# Lesson Plan (2018-2019)
# B. A (Prog) Mathematics (Semester IV).
# PaperIV: Analysis

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| **References:** | 1. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis(3rd Edition), JohnWiley and Sons(Asia) Pvt. Ltd., Singapore, 2002. | |
| | 2.K.A.Ross,Elementary Analysis:The Theory of Calculus, Undergraduate Texts in Mathematics, Springer(SIE),Indian reprint,2004. | |
| **Unit** | **Week** | **Topics Covered** |
| **1** | **Week-1** January 01-04,2019 | Algebraic and Order properties of R, Inequalities. |
| | **Week-2** January 07-11, 2019 | Absolute value,Neighbourhood. |
| **2** | **Week-3** January 14-18, 2019 | Bounded above sets, Bounded below sets, Bounded Sets, Unbounded sets, Suprema and Infima. |
| | **Week-4** January 21-25, 2 | The completeness property of R, R is a complete order field,The Archimedean property,Density of rational number. |
| | **Week-5** January 28 - February 1, 2019 | Intervals, Doubt Class, Test and Assignment. |
| **3** | **Week-6** February 04-08, 2019 | Open set,Closed sets and properties,Limit point of a set. |
| **4** | **Week-7** February 11-15, 2019 | Sequences, Bounded sequence, Convergent sequence. |
| | **Week-8** February 18-22, 2019 | Limit of a sequence, Divergent and oscillatory sequences. |
| | **Week-9** February 25-March 1, 2019 | Monotone sequences, Monotone convergence Theorems,Cauchy's theorem on limits |
| | **Week-10** March 04-08, 2019 | Subsequences, Bolzano Weierstrass theorem for Sequences,limit superior and limit inferior of a bounded sequence through examples. |
| | **Week-11** March 11-15, 2( | Cauchy sequence, Cauchy Convergence Criterion. |
| **5** | **Week-12** March 25-29, 2019 | Infinite Series, Convergence and divergence of infinite series, Positive term series,Cauchy criterion. |

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| | **Week-13**<br>April 1-5,2019 | Comparison test, Limit Comparison test, Ratio test,Cauchy's nth root test,Raabe's test,Test and Assignment. |
| | **Week-14**<br>April 08-12, 2019 | Alternating Series, Leibnitz test,Absolute and conditional convergence |
| | **Week-15**<br>April 15-19, 2019 | Riemaan integral |
| | **Week-16**<br>April 22-26, 2019 | Integrability of continuous and Monotonic functions, Test(if required) and Assingments sumbission. |