FACULTY & RESEARCH

RESEARCH

01 Automation-Robotics Construction-technology Group

Prof. Soonwook Kwon Homepage

Key words: Construction Technology Automation Robotic, IT Convergence, Laser Scan, Drone.

Inspired with state-of-art technologies in construction field with brandnew hardware, several branshes of technologies are studied in our lab; laser sca smart galss and drone. Thus, not only to acquire knowledge on construction hardware but software algorithm are especially focused. We expec construction automation, improvement of productivity through a integrated research.

02 Substructure system Lab.

Prof. Nak-Kyung Kim Homepage

Key words: Prestressed Support Discharge Anchors, Smart Bi-directional Pile

Structural design and analysis of innovative prestressed support method is studied in Geotechnical Engineering Lab. 2. Moreover, uplift capacity of mult soil and load transfer on pulsed power discharge anchors and study of smart Bi-directional pile load test by model test are studied. With these technology, effort to develop innovative technology in the field of Geotechnics.

03 Advanced Condstruction and Technology Researching Group

Prof. Moon-Young Kim Homepage

Key words: Cable Supported Bridge, Buckling Analysis, Dynamic Interaction Analysis, Steel Bridge Deck System, Finite Strip Method Analysis

We, advanced construction and technology researching group has focuses on an analysis of stress in structures that endure massive stress inside like brid encompasses refined structural analysis of orthotropic steel bridge decks for damage reduction, stability and vibration analysis of steel/composite thin-wa as structuraldesign and analysis of Cable-Supported Brides. Recently, we broaden our scope to dynamic interaction analysis of actively controlled Mag guideway bridges.

04 Construction Management Lab.

Prof. Yea Sang Kim Homepage

Key words: Construction Project Management, Construction Productivity Improvement, Contract Management, Government Policy & Regulatic Consulting

Development of construction industry and the success of construction projects are enormously influenced not only by and construction engineering and t by scientific management and control skills. Our CM Lab is working on such issues as project management, productivity improvement, contract & claim m as fundamental areas in CM including time-cost-quality-safety management in variou ways. Government poiciy and regulations are the another major r also provides business consulting services for the construction related firms.

05 Seismic Design and Retrofit Lab.

Prof. Jinkoo Kim, Prof. Mohamed Noureldin Homepage

Key words: Seismic Retrofit of Buildings, Vibration Mitigation using Dampers, Progressive Collapse of Tall Buildings, Structural System for Tall Buil

In Seismic Design and Retrofit Laboratory, researches are carried out in various topics related to seismic performance evaluation/seismic retrofit of exis progressive collapse of tall buildings. Special attention is paid to seismic retrofit using various damping devices, optimum design using genetic algor analysis using neural network.

06 Advanced water treatment and Water circulationg plant Engineering Research Lab.

Prof. Hyungsoo Kim Homepage

Key words: Membrane Water Treatment Process, Desalination, Membrane Bioreactor, Integrity Test, Practical Pilotplant Scale Membrane System

E-water lab has been conducting various researches with regard to membrane based water treatment processes. Our research can be divided into four to to remove pollutants from waste water to minimize damage to the environment. Secondly, we carry out studies of drinking water treatment which prod using the surface water. Lastly, we also deal with desalination processes and wastewater reclamation. Currently, we are focusing on membrane fo minimizing chemical agent and optimizing membrane system.

07 Bridge Engineering Lab.

Prof. Sun-Kyu Park Homepage

Key words: TRC (Textile Reinforced Concrete), Modular Bridge, Performing Structural Stability Evaluation, ICT Convergence Facility Maintenance

The Bridge Engineering Lab focuses on the design, construction, maintenance, and environment-friendliness of bridges. Recently, ICT maintenance inspection, Modular Bridges, Verification of eco-friendliness, Development of new type concrete composite member and design manual are studied in ac paradigm shift of construction technology.

08 Smart Construction IT Lab.

Prof. Seunghee Park Homepage

Key words: Structural Health Monitoring, Nondestructive Testing/Evaluation, Smart Materials and Sensors, Smart Structures, Building Inforn Building Energy Management.

