

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 give 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 how ERP systems use relational databases to store, manipulate, retrieve and present business data
- 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
 - Accounting
 - Sales
 - Procurement
 - Materials Management
 - Production
- 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 procurement 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, Associate Professor
Information Technology Program and
Daniel J. Epstein Department of Industrial and Systems Engineering
kale@usc.edu | OHE 412 | 213.740.7083

Office Hours 2-4 Wednesday in OHE 412
3-5 Thursday, online <https://bluejeans.com/351861442>

Graders Graham Keyston keyston@usc.edu
Pallavi Malhotra pmalhotr@usc.edu

Lecture MW 10 am – 11:50 am, KAP 160

Virtual Lab Students will be given access to a virtual lab that they can use from their own computer. The virtual lab has all the software needed for the course. Instructions are posted on Blackboard.

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, © 2011, by *Simha R. Magal and Jeffrey Word*, Wiley, ISBN-10: 0470478446, ISBN-13: 978-0470478448. Purchase hard cover from USC bookstore or ebook here <http://www.amazon.com/Integrated-Business-Processes-ERP-Systems/dp/0470478446>
- ERP Simulation Game: *Participant's Manual* (ebook) will be available for purchase online (cost \$43 CAD payable online by credit card, details to be announced mid semester)

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 18 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 6.04** server so that they can work from their own computers.

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	25%
ERPSim Game	
Quiz (Individual)	5%
Peer evaluation (Individual)	5%
Game performance (Team)	5%
Intro Game analysis (Individual)	5%
Extended Game analysis (Team)	5%
Exam I	25%
Exam II	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/>

Emergency Preparedness/Course Continuity in a Crisis In case of emergency, when travel to campus is difficult, if not impossible, USC executive leadership will announce a digital way for instructors to teach students in their residence halls or homes using a combination of the Blackboard LMS (Learning Management System), teleconferencing, and other technologies. Instructors should be prepared to assign students a "Plan B" assignment that can be completed 'at a distance.' For additional information about maintaining your classes in an emergency, please access: <http://cst.usc.edu/services/emergencyprep.html>

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University*

Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Enterprise Information Systems

ITP 320x (4 Units)

Course Outline

Jan 11 - Introduction

- Course Overview

Jan 13 – ERP Basics

- 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

Reading Assignment: Chapter 1: Simha

Homework 1: ERP Environment – Explore the client/server architecture of SAP. Learn how to use the user interface.

Jan 20 - 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

Reading Assignment: Chapter 3: Simha

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.

Jan 25 - Accounting contd.

- Managerial Accounting
 - Controlling – Cost centers and cost elements
 - Allocating Costs – Assessments and distributions

Reading Assignment: Chapter 3: Simha

Jan 27 - 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

Reading Assignment: Chapter 5: Simha

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

Feb 1 - Business processes Management – Sales Process contd.

- Executing a Sales Cycle

- Difference between transactional data and master data
- Reporting and analysis of sales data

Reading Assignment: Chapter 5: Simha

Feb 3 – 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

Reading Assignment: Chapter 4: Simha

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

Feb 8– Procurement Process contd.

- Executing the Purchasing Cycle

Reading Assignment: Chapter 4: Simha

Feb 10 - Materials Management

- Creating a production plan (from forecasting etc.)
- What is MPS? Master Production Schedule
- What is MRP? How does MRP calculate material requirements – Materials Requirement Planning

Reading Assignment: Chapter 8: Simha

Homework 5: Materials Planning – 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.

Feb 17 - No class

Feb 22 - Materials Management contd.

- Independent and dependent materials requirements

Reading Assignment: Chapter 8: Simha

Homework 6: Production Cycle –Execute the production cycle to produce finished goods. Compute actual costs.

Feb 24 – Production Process: Planning and Execution

- Master data needed for production
 - Bill of Materials
 - Work Centers
 - Routings
- Creating Production orders
- Releasing and confirming production orders

Reading Assignment: Chapter 6: Simha

Feb 29 – Production Process: Planning and Execution contd.

- Executing a Production process

- Monitoring Inventory and Goods movement

Mar 2 - ERP Simulation Game

- Goals of the ERP Simulation Game
- Game description

Reading Assignment: ERPSim Website

Mar 7 - Exam I

Mar 9 – No class

Mar 21 - ERP Simulation Game contd.

- How the market works, dynamic commodity demand and supply
- Teams and roles

Mar 23 - ERPSim – Round 1

- Introductory game

Reading Assignment: ERPSim Website

Mar 28 - ERPSim – Rounds 2, 3

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

Mar 30 - ERPSim contd.

- Description of variables and constraints in the extended game
- Role of team members in the game
- Planning and forecasting for procurement, production and distribution
- Strategies for maximizing profits
- Interest and warehouse costs

Reading Assignment: ERPSim Website

Apr 4 - ERPSim – Rounds 1, 2

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

Reading Assignment: ERPSim Website

Apr 6 - ERPSim – Rounds 3, 4

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

Reading Assignment: ERPSim Website

Apr 11 - ERPSim – Rounds 5, 6

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

Reading Assignment: ERPSim Website

Apr 13 – ERPSim - Rounds 7, 8

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

Reading Assignment: ERPSim Website

Apr 18 - ERPSim

- **ERPSim Quiz**

Apr 20 – Extended Game Analysis

- Analysis of extended game

Apr 25 – Class discussion

- **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
 - In-memory data management
- Enterprise Minor

Apr 27 – Exam II

ERPSim Peer Eval due, Monday May 9th