

**Technical Program Schedule**  
**Short-Term Course on**  
**“Advanced Data Analytics and Cyber-Physical Systems for Urban Mobility”**  
**Dates: 13th to 17th March, 2023**

**Event Venue: ABLT-2 Lecture Theatre, IIT (BHU) Varanasi IIT (BHU) Varanasi**  
**Online Participants: WebEx Platform – Day-wise joining links are provided below. Calendar Invitations in Email**

**[Day 1 – 13.03.23 \(Monday\) – Cyber-Physical Systems and Sustainable Smart Cities](#)**  
**[WebEx Link – Click Here](#)**

Schedule (IST)	Schedule US CDT	Event
8:30:00 AM-9:30:00 AM	10:00:00 PM-11:00:00 PM	Inauguration of the Program - Prof. Pramod Kumar Jain, Director, IIT (BHU), Dean R&D, IIT (BHU) Varanasi, Prof. Sasankasekhar Mandal (Head of the Department, Civil Engineering), Program Officer from National Science Foundation (Dr. David Corman), Representative from Varanasi Smart City Ltd., Dr. Rajesh Krishnan, CEO, ITSPE, India, Dr. Abhishek Dubey, Vanderbilt University, Dr. Agnivesh Pani, and Dr. Ankit Gupta; Followed by high-tea for in-person participants.
9:30:00 AM-12:00:00 AM	11:00:00 PM-1:30:00 PM	Session 1 – Introduction to Cyber Physical Systems: Fundamentals and Design (Dr. Abhishek Dubey, Associate Professor, Vanderbilt University)
12:00:00 AM-12:30:00 PM	1:30:00 PM-2:00:00 AM	Session 2 – Decarbonising Road Transport in India (Amit Bhatt, Managing Director, International Council on Clean Transportation)
12:30:00 PM-2:30:00 PM	2:00:00 AM-4:00:00 AM	Inaugural Lunch
2:30:00 PM-4:00:00 PM	4:00:00 AM-5:30:00 AM	Session 3 – Intelligent Transportation Systems (ITS) deployment in Indian smart cities and pathways for future advancements in traffic management (Dr. Rajesh Krishnan, CEO, ITS Planners and Engineers, India)
4:00:00 PM-4:30:00 PM	5:30:00 AM-6:00:00 AM	Tea Break
4:30:00 PM-6:00:00 PM	6:00:00 AM-7:30:00 AM	Session 4 – Hands-on-Training on Geospatial analysis: facility planning for Indian cities, introduction to spatial data acquisition, QGIS exploration, preparation of maps (Dr. Harish Puppala, Centre for Geospatial Technology, SRM University, Andhra Pradesh)
6:00:00 PM-	7:30:00 AM-	Campus tour of IIT (BHU) and Transportation Lab Visits for In-Person Participants

**[Day 2 – 14.03.23 \(Monday\) – Cyber-Physical Systems and Sustainable Smart Cities](#)**  
**[WebEx Link – Click Here](#)**

Schedule (IST)	Schedule US CDT	Event
9:00 AM-10:30:00 AM	10:30:00 PM-12:00:00 AM	Session 5 – Transit Scheduling, Dynamic Fleet Allocation and Route Design in Smart Cities: Use case development for cyber-physical systems in the USA (Dr. Abhishek Dubey, Associate Professor, Vanderbilt University and Dr. Ayan Mukhopadhyay, Vanderbilt University)
10:30:00 AM-11:00:00 AM	12:00:00 AM-12:30:00 AM	Refreshment Break
11:00:00 AM-12:30:00 PM	12:30:00 AM-2:00:00 AM	Session 6 – Integrating Public Transportation Modes in a City and Planning for Multimodality – Opportunities and Challenges (G.P Hari, Ex-Additional General Manager, KMRL)
12:30:00 PM-2:00:00 PM	2:00:00 AM-3:30:00 AM	Day 2 Lunch
2:00:00 PM-3:30:00 PM	3:30:00 AM-5:00:00 AM	Session 7 – Non-motorized Transport Planning and Pedestrian Walkability: Case studies from Indian Cities (Reashma P.S., Co-Founder and Managing Director of Street Matrix – an organization working towards urban environment and visual design aspects of pedestrian mobility)
3:30:00 PM-4:00:00 PM	5:00:00 AM-5:30:00 AM	Tea Break
4:00:00 PM-5:30:00 PM	5:30:00 AM-7:00:00 AM	Session 8 – Hands-on Training on R Programming for Travel Demand Modelling and Electric Vehicle Adoption (Dr. Varun Varghese, Assistant Professor, Hiroshima University, Japan)

**[Day 3 – 15.03.23 \(Wednesday\) – Data Analytics for Congestion Mitigation](#)**  
**[WebEx Link – Click Here](#)**

Schedule (IST)	Schedule US CDT	Event
9:00 AM-10:30:00 AM	10:30:00 PM-12:00:00 AM	Session 9 – Urban Traffic Operations: Technological Solutions (Dr. Vijay Kovvali, Professor of Practice at IIT Delhi)
10:30:00 AM-11:00:00 AM	12:00:00 AM-12:30:00 AM	Refreshment Break

