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| Course Title | **MATHEMATICS FOR COMPUTING II** |
| Course Code | **MAT 212** |
| Course Purpose and Objectives | The purpose of this course is to expand the students' knowledge in mathematics for computing in a comprehensive manner. The students are encouraged to further integrate computing, engineering and mathematics for exploring even wealthier applications of mathematics in computing, such as Computer Graphics, Hardware Programming, Communications, Software Engineering etc. The assignments are carried out using the technical computing language MATLAB. The MATLAB command syntax is supported in several software packages, as well as in MATLAB itself, and is being used throughout this module. |
| Learning Outcomes | 1. Discuss the strength of the combined knowledge of mathematics, computing and engineering in modern computing applications.<br>2. Explain the importance of mathematics related to Systems Analysis & Design in implementing modern Computing applications.<br>3. Solve functions of more than one variable.<br>4. Explain the importance of Vector calculus in computing applications, such as in Computer Graphics.<br>5. Discuss the significance of Algorithms in Computing. |
| Course Content | • Ordinary differential equations<br>• The LAPLACE transform<br>• Difference equations and the z transform<br>• Fourier series<br>• Fourier transform<br>• Functions of several variables<br>• Vector calculus<br>• Algorithms and complexity<br>• Probability<br>• Statistics and probability distribution<br>• Assignments |