चौधरी रणबीर सिंह राजकीय अभियांत्रिकी एवं तकनीकी संस्थान, झज्जर
Ch. Ranbir Singh State Institute of Engineering and Technology
Silani Kesho, Jhajjar, Haryana 124103

Department of Civil Engineering

IInd Yr. IV Semester (Civil Engineering)

LESSON PLAN

Program	:	**B.Tech**
Year & Sem.	:	**II & IV**
Course No/code	:	**PCC-CE-208-G**
Course Title	:	**GEOMATICS AND AERIAL SURVEYING**
Max Marks	:	**75**
No. of Total Lecture	:	**44 Lecture/ 11week Plan**
Schedule	:	**04 Lecture per week** (As per Guidelines of Head of Deptt.)
Name of Faculty	:	**Dr.Sandeep Malik**

Recommended Books:

1. Chang.T.K. 2002: Geographic Information Systems, Tata McGrawHil.
2. Punmia, B.C. 2005: Surveying I and II, Luxmi Publication
3. Charles D. Ghilani: Adjustment Computations: Spatial Data Analysis (Fifth Edition)
4. Paul R Wolf: Elements of Photogrammetry
5. G S Srivastava: An introduction to Geoinformatics
6. Basudeb Bhatta: Remote Sensing and GIS
7. G. L. Hosmer: Text-book on Practical Astronomy
8. Various Online resources including NPTEL

Lesson Plan:

LESSON PLAN (As per Guidelines of Head of Deptt.)		
Deptt.: Civil Engg.		**Name of Faculty: Dr.Sandeep Malik**
Semester : 4th		**Subject: GEOMATICS AND AERIAL SURVEYING (PCC-CE-208-G)**
Total Duration:11week		**Workload of subject: 04 Lecture per week** (As per Guidelines of Head of Deptt.)
Week	**Lecture Day**	**Name of Topic**
1st	1st	Triangulation systems, classification, strength of figure,
	2nd	selection of triangulation stations, grade of triangulation, field work of triangulation,
	3rd	triangulation computations, selection of triangulation stations, grade of triangulation, field work of triangulation

	4th	triangulation computations, Trilateration- Principle, Methods, advantages and disadv antages,
2nd	5th	introduction to total station.
	6th	Problems of Module- I
	7th	Definitions, types of error, weight of an observation, law of weights,
	8th	most probable values, principle of least squares,
3rd	9th	method of correlates, normal equation,
	10th	adjustment of triangulation figures by method of least squares.
	11th	Problems of Module- II/ UNIT-I/Section-A
	12th	Definitions of astronomical terms, celestial coordinate systems,
4th	13th	Napier's rule of circular parts, star at elongation, star at prime vertical,
	14th	star at horizon, star at culmination, Astronomical triangle,
	15th	various time systems: sidereal, apparent, solar and mean solar time,
	16th	equation of time-its cause and effect, inter-conversion of time,
5th	17th	determination of azimuth, latitude, longitude etc. by astronomical observations
	18th	Problems of Module- III/UNIT-II/Section-B
	19th	Introduction, types of photographs
	20th	aerial camera, scale of a photograph
6th	21st	height displacements of vertical photographs
	22nd	flight planning and its uses, crab and drift
	23rd	number of photographs, relief displacements
	24th	Stereoscopic vision and stereoscopes
7th	25th	height determination from parallax measurement
	26th	flight planning, principle of photo interpretation
	27th	photogrammetric monitoring.
	28th	Problems of Module- IV/UNIT-III/Section-C
8th	29th	Definition of Remote Sensing, types of remote sensing
	30th	remote sensing system and components.
	31st	EMR source and characteristics, active and passive remote sensing
	32nd	EMR propagation through medium, Role of atmosphere,

9th	33rd	Atmospheric windows, EMR interaction with objects, Spectral signature
	34th	EMR interaction with vegetation, soil and water. Satellite orbits and platforms
	35th	Geostationary and sun synchronous satellites, Resolution,
	36th	Applications of remote sensing in civil engineering.
10th	37th	Problems of Module- V
	38th	Definition, and Objectives, Components of GIS,
	39th	Spatial data models: Raster and Vector
	40th	Data inputting in GIS, Linkage between spatial and non spatial data
11th	41st	Spatial data analysis: Vector and raster based spatial data analysis
	42nd	Integration of RS and GIS data
	43rd	Digital Elevation Model, GIS Software Packages.
	44th	Problems of Module- VI/UNIT-IV/Section-D

Dr. Sandeep Malik
Assistant Professor (Guest Faculty)
Civil Engg. Deptt.
CRS-SIET, Jhajjar

Approved By:

HOD
Civil Engg. Deptt.
CRS-SIET, Jhajjar