

**PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY, KANURU, VIJAYAWADA
(AUTONOMOUS)
INFORMATION TECHNOLOGY**

**RECOMMENDER SYSTEMS
(Professional Elective –III)**

Course Code	20IT4701B	Year	IV	Semester	I
Course Category	PE3	Branch	IT	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Opinion mining
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Strength of Correlation between CO – PO , CO- PSO in scale of 1-3

1: Slight (low), 2: Moderate (medium) 3: Substantial (High)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	3													
CO3	3													
CO4		3											3	3
Overall course	3	3											3	3

Course Outcomes		Blooms Taxonomy Level
Upon Successful completion of course, the student will be able to		
CO1	To understand basic techniques and problems in the field of recommender systems	L2
CO2	Evaluate Types of recommender systems: non-personalized, content based, collaborative filtering	L3
CO3	Apply algorithms and techniques to develop Recommender Systems that are widely used in the Internet industry	L3
CO4	To develop state-of-the-art recommender systems	L3

Syllabus		
Unit No	Contents	Mapped CO
I	Introduction: Recommender system functions, Linear Algebra notation: Matrix addition, Multiplication, transposition, and inverses; covariance matrices, Understanding ratings, Applications of recommendation systems, Issues with recommender system.	CO1
II	Collaborative Filtering: User-based nearest neighbour recommendation, Item-based nearest neighbour recommendation, Model based and pre-processing based approaches, Attacks on collaborative recommender systems	CO1, CO2
III	Content-based recommendation: High level architecture of content-based systems, Advantages and drawbacks of content based filtering, Item profiles, Discovering features of documents, Obtaining item features from tags,	CO1, CO2

	Representing item profiles, Methods for learning user profiles, Similarity based retrieval, Classification algorithms.	
IV	Knowledge based recommendation: Knowledge representation and reasoning, Constraint based recommenders, Case based recommenders. Hybrid approaches: Opportunities for hybridization, Monolithic hybridization design: Feature combination, Feature augmentation, Parallelized hybridization design: Weighted, Switching, Mixed, Pipelined hybridization design: Cascade Meta-level, Limitations of hybridization strategies.	CO1, CO3
V	Evaluating Recommender System: Introduction, General properties of evaluation research, Evaluation designs, Evaluation on historical datasets, Error metrics, Decision-Support metrics, User-Centred metrics.	CO1, CO4
Learning Resources		
Text Books		
1. Jannach D., Zanker M. and FelFering A., Recommender Systems: An Introduction, Cambridge University Press(2011), 1st ed. 2.		
References		
1. Ricci F., Rokach L., Shapira D., Kantor B.P., Recommender Systems Handbook, Springer(2011), 1st ed. 2. Manouselis N., Drachsler H., Verbert K., Duval E., Recommender Systems For Learning, Springer (2013), 1st ed		