USC Viterbi School of Engineering

Enterprise Wide Information Systems

ITP 320 (3 Units)

Fall 2012

Description This course is designed to provide the student with a thorough understanding of both the role that Enterprise Resource Planning Systems (ERPs) play in an organization and the challenging task of managing the Information Systems (IS) function. During the semester, homework will be assigned that afford the student the opportunity to work through many real-life business situations using the SAP ECC system and explore the interaction among the different business processes. SAP is the world's leading provider of Enterprise software designed to integrate every aspect of a company's operation. The hands-on exercises, coupled with the in-class discussions of ERPs, will prepare the student with the knowledge sought by businesses looking to use technology to maintain their competitive edge in the market place.

Objectives At the completion of the course, students will be able to

- Describe the role of an ERP in carrying out business processes in a company
- Explain how 'best business practices' are incorporated in an ERP
- Execute an entire business process chain in the following areas
  - Sales
  - Procurement
  - Production
  - Accounting
- Describe the advantages and disadvantages of on-demand (cloud computing) ERP solutions
- Strategize pricing, production, distribution and sales in a competitive commodity market
- Analyze sales data in an ERP to dynamically respond to changing market conditions to maximize profits
- Expedite production planning and control using tools provided in an ERP (e.g. MRP)
- Report on the reasons for the success (or failure) of their production and sales strategy

Instructor Nitin Kalé

Contact Info kale@usc.edu | OHE 412 | 213.740.7083

Office Hours 10:30 -12:30 M | 2:30-4:30 T | 2:30-4:30 W

Lab Assistant and Grader Karthikeyan Panneer Selvan, panneers@usc.edu
Sai Teja Yerapothina, yerapoth@usc.edu

Lecture 5 – 8 pm, Tuesday, ZHS 352

Open Lab Hours ITP offers Open Lab use for all students enrolled in ITP classes. These open labs are held beginning the second week of classes through the last week of classes. Availability of computers is on a first-come, first-served basis. Course lab assistant will **not** be available at open lab hours. Check Blackboard for Open Lab Hours.

Simulation Game An ERPSimulation Game will be played during lec/lab towards the last 5-6 weeks of the semester. Participation in the game is **mandatory** for all students. ***All students must bring their laptops to class.***

Required Books

- Integrated Business Processes with ERP Systems, by *Simha R. Magal and Jeffrey Word*, ISBN: 978-0-470-47844-8, Wiley
- ERP Simulation Game: *Participant's Manual* (ebook) will be available for purchase online (cost $40 CAD payable online by credit card, details to be announced mid semester)

Reference Books *(not required)*

- Essentials of Business Processes and Information Systems, by *Simha R. Magal and Jeffrey Word ,* ©2010, ISBN: 978-0-470-23059-6
- Enterprise Resource Planning, 3rd Edition, by *Bret Wagner and Ellen Monk*, ISBN: 9781423901792, ©2009

Software

SAP is the leading vendor of Enterprise Resource Planning Systems in the world. ITP/USC has had an Academic Alliance with SAP University Alliances Program for the past 15 years. Several ITP courses utilize the SAP system as a tool and platform.

Students will receive software (SAP GUI for both Windows and MAC) to connect to the **SAP ECC 6.0** server so that they can work from their own computers. ITP labs have the GUI pre-installed. In addition, students will get access to the latest cloud computing (on-demand) ERP solution – **SAP Business ByDesign.** USC/ITP is a pilot member in the adoption of this solution.

Finally, students will have access to a **Virtual Lab** that they can use from their own computers. This remote server has all the software needed for this course.

Website *https://blackboard.usc.edu*

Grading The weight of graded material during the semester is listed below. ***No extra credit assignments will be offered.***

Homework	20%
Cloud Project (Team)	5%
ERPSim Game	
Quiz (Individual)	7.5%
Peer evaluation (Individual)	5%
Game performance (Team)	5%
Mid-game performance report (Individual)	2.5%
Final presentation and analysis (Team)	5%
Midterm Exam	25%
Final Exam	25%
Total	100%

Final letter grade is based strictly on total percentage earned. NO EXCEPTIONS!

Grading scale (percentage):

A	*100-95*
A-	*95-92*
B+	*92-89*
B	*89-86*
B-	*86-83*
C+	*83-80*
C	*80-77*
C-	*77-74*

D+	*74-71*
D	*71-68*
D-	*68-65*
F	*Below 65*

Policies

- Homework turned in after the deadline will automatically have 10 points per day deducted.
- No make-up exams (except for medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule.
- Before logging off a computer, students must ensure that they have saved their work (on their personal email accounts or flash drives) created during class. Any work saved to the computer will be erased after restarting the computer. ITP is not responsible for any work lost.

Academic Integrity

The use of unauthorized material, communication with fellow students during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tension accompanying examinations. When the professor determines that a violation has occurred, appropriate action, as determined by the instructor, will be taken.

Although working together is encouraged, all work claimed as yours must in fact be your own effort. Students who plagiarize the work of other students will receive zero points and possibly be referred to Student Judicial Affairs and Community Standards (SJACS).

The School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

All students should read, understand, and abide by the University Student Conduct Code listed in SCampus, and available at:
http://www.usc.edu/student-affairs/SJACS/nonacademicreview.html

Students with Disabilities

Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213)740-0776."

Policy on Religious Holidays

University policy grants students excused absences from class for observance of religious holy days. Students should contact instructor IN ADVANCE to request such an excused absence. The student will be given an opportunity to make up work missed because of religious observance.

