RTL COURSE SYLLABUS in CCC100 (Fundamentals of Computing)

***Course No./Title**:*	CCC 100 – Fundamentals of Computing
***Course Credit**:*	3 Units
Duration:	15 weeks
***Delivery Mode**:*	Asynchronous (remotely supervised) with a few synchronous sessions
Level:	Basic
***Course Description**:*	Overview of the computing industry and computing profession; History of computation; Application software; Number systems and data representation; Operating systems, networks, the internet, database fundamentals; Logic formulation and programming; data structures, file structures, software engineering, computing security and ethics.
***Learning Culminating Outcome**:*	By the end of the course, the student is able to, explain and expound fundamental principles of computing, and analyze issues related to computing and its applications in the modern world.
***Prerequisite**:*	None
***Co-requisite**:*	None
Evaluation Criteria:	The course requires 60% of the total score to pass.
***Course Developers/Instructors**:*	Julieto E. Perez Department of Computer Science julieto.perez@g.msuiit.edu.ph Consultation hours: TF: 10:00-11:00pm W: 1:00-3:00pm

Outcomes for HIGHER EDUCATION INSTITUTION:	A. To keep abreast of latest developments in the specific field of practice; B. Effectively communicate using English and Filipino, orally and in writing; C. Work effectively and independently in multi-disciplinary and multi-cultural teams; D. Exemplify professional, social, ethical, and environmental responsibility; E. Preserve and promote “Filipino historical and cultural heritage” (based on RA 7722); and F. Advocate for peace in multi-cultural settings.
Outcomes common to the (field):	a. Analyze complex problems, and identify and define the computing requirements needed to design an appropriate solution. b. Apply computing and other knowledge domains to address real-world problems. c. Design and develop computing solutions using a system-level perspective. d. Utilize modern computing tools. e. Evaluate computing solutions in relation to their impact on society and environment
Outcomes specific to the (Program):	f. Ability to apply knowledge of computing, basic science, and mathematics appropriate to the discipline and the program educational objectives. g. Ability to analyze a problem, identify and define the computing requirements appropriate to the problem’s solution. h. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet the desired needs i. Ability to use technique, skills, and tools necessary to current computing practice. j. An ability to apply design and development principles in the construction of software systems of varying complexity, in accordance with applicable standards.
Outcomes specific to universities:	k. Generate new knowledge using research and development projects

Course Goals	OUTCOMES																		
	Higher Education Institution						Program Outcome (Common in the Discipline)						Outcome Specific to Program						Universities
	A	B	C	D	E	F	a	b	c	d	e		f	g	h	i	j		k
LO1: Explain fundamental principles, concepts, and evolution of computing systems as they relate to different fields.	✔	✔					✔	✔		✔			✔	✔	✔	✔	✔		
LO2: Expound on the recent developments in the different computing knowledge areas.	✔	✔					✔	✔		✔			✔	✔	✔	✔	✔		
LO3: Analyze solutions employed by organizations to address different computing issues.	✔	✔					✔	✔		✔			✔	✔	✔	✔	✔		

Course Schedule of Course Requirements

Week	Topic	Intended Learning Outcome	Teaching and Learning Activities	Learning Resources	Assessment Strategies/Tools	Evidence of Outcome	Due Date
1	Introduction to Computers: Appreciation of Computing in Different Fields	**LO1:** Explain fundamental principles, concepts, and evolution of computing systems as they relate to different fields.	Lecture	Film Showing Film Review	Assignment: Reaction paper (essay)	Required Output 1**:** An essay explaining why computer literacy is vital to success in today's world	
2	The Internet and the world wide web Application Software		Lecture	PowerPoint presentation	Online Activity		
3	Components of the System Unit, Input, Output, and Storage		Lecture, Virtual Desktop Application (Training Mode)	PowerPoint presentation, Virtual Desktop Application	Virtual Desktop Assembly (Test Mode)	Required Output 2**:** Discussion on the evolution of the internet	
4	Operating Systems and Utility Programs		Lecture	PowerPoint presentation	Quiz	Research on the different types of application software used	

Week	Topic	Intended Learning Outcome	Teaching and Learning Activities	Learning Resources	Assessment Strategies/Tools	Evidence of Outcome	Due Date
						in communications	
5	Exam 1						
6	Communications and Networks	**LO2:** Expound on the recent developments in the different computing knowledge areas.	Lecture	PowerPoint presentation	Quiz		
7	Database Management		Lecture	PowerPoint presentation	Quiz	Discussion of the functions common to most database management systems.	
8	Computer Security and Safety, Ethics, and Privacy		Lecture	PowerPoint presentation	Essay		
9	Information System Development		Lecture	PowerPoint presentation	Quiz		

