



GAIT AND MOTION ANALYSIS

March 17-18, 2020. (Gait and motion analysis laboratory)

North East Centre for Biological Sciences and Healthcare Engineering,
Indian Institute of Technology Guwahati, Assam

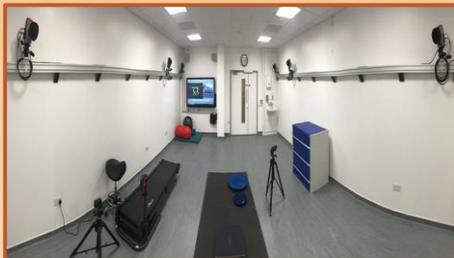


Indian Institute of Technology
Guwahati

Course Objectives

The objective of workshop is to provide state-of-the-art knowledge and hands-on-experience with modern research facilities in gait and motion analysis. Markers are placed on the subjects to monitor their muscle activities and track motion of the body segments. The foot pressure mapping will be helpful to understand weight transferring patterns in lower limb. By evaluating the gait and motion data, we can identify the abnormalities which helps to formulate the interventions required and optimize the assistive devices which help the individuals to become independent and utilize their remaining potential fully.

The course would focus on the role of engineers, physiotherapist, prosthetist, occupational therapist, orthopedic surgeon, PMR specialist and researchers to collect and interpret the data to suggest a best solution in the form of biomedical devices or treatment to address the clinical problems. Understanding the distinct requirements of the medical field coupled with a basic knowledge of the human anatomy and physiology is essential to address these problems and to develop devices for specific requirements .

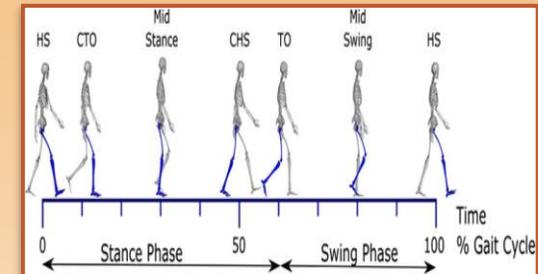
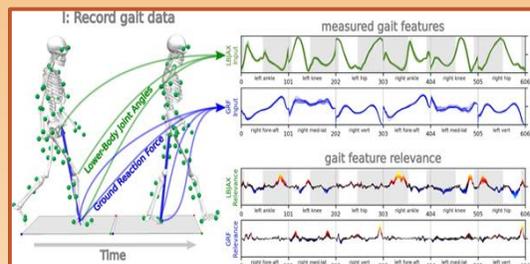
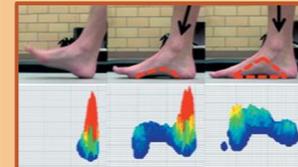


About NECBH

Based on the broad objective of creating advanced facilities to cater to the needs of biosciences and biomedical engineering, North East Centre for Biological Sciences and Healthcare Engineering (NECBH) has been set up by Department of Biotechnology, Government of India. The NECBH will cater to the increased demand of experimental facilities for the researchers in the field of biomedical science, conceptualizing and carrying out advanced experiments, and space for joint and interdisciplinary research explorations. This endeavor also envisages creation of several state of the art research facilities at IIT Guwahati to modernize the research infrastructure in this region for the use and benefit of the North-East research workforce. It is hoped that these activities will elevate the research ecosystem in the North-East to new heights. As a result, NECBH will provide impetus and accelerate the pace of biomedical related research activities from this region. The gait lab being developed is first in the North Eastern part of India in technical institutions.

Course Topics

- ❖ An introduction of gait and motion lab
- ❖ A Practical Guide to Gait Analysis
- ❖ Characteristics of Gait
- ❖ Temporal Parameters
- ❖ Kinematics of human joint
- ❖ Kinetics of human body
- ❖ Muscle activity
- ❖ Foot pressure
- ❖ Metabolic expenditure studies
- ❖ Yoga posture studies using gait lab
- ❖ Applications and future of Gait Analysis
- ❖ Case studies



Course Contents

In addition to assessing future directions on the requirement of gait and motion analysis laboratory, the program intends to bring out hands on experience in the following:

- ❖ Measurement of temporal parameters
- ❖ Kinematics of human joint and kinetic studies on human with and without assistive devices
- ❖ Muscle activity studies of different activities using EMG sensors
- ❖ Foot pressure analysis using pressure mapping
- ❖ Yoga posture studies using gait lab

Participant's Profile

- ❖ Participants with the following profile can apply:
- ❖ PMR specialist /Orthopedics surgeons/Physiotherapist/ Prosthetist and orthotist / Occupational therapist/ Faculty/ Scientists/ Engineers/ Medical Professionals working in the relevant area of research can apply. People from North Eastern region will be preferred
- ❖ A basic knowledge in the field of healthcare engineering and anatomy is desirable.

Registration

- ❖ Number of seats: 40
- ❖ No course fee
- ❖ Rs. 2000/- caution-deposit money in the form of DD/Cheque in favor of IIT Guwahati has to be sent along with the application, and will be refunded only after participation in the program
- ❖ Money will also be refunded to those who are not selected
- ❖ TA will be provided to the out station participants against valid train(AC 3 tier)/bus(sleeper) tickets.
- ❖ Boarding and lodging facilities will be provided in the institute guest house/hostel depending on the availability on payment basis.

About IITG



IIT Guwahati campus is spread over a sprawling 785 hectares plot of green land on the north bank of the river Brahmaputra. With hills and vast open spaces, the campus provides an ideal setting for research and training.



IIT Guwahati is located just on the outskirts of the city of Guwahati and is well connected to other parts of the country by road, rail or air. For information of trains to Guwahati, please visit the Indian Railways website www.irctc.co.in. For commuting from the station to the IIT Guwahati, bus service is available from Panbazar. More details on how to reach IITG Campus are available on the institute website www.iitg.ac.in



How to Apply

- ❖ The applicant must register online at shorturl.at/foX6 and MUST send the duly signed hard copy of the online Declaration form along with DD/Cheque of Caution Deposit
- ❖ Selected participants will be informed by e-mail.
- ❖ Selection will be based on "First-come, First-served" basis and subject to the deposition of refundable fee (Rs 2000.00)

Important Dates

Last date for:

Online registration:	20/02/2020
Receipt of hard copy by post:	27/02/2020
Intimation of selection:	28/02/2020
Workshop:	17-18 March 2020

Organizing Committee

- ❖ Prof. Gopal Das
- ❖ Prof. G.Krishnamoorthy
- ❖ Prof. S. K. Dwivedy
- ❖ NECBH team members

Coordinator

- ❖ Prof. S. Kanagaraj, Department of Mechanical Engineering, IIT Guwahati

Address for communication

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