191 340/EN113402 Route surveying 3(3-0-6)

Prerequisites 191 240/EN112400 Surveying and 191 241/EN112401 Surveying laboratory

Contents

Chapter 1: Surveying techniques

Chapter 2: Introduction to global positioning system (GPS)

Chapter 3: Introduction to photogrammetry and remote sensing

Chapter 4: Introduction to geographic information system (GIS)

Contents (continued)

Chapter 5: Route location and design (midterm exam includes chapters 2-5 if possible)

Chapter 6: Horizontal curve and vertical curve

Chapter 7: Earthwork

Chapter 8: Alignment layout

Chapter 9: Construction survey

Chapter 10: Property law and right of way (final exam includes chapter 6-10)

References

- 1. Route location and design by Thomas F. Hickerson
- 2. Route surveying and design by Carl F. Meyer and David W.Gibson
- 3. Route surveys and construction by Harry Rubey
- 4. Elementary surveying: An introduction to

 Geomatics by Charles D. Ghilani and Paul R. Wolf
- 5. Surveying: theory and practice by James M.

Anderson and Edward M. Mikhail

References (continued)

6. Introduction to modern photogrammetry by

Edward M. Mikhail

- 7. GPS satellite surveying by Alfred Leick
- 8. Surveying for construction by William Irvine
- 9. Construction surveying by Jack Roberts
- 10. Fundamentals of geographic information systems

by Michael N. DeMers

Marking scheme

Total marks: 115 divided into:

- Class attendance 5 marks
- Assignment 10 marks
- Midterm exam 45 marks
- Final exam 55 marks

Grading scale

A total of 115 marks, grading after rounding up the marks obtained by the students to whole numbers

Introduction to route surveying

What is a route survey

Route surveying is comprised of all survey operations required for design and construction of engineering works such as highways, pipelines, canals, railroads and so on.

4 Procedures for route surveying

- 🕈 การสำรวจสังเขป (Reconnaissance survey)
- 👈 การสำรวงเบื้องต้น (Preliminary survey)
- nารสำรวจวางแนวเส้นทาง (Location survey)
- nารสำรวจเพื่อการก่อสร้าง (Construction survey)

ประเภทของเส้นทาง (Type of route)

ทางหลวง (Highways)





ทางน้ำร่อง (Guideways)









Personal rapid transportation (PRT)

ระบบท่อลำเลียง (Pipelines)



ทางรถไฟ (Railway)



รถไฟบนดิน (Train)



รถไฟใต้ดิน (Underground, Tube)



รถไฟเหนือพื้นคิน (Sky train)



รถราง (Tram)

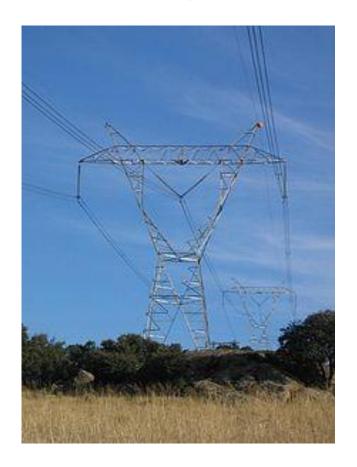
ทางเคเบิล(Cableways)





ระบบสายส่ง (Transmission lines)





คลองส่งน้ำชลประทาน (Canals for irrigation)





ท่อส่งน้ำบนสะพาน (Aqueducts)





รางน้ำเปิด (Flumes)



