UNIVERSITY OF ARKANSAS
SAM M. WALTON COLLEGE OF BUSINESS

COURSE SYLLABUS

Course: **ISYS 4463 Enterprise Transactions Systems**
Prerequisite: ISYS 2263 or CSCE 2014 or ISYS 4453 with a grade of "C" or better

Course Description:

For any business, processing transactions represents its life blood and survivability. A variety of systems are used for capturing transactions depending on the individual needs of the business. However, at least 490 of the Fortune 500 companies in the US utilize CICS for transaction processing. This course is being completely redesigned for utilization of Rational Developer for z and will include Java, Cobol, CICS, DB2, VSAM with an emphasis on Systems Oriented Architecture (SOA).

Course Objectives:

This course teaches how to do transaction processing using CICS/Cobol/DB2; however, it does so in a modern development environment using RDz.

Upon completion of this course, the student should

- Know why there is a need for transaction processing and its current and future role in the mix of computing
- Know what an Enterprise Transaction Manager is and be able to describe it major characteristics
- Be able to compare/contrast the top three transaction managers from competing vendors
- Know basic CICS concepts and terms
- Know CICS commands
- Know how all the pieces of a CICS program work together
- Be able to design CICS programs using pseudo-conversational design
- Be able to create HTML Web pages, JSP or Servelet
- Be able to create BMS mapsets
- Be able to develop, test and debug CICS VSAM based systems using RDz
- Know how to use Channels and Containers and Temporary Storage
- Be able to effectively utilize DB2 in a zSeries environment and understand how to embed SQL in CICS
- Be able to develop, test and debug CICS DB2 based systems
- Know how to use develop SOA/CICS intercommunication features
- Have fun

The sequence of topics in the course is roughly as follows:

Overview and Background

Overview of Transaction Processing
Critical Transaction Manager Capabilities
Top three Transaction Managers
Basic background leveling
RDz
Cobol
Java

DB2
VSAM
Putting them all together with RDz
CICS environment, concepts, terms and commands
RDz and CICS

CICS applications in the modern RDz development environment

Part I -- Interface
CICS Web enablement and User Interface design
CICS Web services – SOA concepts
Mapsets
First Web enablement transaction application design

Part II – Job Execution
JCL Basics
On-line

Part II – Data sources
Basic VSAM concepts
DB2 skills

Part IV -- Programming
Embedding CICS & DB2 within programs
Programming, testing, and debugging

Part V – Application Implementation
Complete Web enabled CICS program

Text: Note that the text is mostly for reference and is not up to date from the SOA perspective. However, it is the only reasonable text available. The text will be supplemented via handouts.

Lowe, Doug and Raul Menendez. *Murach's CICS for the COBOL Programmer*, (Mike Murach & Associates, Inc., 2001). ISBN: 1-890774-09-X.

Blackboard:
If you are new to Blackboard, then the following instructions should help you with the Login procedure. To link to is http://learn.uark.edu.

Value of Course:
Although there are a number of options for processing transactions, choices for high volume enterprise transaction processing are much more limited. The vast majority of the Fortune 500 companies in the US as well as other organizations world-wide utilize CICS for transaction processing. The battle between Microsoft and Java grabs the lion's share of media, interestingly enough there are more transactions processed by CICS than by the Internet in it's entirely. Also note that although the first version of CICS was introduced in 1968, it continues to be updated and improved along with the IBM's mainframe servers—the z Series. In the US, 490 of the Fortune 500 companies leverage CICS alone to process more than 30 billion transactions each day. Also, note that most companies will utilize a large number of technologies; in fact CICS can be Web enabled and the new CICS allows easier utilizations of Web Services for creating a Service Oriented Architecture. Thus, students taking this course have an added advantage of experience with a computing platform well entrenched in businesses. This may be the added edge in getting a job.

Class Procedures:

The majority of the class time will be devoted to lecture of text material, discussion, lab work, and assignments. The purpose of class discussions is to clarify, reinforce, and explain in more detail the subject matter.

The teaching method for this course will largely be a combination of lab work and lectures. In addition, outside computer assignments and a group project will be used. All individual assignments are to be done independently.

Attendance Policy:
Students are expected to attend all classes except for university sanctioned events and/or emergencies. No penalties are planned to be sanctioned for missing class but class attendance is necessary for learning the course material.

Inclement Weather Policy:
Under Inclement Weather conditions, if the University is officially opened, I will attempt to hold class. If I am unable to hold class, you will be notified via blackboard and/or e-mail.

Examinations:
Examinations may include some multiple choice and short answer questions; however, a significant portion of each examination will be writing programming fragments. Makeup examinations will be allowed only in cases of documented health or family emergencies or for official, university-sanctioned activities. The instructor reserves the right to use the final examination as a basis for assigning points to missed examinations. Advanced notification of missing an examination is required.

Grades:
Grades are awarded in general, on a percentage basis, as follows:

A above 90
B 80-89
C 70-79
D 60-69
F below 60

Graded work is anticipated to be 7 projects worth 30 points each along with 2 examinations of 100 points each. Additional short assignments are anticipated.

Academic Honesty:
You are referred to the Faculty Handbook for a full description of the Academic Honesty Policy and corresponding procedures--http://catalogofstudies.uark.edu/2882.php. Cheating will not be tolerated and I will ask for the full sanctions against those students who cheat. Although it is appropriate for students to help other students in the learning process, all projects (unless otherwise stated) are individual projects and it is very unlikely that two projects will be almost exactly the same if done on an individual basis.

Disclaimer:
For many reasons--such as unscheduled opportunities for classroom guest speakers, time constraints, inclement weather, etc.-there may be deviations from the course schedule.

Accommodations for Students with Disabilities:
Students who require special assistance or arrangements should contact the professor during the first week of class to discuss and arrange any instructional accommodations that may be necessary. Students who would like to serve as volunteer tutors, readers, or note takers for students needing special assistance are encouraged to contact the instructor during the first week of class.

Topical Outline—Very Tentative

Jan 18 - Overview of Course—
Transaction processing
Review of System z Environment (Basics of TSO/ISPF, RDz, JCL, Cobol, DB2)

Traditional CICS—but using RDz

Jan 25 - z/OS projects, programming and debugging
Assignment 1

Feb 1 - CICS concepts and terms – Chapters 1 & 2
Assignment 2

Feb 8 - Introduction to CICS programming (Chapters 3-5)
Assignment 3

Feb 15 - Working with CICS to get a project to work (Chapters 6-9)
Project 1

Feb 22 - CICS Programming refinements (Chapters 10-15)
Project 2, 3, 4

Mar 1 - Rounding out the CICS concepts, terms and commands
Finish traditional projectsCICS J**ob Execution**
JCL Basics
On-line

Mar 8 - CICS/DB2 (Chapter 17, 19, 21)
DB2 project Data sources
Basic VSAM concepts
DB2 skills programming the application

Mar 15 - Examination I

Mar 21 - 25 **Spring Break**

CICS, graphical interfaces and Web services

Mar 29 - CICS Web enablement and User Interface design
CICS Web services – SOA concepts
First Web enablement transaction application design

Apr 5 - Web enabled CICS project
Project milestone

Apr 12 - (continued) Web enabled CICS project
Project milestone

Apr 19 - (continued) Web enabled CICS project
Project milestone

May 3 - (continued) Web enabled CICS project
Project milestone

May 10 - Completed Project due
Examination II