# Hello World - C1W1

**Textbooks**

1. **T1** - Programming: Absolute Beginners Guide (Module Textbook) (Cycle 1)
2. **T2** - C++17: From Novice to Professional (UWE Ebook) (Cycle 2)

Chapters:

1. **T1** 1-4, 18-19

## Module Structure

* Cycle 1 - Basics
  + End of Module Coursework Start (40%)
* Cycle 2 - Advanced
  + End of Module Coursework End (40%)

## Ground Rules

**Classes**

* 3 classes in the week, 2hrs each.

**Communication**

* Try before you send an email.
* Explain the issue, show what you have tried, what did you expect and be specific about where you need help.

**Attendance**

* The course is fast-paced and there is a lot to cover. You are advised to attend all classes, and especially the practical sessions.

**Practice**

* It cannot be stressed enough, that the only way you will learn is by practicing outside the class. Take it as an opportunity to explore.
* Some resources to start with -
  + [replit.com](https://replit.com/)
  + [en.cppreference.com/w/cpp](http://en.cppreference.com/w/cpp)
  + [Exercism](https://exercism.org/tracks/cpp)
  + <https://www.tutorialspoint.com/cplusplus/index.htm>

## Important Links

* [Microsoft Teams](https://teams.microsoft.com/l/channel/19%3af7dc69832ac949a894e6aab8a7cd427f%40thread.tacv2/General?groupId=c37ebdca-7f7d-46bb-a382-11ecec616bd5&tenantId=057daf85-b1d5-44cd-ab7b-0a4ce1b29eae)
* [VLE](https://pathways.kaplaninternational.com/course/view.php?id=2846)

## The C++ Programming Language

* General Purpose
* C++17 Standard
* Applications include device drivers, embedded systems, financial and scientific applications etc.
* Large and complex language that can take years to master.
* **Elegant Objects** - Yegor Bugayenko (Must Read for Object Oriented Programming)

## Hello World Program

It is tradition to write a Hello World program when starting with a new programming language.

#include <cstdio>
  
  
int main()
  
{
  
 printf("%s\n", "Hello World");
  
 return 0;
  
}

## printf

* The printf function displays the given text on the console.

int printf( const char\* format, ... );

* The format string contains format specifiers and specifies to the function how the user wishes the output to be displayed as.
* Each format specifier requires a corresponding value given to the function after the format string.
* Most commonly used format specifiers -
* %f - Decimal Numbers  
  %s - Strings  
  %c - Characters  
  %d - Integers

## Exercises

1. What will be the output of the following?
   1. printf("To C, or not to C?\n");
   2. printf("%d", 4);
   3. printf("%f", 3.14);
   4. printf("%s", "Hello C\n");
   5. printf("%d\t%d", 4, 5);
   6. printf("%.1f\n", 3.1415);
2. What will be the output of the following program? (M)

printf("Parkinson's Law:\nWork expands so as to ");  
printf("fill the time\n");  
printf("available for its completion.\n");

1. Write a program to implement the following picture on the screen. (M)

\*  
 \*  
 \* \*  
 \* \*  
 \*

## Homework

Read Chapters 5-13.

1. Write a program that declares several int and float variables without initializing them and then prints their values. Is there any pattern to the values? (E)
2. Write a program that computes the volume of a sphere with a 10-meter radius, using the formula (M)
3. Write a program that asks the user to enter a dollars-and-cents amount, then displays the amount with 5% tax added: (H)

* Enter an amount: 100.00
    
  With tax added: $105.00