



One Week Online Faculty Development Program (FDP)

On

COMPUTER DILIGENCE IN CIVIL ENGINEERING & APPLICATIONS FOR SUSTAINABLE DEVELOPMENT  
(11<sup>th</sup> - 15<sup>th</sup> July 2022)



Organized

By

DEPARTMENT OF CIVIL ENGINEERING

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKHNAGHAT, SOLAN,  
HIMACHAL PRADESH, INDIA.

### ABOUT DEPARTMENT OF CIVIL ENGINEERING

JUIT is spread over 25 acres of lush green picturesque slopes of Wakhnaghat, in district Solan of Himachal Pradesh. The department of civil engineering started functioning in JUIT from the year 2003. The department prepares students for the award of B.Tech degree in civil engineering. The curriculum has been specially designed keeping in view emerging civil engineering needs of the country as well as the modern emphasis on IT enabled civil engineering. At post graduate level, the department offers 2-year M.Tech programs in Construction Management, Environmental Engineering and Structural Engineering. In addition, doctoral degree is offered in the areas of Environmental Engineering and Water Resources, Geotechnical Engineering, Structural Engineering, Construction Management, Hydropower Engineering.

The department has recently started offering *B.Tech in civil engineering with computer applications* which is a new emerging trend. Present day practice of civil engineering applications in real life include design of smart highway systems, sensor based technology for monitoring of pollution, cyber security of buildings, use of data analysis techniques to check feasibility of construction projects, use of AI systems for predicting soil and rock properties, use of ML in identifying hydrological responses in a catchment after precipitation and many more applications. The purpose of this programme is to produce under graduates who are fully prepared to work in an engineering positions requiring expertise in the field of computer applications so as to apply the same in infrastructure industry.

### PREAMBLE

At Jaypee University, research is an integral part of the academic activity carried within various undergraduate and postgraduate programs. The research activities include academic research and funded research projects and patent in the university. The students and staff are encouraged to innovate through quality research in emerging areas. The research philosophy is to progress from inter-departmental collaboration, to inter-institutional partnerships at national and international levels.

The scope and scale of research has substantially evolved from the era of student thesis to funded projects to interdisciplinary research programs at state and national level. The faculty development program facilitates interaction with external agencies and experts at national and international level. By looking at changing requirements of industry, the objective of this program is to ensure that we hold on to our position at the cutting edge of innovation by encouraging interdisciplinary research.

### ABOUT FDP

This Faculty Development Program will help to disseminate the knowledge in the domain of Civil Engineering in general and role of computer technology with respect to construction

techniques in particular. It empowers participants with the up-gradation of knowledge and skill. It intends to provide opportunities to enrich the intellect and to interact with cutting-edge technologies in the fields of environmental engineering, construction engineering, geotechnical engineering, water resources engineering, transportation engineering, earthquake engineering, and GIS applications.

Civil engineers have one of the world's most important jobs; they build our quality of life with creativity and technical skill. The civil engineers plan, design, construct, and operate the facilities essential to modern life, ranging from factories, bridges and highway systems to water treatment plants and energy efficient buildings. The Civil engineers meet the challenges of pollution, traffic congestion, drinking water, and energy needs for present and future generation. The program aims at discussing recent applications of computer in the field of civil engineering, addresses the role of application in transferring information, organizing discussion sessions, conferencing and providing technical advice online.

The outcomes of the program are expected to be as follows:

- Understand the availability and usability of software packages for various civil engineering applications.
- Awareness on software packages for design of huge structures, virtual reality, solving equations for optimization of resources, earth-work estimation, cost estimation, project management, structural drawing and predictive model making.
- Understand and design different structures using various software packages.
- Demonstrate various case studies in the field of civil engineering.
- Design solutions for several applications using software.

### MAJOR COURSE CONTENTS

- An overview on Civil Engineering and its applications.
- Introduction to various software pertaining to civil engineering.
- Computer software and its significance in construction technology.
- Introduction to the software packages pertaining to design of transportation systems, dams and bridges.
- Awareness on software tools pertaining earthquake engineering.
- Software packages in modern surveying and GIS application
- Introduction to effective utilization of Auto CIVIL (Civil engineering with AutoCAD), STAAD Pro (Structural Analysis and Design), 3D Home Architect Deluxe (Dream Home), ANSYS (Structural Analysis). Illustration of some case studies in civil engineering & applications.
- Analysis of new class of problems in civil engineering with project management techniques (PERT/CPM).
- Introduction to Structural Health Monitoring (SHM)
- Introduction to REVIT, MATLAB, QGIS, Bentley Civil Engineering Software Suite, Sewer Gem and Highway Gem.



