

WHO CAN PARTICIPATE

This workshop is specifically designed for UG/PG/PhD students, researchers, faculties and technical staffs from the branches of engineering/ Science who are interested in the design and control of autonomous systems.

REGISTRATION

Name: _____

Designation: _____

Institute: _____

Address: _____

Email ID: _____

Contact No: _____

Undertaking:

I shall abide by rules and regulations and shall attend course. Failing which certificate may not be issued.

Signature of Participant

CONTACTS

Prof. Santosh Kumar
Dept. of Mechanical Engineering
Indian Institute of Technology (BHU), Varanasi
Email ID: santosh.kumar.mec@iitbhu.ac.in

Dr. Shyam Kamal
Dept. of Electrical Engineering
Indian Institute of Technology (BHU), Varanasi
Email ID: shyamkamal.eee@iitbhu.ac.in

ABOUT NM-ICPS

The National Mission on Cyber-Physical Systems (NM-ICPS) is identified as one such emerging field to have a significant impact on health care, urban transportation, water distribution, energy, urban air quality, manufacturing and governance. The activities envisioned under this Mission will give a impetus to Indian manufacturing via the invention of new products, services and the creation of skilled young human resource from technicians to, researchers and entrepreneurs. It will have modernisation and digitalisation of socio-technical systems

ABOUT IDAPT

The Interdisciplinary Data Analytics and Predictive Technologies (IDAPT) has been regarded as one of the most prominent fields whose progress will add significant impact on various socio-economic issues. At IIT (BHU) five verticals 1)Telecommunications, 2) Power, 3)Road Transport and Highways, 4) Defence Research and Development, and 5) Health and Family Welfare have been identified under IDAPT. The endeavour shall catalyse the creation of skilled young engineers, researchers, technicians, and entrepreneurs, together with human resource at all levels, besides becoming a key contributor to realizing the vision of “Digital India”, “Innovate in India”, and “Make in India”.

Health and Family in IDAPT

Health and family in IDAPT aims to the development of autonomous electric wheel chairs for disabilities and providing mobility to affected body parts or to aid in robotic exoskeleton walk or move. The common mobility impairments are paralysis, amputation, cerebral palsy, muscular dystrophy, multiple sclerosis and spinal cord injury, which can be resolved by using motorized mobility devices. The aim of the workshop is to have interaction & discussion to develop low cost prototype of modular wheelchair that can be used for stair climbing, bed transfer, car transfer, washroom transfer etc.

Short Term Course on

Development of Autonomous
Electric Wheel Chairs for Dis-
abilities

**A TECHNOLOGY INNOVATION HUB
ON
INTERDISCIPLINARY DATA ANALYTICS
AND PREDICTIVE TECHNOLOGY
(IDAPT)
Under
NATIONAL MISSION ON INTERDISCIPLINARY
CYBER PHYSICAL SYSTEM (NM-ICPS)**



22nd – 26th March 2021

**Coordinators: Prof. Santosh Kumar
Dr. Shyam Kamal**

ABOUT INSTITUTE



The Indian Institute of Technology (Banaras Hindu University) owes its existence to Mahamana Pandit Madan Mohan Malviya, Bharat Rana-the founder of the first residential university of modern India, the Banaras Hindu University. The three of the erstwhile engineering colleges of BHU, namely BENCO, MINMET and TECHNO, were merged to form the Institute of Technology (IT-BHU) in 1968 to provide an integrated educational base. The IT-BHU has been admitting students through the JEE conducted by the IIT's since 1972, and has been consistently ranked amongst the top few engineering institutions of the country. IT-BHU became IIT (BHU) in June 29, 2012 by an Act of Parliament. The Institute has maintained high academic standard since its inception. It has turned out luminary engineers and administrators who served the nation with great distinction.

ABOUT ELECTRICAL & MECHANICAL DEPARTMENT

Department of Electrical Engineering runs five post graduate (M. Tech.) programmes in Electrical Machines and Drives (started in 1956), Power Systems (started in 1964), Control Systems (started in 1964), Power Electronics (started in 1982) and Interdisciplinary Systems Engineering (started in, 1982) and Ph. D. programme in all disciplines of Electrical Engineering. The department has also a five year Integrated Dual Degree Program (started in 2006) leading to Masters degree with specialization in Power Electronics. The department has been sanctioned Special Assistance Programme (SAP) of UGC since 1988 and COSIST program of UGC from 1995 to 2000.

The Department of Mechanical Engineering (ME) came into existence in 1919 under the leadership of Professor Charles A. King, the first Head of the Department and Principal of the erstwhile Banaras Engineering College. Over the last ninety nine years, the department has grown four fold to become the largest department in IIT (BHU), Varanasi. Department offers post-graduate and doctoral programmes in specializations such as Machine Design, Thermal and Fluid Engineering, Production Engineering and Industrial Management. The ME department is also supported by the IIT Main workshop.

EMINENT SPEAKERS (Tentative)

Prof. Sunil Jha (IIT Delhi, India)
Prof. J. Ramkumar (IIT Kanpur, India)
Prof. Sujatha Srinivasan (IIT Madras, India)
Prof. Saurabh Singh (IMS-BHU, Varanasi, India)
Prof. Arun Dayal Udai (IIT (ISM), Dhanbad, India)
Prof. Santosh Kumar (IIT (BHU), Varanasi, India)
Prof. Sandip Ghosh (IIT (BHU), Varanasi, India)
Prof. Shyam Kamal (IIT (BHU), Varanasi, India)
Prof. Twinkle Tripathy (IIT Kanpur, India)
Prof. Maria Thomas (IIT (BHU), Varanasi, India)
Prof. Sneha Gajbhiye (IIT Palakkad, India)

COURSE CONTENTS (Tentative):

- Introduction to disabilities and types, human physiology-nervous system and body-brain function
- Need of Autonomous Electric mobility devices (EMD), product design development process of EMD, CAD modelling and prototyping
- Mechanical mobility tools, devices and Testing-reliability, manufacturing, costing and marketing
- Electrical controls and devices, and automation of EMD
- Robust tracking control design, vision based PID control algorithm
- Closed loop autonomous stability model, efficient power flow management system, modular mechanical design
- Various sensors and controls feedback architecture for overall system for stable motion
- Brainwave signal analysis, processing and headset interface card design development
- Future of EMD design and concepts

REGISTRATION DETAILS

Registration link :

<https://tinyurl.com/yrtxlqae>

Last Date of Registration: 16th March, 2021

Registration Fees:

For faculties, scientists and post doctoral fellow: Rs. 1000/- (non-refundable)

Industry: Rs. 4000/- (non-refundable)

For UG and PG students : Rs. 500 (refundable)

Payment may be made by one of the following methods:

(i) Demand draft In favor of I-DAPT-HUBFOUNDATION

Payable at SBI, IIT(BHU) Varanasi.

(ii) For online payment

Branch: SBI, IIT(BHU) Varanasi

IFSC Code: SBIN0011445

Name: I-DAPT-HUB-FOUNDATION

Account No: 39818711510

Course Mode: Online

In case of any difficulty you can contact us at

santosh.kumar.mec@itbhu.ac.in

or

shyamkamal.eee@iitbhu.ac.in