The Master’s Degree in High Performance Computing (HPC) is a two-year postgraduate master’s course taught by BSC-CNS experts at the Facultat d’Informàtica de Barcelona - Universitat Politècnica de Catalunya (UPC). The Barcelona Global Excellence Master’s Degree ranks this course as an international reference.

UPC is a public institution dedicated to higher education and research, is specialised in the fields of engineering, architecture and science and is recognised as an International Campus of Excellence. The UPC and BSC-CNS offer a rigorous two-year, full-time master’s programme that prepares students for doctoral study and provides robust training for top jobs in HPC-related professions.

The MSc in HPC trains specialists in parallel programming and design of computer architecture. Learning cutting-edge HPC technologies and skills facilitates students' incorporation into the research centres and companies that will address the next societal challenges using HPC as a key tool.

**Programme**


**What is High Performance Computing for and why join this master's course?**
Supercomputers are very powerful machines employed for specialised applications that require immense quantities of mathematical calculations. Companies involved in areas such as aerospace and automotive engineering, oil exploration, drug design and genetic sequencing all run computer models on supercomputers. HPC has become vital for a huge range of activities that benefit society. Furthermore, you will have the opportunity to live in Barcelona, a Mediterranean city that hosts one of the largest university communities in Europe.

**Why Barcelona Supercomputing Center?**

Barcelona Supercomputing Center is the pioneering supercomputing centre in Spain and specialises in High Performance Computing (HPC). Its purpose is twofold: to conduct R+D, and to make supercomputing facilities and technology available to the scientific community and to society as a whole.

The BSC-CNS was awarded the “Severo Ochoa Centre of Excellence” seal in 2011; it manages the Spanish Supercomputing Network (Red Española de Supercomputación, or RES) and is a first-level member of the PRACE infrastructure (Partnership for Advanced Computing in Europe). The BSC-CNS consortium is made up of the Spanish Ministry of Economy, Industry and Competitiveness (60%), the Catalan Ministry of Business and Knowledge (30%) and the Technical University of Catalonia-BarcelonaTech (10%).

BSC-CNS works in collaboration with national and international institutions and businesses.

**Student profile**

Students with a Computers Sciences or Informatics bachelor's degree are welcome onto the course. It is also the right degree for graduates from informatics or related fields, either in Engineering (Electrical, Industrial, Telecommunications, ...) or Science (Mathematics, Physics, ...) who want to obtain a high level of knowledge in one of the fields of Computer Science that will enable them to obtain high responsibility jobs in any company, and especially in those with a R&D&I department. It is also recommended for graduates who are considering embarking on a PhD in the field of Informatics in the future.

You will study a variety of fields within the HPC sector (storage, cloud computing, computer architecture, etc.). You will have the opportunity to become a specialist in HPC and parallel computing with access to leading-edge HPC platforms and technologies such as the high ranking supercomputer MareNostrum. The programme has strong links with leading IT companies such as IBM, Nvidia, Intel and Microsoft. This will provide you with a gateway to a wide variety of future careers in research and industry.

**Scholarships available**

In the context of the Severo Ochoa programme, Barcelona Supercomputing Center (BSC-CNS) awards scholarship grants for students on the MIRI MSc Programme in Facultat d’Informàtica de Barcelona-UPC who have chosen to follow the High Performance Computing specialisation. For more information on Scholarships please click here

**Seminars at BSC**

MSc students can enrol on BSC-led seminars under the PATC Training Programme. Check out the PATC training courses available during the academic year and download our catalogue of credited seminars.
Support by the BSC Education & Training team

The BSC Education & Training team offers support to students who are applying for the BSC Severo Ochoa MSc scholarship for the HPC specialisation and provides pastoral care throughout their MSc studies. Awardees have termly meetings with the BSC Education & Training team, and undertake their dissertation project at BSC, a process coordinated by the centre.

The Education & Training team also organises the PATC training courses which are recognised as credited seminars on the MSc.

If you are also interested in the Postgraduate Diploma in Big Data Management and Analytics please click here

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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