

<b>Complex exam minor subject</b>	Mathematical morphology and digital topology
<b>Syllabus</b>	<p>Basic concepts of mathematical morphology, morphological transformations, erosion, dilation, opening, closing, Hit-Miss transformation, duality.</p> <p>Morphological operations, thinning, thickening, skeletonization, middle axis transformation, convex hull, contour extraction, Golay-alphabet, homotopy, Euler number. Grayscale morphology.</p> <p>Elements of digital topology, neighborhood structures, connectivity, distance transformations, chamfer techniques, approximations of the Euclidean metrics, grid types.</p> <p>Digitization, linearity check, digital curves, Jordan condition, curvature.</p>
<b>Bibliography</b>	<ol style="list-style-type: none"><li>1. J. Serra: Image Analysis and Mathematical Morphology, Academic Press, 1983.</li><li>2. K. Voss: Discrete Images, Objects, and Functions in <math>Z^n</math>, Springer, 1993.</li><li>3. R. Klette, A. Rosenfeld: Digital Geometry: Geometric Methods for Digital Image Analysis, Morgan Kaufmann, 2004.</li><li>4. R. C. Gonzalez, R. E: Woods: Digital Image Processing, Prentice Hall, 2008.</li><li>5. R. C. Gonzalez, R. E: Woods, S. L. Eddins: Digital Image Processing Using MATLAB, McGraw-Hill Education (Asia), 2011.</li></ol>
<b>Compulsory subjects for this minor subject</b>	Digital geometry and mathematical morphology
<b>Recommended subjects for this minor subject</b>	Low-level image processing Discrete mathematics