

13-200
 LSC: App-4/10/14
 UWUCC: App-4/15/14
 Senate: App-4/29/14

REVISION APPROVAL COVER SHEET FOR CONTINUATION OF W-DESIGNATION

TYPE II DEPARTMENT COMMITMENT

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Course IFMG 460: Analysis and Logical Design

Please provide answers to these questions on the next page:

Received

APR 3 2014

1. Include the most recent syllabus for the Type II course.

Liberal Studies

Addendum: This does not have to be the syllabus of record, since the syllabus of record could potentially be rather dated. These syllabi are not meant to replace the syllabus of record; rather they represent how the department is currently teaching a particular Type II W course. These syllabi **do not** have to be revised using the Liberal Studies objective format.

2. Include a new "Statement Concerning Departmental Responsibility". The statement of departmental responsibility" explains how the department will ensure that the writing component is present regardless of who is teaching the course. It needs to identify the specific department group or individual who is responsible for ensuring this.

Addendum: This section should show how the department is going to support the W nature of a Type II course, not repeat what is being taught in the course. For example, there is no need to repeat the writing criteria (5000 words, essays exams, research papers etc.) in this section as the type of writing and/or assignments might change over the years. The responsibility relies on the department and they should explain how it will be supporting the W course to ensure that it is being taught in the proposed manner. That may be creating a community of writers within the department or a yearly meeting(s) to discuss Type II offerings. It might also be associated with particular outcomes from the course (often in accredited programs).

Approvals:	Signature	Date
Professor (s)	<i>James A. Rodger</i>	3-27-2014
Department Chair	<i>A. Ambari</i>	03/27/2014
College Dean	<i>Paul Camp</i>	4/2/2014
Director of Liberal Studies	<i>Dr. H. Pines</i>	4/10/14
UWUCC Co-chair(s)	<i>Gail Sedriest</i>	4/15/14

TYPE II DEPARTMENT COMMITMENT

Professor Dr. James A. Rodger Department MISDS, ECOBIT

Course IFMG 460: Analysis and Logical Design

1. Include the most recent syllabus for the Type II course.

The most current Syllabus of Record is attached to this proposal

2. Include a new “Statement Concerning Departmental Responsibility.” The Statement of Departmental Responsibility” explains how the department will ensure that the writing component is present regardless of who is teaching the course. It needs to identify the specific department group or individual who is responsible for ensuring this.

As new Information Systems (IS) are designed and existing ones are enhanced, documentation and descriptions of what functions and features are being proposed or what is being enhanced is an important consideration in all IS development exercises. There are formal standards and methodologies for describing and documenting system features and functions. Ensuring that students are well versed in this area is of utmost importance for the MISDS department. Many of our students take up jobs as System Analysts and Business Analysts and, as such, writing proper IS documentation is an important skill that they all need to master. The department as a whole is responsible for ensuring that students engage in proper and comprehensive writing throughout the course.

Given the importance of the writing involved in this course, the MISDS department’s Undergraduate Curriculum Committee meets on a yearly basis to review the current industry practices and tools used for system description and documentation. Currently, tools like Smart Draw, Protégé, and/or UML are used for system descriptions. The final project includes a design document that is writing-intensive and incorporates written descriptions of subsections such as a data dictionary, configuration management, a training manual, domain models, sequence diagrams, collaboration diagrams, use cases and event tables. The Department Undergraduate Curriculum Committee undertakes continuous improvement outcomes such as adding Agile Methods to the writing project. Project Management Institute metrics and standards are applied to this quality initiative to guarantee the currency of the intensive writing initiative.

SYLLABUS OF RECORD

IFMG 460 Analysis and Logical Design

(3c-01-3cr)

Prerequisites: IFMG 210 and IFMG 230 and IFMG 352 and IFMG 390

IFMG 560 Analysis and Logical Design

(3c-01-3cr)

Prerequisites: Permission of the instructor (determination of appropriate background done by the instructor)

I. Catalog Description

Involves teaching the tools and techniques required for the analysis and design of a business system. Along with in-class discussions of the principles and techniques for analyzing, designing, and constructing the system, the students will also formulate system teams in order to analyze the problems of an existing business information system, to design an improved system, and to control the implementation of the new system.

