COURSE SYLLABUS/DESCRIPTION

<table>
<thead>
<tr>
<th>Department and Course Number</th>
<th>ISQA 4590/ISQA 8596</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title</td>
<td>IT Audit and Control</td>
</tr>
<tr>
<td>Course Coordinator</td>
<td>Deepak Khazanchi</td>
</tr>
<tr>
<td>Total Credits</td>
<td>3</td>
</tr>
<tr>
<td>Date of Last Revision</td>
<td>7/20/2004</td>
</tr>
</tbody>
</table>

1.0 Course Description:

1.1 Overview of content and purpose of the course (Catalog description).
This course explores organizational and managerial issues relevant to planning and conducting IT audit and control activities. The course covers the following conceptual areas: business risks and the management of business risk, IT risk as a component of business risk, the need to manage IT risks, and the basic type of controls required in a business system in order to control IT risks. Issues associated with new risks created by the use of the internet for business applications and electronic commerce is also covered.

1.2 For whom course is intended.
The course is intended for undergraduate students (juniors and seniors) and graduate students in Information Systems or Business Administration or related areas who have an interest in IS/T audit and control issues.

1.3 Prerequisites of the course (Courses).
A solid understanding of business foundations such as accounting and introductory auditing and exposure to the IS discipline is required. Permission of department is required to enroll. Permission of Instructor is required.

1.4 Prerequisites of the course (Topics).
- Basic Accounting
- Introduction to Auditing
- Information Security and Policy

1.5 Unusual circumstances of the course.

2.0 Objectives:

2.1 List of performance objectives stated in terms of the student educational outcomes.
- Understand the concept of business risks and the management of business risk
- Understand IT risk as a component of business risk
- Gain an appreciation of the need to manage IT risks
- Gain an understanding of the basic type of controls required in a business system in order to control IT risks
• Learn concepts and applications of the following types of IT controls: top management, system development, programming, data resource management, database, security, operations management, quality assurance, boundary controls, and communications.
• Gain an appreciation for the difficulties in assessing systems effectiveness and efficiency.
• Understand the new system control risks created by the use of the internet for business applications and electronic business.

3.0 Content and Organization:

3.1 List of major topics to be covered in chronological sequence (specify number of weeks on each).

<table>
<thead>
<tr>
<th>Week</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Top Management Controls</td>
</tr>
<tr>
<td>3</td>
<td>Systems Development Management Controls</td>
</tr>
<tr>
<td>4</td>
<td>Programming Management Controls</td>
</tr>
<tr>
<td>5</td>
<td>Data Resource Management Controls</td>
</tr>
<tr>
<td>6</td>
<td>Security Management Controls</td>
</tr>
<tr>
<td>7</td>
<td>Operations Management Controls</td>
</tr>
<tr>
<td>8</td>
<td>Quality Assurance Management Controls</td>
</tr>
<tr>
<td>9</td>
<td>Boundary Controls</td>
</tr>
<tr>
<td>10</td>
<td>Communication Controls</td>
</tr>
<tr>
<td>11</td>
<td>Database &amp; ERP Controls</td>
</tr>
<tr>
<td>12</td>
<td>Evaluating System Effectiveness &amp; Efficiency</td>
</tr>
<tr>
<td>13</td>
<td>Trust Services (AICPA/CICA/IIA Reports)</td>
</tr>
<tr>
<td>14</td>
<td>B2B Assurance Framework (Khazanchi and Sutton)</td>
</tr>
</tbody>
</table>

4.0 Teaching Methodology:

4.1 Methods to be used.
The primary teaching method will include class discussion, case studies, lecture, guest speakers, and demonstration.
4.2 Student role in the course.
The student will attend lectures and demonstrations, participate in discussion on assigned readings, complete assigned projects and papers, and complete required examinations.

4.3 Contact hours.
3 hours

5.0 Evaluation:

5.1 Type of student projects that will be the basis for evaluating student performance, specifying distinction between undergraduate and graduate, if applicable. For Laboratory projects, specify the number of weeks spent on each project).

