Tutorial in Mathematical Gauge Theory
Exercise 3

3. Let F be diffeomorphic to $\mathbb{R}^m$ (in the smooth structure which is induced by the euclidean norm.), B a manifold and $\xi = (T, \pi, B, F)$ a fibration.

   (a) Show that for $A \subset B$ closed every smooth section $s \in \Gamma(V, \xi)$, V open neighborhood of A, has an extension $\sigma \in \Gamma(B, \xi)$ with $s|_A = \sigma|_A$.

   (b) Let B have countable topology. Prove that $\Gamma(B, \xi)$ is an $\mathcal{E}(B)$ module which is finitely generated over $\mathcal{E}(B)$

   (c) Discuss a) for general fibres F.