In this lab, technologies about intellectualization of urban facilities have been studied in the viewpoint of convergence based on knowledges about m structural dynamics, sensor technology and information processing technology. Especially, non-destructive testing and structural health monitoring of ur cutting-edge intelligent sensing technologies, life-cycle management technologies by establishing structural information, and technologies for safety mar facilities to prevent human or natural disasters. Recently, the research about the safety in smart city structures and energy management technology ha using IoT technology.

09 Building Technology Research Unit

Prof. Doosam Song Homepage

Key words: Building Energy, Stack Effect, Air-Conditioning System, Super Tall Building

The major research fields of the BTU (Building Technology research Unit) are developing the building technologies to minimize the energy use and e through building life-cycle. The physical properties such as air flow, heat and air-pollutant diffusion and lighting in room, building and urban reign are stu experimental methods and numerical simulation methods. Built environments are studied in terms of human health and comfort in usual life.

10 Environmental Contaminants Research Lab.

Prof. Icktae Yeom Homepage

Key words: Water Quality Regulation, Hazardous Material, Aqueous Micro-pollutants, Wastewater Treatment

Environmental Contaminants Research Laboratory has study hazardous contaminant in various water resources. Our study field includes development of b treatment technologies for new water quality regulations specific hazardous materials response, and extended authorization of specific toxic substance an the effluent standard and survey research for basic unit of wastewater discharging facility, as well as investigate the behavior of emerging aqueous micr

biological wastewater treatment. In addition, studies on the specific wastewater treatment and reuse technology with toxic substances, such as industria waste are on-going.

11 Geotechnical Lab.

Prof. Chungsik Yoo Homepage

Key words: Tunneling and Deep Excavation, Numerical Analysis of Geostructures, Ground Improvement Geosynthetics Engineering

Geotechnical laboratory is studying on ANN based TBM concrete lining automated design programs, tunnel design/construction list management, tunn stability of the suction pile analysis and thermalanalysis of reinforced soil retaining wall utilizing the heat-transfer drainage systems and a variety of fie knowledge-based automated design program integrated with theological and finite element method that can automatically calculate safety assessment conducting various behavior analysis on various soil conditions through experiments using models based on the field.

12 Geo-Informatics Lab.

Prof. Hong Sic Yun Homepage

Key words: Geodesy, GIS, GNSS/INS, risk analysis, Spatial Information Assessment

Geo-Informatics Lab has built a spatial information by GIS. We have studied regarding the modifications and variations of the bridge and large buildings study to produce spatial information system of the unmanned motor vehicle and drone using GNSS/INS. Furthermore, we are extending the research fie for example, the risk analysis and assessment of landslides, debris flow and chemical leak using a spatial information.

13 Advanced Construction Materials Lab.

Prof. Kwang-Myong Lee Homepage

Key words: Construction Materials, Concrete, Self-healing Technology, Echo-friendly Concrete

Advanced Construction Materials Laboratory, led by Prof. Kwang-Myong Lee, mainly focuses on concrete-based analysis. As an successful examples, technology for concrete structures using crystalline materials, bacterial and capsules, echo-friendly concrete for low CO2 performance based design, ar Shrinkagereducing concrete using internal curing technique are usually referred. We set our goal to develop long-term property and durability perf performance concrete.

14 Coastal Environment Study Lab.

Prof. Jung Lyul Lee Homepage

Key words: GUI Simulation of Coastal Environment, Beach Safety & Risk Management, Water-related Disaster Prevention, Environmental M Sustainability

The C.E.S.Lab has developed the Matlab GUI based numerical tools of simulating waves, rip and wave-induced currents, tide and tidal currents, storm long waves, beach erosion and sand deposition and so on. Recently, We study to combine them with smart sensing and augmented reality based display t be used for coastal zone management, safety and disaster management. C.E.S.Lab is also developing the GUI programs of managing an urban waste wat water-borne disease system, and designing sustainable development plans. We aim to lead the integrated, smart coastal and urban environment m technique for the preparation to future climate change further uncertainty.

15 Concrete Engineering Lab.

Prof. Jung-Yoon Lee Homepage

Key words: Reinforced Concrete (RC), Prestressed Concrete(PSC), Shear Behavior, Torsion Behavior, Seismic Design, Floor Damping Materials

The Concrete Engineering Lab. focuses on the behavior of Reinforced Concrete (RC) structure and Prestressed Concrete (PSC) structure, and long-term damping materials. 1) Shear behavior of prestressed concrete beams using high-strength stirrups, 2) Shear sizeeffect on reinforced concrete beams, 3) T reinforced concrete beams using high-strength reinforcement, and 4) long-term performance evaluation on floor damping materials are studied.

