**Module Title:** Computer Networks

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<tr>
<th>Level: Junior Sophister</th>
<th>Credits: 5</th>
<th>Prerequisites: None</th>
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<tr>
<td><strong>Lecturer(s):</strong> Assistant Prof. Hitesh Tewari</td>
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**Terms:** Semester 2

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<tr>
<th>Duration (weeks): 12</th>
<th>Lectures/week: 2</th>
<th>Tutorials/week: 1</th>
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<td>Total: 22</td>
<td>Total: 11</td>
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**Module Aims**

This module introduces students to computer networks and concentrates on building a firm foundation for understanding Data Communications and Computer Networks. It is based around the OSI Reference Model that deals with the major issues in the bottom three (Physical, Data Link and Network) layers of the model. Students are also introduced to the areas of Network Security and Mobile Communications. This module provides the student with fundamental knowledge of the various aspects of computer networking and enables students to appreciate recent developments in the area.

**Module Content**

1. Introduction to computer networks;
2. Physical Layer Issues;
3. The Datalink Layer;
4. Local Area Networks;
5. TCP/IP Suite of Protocols;
6. Network Security;
7. Mobile Networking

**Recommended Text(s)**


**Learning Outcomes**

Upon completion of this module, students will be able to:
1. Have a good understanding of the OSI Reference Model and in particular have a good knowledge of Layers 1-3.
2. Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies;
3. Have a basic knowledge of the use of cryptography and network security;
4. Specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols;
5. Have an understanding of the issues surrounding Mobile and Wireless Networks.
6. Have a working knowledge of datagram and internet socket programming

**Teaching Strategies**

The lectures are designed to provide students with a better knowledge of some of the important networking protocols - students attend formal lectures during which they are
given handouts of the module notes with a few gaps that they fill in during the module of the lecture. The emphasis during the lecture is on allowing the student to focus on the lecture and pose questions on various issues that may arise. They are given recent journal and conference papers that provide them with an overview of recent and emerging developments in data communications and networking.

**Assessment Mode(s)**

Assessment is by means of a formal written end-of-year two-hour examination and by assessment of the practical sessions. Practical sessions (the module project work and tutorials) carry a mark of up to 20% of the end-of-year mark and the examination makes up the remaining 80%.

The supplemental assessment will be based solely (i.e. 100%) on the written exam.