# BYU Hawaii Curriculum Proposal Number 10-22

## Section 1 - Approvals

### Approvals

**Name of Proposal:** IS 435  
**Submitted by:** James Lee  
**Signature:**  
**Date:** 26 October 2010

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recommendation/Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Vote: For 6, Against 0, Abstain 0, Absent 0</td>
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<tr>
<td>1. Approved by Department [separate block for each dept]</td>
<td>Signature:</td>
<td>11/2/2010</td>
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<tr>
<td></td>
<td>Chair: James Lee</td>
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<td>2. Approved by College [separate block for each college]</td>
<td>Signature:</td>
<td>11/2/10</td>
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<td></td>
<td>Dean: Glade Tew</td>
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<td>3. Reviewed by LAS (if new resources are requested)</td>
<td>Signature:</td>
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<tr>
<td></td>
<td>LAS: Matt Kestor</td>
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<td>4. Approved by General Education (if any GE course is affected)</td>
<td>Signature:</td>
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<tr>
<td></td>
<td>GE: David Beus</td>
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<td>5. Approved by University Curriculum Committee</td>
<td>Signature:</td>
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<tr>
<td></td>
<td>UCC: Jennifer Lane</td>
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<tr>
<td>6. Approved by Academic Council</td>
<td>Signature:</td>
<td>2 Nov 2010</td>
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<tr>
<td></td>
<td>AVP: Max Checketts</td>
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<td>7. Approved by the President's Council (for new programs)</td>
<td>Signature:</td>
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<td>Pres: Steven Wheelwright</td>
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Section 2 – Overview

Summary: This proposal seeks to create a new course within the Computer and Information Sciences (CIS) Department, IS 435: Advanced Concepts in Enterprise Resource Planning (ERP) Systems. The course will be a follow on to IS 430, which is an introduction to ERP systems, and will have a significant hands-on component using SAP, the world leader in enterprise resource planning systems. This will be the third course taught at BYU Hawaii using SAP.

Background: BYU Hawaii became a member of the SAP University Alliances (SAPUA) program in January 2009. SAP is the world-wide leader in the sales of enterprise resource planning systems software and the demand for SAP professionals currently exceeds the supply, especially in our target areas. According to Nathan Henderson, an executive at SAP, there were over 10,000 unfilled positions in Asia in 2009. In a recent conversation with Eric Reyes, the Director of Advisory Services in the Honolulu office of KPMG, stated that SAP experience on a resume would attract attention at KPMG and at any of the other Big Four accounting firms. SAP skills appear to be in high demand, even in a down economy.

As part of our membership in the SAPUA program, our students are eligible to receive a certificate from the program if they successfully complete three courses with a 30% or higher hands-on SAP component. We currently have two courses that meet this requirement, Acct 356 and IS 430. IS 435 will give us the required third course and allow our students to earn the SAPUA certificate. An additional benefit to our students of completing three SAP related courses is that they will then be eligible to receive training for and take the TERP10 Certification exam. SAP requires all individuals working as SAP professionals to have TERP10 certification before they can complete any other SAP certification programs. BYUH students successfully completing TERP10 certification would be very desirable to potential employers.

Course Description: IS 435 will build on the concepts taught and the skills developed in IS 430. In IS 430, the students are given a broad overview of ERP systems, how they are used by organizations and introduced to many of the features of SAP. Students complete hands-on exercises in many of the SAP modules including Production Planning, Sales & Distribution, Materials Management, Human Resources, Financial Accounting, and Controlling.

In IS 435, the students will be exposed to additional concepts related to ERP systems including, Business Process Management, Business Intelligence, Data Warehousing, and an extended SAP simulation exercise in which the students will work together in groups running a simulated manufacturing business. In addition to the SAP software used in IS 430, students will be introduced to other software tools including the SAP Business Explorer Query Designer, Crystal Reports, Crystal Reports Dashboard Design, and the ERPsim Manufacturing Game.

