### COURSE DETAILS

**Course Code:** F20DP  
**Full Course Title:** Distributed and Parallel Technologies  
**SCQF Level:** 10  
**SCAF Credits:** 15  
**Available as Elective:** No

### DELIVERY LEVEL

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### COURSE AIMS

- To explore technologies and techniques underlying advanced software development for parallel and distributed systems.
- Review the principal abstractions, methods and techniques used in distributed and parallel programming.
- Develop an understanding of parallel programming on heterogeneous architectures including accelerators such as GPUs.

### LEARNING OUTCOMES – SUBJECT MASTERY

- Understanding of foundational concepts of distributed and parallel software.
- Knowledge of contemporary techniques for constructing practical distributed and parallel systems using both declarative and imperative languages.
- Appreciation of relationship between imperative and declarative models of parallelism.

### LEARNING OUTCOMES – PERSONAL ABILITIES

- Critically analyse parallel and distributed problems.
- Generate, interpret and evaluate parallel performance graphs.
- Develop original and creative parallel problem solutions.
- Demonstrate reflection on core concepts and technologies, e.g. understanding of applicability of, and limitations to, parallel and distributed systems.

### SYLLABUS

**Distributed Technologies:** Distribution concepts; low-level, mid-level and high-level distributed technologies; emerging distribution and coordination technologies.

**Parallel Technologies:** Design of parallel systems, parallel performance analysis; programming heterogeneous systems; practical imperative parallel programming; practical declarative parallel programming.

Prerequisites: Academic knowledge of fundamentals of operating systems, computer networks and software engineering equivalent to an ordinary degree in Computer Science, basic knowledge of programming in C.
## COURSE RELATIONSHIPS

N/A

## LOCATION AND ASSESSMENT METHODS

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