**Curriculum Plan (ODD SEM 2022): B. Sc. (Hons) Mathematics III (Semester V)**

**Paper: Metric Spaces**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ms. Anshu Chotani**  Department of Mathematics  Kalindi College, University of Delhi, Delhi- 110008  Mobile: +91-9810668790  E- mail: achotani@yahoo.com | | C:\Users\Prempal\Desktop\anshu.jpg | Marks Distribution | Theory | 75 Marks |
| Internal Assessment | Assignments 10 Marks |
| Home Ex 10 Marks |
| Attendance 5 Marks |
|  |  | 5 per week |
| Reference | **[1]** | **Satish Shirali & Harikishan L. Vasudeva, Metric Spaces. Springer Verlag London (2006) (First Indian Reprint 2009)** | | | |
|  | **Week** | **Topics** | | | |
| **1st week (**20-30JULY) | Metric spaces: definition and examples [1] | | | |
| **2nd week (**01-06 AUG) | Sequences in metric spaces, Cauchy sequences [1] | | | |
| **3rd week (**08-13 AUG) | Complete Metric Spaces [1] | | | |
| **4th week (**16-20 AUG) | Open and closed balls, neighborhood, open set, interior of a set [1] | | | |
| **5th week (**22-27 AUG) | Exercises: chapter- 1, chapter- 2 [1] | | | |
| **6th week (**29 AUG-03 SEP) | Limit point of a set, closed set, diameter of a set, Cantor’s Theorem [1] | | | |
| **7th week (**05- 10 SEP) | Subspaces, dense sets, separable spaces [1] | | | |
| **8th week (**12-17 SEP) | Continuous mappings, sequential criterion and other characterizations of continuity [1] | | | |
| **9th week (**19-24 SEP) | Uniform continuity [1] | | | |
| **10th week**. (26 SEP-01 0CT) | Homeomorphism, Contraction mappings, Banach Fixed point Theorem [1] | | | |
| **11th week (**10-15 0CT) | Connectedness, connected subsets of R, connectedness [1] | | | |
| **12th week (**17-22 OCT) | connectedness and continuous mappings [1] | | | |
| **13th week (**25-29 OCT) | Compactness [1] | | | |
| **14th week (**31 OCT-05 NOV) | Continuous functions on compact spaces [1] | | | |
| **15th week/with 2 Days** (07-15 NOV) | Continuous functions on compact spaces [1] | | | |