

SYLLABUS

1. **Course name:** C Programming Language
2. **Course code:** CPRL130064
3. **Credits:** 3 credits (3/0/6) (3 theoretical credits, 0 practical credit)
Duration: 15 weeks (3 main periods and 6 self-study periods) /week
4. **Instructors:**
 - a. Primary instructor: Phan Van Ca, Ph.D
 - b. Secondary instructors:
 - Le Minh, MEng
 - Ngo Quoc Cuong, MEng
 - Huynh Hoang Ha, MEng
 - Nguyễn Văn Phúc, MEng
5. **Course conditions**
 Prerequisites: N/A.
 Corequisites: N/A.

6. Course Description

The course covers the fundamental concepts of programming language: definition, classification, and purpose of different languages. The course specifically focuses on C programming language, demonstrates data structures and control structures in the C language. The course help students to get knowledge and ability of designing and writing C language applications.

7. Course Goals

Goals	Goal description (This course provides students with:)	ELOs
G1	Specialized knowledge of programming applications using C programming language	01 (H)
G2	Ability to analyze, explain, and solve programming requests	02 (M), 03(H)
G3	Ability to suggest ideas, design, write, and debug applications in C programming language at medium level	07 (M)

* Note: H: High; M: Medium; L: Low

8. Course Learning Outcomes - CLOs:

CLOs	Description (After completing this course, students can:)	Outcome
G1	G1.1 Make flowcharts.	01
	G1.2 Present the format of a C program.	01
	G1.3 Present and apply the syntax and operation of selection statements and repetition statements in C programming language.	01
	G1.4 Present the declaration of arrays, strings and apply arrays and strings to data management in C programming language.	01
	G1.5 Present the declaration of pointers and apply pointers to memory access.	01

	G1.6	Present the definition of C functions and use functions in a C program.	01
	G1.7	Present Structure definitions and apply structure variables to data storage and management.	01
G2	G2.1	Analyze programming requests and make flowcharts.	02, 03
	G2.2	Analyze, modify, and enhance flowcharts.	02, 03
	G2.3	Analyze, test, and modify C programs.	02, 03
G3	G3.1	Apply control structures, data management, and user-defined functions to designing and writing C programs for solving programming problems.	03

9. Study materials:

a. Textbooks:

[1] Paul Deitel and Harvey Deitel, C How to program, 6th Edition, Pearson, 2010.

b. References:

[2] GS Phạm Văn Át, *Kỹ thuật lập trình C cơ sở và nâng cao*, NXB GTVT Hà Nội, 2006.

10. Student Assessments:

a. Grading points: 10

b. Assessment s schedule:

Type	Contents	Linetime	Assessment techniques	CLOs	Rates (%)
Questions/Exercises					10
Q.1	Exercise/LMS		Question	G1	10
Midterms					40
M.1	Flowchart, operators, selection statements, and repetition statements	Week 6	Individual paper test in class	G1 G2.1	20
M.2	Arrays, strings, pointers, and functions	Week 11	Individual paper test in class	G1 G2.2, G3.1	20
Final exam					50
F	Cover all course learning outcomes.		Individual paper test		50

* Note: Q: Quiz; H: Homework; P: Project; M: Midterm Exam; F: Final Exam;

11. Course details:

Week	Contents	CLOs
1	Chapter 1. Introduction (3/0/6)	

	<p>Teaching contents: (3)</p> <p>1.1 Introduction</p> <p>1.2 Different languages and common programming tools</p> <p>1.3 Programming sequence</p> <p>1.4 Algorithms and flowcharts</p> <p>Teaching methods:</p> <p>+ Theoretical lecturing</p> <p>+ Presenting</p> <p>+ Discussing</p>	G1.1 G2.1
	<p>Self-study contents: (6)</p> <p>+ Drawing flowcharts for assigned exercises</p>	
	Chapter 2. Basic concepts of the C language (3/0/6)	
2	<p>Teaching contents: (3)</p> <p>2.1 Comments</p> <p>2.2 Identifiers</p> <p>2.3 Keywords</p> <p>2.4 Data types</p> <p>2.5 Variables and constants</p> <p>2.6 Expressions and operators</p> <p>2.7 Input and output</p> <p>2.8 Program format</p> <p>Teaching methods:</p> <p>+ Theoretical lecturing</p> <p>+ Presenting</p> <p>+ Discussing</p>	G1.2
	<p>Self-study contents: (6)</p> <p>+ Writing C programs for assigned exercises.</p>	
	Chapter 3. Selection statements (3/0/6)	
3	<p>Teaching contents: (3)</p> <p>2.1 The if.. statement</p> <p>2.2 The switch...case statement</p> <p>Teaching methods:</p> <p>+ Theoretical lecturing</p> <p>+ Presenting</p> <p>+ Discussing</p>	G1.3, G2.1, G2.2
	<p>Self-study contents: (6)</p> <p>+ Finishing assigned exercises</p> <p>+ Distinguishing the difference between if statement and switch.. case statement</p>	
	Chapter 4. Repetition statements (3/0/6)	
4	<p>Teaching contents: (3)</p> <p>4.1. The for... statement</p> <p>4.2. The while and do... while statements</p>	G1.3, G2.1, G2.2

