

William Paterson University of New Jersey
College of Science and Health
Department of Computer Science
Course Outline

1. Title of the Course, Course Number and Credits:

Title: "Foundations of Information Systems"

Course Number: CS 255

Credits: 3 credits

2. Description of the Course:

This course introduces the concepts and methods used in the analysis, design, and implementation of computerized information systems. Major topics include software life cycle, data and process models, basic database design, logical and physical design, prototyping, architecture, and project management in information systems development. The course covers hardware, software, databases, communications, networking, and the Internet in support of the information systems infra-structure in an organization. A significant systems development project will be included in this course.

3. Course Prerequisites:

- CS 201 (Computer and Information Technology) or CS 215 (Computer and Information Technology for Educators)
- CS 130 (Introduction to Visual Basic) or CS 230 (Computer Science I) or equivalent in other modern programming languages

4. Course Objectives:

- Be familiar with systems concepts and what it means to develop an information system in an organization;
- Study the different phases and learn their significance of the software development life cycle;
- Learn the methodologies and techniques in systems analysis and design;
- Be able to represent the systems analysis and design by means of modeling tools;
- Learn the fundamentals of communications and networking;
- Understand software and system architecture;
- To gain experience in developing an information system project applicable to business and other organizational settings.

5. Student Learning Outcome:

Upon completion of the course, students will be able to:

- Understand the roles and types of information systems in an organization;
- Understand the general concepts of software engineering;
- Learn the phases and process of software life cycle of requirements, analysis, design, implementation, testing/debugging, installation, operation, and

maintenance;

- Analyze problems and propose alternative design decisions;
- Gain general concepts of software project management;
- Learn the basis of database development;
- Understand communications, networking, and the Internet in support of information systems infra-structure;
- Learn the general concept of Web programming;
- Analyze and design basic information systems which have practical applications.
- Effectively express themselves in written and oral form through class room presentation of homework assignments and through submission of actual system designs
- Demonstrate ability to think critically and logically via analysis of software development life cycle as well as participation in design of computer- based information systems;
- Locate and use information in the process of solving problems; extensive literature search will be required to bring articles to class to strengthen their problem solving ability;.
- Demonstrate the ability to integrate knowledge and ideas in a coherent and meaningful manner; Team projects will be assigned to develop computer-based information systems to mimic the actual application in business and industry;.
- Improve computer skills by using word processing and presentation software, a CASE (Computer-Aided Software Engineering) tool, and the use of Internet.

6. Topical Outline of the Course Content:

- Fundamentals of computerized information systems; hardware, software including Web programming, databases, communications, networking, and system organization;
- Roles and types of information systems in an enterprise;
- Principles of software development life cycle;
- Information systems development of requirements, analysis, design, implementation, testing, and maintenance;
- Data and process models and CASE tools;
- Software design patterns;
- Software and information system architecture;
- Database design and development concepts;
- Overview of software project management.

7. Guidelines/Suggestions for Teaching Methods and Student Learning Activities:

- Classroom lectures, presentations (Blackboard Course Management system), and discussions;
- Problem solving sessions and class exercises;
- Homework, project, and pre-examination reviews;

- Oral presentations of project.

8. Guidelines/Suggestions for Methods of Student Assessment (Student Learning Outcome):

- Reading Assignments:
Read relevant course materials before the lecture of the topic is highly recommended.
- Tentative timeline for submission of written assignment or other work:
All projects and homework will be collected as scheduled. Copying someone else's work is not acceptable and will be penalized according to university's policy.
- Attendance required except for emergencies.
- Examinations (tentative dates, make-up policy, etc.):
Examination schedule will be published in the syllabus. All exams will be announced at least one full week in advance if changes in dates are necessary.
If you are absent on the day an exam is announced, you are responsible for finding out about it from a fellow student or the professor. **No make-up exams will be given except for extraordinary circumstances.**
- Class participation:
Bring lecture notes to each class (highly recommended).
Read relevant text before class to optimize productivity.

9. Suggested Readings, Text, and Other Relevant Materials:

Two Required Texts:

Hoffer, J. A., George, J. F., and Valacich, J. S., *Modern Systems Analysis and Design*, Fourth Edition, Pearson Prentice Hall, 2005

Stair, R. and Reynolds, G., *Fundamentals of Information Systems*, Third Edition, Thomson Course Technology, 2006

Other Material for Study:

<http://bb.wpunj.edu> (CS 255 Course Web Site)

<http://www.prenhall.com/hoffer> (Web Site for Hoffer's book)

<http://course.com/mis/stair> (Web Site for Stair's book)

10. References:

Braude, E. J., *Software Design: From Programming to Architecture*, John Wiley & Sons, Inc., 2004

Curtis, G. and Cobham, D., *Business Information Systems: Analysis, Design & Practice*, Pearson Publications Company, 2005

Dennis, A. and Wixom, B. H., *Systems Analysis Design*, 2nd Edition, John Wiley & Sons, 2002