

INTRODUCING NEW TECHNOLOGIES FOR GEOTECHNICAL INFRASTRUCTURE SENSING & MONITORING

- A Berkeley Short Course -

COURSE PROGRAM

All times listed are Pacific Standard Time

DAY 1 – Thursday May 20 2021

Part 1: Introduction and The Big Picture of Geotechnical Infrastructure Monitoring

8:00-8:15: Introduction – Welcome (Zekkos)

8:15-8:45: Why Monitor? (Soga)

Part 2: New Technologies for geotechnical monitoring: Remote and non-contact Sensing

8:45-9:15: RTK GPS (Kayen)

9:15-10:15: LiDAR (Kayen)

10:15-11:15: UAVs (Zekkos)

11:15-12:15 - 1 hr break – discussion - chat

12:15-13:15: Optical data collection & Structure-from-Motion (Zekkos)

13:15-14:15: Case Histories with 3D Data Analysis (Zekkos)

14:15-14:45: Setting the threshold and limit levels of monitoring
(Soga)

14:45-15:45 Case History Dive-in: Tunnel Monitoring 1 (Johnson)

15:45-16:15 Public Discussion (optional)

**16:15-17:00 Office Hours & Consultations (in breakout rooms -
optional)**

DAY 2 – Friday May 21 2021

8:00-9:00 Welcome. Public Discussion (optional)

Part 2: New Technologies for geotechnical monitoring: Remote and non-contact Sensing (Continued)

9:00-10:00: Synthetic Aperture Radar (SAR) (Kayen)

10:00-10:30 : Case History: SAR application (Kayen)

10:30-11:15 UAV-based Infrared – Principles & Applications (Zekkos)

11:15-11:45 Case History Dive-in: The Edenville Dam Failure
Characterization (Zekkos)

11:45-12:30 break – public Discussion

Part 3: New Technologies for geotechnical monitoring: Embedded Sensing

12:30-13:30 Fiber Optics and the role of distributed sensing (Soga)

13:30-14:00 Case History Dive-in: Soil-pile interaction monitoring
(Soga)

14:00-15:00 The ShapeArray (Johnson)

15:00-15:30 public Discussion

15:30- 16:30 Wireless sensor network (Soga)

16:30-17:00 Case History Dive-in: Deep excavation and tunnel
monitoring (Soga)

Part 4: Conclusion & Public Discussion

17:00-17:30 Putting it all together & Introduction to Digital Twins
(Zekkos)

17:30-18:00 Public Discussion (optional)

**18:00-19:00 Office Hours & Consultations (in breakout rooms -
optional)**

Thursday May 27 2021 (A week later)

8:00-9:00: Open Discussion with Instructors (optional)