



បណ្ឌិតិសាបេច្ចោរទេសកម្មដា
Cambodia Academy of Digital Technology



វិទ្យាសានបច្ចោរទេសកម្មដា
Institute of Digital Technology

Welcome to
Computer Programming Fundamentals (CPF)
Practice Class

Prepared by: **Leangsiv HAN**

16th February 2024



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Week 01

Introduction to Computer Programming Fundamentals

Prepared by: Leangsiv HAN

16th February 2024

Course Outline

Department	Foundation Year, Term 1
Date	12 th Feb 2024 – 05 th May 2024
Duration	10 Weeks (Theory 1h30mins + Lab 3hs)
Makeup class	2 Weeks
Course Name	Computer Programming Fundamentals (CPF)
Coding	C Programming Language (Basic Level)
Main Lecturer	Main Lecturer: Dr. Srun Sovilla (Theory class)
Instructor	Instructor: Mr. Han Leangsiv (Lab class)

Schedule

Week 01

Introduction to Computer Programming Language (CPF)

Homework

Week 02

Number Systems, Binary Arithmetic, and Conversion

Lab/Homework

Week 03

Varaible
Datatypes
Operateors

Lab/Homework

Week 04

Quiz
Input and Output

Lab/Homework

Week 05

Flowchart

Lab/Homework

Week 06

(Part 1) Control Statements:
selection statements

Lab/Homework

Week 07

Quiz

(Part 2) Control Statements:
interactions

Lab/Homework

Week 08

(Part 3) Control Statements: goto statement, nested loops, etc.

Lab/Project/Home work

Week 09

Game

Array and String

Lab/Project/Home work

Week 10

Function and/or File I/O

Project Demo
Recap the course
Lab/Homework

Week 11

Make-up class

Note: This schedule is subject to change, if necessary, in the real classroom situation.

Assessments

Attendance	10%
Class Activities	15%
Lab/Homework	20% (Not submitting 3 assignments get 0)
Quiz/Mid-term	15% (Will be informed in advance)
Project	10%
Final Exam	20%
Total	100%
 Bonus	5% (Innovative Projects, Class Engagement, Collaborate, DOB gift, etc.)

Note: This plan is subject to change, if necessary, in the real classroom situation.

Grading System

Grade	Mark Obtained %	Grade Point	Meaning
A	85% - 100%	4.00	Excellent
B+	80% - 84%	3.50	Very Good
B	70% - 79%	3.00	Good
C+	65% - 69%	2.50	Fairly Good
C	50% - 64%	2.00	Fair
F	<50%	0.00	Fail

Group Discussion

1. What is a Computer?
2. What is Programming Language?
3. Why do we need to learn Programming Languages?
4. What Programming Language will we learn?
5. What is an IDE?

1. What is a Computer?

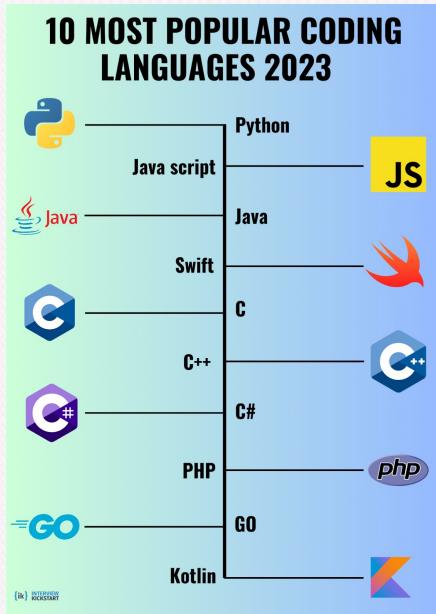
The Oxford Dictionary defines a **Computer** as ‘an electronic machine that can store, organize and find information, do processes with numbers and other data, and control other machines’.



Ref. History of Computer

Note: Ref. refer to Reference.

2. What is Programming Language?



Ref. [Interview Kickstart](#)

Programming is defined as "the process of writing and testing computer programs" (Oxford Dictionary).

Programming Language is a set of instructions written by a programmer to deliver instructions to the computer to perform and accomplish a task. This set of instructions is usually viewed as incomprehensible code structured following a definite programming language syntax.

(Ref. [Code Institute](#))

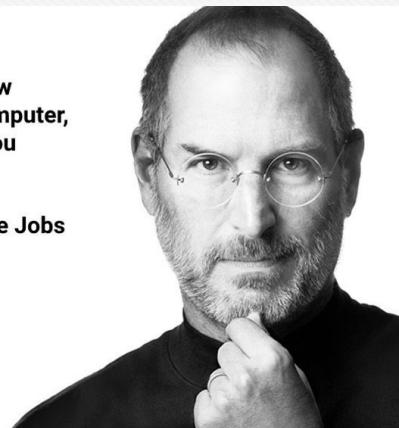
3. Why do we need to learn Programming Languages?

