**Curriculum Plan: B.Sc.(H), Mathematics, II Year (Semester IV)**

**Riemann Integration & Series of Functions**

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| **Ms. Garima Gaur**  Assistant Professor  Department of Mathematics  Kalindi College (University of Delhi)  Delhi- 110008  Mobile: 9953227989  **E- mail**: garimagaur@kalindi.du.ac.in | |  | **Marks Distribution** | **Theory** | 75 Marks | |
| **Internal Assessment** | 25 Marks | |
| **Classes Assigned** | **Lectures** | 3 per week | |
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| **Practical** |  | |
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| **References** |  | **1. Bartle, Robert G., & Sherbert, Donald R. (2015). Introduction to Real Analysis (4th ed.). Wiley India Edition. Delhi.**  **2. Denlinger, Charles G. (2011). Elements of Real Analysis. Jones & Bartlett (Student Edition). First Indian Edition. Reprinted 2015.**  **3. Ghorpade, Sudhir R. & Limaye, B. V. (2006). A Course in Calculus and Real Analysis. Undergraduate Texts in Mathematics, Springer (SIE). First Indian reprint.**  **4. Ross, Kenneth A. (2013). Elementary Analysis: The Theory of Calculus (2nd ed.). Undergraduate Texts in Mathematics, Springer.** | | | | |
|  | **Week** | **Topics** | | | |  |
|  | **Beginning day /1st week**  January 1- 8, 2022 | Definitions and examples of pointwise and uniformly convergent sequence of functions | | | |  |
| **2nd week**  January 10-15, 2022 | Definitions and examples of pointwise and uniformly convergent sequence of functions | | | |
|  | **3rd week**  January 17-22, 2022 | Motivation for uniform convergence by giving examples | | | |  |
| **4th week**  January 24-29, 2022 | Theorem on the continuity of the limit function of a sequence of functions. | | | |  |
| **5th week**  January 31- February 5, 2022 | The statement of the theorem on the interchange of the limit function and derivative, and its illustration with the help of examples. | | | |  |
|  | **6th week**  February 7-12, 2022 | Pointwise and uniform convergence of series of functions. | | | |  |
|  | **7th week**  February 14-19, 2022 | Theorems on the continuity, derivability and integrability of the sum function of a series of functions. | | | |  |
|  | **8th week**  February 21-26,2022 | Cauchy criterion for the uniform convergence of series of functions. | | | |  |
|  | **9th week**  February 28- March 5, 2022 | The Weierstrass M-test for uniform convergence. | | | |  |
|  | **10th week**  March 7-12, 2022 | Definition of a power series, Radius of convergence | | | |  |
|  | **11th week**  March 21- 26, 2022 | Definition of a power series, Radius of convergence. | | | |  |
|  | **12th week**  March 28- April 2, 2022 | Absolute and uniform convergence of a power series. | | | |  |
|  | **13th week**  April 4-9, 2022 | Absolute and uniform convergence of a power series. | | | |  |
|  | **14th week with 9 days**  April 11-27, 2022 | Revision and discussion of previous year papers. | | | |  |