11:00:00 AM-12:30:00 PM	12:30:00 AM-2:00:00 AM	Session 10 – Parking Management Action Plan for Cities: Data-driven Models and Policies for Equitable Use of Land (Reashma P.S., Co-Founder and Managing Director of Street Matrix – an organization working towards urban environment and visual design aspects of pedestrian mobility)
12:30:00 PM-2:00:00 PM	2:00:00 AM-3:30:00 AM	Day 3 Lunch
2:00:00 PM-3:30:00 PM	3:30:00 AM-5:00:00 AM	Session 11 – Traffic Management Using Intelligent Transportation Systems (ITS) and Adaptive Routing Algorithms (Dr. Leitha Devi Vanajakshi, Professor, IIT Madras)
3:30:00 PM-4:00:00 PM	5:00:00 AM-5:30:00 AM	Tea Break
4:00:00 PM-5:30:00 PM	5:30:00 AM-7:00:00 AM	Session 12 – Intelligent transportation systems (ITS) and Road Safety (Dr. Vijay Kovvali, Professor of Practice at IIT Delhi)

**[Day 4 – 16.03.23 \(Thursday\) – Data Analytics for Urban Traffic Management](#)**  
**[WebEx Link – Click Here](#)**

Schedule (IST)	Schedule US CDT	Event
9:00 AM-10:30:00 AM	10:30:00 PM-12:00:00 AM	Session 13 – Traffic system Characterisation; Car Following, Lane-changing and Gap-Acceptance Driver Behavioral models; Simulation frameworks; Calibration and Validation of Simulation Models – (Dr. Caleb Ronald Munigety, Head, Mobility Think-tank, Bosch India)
10:30:00 AM-11:00:00 AM	12:00:00 AM-12:30:00 AM	Refreshment Break
11:00:00 AM-12:30:00 PM	12:30:00 AM-2:00:00 AM	Session 14 – Hands-on training Session on Building Uninterrupted Traffic Flow Facilities' Simulation Models in VISSIM; Design of Traffic Signals; Hands-on Training Session on Simulating Interrupted Traffic Flow Facilities (Dr. Caleb Ronald Munigety)
12:30:00 PM-2:00:00 PM	2:00:00 AM-3:30:00 AM	Day 4 Lunch
2:00:00 PM-3:30:00 PM	3:30:00 AM-5:00:00 AM	Session 15 – Automated Calibration and Validation Methods; Scripting in VISSIM using COM interface; Building Advanced Mobility Applications (Dr. Caleb Ronald Munigety)
3:30:00 PM-4:00:00 PM	5:00:00 AM-5:30:00 AM	Tea Break
4:00:00 PM-5:30:00 PM	5:30:00 AM-7:00:00 AM	Session 16 – Urban Freight Planning Best Practices in France – A Case for Vehicle routing and Carrier Coordination (Dr. Jesus Gonzalez-Feliu, Professor, La Rochelle Business School, France)

**[Day 5 – 17.03.23 \(Friday\) – Data Analytics for Safe and Sustainable Urban Freight](#)**  
**[WebEx Link – Click Here](#)**

Schedule (IST)	Schedule US CDT	Event
9:00 AM-10:30:00 AM	10:30:00 PM-12:00:00 AM	Session 17 – Big-data Modelling for Crash Prediction and Safety Interventions: Case Studies Safety Analytics in the USA (Dr. Sabya Mishra, Professor, University of Memphis)
10:30:00 AM-11:00:00 AM	12:00:00 AM-12:30:00 AM	Refreshment Break
11:00:00 AM-12:30:00 PM	12:30:00 AM-2:00:00 AM	Session 18 – Hands-on Training on Data Analytics for Choice Modelling with case studies on travel satisfaction, multitasking, and crowding from India, Bangladesh and Japan (Dr. Varun Varghese, Assistant Professor, Hiroshima University, Japan)
12:30:00 PM-2:00:00 PM	2:00:00 AM-3:30:00 AM	Day 5 Lunch
2:00:00 PM-3:30:00 PM	3:30:00 AM-5:00:00 AM	Session 19 – Urban Freight Planning Best Practices in Sweden – A Case for Smart Freight Parking and Urban Consolidation (Dr. Ivan Sanchez-Diaz, Chalmers University, Sweden)
3:30:00 PM-4:00:00 PM	5:00:00 AM-5:30:00 AM	Session 20 – Urban Freight Planning Best Practices in Austria – A Case for Inland Water Freight Transport (Dr. Lisa-Maria Putz-Egger, Professor, University of Applied Sciences Austria)
4:00:00 PM-5:30:00 PM	5:30:00 AM-7:00:00 AM	Tea Break
5:30:00 PM-6:00:00 PM	7:00:00 AM-7:30:00 AM	Session 22 – Closing Ceremony and Vote of Thanks with a Discussion Outlining the Way Forward for Urban Mobility in India (1. Dr. Agnivesh P, IIT (BHU) Varanasi, India; 2. Dr. Ankit Gupta, IIT (BHU) Varanasi, 3. Varun Varghese, Hiroshima University, Japan, 4. Dr. Rajesh Krishnan, CEO, ITSPE, India)