Week	Topic	Intended Learning Outcome	Teaching and Learning Activities	Learning Resources	Assessment Strategies/Tools	Evidence of Outcome	Due Date
10	Enterprise Computing Computer Careers and Certification		Lecture	PowerPoint presentation	Quiz	Evaluation report on IT solutions employed by an organization covering various IT issues.	
11	Exam 2						
12	Programming languages and program development		Lecture, Program Demo, Guided Programming	PowerPoint presentation Demo program	Quiz, Programming Exercise	An application using the simple programming constructs	
13	Fundamental Programming Constructs	**LO3**: Analyze solutions employed by organizations to address different computing issues.	Lecture, Program Demo, Guided Programming	PowerPoint presentation Demo program	Quiz, Programming Exercise		
14	Algorithms and Problem Solving		Lecture, Program Demo, Guided Programming	PowerPoint presentation Demo program	Quiz, Programming Exercise		
15	Exam 3						

Reference:

Cashman, S. & Vermaat, M. E. (2014). Discovering Computers. Cengage Learning

Scoring Rubrics
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This course involves computer programming activities as one of the sources of assessment. The rubrics is described below.

Computer Programming
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1. Specifications
   a. (Exceptional) The program works and meets all of the specifications.
   b. (Acceptable) The program works and produces correct results and displays them correctly. It also meets most of the other specifications.
   c. (Amateur) The program produces correct results but does not display them correctly.
   d. (Unsatisfactory) The program is producing incorrect results.

2. Readability
   a. (Exceptional) The code is exceptionally well organized and very easy to follow.
   b. (Acceptable) The code is fairly easy to read.
   c. (Amateur) The code is readable only by someone who knows what it is supposed to be doing.
   d. (Unsatisfactory) The code is poorly organized and very difficult to read.

3. Reusability
   a. (Exceptional) The code could be reused as a whole or each routine could be used.

b. (Acceptable) Most of the code could be reused in other programs.
c. (Amateur) Some part of the code could be reused in other programs.
d. (Unsatisfactory) The code is not organized for reusability.

4. Documentation
a. (Exceptional) The documentation is well written and clearly explains what the code is accomplishing and how.
b. (Acceptable) The documentation consists of embedded comment and some simple header documentation that is somewhat useful in understanding the code.
c. (Amateur) The documentation is simply comments embedded in the code with some simple header comments separating routines.
d. (Unsatisfactory) The documentation is simply comments embedded in the code and does not help the reader understand the code.

5. Delivery
a. (Exceptional) The program was delivered on time.
b. (Acceptable) The program was delivered within a week of the due date.
c. (Amateur) The code was within 2 weeks of the due date.
d. (Unsatisfactory) The code was more than 2 weeks overdue.

6. Efficiency
a. (Exceptional) The code is extremely efficient without sacrificing readability and understanding.
b. (Acceptable) The code is fairly efficient without sacrificing readability and understanding.
c. (Amateur) The code is brute force and unnecessarily long.
d. (Unsatisfactory) The code is huge and appears to be patched together.

Criteria	Weight
Specifications	20%
Readability	20%
Reusability	20%
Documentation	10%
Delivery	10%

Efficiency	20%

This course is also assessed through the embedded measurements described in the following section.

Grading System

Exams

There will be three exam, namely: prelim, midterm, and final, with respective total scores and schedules will be determined and agreed in the class.

Programming Activities

Laboratory activities will be assessed with the programming rubrics.

Grading Scheme

The rate will be determined based on the following scheme:

Measurement	Weight
Prelim Exam	20%
Midterm Exam	20%
Final Exam	25%
Quizzes	15%

Laboratory Activities	20%

The student should be able to get the **minimum rate of 60% to pass the course**. The rate is mapped to the actual grade based on the following scale:

Rate Scale	Grade
95.64 -- 100+	1.0
91.18 -- 95.63	1.25
86.73 -- 91.17	1.5
88.27 -- 86.72	1.75
77.82 -- 82.26	2.0
73.36 -- 77.81	2.25
68.91 -- 73.35	2.5
64.45 -- 68.90	2.75
60.00 -- 64.44	3.0
below -- 59.99	5.0

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