**Computer Science Department**

**Special Topics Course Request Form (v. F18)**

**Instructions**: Complete this form by supplying the information requested in the boxes below. E-mail or send the completed form and any supplemental information to the Computer Science Department, Moscow, ID 83844-1010 or to [cs@cs.uiaho.edu](mailto:cs@cs.uiaho.edu). You may also fax the information to 208-885-9052. If approved, the request will be effective only for the semester for which it is submitted.

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| **Contact Information** | | | |
| **Person initiating this request** | **Phone Number** | **E-mail Address** | **Date** |
| Bob Rinker | 885-7378 | [rinker@cs.uidaho.edu](mailto:rinker@cs.uidaho.edu) | 8/30/07 |
| **Proposed instructor** | **Phone Number** | **E-mail Address** |  |
| Bob Rinker | 885-7378 | [rinker@cs.uidaho.edu](mailto:rinker@cs.uidaho.edu) |  |
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| **Course Information** | | | | | | | | | | | |
| **Title** | Real-Time Operating Systems | | | | | | | | | | |
| **Course No** | CS 404  CS 504 X CS J404/504 | | | | | **Credits** | 3 | | **Semester Offered** | | Spring 08 |
| **Locations Available** | x Moscow  IFCHE  Boise   CdA x Video Outreach | | | | | **Delivery Method** | X Live  Compressed Video  DVD  x Video Tape  Web | | | | |
| **C****ourse Description** | Topics of interest in the implementation of Real-Time Operating Systems, especially as applicable to embedded systems, including hardware review, interrupts and interrupt handling, scheduling principles, latency, task management, shared data and synchronization, timers, message passing, hard real-time scheduling, memory/space/speed tradeoffs. Students will build a real time operating system in lab. | | | | | | | | | | |
| **Course Type** | X Lecture X Lab | | | **Prerequisites** | CS240 | | | | | | |
| **Course Outline** | 1. Hardware Fundamentals review, resources of a microprocessor  2. microprocessor timing issues  3. Interrupts, interrupt handling, interrupt service routines  4. Latency in interrupts  5. Scheduling: round-robin, priority, real time considerations  6. tasks, task management, context switching  7. task synchronization, semaphores, shared data handling  8. Operating system services: queues, mailboxes, pipes  9. Implementation of memory management  10. Speed vs space vs time considerations.  11. Use of embedded software development systems. | | | | | | | | | | |
| **R****equired Text** | Embedded Software Primer, Simon, Addison-Wesley, 1999 | | | | | | | | | | |
| **Optional Resources** |  | | | | | | | | | | |
| **Student Work** | Students will complete several lab projects that build on each other, resulting in a complete RTOS | | | | | | | | | | |
| **Grading** | Two midterm exams plus final, several lab projects | | | | | | | | | | |
| **Special HW or SW** | | X Yes  No  Embedded Systems Lab | | | | | | **Funding Source** | |  | |
| **TA or Grader** | | Yes  No | | | | | | **Funding Source** | |  | |
| **Graduate Course Emphasis Area** | | | X Software Architecture  Hardware Architecture  Development Process   Research Foundations  CS Theory  N/A | | | | | | | | |
| **Comments/Rationale** |  | | | | | | | | | | |

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| **Level of Approval** | **Date Approved** | **Date Denied** | **Signature** |
| **CS Curriculum Committee** |  |  |  |
| **CS Department Faculty** |  |  |  |

1. This form is to be used to propose any special topics course by the CS faculty on the Moscow campus or at any of the U of I resident instruction centers.

2. During the fall and spring semester the Chair of the CS Curriculum Committee will request proposals for the offering of special topics courses during the following semester. The announcement date will be set to allow preparation of proposals by interested faculty, processing of proposals by the CS Curriculum Committee, and voting by the CS faculty as a whole in time for approved courses to be included in the time schedule published by the Registrar. Under extenuating circumstances the committee and CS faculty will consider proposals that have not met the standard timeline for submission.

3. Completed course proposals will be provided to the CS Curriculum Committee for its review. The intent of the committee's review is to ensure that there is an adequate definition of the proposed special topics course and to ensure that the course meets the department’s general academic standards for content and level of offering. The committee will also review a proposed course to ensure that it does not overly duplicate the content of another course. Courses receiving a favorable vote by the committee will be presented to the CS faculty as a whole and will come before the faculty as a seconded motion for their consideration. The review by the CS faculty as a whole is to ensure that the proposed course is consistent with the department’s teaching and research objectives, that sufficient teaching and support resources can be made available, and that offering the proposed course does not adversely affect the department’s ability to meet its other commitments.

4. The special topics course proposal must include the following information:

Contact and Instructor Information:

(1) Name, phone number, and e-mail address of the person submitting the request.

(2) Name, phone number, and e-mail address of the proposed course instructor. If the proposed instructor is not a regular or affiliate faculty member an Instructor Approval Form must be submitted to the department before the the course may be offered.

Course Information:

(1) Provide the course title.

(2) Check the box indicating the course number designation that applies to the proposed course offering.

(3) Indicate the number of credits to be applied.

(4) Indicate the semester in which the course is to be offered.

(5) Indicate the location(s) where the course will be available.

(6) Indicate the delivery method(s) that will be used.

(7) Provide a catalog-level course description.

(8) Indicate the type of course, lecture, lab, or both, that is to be offered.

(9) Indicate the course prerequisites by identifying specific courses that must have been completed prior to enrolling in the proposed course. If specific course prerequisites are not applicable, identify areas of expertise that students must have in order to be successful in the proposed course.

(10) Provide an outline of the course in sufficient detail to enable the faculty to assess the course content.

(11) Indicate the required text and/or other material, including software, you intended to use as the primary resource(s) for students.

(12) Identify optional resources that individual students may wish to obtain.

(13) Provide a general description of the work to be performed by the students (exams, projects, term paper, home work, presentations, programs, etc.).

(14) Indicate your anticipated method of evaluating students for their final course grade, i.e., the percentage of grade based on individual elements of student work.

(15) Identify special hardware and/or software, if any, the university must provide for student and / or instructor use. Identify the proposed source of funds.

(16) Identify if TA or grader resources are required and if so, the proposed source of funds.

(17) For graduate courses identify the emphasis area in which the course resides.

(18) Include any additional comments or explanation that will assist the committee and faculty in evaluating this course proposal including rationale for creating the proposed course and an explanation of how the department will manage the added workload, if any.

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