



MINOR IN GEOMATICS

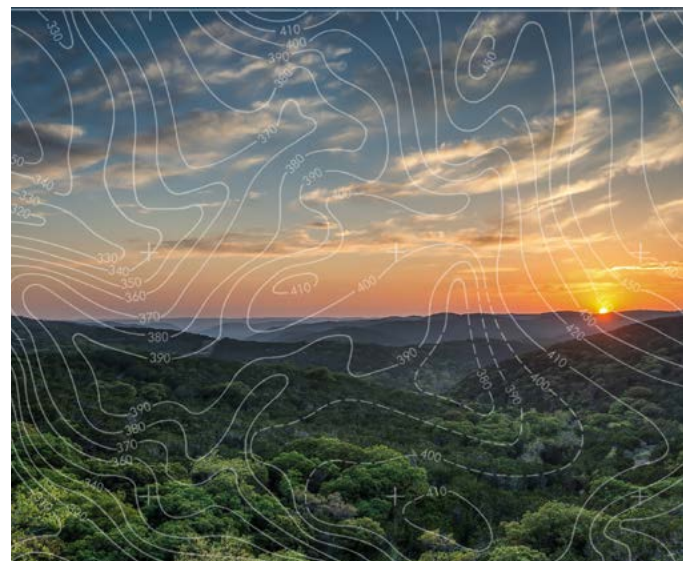
ABOUT THE MINOR IN GEOMATICS PROGRAM AT THE UNIVERSITY OF HOUSTON

The minor in geomatics provides a pathway with sufficient education and training to eventually becoming a Registered Professional Land Surveyor (RPLS) in Texas.

In addition to providing necessary knowledge in traditional surveying and mapping, the minor program has been designed to take full advantage of emerging technology such as LiDAR and digital imaging. Our mission is to graduate civil engineers with proficiency in surveying and mapping for the State of Texas and across the U.S.

GET AHEAD OF THE CURVE TO ADVANCE YOUR CAREER

- ▶ Learn from world-renowned experts in geospatial technology
- ▶ Earn a civil engineering degree and minor in geomatics at the same time – or, earn the minor in geomatics by itself
- ▶ Scholarships may be available to qualified students



SUPPORTED BY:

Texas Society of Professional Surveyors, Texas Department of Transportation, Harris County.

COURSES AND CURRICULUM

YEAR 1:

Fall semester:

► **CIVE 3380** Fundamentals of Plane Surveying

Introduction; Significant Figures; Observational Errors; Leveling Theory and Method; Equipment for Differential Leveling; Reduction of Field Notes and Computation; Distance Measurement; Angles and Azimuths, Total Station and Angle Measurement; Traverse and Traverse Computations; Coordinate Geometry in Surveying; Least Squares Adjustment; Basic Principle of Laser Scanning and Data Acquisition; Horizontal and Vertical Curves; Earthwork and Volume Computations; Legal Land Surveying.

Spring semester:

► **CIVE 4381** Advanced Geomatics and Geosensing

Introduction; Coordinate Systems and Reference Frames; Map Projections; US State Plane Coordinates; Geodetic Position Computations; Introduction to Global Positioning Systems; Static GNSS Positioning; Kinematic GNSS Positioning; Satellite Remote Sensing; Laser Scanning and Photogrammetry; Introduction to Geographic Information Systems.

YEAR 2:

Fall semester:

► **CIVE 5386** Survey Measurements and Analysis

Matrices; Non-linear Equations and Taylor's Theorem; Random vs. Systematic Errors; Propagation of Errors; Weights; Principle of Least Squares; Adjustment of a 1D, 2D, and 3D Network; Error Ellipses; Optimization.

Spring semester:

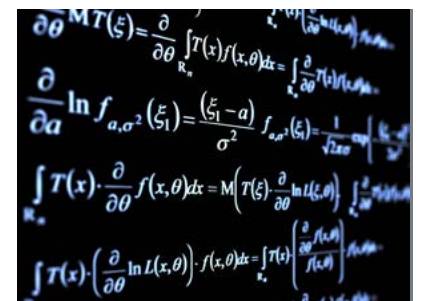
► **CIVE 4382** Legal Principles and Boundary Surveying

Land Surveying Practice and Legal Principles of Boundary Survey of Real Property; Lot Survey; Property Descriptions; Sectional Survey; The Water Boundary Survey; United States Public Land Survey System; Metes and Bounds; Riparian and Mineral Rights Surveys.

► **CIVE 5375** Digital Photogrammetry

Principles of Photography and Image Measurement Techniques; Fundamentals of Image Coordinates to Ground Coordinates; Digital Photography and Mapping; Orthophotography; Structure from Motion.

A TOTAL OF 15 CREDIT HOURS ARE REQUIRED TO RECEIVE A MINOR IN GEOMATICS



FOR MORE INFORMATION

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