IS 435 will be a senior level elective course for students in all CIS degree programs (Computer Science, Information Systems, and Information Technology). In addition, because of the high demand for SAP experience, it will likely be taken by many students in other degree programs within the College of Business, Computing and Government such as Accounting and Business Management. The only prerequisite for the course will be IS 430. The course will initially be offered during Winter semesters and could be offered more often if there is enough student demand for the course.

Changes in Expected Teaching Load: The teaching load of CIS faculty will not need to increase to offer IS 435. The department currently offers IT 426, Computer Network Services, both Fall and Winter semesters and the student demand is not currently sufficient to support the course being offered twice each year. IT 426 will be offered in Fall semester and IS 435 will be offered in Winter semester and no additional faculty resources will be required.
Section 4 - Course Proposal

Upon approval, the information presented on this course proposal sheet will become binding on the department and the university. Any material changes require a new course proposal.

Effective Date: added to the catalog immediately upon approval and taught for the first time in Winter 2011

College: Business, Computing and Government

Course Prefix: IS

Course Number: 435

NEW COURSE

Full Title: Advanced Concepts in Enterprise Resource Planning (ERP) Systems

Short Title (for Transcript, 30-char max): Advanced Concepts ERP Systems

Catalog Entry (50-word recommended maximum):

Students learn advanced concepts related to enterprise resource planning (ERP) systems such as data warehousing, business intelligence, and business process management. Students will complete several hands-on exercises using the SAP ERP system and other related software tools. (Prerequisite: IS 430)

Prerequisites: IS 430

Credit Hours: 3

Grading Method: Letter grades will be assigned from A - F

Course Fees: None

Learning Objectives: Each student who passes this course will be able to do the following:

- Explain how business processes are used in ERP systems
- Explain what a data warehouse is and how data warehouses are used by organizations
- Explain what data-marts are and how they are used
- Explain what data mining is and how it is used
- Explain the basic principles of business planning
- Explain what business intelligence is and how organizations use it for decision making
- Explain which software tools can be used for business intelligence applications
- Use ERPsim with fellow students to simulate the management of a manufacturing organization
- Interact with advanced features of SAP such as the Business Explorer Query Designer and Crystal Reports Dashboard Design
**Assessment Methods:** Students will be assessed with a combination of exams, quizzes, computer exercises, class participation, and a group research paper. The breakdown will be as follows:

Final Exam: 20%
Group Research Paper: 20%
Attendance, Participation & Quizzes: 10%
SAP lab exercises: 30%
ERPsim exercises (Group): 20%
Sample Syllabus:

Advanced Concepts in Enterprise Resource Planning (ERP) Systems

Course Outline

Course Information
Title: Advanced Concepts in Enterprise Resource Planning (ERP) Systems
Number: IS 435
Credit hours: 3
Prerequisite: IS 430

General Course Description
IS 435 builds upon the concepts taught and the skills developed in IS 430. In this class, students will be exposed to additional concepts related to ERP systems including: Business Process Management, Business Intelligence, Data Warehousing, and an extended SAP simulation exercise in which the students will work together in groups running a simulated manufacturing business. In addition to the SAP software used in IS 430, students will be introduced to other software tools including the SAP Business Explorer Query Designer, Crystal Reports, Crystal Reports Dashboard Design, and the ERPsim Manufacturing Game.

Course Materials
There is no textbook for this class, however, there are several PowerPoint presentations that will be provided via Blackboard and other online materials that will be required reading throughout the course. In addition, each student must purchase the ERPsim Lab Participant’s Guide available at http://erpsim.hec.ca/book/.

Students will use several different software packages as part of the course including SAP, SAP Business Explorer Query Designer, Crystal Reports and Crystal Reports Dashboard Design. The software will be available in the classroom and in GCB 111 during open lab time in the evenings, M-F.

