Satellite Communication

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Satellite Communication

- Course Title: Satellite Communication

- Required Textbooks:
  - 1) Satellite Communication, Roddy Dennis, McGraw Hill, 3rd Edition, 2006
  - 2) Satellite Communication by M.Richharia

Satellite Communication

- Course Description:

  - An overview of the theoretical fundamentals and practical considerations of satellite communications systems is provided. Existing systems are described.
  - Topics include satellite orbits, link equations, system performance, communications payload, modulation techniques, on-board processing, earth stations, and propagation effects, attenuation etc.

Course Objectives

- 1. Understand the satellite communication systems.
- 2. Learn how the satellite provides communication services.
- 3. Be able to manage a satellite communication practical's pertaining to basic formulas to calculate various parameters of Artificial Satellites.

Course Outline

From Dennis Roddy.

- Chapter 1. Overview of Satellite Systems
- Chapter 2. Orbits and Launching Methods
- Chapter 3. The Geostationary Orbit
- Chapter 4. Radio Wave Propagation
- Chapter 5. Polarization
- Chapter 6. Antennas
- Chapter 12. The Space Link

Course Outline (continued)

From M.Richharia

- Chapter 1. Introduction
- Chapter 8. Multiple Access Techniques
- Chapter 9. Communication Satellites
- Chapter 10. Earth Stations
- Chapter 11. Non-Geostationary orbit Satellite systems
- Problems

Practical Outline

1.Program to calculate different parameters of artificial satellite orbit using given information (**Kepler Laws**).

2.Program to find the **Julian day** corresponding to given day.

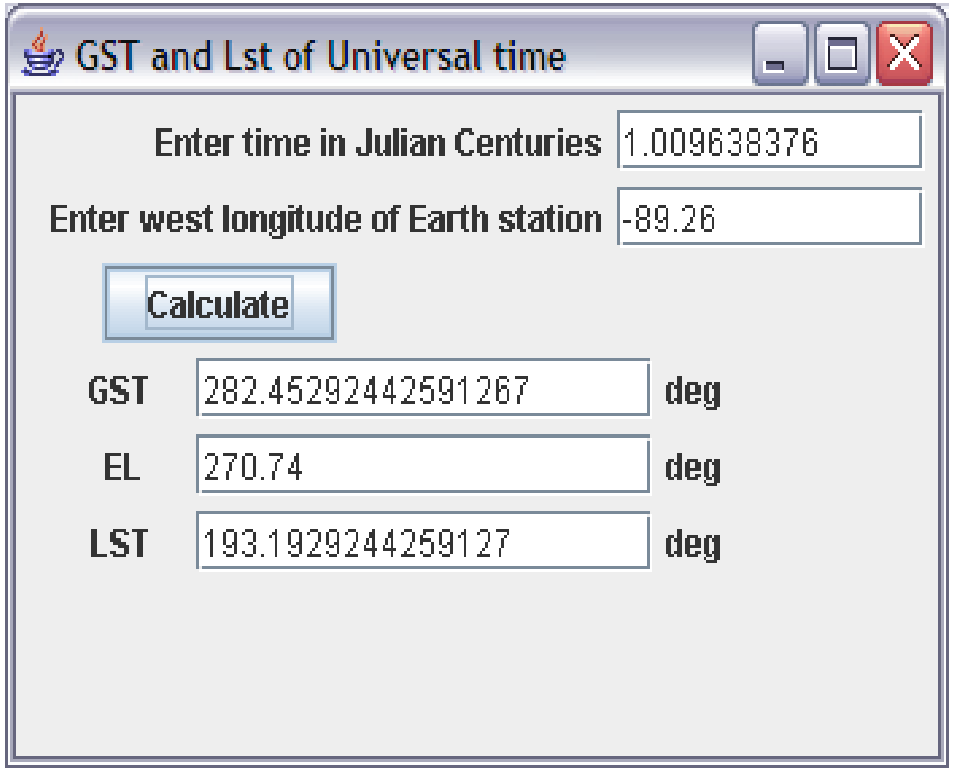
3.Program to calculate **GST and LST**.

4.Program to calculate rain attenuation for **vertical , horizontal** and **circular polarization**.

