BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & DATA SCIENCE

III Year II Semester

RECOMMENDER SYSTEMS

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Course Objectives:

- This course covers the basic concepts of recommender systems, including personalization algorithms, evaluation tools, and user experiences

Course Outcomes:

- Describe basic concepts behind recommender systems
- Explain a variety of approaches for building recommender systems
- Describe system evaluation methods from both algorithmic and users' perspectives
- Describe applications of recommender systems in various domains

UNIT-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.

UNIT-II: Collaborative Filtering: User-based nearest neighbor recommendation, Item-based nearest neighbor recommendation, Model based and pre-processing based approaches, Attacks on collaborative recommender systems.

UNIT-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, Similarity based retrieval, Classification algorithms.
Knowledge based recommendation: Knowledge representation and reasoning, Constraint based recommenders, Case based recommenders.

Dr. A S N CHAKRAVARTHY, Professor, Department of CSE, UCEK JNTUK, Kakinada	Dr. JIMSON MATHEW Professor Dept of Computer Science and Engg. Indian Institute of Technology Patna	Prof. CHAPRAM SUDHAKAR Professor, Department of CSE, National Institute of Technology, Warangal - 506 004 Telangana, INDIA	Mr. RAJESH BOBBURI COO & Director, HighQ Labs Pvt Ltd, Rajahmahendravaram	Mrs. G VIJAYA KUMARI Assoc Professor &HoD Department of CSE-AI & DS, AIML B.V.C.I.T.S, Batlapalem

UNIT-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.

UNIT-V: Evaluating Recommender System: Introduction, General properties of evaluation research, Evaluation designs, Evaluation on historical datasets, Error metrics, Decision-Support metrics, User-Centred metrics.
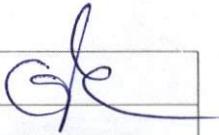
Recommender Systems and communities: Communities, collaboration and recommender systems in personalized web search, Social tagging recommender systems, Trust and recommendations

Text Books:

1. Jannach D., Zanker M. and FelFering A., Recommender Systems: An Introduction, Cambridge University Press(2011), 1st ed.
2. Ricci F., Rokach L., Shapira D., Kantor B.P., Recommender Systems Handbook, Springer(2011), 1st ed.

References:

Manouselis N., Drachsler H., Verbert K., Duval E., Recommender Systems For Learning, Springer (2013), 1st ed.

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