Established by UP Govt. Act No. 07 of 2015
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Value Added Courses

Faculty of Mechanical Engineering

	J.S. University, Shikohabad Faculty of Mechanical engineering	Value Added Course
		AY: 2021-22

INTRODUCTION OF MECHATRONICS

Learning Objective:

This Course will provide knowledge of Mechatronics

Duration: 30 Hours. (Theory and Practical)

Course Outcomes: -

After completion of the course the student shall be able to:-

1. Following this course, students will be able to describe a project life cycle, and can skillfully map each stage in the cycle.
2. Students will identify the resources needed for each stage, including involved stakeholders, tools and supplementary materials.
3. Students will describe the time needed to successfully complete a project, considering factors such as task dependencies and task lengths
4. Students will be able to provide internal stakeholders with information regarding project costs by considering factors such as estimated cost, variances and profits
5. Students will be able to develop a project scope while considering factors such as customer requirements and internal/external goals

	J.S. University, Shikohabad Faculty of Mechanical engineering	Value Added Course
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Syllabus

Module I: Introduction

Introduction to Mechatronics-Systems-Measurement Systems-Control Systems-Mechatronics Approach.

Module 2: Sensors and Transducers

Introduction-Performance, Terminology-Displacement, Position and Proximity-Velocity and Motion- Fluid Pressure-Temperature Sensors-Light Sensors-Selection of Sensors-Signal Processing

Module 3: 8085 Microprocessor

Introduction-Architecture-Pin Configuration-Instruction set-Programming of Microprocessors using 8085 instructions-Interfacing input and output devices-Interfacing D/A converters and A/D converters Applications- Temperature control-Stepper motor control-Traffic light controller

Module 4: Programmable logic controllers

Introduction-Basic structure-Input/output Processing-Programming-Mnemonics-Timers, Internal relays and counters-Data handling-Analog Input/output-Selection of a PLC

Module 5: Design and Mechatronics

Stages in Designing mechatronic systems - Traditional and Mechatronic design -Possible design solutions-Case studies of mechatronic systems - Pick and place robot - automatic car park system engine management system.

References:-

1. W.Bolton, Mechatronics, Longman, Second Edition, 1999.
2. Michael B. Histand and David G.Alciatore, " Introduction to Mechatronics and Measurement Systems ", McGraw Hill International Editions, 1999.
3. HMT Ltd., " Mechatronics ", Tata McGraw Hill Publishing Co. Ltd., 1998.
4. DanNecsulescu, "Mechatronics",Pearson Education Asia,2002(Indian reprint)

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