II. Course Objectives

Students will be able to:

1. Identify methods by which systems may be analyzed and developed.
2. Explain the functional subsystems of a firm together with detailed procedures for designing and controlling the implementation of such systems.
3. Analyze the problems of a real business information system and to design an improved system.

Additional outcomes for the graduate students:

4. Analyze and evaluate a real world Business System and model it using the techniques taught in the class. Produce a requirement document and a design document as a deliverable of this endeavor.
5. Research and synthesize the current theoretical and applied research in the field of Business System Analysis to come up a new research question and associated hypotheses.

III. Detailed Course Outline

1. Systems Planning (3 hours)
 - a. Preliminary Investigation
2. Systems Analysis (3 hours)
 - a. Determining requirements
 - b. Analyzing requirements
 - c. Evaluating alternatives and strategies
3. Midterm I and Evaluation Testing (2 hours)

4. System Design (6 hours)
 - a. General System Design
 - b. Output Design, Forms Control
 - c. Input Design
 - d. File Design
 - e. Design Phase Report and Review

5. System Implementation Preparation (6 hours)
 - a. Preparing for Implementation
 - b. Computer Program Development
 - c. Development Phase Report and Review

6. System Operation and Control (10 hours)
 - a. Operation Phase Overview
 - b. Changeover and Routine Operation
 - c. Performance Evaluation and Control

7. Midterm II and Evaluation Testing (2 hours)

8. System Analysis and Design Project Implementation (10 hours)
 - a. The students will formulate system teams.
 - b. The students will analyze the problems of a business information system of their choice or one assigned by the instructor.
 - c. The student will prepare progress reports of their analysis of the existing system and submit to the professor for review.
 - d. The final report of the systems analysis project will be prepared and submitted to students' professor and project leader.
 - e. The student will design an improved system based on the recommendations and guidelines presented in the approved analysis project report.
 - f. The complete results of the new system design will be documented and a design phase report will be prepared.

9. Final examination (2 hours)

IV. Evaluation Methods

Undergraduate Students

Writing intensive homework assignments. These will be based on material discussed in class and on aspects of the project. (Objectives 1 & 2)	20%
Examinations. Two in-class exams and a final exam all of which count equally. Examinations consist of short-answer, analysis, and what-if questions. (Objectives 1 & 2)	45%
Project. The project is to analyze and design a business information system of their choice or one assigned by the instructor. The student will have to demonstrate that the completed project is functional.	35%

<ol style="list-style-type: none"> 1. It is essential that students formulate the system teams to simulate a real world situation. Therefore, an organizational meeting has to be held prior to conducting any analysis activities. The role and responsibilities of the individual team member must be initially identified. 2. Students will research the library and Internet for a parallel system. 3. Students may visit other companies with the intent of analyzing systems with similar design considerations. 4. Students will model the system using Visio. <p>(Objective 3)</p>	
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Graduate Students

<p>Research paper. Students will survey the state of the Business System Analysis and identify important future trends and historical issues. Based on their survey they will come up with a research question, research model, and a set of hypotheses. They will outline the data collection plan to test the hypotheses</p> <p>(Objective 5)</p>	25%
<p>Examinations. Two in-class exams and a final exam all of which count equally. Examinations consist of short-answer, analysis, and what-if questions.</p> <p>(Objectives 1 & 2)</p>	45%
<p>Project. The project is to analyze and design a business information system of their choice or one assigned by the instructor. The student will have to demonstrate that the completed project is functional.</p> <ol style="list-style-type: none"> 1. It is essential that students formulate the system teams to simulate a real world situation. Therefore, an organizational meeting has to be held prior to conducting any analysis activities. The role and responsibilities of the individual team member must be initially identified. 2. Students will research the library and Internet for a parallel system. 3. Students may visit other companies with the intent of analyzing systems with similar design considerations. 4. Students will model all aspects of this system using Rational Rose, Visio, and other tools. <p>(Objective 3 & 4)</p>	30%

