MASTER SYLLABUS

CITA152 – COMPUTER LOGIC

Created by: Judith Beider
Updated by: Stacia Smith/Thomas Burl
A. **TITLE:** Computer Logic

B. **COURSE NUMBER:** 152

C. **CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):**
   
   - # Credit Hours: 3
   - # Lecture Hours per Week: 3
   - # Lab Hours per Week: 3
   - Other per Week:
   
   Course Length (# of Weeks): 15

D. **WRITING INTENSIVE COURSE:** No

E. **GER CATEGORY:**

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

G. **COURSE DESCRIPTION:**

This course provides a foundation necessary to create structured program logic. It introduces students to programming concepts and program design through the study of a programming language with a reduced set of instructions. Topics include number systems, relational and logical operators, understanding structures, arrays, making decisions and problem solving skills used in computing.

H. **PRE-REQUISITES/CO-REQUISITES:**

   a. Pre-requisite(s): None
   b. Co-requisite(s): None
   c. Pre- or 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. Define number systems and apply conversion rules between different number systems</td>
<td>1</td>
<td>1 [O, W], 5</td>
<td>5</td>
</tr>
<tr>
<td>b. Describe arrays and their use in programming languages</td>
<td>1</td>
<td>1 [O, W], 5</td>
<td>5</td>
</tr>
<tr>
<td>c. Examine general problem solving methods. Apply problem solving techniques to designing simple programs</td>
<td>5</td>
<td>2 [PS], 5</td>
<td>5</td>
</tr>
<tr>
<td>d. Experiment with a reduced instruction set programming language to write simple programs</td>
<td>4, 5</td>
<td>2 [IA], 5</td>
<td>5</td>
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<tr>
<td>e. Recognize the relationship between program variables and their memory representation</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
f. Differentiate between arithmetic, relational and logical operators. Apply them in control expressions for loop and decision statements

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

J. APPLIED LEARNING COMPONENT: Yes______ No___X____

If Yes, select one or more of the following categories:

- Classroom/Lab___
- Internship___
- Clinical Practicum___
- Practicum___
- Service Learning___
- Civic Engagement___
- Creative Works/Senior Project___
- Research___
- Entrepreneurship___
- (program, class, project)
- Community Service___

K. TEXTS: No

L. REFERENCES:


M. EQUIPMENT: Technology Enhanced Classroom

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

* Exams
* Quizzes
* Assignments
P. **DETAILED COURSE OUTLINE:**

I. Number Systems
   A. How Number Systems Work
   B. The Binary Number System
   C. The Decimal Number System
   D. The Hexadecimal Number System
   E. Number System Conversions
      a. From Decimal
      b. To Decimal
      c. Binary and Hexadecimal

II. The Program Development Cycle

III. Structured programming - Introduction
   A. Program design concepts and tools
   B. Variables and constants
   C. Language structures
      a. And/Or statements
      b. Assignment statements
      c. Loops
      d. Decisions
      e. Arrays
   D. Modules and Procedures
   E. Simple programs
   F. Concepts of integrated development environment (IDE)

Q. **LABORATORY OUTLINE:**