**Research Details:**

| Research Title | In this thesis, we are concerned with the study of approximation in continuous functions which has been an active field of research ever since it was introduced by Nachbin (1965, 1967). The weighted approximation problem, consists in finding a characterization of the closure of certain submodules $A$ in $C^{V_0}(X,E)$ with respect to the topology $u>y$, where $V$ is Nachbin family consisting of non-negative upper semicontinuous functions on $X$. For the background of this study, we first give basic definitions and results of topological spaces, valued fields, topological vector spaces over valued fields, and locally convex spaces. Also we consider the non-archimedean valued fields and locally F-convex spaces. We then introduce and establish various properties of the strict topology $/\beta$ on the vector-valued function space $C^b(X,E)$ and the more general notion of weighted topology $u_jy$ on the function space $C^{Vb}(X,E)$. Next, we consider Stone-Weierstrass type approximation theorems for both $(C^{Vb}(X,E),/\beta)$ and $(C^{Vb}(X,E),u_jy)$ in the setting of non-locally topological vector spaces. This includes an extension of a recent result of V. Timofte. Finally, we present some approximation results in the almost non-archimedean topological vector space setting. |
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