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

SE 314 Geodesy

Credit and Contact hours	[3] ; 3 (Lectures), 0 (Tutorials), 2 (Laboratory)
Required, or Elective	Required for a BSCE degree
Course Description	Introduction; Spherical trigonometry; solution of geodetic problems on the spherical surface; introduction to spherical astronomy; spheroidal trigonometry; solution of geodetic problems on the spheroidal surface; Datums; transformation of coordinate systems.
Prerequisites or Co-requisites	SE 212
Course Learning Outcomes	Students completing this course successfully will be able to

Course Learning Outcomes	*Related Student Outcomes (SO)*
CLO1 Model the Earth surface	**SO1**
CLO2. Explain spherical trigonometry	**SO1**
CLO3. Explain ellipsoidal geometry and datum	**SO1**
CLO4. Apply spherical trigonometry & ellipsoidal geometry on geodetic and astronomic problems	**SO7**

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 [ABET 1].

SO 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Topics Covered

List of Topics	Related CLOs
Introduction	***CLO1***
Concept of modelling the earth by a simpler solid object	***CLO1***
Basics of Spherical trigonometry	***CLO2***
Solving of geodetic problems on the spherical surface	***CLO4***
Introduction to spherical astronomy	***CLO2***
Applications of spherical astronomy	***CLO4***
Elements of the ellipsoid surface	***CLO3***
Ellipsoidal geometry	***CLO3***
Solving of geodetic problems on the spheroidal surface	***CLO4***
transformation between datum	***CLO4***

Textbook(s) and Other Required Material	Textbook: Timothy, G. Freeman, "Portraits of the Earth", 1st Ed. 2002. Walter de Gruyter
Grading System	Tutorials problems and attendance 10% 2 Field work reports 20% 2 Mid-Terms 30% Final Exam 40%
Instructors	Prof. Hasan M Bilani; email: hbilani@ksu.edu.sa
Date of Review	Nov, 2020