- Develop problem-solving skills.
- Improve your understanding of the world.
- Improve your logic and reasoning skills.
- Grow your creativity.
- Etc.

(Ref. Indeed)

"Everyone should know how to program a computer, because it teaches you how to think."

Steve Jobs



4. What Programming Language will we learn?

C Programming Language

C is a general-purpose programming language created by Dennis Ritchie at the Bell Laboratories in 1972.



It is a very popular language, despite being old. The main reason for its popularity is because it is a fundamental language in the field of computer science.

Ref. [Learn C Programming in 2023: The Complete Beginner's Guide](#)

C is strongly associated with UNIX, as it was developed to write the UNIX operating system.

(Ref. [W3school](#))

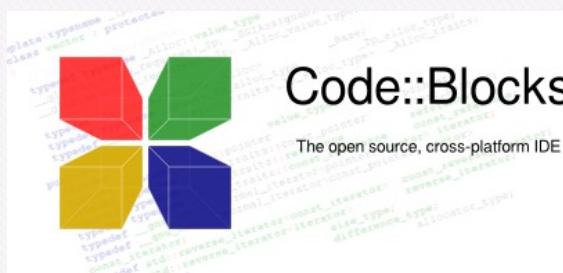
5. What is an IDE?

IDE: Integrated Development Environment

An integrated development environment (IDE) is a software application that helps programmers develop software code efficiently. It increases developer productivity by combining capabilities such as software editing, building, testing, and packaging in an easy-to-use application.

(Ref. [AWS Amazon](#))

C IDEs



(Ref. 10 Best C IDEs For 2024)

Online IDEs:

- <https://www.programiz.com/c-programming/online-compiler/>
- https://www.w3schools.com/c/tryc.php?filename=demo_compiler
- <https://onecompiler.com/c>
- Etc.

Resources

- Books:
 - **⭐ Computer fundamentals and programming in C Second Edition**
 - *Authors: Pradip Dey (Author), Manas Ghosh (Author)*
 - **Oualline, S. (1997). *Practical C programming.* " O'Reilly Media, Inc.".**
 - *Link to the file: ([Click Me](#))*
 - **Kernighan, B. W., & Ritchie, D. M. (2002). *The C programming language***
 - *Link to the file: ([Click Me](#))*

Website to learning programming

- <https://www.w3schools.com/> (**Recommended**)
- <https://www.tutorialspoint.com/> (**Recommended**)
- <https://www.uopeople.edu/>
- <https://www.udemy.com/>
- <https://www.coursera.org/>
- <https://www.edx.org/>
- <https://www.codecademy.com/>
- Etc.

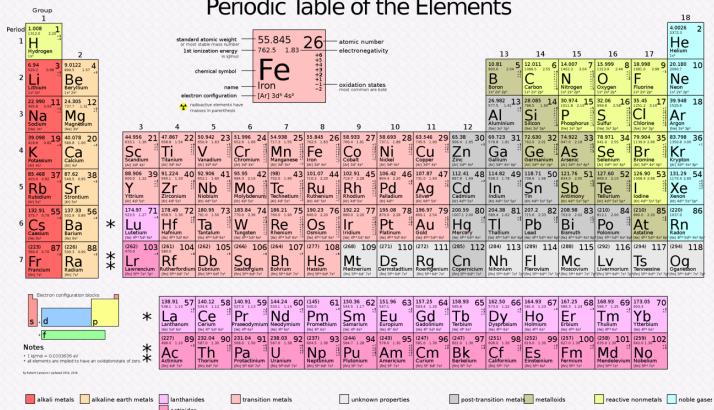
Tools

Search Tools	Google, Duckduckgo, etc.
Q&A platform	Stack Overflow, Github Discussion, Dev.to, CodeProject, etc.
AI Tools	ChatGPT, Gemini, Github Copilot, Microsoft Copilot, etc.

Besides that, follow dedicated **Community pages** on Social Media. These communities provide networking, collaboration, and learning opportunities. Whether discussing language features, sharing code snippets, or seeking advice, they're invaluable for skill enhancement and staying connected in the programming community.

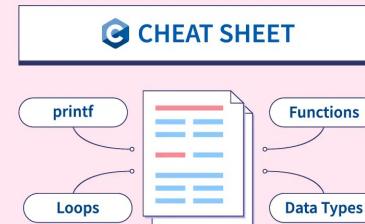
Additional Documents

Chemistry Course



Periodic Table

Programming Course



Cheat Sheet

Additional Documents

What is Cheat Sheet?

