

ABOUT THE GIAN COURSES

The Ministry of Human Resource Development (MHRD), Government of India has launched an innovative program titled “Global Initiative of Academic Networks (GIAN)” in higher education, in order to garner the best international expertise into our system. As a part of this, internationally renowned academicians and scientists are invited to augment the country's academic resources, accelerate the pace of quality reforms and elevate India's scientific and technological capacity to global excellence. More details on GIAN courses can be seen at <http://www.gian.iitkgp.ac.in/>.

OVERVIEW OF THE PROGRAM

SMART MANUFACTURING is a broad category of manufacturing with the goal of optimizing concept generation, production and product transaction. While manufacturing can be defined as the multi-phase process of creating a product out of raw materials, smart manufacturing is a subset that employs computer control and high levels of adaptability. **SMART MANUFACTURING** course aims to train participants on advanced information and manufacturing technologies to enable flexibility in physical processes to address a dynamic and global market.

OBJECTIVES

- To introduce trends in manufacturing and explore basic modeling approaches and tools
- To understand data mining algorithms and predictive science for exploring future spaces
- To learn concept of sustainability in manufacturing
- To discuss Big data solutions and beneficiaries of Smart Manufacturing
- To address cyber-laboratories of Modeling and Innovation.

COURSE CONTENTS

- Overview of manufacturing concepts, the internet of things, cyber-physical systems, modularity and re-configurability
- Data Science in Manufacturing
- Anticipatory Enterprise
- Shared and Networked Enterprise
- Sustainable Enterprise
- Early Beneficiaries of Smart Manufacturing, Industrial sectors to benefit early from smart manufacturing.
- Data Sharing
- Problem Definition Networks
- Energy in Manufacturing
- Condition monitoring
- Cyber-laboratories of Modeling and Innovation
- Open development platforms for modeling and innovation will be presented.
- Innovation: Innovation frameworks will be discussed.

TEACHING FACULTY



Andrew Kusiak
Professor
Department of Mechanical and Industrial Engineering
The University of Iowa
Iowa City, Iowa 52242 - 1527
USA

Professor Andrew Kusiak graduated from Precision Engineering, Warsaw Technical University, 1972 having masters from Mechanical Engineering, Warsaw Technical University, 1974 and Ph.D. in Operations Research from Polish Academy of Sciences, 1979. His Research Interests are broadly in Computational Intelligence, Data Mining, Operations Research, Knowledge Discovery, Engineering Design, Manufacturing, Energy Systems, Production Management and Medical & Pharmaceutical applications.

Presently Professor Andrew Kusiak is working with University of Iowa as Professor since 1988 in the Department Mechanical and Industrial Engineering, USA. Earlier had worked with Department of Industrial Engineering, University of Manitoba as Associate Professor from 1985-1988, Canada. Professor Andrew Kusiak is actively involved with number of Scientific and Professional Society.

WHO CAN ATTEND

- Executives, Engineers and Researchers from industry, services, government organizations, research organizations
- Students (B Tech / M Tech and PhD) of Mechanical, Production & Industrial Engineering, Computer Engineering and related branches
- Faculty of related branches from academic Institutions.

HOW TO REGISTER

Stage – 1: One time Web (Portal) Registration: Visit GIAN Website at the link: <http://www.gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking/Debit/Credit card. This provides him/her with life time registration to enroll in any number of the GIAN courses offered.

Stage – 2: Course Registration (Through GIAN Portal): Log in to the GIAN portal with the user ID and Password created. Click on “Course Registration” option given at the top of the registration form. Select the Course titled “**SMART MANUFACTURING**” from the list and click on “Save” option. Confirm your registration by Clicking on “Confirm Course”.

REGISTRATION FEES

- Participants from abroad: US \$500
- Industry/ Research Organizations: Rs. 10,000/-
- Academic Institutions: Rs. 2,000/-
- Students: Rs. 1000/-

The above fee includes all instructional materials, internet facility and refreshments. Boarding and lodging will be provided on payment basis subject to availability.

PATRON

Chairman
Board of Governors
Dr. B. R. Ambedkar National Institute of Technology Jalandhar Punjab, India

CO-PATRON

Professor Lalit Kumar Awasthi
Director
Dr. B. R. Ambedkar National Institute of Technology Jalandhar Punjab, India

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PAYMENT OF FEES

DD in favour of “**GIAN: SMART MANUFACTURING**” payable at Jalandhar

or

Bank Transfer - Account Number: 37320876435
State Bank of India, REC Jalandhar (Branch Code: 50841)
IFSC Code: SBIN0050841
SWIFT Code: SBININBBP36
MICR Code: 144002065
Bank Telephone: 0181-2690695

Application Form along with requisite fees should be sent to the course coordinators.

