International Winter School Manipal University Jaipur (IWSMUJ2022)

Course Overview

Name of course: Cyber Physical Systems

Name of instructor: Mr. Ashok Kumar Kumawat
Session: January 2022
Language of instruction: English
Number of contact hours: 36
Credit awarded: 03

Objective of course

- Designing of algorithm for Cyber Physical System
- Understanding about integration of cyber system with physical process
- Develop skills of modelling and verification of Cyber Physical System

Syllabus

- Basics of Cyber Physical System
- Components of Cyber Physical System
- Modelling of Cyber Physical System
- Simulation of Cyber Physical System
- Verification of Cyber Physical System using UPPAAL/MATLAB software

Organization of course

Total contact hrs 36		
1st week:	4 hrs (classes)	8 hrs (self-study/project)
2nd week:	4 hrs (classes)	8 hrs (Mid term exam/assessment/discussion)
3rd week:	10 hrs (classes/ self-study/project)	2 hrs (End term exam)

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Mode of lectures: online lecture/online videos/case study/ discussion/ hands-on

Course Plan

Lecture no.	Topic	Lecture mode	Instructor
L: 1-6	Basics of Cyber Physical System	online lecture/ online videos	Mr. Ashok Kumar Kumawat
L: 7-12	Components of Cyber Physical System	online lecture/ online videos/ discussion/ hands-on	Mr. Ashok Kumar Kumawat
L: 13-18	Modelling of Cyber Physical System	online lecture/ online videos/ case study	Mr. Ashok Kumar Kumawat
L: 19-24	Simulation of Cyber Physical System	online lecture/ hands-on/ case study	Mr. Ashok Kumar Kumawat
L: 25-30	Verification of Cyber Physical System using UPPAAL/MATLAB software	online lecture/ hands-on/ case study	Mr. Ashok Kumar Kumawat

Brief profile of the instructor

Mr. Ashok Kumar Kumawat is working as an Assistant Professor with Department of Mechatronics Engineering, Manipal University Jaipur, Rajasthan, India. He received B. Tech degree in Electronic Instrumentation & Control from Rajasthan Technical University, Kota, India, in 2010 and M.Tech degree in Control & Instrumentation from the Delhi Technological University, New Delhi, India, in 2014. His research interests include industrial instrumentation & control, cyber physical system, and nonlinear control.

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