### Subject Description Form

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>COMP5223</th>
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<tbody>
<tr>
<td>Subject Title</td>
<td>Middleware and Distributed Objects</td>
</tr>
<tr>
<td>Credit Value</td>
<td>3</td>
</tr>
<tr>
<td>Level</td>
<td>5</td>
</tr>
<tr>
<td>Pre-requisite/Exclusion</td>
<td>Nil</td>
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#### Objectives

The objectives of this subject are to enable students to:

1. Learn the need and applications of middleware;
2. Apply and use the theories and concepts underlying the design of middleware to solve related problems;
3. Understand the concepts philosophy and design of CORBA; and
4. Acquire the concepts of system integration using a scripting programming language.

#### Intended Learning Outcomes

After completing this subject, students should be able to:

a) understand the problems and issues encountered in building large-scale distributed systems and enterprise application integration; and
b) solve various tasks in the construction of large-scale distributed systems and enterprise application integration using object-oriented middleware and scripting programming language.

#### Subject Synopsis/Indicative Syllabus

**Introduction to Distributed Systems**
- Distributed system requirements
- Transparency in distributed systems
- Object-oriented approach to distributed systems
- Local versus distributed objects

**Principles of Object-Oriented Middleware**
- Why middleware
- Types of middleware
- Object-oriented middleware
- Developing systems with object-oriented middleware

**CORBA**
- Architecture and system development
- Communication modes: synchronous requests, oneway requests, deferred synchronous requests, asynchronous requests
- Portable Object Adaptor (POA)
- Portable interceptors
- CORBA services: naming service and event service
System Integration using Scripting Programming Language
- Fundamentals of Ruby programming
- Database integration using Ruby
- Distributed applications in Ruby

**Teaching/Learning Methodology**
Class activities including - lecture, tutorial, lab, workshop seminar where applicable

**Assessment Methods in Alignment with Intended Learning Outcomes**

<table>
<thead>
<tr>
<th>Specific Assessment Methods/Tasks</th>
<th>% weighting</th>
<th>Intended subject learning outcomes to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments, Tests &amp; Projects</td>
<td>55</td>
<td>✔</td>
</tr>
<tr>
<td>Final Examination</td>
<td>45</td>
<td>✔</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
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**Student study effort expected**

**Class Contact:**
Class activities (lecture, tutorial, lab) 39 hours

**Other student study effort:**
Assignments, Quizzes, Projects, Exams 65 hours

**Total student study effort** 104 hours

**Reading list and references**


*Others*

Articles from journals, magazines, and conference proceedings, including ACM TOCS, IEEE TPDS, IEEE TSE, IEEE TOC, CACM, IEEE Computer, ICDE, DOA.