CEBU INSTITUTE OF TECHNOLOGY – UNIVERSITY
N. Bacalso Avenue, Cebu City, Philippines
COLLEGE OF COMPUTER STUDIES

Course Number: CS322
Descriptive Title: Programming Languages
Number of Units/Credits: 3
Number of Hours: 54 hours
Term: Second Semester 2020 – 2021; MTWTHF(2 hours, 4:30PM – 6:30PM) for 9 weeks
Pre-requisite: CS313, CSIT221
Co-requisite: None
MADE 4Learning Approach: Online - Blended;
Platform: MSTeams, Moodle

I. **Course Description:** This course provides both an intensive and extensive survey of programming language concepts, by examining the design issues of the various language constructs, the design choices for these constructs in a variety of languages, and the design alternatives/tradeoffs that accompany these choices. The course will include syntax and translation, language definition structures; elementary and structured data types, abstraction mechanisms, sequence and data control, run time considerations.

II. **Course Outcomes (COs):** At the of the course, the students are able to:
CLO1. Compare the run-time behavior of programs written in different programming languages.
CLO2. Evaluate the structure of programming language specification, analysis and implementation.
CLO3. Discuss the importance of abstraction in programming languages.
CLO4. Analyze and solve programs related to lexical analysis, parsing and translation problems.

Weekly Activities:

Week 1

Topic 1: Course Introduction
Intended Learning Outcomes (ILOs):
ILO1. State the class policies and guidelines
ILO2. Explain the importance of the course content in relation to software development

Homework:
1. Download our course guide.
2. Attend synchronous meeting for lecture on Tuesday in MSTeams.
3. Answer Library Exercise 1 posted in MSTeams.

Expected Output:
1. Answer to Library Exercise 1.

Deadline:
Please submit output on or before January 29, 2021, 6:30PM.

Week 2

Topic 2: Overview of Programming Languages
Intended Learning Outcomes (ILOs):
ILO1: Summarize the evolution of programming languages illustrating how this history has led to the paradigms available today.
ILO2: Identify at least one distinguishing characteristic for each of the programming paradigms covered in this unit.
ILO3: Evaluate the tradeoffs between the different paradigms, considering such issues as space efficiency, time efficiency (of both the computer and the programmer), safety, and power of expression.

Homework:
1. Download Lecture1.pdf.
2. Attend synchronous meeting on Tuesday in MSTeams.
3. Answer Lecture Exercise 1 posted in MSTeams.
4. Answer synchronous Lecture Quiz 1 posted in MSTeams.
5. Increment 1.

Expected Output:
1. Answer Lecture Exercise 1.
2. Answer to Lecture Quiz 1.
3. Increment 1.

Deadline:
1. Lecture Exercise 1: February 4, 2021, 4:30PM
2. Lecture Quiz 1: February 4, 2021, 6:30PM
3. Increment 1: February 5, 2021, 6:30PM.

Week 3

Topic 3: Introduction to language translation
Intended Learning Outcomes (ILOs):
ILO1: Compare and contrast compiled and interpreted execution models, outlining the relative merits of each.
ILO2: Describe the phases of program translation from source code to executable code and the files produced by these phases.
ILO3: Describe syntax and semantics
ILO4: Explain the differences between machine-dependent and machine-independent translation and where these differences are evident in the translation process.

Homework:
1. Download Lecture2.pdf
2. Attend synchronous meeting on Tuesday in MSTeams.
3. Answer Lecture Exercise 2 posted in MSTeams.
4. Answer Lecture Quiz 2 posted in MSTeams.
5. Increment 2.

Expected Output:
1. Answer to Lecture Exercise 2.
2. Answer to Lecture Quiz 2.
3. Increment 2.

Deadline:
1. Lecture Exercise 2: February 11, 2021, 4:30PM
2. Lecture Quiz 2: February 11, 2021, 6:30PM
3. Increment 2: February 12, 2021, 6:30PM.

Week 4

Topic 4: Language translation systems
Intended Learning Outcomes (ILOs):
ILO1: Describe the steps and algorithms used by language translators.
ILO2: Recognize the underlying formal models such as finite state automata, push-down automata and their connection to language definition through regular expressions and grammars.

Homework:

1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 3 posted in MSTeams.
3. Answer Lecture Quiz 3 posted in MSTeams.
4. Increment 3.

Expected Output:
1. Answer to Lecture Exercise 3.
2. Answer to Lecture Quiz 3.
3. Increment 3.

