



**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)**  
IBRAHIMBAGH, HYDERABAD-31  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION  
ENGINEERING**

**INNOVATIVE TEACHING AND LEARNING**

**SIMULATION BASED ACTIVITY**

Acad. Year	<b>2022-23</b>	Year	<b>IV year</b>	Semester	<b>VII</b>
Subject Code	<b>U19 PE751EC</b>	Subject name	<b>SATELLITE COMMUNICATIO NS</b>	Name of the faculty	<b>Dr.Srilakshmi Aouthu</b>

**Title:** Look Angles Calculation using Mat lab

**Objective:** To determine the Elevation angles of an earth station

Teacher role: Subsatellite point and earth station longitudes and latitudes will be given

Student role: Mat lab code to be generated and to determine the look angles of earth station antenna.

Write a Matlab code to find

(i) Elevation angle

```
clc;
clear;
close all;
re = 6378 km;
rs = input('Enter the radius of satellite:');
ls = input('Enter Longitude of satellite:');
le = input('Enter Longitude of earth station:');
ls = input('Enter Latitude of satellite:');
le = input('Enter Latitude of earth station:');
x = acos(cos(le)cos(ls)cos(ls-le) + sin(le)sin(ls));
d = sqrt(re.^2 + rs.^2 + 2*re*rs*x);
el = acos(rs*sin(x)/d);
disp('Elevation angle is %d',el);
```

## Result

Enter the radius of satellite : 42164  
Enter the Longitude of satellite : 0  
Enter the Longitude of earth station : 74  
Enter Latitude of satellite : 0  
Enter Latitude of earth station : 25.03°

Elevation angle is  $85.95^\circ$ .