# Session 1: Familiarization with C++ and 3DP

## C++ Coding Environment

Familiarize with C++ programming environment and learn how to output text files.

We will use Visual C++ here.

Steps to setup **Visual Studio Code** environment:

1. Download VSC from the link <https://code.visualstudio.com/Download>
2. Install VSC environment: <https://www.youtube.com/watch?v=MlIzFUI1QGA>
3. Download the mingw compiler: <https://www.mingw-w64.org/downloads/>
4. Install mingw msys2 compiler and debugger by following all the steps in the video: <https://www.youtube.com/watch?v=0HD0pqVtsmw&t=0s>
5. Installation steps for msys2 compiler within mingw: <https://www.msys2.org/>
6. Setup visual studio code by following this video till 6min:30s: <https://www.youtube.com/watch?v=r1zCtg_wqCA>
7. Complete rest of the visual studio code setup by following the steps in this video: <https://www.youtube.com/watch?v=jvg4VtYEhKU>
8. Attempt file handling with this video and make sure it is working: <https://www.youtube.com/watch?v=EaHFhms_Shw>

Assignment: Input your name, class, and school and write them in a text file in 3 separate lines.

## 3D printing

3D printing is a versatile technology capable of many different applications.

It started with making prototypes to try out things before manufacturing using expensive tooling and machinery. Now it is advanced enough to directly use for industrial production parts, especially for complex geometries like rocket engines.

Here are some videos explaining the topic:

1. Introduction to 3D printing: <https://www.youtube.com/watch?v=3LBTkLsjHGQ>
2. Different printing technologies: <https://www.youtube.com/watch?v=DMWzMpjSJLM>
3. Common industrial applications: <https://www.youtube.com/watch?v=iE4FxhgigTo>

In this course, we focus on how it is done and how you can get started to make your own designs that a 3D printer can read.

Assignment: Write the top 3 applications of 3D printing that excite you the most and explain why you chose those.