SOCIAL NETWORKS

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INTENDED AUDIENCE : Any Interested Learners

COURSE OUTLINE :

The world has become highly interconnected and hence more complex than ever before. We are surrounded by a multitude of networks in our daily life, for example, friendship networks, online social networks, world wide web, road networks etc. All these networks are today available online in the form of graphs which hold a whole lot of hidden information. They encompass surprising secrets which have been time and again revealed with the help of tools like graph theory, sociology, game theory etc. The study of these graphs and revelation of their properties with these tools have been termed as Social Network Analysis.

ABOUT INSTRUCTOR :

Prof. Sudarshan Iyengar, Associate Professor at the CSE at IIT Ropar has a Ph.D. from the Indian Institute of Science (IISc). An exemplary teacher who has delivered over 350 popular science talks to students of high school and advanced graduate programmes. Prof. Sudarshan has offered more than 100 hours of online lectures with novel teaching methodologies that have reached lakhs of Students. His research interests include Data Sciences, Social Computing, Social Networks, Collective Intelligence, Crowdsourced Technologies and Secure Computation.

Prof. Yayati Gupta is an Assistant Professor in the Computer Science & Engineering Department at Mahindra University École Centrale School of Engineering. She is also an instructor for a couple of NPTEL/SWAYAM courses (Social Networks, Joy of Computing). She holds a Ph.D. in Computer Science and Engineering from Indian Institute of Technology Ropar (November 2017). Her research primarily focuses on Social Network Analysis and Complex Networks. The major research projects include "Modeling Information Diffusion" and "Understanding Virality of Internet Memes" in online social networks.

COURSE PLAN :

Week 1: Introduction

Week 2: Handling Real-world Network Datasets

Week 3: Strength of Weak Ties

Week 4: Strong and Weak Relationships (Continued) & Homophily

Week 5: Homophily Continued and +Ve / -Ve Relationships

Week 6: Link Analysis

Week 7: Cascading Behaviour in Networks

Week 8: Link Analysis (Continued)

Week 9: Power Laws and Rich-Get-Richer Phenomena

Week 10: Power law (contd..) and Epidemics

Week 11: Small World Phenomenon

Week 12: Pseudocore (How to go viral on web)