1. **Name of Course/Module/Subject**: Data Communications and Networking

2. **Course/Subject Code**: TDC 1231

3. **Status of Subject**
   - Common Core for
     - B.IT (Hons) Data Communications and Networking
     - B.IT (Hons) Information Technology Management
     - B.IT (Hons) Artificial Intelligence
     - B.IT (Hons) Security Technology
     - B.Sc (Hons) Bioinformatics

4. **MQF Level/Stage**
   - Certificate – MQF Level 3
   - Diploma – MQF Level 4
   - Bachelor – MQF Level 6
   - Masters – MQF Level 7
   - Doctoral – MQF Level 8
   - Bachelor – MQF Level 6

5. **Version**
   - Date of previous version: June 2012
   - Date of current version: June 2014

6. **Pre-Requisite**: None

7. **Name(s) of academic/teaching staff**: Lew Sook Ling, Lilian Wang Yee Kiaw

8. **Semester and Year offered**: Trimester 2, Year 1

9. **Objective of the course/module/subject in the programme**:
   
   To provide students with concepts of data communications and networking. (ii) To understand the fundamentals of Communication Architecture, Protocols and Local Area Networks. (iii) To expose the various types of network in terms of the technologies, hardware, and usage.

10. **Justification for including the subject in the program**:

    As one of the fastest growing technologies in our culture today, data communications and networking presents a unique challenge for IT industry. Knowledge of data communications and networking is crucial to today's IT professional. Virtually all computers are connected to some sort of network and exchange information with each other. This course will cover the topics of Network Models and Architecture, Interfacing and Communication, Fault Tolerance and System Performance Evaluation. A student project of sufficient rigor will be the core of this course and the project will be retained in the IS student's permanent portfolio for future use. This course provide students with familiarity with the core concepts of networking, including awareness of the existence of protocols; an understanding of hardware such as routers and hubs and switches, common operating systems, basic systems and IP Network security.

11. **Subject Learning Outcomes**:

    |LO| Domain | Level |
    |---|---|---|
    |LO1| Demonstrate understanding about various data communication transmission media, interface and modulation techniques. | Cognitive | 3 |
    |LO2| Understand the link layer data transmission techniques and protocols. | Cognitive | 2 |
12. Mapping of Learning Outcomes to Programme Outcomes:

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>LO1</th>
<th>LO2</th>
<th>LO3</th>
<th>LO4</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
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<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Percentage: 42.86 57.14 0.0 0.0 0.0 0.0 0.0 0.0

13. Assessment Methods and Types:

<table>
<thead>
<tr>
<th>Method and Type</th>
<th>Description/Details</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>Written midterm test</td>
<td>20%</td>
</tr>
<tr>
<td>Tutorials</td>
<td>Written tutorials, class participation, etc.</td>
<td>10%</td>
</tr>
<tr>
<td>Laboratories</td>
<td>Laboratory works</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Written exam</td>
<td>60%</td>
</tr>
</tbody>
</table>

14. Details of Subject:

<table>
<thead>
<tr>
<th>Topics</th>
<th>Mode of Delivery (eg: Lecture, Tutorial, Workshop, Seminar, etc.) Indicate allocation of SLT (lecture, tutorial, lab) for each subtopic</th>
</tr>
</thead>
</table>
| 1. Introduction
| 2. Data Transmission
| 3. Transmission Media
4. Data Encoding and Modulation

5. Data Communication Interface

6. Data Link Control

7. Multiplexing

8. Circuit Switching and Packet Switching

9. LAN Technology

10. LAN Systems
### Layer Specifications and MAC.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
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<td>8</td>
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<table>
<thead>
<tr>
<th>Total Student Learning Time (SLT)</th>
<th>Face to Face</th>
<th>Total Guided and Independent Learning</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Tutorials</td>
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<td>20</td>
</tr>
<tr>
<td>Laboratory/Practical</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Presentation</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Assignment</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mid Term Test</td>
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<td>3</td>
</tr>
<tr>
<td>Final Exam</td>
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<td>18</td>
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<tr>
<td>Quizzes</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Sub Total</td>
<td>73</td>
<td>87</td>
</tr>
</tbody>
</table>

**Total SLT**: 160

**Credit Value**: 160/40 = 4

### Mapping of Assessment Components to Learning Outcomes:

<table>
<thead>
<tr>
<th>Assessment Components</th>
<th>%</th>
<th>LO1</th>
<th>LO2</th>
<th>LO3</th>
<th>LO4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
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<td>20</td>
<td>20</td>
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<tr>
<td>Final Exam</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>100</td>
<td>100</td>
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</tbody>
</table>

### Reading Materials:

| Textbook: | Reference Materials: |


Appendix (to be compiled when submitting the complete syllabus for the programme):
1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom’s Taxonomy’s Domain Coverage in all the Los in the format below:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Learning Outcomes (please state the learning outcomes)</th>
<th>Bloom’s Taxonomy Domain</th>
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<tr>
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<tr>
<td>ABC1234</td>
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<tr>
<td></td>
<td>Learning Outcome 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning Outcome 3</td>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td>DEF5678</td>
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</tr>
<tr>
<td></td>
<td>Learning Outcome 2</td>
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<td>Learning Outcome 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning Outcome 4</td>
<td></td>
</tr>
</tbody>
</table>

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement