## SUBJECT DESCRIPTION FORM

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>COMP5111</th>
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<tbody>
<tr>
<td>Subject Title</td>
<td>Database Systems and Management</td>
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<tr>
<td>Credit Value</td>
<td>3</td>
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<tr>
<td>Level</td>
<td>5</td>
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<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. gain a good understanding of the architecture and functioning of database management systems, as well as the associated tools and techniques;
2. understand and be able to apply the principles and practices of good database design;
3. appreciate the direction of database technology and their implication on management and planning of database systems;
4. appraise and use alternative conceptual and/or data models for documenting enterprise databases;
5. evaluate available DBMS systems against organization needs and negotiate the acquisition of DBMS.

### Intended Learning Outcomes
Upon completion of the subject, students will be able to:
- a) design database solutions to solve common business problems;
- b) evaluate the effectiveness of specific database solutions in solving business problems; and
- c) articulate the organizational impact of database solutions.

### Subject Synopsis/Indicative Syllabus
- **Overview of Database Management and Architecture**
- **Relational DBMS**: Entity-relationship (ER) modelling, Relational database design, SQL and relational algebra, View mechanisms.
- **DB Implementation and Operational Issues**: Data dependencies and normalization, Query processing and optimization, Security and integrity constraints, Physical database design, Transactions, recovery and concurrency issues, Commercial DBMSs.
- **Selected Topics for Database Management**: Database administration, Database applications for enterprises, Database project development.
- **Selected Topics for Database Technology**: Object-oriented and semantic data modelling, Distributed database architecture, Web databases.

### 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>
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<tr>
<td>Total</td>
<td>100%</td>
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### Student study effort expected

Class Contact:
- Class activities (lecture, tutorial, lab) | 39 Hrs.

Other student study effort:
- Assignments, Quizzes, Projects, Exams | 65 Hrs.

Total student study effort | 104 Hrs.

### Reading list and references