Cheat Sheet is a quick *reference guide* that contains important information about a *programming language, framework, or library*. They can include syntax, functions, data structures, algorithms, etc.

(Reference: [Geeksforgeeks](#))

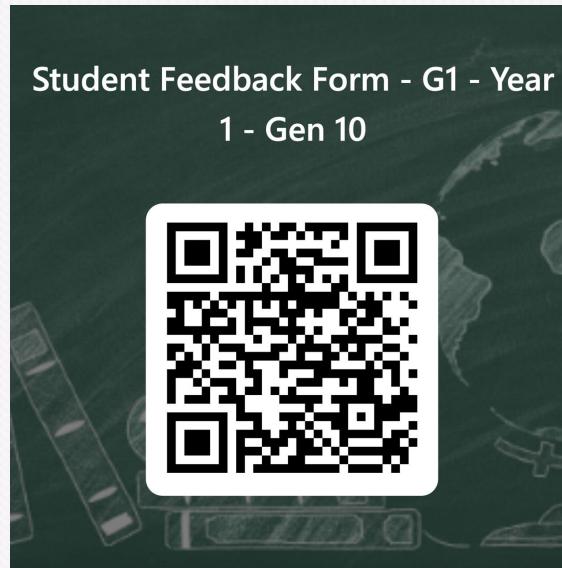
Free Cheat Sheets Websites:

- [Cheatography](#)
- [Free-programming-cheatsheets](#)
- etc.

The screenshot shows a comprehensive C programming cheat sheet. It is organized into several sections:
1. **General Input/Output**: Includes functions like `scanf()` and `printf()`, along with their alternatives like `gets()` and `getchar()`.
2. **Formatted Data**: Details on `scanf()` and `printf()` with examples of how to read and write formatted data.
3. **Characters**: Describes `getchar()` and `putchar()`, explaining how they interact with the input stream and output stream respectively.
4. **String**: Explains how to read a line from the input stream into a string variable using `getline()` or `fgets()`, and how to print a string to the output stream using `puts("text")`.
5. **Data Types**: A large section detailing various data types including `int`, `long`, `double`, and `void`, along with their sizes, precision, and alignment requirements.
6. **Alternative**: Provides alternative functions for `scanf()` such as `gets()` and `getchar()`.
7. **Standard Library Functions**: Lists common standard library functions like `strlen()`, `strcpy()`, and `strcmp()`.
8. **Header Files**: Lists standard header files like `stdio.h`, `conio.h`, and `string.h`.
9. **Notes**: Includes a note about `scanf()` and `gets()` being dangerous due to buffer overflow risks.
10. **Page Footer**: Shows the footer with the logo, author information (Geocean), and copyright details.

[C Programming Cheat Sheet](#)

Student Feedback Form – G1 – Year 1 – Gen 10



Microsoft Form Link: ([Click Me](#))

Telegram Group

CPF-G1-Gen10-Y1T1-Lab_Class



Link: <http://tinyurl.com/cpfgen10>

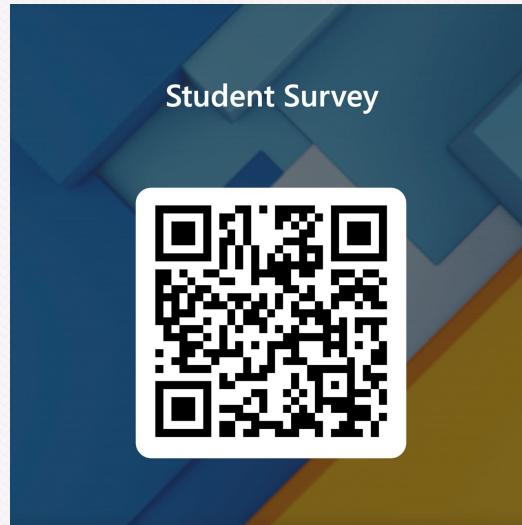
Online Discussion

- ✓ Platform: **Microsoft Teams**
- ✓ Team: IDT-FDY10-G1
- ✓ Channel: Computer Programming Fundamentals
- ✓ The meeting starts **every Saturday**.
- ✓ Time: **10 PM – 11 PM** (1 hour)

Note: For any changes, the instructor will inform students in advance.

Week 1 – Homework (1/2)

1. Fill in the Survey form.



Microsoft Form Link: ([Click Me](#))

Week 1 – Homework (2/2)

2. Download and Install IDE for C Programming.

- IDE: Integrated development environment
- Be able to *compile* and *run* the code below:

Filename: **hw1.c**

Code:

```
#include <stdio.h>

int main(){
    printf("Hello World!");
    return 0;
}
```

Result/Output: **Hello World!**

Thank you !

Questions or Feedbacks ?



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 leangsivhan