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Abstract : In this thesis, we deal with Stone-Weierstrass type approximation theorems for continuous vector-valued functions in both the archimedean and non-archimedean settings. This theorem, first established by M.H. Stone in 1937 for the function spaces $C(X,\mathbb{R})$ and $C(X,\mathbb{C}),$ is a generalization of the classical Weierstrass approximation theorem of 1885 for the function space $C ([0,1],\mathbb{R}).$ The first results in the non-archimedean area were proved by Dieudonne in 1944 and later by Kaplansky in 1949. We present the extensions of the Dieudonne-Kaplansky theorems to the function space $C(X,E)$ obtained by Prolla (1977, 1982) and Prolla-Verdoodt (1997) under the uniform, compact-open and strict topologies, where X is a 0-dimensional topological space and E a topological vector space which is either non-archimedean or is over some non-archimedean valued field $\mathbb{F}.$ The approximation problem consists in finding the conditions on a $C(X)$-submodule $\mathcal{A}$ of $% C(X,E)$, so that $\mathcal{A}$ is dense in $C(X,E)$ in the above mentioned topologies. The key argument in the proofs is to use suitable lemmas on \textquotedblright partition of unity\textquotedblright . The last chapter contains some new results for the strict topology, where, in addition to the Stone-Weierstrass theorem, we give a characterization of maximal closed submodules and ideals in $C_{b}(X,E

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