Universität Konstanz
Fachbereich Mathematik und Statistik
Dr. Maria Infusino

TOPOLOGICAL VECTOR SPACES II–WS 2019/2020

Interactive Sheet 2

Group 1

Prove that a closed subset K of a compact space X is compact.

Proof.

- Since X is compact, we know that X is .... and so K endowed with the .... is also ....
- Let $\{\Omega_i\}_{i\in I}$ be an open cover of K. Then .... is an open cover of X, because ....
- Then by the compactness of X we have that ....

  Hence, we have two possible cases:
- If .... belongs to ...., then we are done.
- If .... does not belong to ...., then we consider the family .... which is still a finite subset of $\{\Omega_i\}_{i\in I}$ covering K.

Hence, K is compact.

□