Engs 675: Microwave Data

School of Engineering

In this course the student is introduced to the basic concepts, theory and applications of microwave remote sensing. The course begins with an explanation of why microwave remote sensing is utilized. Its advantages over visible and infrared remote sensing are described and typical applications are presented. Passive microwave remote sensing is then described beginning with the theory of natural microwave emissions from the Earth's surface and atmosphere. Some of the more widely used sensors are discussed, and many remote sensing applications are presented. The remainder of the course focuses on the other type of microwave remote sensing, active or radar remote sensing. The fundamental principles of radar and the concepts and vocabulary necessary to understand a radar image are presented. The most commonly used type of imaging radar, the Synthetic Aperture Radar (SAR), is described in detail from the principles of operation, interpretation of images, current SAR sensors, to science applications. A recent application of SAR that can measure topography and surface displacement at fine spatial resolution, Interferometric Synthetic Aperture Radar (InSAR), is presented in the following section. The last section is dedicated to the combination and integration, fusion, of microwave remote sensing.

3 Credits

Prerequisites

- Student must be admitted to Certificate in Geographic Info Systems program.

Instruction Type(s)

- Indiv Based: Individual Based for Engs 675
- Indiv Based: Online Program for Engs 675

Subject Areas

- Engineering, Other

The University of Mississippi is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award certificates and baccalaureate, master's, specialist, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, call 404-679-4500, or visit online at www.sacscoc.org for questions about the accreditation.