

## **PATC Course: Introduction to CUDA Programming**

### **Objectives**

The aim of this course is to provide students with knowledge and hands-on experience in developing applications software for processors with massively parallel computing resources. In general, we refer to a processor as massively parallel if it has the ability to complete more than 64 arithmetic operations per clock cycle. Many commercial offerings from NVIDIA, AMD, and Intel already offer such levels of concurrency. Effectively programming these processors will require in-depth knowledge about parallel programming principles, as well as the parallelism models, communication models, and resource limitations of these processors. The target audiences of the course are students who want to develop exciting applications for these processors, as well as those who want to develop programming tools and future implementations for these processors.

#### **Learning Outcomes:**

The students who finish this course will learn how to program massively parallel processors and achieve high performance, functionality, maintainability, and scalability across future generations.

The students who finish this course will acquire technical knowledge required to achieve the above goals by learning principles and patterns of parallel algorithms, processor architecture features and constraints, and programming API, tools and techniques.

### **Requirements**

Basic knowledge of C/C++ programming

Attendees will need to bring their own laptops with a SSH client.



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This course is delivered by the **CUDA Center of Excellence (CCOE)** awarded by NVIDIA to the Barcelona Supercomputing Center (BSC) in association with Universitat Politècnica de Catalunya (UPC).

## Recommended Accommodation:

Please follow [the link](#) for map of some local hotels.

## Contact Us:

[CONTACT US](#) for further details about MSc, PhD, Post Doc studies, exchanges and collaboration in education and training with BSC.

For further details about Postgraduate Studies in UPC - Barcelona School of Informatics (FiB), visit the [website](#).

## Sponsors:

The PATC@BSc training events are funded by BSC and PRACE 3IP project.

If you want to learn more about PRACE Project, visit the [website](#).

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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