CAUTION

☢

X-RAY CAUTION

X-ray XR 4.0 PHYWE

PHYWE

COLLEGE OF
ENGINEERING
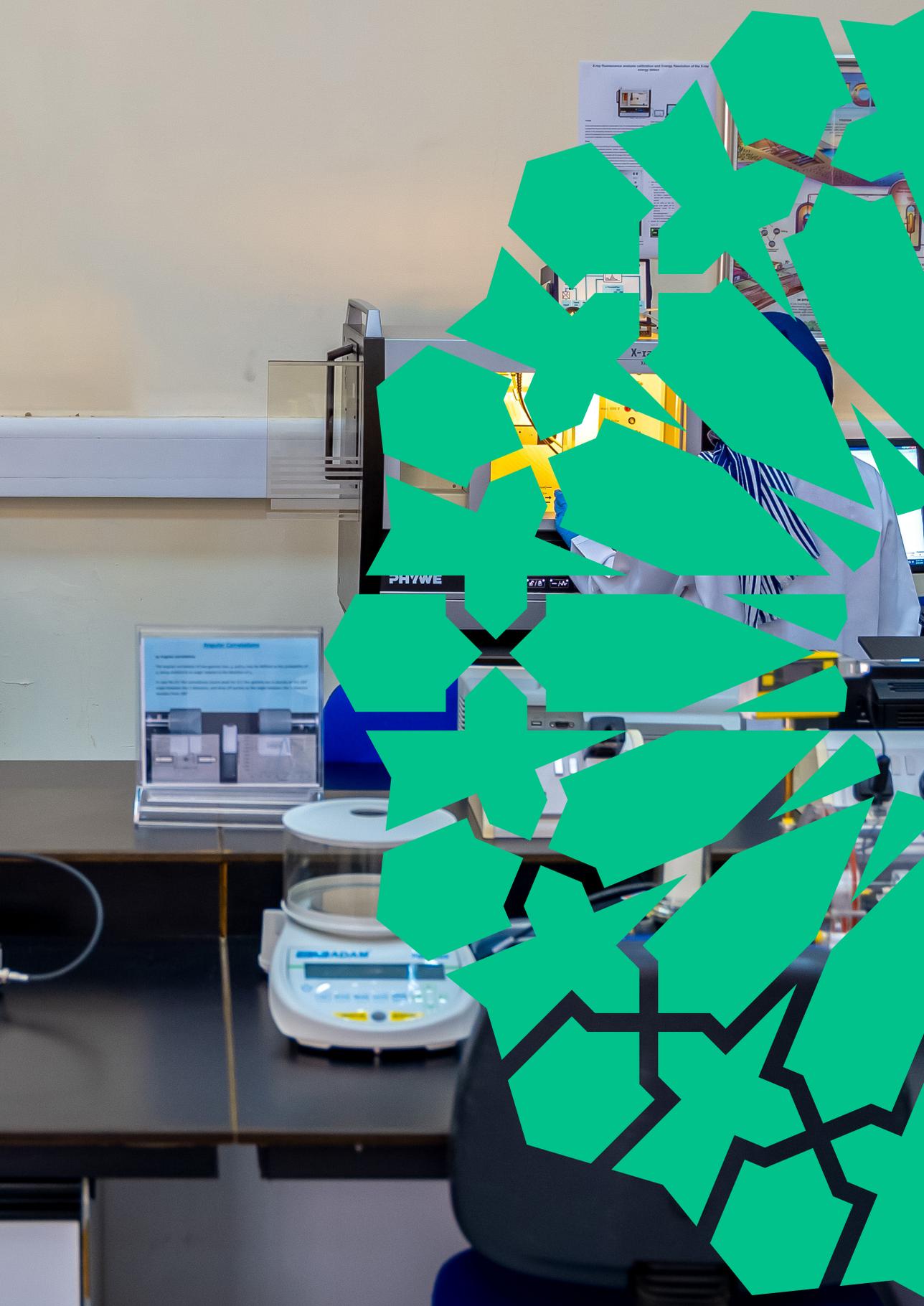
INDUSTRIAL ENGINEERING & ENGINEERING MANAGEMENT DEPARTMENT

Industrial Engineering and Engineering Management Laboratories

Lab Name	Location	Person in Charge	Programs Served	Courses Served
Manufacturing Processes Lab	M12-002 W12-019 M12-032	Amer Yousef	- Multi-Function, Multi-Purpose Lab - Industrial Engineering & Engineering Management - Mechanical Engineering	Manufacturing Processes
Ergonomics, Work and Process Improvement Lab	W12-016	Omar Hassan	Industrial Engineering & Engineering Management	- Ergonomics - Safety Engineering - Human Factors - SDPI - SDPII - Safety Engineering Management
Industrial Automation Lab	W12-140	Amer Yousef	Industrial Engineering & Engineering Management	- Industrial Automation - SDPI - SDPII

Industrial Engineering & Engineering Management Lab Staff

#	Name	Title	Ext.	Email
1	Amer Yousif	Sr. Lab Engineer	065053443	amer@sharjah.ac.ae
2	Omar Hassan	Lab Engineer	065053448	oomar@sharjah.ac.ae
3	Rasha Adnan	Lab Engineer	065053936	radnan@sharjah.ac.ae
4	Faheem Akhter	Lab Technician	-----	fsoomro@sharjah.ac.ae

MANUFACTURING PROCESSES LABORATORY

Location	Lab Staff in Charge	Contacts
M12-002 W12-019 M12-032	Amer Yousef	065053443

INTRODUCTION

The Manufacturing Processes Laboratory is the first hands-on lab for students in the Industrial Engineering and Engineering Management Department and Mechanical Engineering Department. The main objective of this lab is to expose students to practical usage of manufacturing processes used in the manufacturing industry including molding, bending, welding, shearing, etc. The manufacturing processes lab enables students to understand the usage of machines for their courses and projects.

