**Department of Computer Science**

**Course Outline**

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|  | **Course Details** | | | | | |
|  | **Course Title** | | Digital Logic and Design | | | |
|  | **Course Code** | | EE-227 | | **Year of Study:** | 1st |
|  | **Compulsory/Elective** | | Compulsory | | | |
|  | **Course Prerequisites** | | Nil | | **Prerequisite Knowledge** | Physics – Intermediate Level |
|  | **Class Schedule** | | Two 90 minutes lecture per week | | | |
|  | **Duration** | | One semester | | **Credit Units** | 3 |
| **Instructor Details** | | | | | | |
| Instructor | | Shakir Ullah Shah | | | | |
| E-mail | | shakir.ullah@nu.edu.pk | | | | |
| Ext. | | 110 | | | | |
| Office | | Office #3: Administrative Building | | | | |
| Office Hour | | Will be announced during class | | | | |
| **Text Book and Reference books** | | | | | | |
| * Digital Fundamentals by Floyd | | | | | | |
| **Marks Distribution** | | | | | | |
| **Quiz (6)** | | | | **10 %** | | |
| **Assignments (6)** | | | | **10 %** | | |
| **Class Participation** | | | | **4 %** | | |
| **Presentations/Project (1)** | | | | **6 %** | | |
| **Sessional-1** | | | | **15 %** | | |
| **Sessional-2** | | | | **15 %** | | |
| **Final** | | | | **40 %** | | |
| **Total** | | | | **100%** | | |

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| **Weekly Distribution** | |
| 1 | Introduction |
| 2 | Number systems ; Complement Number Representation |
| 3 | Addition, Subtraction, Multiplication, and Division |
| 4 | Boolean Algebra, Theorems, Standard Representation of Logic Functions |
| 5 | Combinational Circuit Analysis |
| 6 | Combinational Circuit Synthesis  I |
| 7 | Combinational Circuit Synthesis  II |
| 8 | Timing Hazards |
| 9 | Logic Documentation ; Three-State Devices |
| 10 | Decoders |
| 11 | Encoders |
| 12 | Multiplexers, Exclusive OR Gates, and Parity Circuits |
| 13 | Comparators |
| 14 | Adders, Subtractors, and ALUs |
| 15 | Sequential Circuits: Latches |
| 16 | D Latch ; Flip-Flops |
| 17 | Clocked Synchronous State-Machine Analysis |
| 18 | Shift Registers |
| **Course Policy** | |
| * All individuals involved in any kind of cheating in any exam, quiz, assignment or project will get **zero** score. * There will be no retake of any quiz, assignment, Project/Presentation or any type of Exam. * No individual extra credit assignments will be given.  If an opportunity for extra credit becomes available to the whole class, it will be announced in class * 80% attendance is required for the student to be able to sit in the exam. * Students are advised to come to class in time. Late comers may be marked as LATE or ABSENT | |