Undergraduate Grading Scale:

A: 90% and above; B: 80% and above but less than 90%; C: 70% and above but less than 80%; D: 60% and above but less than 70%; F: Below 60%

Graduate Grading Scale

A: 90% and above; B: 80% and above but less than 90%; C: 70% and above but less than 80%; F: Below 70%

V. Course Attendance Policy

In accordance with University policy, individual faculty will denote an attendance policy on

specific course syllabi.

VI. Required Textbook(s), Supplemental Books and Readings

Alan Dennis, Barbara Haley Wixom and David Tegarden (2013) Systems Analysis and Design with UML, John Wiley and Sons, Hoboken, NJ.

VII. Special Resources

No special resource requirements. All the software needed is provided free or already subscribed by the MISDS department. This software is installed in the MISDS lab which is used for the course.

VIII. Bibliography

Boehm, B. JoAnn Lane, Supannika Koolmanojwong (2013) An Orthogonal Framework for Improving Life Cycle Affordability *Procedia Computer Science*, Volume 16, 2013, Pages 1170-1179

Clune, R. Jerome J. Connor, John A. Ochsendorf, Denis Kelliher (2012) An object-oriented architecture for extensible structural design software. *Computers & Structures, Volumes 100–101, June 2012, Pages 1-17*

Fertuck, L. Systems Analysis and Design with Modern Methods, B&E Tech, Dubuque, IA, 2000.

Helmert Scott A., Microsoft® Visio® 2010 Step by Step: The smart way to learn Microsoft Visio 2010-one step at a time, O’Riely Media, Sebastopol, CA 2011.

Hoffer, J. et. al. Modern Systems Analysis and Design, 7th Edition, Prentice Hall, Upper Saddle River, NJ, 2013.

Rick Kazman, Michael Gagliardi, William Wood (2012) Scaling up software architecture analysis, *Journal of Systems and Software*, Volume 85, Issue 7, July 2012, Pages 1511-1519

Kendall, K., & Kendall, J. E. Systems Analysis and Design, 9th Edition, Prentice Hall, Upper Saddle River, NJ 2013.

Martin, M. P. Analysis and Design of Business Information Systems, 2nd Edition, Prentice Hall, Upper Saddle River, NJ, 1995.

Marakas, G.M. Systems Analysis and Design: An Active Approach, Prentice Hall, Upper Saddle River, NJ, 2005.

McLeod, R. Systems Analysis and Design: An Organizational Approach, Dryden Press, Orlando, FL, 2000.

Pendharkar, P. C. & Rodger, J. A. (2011). A Distributed Problem Solving Framework for Probabilistic Software Effort Estimation. *Expert Systems: Journal of Knowledge Engineering*, 28 (3), 123-137.

Pendharkar, P. C. & Rodger, J. A. (2010). Probabilistic and analytical estimation of software development team size. *International Journal of Hybrid Intelligent Systems*, 7 (2), 137-154.

Pendharkar, P. C. & Rodger, J. A. (2009). The Relationship between Software Development Team Size and Software Development Cost. *Communications of the ACM*, 52 (1), 141-144.

Pendharkar, P. C., Subramanian, G. H., & Rodger, J. A. (2005). A Probabilistic Model for Predicting Software Development Effort. *IEEE Transactions on Software Engineering*, 31 (7), 615-624.

Rodger, J. A. & Pendharkar, P. C. (2007). A Field Study of Database Communication Issues Peculiar to Users of a Voice Activated Medical Tracking Application. *Decision Support Systems*, 43 (2), 168-180.

Valacich, J.S. et. al. Essentials of Systems Analysis and Design, 7th edition , Prentice Hall, Upper Saddle, River, NJ, 2013.