Engineering Mathematics

Learning objectives
Students learn scientific and precise argumentation and reasoning, based on the basic theories of linear algebra and are able to recognise and apply the numerous applications of linear algebra.

Contents
The students know the most important concepts and elements of linear algebra: vector space, basis, scalar product, linear mappings, matrices determinants, eigenvalues and eigenvectors.

Methodology
Lecture, seminar

Literature
[1] Burg/Haf/Wille: Höhere Mathematik für Ingenieure Vol. 1-5, Springer (1993)
[2] Schwarz, Hans: Numerische Mathematik, Teubner (1993)
[3] Törnig, Willi: Numerische Mathematik für Ingenieure und Physiker, Springer (1990)
[4] Munz/Westermann: Numerische Behandlung gewöhnlicher und partieller Differentialgleichungen, Springer (2012)
[5] Lothar Papula: Mathematik für Ingenieure Vol. 1-3, Vieweg
[6] Lothar Papula: Mathematik für Ingenieure und Naturwissenschaftler: Übungen, Vieweg
[7] Fetzer/Fränkel: Mathematik Vol. 1-3, VDI