Expected Learning Outcomes
Each student who passes this course will be able to do the following:

- Explain how business processes are used in ERP systems
- Explain what a data warehouse is and how data warehouses are used by organizations
- Explain what data-marts are and how they are used
- Explain what data mining is and how it is used
- Explain the basic principles of business planning
- Explain what business intelligence is and how organizations use it for decision making
- Explain which software tools can be used for business intelligence applications
- Use ERPsim with fellow students to simulate the management of a manufacturing organization
- Interact with advanced features of SAP such as the Business Explorer Query Designer and Crystal Reports Dashboard Design
Performance Evaluation:
Your final grade for this class will be based on the following point allocation:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Group/Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab assignments</td>
<td>300</td>
<td>Individual</td>
</tr>
<tr>
<td>ERPsim lab assignments</td>
<td>200</td>
<td>Group</td>
</tr>
<tr>
<td>Attendance, Participation &amp; Quizzes</td>
<td>100</td>
<td>Individual</td>
</tr>
<tr>
<td>Research Paper and Presentation</td>
<td>200</td>
<td>Group</td>
</tr>
<tr>
<td>Final examination</td>
<td>200</td>
<td>Individual</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1000</strong></td>
<td></td>
</tr>
</tbody>
</table>

Grades will be assigned based on the following cumulative scores:

- A 94.00% to 100%
- A- 90.00% to 93.99%
- B+ 86.00% to 89.99%
- B 82.00% to 85.99%
- B- 79.00% to 81.99%
- C+ 76.00% to 78.99%
- C 72.00% to 75.99%
- C- 69.00% to 71.99%
- D+ 66.00% to 68.99%
- D 62.00% to 65.99%
- D- 59.00% to 61.99%
- F 58.99% or less

Teaching Approach
This course will be taught using a combination of lectures, readings, hands-on lab exercises, and a business simulation using ERPsim. All of the course materials will be available via Blackboard. Lab assignments are designed to give students exposure to different software tools and to reinforce concepts from the lectures and the readings. The lab assignments will not only measure how well you have learned the material, but will also help solidify your understanding of the material and encourage further exploration and learning. Your success in this class depends upon your attendance and successfully completing each lab assignment.

Attendance, Participation & Quizzes
Attendance will be taken each day at the beginning of class. Pop quizzes will be given throughout the semester and cannot be made up. Attendance, Participation & Quizzes will count as 10% (100 points) of your grade for the class. You are expected to be prepared for each class by doing the assigned reading and coming to class with questions from your readings. Proper preparation before class will allow you to better participate in class discussions and to better learn the materials for each section. Instructions for lab assignments will be given during class and most of the assignments can be completed during class.

Group Research Paper & Presentation
Each student will be part of a group. Each group will write and present a detailed research paper on a topic related to ERP systems. Each group will determine the topic for their paper, conduct the research, write the document, and present their research findings to the class. Sample topics include: Why do companies fail in their implementation of ERP systems?; What are the current technological trends in ERP systems?; Can small businesses benefit from the use of ERP systems?; What are the major differences among the top ERP Systems?; Are Open Source ERP systems a viable option to commercial ERP systems? Etc.
The paper should be a minimum of twelve (12) pages, double spaced, with one inch margins on all sides. PowerPoint slides should be used during the in-class group presentation. The paper and presentation is worth 200 points.

Exams:

There will be a final exam. The final exam covers class lectures and required readings and is worth 200 points.

Labs

Six individual lab assignments will be completed during class sessions to learn hands-on skills of using various SAP tools, i.e., Business Explorer Query Designer, Crystal Reports, and Crystal Reports Dashboard Design. These are worth 300 points.

1. Lab instructions
   (a) Lab instructions will be available on Blackboard the day of the assignment

2. Class sessions
   (a) You will have at least one class session for each lab assignment.
   (b) It is expected that most students will be able to complete each lab during designated class session.

3. Office hours: If you have difficulties finishing the labs during class sessions, please take advantage of the office hours of the instructor to obtain extra help. Additionally, GCB 111 is open in the evenings (M-F) and you can work on your SAP labs there.