For more information on other GIAN courses, contact **Dr S. Bajpai, Local GIAN Coordinator, email: bajpais@nitj.ac.in.**



Ministry of Human Resource Development
GOVERNMENT OF INDIA



Global Initiative of
Academic Networks
(GIAN)



Program on

SMART MANUFACTURING

19-24 February, 2018

by

International Faculty

Dr ANDREW KUSIAK

Professor

Department of Mechanical and Industrial Engineering
The University of Iowa, Iowa City, USA

Course Coordinators

Dr DINESH KUMAR SHUKLA

Associate Professor, Dept of Mechanical Engineering

Dr VISHAL SANTOSH SHARMA

Associate Professor, Dept of Industrial and Production Engineering



Organized by

DEPARTMENT OF MECHANICAL ENGINEERING

&

DEPARTMENT OF INDUSTRIAL AND PRODUCTION ENGINEERING

Dr B R Ambedkar National Institute of Technology Jalandhar

Jalandhar 144011, Punjab, INDIA

Institute Website: www.nitj.ac.in

ABOUT NIT, JALANDHAR

Dr B R Ambedkar National Institute of Technology was established in the year 1987 as Regional Engineering College and was given the status of National Institute of Technology (Deemed University) by the Government of India on October 17, 2002 under the aegis of Ministry of Human Resource Development, New Delhi. The Government of India has declared the Institute as an "Institute of National Importance" under an act of Parliament in 2007. A large number of reputed industrial houses in the country visit the Institute and select the final year students as Engineers/ Management Trainees. As one of the National Institutes of Technology (NIT), the Institute has the responsibility of providing high quality education in Engineering, Technology and Sciences to produce competent technical and scientific manpower for the country. The Institute offers B Tech, M Tech, M Sc, MBA and PhD programmes in several disciplines of Engineering, Technology and Sciences.

How to reach us: The Institute is located on the G.T. Road Amritsar bye-pass at a distance of 15 km from the Jalandhar Bus Stand, 12 km from Jalandhar City Railway Station, and 18 km from Jalandhar Cantt Railway Station.

Campus: The Institute campus is spread over an area of 154 acres. It has many topographical features, various buildings of different nature with clean and wide roads surrounded by a green belt. The campus area has been broadly divided into different functional zones: (i) Institution zone for teaching departments/ centers/administration (ii) residential zone for the faculty and staff (iii) students' hostel zone.

This GIAN course is a collaborative effort by the Departments of Mechanical Engineering and Industrial and Production Engineering.

About the Department of Mechanical Engineering (ME)

The Department of Mechanical engineering offers B. Tech, M. Tech and PhD programmes. The B. Tech programme is accredited by the NBA. The Department has experienced and enthusiastic faculty members. The department has good facilities for CAD, Simulation, material testing (DMA, UTM, etc.). The Department pursues research in the areas of Mechatronics, Robotics, System Dynamics & Control, Modeling and Simulation of Physical Systems, Biomechanics, Alternate Fuel for IC Engines, Synthesis and Application of Carbon Nanotubes, Renewable Energy, Welding Technology, Simulation and Modeling, Industrial & Production Engineering, Heat Transfer, Fluid Dynamics, Combustion, Computational Fluid Dynamics, Friction Stir Welding, Vibration, Heat Exchangers, Alternative Refrigerants, Flow Condensation & boiling, Thermal System Simulation, Emission Control, Fuel Efficient Engines.

About the Department of Industrial & Production Engineering (IPE)

The Department of Industrial & Production Engineering, Dr. B R Ambedkar NIT Jalandhar has been offering B. Tech in Industrial Engineering since 1989, B. Tech in Industrial and Production Engineering with effect from the batch admitted in 2008, Post- graduate Programme in Industrial Engineering and Manufacturing Technology from year 2001 and 2006 respectively, and Ph. D programme. The research areas of the IPE department are Supply Chain Management, Reliability and Maintenance, Ergonomics, Simulation and Modelling, Quality Management, Energy Management, Renewable Energy, Fracture Mechanics, Non-Traditional Machining, Tools and Metal Cutting, CAD/CAM, Industrial Automation & Robotics.

REGISTRATION FORM



COURSE ON

SMART MANUFACTURING

19-24 February, 2018

Dr B R Ambedkar National Institute of Technology Jalandhar 144011, Punjab.

Name: Mr./Ms/Dr. _____
(In capital letters)

Designation: _____

Department: _____

Organization: _____

Address for Correspondence: _____

e-mail ID: _____

Field of Specialization: _____

Experience : _____ (in years)

Details of fees _____ Cash/DD/NEFT

Signature _____ Date _____

RECOMMENDATION OF THE SPONSORING AUTHORITY:

The applicant is hereby sponsored and will be permitted to attend the GIAN Program, if selected.

Date: _____

Signature and Seal of Sponsoring Authority