

## Agenda for SYCL and oneAPI hackathon at CINECA

Start Time	Monday	Tuesday	Wednesday		
09:00	Welcome & Setup	Lecture 4	Lecture 5		
09:30	Lecture 1				
10:00					
10:30	Coffe Break	Coffe Break	Coffe Break		
11:00	Lecture 2	Lab Session	Lab Session		
11:30					
12:00					
12:30	Lunch Break	Lunch Break	Lunch Break		
13:00					
13:30					
14:00	Lecture 3	Lab Session	Lab Session		
14:30					
15:00	Coffe Break				
15:30					
16:00	Lab Session				
16:30					
17:00					
17:30					

Tentative overview of the lectures (may be subject to further changes)

### Lecture 1: Introduction to SYCL

- SYCL Fundamentals
- Setup on Leonardo

### Lecture 2: SYCL Advanced

- Device selector, multi-device programming
- In-order queue and SYCL graphs
- oneAPI ecosystem overview
- Sanitizer
- Intel Advisor for sequential code

### Lecture 3: Porting CUDA to SYCL

- SYCLomatic intro and first demo
- Porting CUDA streams
- Porting to oneMath and oneDNN
- Porting large scale projects: LiGen case study

### Lecture 4: Performance Optimization

- Subgroup & Group Algorithms
- Local memory
- Profiling with Nsight on Leonardo

## **Lecture 5: Performance Portability**

- Understanding Performance Portability
- Access to Intel Max Series GPUs on Intel Cloud
- Profiling Intel GPUs with VTune