4. Lab reports and grading
   (a) Each lab report must be submitted at the beginning of class on the due date.
   (b) Late submissions
      (i) To prevent the situation that some students use the current lab time to do a previous lab, the due time of all lab reports will be one minute before the beginning of the class session on the due day. All lab reports submitted after the start of class on the due day will be regarded as late submissions.

Late submissions of lab reports will be penalized by deducting 25% for each day (24 hours) late. No credit at all after four days.

ERPsim: Students will be divided into teams for the manufacturing company simulation exercises. Each team will run their own company and compete with the other teams for market share and overall profitability. Teams will analyze their performance and prepare reports for submission. These are worth at total of 200 points.

Schedule

The schedule is subject to change and will be reviewed at the start of each class period:

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Introduction and overview of ERP Systems</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Business Process Management in ERP Systems</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>Data Warehouses</td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td>Data Marts</td>
<td></td>
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<tr>
<td>5</td>
<td></td>
<td>Enterprise Reporting using Business Explorer Query Designer</td>
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<tr>
<td>6</td>
<td></td>
<td>Enterprise Reporting using Crystal Reports</td>
<td></td>
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<tr>
<td>7</td>
<td></td>
<td>Business Intelligence</td>
<td></td>
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<tr>
<td>8</td>
<td></td>
<td>Business Planning with Business Intelligence</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Executive Decisions with Dashboards</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>ERPsim Introduction and Set-up</td>
<td></td>
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<tr>
<td>11</td>
<td></td>
<td>ERPsim Exercises</td>
<td></td>
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<tr>
<td>12</td>
<td></td>
<td>ERPsim Exercises</td>
<td></td>
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<tr>
<td>13</td>
<td></td>
<td>Research Report Presentations</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Review and Final Exam</td>
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Information Systems (IS)

90. Keyboarding Lab (1) (F, W, Sp) (Pass/No Pass) Keyboarding mastery and development of basic skills. Students who have had high school typing within the past five years should not register for this course.

91. Personal Productivity with IS Technology (3) (F, W, Sp) Personal productivity concepts and skills using email, word processing, spreadsheet, database, presentation graphics, web browsing, and the Internet. (Prerequisite: Ability to type 25 wpm.) Fee required.

330. Management Information Systems (3) (1st, F, W, Sp) Manager’s use of information technology to support decision making at all levels. Integrates and uses management functions, computer databases, accounting principles, model building and graphical representation. (Prerequisite: B- or better in CIS 100 or Business Core.)

350. Database Management Systems (3) (F, W) Introduction to design and implementation of database management systems. Emphasis on data structures, normalization of data, data modeling, and database methods. (Prerequisite: CIS 101.)

390R. Special Topics in Information Systems (1-3) (Variable).

399R. Internship in Information Systems (1-12) (Variable) Students may receive credit for applied experience in information systems. Prior approval must be obtained and a program coordinated by a faculty member and the on-site supervisor. (Prerequisite: Permission of the instructor.)

400. Information Systems Proficiency (0) (F,W,Sp,Su) Students demonstrate proficiency at important Information Systems skills by examination. This qualifies them to enter the IS capstone experience.

430. Foundations in IT Services, Enterprise Systems, and ERP Skills (3) (F, W) Students learn principles of IT Services and enterprise systems that dramatically impact enterprise business processes; including IT components, architecture, interconnections, best practices, and ERP skills. (Prerequisites: CIS 201, IS 330, IS350, IS 400, IT 224/L, IT 280/L. Corequisite: IS 430L.)

435. Advanced Concepts in Enterprise Resource Planning (ERP) Systems (3) (W) Students learn advanced concepts related to enterprise resource planning (ERP) systems such as data warehousing, business intelligence, and business process management. Students will complete several hands-on exercises using the SAP ERP system and other related software tools. (Prerequisite: IS 430)
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