

DESIGN AND DEVELOPMENT OF ADVANCE REHABILITATIVE DEVICES FOR LOWER EXTREMITIES

May 13 – 17, 2019

Overview

Rehabilitation engineering is the application of engineering to improve the quality of life of people suffering with disabilities by products through design and testing using advance available technologies for custom prosthetics/orthotics devices across Globe.

The overall ideas of creation of this advance course is to present academic excellence at national and International platform so as to disburse its services for betterment of society and Industries by developing new products using reverse engineering. The course will assist in research and smoothly completing the Industrial and hospital project. This course is designed to enlighten the participants and researchers about the current status of advance rehabilitative engineering and to discuss the deadlocks and challenges faced by the researchers in the technologies and suggests some of the potential solutions in the health care device development. The course will help the academicians to share and enrich their knowledge at national and international level in the area of development of advance rehabilitative devices for lower extremities.

The primary objectives of the course are to deliver knowledge at fundamental and advanced levels in the following topics:

- To analyze Gait of lower limb of healthy and orthotic/prosthetic patients for better footwear etc.,
- To use advance Computer Aided Design and Manufacturing (CAD/CAM) for development of custom orthoses, and prosthesis for lower extremities,
- To develop systems and methodologies for rehabilitative products to assist people with disabilities,
- To utilize hydraulic pneumatic and electronics instrumentation/circuitry for orthotic design.

Modules	Day1: Overview of mechanical design consideration and reverse engineering, Day2: Dynamic of mechanical system, point cloud data (PCD) acquisition and modeling through PCD Day3: Biomechanics of musculoskeletal of lower extremities and its modeling through PCD Day4: Human motion studies, hydraulic, pneumatic and electronics system, Day5: Design and analysis of hydraulic and pneumatic foot orthosis/ prosthesis Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none">▪ <i>Faculty from academic institutions, technical institutions, executives, engineers and researcher from manufacturing service and government organizations including R&D Laboratories,</i>▪ <i>Students at all levels (B Tech/MSc/ME/MTech/PhD/MBBS) etc.</i>
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$300 Industry/Research Organization : INR 10,000/- Faculty : INR 4,000/- Students/self-employed : INR 1000/- The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hour free internet facility. The participants will be provided with accommodation on payment basis.
Venue	Spandan Seminar Hall, ATC Building, SGSITS, 23 Park Road, Indore - 452003 (M.P.)

The Faculty



Dr. Elizabeth T. Hsiao-Wechsler: is a Professor in the department of Mechanical Engineering, University of Illinois at Urbana Champaign, USA. She obtained her Doctoral from University of California, Berkeley in Mechanical Engineering on 2000, MS from Rochester Institute of Technology USA in Mechanical Engineering on 1994 and BS from Cornell University in Mechanical Engineering on 1987. She did her Post-Doctoral from Boston University and Harvard Medical school. She has more than 54 publications on peer review journal, 16 papers on peer review conferences along with 129 peer review conference presentations. She credited 10 patents and 13 academic Honors in her name. She attended 15 industrial/center meeting and presented 37 invited lectures. She produced 11 PhD, 1 Post-doctoral, guided 24 master students and 30 under-graduated students. She obtained more than 29 Grants from different funding agencies on research area. She is the reviewer of many peer review journals and having professional memberships of many American and International society. She enjoying hobby of downhill skiing, cycling, cooking and promoting science and math to women and girls.



Dr. M. L. Jain: is a Professor in the department of Mechanical Engineering, Shri G. S. Institute of Technology and Science, Indore (M.P.), India. He received his Ph.D. from IIT Kanpur in Mechanical Engineering, M.Tech. from IIT Madras in Biomedical Engineering and BE from Shri G. S. Institute of Technology and Science (SGSITS) Indore. Dr Jain has completed his Post-Doctoral from University of Illinois (UIUC) USA. His broad areas of research interest includes; CAD, CAM, Reverse Engineering, biomechanics, bio-modeling, medical devices and electro-medico instrumentations. With almost about 30 years of teaching and research experience, he is deeply involve on human foot research. He has published over 33 research papers and some of them presented at different International and national platform.



Dr. Basant Agrawal: is a Professor in the department of Mechanical Engineering at Shri G. S. Institute of Technology and Science Indore (M.P.), India. He obtained his Ph.D. from Indian Institute of Technology Delhi (IIT Delhi) in Mechanical Engineering, M.Tech. and B.E. in Mechanical Engineering from Maulana Azad National Institute of Technology Bhopal (M.P.) India. He is awarded Gold Medal in M.Tech. by Rajiv Gandhi Technical University Bhopal and "Promising Research Award 2010" from BAG Energy Research Society Varanasi. He is having over eighteen years of teaching experience at undergraduate and postgraduate level. His broad areas of interest include thermal engineering, heat transfer, robotics and automation, bomechanics and health care device development. He has published over 35 research papers in various International / national journals and conferences. He has published more than a dozen book with publishers of repute. He is a life member of Indian Society for Technical Education, Institution of Engineers (India) and International Association of Engineers (IAENG).

Date

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Venue

Shri G. S. Institute of
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Course

Coordinator

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