineering – 3 credits

Cpr E 599 – Creative Component - 3 credits

Total credits: 12

**Concurrent Bachelor of Science in Software Engineering/Master of Science (thesis) in
Computer Engineering- 30 credit hours***

Concurrent semester

SE 492 – Senior Design Project II – 2 credits

Stat 330 – Probability and Statistics for Computer Science – 3 credits

Cpr E 458/558 – Real Time Systems – 3 credits**

Com S 509 – Software Requirements Engineering – 3 credits**

Gen Ed Elective – 3 credits

Total credits: 14

Semester 2

Cpr E 525 – Numerical Analysis of High Performance Computing – 3 credits

Cpr E 528 – Probabilistic Methods in Computer Engineering – 3 credits

Cpr E 550 – Distributed Systems and Middleware – 3 credits

Cpr E 699 – Research - 3 credits

Total credits: 12

Semester 3

Cpr E 554 – Distributed Systems – 3 credits

Cpr E 556 - Scalable Software Engineering – 3 credits

Cpr E 699 – Research - 6 credits

Total credits: 12

*Index of Acronyms

Com S – Computer Science

Cpr E – Computer Engineering

SE – Software Engineering

Gen Ed – General Education

Stat – Statistics

**double counted credits

Concurrent SE BS/Cpr E MS (non-thesis)

SE 421 – Software Safety Analysis – 3 credits

Com S 509 – Software Requirements Engineering – 3 credits

Cpr E 525 – Numerical Analysis of High Performance Computing – 3 credits

Cpr E 528 – Probabilistic Methods in Computer Engineering – 3 credits

Cpr E 550 – Distributed Systems and Middleware – 3 credits

Cpr E 554 – Distributed Systems – 3 credits

Cpr E 556 – Scalable Software Engineering – 3 credits

Cpr E 557 – Computer Graphics and Geometric Modeling – 3 credits

Com S 512 – Formal Methods in Software Engineering – 3 credits

Cpr E 599 – Creative Component - 3 credits

Concurrent SE BS/Cpr E MS (thesis)

Cpr E 458/558 – Real Time Systems – 3 credits

Com S 509 – Software Requirements Engineering – 3 credits

Cpr E 525 – Numerical Analysis of High Performance Computing – 3 credits

Cpr E 528 – Probabilistic Methods in Computer Engineering – 3 credits

Cpr E 550 – Distributed Systems and Middleware – 3 credits

Cpr E 554 – Distributed Systems – 3 credits

Cpr E 556 – Scalable Software Engineering – 3 credits

Cpr E 699 – Research - 9 credits

Date: November 20, 2017

To: Ahmed Kamal, Director of Graduate Education, Department of Electrical & Computer Engineering

From: Akhilesh Tyagi, Professor-in-Charge of Software Engineering Program

Subject: Concurrent BS/MS for SE

Dear Professor Kamal,

The Software Engineering Bachelors of Science Program is seeing a large demand for a concurrent BS/MS program with a Master's of Science in Computer Engineering. We would like to ask you to request the graduate college to create a formal arrangement. It has our full support.

Sincerely,

Akhilesh Tyagi

Akhilesh Tyagi


IOWA STATE UNIVERSITY
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January 18, 2018

To: Dr. William R. Graves
Dean
College of Graduate Studies

From: Ahmed E. Kamal 
Director of Graduate Education
Electrical and Computer Engineering Department

Subject: Concurrent BS (SE)/MS or MEng (CPRE) program

The graduate committee of the ECpE department met on December 8, 2017 and discussed a proposal for a concurrent program BS in Software Engineering and MS or MEng in Computer Engineering. The graduate committee has unanimously approved and supports this proposal. As ECpE DOGE, I would like to request the approval of the Graduate College of this proposal.

IOWA STATE UNIVERSITY
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January 18, 2018

Dr. William R. Graves
Dean of the Graduate College
Iowa State University

The College of Engineering is supportive of the concurrent degree program in Software Engineering (BS) and Computer Engineering (MS/MEng). This program underscores our commitment to providing the growing number of Software Engineering students with options to enhance their educational experiences at Iowa State. This option would also increase the visibility of our graduate and research programs in Computer Engineering.

Sincerely,



Sriram Sundararajan
Associate Dean for Academic Affairs
Professor of Mechanical Engineering
Iowa State University

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February 23, 2018

To whom it my concern:

The college of Engineering Curriculum Committee approved the proposal to create a Concurrent BS(SE)/MS and MEng (CPRE). The vote was 8-0-0.



Doug Jacobson

Chair Engineering College Curriculum Committee