Surveying Engineering Program
Department of Civil Engineering
College of Engineering
King Saud University

SE 423 Digital Image Processing

Credit and Contact hours	3 / 2(Lectures); 0(Tutorials); 2(Laboratory)
Required, or Elective	Required for a BSCE degree
Course Description	Introductions; data acquisition; computer techniques to manipulate & interpret digital images; overview of formats of digital image data & procedures used in image rectification & registration; image enhancement; image classification; & digital image data merger;
Prerequisites or Co-requisites	SE 365
Course Learning Outcomes	Students completing this course successfully will be able to

Course Learning Outcomes	*Related Student Outcomes (SO)*
CLO1: Discuss various concepts of digital images processing	**SO7**
CLO2: Compute image rectification & restoration, & Image enhancement	**SO1**
CLO3: Compute Digital Image classification & data merging	**SO1**
CLO4: Perform computer image Biophysical modeling & Change detection and integration of interpreted data in a GIS	**SO2**

Student Outcomes

SO1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics, and using modern engineering tools

SO2 : an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

SO7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Topics Covered

List of Topics	Related CLOs
1. concepts of digital images processing	CLO1
2. Essential statistical analysis of images	CLO1
3. Computer techniques image rectification & restoration	CLO2
4. Computer techniques Image enhancement	CLO2
5. Computer techniques Image classification	CLO3
6. Data merging	CLO3

	7. Biophysical modeling & Change detection — CLO4 8. Integration of interpreted data in a GIS — CLO4
Textbook(s) and Other Required Material	Textbook: Lillisand, Keifer and Chipman. "Remote Sensing and Image Interpretation", 6th Ed. 2007, John Wiley.
Grading System	Homework, quizzes & Lab Exercises 25% 2 Mid-Terms 35% Final Exam 40% Note: There was a slight change in classwork grading because of COVID-19 & teaching on line.
Instructors	Dr. Ahmad H. O. Alashaikh; (2A57); e-mail: aalashaikh@ksu.edu.sa
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