SURVEYING (SVR)

SVR 110 - Fundamentals of Surveying
Credit Hours: 5, **Contact Hours: 8**
Division: Technical
Using a variety of surveying equipment and software, students will learn methods and techniques to observe, analyze and integrate field measurements in surveying applications. This includes the proper care and setup of instruments, units of measurement, horizontal and zenith angles, directions, distances, elevations, interpreting and generating contour lines, map reading, field notes and the presentation of data on a completed map. Students will directly apply this knowledge in field activities. Group 2 course Communications - Direct.
Required Prerequisite(s): MTH 111 or higher, can be taken concurrently

SVR 120 - CAD for Surveying
Credit Hours: 4, **Contact Hours: 5**
Division: Technical
Using AutoCAD Civil 3D, this course provides students a single software environment to complete survey mapping projects. Students will learn the basics of how the field measurement data collected from surveyors' instruments are processed into a dynamic Civil 3D model. Included are traverse plotting, site plans, contour mapping, legal descriptions, platted subdivisions, cross sections, and development of plan and profile drawings. Students will directly apply this knowledge in laboratory assignments. Group 2 course Quantitative Reasoning.
Required Prerequisite(s): MTH 111 or higher, can be taken concurrently

SVR 150 - Construction Survey App
Credit Hours: 5, **Contact Hours: 8**
Division: Technical
Students perform design surveys and conduct construction layout for infrastructure. Major topics include using horizontal and vertical control, establishing alignment, obtaining topographic information, determining grades, horizontal and vertical curves, completion of construction plans, computation of earthwork quantities, and field stakeout. Students will use this knowledge in both field and office environments. Group 2 course.
Required Prerequisite(s): MTH 121 or higher, SVR 110, SVR 120

SVR 160 - Surveying Calculations
Credit Hours: 3, **Contact Hours: 4**
Division: Technical
Students will investigate and apply a number of mathematical principles common to plane surveying applications focusing on Cartesian geometry and coordinate systems using hand calculations, CAD programs, and programable spreadsheets. Areas of study include direct and inverse problems, intersection problems, volume computations, area partitions, coordinate transformations, resections and an introduction to least squares adjustment. Group 2 course Quantitative Reasoning.
Required Prerequisite(s): MTH 121 or higher, SVR 110, SVR 120

SVR 210 - Surveying Positioning
Credit Hours: 5, **Contact Hours: 8**
Division: Technical
Students will explore and apply the theories and tools used to determine three-dimensional positioning on the surface of the earth. Topics include ellipsoid properties, reference datums, global coordinate systems, developable surfaces and map projections. Extensive use of hardware and software employing Global Navigation Survey Systems (GNSS) in both field and office environments are made. Group 2 course Quantitative Reasoning.
Required Prerequisite(s): MTH 122, SVR 110, SVR 160

SVR 220 - Boundary Surveying
Credit Hours: 3, **Contact Hours: 3**
Division: Technical
Students in this course investigate and discover the historical, legal, mathematical and practical aspects of conducting a boundary survey. Topics include the quasi-judicial function of surveyors, land title conveyancing, original and retracement surveys, the Public Land Survey System, subdividing land, riparian issues and water law, writing and interpreting property descriptions, evidence and procedures for boundary location, research, major federal and state statutes regarding boundary location.
Required Prerequisite(s): SVR 120, SVR 160