EQUIPMENT, INSTRUMENTS AND SOFTWARE

- Air Compressor
- MIG Welding Machine
- Alumina Chip Forge
- Pipe Bending Machine
- Arc Welding Machin
- Planer Thicknesser
- Band Saw Machines
- Power Hacksaw Machine
- Bench Grinder
- Shaping Machine
- Brazing Hearths
- Spindle Moulder
- Cutting-off Machine
- Spot Welding Machine
- Drilling Machine

- Surface Grinder
- Dust Collector
- Surface Table
- Gas Welding Machine
- Tilt Arbor Saw Bench
- Guillotine
- Universal Milling Machine
- Hollow Chisel Mortiser
- Metal Sheet Binder
- Lathe Machine
- Metal Binder (Pipes, Rods, Bars)

EXPERIMENTS

- Introduction to Lab Machines
- Manual Lathe & Milling Machine
- Lab Safety & Safety Equipment
- CNC Lathe and Milling Machine
- Metrology and Gauging
- Injection Molding Machine
- Tensile Testing
- Sand Casting
- Oxeye Acetylene and Electric Arc Welding
- Wood and sheet metal project

ERGONOMICS, WORK & PROCESS IMPROVEMENT LABORATORY

Location	Lab Staff in Charge	Contacts
W12-016	Omar Hassan	065053448

NTRODUCTION

The Ergonomics, Work, and Process Improvement Laboratory introduces IEEM students to contemporary methods of work measurement and human factor engineering. This includes anthropometric measurement, workspace design, motion, and time study, evaluating workload capacity, coordination skills, occupational environmental safety and safety management systems. The main objective is to apply and test the techniques of method analysis and work measurements and to introduce many opportunities to improve the interface between the human operator and the workplace in order to improve productivity, work efficiency and performance by:

- Taking Anthropometric Measurements to Design Workstations
- Configuring Product Assembly Workstations
- Estimating Basic Times, Performing Time Study, and Developing Time Standards
- Designing Safe and Healthy Work Environments

EQUIPMENT, INSTRUMENTS AND SOFTWARE

- Anthropometric Measurement Tools: Used to Measure Various Human Body Dimensions
- Lifting Strength Evaluation System: Measures the Isometric Strength Capabilities of Major Muscles and Assesses Lifting Capacity
- Hand Dynamometers: Measures Isometric Grip & Pinch Strength Capability
- Tread Mill: Measures Workload Capacity
- Mirror Tracer: Measures Coordination Skills
- Groove Steadiness Tester: Measures Steadiness
- Various Human Body 3-D Models
- Vision and Hearing Testers
- Noise Meter, Sound Meter, Light Meter, and Radiation Measurement Device
- Digital Temperature and Humidity Measuring Devices
- Stopwatches and Scales

- JACKSON Strength Evaluation System
- Portable Surface Roughness Tester
- Brungraber›s Slip Test Mark IIIB Tribometer
- Air Quality Particle Counting Meter

EXPERIMENTS

- Human Health & Safety
- Anthropometric Measures
- Workspace Design
- Workstation Design
- Motion Study
- Time Study
- Work Capacity Evaluation
- Hand Tool Design
- Coordination Skills Evaluation
- Work Environment
- Sound and Light Pollution
- Gas and Radiation Pollution

INDUSTRIAL AUTOMATION LABORATORY

Location	Lab Staff in Charge	Contacts
W12-140	Amer Yousef	065053443

INTRODUCTION

The Automation Laboratory allows IEEM Students to learn how to develop and integrate new and advanced methods into the production process. These modern methods based upon the emerging technologies of computer-integrated manufacturing (CIM) and flexible manufacturing. They allow for faster development of new and improved products of high quality, shorter development and production cycles, faster delivery times, reduced production costs, and the ability to compete with the ever-changing demands of the international market.

In CIMS lab, students integrate robotics, machining, material handling and computer programming to produce a product, and they gain an understanding of subjects related to computer-aided design and manufacturing (CAD/CAM), Computer Numeric Controller (CNC), Automated Storage and Retrieval System (ASRS) and Programmable Logic Controllers (PLC). In addition, students practice Industrial Automation concepts through an Arduino-based course project.

EQUIPMENT, INSTRUMENTS AND SOFTWARE

The main component of this lab is the Computer Integrated and Manufacturing System (CIMS), which are composed of:

- Central Conveyor
- Robot
- Automated Storage and Retrieval System (ASRS)
- Computer Numeric Controller (CNC) Milling Machine
- Computer Numeric Controller (CNC) Turning Machine
- Automated and Manual Workstations
- Quality Control (QC) Vision Station
- Programmable Logic Controllers (PLC)
- CAD/CAM Software
- Arduino IDE

EXPERIMENTS

- Arduino Microcontroller
- CAD/CAM Software
- PLC Programming
- CNC Lathe and Milling Machines
- System Design and Integrated Production System
- Robot Programming