**Advance Network Switching & Routing**

**Third Year – Second Semester**

# Asst. Lec. Darun Mudhafar

**Academic Year: 2021-2022**

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| **Course Book**  |

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| **S. No.**  | **Information**  | **Details**  |
| **1.**  | **Course Name**  | Advance Network Switching & Routing  |
| **2.**  | **Course Code**  |  CN302NSR |
| **3.**  | **Lecturer In-charge**  | Daroon Mudhafar |
| **4.**  | **College/Department**  | College of Engineering and Computer Science, Department of Computer Network  |
| **5.**  | **Contact Information**  | E-mail: daroon.muthafar@lfu.edu.krd07504303497 |
| **6.**  | **Time (in hours) per Week**  | Theory: 2 Practical: 2 |
| **7.**  | **Office Hours**  | Saturday to Thursday (8:00-2:00 p.m.) or by making an appointment via email.  |
| **8.**  | **Teacher’s Academic Profile**  |  She has completed B.E and M.E in computer science  |
| **9.**  | **Academic Title**  | Assistant lecturer  |
| **10.**  | **Keywords**  | Routing, Static Routing, Dynamic Routing, Access control list. |
| **11.**  | **Course Overview:** This course describes the architecture, components, and operations of routers and switches in a small network. Participants learn how to configure a router and a switch for basic functionality. By the end of this course, participants will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPng, single area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.  |
|  **12.**  | **Aims & Objective:** To learn about static routing and dynamic routing To learn about Distance Vector Routing ProtocolsTo understand Link State Routing ProtocolsTo understand OSPF ImplementationTo learn about Access Control List |
|  **13.**  | **Course Requirement:** The tasks assigned to the students in this article are to attend weekly theoretical lectures, as well as to assign the students to the theoretical aspect and to complete the reports on the material.   |
| **14.**  | **Teaching and Learning Method:** Using ICT and Educational technology, Books, Board and Power point, class room discussion and seminars and practical exercise. |
| **15.**  | **Assessment Scheme:** Examinations are as follows in this article 50% of the grades on the practical side, which include the completion of the seminars, in addition to the classroom activities and classroom tests and 50% of the final exam.  |
| **16.**  | **Students Learning Outcome:** * Upon successful completion of this course, the student will be able to: (Knowledge based)
* Explain network technologies and how devices access local and remote networks.
* Describe router hardware.
* Explain how switching operates in a small to medium-sized business network.
* Design an IPv4 and IPv6 addressing scheme to provide network connectivity for a small
* to medium-sized business network.
* Configure initial settings on a network device using Cisco command-line interface (CLI).
* Implement network connectivity between device.
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| **17.**  | **Course Reading List and References**  • Text book: CCNA Routing and Switching Complete Study Guide, Design by Jon Buhagiar  |
| **18.**  | **Course Content**  |

 **Course Content**

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| **Week**  | **Lecture Date**  | **No. of** **Hours**  | **Topics**  |
| 1.  |  24/1/2022 | 4 | Routing Concepts  |
| 2.  |  31/1/2022 | 4  | Static Routing  |
| 3. | 7/2/2022 | 4 | Dynamic Routing |
| 4. | 14/2/2022 | 4 | Distance Vector Routing Protocols |
| 5.  |  21/2/2022 | 4  | Link State Routing Protocols |
|  |  28/2/2022 |  | OSPF Implementation |
| 6.  |  | 4  |
| 7.  |  7/3/2022 | 4  | OSPF DR/BDR Election  |
| 8.  |  14/3/2022 | 4  | OSPF Multi Area & Default Route |
| 9.  |  21/3/2022 | 4  | Access Control List  |
| 10.  |  28/3/2022 | 4  |  Standard ACL Configuration  |
| 11.  | 4/4/2022  | 4 | Extended ACL Configuration |
| 12. | 11/4/2022 | 4 | Wireless Fundamentals |
| 13. | 18/4/2022 | 4 | Wireless Architecture |
| 14. | 25/4/2022 | 4 | Implementing WLAN |
| 15. | 2/5/2022 | 4 | Review Final Exam  |
| 16. | 9/5/2022 | 4 | Exam  |

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| 17. | **Examinations:** **-Compositional:**  |
| 18**.**  | **Notes:**  |