**Course Description:**
This course presents information systems audit, control concepts and management practices. As business continues towards a more substantial reliance upon the capabilities of information systems, it becomes increasingly important for auditors to understand information systems audit and how they relate to financial and general organizational controls, principles and practices related to secure operation of existing information technology, Information security accountability, development of internal control objectives and frameworks, and identification of appropriate audit procedures for a secure information system.

This course introduce students to the fundamental concepts, procedures and standards of IS audit and controls and focuses on knowledge and competencies that include applications of auditing concepts and internal controls in information system environments producing financial and non-financial information e.g., testing of computer control systems, access and program authenticity, networks reliability, and the use of information technology to conduct various types of audit tests.

This course familiarize the students with the audit process including the planning of an audit, the application of IS audit tools and techniques and evaluation methods used in performing IS audits, the differentiation of the specialty areas within the IS audit field, and the making of an informed choice as to which emphasis is best for them, and documenting work performed and collecting evidence to support work performed.

**Main Learning Objectives:**
This subject allows students to acquire the basic core knowledge of the field of Information Systems Audit and Control, the audit process and the protection of information. Upon completion of this course students will be able to conduct audits of information systems.
➢ Understand the IS audit key elements, the IS audit functions and the standards of performance.
➢ Understand the purpose of controls in an information systems environment.
➢ Learn how access to systems, resources and data can be controlled.
➢ Assess the design, placement, and quality of controls.
➢ Understand some of the basic theory underlying computer security policies, models, and problems.
➢ Understand the complexities of IS controls.
➢ Learn models for dealing with risk.
➢ Understand the basic issues in auditing computer security policies and mechanisms.
➢ Develop students’ practical skills in handling various types of IS audits, examining the IS controls and testing IS controls.
➢ Assess the impacts of IS audit and control on the operation of organizations.

Topics:

Topic 1: Technology and Audit
This topic focuses on the Technology and Audit concepts, Batch and Online Systems.

Topic 2: IS Audit Function Knowledge
This topic focuses on Information Systems Auditing, Establishing the Needs, Identifying Key Activities, Establish Performance Objectives, Decide The Control Strategies, Implement and Monitor the Controls, Audit Role, Conceptual Foundation, Professionalism within the IS Auditing Function, Relationship of Internal IS Audit to the External Auditor, Relationship of IS Audit to Other Company Audit Activities, Regulation, Control, and Standards.

Topic 3: IS Risk and Fundamental Auditing Concepts
This topic focuses on Computer Risks and Exposures, Effect of Risk, Audit and Risk, Audit Evidence, Reliability of Audit Evidence, Audit Evidence Procedures, Responsibilities for Fraud Detection and Prevention.

Topic 4: Standards and Guidelines for IS Auditing

Topic 5: Internal Controls Concepts Knowledge
This topic focuses on Internal Controls, Cost/Benefit Considerations, Internal Control Objectives, Types Of Internal Controls, Systems of Internal Control, Elements of Internal Control, Manual and Automated Systems, Control Procedures, Application Controls, Control Objectives and Risks, General Control Objectives, Data and Transactions Objectives, Program Control Objectives and Corporate IT Governance.

Topic 6: Risk Management of the IS Function
This topic focuses on Nature of Risk, Auditing in General, Elements of Risk Analysis, Defining the Audit Universe, Computer System Threats and Risk Management.

Topic 7: Audit Planning Process
This topic focuses on Benefits of an Audit Plan, Structure of the Plan and Types of Audit.

Topic 8: Frameworks, Standards and Regulations
This topic focuses on models COSO, COBIT, ITIL, ISO 27001, NSA INFOSEC Assessment Methodology and Frameworks and Standards Trends.

**Topic 9: Auditing Techniques I**
This topic focuses on techniques for Auditing Data Centers and Disaster Recovery, Auditing Routers, Switches, and Firewalls, Auditing Windows Operating Systems, Auditing Web Servers and Web Applications, Auditing Databases and Auditing Storage.

**Topic 10: Auditing Techniques II**
This topic focuses on techniques for Auditing Virtualized Environments, Auditing Cloud Computing and Outsourced Operations and Auditing E-commerce Systems.

**Textbook and Resources:**

**Main Textbooks:**

1. **Auditor’s Guide to Information Systems Auditing**  
   Richard E. Cascarino  
   John Wiley & Sons

2. **IT Auditing using Controls to Protect Information Assets, 2/E**  
   Chris Davis and Mike Schiller with Kevin Wheeler  
   McGraw-Hill

**Tentative Semester Schedule**

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<th>Week</th>
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<td>Week 01</td>
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<td>Week 02</td>
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<td>Week 15</td>
<td>[Presentations]</td>
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<td>Week 16</td>
<td>[Final Exam]</td>
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**Course Approach**

- **Lecture and Discussion**

Primary instructional methodologies would include textbooks, case study articles, lectures slides, discussions, team and individual exercises in different forms, and e-mail.

- **Collaborative Learning**

This is a graduate level class so emphasis will be placed on discovery of information and class research. Instructional methodologies: Lecture, class demonstrations and discussions, out-of-class assignments (projects related to designing models and frameworks etc). Use of the Internet will be necessary for some out-of-class assignments. In class participation is necessary and class discussion is expected to explore the different options that may be available. Research Projects: Projects will be assigned throughout the semester. These projects are intended to help you understand the topics covered in lecture and to serve as a guide for your course learning. Information on these projects will be provided throughout the semester.

NOTE: You will be expected to use descriptive and inferential reports on the projects.

**Project and Assignments**

Each master candidate will research and present one topic as approved by the instructor. Potential areas include: Information systems Audits and Controls.

The instructor reserves the right to adjust class schedules and assign grades at his discretion.

**Evaluation**

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<td>Case studies, Discussion and Quizzes</td>
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