**Network Planning and Designing II**

**Third Year – First Semester**

**Asst. Lect. Ahmed S Muhmmed**

**Academic Year: 2024 – 2025**

**Course Book**

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| **S. No.** | **Information** | **Details** |
|  | **Course Name** | Network Planning and Designing |
|  | **Course Code** | CN302NPD |
|  | **Lecturer In-charge** | Ahmed salahalddin Mohammed |
|  | **College/Department** | College of Engineering and Computer Science, Department of Computer Networks |
|  | **Contact Information** | [ahmed.salahaddin@lfu.edu.krd](mailto:ahmed.salahaddin@lfu.edu.krd) |
|  | **Time (in hours) per Week** | Total of 4 hours (2 theory and 2 practical) |
|  | **Office Hours** | 8:30 – 2:30 (to be fixed according to the timetable) |
|  | **Teacher’s Academic Profile** | * Master of Science (MSc.) in college of Engineering and computer science department of Information Technology, from the Lebanese French University (LFU). * Bachelor of Science (BSc.) in Information Technology, from the Lebanese French University (LFU).   **Research Interests Include:**  Computer network , Internet of Things (IoT),Data Communication, Telecommunication and Mobile Networks, Computer System Designs. |
|  | **Academic Title** | Assistant Lecturer |
|  | **Keywords** | Network Designing, Network Planning, Flow Models, Network Architecture, Network Segmentation, Network Diagrams and Blue Prints. |
|  | **Course Overview:**  This course, together with Network Planning and Designing I covered in semester 1, provide solid information in enterprise network architecture, network flow, network design and blue print progress, and many other subjects. With this course, Computer Network students learn how to design and implement precise network systems in their future careers as they learn to handle the new challenges of emerging network technologies and system administration. | |

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| **12.** | **Aims & Objectives:**  The main aims and objectives of this course is to give useful knowledge of how networks are designed and planned before going to implementation and configuration stages, this is because without a smart and sophisticated design, a good network implementation is not achievable. In this course, students will learn about flow models, functional models, network segmentation and many other core subjects in network design and planning. These subjects will build a solid background knowledge in this area either to be used in their future careers in network implementation or in the research field. |
| **13.** | **Course Requirements:**   * A basic introduction to networking course is preferred if taken as a prerequisite prior to this course. * Students are required to attend theoretical and practical lectures and undertake all the obligatory exams, tests, quizzes, reports, assignments, projects or any other assessments. * Absences will be dealt with according to the LFU rules and regulations. |
| **14.** | **Teaching and Learning Methods:**  This course is designed to meet the modern teaching principles in order to achieve the best learning experience and outcome. During the course, many different innovative learning strategies are used with the help of ICT tools in order to deliver the topics with maximum student attention and mind activeness.  The teaching methods may include but not limited to:   * Lab experiments, quizzes, tests, in-class assignments, group/individual seminars, posters and reports.   flipped classroom, reflections and mind maps. |
| **15.** | **Assessment Scheme:**   * One Midterm Exam will be held on week 8, weighing 25% of the total mark. * Many assessments and assignments will be undertaken throughout the course, weighing 15% all together. * One Final Exam will be held on week 15, weighing 60% of the total mark (10% of which is practical test and rest 50% is the theoretical exam) |
| **16.** | **Students Learning Outcome:**  **By successful completion of this course, students will be able to:**  1- Recognize the different types and approaches of network architecture.  2- Categorize networks according to different types of network models.  3- Use the gained knowledge to segment networks into simpler designs.  4- Draw different diagrams to suggest various types of network architectures and models.  5- Describe network functions and their importance to network designing and planning. |
| **17.** | **Course Reading List and References**  **Textbooks** Network Analysis, Architecture, and Design, Third Edition by James McCabeComputer Network design and implementation, by Akira HanakoPractical computer network – analysis and design, by James McCabe |
| **18.** | **Course Content** |

**Course Content**

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| **Week** | **Lecture Date** | **No. of Hours** | **Topics** |
| 1. |  | 4 | Coursebook and Course Introduction |
| 2. |  | 4 | Network design steps (SDLC) |
| 3. |  | 4 | (PDIOO) Network Life Cycle |
| 4. |  | 4 | Business Goals |
| 5. |  | 4 | Technical Goals |
| 6. |  | 4 | Characterize the Existing Network |
| 7. |  | 4 | Develop a cabling plant design |
| 8. |  |  | Midterm Examinations |
| 9. |  | 4 | Select the types of cabling |
| 10. |  | 4 | Fiber optics and wireless media |
| 11. |  | 4 | Student Seminars |
| 12. |  | 4 | Technology Selection |
| 13. |  | 4 | Network Segmentation |
| 14. |  | 4 | Block Box Method/ Review Class |
| 15. |  |  | Final Examinations |
| **19.** | **Examinations:**  Both the Midterm and Final exams are going to be composed of many question types, such as: Explanation, Reasoning, Differentiating, Illustration, multiple choices, True or False, matching…etc.  **Class Participation:**  There will be many activities going on throughout the course period in order to ensure and guarantee the learning outcomes. Therefore, students are expected to pay full attention and participate in all classroom activities in order to maximize their learning and understanding. | | |
| **20.** | **Notes to Students:**   * Seek help from the lecturer or your classmates whenever you need to. * Time spent in learning is never wasted, however, make sure that you make it enjoyable. * Keep a personal notebook to write down your notes in the lectures. Don’t rely on your friend’s notes as each one of you is different and has different learning approaches. * Try to solve problems on your own after learning each new topic or query function.   **Good Luck & Happy Learning!** | | |