JFM701 Advanced Adjustment   3-0-3

Matrices, Various inverse matrix calculations, Adjustment methods, Adjustment with matrices, Establishing and solving normal equations, calculating unknowns and corrections and their solution with matrices, Adjustment functions, Helmert transformation, Adjustment by separation, Adjustment of trilateration networks, Adjustment of polygon networks.

JFM702 Densification of Geodetic Networks   3-0-3

Introduction, Rigorous network densification by a simultaneous adjustment of two Networks, Rigorous network densification by network with weighted position constraints, Rigorous densification by correcting non-rigorous solution, Statistical testing of densification Networks.

JFM703 E-Government and E-Ownership Concept   3-0-3

E-government concept, Content of e-government concept, Direct and indirect benefits of e-government applications, E-ownership subportal, Content of e-ownership applications and e-ownership applications in Turkey.

JFM704 New Approach Of Cadastre   3-0-3

Different appaproaches of basic principles of Cadastre and Land registry, Different application from world, New research area and new concepts in cadastre, Land management, Principles of land management and land management tools.

JFM705 Land Property And Management   3-0-3

Definition of Real Estate Lands and its Importance; Land, Water and Air Relationship; Human Relation with Land and its Use; Land Property and its Management from Past to Today; Private Property concept; Land Property and its Management from Antique Civilisations through Middle Age Europe to Turkish States before and after Islam and Today's Turkish Republic; Real Estates As a property of person or Judicial Person, State and Public; Activities on Rural Areas; The Coastal Body of Current Laws and Applications; Real Estate's Evaluation and Taxation; Privatisation and Nationalisation of Real Estates.

JFM706 Integrated Coastal Zone Management   3-0-3

Defining the Coastal Area, Concepts of Coastal Management and Planning, Integrated Coastal Zone Management, Public Benefit in Land Use of Coastal Area, Planning of Coastal Area, Coastal planning and new enterprises in Turkey, the Problems in Coastal Zone Management, Using Photogrammetry, Remote Sensing, GIS and WebGIS in Coastal Zone Management, Conclusion and evaluation.

JFM707 New Approaches in Geographical Data Distributions   3-0-3

Spatial data infrastructure (SDI), Local, regional, national and Global spatial data infrastructure, SDI Realization architectures, Clearinghouse and Spatial portal, service Oriented architectures (SOA), Web services, Service publishing, Finding service and Service arrangement, W3C, ISO and OGC Standards, Application development in the Web Services.

JFM 708 Close Range Photogrammetry and Machine Vision   3-0-3

Fundamentals Of Machine Vision, Machine Vision instruments, Machine Vision software's, Machine Vision Techniques in Industry and Quality Control, Real Time Photogrammetry, Applications of the Machine Vision Fundamentals of Image Matching, Image Matching Techniques, Least squares and Cross Correlation Image Matching Methods.

JFM 709 Photogrammetric Triangulation and Error Resources   3-0-3

Aims of Photogrammetric Triangulation, Preliminary Information and Types of Points used, Photogrammetric Triangulation by Independent models, Three Dimensional Block Adjustment, Planimetric and Height accuracies, Instrumental Considerations, Photogrammetric triangulation by the method of Bundle Block adjustment, Mathematical relation between image and ground coordinates, Additional Parameters used in Photogrammetric triangulation, Accuracies, Advantages and disadvantages of the Photogrammetric triangulation methods, Satellite Positioning for Photogrammetric Triangulation, Coordinate Systems, and the NAVSTAR GPS general, Photogrammetric Triangulation with GPS and IMU (Inertial Measurement Unit) Support, Photogrammetric triangulation without control points, Photogrammetric triangulation with some control points, Accuracy Aspects of Photogrammetric triangulation and the effect of the geoid, Automatic Photogrammetric triangulation, Trends of the Photogrammetric Triangulation, Significance Tests, Reliability Control, Reliability checks for some standard photogrammetric tasks, Estimation of variances of groups of observations, Demonstration of a Photogrammetric Triangulation Software.

JFM 710 Geodetic Networks Analysis   3-0-3

Estimation methods for computation of geodetic networks, mathematical fundamentals of the Gauss Markoff Model, geodetic datum and the datum defect, free adjustment, datum transformation, quality criteria of geodetic networks, design principles of control networks, model tests of adjustment computations, functional model and stochastic model tests, outlier detection, significance tests for determination of the deformations, global test and localization of the deformations with point test, different approaches for deformation analysis, application of robust statistics, kinematic models in deformation analysis

JFM 711 Deformation Measurements and Analysis   **3-0-3**

History of Deformation Measurements and Analysis, Designing and establish Deformation Networks, Deformation Measurements, Adjusted of Deformation networks, analysis methods of deformation measurements, Mierlo, Robust and Cholesky factoring methods, Graphical interpretation of deformations.

