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| For Academic Affairs and Research Use Only |
| Proposal Number |  |
| CIP Code:  |  |
| Degree Code: |  |

**Program Modification Form**

**[ ] Undergraduate Curriculum Council**

**[X] Graduate Council**

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| **Modification Type: [ ]Admissions, [ ]Curricular Sequence, or [X]Other**  |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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| Hai Jiang | 4/7/2020 |

**Department Curriculum Committee Chair** |

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**COPE Chair (if applicable)** |
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| Hung-Chi Su | 4/7/2020 |

**Department Chair**  |

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**Head of Unit (if applicable)**   |
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| Brandon A. Kemp | 5/4/2020 |

**College Curriculum Committee Chair** |

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**Undergraduate Curriculum Council Chair** |
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| Abhijit Bhattacharyya | 5/4/2020 |

**College Dean** |

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**Graduate Curriculum Committee Chair** |
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**General Education Committee Chair (if applicable)**   |

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**Vice Chancellor for Academic Affairs** |

1. **Contact Person** (Name, Email Address, Phone Number)

Hung-Chi Su, suh@astate.edu, 8119

1. **Proposed Change** (for undergraduate curricular changes please provide an 8-semester plan (appendix A), if applicable)

Replacement of a redundant Systems course requirement with an elective option and clarification for the elective courses in High Performance Computing emphasis in Computer Science master’s degree.

1. **Effective Date**

8/15/2020

1. **Justification –** *Please provide details as to why this change is necessary.*

As it stands after the last curriculum update (2019G\_ECS08\_APPROVED\_BC\_Computer-Science-Master-emphasis-curriculum-updates.docx), the M.S. in Computer Science with an emphasis in High Performance Computing requires a Systems course, CS 5313, Computer Networks and then specifies that three of four Core courses (CS 6213: Parallel Processing, CS 6243: Distributed Systems, CS 6253: Heterogeneous Computing, and CS 6263: Cloud Computing) be selected. Of the four Core course options, three (CS 6213, CS 6243, and CS 6253) are also Systems courses. The change here is to provide the student with an elective option to replace the redundant Systems course requirement.

In addition, this modification will clarify previous changes in electives for High Performance Computing emphasis after the last curriculum update (2019G\_ECS08\_APPROVED\_BC\_Computer-Science-Master-emphasis-curriculum-updates). This will make clear that a course cannot be counted twice, as both required and elective, for the emphasis.

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  |

*2019-2020 Graduate Bulletin, page 160*

**Emphasis in High Performance Computing**

**University Requirements:**

 See Graduate Degree Policies for additional information (p. 39)

**Program Requirements:**  **Sem. Hrs.**

 Minimum of eighteen hours of 6000 level Computer Science and approved Mathematics and/or

 Statistics coursework inclusive of thesis. Students completing the MS non-thesis option must pass

 a comprehensive exam in the last semester of study.

 **Theory:**  3

 CS 5133, Compiler OR

 CS 5723, Automata Theory

 **~~Systems:~~** ~~3~~

 ~~CS 5313, Computer Networks~~

 **Algorithms:**

 CS 5713, Analysis of Algorithms 3

 **Sub-total**  **~~9~~** 6

**Emphasis Area (High Performance Computing):**  **Sem. Hrs.**

 **Core (select three of the following):** 9

 CS 6213, Parallel Processing

 CS 6243, Distributed Systems

 CS 6253, Heterogeneous Computing

 CS 6263, Cloud Computing

 **Emphasis Elective (select one of the following):** 3

 CS 5223, Unix Systems Programming

 CS 6223, Advanced Computer Architecture

 CS 6233, Operating System Design

 CS 6263, Cloud Computing (if not taken previously)

 CS Electives  ~~6~~ 9

 CS, MATH, and/or STAT Electives, 6

 Subject to the prior approval of the Computer Science Curriculum Committee.

 **Sub-total**  **~~24~~** **27
Total Required Hours:**  **33**