**Curriculum Plan (ODD SEM 2024): B.Sc. (H) Mathematics I Year (Semester I)**

**DSC-1: ELEMENTS OF DISCRETE MATHEMATICS**

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| **Dr. Tajender Kumar**  Assistant Professor  Department of Mathematics  Kalindi College (University of Delhi)  Delhi- 110008  Mobile: +91 7417837644  **E- mail**: [tajenderkumar@kalindi.du.ac.in](mailto:tajenderkumar@kalindi.du.ac.in) | |  | **Marks Distribution** | **Theory** | 90 Marks | |
| **Tutorial** | 40 Marks | |
| **Internal Assessment** | Assignment 30 Marks | |
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| **Classes Assigned** | **Lectures** | 3 per week (Theory) | |
| **Tutorial** | 1 per week | |
| **References** |  | 1. Rudolf Lidl, & Gunter Pilz (2004). Applied Abstract Algebra (2nd ed.). Undergraduate  text in Mathematics, Springer (SIE), Indian Reprint.  2. Bernard Kolman, Robert C. Busby, & Sharon Cutler Ross (2009). Discrete Mathematical  Structures (6th ed.). Pearson education Inc., Indian reprint. | | | | |
|  | **Week** | **Topics** | | | |  |
|  | **Beginning/1st week with 3 days**  **(**29-31 AUG, 02-07 SEP) | Sets, Propositions and logical operations. | | | |  |
|  | **2nd week**  **(**09-14 SEP) | Sets, Propositions and logical operations.  [2] Chapter 1 (Section 1.1), and Chapter 2 (Section 2.1). | | | |  |
|  | **3rd week**  **(**16-21 SEP) | Conditional statements, Mathematical induction. | | | |  |
|  | **4th week**  **(**23-28 SEP) | Conditional statements, Mathematical induction.  [2] Chapter 2 (Sections 2.2, and 2.4). | | | |  |
|  | **5th week**  **(**30 SEP-05 OCT) | Relations and equivalence relation, Equivalence classes, | | | |  |
|  | **6th week**  **(**07-12 OCT) | Partial order relation, Partially ordered set.  [1] Chapter 1 (Section 1.1, up to the Definition of POSET).  [2] Chapter 4 (Sections 4.2 (up to Example 16), 4.4, and 4.5). | | | |  |
|  | **7th week**  **(**14- 19 OCT) | Hasse diagrams, Chain, Maximal and minimal elements, Least and greatest  elements, | | | |  |
|  | **8th week**  **(**21-26 OCT) | Functions between POSETS, Order isomorphism, | | | |  |
|  | **9th week**  **(**04-09 NOV) | Lattice as a POSET, Lattice as an algebra and their equivalence.  [1] Chapter 1 (Sections 1.5 to 1.10, and 1.12 to 1.14).  [2] Chapter 6 (Section 6.1). | | | |  |
|  | **10th week**  (11-16 NOV) | Bounded lattice, Sublattice, Interval in a lattice.  [1] Chapter 1 (Sections 1.11, 1.15, and 1.16). | | | |  |
|  | **11th week**  **(**18-23 NOV) | Products and homomorphism of lattices, Isomorphism of lattices.  [1] Chapter 1 (Sections 1.17 to 1.20). | | | |  |
|  | **12th week**  **(**25-30 NOV) | Distributive lattices, Complemented lattice, | | | |  |
|  | **13th week**  **(**02-07 DEC) | Partition and pentagonal lattice.  [1] Chapter 1 (Sections 2.1 to 2.10). | | | |  |
|  | **14th week**  **(**09-14 DEC) | Boolean algebra, De Morgan’s laws, Boolean expressions, Truth tables,  Logic diagrams.  [1] Chapter 1 (Sections 3.1 to 3.6); [2] Chapter 6 (Section 6.5). | | | |  |
|  | **15th week**  (16-21 DEC) | Revision | | | |  |
|  | **16th week only with 1 Days**  (23 DEC) | Revision | | | |  |
| Dispersal of classes, preparation leave and practical examination begin- 24 December, 2024. | | | | | | |