Deadline:
1. Lecture Exercise 3: February 18, 2021, 4:30PM
2. Lecture Quiz 3: February 18, 2021, 6:30PM
3. increment 3: February 19, 2021, 6:30PM.

Week 5

Report 1:
Report 2:
Report 3:

Intended Learning Outcomes (ILOs):
ILO1: Identify the characteristics of the assigned programming languages.

Homework:
1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 4 posted in MSTeams.
3. Answer Lecture Quiz 4 posted in MSTeams.
4. Increment 4.

Expected Output:
1. Answer to Lecture Exercise 4.
2. Answer to Lecture Quiz 4.
3. Increment 4.

Deadline:
1. Lecture Exercise 4: February 24, 2021, 4:30PM
2. Lecture Quiz 4: February 24, 2021, 6:30PM
3. Increment 4: February 25, 2021, 6:30PM.

Week 6

Report 4:
Report 5:
Report 6:

Intended Learning Outcomes (ILOs):
ILO1: Identify the characteristics of a reported programming languages.

Homework:
1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 5 posted in MSTeams.
3. Answer Lecture Quiz 5 posted in MSTeams.
4. Increment 5.

Expected Output:
1. Answer to Lecture Exercise 5.
2. Answer to Lecture Quiz 5.
3. Increment 5.

Deadline:
1. Lecture Exercise 5: March 4, 2021, 4:30PM.
2. Lecture Quiz 5: March 4, 2021, 6:30PM.
3. Increment 5: March 5, 2021, 6:30PM.

Week 7
Report 7:
Report 8:
Report 9:

Intended Learning Outcomes (ILOs):
ILO1: Identify the characteristics of a reported programming languages.

Homework:
1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 6 posted in MSTeams.
3. Answer Lecture Quiz 6 posted in MSTeams.
4. Increment 6.

Expected Output:
1. Answer to Lecture Exercise 6.
2. Answer to Lecture Quiz 6.
3. Increment 6.

Deadline:
1. Lecture Exercise 6: March 11, 2021, 4:30PM.
2. Lecture Quiz 6: March 11, 2021, 6:30PM.
3. Increment 6: March 12, 2021, 6:30PM.

Week 8

Report 10:
Report 11:
Report 12:

Intended Learning Outcomes (ILOs):
ILO1: Identify the characteristics of a reported programming languages.

Homework:
1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 7 posted in MSTeams.
3. Answer Lecture Quiz 7 posted in MSTeams.
4. Project Presentation.

Expected Output:
1. Answer to Lecture Exercise 7.
2. Answer to Lecture Quiz 7.
3. CFPL Interpreter.

Deadline:
1. Lecture Exercise 7: March 18, 2021, 4:30AM.
2. Lecture Quiz 7: March 18, 2021, 6:30PM.
3. CFPL Interpreter: March 19, 2021, 6:30PM.

Week 9

Report 13:

Intended Learning Outcomes (ILOs):
ILO1: Review the lessons in preparation of the final examination.

Homework:
1. Attend synchronous meeting on Tuesday in MSTeams.
2. Answer Lecture Exercise 8 posted in MSTeams.
3. Project Presentation.

Expected Output:
1. CFPL Interpreter.

Deadline:
1. CFPL Interpreter: March 25, 2021, 12:30PM.

III. **Technical Requirements:**
1. Laptop or PC.
2. Internet to access MSTeams and Moodle.

IV. **Grading System:**

Lecture:
 Formative Assessment   *60%*
     Written Exercises (Written Exercises) - 20%
     Quizzes - 20%
     Report – 20%
 Summative Assessment (Midterm/Final Assessment) *40%*

Lec1 (Lecture Score (start to midterm))
Lab1 : Average of all increment scores in the Midterm Period

MS (Midterm Score):   *0.6*Lec1 + 0.4*Lab1*
MG (Midterm Grade) :   *transmuted MS*
Lec2 (Lecture Score (midterm to finals))
Lab2: Average of all increment scores in the Final Term Period

FSLec *(Final Lecture Score):*   *(Lec1 + Lec2) / 2*
FSLab *(Final Lab Score):*   *(((Lab1 + Lab2) / 2)*0.6) + (Interpreter*0.4)*
FS *(Final Score):*   *FSLec*0.6 + FSLab*0.4*
FG *(Final Grade):*   *transmuted FS*

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