

## CPCS 202: Programming I (Syllabus)

### Fall 2021-22 (1<sup>st</sup> Semester 2021-22)

#### Course Information

**Course Code/Title:** CPCS202 / Programming I

**Credits:** 3 credits

**Prerequisites:** Preparatory year of the University

**Prerequisite to:** CPCS203 (Programming II)

**Text Book:** Introduction to Java Programming, Comprehensive, 10th Edition, Y. Daniel Liang

#### Course Description

The objective of this course is to cover the fundamental concepts of procedural programming. This course introduces the Java programming language and helps students develop basic problem-solving skills. Topics include algorithms, flowchart, API, IDE, and JDK, numerical data, primitive data type, short hand operators, cast value of one type to another type, selection statements, switch statements, break and continue statements, relational operators, logical operators, logical expressions, Boolean variable, Boolean expressions, repetition statements, nested loops, methods, passing arguments to a method, method overloading, method abstraction, use of methods in the math class, arrays, common array operations, methods with array arguments and return value, search and sort operations on array.

**Lectures:** The course lectures are very important in helping students learn and understand the material. Students have access to all PPT slides from Blackboard. However, attending the lectures is vital towards success in the course besides referring to the text book is very useful since it is the main source for information for this course.

**Lab Sessions:** In addition to the main lecture, this course also includes a weekly lab. One of the main purposes of the lab is to reinforce and practice the information presented in the main lecture. Additionally, all programming assignments will be explained in the lab. For this reason, **lab attendance AND participation is mandatory**. You must attend at least 75% of the labs. If you miss more than 25% of the labs, you will not be allowed to take the lab final exam.

**Programming Assignments:** There will be four individual programming assignments during the semester, with the first two assignments worth 2% and the third and fourth assignment worth 7% and 9%, respectively of your final grade (total 20%). The purpose of the assignments is for you to individually practice the material covered in the lecture and the lab (this is why lecture and lab attendance is so important). Some assignments may take only two or three hours; other assignments may take five or six hours. You will be given around five-ten days to complete an assignment. The assignments will use online judges like URI, SPOJ, Codechef and Codeforces extensively. Make sure you create your accounts on these websites well before the assignments are posted.

**Exams:** There will be one midterm exam and one final exam. You are not allowed to use any type of electronic device during the exams. This includes cell phones, tables, calculators, and anything else you can think of. As the material in this course builds on itself, each exam can be considered “cumulative” including every chapter taught till the exam.

**Quizzes:** There will be three quizzes during semester. Quizzes will consist of a small number of basic questions on material that has been covered recently, with the goal of forcing students to keep up with the material. Dates for quizzes will be announced on Blackboard AND the quiz will be conducted during theory class on Blackboard. The quiz will usually be between

4-6 minutes, consisting of 2-3 questions each. **There will be no makeup quizzes.** It is your responsibility to take the quiz during this open availability period.

**Grading (Common for all sections)**

<b>3 Quizzes</b>	<b>05%</b>	<b>Q1 – 1, Q2 – 2, Q3 -2</b>
<b>4 Assignments</b>	<b>20%</b>	<b>A1 – 2, A2 – 2, A3 – 7, A4 – 9</b>
<b>Midterm Exam</b>	<b>30%</b>	
<b>Final Exam</b>	<b>30%</b>	<b>Comprehensive Exam includes all chapters</b>
<b>Lab Participation</b>	<b>05%</b>	<b>Based on exercises, short questions, Q&amp;A, forum discussions, etc.</b>
<b>Final Lab Exam</b>	<b>10%</b>	