16 Sustainable Water Treatment Lab.

Prof. Am Jang Homepage

Key words: Seawater Desalination, Environmental Sensor, Forward Osmosis (FO), Reverse Osmosis (RO), Ceramic Membrane

Sustainable WAter Treatment Lab (SWAT) has three major areas of research which are membrane based seawater desalination and wastewater development of pre-treatment system using ceramic membrane, and environmental-pollution monitoring using state-of-the-art lab chip (LC). Our lab is c research projects such as forward osmosis-reverse osmosis hybrid system, irreversible membrane fouling monitoring research using OCT, and freezing desa

17 Water Resources Engineering Lab.

Prof. Kyung Soo Jun Homepage

Key words: Computational River Hydraulics, Environmental Hydraulics, Hydraulic and Hydrologic Modeling, Flood Risk Analysis, Water Quality Mo

The water resources engineering lab has continuously carried out studies on river flow model such as development of unsteady flow model for simultan unsteady flow and operation of weirs and estuary barrage, estimation of design flood level for tidal rivers, and distributed parameter unsteady flow mod areas also include drought and flood risk management.

18 e++CM Lab.

Prof. Sang Yoon Chin Homepage

Key words: Building Information Modeling (BIM), Construction Management (CM), Construction Informatization, Construction Autom Integrated Construction (CIC)

In our laboratory, we are trying to meet the demands of the international competitiveness of the construction industry to meet this trend. So we researc Construction Management (CM), Computer Integrated Construction (CIC) and Building Information Modeling (BIM) to operate and manage a co effectively and efficiently.

19 Environmental and Remote Sensing Lab.

Prof. Minha Choi Homepage

Key words: Remote Sensing, Land Surface-atmosphere Interactions, Evapotranspiration and Soil Moisture Analysis, Model Assimilation, Dr Analysis

ERSL's research interests focus on natural hydrological phenomena that cause floods and droughts. A main research goal is to improve knowledg hydrological processes and modeling by integrating remotely sensed data and ground-based data. Toward this goal, we seek the role of soil moisture and in hydrological processes, which directly related to many hydro-meteorological variables in detail with consideration for spatial-temporal variability and th uncertainty within the context of the satellite footprint.

20 Environmental Climate Lab.

Prof. Kyoo-seock Lee Homepage

Key words: GIS, RS, Landscape Analysis, Spatial Analysis, Disaster Prevention

Environmental Climate Lab has focused on investigating spatial characteristics of the study area or region by GIS. GPS, RS, IT. Recently we have studied change of urban and rural environment and disaster risk assessment and damage mitigation of inaccessible region. We are also doing the landscape anal of cultural landscape and essentially appreciate the meaning of Korean landscape.

21 Landscape Ecology Lab.

Prof. Dong-yeob Kim Homepage

Key words: Landscape Ecology, Urban Green Space, Roof Greening, Preservation of Village Groves, Tree Vigor Database Management

The principles of landscape ecology are applied to the researches such as urban green space management and the preservation of village groves whi Korean traditional cultural landscape. Roof greening technique needs to be developed in order to improve urban environment. Recently, remote tree v and data transport technology is one of our research topics as an ICT-fusion approach.

22 Landscape Design Lab.

Prof. Hye-young Cho Homepage

Key words: Design Practice & Methodology, Large Park, Urban Regeneration, Resilience

The Landscape Architectural Design Lab focuses on improving the quality of the outdoor environment, covering gardens, parks and public open spa research on design theory and methodology, we try to find a linkage between theory and practice in parallel with actual project execution. We are cur way to reduce uncertainty in design process, the impact of parks on urban regeneration, and the methodology to assess the quality of outdoor spaces.

23 Smart Infrastructure Systems Laboratory

Prof. Sung-Han Sim Homepage

Key words: smart construction, structural health monitoring, smart sensor

In Smart Infrastructure Systems Laboratory is to address critical issues in structural health monitoring (SHM) and disaster mitigation for resilient and sustai and civil engineering structures. Our research focuses on structural dynamics, SHM, wireless sensors and sensor network, and computer vision and applications for SHM.

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