Students will be evaluated on the following basis.

**Class participation:** Students are expected to attend each and every class and be prepared to actively participate in the discussion. Much of the class will be conducted using an open discussion approach, and the success of the class will be dependent on students’ ability to identify and discuss relevant issues.

**Quizzes:** There will be a quiz on the material covered in the readings for each week (2-13) and must be completed no later than Saturday preceding the in-class discussion of the material.

**Exams:** There will be one comprehensive final examination.

**Group Assignments:** Each person will be assigned to a learning group to complete a case study related to each topic.

**Current News Articles:** Each class member will be responsible for summarizing and presenting two news articles during the course of the semester. These articles should relate in some fashion to risk and controls and should represent a current news event related to the subject to be covered in a given week. All students are required to participate on a regular basis in the discussion.

**Additional Requirement for Graduate Students:** Graduate students will be required to read and develop a literature review based conceptual paper on an IS/T audit and control topic or write a report on IS/T audit practices in their workplace as they relate to the conceptual discussions in class. In addition, graduate students will be expected to be prepared to discuss and present the readings listed under the bibliography section for each week.

5.2 Basis for determining the final grade (Course requirements and grading standards) specifying distinction between undergraduate and graduate, if applicable.
The grade base for the course for undergraduate students will consist of the following:

<table>
<thead>
<tr>
<th>Available points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Comprehensive final exam</td>
<td>30%</td>
</tr>
<tr>
<td>Current news articles</td>
<td>15%</td>
</tr>
<tr>
<td>Individual participation</td>
<td>15%</td>
</tr>
<tr>
<td>Application &amp; Assessment Exercises (Cases)</td>
<td>25%</td>
</tr>
</tbody>
</table>

The grade base for the course for graduate students will consist of the following:

<table>
<thead>
<tr>
<th>Available points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Final Paper</td>
<td>30%</td>
</tr>
<tr>
<td>Current news articles</td>
<td>15%</td>
</tr>
<tr>
<td>Leadership of class discussion</td>
<td>15%</td>
</tr>
<tr>
<td>Application &amp; Assessment Exercises (Cases)</td>
<td>25%</td>
</tr>
</tbody>
</table>

5.3 Grading scale and criteria.

The grading scale is as follows:

<table>
<thead>
<tr>
<th>GRADE POINT VALUE</th>
<th>POINT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92% &lt;= x &lt;= 100%</td>
</tr>
<tr>
<td>A-</td>
<td>89% &lt;= x &lt;= 92%</td>
</tr>
<tr>
<td>B+</td>
<td>86% &lt;= x &lt;= 89%</td>
</tr>
<tr>
<td>B</td>
<td>82% &lt;= x &lt;= 86%</td>
</tr>
<tr>
<td>B-</td>
<td>79% &lt;= x &lt;= 82%</td>
</tr>
<tr>
<td>C+</td>
<td>76% &lt;= x &lt;= 79%</td>
</tr>
<tr>
<td>C</td>
<td>72% &lt;= x &lt;= 76%</td>
</tr>
<tr>
<td>C-</td>
<td>69% &lt;= x &lt;= 72%</td>
</tr>
<tr>
<td>D+</td>
<td>66% &lt;= x &lt;= 69%</td>
</tr>
<tr>
<td>D</td>
<td>62% &lt;= x &lt;= 66%</td>
</tr>
<tr>
<td>D-</td>
<td>59% &lt;= x &lt;= 62%</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59%</td>
</tr>
</tbody>
</table>

An “I” or “IP” will be awarded only if a student is unable to complete the course requirements due to circumstances beyond her/his control as specified in the UNO catalog. The student must also have substantially completed the course and have a passing grade when the grade of “I” is requested.

6.0 Resource Material
6.1 Textbooks and/or other required readings used in course.
- Compilation of *Cases for Information System Control & Audit* (Proposed: D. Khazanchi), Prentice Hall.

