F20DP Distributed and Parallel Technologies

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

DELIVERY LEVEL
Undergraduate: Yes | Postgraduate Taught: No | Postgraduate Research: No

Additional Information:

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.
**F20DP Distributed and Parallel Technologies**

**COURSE RELATIONSHIPS**

N/A

**LOCATION AND ASSESSMENT METHODS**

<table>
<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
<th>Ork</th>
<th>Dub</th>
<th>Malay</th>
<th>IDL</th>
<th>COLL</th>
<th>ALP</th>
<th>OTH</th>
<th>Method</th>
<th>Weight</th>
<th>Exam Mins</th>
<th>Type</th>
<th>Diet</th>
<th>Synoptic Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>70</td>
<td>120</td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>30</td>
<td></td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
</tbody>
</table>