CEAS-14-CS-074

REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: CS **PROPOSED EFFECTIVE SEMESTER:** Spring 2015 **COLLEGE:** CEAS

PROPOSED IMPROVEMENTS

Academic Program
- ☐ New degree*
- ☐ New major*
- ☐ New curriculum*
- ☐ New concentration*
- ☐ New certificate
- ☐ New minor
- ☐ Revised major
- ☐ Revised minor
- ☐ Admission requirements
- ☐ Graduation requirements
- ☐ Deletion ☐ Transfer
- ☐ Other (explain**)

Substantive Course Changes
- ☐ New course
- ☒ Pre or Co-requisites
- ☐ Deletion (required by others)
- ☐ Course #, different level
- ☐ Credit hours
- ☐ Enrollment restriction
- ☐ Course-level restriction
- ☐ Prefix ☐ Title and description (attach current & proposed)
- ☐ General education (select one) Not Applicable
- ☐ Other (explain**)

Misc. Course Changes
- ☒ Title
- ☒ Description (attach current & proposed)
- ☐ Deletion (not required by others)
- ☐ Course #, same level
- ☐ Variable credit
- ☐ Credit/no credit
- ☐ Cross-listing
- ☐ COGE reapproval
- ☒ Other (explain**)

** **Other:** A minimum grade of B in the prerequisite courses

Title of degree, curriculum, major, minor, concentration, or certificate:

Existing course prefix and #: CS6260 **Proposed course prefix and #:** **Credit hours:**

Existing course title: Parallel Computations II

Proposed course title: Advanced Parallel Computations

Existing course prerequisite & co-requisite(s): CS5260
Proposed course prerequisite(s) CS5260 and (CS4310 or CS5310)
If there are multiple prerequisites, connect with "and" or "or". To remove prerequisites, enter "none."
Proposed course co-requisite(s)
If there are multiple corequisites, they are always joined by "and."
Proposed course prerequisite(s) that can also be taken concurrently:
Is there a minimum grade for the prerequisites or corequisites?
A minimum grade of B in the prerequisite course
Major/minor or classification restrictions:
List the Banner 4 character codes and whether they should be included or excluded.
For 5000 level prerequisites & corequisites: Do these apply to: (circle one) undergraduates graduates **both**

Specifications for University Schedule of Classes:
a. Course title (maximum of 30 spaces): Advanced Parallel Computations
b. Multi-topic course: ☐ No ☐ Yes
c. Repeatable for credit: ☐ No ☐ Yes
d. Mandatory credit/no credit: ☐ No ☐ Yes
e. Type of class and contact hours per week (check type and indicate hours as appropriate)
1. ☒ Lecture 3 credit hrs.
2. ☐ Lab or discussion
3. ☐ Lecture/lab/discussion
4. ☐ Seminar or ☐ studio
5. ☐ Independent study
6. ☐ Supervision or practicum

CIP Code (Registrar's use only):

Chair/Director _____ Date 2/7/15

Chair, College Curriculum Committee _____ Date _____

Dean _____ Date: _____ Graduate Dean: _____ Date _____

Curriculum Manager: Return to dean ☐ Date _____ Forward to: _____ Date _____

Chair, COGE/ PEB / FS President _____ Date _____

FOR PROPOSALS REQUIRING GSC/USC REVIEW:

* ☐ Approve ☐ Disapprove	Chair, GSC/USC	Date
* ☐ Approve ☐ Disapprove	Provost	Date

Revised May 2007. All previous forms are obsolete and should not be used.

1. Explain briefly and clearly the proposed improvement.

   This proposed improvement is to change the prerequisite of CS6260 (Parallel Computations II) from CS5260 only to CS5260 and (CS4310 or CS5310).

   Proposed title: Advanced Parallel Computations

   Proposed description:
   Advanced topics in parallel computations, such as: algorithms, complexity and parallel performance in the areas of graph algorithms, numerical algorithms, computer graphics, and aspects of parallel environments and languages. Students will be expected to read research papers and complete a semester project involving the use and implementation of parallel programming paradigms on current machines.

   Proposed course prerequisite(s) CS5260 and (CS4310 or CS5310)

   A minimum grade of B in the prerequisite courses.

2. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.)

   With the rapid development of parallel computing, advanced parallel algorithms have become a main component of the course. A study of CS5260 (Parallel Computations I) no longer provides sufficient background. What is missing is the fundamental understanding of computer algorithms, which can be remedied by either CS4310 (Design and Analysis of Algorithms) or CS5310 (Algorithms).

3. Effect on other colleges, departments or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.

   None.

4. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.

   During the most recent revision of the M.S. degree program CS5310 (Algorithms) has become a core course. The students are required to take the core courses at an early stage of their study.

5. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time. If a required course will be offered during summer only, provide a rationale.

   With additional prerequisites it may make it harder for students to enroll in the course. However, we expect the effect is minimal for graduate students, as CS5310 has become a core course that all graduate students must take.

6. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?

   No change.

7. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)

   None.

8. General education criteria. For a general education course, indicate how this course will meet the criteria for the area or proficiency. (See the General Education Policy for descriptions of each area and proficiency and the criteria. Attach

additional pages as necessary. Attach a syllabus if (a) proposing a new course, (b) requesting certification for baccalaureate-level writing, or (c) requesting reapproval of an existing course.) N/A

9. List the learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program. N/A

10. Describe how this curriculum change is a response to assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities. N/A

11. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section. N/A

Current catalog description:

CS 6260 - Parallel Computations II

Advanced topics in parallel computations, such as: algorithms in the areas of graph algorithms, numerical algorithms, computer graphics and VLSI design, and aspects of operating systems and languages. Students will be expected to read research papers and complete a semester project involving the use and implementation of parallel programming paradigms on current machines.

Prerequisites/Corequisites: Prerequisite: CS 5260.

Credits: 3 hrs.

Notes: Open to Graduate Students Only.

Proposed catalog description:

CS 6260 – Advanced Parallel Computations

Advanced topics in parallel computations, such as: algorithms, complexity and parallel performance in the areas of graph algorithms, numerical algorithms, computer graphics, and aspects of parallel environments and languages. Students will be expected to read research papers and complete a semester project involving the use and implementation of parallel programming paradigms on current machines.

Prerequisites/Corequisites: Prerequisite: CS 5260 and (CS 4310 or CS 5310)

Credits: 3 hrs.

Notes: Open to Graduate Students Only.