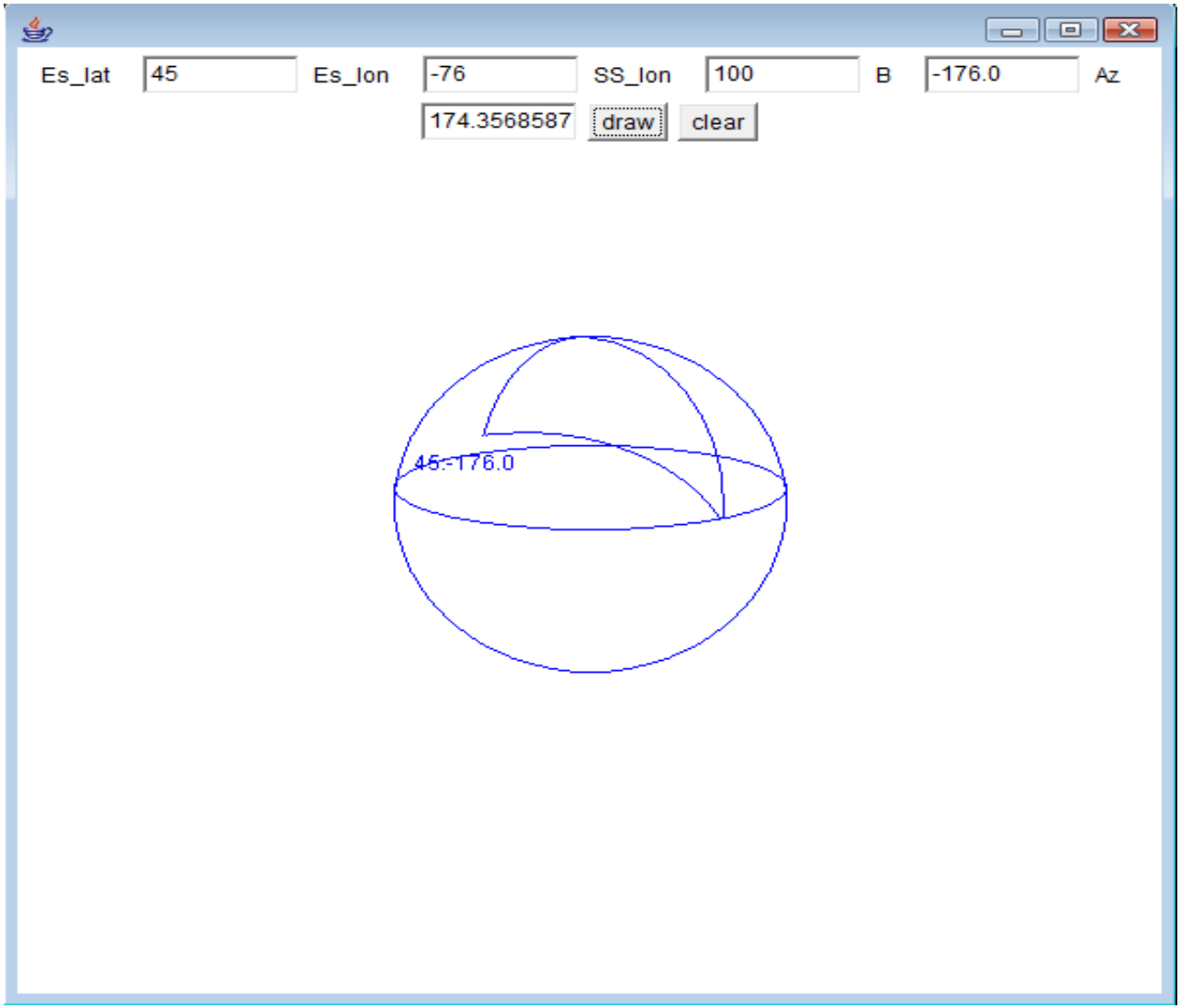
5. Program to calculate **Angle of Polarization** at given earth station.

6. Write a program to determine the prime factors of N for an m-sequence generator and hence the total no. of maximal length sequences that can be produced. (**EULER**)

7. Program to calculate and draw **Azimuth Angle** for given position of earth station and a geo-stationary satellite.



GST & LST Practical



Calculate Azimuth Angle