

Welcome to the 8th edition of the HEP C++ course and hands-on training “The Essentials”



The University of Manchester

Mentors, lecturers and organizers:

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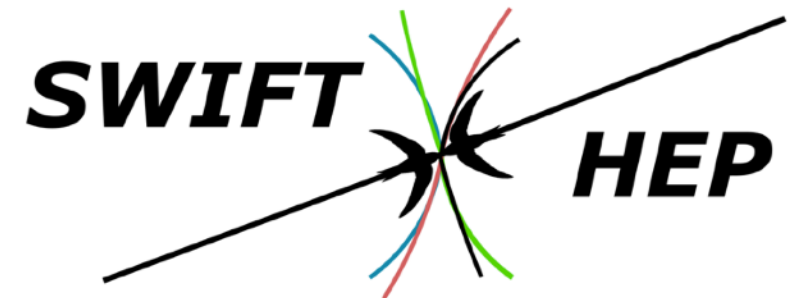
Many slides taken from [Stefan Roiser's introduction to Essentials course @ CERN, March 2023](#)

Hosting:



The University of Manchester

Sponsoring coffee breaks
and lecturers/mentor travel:



Lecturers and mentors
part of:



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Introduction

- This is the eight edition of this C++ course and training
- Developed and co-organised by HSE and SIDIS
- Course content split into “Essentials” (this course) and “Advanced” (~ fall '23) - to stay informed sign up here
 - We will record the morning lectures and post them on indico, together with the lecture PDFs
- Organised by volunteers from within the High Energy Physics community (previous courses with a HEP audience), but the courses are on generic C++

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Logistics

Local/remote

- Lectures, organized in 15' topical chunks (preferable to ask questions at the end of each chunk):
 - 11-13 on Tuesday, 9-12 on Wednesday/Thursday

Tuesday	Wednesday	Thursday
Basics (syntax, pointers, references, compound types, operators, ...)	Tools (compiler chain, debugging, ...) Object Orientation (classes, inheritance, ...)	Object Orientation (allocation, advanced OO, functors, ...) Modern C++ (templates, STL, ...)

- Hands-on sessions (mentors available in the room, “lab style”):
 - Afternoons, starting at 14:30 on Tue and at 14 on Wed/Thu
- Lecture on software sustainability by Eli Chadwick: 16:00 on Wed
- Recap session:
 - 9-11 on Friday (we are aware of possible train strikes...)

Logistics

Remote / online discussions

- a Mattermost channel for those with a CERN account:
 - https://mattermost.web.cern.ch/signup_user_complete/?id=i7yc5azxk38cmrpwheb6hs9woh&md=link&sbr=su
- A (slightly less monitored) Discord server if you don't have a CERN account:
 - <https://discord.gg/Sk95CSjD>
- If you're in the room/on Zoom, don't hesitate to ask voice questions!

Code of conduct & agreements

- ☰ I commit to attending the whole event *

As the number of course participants is limited and coffee breaks are sponsored by Swift-HEP, we really ask for your commitment to attend the whole event.

- I acknowledge that the lectures will be recorded and will be made public after the event *

All the lectures of this training event will be recorded and the videos made available online either on the Indico event page or other means of publication (e.g. youtube).

- I have read and will abide to the CERN Code of Conduct

<https://cdsweb.cern.ch/record/1273755/files/Codeofconduct.pdf>

Informal social events

- on Wednesday after the software sustainability lecture, we can informally go all together to a pub nearby
 - Suggestion: Grand Central, but will see on the day
- Afterwards, lecturers and mentors will have dinner at Bundobust Brewery on Oxford Street
 - Students: feel free to join, but we can't cover your dinner (limited funds!)

Who we are...round table

- We'll start with introducing lecturers and mentors
- Then move on to the in-room participants, and finally to the Zoom participants (to test our microphone-throwing skills)
 - Format: say your name / institute / field of research
- If you are on Zoom and want to send me (caterina.doglioni@cern.ch) a picture of yourself OR turn on your camera at the end of this lecture, I'll make a collage to include you in the group photo as well!