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**REGISTRATION FEE DETAILS**

Faculty and Research Scholars: INR500/-

Industry Participants: INR 1000/-

Participants need to pay the Registration Fee Online using the following details:

Account Name: SAURAV

Account No: 31295403092

IFSC: SBIN0013702

Bank and Branch: STATE BANK OF INDIA, SHOGHI

OR

Pay using UPI

UPI ID: ersauravsupstar@oksbi



Scan the above QR code for payment

**HOW TO APPLY**

Participants are required to fill the online registration form by clicking on the following link:

<https://forms.gle/o3KiTAfLXTSybBMv8>

**IMPORTANT DATES**

Last Date (Application & Payment): 10<sup>th</sup> July, 2022

Duration: 5-Days (11<sup>th</sup> July, 2022 to 15<sup>th</sup> July, 2022)

**CONVENORS**

**Dr. Rishi Rana**

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Jaypee University of Information Technology,  
Wakhnaghat, Solan, H.P.

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# JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT, SOLAN (HIMACHAL PRADESH)



*Presents*

One Week Faculty Development Program on

## “Computer Diligence in Civil Engineering & Applications for Sustainable Development”

Organized by

Department of Civil Engineering  
JUIT, Wagnaghat

**11<sup>th</sup> July – 15<sup>th</sup> July, 2022**

FDP will be hosted in Online Mode via Google meet

Registration Link: <https://forms.gle/o3KiTAfLXTSybBMv8>

### **Patron**

Prof. (Dr.) Rajendra Kumar Sharma  
Vice-Chancellor  
JUIT, Wagnaghat

### **Advisor**

Prof. (Dr.) Ashok Kumar Gupta  
Dean (Academics & Research)

### **Program Chair**

Prof. (Dr.) Ashish Kumar  
Professor and Head  
Department of Civil Engineering

### **Program Convener**

Dr. Rishi Rana and Dr. Saurav  
Assistant Professor  
Department of Civil Engineering

## FDP-"Computer Diligence in Civil Engineering & Applications for Sustainable Development" Schedule, 2022

Date	Time	Speakers	Topics
11/07/2022 (Monday)	10:30AM-10:45 AM	Inaugural Session	<i>Inaugural Lecture</i>
	10:45AM-12:00PM	<b>Dr. Hari Narayan Tiwari</b> , PhD (IITR)	<i>Water and sustainable development using HEC-RAS (Hydrologic Engineering Centers -River Analysis System)</i>
	02:30PM-04:00PM	<b>Dr. Anjani Kumar Shukla</b> , Ph.D (IITBHU)	<i>Common Failures in Structures and its remedial measures using ANSYS.</i>
12/07/2022 (Tuesday)	10:30 AM-12:00PM	<b>Mr. Pratyush Malaviya</b> , Structural Design Consultant.	<i>Analysis and design of low-rise residential building using ETABS</i>
	02:30 AM-04:00 PM	<b>Dr. Sumesh Sood</b> , Department of Computer Science, HPU, Shimla.	<i>Waste water contamination prediction modeling using Machine Learning.</i>
13/07/2022 (Wednesday)	10:30 AM-12:00 PM	<b>Dr. Chembolu Vinay</b> , Department of Civil Engineering, IIT Jammu	<i>River Modeling with river corridor vegetation for sustainable river ecosystem.</i>
	02:30 PM-04:00 PM	<b>Dr. Shivang Shekhar</b> , Department of Civil Engineering, IIT, Mandi.	<i>Computer Applications in Lifetime Seismic Vulnerability Assessment of Ageing Infrastructure Systems".</i>
14/07/2022 (Thursday)	10:30 AM-12:00 PM	<b>Dr. V.K. Garg</b> , Dean of Student welfare, Central University of Bathinda, Punjab.	<i>Environmental informatics for solid and hazardous waste management: Advances, Challenges and Perspectives</i>
	02:30 PM-04:00 PM	<b>Dr. Amit Kumar</b> , Department of Civil Engineering, MNIT Jaipur	<i>Application of AI/ML in the management of municipal waste/wastewater.</i>
15/07/2022 (Friday)	10:30 AM-12:00 PM	<b>Dr. Mahesh Pal</b> , Dept. of Civil Engg., NIT Kurukshetra.	<i>Deep Learning based remote sensing classifications.</i>
	02:30 PM-04:00 PM	<b>Dr. Ickkshaanshu Sonkar</b> , Department of Civil Engineering, IIT, Ropar.	<i>Computer Applications in Water Resource Planning and Management.</i>
	04:00PM-05:00PM	Prof. Ashish Kumar, HoD CE, JUIT	<i>Closing Ceremony</i>