

# One day Virtual Workshop on LIDAR Technology for Civil Engineering Applications



18<sup>th</sup> December 2020 (Friday)

Organized by

School of Civil Engineering (SCE),  
VIT, Vellore – 632014



**VIT**<sup>®</sup>  
Vellore Institute of Technology  
(Deemed to be University under section 3 of UGC Act, 1956)

## ABOUT VIT

Vellore Institute of Technology (VIT) was founded in 1984 as Vellore Engineering College by the Chancellor Dr. G.Viswanathan. VIT attracts students from all the 29 states of India and more than 41 different countries because of its academic excellence. Govt. of India recognized VIT as Institute of Eminence (IoE). The credentials of VIT in academics and research, has placed VIT in the 13<sup>th</sup> position among the engineering institutions and VIT Business School has placed 17<sup>th</sup> position among the business schools in India by NIRF, Govt. of India Ranking. The world ranking body namely the QS has given 4 STAR rating to VIT, with that VIT becomes the first institution in India to have the 4 STAR rating. In addition to this, the consortium of industries, FICCI has adjudged VIT as the “Excellence in Faculty”. VIT has the record of publishing a maximum number of SCOPUS Indexed Research Journal papers in 2016, among Indian Universities, overtaking all the premier institutions. VIT has also completed 3 cycles of NAAC accreditation and has been rated as “A” grade institution. In addition, VIT also has obtained for the coveted ABET accreditation by the US agency. VIT has introduced many innovations in academic processes which adds value to every student - FFCS (Fully Flexible Credit System), PBL (Project Based Learning) for better learning, fully digitized academic portals that assist students in equipping themselves for

2020 market-place, Hack-a-thons/Make-a-thons as part of curriculum exercise which kindles the interest and the curiosity of students, which moulds them to be better problem solvers, the 8<sup>th</sup> module in every subject being handled by industry experts, making the students contextualize the concepts they study in the classroom, are few of the innovations that VIT has introduced.

## ABOUT SCE

The School of Civil Engineering (SCE) is a part of VIT since its inception. The School has grown tremendously over years and is now recognized as one of the major engineering schools in VIT. The School has 50 faculty members from various reputed institutes. Besides high-quality teaching and instruction at both UG and PG levels, the faculty members of the school are actively involved in executing a number of R&D and consultancy projects from government agencies including DST, ISRO, BRNS and also from many reputed industries.

## ABOUT THE PROGRAMME

3D laser scanning technology or popularly known as LIDAR is a Light Detection and Ranging Technology that helps to create an accurate 3D representation of any given earth structure such as buildings, dams, roads, forest, etc. The technology consists of emitting millions of infrared light pulses every second from a laser scanner to the target and recording the time of travel. Knowing the speed of pulse and time of travel, the location of target coordinates can be found, which thus finally results

in “point cloud” consisting of millions of data points with X, Y, Z coordinates. This data can then be used to prepare the 3D map of any given structure after removing the unwanted noises. The entire laser scanning can be completed in just 3 minutes with modern ground based terrestrial laser scanning systems having an accuracy of 3 to 6 mm. The major advantage of modern scanners is that it provides actual photographs of the target objects (natural features or man-made structures) in addition to the point clouds, which makes registration of multiple scans much easier during post processing.

The ground-based LIDAR system can be used for various civil engineering applications like capturing existing building’s exterior, interior, preservation of heritage buildings, area volume calculations, highway asset management, identifying structural deformation, slope instability analysis, etc. Even thermal properties of objects can be studied using LIDAR systems. Many civil engineering construction companies in India already have started using LIDAR systems for monitoring their day to day construction activities as the data acquired through LIDAR is reliable and accurate. The present workshop aims to give the participants a full-fledged knowledge of the latest ground-based LIDAR technology with more focus on practical demonstrations rather than theoretical lectures. At the end of the workshop, the participants will be well versed with the working principle of LIDAR and will

know how the LIDAR technology can be used to capture the 3D of any given structure.

### **TOPICS TO BE COVERED**

- 1) Introduction to LIDAR technology and its applications in Civil Engineering.
- 2) Online demonstration of indoor and outdoor 3D laser scanning survey covering buildings, landscapes, pavement, etc.
- 3) Online demonstration of LIDAR data processing and 3D map preparation.

### **TARGET GROUP INCLUDES**

- Students and Research scholars
- Faculty members from academic institutions
- Government/ Non-Government officials

### **REGISTRATION FEE**

- **Rs.250/-** (Students and Research Scholars)
- **Rs.500/-** (Faculty members)
- **Rs.750/-** (Govt./Non-Govt. officials)

Registration fee as mentioned above is exclusive of GST. Registration charges include entry to online lectures, online demonstrations, course material (soft copy) and certificate (soft copy). The number of participants is **limited to 100** based on first come first serve basis.

### **VENUE**

Online through Microsoft Teams.

### **DATE & TIME**

18<sup>th</sup> December 2020 (Friday) / 9.00 am - 5.30 pm

### **RESOURCE PERSONS & COORDINATORS**

**Dr. S.Vasantha Kumar, Ph.D (IIT Madras)**

Associate Professor and Survey Lab in-charge

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**REGISTRATION** Kindly register through the given link: <https://events.vit.ac.in/> on or before **11<sup>th</sup> December 2020** (Kindly use Mozilla Firefox or Internet Explorer for payment of fee).

**Note:** The Microsoft Teams online link and other details of the virtual workshop will be shared with the registered participants after 11<sup>th</sup> December 2020.