George Mason University
Graduate Course Approval/Inventory Form

Please complete this form and attach a copy of the syllabus for new courses. Forward it as an email attachment to the Secretary of the Graduate Council. A printed copy of the form with signatures should be brought to the Graduate Council Meeting. Complete the Coordinator Form on page 2, if changes in this course will affect other units.

Please indicate:  ____X___ NEW  ____ MODIFY  ____ DELETE

Local Unit:  IT&E  Graduate Council Approval Date:

Course Abbreviation:  SYST / ECE  Course Number:  622 / 675

Full Course Title:  Systems Integration and Architecture Evaluation

Abbreviated Course Title (24 characters max.):  Syst Int and Arch Eval

Credit hours:  3  Program of Record:  MS in SE; MS in EE

Repeatable for Credit?  ____ D=Yes, not within same term  Up to hours
     ____ T=Yes, within the same term  Up to hours
     ____ N=Cannot be repeated for credit

Activity Code (please indicate):  ____X__ Lecture (LEC)  ____ Lab (LAB)  ____ Recitation (RCT)
     ____ Studio (STU)  ____ Internship (INT)  ____ Independent Study (IND)  ____ Seminar (SEM)

Catalog Credit Format 3 : 3 : 0  Course Level:  GF(500-600)  ____X__ GA(700+)

Maximum Enrollment:  50  For NEW courses, first term to be offered: Spring 2005

Prerequisites or corequisites:  SYST 620 / ECE 673; SYST 621 / ECE 674

Catalog Description (35 words or less)  Please use catalog format and attach a copy of the syllabus for new courses.:


For MODIFIED or DELETED courses as appropriate:

Last term offered:  F 03  Previous Course Abbreviation:  SYST  Previous number:  572

Description of modification:  This course is being replaced by the new course SYST 623 /ECE 675 System Integration and Architecture Evaluation

APPROVAL SIGNATURES:

Submitted by:  ________________________________ email:  ________________

Department/Program:  ________________________________ Date:  __________________

College Committee:  ________________________________ Date:  __________________

Graduate Council Representative:  ________________________________ Date:  ________________
Approval from other units:

Please list those units outside of your own who may be affected by this new, modified, or deleted course. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

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Graduate Council approval: ___________________________ Date: __________

Graduate Council representative: _______________________ Date: __________

Provost Office representative: _________________________ Date: __________
1. CATALOG DESCRIPTION
   (a) SYST 622 / ECE 675 System Integration and Architecture Evaluation (3:3:0)
   (b) Prerequisites: SYST 620 / ECE 673 and SYST 621 / ECE 675
   (c) Catalog Description:

2. JUSTIFICATION
   (a) Course Objectives
       This is the capstone course in the sequence. It addresses the system integration problem using architectures as the basis and then addresses the evaluation of architectures in terms of the capabilities they provide.
   (b) Course Necessity
       Systems Integration is a challenging problem for industry and government.
   (c) Relationship to Existing Courses
       The course replaces the current SYST 572 Introduction to Systems Integration Engineering; it is an advanced version of that course because the prerequisite courses have set the foundations.

3. APPROVAL HISTORY
   SEOR Department Date:
   ECE Department Date:
   IT&E Graduate Committee Date:
   IT&E Dean Date:

4. SCHEDULING
   The course will be offered every spring semester starting with Spring 2005.
   Proposed Instructors: Profs. A. P. Sage and A. H. Levis

5. COURSE OUTLINE
   (a) Syllabus
       1. The System Integration Problem – human, organizational, societal cultural, and technological
       2. Systems Integration standards and CMM, CMMI
       3. The role of architectures in systems integration
       4. Integration in a system of systems and an FOS
       5. Assessment and evaluation of architecture and integration strategies
       6. Measures: MOPs, MOMs, MOEs
       7. System Effectiveness Analysis
8. Key thread analysis – algorithm for key thread determination
9. Capabilities and effects based architecting and integration – concepts and definitions
10. Evaluation of capabilities: Algorithms for relating structure to capability
11. Static analysis: Logical, behavioral and performance evaluation
12. Dynamic analysis
13. Analysis of Alternatives

(b) Reading and reference material

Class Notes and an evolving text by A. P. Sage and A. H. Levis

(c) Student Evaluation Criteria

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