TYPE OF COURSE: Rerun|Core|UG
COURSE DURATION: 12 weeks (18 Jan’21 - 9 Apr’21)
EXAM DATE: 25 Apr 2021

PRE-REQUISITES: Nil

INTENDED AUDIENCE: Interested Learners

INDUSTRIES APPLICABLE TO: ABB, Honeywell, GE, Reliance, Aditya Birla, FL Schmidt, DRL

COURSE OUTLINE:
The course will include as the first-third, material on transfer function, controller concepts, tuning and stability that are usually taught in a control class. The second-third of the course deals with MIMO control concepts at a basic level. The final-third of the course deals with performance assessment of SISO controllers.

ABOUT INSTRUCTOR:
Prior to joining IIT Madras as a professor, Prof. Rengaswamy was a professor of Chemical Engineering and Co-Director of the Process Control and Optimization Consortium at Texas Tech University, Lubbock, USA. He was also a professor and associate professor at Clarkson University, USA and an assistant professor at IIT Bombay. His major research interests are in the areas of fault detection and diagnosis and development of data science algorithms for manufacturing industries.

COURSE PLAN:

Week 1: Introduction
Week 2: Models for Control
Week 3: Analysis of Transfer Function Models
Week 4: Controllers and Closed Loop Transfer Functions
Week 5: Stability Analysis
Week 6: Controller Tuning - Stability Based Methods
Week 7: Controller Tuning - Direct Synthesis
Week 8: Traditional Multivariable Control
Week 9: Model Predictive Control Fundamentals
Week 10: Model Predictive Control Implementation
Week 11: Controller Performance Assessment and Diagnosis Fundamentals
Week 12: Controller Performance Assessment and Diagnosis Implementation