6.2 Other suggested reading materials, if any.

6.3 Other sources of information.
AICPA/CICA/IIA web sites

6.4 Current bibliography of resource for student’s information.

**Week 1: Overview**

**General:**

**Why IT Audit and Control?**


**Week 2: Conducting an IS Audit/Top Management Controls**


**Week 3: Systems Development Management Controls; Programming Management Controls; Data Resource Management Controls**


**Week 4: Security Management Controls**


**Week 5: Operations Management Controls; Quality Assurance Management Controls**


**Missing: Boundary Controls; Input Controls; Communication Controls**

**Week 6: Processing Controls**


**Week 7: Database Controls**


Oman, Levent.V. “Database Audit and Control Strategies.” Information and Technology 2.1 (January 2001): 27. (Requested through Inter library loan)

Leitch, Robert A., and Chen, Yining. “Natural Database Structure and Audit Activities.” Internal Auditing 16.5 (September/October 2001): 35. (Library has sent for binding, will receive within a week)
**Week 8:**

**Output Controls**


**Audit Software**


Cerullo, Michael J., and Cerullo, Virginia. “The Internal Auditor’s Role in Developing and Implementing Enterprise Resource Planning Systems.” Internal Auditing 15.3 (May/June 2000): 25. (Library has sent for binding, will receive within a week)

**Week 9:**

**Code Review, Test Data, and Code comparison**


**Concurrent Auditing Techniques**


Harrast, Steven., and Bean, LuAnn. “Runaway IT Projects: Internal Audit Help is on the Way.” Internal Auditing 17.2 (March/April 2002): 10. (Library has sent for binding, will receive within a week)

**Week 10:**

**Interviews, Questionnaires, and Control Flowcharts**


**Performance Measurement Tools**


**Week 11:**

**Evaluating Asset Safeguarding and Data Integrity**


**Evaluating System Effectiveness**


Evaluating System Efficiency


Bean, LuAnn., and Harrast, Steven A. “Thin and Ultra Thin Clients: Fat Issues for Internal Auditors.” Internal Auditor 15.6 (November/December 2000): 3. (Library has sent for binding, will receive within a week)

Week 12:

Managing the Information System Audit Function


7.0 (Fill out for ISQA and CIST courses) Estimate Computing Accreditation Commission (CAC) Category Content (class time in hours):

<table>
<thead>
<tr>
<th>CAC Category</th>
<th>Core</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware and software</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Networking and telecommunications</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Modern programming language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis and Design</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Data management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role of IS in Organizations</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>
7.0 (Fill out for CSCI and CIST courses) Estimate Computer Science Accreditation Board (CSAB) Category Content (class time in hours):

<table>
<thead>
<tr>
<th>CSAB Category</th>
<th>Core</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data structures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer organization and architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algorithms and software design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concepts of programming languages</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.0 Oral and Written Communications:

Every student is required to submit at least ___5___ written reports (not including exams, tests, quizzes, or commented programs) to typically ___5___ pages and to make ___1___ oral presentations of typically ___30___ minutes duration. Include only material that is graded for grammar, spelling, style, and so forth, as well as for technical content, completeness, and accuracy.

9.0 Social and Ethical Issues:

Please list the topics that address the social and ethical implications of computing covered in all course sections. Estimate the class time spent on each topic. In what ways are the students in this course graded on their understanding of these topics (e.g. test questions, essays, oral presentations, and so forth?).

We will cover the standards for IS/T audit and control established by professional associations such as ISACA and AICPA. (Time: 6 hours).

10.0 Theoretical content:

Please list the types of theoretical material covered, and estimate the time devoted to such coverage.

11.0 Problem analysis:

Please describe the analysis experiences common to all course sections.

12.0 Solution design:

Please describe the design experiences common to all course sections.

CHANGE HISTORY

<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
<th>By whom</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>