## Course Learning Outcomes (CLOs)

By completion of the course the students should be able to

1. Construct algorithms for solving simple problems.
2. \*Use a programming language to implement, test, and debug algorithms for solving simple problems.
3. Analyze and explain the behavior of simple programs involving the fundamental programming constructs.
4. Identify and describe uses of primitive data types and standard library functions/methods.
5. Write programs that use primitive data types and standard library functions/methods.
6. Apply appropriate conditional and iteration constructs for a given programming task.
7. Write and/or modify short programs that use standard conditional structures.
8. \*Write and/or modify short programs that use standard iterative control structures.
9. \*Write programs that use functions/methods.
10. \*Construct and manipulate one-dimensional arrays.
11. Construct and manipulate two-dimensional arrays.
12. \*Trace the execution of a variety of code segments and write summaries of their computations.
13. Identify common coding errors and apply strategies for avoiding such errors.
14. Apply a variety of strategies to the testing and debugging of simple programs.
15. Use of an appropriate IDE (Integrated Development Environment) to create, compile and run a program developed by the selected programming language.

## Important Course Policies

- 1) The lab instructor is your main point of contact regarding the programming assignments and projects. If you have any questions at all regarding the assignments, solving the program, how to code it, syntax errors, you name it, contact the lab instructor or TAs (if applicable). You can also email them with your questions, but understand that they may not respond immediately. If you want help via email, start your assignment early. Finally, the Lab Instructors will be grading the assignments. Therefore, any and all questions you have regarding your grade should be directed to them. If you feel your grade was unfair and you were not satisfied after contacting the lab instructor, please contact the course coordinator during their office hours for discussion.
- 2) Cheating will not be tolerated. **If a student is caught cheating, then the grade on that assignment/exam for all students knowingly involved (the person providing answers as well as the one taking the answers) will be a -4%. (Note, this is less than 0%.)** So if a student is caught cheating, they get a zero on the program AND they lose an additional 4%. Furthermore, based on the severity of the case and if this is the second instance of cheating, the student may be given an "F" in the course, dismissal from an academic unit, revocation of admission, suspension from the university, etc.

Since discussion of concepts with other students is often helpful, cheating must be more clearly defined. **So to be very clear, the following items are cheating:**

- copying a segment of code of three lines or more from another student from a printout or by looking at their computer screen
- taking a copy of another student's work and then editing that copy
- sitting side by side while writing code for assignments and working together on segments of code
- searching online for code/answers and then using that code

In all of these situations, **BOTH people responsible**, the one from whom the three lines of code are taken as well as the person who takes those lines of code are engaging in academic misconduct. For example, if someone makes an electronic copy of their code accessible to ANYONE in the class (except for themselves) before 48 hours after an assignment is due, they are automatically culpable of academic misconduct. It does not matter if the recipient of the code doesn't use it, uses it a little, or copies it directly.

**If you get stuck on an assignment, please ask the lab instructor for help instead of getting help from another student.**

Part of the learning process in programming involves debugging on your own. In our experience, when a student helps another student with an assignment, they rarely allow the student getting help to "figure out" problems on their own. Ultimately, this results in a lack of debugging experience for the student receiving help. The goal of the lab instructor is to provide the facilitation necessary for students to debug and fix their own programs rather than simply solving their problems. **But, you are encouraged to work together on any non-graded programs to enhance and expedite the learning process.**

### 3) **Assignment (Program) Authentication/Verification**

This is a two-phase process :

1. Plagiarism Software check
2. One-to-one interview/quiz related to program topics

The plagiarism software will be used to check malpractice in assignment submissions. If the results show that a student was clearly cheating, they will immediately be given a **-4%**. If the results suggest cheating, the student(s) will be called to take a Quiz related to the topics covered by that programming assignment.

It is your responsibility to make sure that you are consistently checking your Blackboard email. **If a student is emailed for the Program Quiz and does not show up, the score will be a -4%.**

What questions are asked at the Program Quiz?

The purpose of the Program Quiz is to confirm that the student actually completed the assignment by himself/herself. Therefore, the quiz may be online or a one-to-one Q&A session with the instructor, and the questions will be related to the topics of the assignment. For example, if the assignment is on loops, the quiz will have questions on loops. Therefore, any student who performed well on the programming assignment will absolutely solve the quiz perfectly.

What is the result of the Program Quiz?

