PROF. K. S. MALLIKARJUNA RAO
Department of Management
IIT Bombay

TYPE OF COURSE : New | Elective | UG
COURSE DURATION : 8 weeks (29 Jul'19 - 20 Sep'19)
EXAM DATE : 29 Sep 2019

PRE-REQUISITES : Calculus, Linear Algebra & Probability
INTENDED AUDIENCE : Maths/CS/Econ/EE/Management

COURSE OUTLINE:
The aim of this course is to introduce the following topics at a basic level: combinatorial games, zero-sum games, non-zero sum games and cooperative games. Learning outcomes for the course: At the end of the course, the student should be able to Model and analyse conflicting situations using game theory.

ABOUT INSTRUCTOR:
After obtaining his Ph.D from IISc Bengaluru, Prof. K.S. Mallikarjuna Rao has spent few years at Centre de Mathematique et Informatique, Marseille, France; Indian Statistical Institute Delhi, University of Texas at Dallas, USA; and at TIFR Bengaluru as a postdoctoral fellow. He joined IEOR, IIT Bombay in 2007, where he is currently Associate Professor. His research interests include probability, game theory, optimization and stochastic control.

COURSE PLAN :
- **Week 1**: Combinatorial Games: Introduction
- **Week 2**: Impartial games Combinatorial games: Hex
- **Week 3**: Zero-sum games
- **Week 4**: Zero-sum games(contd)
- **Week 5**: Non-zero sum games
- **Week 6**: Non-zero sum games(contd)
- **Week 7**: Cooperative games
- **Week 8**: Cooperative games(contd)