Students are advised to scan their syllabi at the beginning of each course to detect potential conflicts with their religious observances. Please note that this applies only to the sort of holy day that necessitates absence from class and/or whose religious requirements clearly conflict with aspects of academic performance. Please refer to the Holy Days Calendar http://orl.usc.edu/religiouslife/holydays/

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Course Outline

Week 1 – Aug 28th - Introduction

- Course Overview
- Discussion of database applications
- Understanding the difference between Business function and business process
- Overview of Enterprise Resource Planning (ERP)
- Client/Server Technology, 2 Tier, 3 Tier, n Tier
- Examples of ERP – SAP
  - Getting Started with SAP
  - Introduction to Global Bike Inc.(GBI) – Case company

Homework 1: ERP Environment – Explore the client/server architecture of SAP. Learn how to use the user interface. Learn about roles/profiles/permissions for end users.

Week 2 – Sept 4th - Accounting

- Financial Accounting
  - Understanding Generally Accepted Accounting Principles GAAP
  - A quick overview of Accounting basics – Double entry accounting, debit and credit, T-accounts, Chart of Accounts, Balance sheet, Profit and Loss Statement,
  - Posting financial transactions
- Managerial Accounting
  - Controlling – Cost centers and cost elements
  - Allocating Costs – Assessments and distributions

Homework 2: Accounting – Post financial transactions and then see their effect on Balance Sheet and Profit/Loss Statement. Post an expense and then allocate those cost to cost centers.

Week 3 – Sept 11th - Business processes Management – Sales Process

- Sales and fulfillment process
- Master Data and its role in ERP systems
- Creating customer master data, material master data and pricing conditions
- Executing a Sales Cycle
- Difference between transactional data and master data
- Reporting and analysis of sales data

Homework 3: Sales Cycle – Create customer, material master data. Execute the Sales process in SAP.

Week 4 – Sept 18th - Procurement Process

- Forecasting raw material requirements using sales information, production requirements, sales forecast
- Difference between purchase requisitions and purchase orders
- How to source materials
- Vendors and pricing conditions
- Type of goods movement. Receiving goods into inventory
- Executing the Purchasing Cycle

Homework 4: Purchasing Cycle – Create vendor, material master data for purchasing.. Execute the Purchasing process in SAP.

Week 5 – Sept 25th - Production Process: Planning and Control

- Master data needed for production
  - Bill of Materials
  - Work Centers
  - Routings
- Creating a production plan (from forecasting etc.)
- What is MPS? How to estimate MPS? – Master Production Schedule
- What is MRP? How does MRP calculate material requirements – Materials Requirement Planning
- Independent and dependent materials requirements

Homework 5: Production Cycle – Create master data to support the production cycle. Generate historical consumption data which will be used to forecast future demand. Create a sales forecast. Create a production schedule using the sales forecast and safety stock. Execute the production cycle to produce finished goods.

Week 6 – Oct 2nd - Production contd.

- Creating Production orders
- Releasing and confirming production orders
- Executing a Production process
- Monitoring Inventory and Goods movement

Week 7 – Oct 9th - Cloud Computing for ERP

- Cloud Computing
- On-demand ERP solutions

Team Project: Cloud Computing for ERP – Explore and execute a Procure-to-pay and Order-to-cash cycle in a cloud computing solution. Students will play multiple roles (as various employees) in the company while executing the business processes.

Week 8 – Oct 16th **-** ***Midterm Exam***

Week 9 – Oct 23rd **-** Cloud Computing for ERP

- SAP Business ByDesign solution for small and medium enterprises.
  - Intuitive user interface
  - Self learning resources
  - ByDesign library
  - Learning center
- Embedded analytics
- Mobile apps

Week 10 – Oct 30th - ERP Simulation Game

- Goals of the ERP Simulation Game
- Game description
- How the market works, dynamic commodity demand and supply

Week 11 – Nov 6th - ERPSim – Quarters 1 - 8 *(class will run past 8 pm)*

- Introductory game
- Analyzing data from the game
- Analyzing Profit and Loss statement for the company

Week 12 – Nov 13th - ERPSim contd.

- Description of variables and constraints in the extended game

- Role of team members in the game
- Planning and forecasting for procurement and distribution
- Strategies for maximizing profits
- Interest and warehouse costs

Week 13 – Nov 20th - ERPSim – Quarters 1-4 *(class will run past 8 pm)*

- Extended ERPSim contest
- Playing the simulation game in real time as the market fluctuates

Week 14 – Nov 27th – ERPSim - Quarters 5-8 *(class will run past 8 pm)*

- Extended ERPSim contest
- Playing the simulation game in real time as the market fluctuates
- Analysis of the entire game/market

Week 15 - Dec 4th - ERPSim – Student Presentations

- **Quiz**

- **Game Analysis and presentations** – Provide a thorough analysis of your team's performance in the game. Run business intelligence reports based on data extracted from SAP ERP into Microsoft Access database. Analyze and explain product pricing, demand, profit margin. Describe the market behavior and any insights that would have helped you be more competitive

- **Other ERP topics** (courses at ITP)
  - ERP Security
  - ERP Programming
  - ERP Implementation
  - ERP Configuration
  - Supply Chain Management
  - Business Intelligence using data warehouses and data mining

Week 16 – *Tuesday, Dec 18th - Final Exam 4:30-6:30 pm*