MASTER SYLLABUS

CITA204 – SYSTEM ANALYSIS AND DESIGN

Created by: Eric Cheng
Updated by: Eric Cheng
A. **TITLE:** SYSTEMS ANALYSIS AND DESIGN

B. **COURSE NUMBER:** CITA 204

C. **CREDIT HOURS:** 3 lecture hours per week for 15 weeks

D. **WRITING INTENSIVE COURSE:** Yes

E. **GER CATEGORY:** No

F. **SEMESTER(S) OFFERED:** Spring

G. **COURSE DESCRIPTION:** A course designed to guide the student through the evolution of a system, an analysis of the present flow of information and the specifications, selection and implementation of information processing systems. The scope of a system development study will transcend mere knowledge of specific systems to include a study of the total management system.

H. **PRE-REQUISITES/CO-REQUISITES:**
   a. Pre-requisite(s): Database Applications and Concepts (CITA 215), or Introduction to Programming (CITA 180)
   b. Co-requisite(s): None

I. **STUDENT LEARNING OUTCOMES:**

<table>
<thead>
<tr>
<th>Course Student Learning Outcome [SLO]</th>
<th>PSLO</th>
<th>GER</th>
<th>ISLO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Identify the role of information technology in supporting operational and business requirements, and management decision-making</td>
<td>2. Identify issues and collaborate on solutions concerning IT in an effective and professional manner</td>
<td>2 [CA]</td>
<td></td>
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<tr>
<td>b. Apply the systems development life cycle model to a computer-based information system</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>2 [IA, PS]</td>
<td>5</td>
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<tr>
<td>c. Use the tools and techniques of systems analysis and design professionals</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>2 [CA]</td>
<td>5</td>
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<tr>
<td>d. Understand and use the terminology associated with information systems development</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td></td>
<td>5</td>
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<td>e. Demonstrate the ability to interact with clients, users, and management, as well as with team members in promoting a successful project outcome</td>
<td>1. Communicate effectively both verbally and in writing</td>
<td>1 [O, W]</td>
<td>4 [T, GL]</td>
</tr>
<tr>
<td>f. Employ project management and/or team leadership skills in planning, coordinating, and ensuring quality of the assigned tasks.</td>
<td>1. Communicate effectively both verbally and in writing</td>
<td>1 [O]</td>
<td>4 [T] 5</td>
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</table>
3. Demonstrate a solid understanding of the methodologies and foundations of IT
4. Apply problem solving and troubleshooting skills

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<thead>
<tr>
<th>KEY</th>
<th>Institutional Student Learning Outcomes [ISLO 1 – 5]</th>
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<tbody>
<tr>
<td>ISLO #</td>
<td>ISLO &amp; Subsets</td>
</tr>
<tr>
<td>1</td>
<td>Communication Skills</td>
</tr>
<tr>
<td></td>
<td>Oral [O], Written [W]</td>
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<tr>
<td>2</td>
<td>Critical Thinking</td>
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<tr>
<td></td>
<td>Critical Analysis [CA], Inquiry &amp; Analysis [IA], Problem Solving [PS]</td>
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<tr>
<td>3</td>
<td>Foundational Skills</td>
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<tr>
<td></td>
<td>Information Management [IM], Quantitative Lit./Reasoning [QTR]</td>
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<tr>
<td>4</td>
<td>Social Responsibility</td>
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<td></td>
<td>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</td>
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<tr>
<td>5</td>
<td>Industry, Professional, Discipline Specific Knowledge and Skills</td>
</tr>
</tbody>
</table>

J. **APPLIED LEARNING COMPONENT:** Yes ___ X ___ No ______

- Classroom/Lab
- Creative Works/Project

K. **TEXTS:**


L. **REFERENCES:** None

M. **EQUIPMENT:** Computer classroom

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Assignments
- Examinations
- Project

P. **DETAILED COURSE OUTLINE:**

I. The Role of System Analysis and Design at the Enterprise Level
II. Systems Planning – Analyzing the Business Case

A. An introduction to systems analysis and design by describing the role of information technology in today’s dynamic business environment.
   1. Information systems, Internet business strategies, modeling business operations
   2. Business information systems, organizational information models, systems development,
   3. The information technology department, and the role of the systems analyst.

B. Analyzing the business case, explains how systems projects get started, and describes how to evaluate a project proposal to determine its feasibility.
   1. Strategic planning and strategic planning tools, the business case, systems requests,
   2. Factors affecting systems projects, processing systems requests,
   3. Assessing request feasibility, setting priorities, and the preliminary investigation.

C. Managing systems projects.
   1. An overview of project management, creating a work breakdown structure, task patterns, the critical path,
   2. Project monitoring and control, reporting, project management software,
   3. Risk management, and managing for success.

III. Systems Analysis

A. The requirements engineering process.
   1. System requirements, team-based techniques,
   2. Gathering requirements through interviews and other methods, gathering requirements in agile projects,
   3. Representing requirements, validating and verifying requirements, and requirements tools.

B. Data and process modeling techniques that analysts use to show how the system transforms data into useful information.
   1. Logical versus physical models, data flow diagrams and symbols,
   2. Drawing data flow diagrams, drawing context diagrams, drawing diagram 0 DFDs, drawing lower-level DFDs,
   3. Data dictionaries, and process descriptions.

C. Object modeling techniques that analysts use to create a logical model.
   1. Object-oriented analysis, objects, attributes, methods, messages, classes,
   2. Relationships among objects and classes,
   3. The Unified Modeling Language (UML), and tools.

D. Development strategies for the new system and plans for the transition to the systems design phase.
   1. Traditional versus web-based systems development, evolving trends,
   2. In-house software development options, outsourcing, offshoring, Software as a Service (SaaS), selecting a development strategy,
   3. The software acquisition process, and completion of systems analysis tasks.

IV. System Design

A. User interface design.
   1. This includes human-computer interaction, seven habits of successful interface designers, guidelines for user interface design,
   2. Source document and form design, printed output, technology issues,

B. The data design skills that are necessary for a systems analyst to construct the physical model of the information system.
   1. DBMS components, web-based design, data design terms, entity-relationship diagrams,
   2. Data normalization, codes, data storage and access, and data control.
C. System architecture, which translates the logical design of an information system into a physical blueprint.
   1. This includes an architecture checklist, the evolution of system architecture, client/server architecture,
   2. The impact of the Internet, e-commerce architecture, processing methods,
   3. Network models, wireless networks, and systems design completion.

V. Systems Implementation
   A. Managing systems implementation throughout the useful life of the system.
   B. Quality assurance, application development (structured, object-oriented, and agile), coding, testing, documentation, and system installation.

VI. Systems Support and Security
   A. Managing systems support and security throughout the useful life of the system.
   B. User support, maintenance tasks, maintenance management, performance management, security levels, backup and recovery, system retirement, and future challenges and opportunities.

Q. LABORATORY OUTLINE: Not applicable