If the student was able to answer the questions and showed an understanding of the material, their grade will be as given originally (no change). If the student is unable to answer the questions correctly and demonstrates that they could not have done the program, they will be given a cheating grade of -4%.

*\*Note: the student may have already received a grade from the grader. However, if after the Program Quiz, it becomes clear that the student cheated on the assignment, their grade will be changed to a -4%.*

4) Makeup Exams

In order to take a make-up exam, you must request one from the instructor. The instructor will grant requests using his own judgment by applying the following general rule: "Make-up exams will only be given if the reason for missing the exam was out of the student's control." ***According to the rules of the Ministry, any sick excuse *\*must\** come from the university hospital or from a government hospital. No others will be accepted.***

***WARNING: makeup exams are usually more difficult than the normal exam. Only choose to do a makeup if it is absolutely necessary based on your situation.***

5) Blackboard will be a crucial element of the course. ***It is your responsibility to check Blackboard before every class meeting for any updates that may be posted.*** Additionally, some clarifications may only be given in class and won't be

posted online at all, so make sure you keep up with announcements in class.

- 6) **Class Attendance**. Class attendance is mandatory and will be taken immediately at the beginning of each class. If you miss more than 25% of the lectures, you will receive a DN.

**Lab Attendance**. Lab attendance is mandatory. If you miss more than 25% of the Labs, you will receive a DN for the lab and cannot take the Lab Final Exam.



## Tentative Schedule

Week#	Hijra	Gregorian	Chapter	Lecture Topics	Lab Topics	Assig	Quiz	Exam	CLOs
W1	21/01/1443	29/08/2021	Ch 1: Introduction	1.1 – 1.11	<i>Give a flavor about www.code.org</i>				1,13
W2	28/01/1443	5/09/2021	Continue Ch 1: Introduction Ch 2: Elementary Programming	<i>If not done yet</i> 2.1 – 2.11	Lab 01 Familiarity with NetBeans IDE Environment				1,2,3,4,13
W3	5/02/1443	12/09/2021	Ch 2: Elementary Programming	2.12 – 2.18	Lab 02 Elementary Programming I				3,4, 13
W4	12/02/1443	19/09/2021	Ch 3: Selections	3.1 – 3.9	Lab 03 Elementary Programming II	Ass 1	Qz 1		6,7,13
W5	19/02/1443	26/09/2021	Ch 3: Selections	3.10 – 3.16	Lab 04 Selection Statements I				6,7,13
W6	26/02/1443	3/10/2021	Ch 4: More Basics of Java	4.1 – 4.6	Lab 05 Selection Statements II	Ass2	Qz2		4,5,13
W7	4/03/1443	10/10/2021	Ch 5: Loops	5.1 – 5.5	Lab 06 Characters, Strings, and Mathematical Functions			Mid	8,13
W8	11/03/1443	17/10/2021	Ch 5: Loops	5.6 – 5.11	Lab 07 Loop Statements I	Ass 3	Qz3		8,13
W9	18/03/1443	24/10/2021	Ch 6: Methods	6.2 – 6.6	Lab 08 Nested Loop Statements				9,13
W10	25/03/1443	31/10/2021	Ch 6: Methods	6.7 – 6.10	Lab 9 Methods I				9,13
W11	2/04/1443	07/11/2021	Ch 7: Single Dimensional Arrays	7.1 – 7.5	Lab 10 Methods II	Ass 4			10,13
W12	9/04/1443	14/11/2021	Ch 7: Single Dimensional Arrays	7.6 – 7.13	Lab 11 Arrays (1 dimension) I				10,13
W13	16/04/1443	21/11/2021	Ch 8: Multi-Dimensional Arrays	8.1 – 8.8	Lab 12 Arrays (1 dimension) II		Lab Qz		11,13
W14	23/04/1443	28/11/2021	Review		Lab Exam				
W15	1/05/1443	05/12/2021	Finals Exams					Final	

## The Coordinator Information

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