



# DIGITAL LAND SURVEYING AND MAPPING (DLS&M)

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**PRE-REQUISITES :** Basics of Physics and mathematics upto 12th standard and familiarity with use of computer

**INTENDED AUDIENCE :** Diploma/Degree students in Civil Engineering/Geo-spatial technology; Master/Doctoral students in Geomatics/Geospatial technology; Field surveyors; Professional persons dealing with Land surveying.

**INDUSTRIES APPLICABLE TO :** <http://dir.indiamart.com/impcat/topographicsurvey-services.html>

**COURSE OUTLINE :**

The objective of the course is to provide basics of digital surveying and mapping of earth surface using total station, GPS and mapping software. The course starts with introduction to land surveying followed by fundamentals of total station and its working & measurements for land surveying. Then, fundamentals, working & measurements using GPS for land surveying will be discussed. Followed by mapping fundamentals, digital surveying procedure, working, data reduction etc. Finally, the course will deals with working and demonstration of a digital land surveying and mapping of an area.

This course will uncover all the major topics in pericyclic reactions and organic photochemistry. In addition to lectures there will be tutorial sessions and assignments in this course.

**ABOUT INSTRUCTOR :**

Prof. Jayanta Kumar Ghosh is working as Associate Professor in the Civil Engineering Department (Geomatics Engineering Group) of Indian Institute of Technology Roorkee. He is engaged in teaching, research and consultancy works in Geomatics engineering for more than 31 years. He is pioneer in introducing courses on GPS surveying in the UG & PG curriculum of Engineering education in India, since 1999. He has conducted many short term courses on Surveying for the building professionals as early as 2000. He has published TWO books on Surveying – Elementary Engineering Surveying and Introduction to GPS Surveying. He is member of different National and International technical associations.

Dr. Siddhartha Khare is currently working as an Assistant Professor in the Geomatics Engineering section of Civil Engineering department of IIT Roorkee.

He has carried out his M.Tech and Ph.D. from IIT Roorkee in 2012 and 2017 respectively. After his higher education, he worked for one and a half years as an Assistant Professor in the ESRI- sponsored GIS Department of NIIT University in India. Thereafter, he moved to Canada for his post-doctoral research work. He worked as a Postdoctoral Fellow for 4 years at the University of Quebec and McGill University in Canada. After that he worked as an Environmental Scientist at Habitat, Nature based solution company in Canada and presently associated with them as an Academic Associate. He has been invited as a Visiting Professor at the University of Québec, Canada (summer 2023), and Oklahoma State University, USA (winter 2023), collaborating with their Departments of Geography. He also served as a member of Quebec Forest Study Center and Quebec Centre for Biodiversity Science and carried out hands on training related to satellite data analysis using R programming in various Quebec universities. Dr. Khare has very rich experience in handling time-series data with Satellite, UAV and PhenoCams sensors.

Dr. Siddhartha Khare is also founder and Director of his Indian start-up company Bhoomicam Private Limited. This is an early-stage Indian start-up to develop AI and Geomatics based solutions for farmers. Dr. Khare has made significant contributions to the geospatial agritech sector. His startup Bhoomicam has won the Best Geospatial Startup Award at the National Geospatial Awards 2024 organized by FOSSEE (GIS) IIT Bombay. Dr. Khare himself received the National Geospatial Emerging Faculty Fellow Award for his leadership in the field. His startup received Bronze Medal at the ISRS I-CON 2022 Innovation Contest in Geosmart 2022 conference.

## **COURSE PLAN :**

**Week 1:** Fundamentals of Land Surveying & GPS

**Week 2:** Global Positioning System (GPS)

**Week 3:** Global Positioning System (GPS)

**Week 4:** TOTAL STATION(TS)

**Week 5:** TS & DIGITAL LAND SURVEYING (DLS)

**Week 6:** DLS& DIGITAL MAPPING (DM)

**Week 7:** DM & DIGITAL DATA MANIPULATION (DDM)

**Week 8:** DIGITAL LAND SURVEYING AND MAPPING (DLS&M)