PVP 20

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI&ML)

IV B.Tech I Semester

Recommender Systems

Course Code	**20AM4703D**	**Year**	IV	**Semester**	I
Course Category	PEC	**Branch**	CSE (AI&ML)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Mathematics, Machine Learning
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes		
Upon Successful completion of course, the student will be able to		
CO1	Describe key concepts, methods, and evaluation techniques of recommender systems to understand their applications.	**L2**
CO2	Apply collaborative, content-based, and knowledge-based recommendation techniques to build basic recommender models and generate personalized recommendations.	**L3**
CO3	Apply hybrid recommendation strategies, evaluation techniques, and community-based approaches to enhance the effectiveness and personalization of recommender systems.	**L3**
CO4	Analyze and evaluate recommender system techniques and metrics to enhance personalization and trust	**L4**

Contribution of course outcomes towards achievement of program outcomes & Strength of correlations (3: Substantial,2: Moderate,1: Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P010	PO11	PSO1	PSO2
CO1	2												
CO2	3												
CO3	3												
CO4		3									2		

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)
Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI&ML)

IV B.Tech I Semester

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, representing item profiles, Methods for learning user profiles.	CO1, CO2, CO4
IV	**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, CO4
V	**Evaluating Recommender System**: Introduction, General properties of evaluation research, Evaluation designs, Evaluation on historical datasets, Error metrics, Decision-Support metrics, User-Centered metrics.	CO1, CO3, CO4

Learning Resources
Text Books
1. Recommender Systems: An Introduction, Jannach D., Zanker M., Felfering A., 1st Edition, 2011, Cambridge University Press 2. Recommender Systems Handbook, Ricci F., Rokach L., Shapira D., Kantor B.P., 1st Edition, 2011, Springer
References
1. Recommender Systems For Learning, Manouselis N., Drachsler H., Verbert K., Duval E., 1st Edition, 2013, Springer
E-Recourses and other Digital Material
1. https://nptel.ac.in/courses/106/105/106105188/ 2. https://www.coursera.org/specializations/recommender-systems