

EXAMPLES

Surveying

FLIP Concept: Adjustments

To be carried out by Students.

- Concepts of adjustments
- Types of adjustments
- Mathematical properties of adjustments

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Demonstrating/in-class exercise of adjustment
- Working through example adjustments with the students

FLIP Concept: Error

To be carried out by Students.

- Types of errors
- Sources of errors

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Adjustments to errors
- Network planning (e.g. have students share how they would plan the survey run and allow for class discussion on the pros/cons of the design)

Computing

FLIP Concept: Database Structure

To be carried out by Students.

- Database (internal) structure
- Physical hardware configuration

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Compare and contrast different configurations (full class discussion and/or Think-Pair-Share)

FLIP Concept: Data and Database Attributes

To be carried out by Students.

- Types of attributes
- Effect of attributes within database and execution of processes

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Sharing of ideas for database design to accommodate for different types of data
- Demonstration and discussion of errors resulting from mismatch between design of database and data attribute

EXAMPLES

Underground Utility

FLIP Concept: Radiation

To be carried out by Students.

- EM radiation—how it works
- Physical principles of EM waves

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Application of radiation in the field
- Reading the output, understanding and analyzing outputs

FLIP Concept: Underground Surveying

To be carried out by Students.

- Different method of underground surveying

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Discussion on pros and cons of various methods
- Sharing of ideas on application of methods

Remote Sensing & Photogrammetry

FLIP Concept: Light

To be carried out by Students.

- Properties of light
- How materials absorb/reflect certain wavelengths
- How light reacts in different levels of the atmosphere (or different weather conditions)

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Demonstration on various analytical techniques
- Discussion on applications of Ratios
- Discussions on types of errors that can occur and how to overcome the errors

Visualization

FLIP Concept: Perception

To be carried out by Students.

- Optics
- Perception theories

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Application of perception theories into design
- Discuss various visualization outputs and how it is perceived by viewer (Think-Pair-Share)

FLIP Concept: Maps

To be carried out by Students.

- Types of map projections
- Characteristics of maps
- Different elements on a map
- Theory of map making

LECTURE/IN-CLASS:

To be carried out by Educators during assigned contact hours.

- Application and use of different types of maps and styles of projections
- In-class debate on pros and cons of different types of projections
- Demonstration of methods on how a map (or its projection) is created