JFM 712 Semantic Interoperability   **3-0-3**

Interoperability Web, Interoperability Web services, Geographic Web Services, Concept of Ontology, Geographical Ontologies, Ontology Design in Spatial Web Services, Development and used, Problems and Solutions that can be experienced in the realization of Semantic Web Services.

JFM713 Spatial Decision Support Systems   **3-0-3**

Decision and decision-making process, decision models, Decision Analysis (DA), general characteristics of Decision Support Systems (DSS), components of DSS, design of DSS, use of spatial data for DSS, Geographic Information Systems (GIS), integration of GIS and DSS, Spatial Decision Analysis (SDA), Spatial Decision Support Systems (SDSS), group decisions and Group Decision Support Systems (GDSS), web-based DSS, expert systems.

JFM714 Remote Sensing and Digital Image Processing   **3-0-3**

Remote sensing systems, applications of remote sensing, image-interpretation, radiometric and geometric distortions, geometric and radiometric corrections, image enhancement, pixel-based and object-based image classification, data fusion.

JFM715 Applications of GIS in Water Resources Management   **3-0-3**

Surface and ground waters; Water resources planning and management, flood control; Geographic Information Systems (GIS) in water resources planning and management: river basin modeling, spatial analysis, 3-D analysis, hydrologic analysis, hydro-meteorological analysis, flood analysis.

JFM716 Zonning Plan Implementations in The Urban Areas   **3-0-3**

Examining technique and legal status urban renewal, valuated landspace of physical and environment being transformed areas, determined project areas and made new zone plans, land valuation, Land Arrangement, project costs, financing and income, assigning property proceedings.Urban land reform. Urban land consolidation. Squatter laws. Restriction of property rights. Rotation from horizontal property to vertical one. Transfer of development rights (TDRs) . Real estate development. Selection of the sights for renewal, rotation and transfer. In urban renewal, common enterprise models among public, property owner and private sector

JFM717 Sustainable Land Management   **3-0-3**

Land manegement concept, Principle of land management and application methods, Scope of cadastre and land registry, Ownership concept, Land readjusment, Principle and application of real estate management and real estate appraisal, Parcel based information systems, Spatial data infrastructure, Land management in e-government and e-ownership portals.

JFM718 Analysis of Hyperspectral and LIDAR Data in Geomatic Engineering 3-0-3

Hyperspectral sensors and LIDAR, Resolution in Hyperspectral Sensors and LIDAR, Laser and Spectrometer, Ground and Airborne Spectrometer, Image Cube, Spectral Data Analyses, Hyperspectral Image Enhancement, Classification of Hyperspectral Images, Differences of classical remote sensing techniques and Hyperspectral, Applications of Hyperspectral and LIDAR images for different disciplines.

JFM719 Remote Sensing with Radar and Microwave   3-0-3

Radar System, An Overview of terms Geosciences, Basic Properties of Radar, Radar Aircraft / Satellite Systems, Radar Image Processing (pre-processing, enhancement, classification), Project Planning and Surveying, Applications, Agricultural Practice, Forestry Practices, Soil Moisture Practices, Land Usage applications, Geological and Geomorphological Applications (Interferometry), Project Presentation.

JFM720 Global Positioning Applications   3-0-3

General definitions of Satellite Geodesy, Observation pre-planning, Field reconnaissance and facilities, GPS network and logistics. GPS receivers: fixed, roaming, and real-time GPS receivers and their features. GPS software, Field application: Application of static, fast static and kinematic GPS methods. Evaluation studies: Evaluation of measures, adjustment and transformation calculations.

JFM721 Quantitative Approaches in Land Valuation   3-0-3

Determination of the value of real estate which is the the main object of investment, real estate valuation practices with different aims and methods. Assessment of properties in urban and rural areas, zoning, land-agrarian reform and land consolidation applications, expropriation, taxation, trading, real estate valuation procedures for operations. All factors affecting the value of real estate.

JFM722 Application Problems in Land Management   3-0-3

Explanations on the basic problems encountered implementation process of development plans in Turkey and on implementation examples. Discussions on suits related to cadastral issues, development plan and development plan applications. Preparation of expert reports. Developing idea and analysis capability on sample court decisions and reasons.

JFM724 Real Estate Development   3-0-3

The concept of real estate, definition and scope of real estate development, types of real estate development, real estate development process, situation analysis in real estate development, Actors in the Real Estate Development Process