	<p>4.3. break and continue statements</p> <p>Teaching methods:</p> <ul style="list-style-type: none"> + Theoretical lecturing + Presenting + Discussing 	
	<p>Self-study contents: (6)</p> <ul style="list-style-type: none"> + Nested repetition statements + Finishing assigned exercises + Distinguishing the difference among for statement, while statement, and do... while statement 	
5	Chapter 5. Arrays and strings (3/0/6)	
	<p>Teaching contents: (3)</p> <ul style="list-style-type: none"> 3.1 Single - subscripted array 3.2 Array processing techniques: searching, sorting, and filtering arrays 3.3 Strings <p>Teaching methods:</p> <ul style="list-style-type: none"> + Theoretical lecturing + Presenting + Discussing 	G1.4, G2.2, G3.1
	<p>Self-study contents: (6)</p> <ul style="list-style-type: none"> + Finishing assigned exercises 	
6 Review and midterm		
7	Chapter 5. Arrays and strings (cont.) (3/0/6)	
	<p>Teaching contents: (3)</p> <ul style="list-style-type: none"> 3.4 Double - subscripted array 3.5 Array of string <p>Teaching methods:</p> <ul style="list-style-type: none"> + Theoretical lecturing + Presenting + Discussing 	G1.4, G2.2, G3.1
	<p>Self-study contents: (6)</p> <ul style="list-style-type: none"> + Finishing assigned exercises 	
Chapter 6. C Pointers (3/0/6)		
8	<p>Teaching contents: (3)</p> <ul style="list-style-type: none"> 6.1. Pointer variable definitions 6.2. Memory access using pointers <p>Teaching methods:</p> <ul style="list-style-type: none"> + Theoretical lecturing + Presenting + Discussing 	G1.5, G2.2, G3.1
	<p>Self-study contents: (6)</p> <ul style="list-style-type: none"> + Finishing assigned exercises 	

9	Chapter 6. C Pointers (cont.) (3/0/6)	
	Teaching contents: (3) 6.3. Dynamic memory allocation Teaching methods: + Theoretical lecturing + Presenting + Discussing	G1.5, G2.2, G3.1
	Self-study contents: (6) + Finishing assigned exercises + Double – subscripted array initialize using dynamic memory allocation	
10	Chapter 7. C Functions (3/0/6)	
	Teaching contents: (3) 7.1. Function definitions 7.2. Calling functions by value and by reference Teaching methods: + Theoretical lecturing + Presenting + Discussing	G1.6, G2.2, G3.1
	Self-study contents: (6) + Defining functions for exercises of chapter 5	
11	Review and midterm	
12	Chapter 7. C Functions (cont.) (3/0/6)	
	Teaching contents: (3) 7.3. Local and global variables. Teaching methods: + Theoretical lecturing + Presenting + Discussing	G1.6, G2.2, G3.1
	Self-study contents: (6) + Defining functions for exercises of chapter 5	
13	Chapter 8. Structures (3/0/6)	
	Teaching contents: (3) 8.1. Structure definitions 8.2. Structure variable Teaching methods: + Theoretical lecturing + Presenting + Discussing	G1.7, G2.2, G3.1
	Self-study contents: (6) + Enumerations and unions + Finishing assigned exercises	

	Chapter 8. Structures (cont.) (3/0/6)	
14	Teaching contents: (3) 8.3. Structure pointers Teaching methods: + Theoretical lecturing + Presenting + Discussing	G1.7, G2.2, G3.1
	Self-study contents: (6) + Finishing assigned exercises	
15	Rewiew	

12. Learning ethics:

Home assignments and projects must be done by the students themselves. Plagiarism found in the assessments will get zero point.

13. First approved date: August 1st 2012

Approval level:

Dean

Department

Instructor

14. Syllabus updated process

1st time: Updated content dated, August 1st 2014	Instructors Head of department
2nd time: Updated content dated, August 1st 2016	Instructors Head of department