**CSS 212: Advanced Computer Networks**

1. **Course aim**

The course aims at giving students a deep understand on advances in computer networks and a deep analysis on protocols and routing algorithms.

1. **Course expected Learning Outcomes**

At the end of the course, students should be able to:

* Have understanding on various advances in technologies related to computer networks.
* Have deep understanding on security aspects in computer networks
* Have deep understanding on protocols and routing algorithms
* Demonstrate practical knowledge on setting and configuring switches, routers and wireless access points (routers)
* Have deep understanding of virtual networks and their usefulness in a local area network

1. **Course status:** Core
2. **Credit rating:** 12
3. **Total hours spent:** 120 (12CP \* 10 notional) Hrs
4. **Course Content**
5. Advances in computer and communication technologies
   1. Communication technologies
6. Circuit switching
7. Packet switching
8. Frame Relay

1. Analysis of protocols and routing algorithms
   1. Routing Protocols
2. Dynamic
3. Statics
4. Security of communication networks and privacy aspects of information transfer
   1. Intruder
   2. Hacking
   3. Cypher and De-Cypher
   4. Encryption and Decryption
5. Setting and configuring switches and routers
   1. Dynamic Configurations
6. Router Commands
7. Switch Commands
   1. Router Modes
   2. Router Devices
   3. Switch Devices
8. Introduction to virtual network
   1. Comparison of Virtual Network to Normal Networks
   2. Virtual network Configuration
   3. Advantage of Virtual Networks
   4. Devices over virtual Networks
9. **Teaching and learning activities**

Lectures, Seminars, and Practicals

1. **Assessment Methods**

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| --- | --- |
| **Type** | **Weight** |
| Tests (Test 1: 15%; Test 2: 15%) | 30 % |
| Assignments (Individual: 10%; Group: 10%) | 20% |
| End of Semester Examination | 50% |
| **Total** | **100%** |

1. **Required Reading**
2. Davie, P. (2011). Computer Networks, a Systems Approach (5th Edition). Morgan Kaufman.
3. Tanenbaum & David Wetherill (2011). Computer Networks (5th Ed.). Pearson Prentice-Hall.
4. **Required Reading**

J. Kurose & K. Ross (2013). Computer Networking, A Top-Down Approach (6th Ed.). Pearson