GEOMATICS - BACHELOR OF SCIENCE IN GEOMATICS

Geomatics (https://et.nmsu.edu/academics/surveying-engineering) (previously known as Surveying Engineering) in the College of Engineering at NMSU emphasizes the techniques and science of measuring the terrestrial and three-dimensional position of points on, above, and below the earth’s surface and the distance and angles between them at a high level of precision to aid in the design of infrastructure including roads, bridges and legal boundaries for ownership as well as to meet the educational requirements for employment in industry and registration as a Professional Land Surveyor in the State of New Mexico.

When performing this work, professionals must have an understanding of: the science of geomatics measurement and analysis; the legal principles of boundary location; the laws related to boundaries and land use; and applicable mathematical and computational theories and principles. Geomatics professionals may work for private surveying, construction, and engineering firms, for City, County, State or Federal Highway Departments, for State Lands Commissions, for the US Forest Service and for the US Bureau of Land Management as examples.

The mission of the Department of ETSE is to provide men and women with the rigorous, fundamental education needed to enter and succeed in the Geomatics and related professions. To accomplish this mission, the department will introduce students to the theory and application of recognized geomatics principles.

See the entire ET/SUR Course Listing. (http://catalogs.nmsu.edu/nmsu/engineering/engineering-technology-surveying/#coursestext) Beginning Fall 2018 - the Geomatics degree will be offered online as a degree completion program

Requirements (120 Credits)

General Education

State of New Mexico Common Core

Area I: Communications

ENGL 111G Rhetoric and Composition 4
Written Communications Elective (ENGL 218G Recommended) 3

Area II: Mathematics

MATH 191G Calculus and Analytic Geometry I 4

Laboratory Sciences

PHYS 215G Engineering Physics I 3
PHYS 215GL or PHYS 211G General Physics I 1

PHYS 216G Engineering Physics II 3
PHYS 216GL or PHYS 212G General Physics II 1


Total Credits 120

Areas IV & V: Social and Behavioral Sciences & Humanities and Fine Arts: Select 15 total credits from Area IV and V, with at least 6 credits from each area:

Area IV: Social and Behavioral Sciences: (ECON 251G or 252G recommended)

Area V: Humanities and Fine Arts:

Two Viewing a Wider World (VWW) Electives (must be from two different colleges) 1

PHIL 323V Engineering Ethics (required or equivalent Ethics course)

Program Specific Requirements

Mathematics

MATH 192G Calculus and Analytic Geometry II 4
MATH 280 or MATH 480 Introduction to Linear Algebra 3

STAT 371 or A ST 311 Statistics for Engineers and Scientists I 3

Technical

ENGR 100 or DRFT 109 Introduction to Engineering 3

BLAW 316 or BLAW 325 Legal Environment of Business 3

E T 262 or O ECS 192 Software Technology I 3

Surveying Engineering

SUR 222 or DRFT 222 Plane Surveying 3

SUR 264 or GEGO 381 Cartography and Geographic Information Systems 3

SUR 292 Public Land Survey System Boundaries 3

SUR 312 Legal Principles and Boundary Law I 3

SUR 328 Construction Surveying & Automation Technologies 3

SUR 322 or SUR 285 Laser Scanning Mapping Technologies 3

SUR 351 or DRFT 285 Precise Digital Mapping 3

SUR 361 or T 355 Site/Land Development and Layout 3

SUR 451 or GEGO 455 Advanced Survey Measurements, Analysis, and Adjustments 3

SUR 452 or S 461 Spatial Data Integration and Analysis 3

SUR 461 GNSS Positioning 3

SUR 464 Legal Principles and Boundary Law II 3

SUR 498 Emerging Technology in Geomatics 3

GEGO 481 Fundamentals of Geographic Information Science and Technology (GIS & T) 4

I E 451 or E T 420 Engineering Economy 3

Senior Internship 2

Senior Project 3

Total Credits 120
See the required courses (http://catalogs.nmsu.edu/nmsu/essential-information-students/general-education-courses) section of the catalog for a full list of courses.