SOCIETY OF ST. FRANCIS XAVIER, PILAR'S

FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Artificial Intelligence and Data Science
(Academic Year :2023-2024)

Course Code: CSDO8022	
Course Name: Recommendation Systems	
Course Teacher: Prof. Nawal Dandekar	
Course Outcomes (CO): *At the End of the course students will be able to*	
CO.1	Analyze the field of Recommendation Systems.
CO.2	In-depth Knowledge of the architecture and models for Collaborative Filtering.
CO.3	Interpret the architecture and working of Content based recommendation systems.
CO.4	Interpret the architecture and basics of Knowledge based recommendation systems.
CO.5	Analyze hybrid and ensemble recommendation systems.
CO.6	Evaluation of recommendation systems by selecting right evaluation parameter.

Semester date: 8th January 2024-19th April 2024
Unit Test 1: 05/2/24-07/2/24
Unit Test 2: 01/04/24-03/04/24

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Course Lesson Plan

Semester date: 8th January 2024-19th April 2024
> **Unit Test 1: 05/2/24-07/2/24**
> **Unit Test 2: 01/04/24-03/04/24**

Sr. No.	Proposed Date	Topics	Delivery Mode	CO	Assessment Tool	Ref. book	Actual Date	Remark
1	09-01-2024	History of recommendation system, Explicit Ratings and other Feedback Contributions	Lecture	CO1	--	T1,T2		
2	12-01-2024	Implicit and Implicit Ratings, Recommender system functions.Applications of recommendation systems,	Lecture	CO1	UT1, A1	T1,T2		
3	16-01-2024	Linear Algebra notation: Matrix addition, Multiplication, transposition, and inverses; covariance matrices,	Lecture	CO1	UT1, A1	T1,T2		
4	18-01-2024	Understanding ratings , Issues with the recommender system.	Lecture	CO1	UT1, A1	T1,T2		
5	19-01-2024	Architecture of content-based systems,Advantages and drawbacks of content-based filtering	Lecture	CO3	UT1, A1	T1,T2		
6	30-01-2024	Content representation and content similarity,Similarity based retrieval	Lecture	CO3	UT1, A1	T1,T2		

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7	31-01-2024	Item profiles, Discovering features of documents, Obtaining item features from tags, Representing item profiles	Lecture	CO3	UT1,A1	T1,T2		
8	02-01-2024	Methods for learning user profiles,The Role of User Generated Content in the Recommendation Process.	Lecture	CO3	UT1,A1	T1,T2		
9	03-02-2024	Bayes classifier for recommendation, Regression based recommendation system.	Lecture	CO3	UT1,A1	T1,T2		
10	09-02-2024	Architecture of Collaborative Filtering ,Advantages and drawbacks of Collaborative Filtering.	Lecture	CO2	A1	T1,T2		
11	13-02-2024	User-based nearest neighbour recommendation, Item-based nearest neighbour recommendation	Lecture	CO2	A1	T1,T2		
12	14-02-2024	Model based and pre-processing based approaches,	Lecture	CO2	A1	T1,T2		
13	16-02-2024	Clustering for recommendation system	Lecture	CO2	A1	T1,T2		
14	27-02-2024	Attacks on collaborative recommender systems	Lecture	CO2	A1	T1,T2		
15	28-02-2024	Quiz on Unit 2	Activity	CO1,CO2,CO3	A1			
16	01-03-2024	Knowledge representation and reasoning, Constraint based recommenders,	Lecture	CO4	UT2	T1,T2		
17	05-03-2024	Case based recommenders,	Lecture	CO4	UT2	T1,T2		
18	06-03-2024	Persistent Personalization in Knowledge-Based Systems,	Lecture	CO4	UT2	T1,T2		
19	12-03-2024	Conversational Recommendation.	Lecture	CO4	UT2	T1,T2		
20	13-03-2024	Search based recommendation, Navigation-based recommendation.	Lecture	CO4	UT2	T1,T2		
21	19-03-2024	Opportunities for hybridization,	Lecture	CO5	UT2	T1,T2		
22	20-03-2024	Monolithic hybridization design: Feature combination, Feature augmentation,	Lecture	CO5	UT2	T1,T2		

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23	22-03-2024	Parallelized hybridization design: Weighted, Switching, Mixed,	Lecture	CO5	UT2	T1,T2		
24	26-03-2024	Pipelined hybridization design: Cascade Meta-level,Limitations of hybridization strategies.	Lecture	CO5	UT2	T1,T2		
25	27-03-2024	Characteristics and properties of evaluation research	Lecture	CO5	UT2, Q2,A2	T2,R1		
26	05-04-2024	Evaluation design goals- Accuracy, Coverage, Confidence and Trust, Novelty, Serendipity, Diversity, Robustness, Stability and Scalability.	Lecture	CO6	UT2, Q2,A2	T2,R1		
27	10-04-2024	Comparison between evaluation design of classification model and recommendation system,	Lecture	CO6	UT2, Q2,A2	T2,R1		
28	12-04-2024	Error metrics, Decision-Support metrics, User-Centred metrics.	Lecture	CO6	UT2, Q2,A5	T2,R1		
29	16-04-2024	Comparative analysis between different types of recommendation systems.	Lecture	CO6	UT2, Q2,A5	T2,R1		
30	19-04-2024	Quiz 2	Activity	CO6				

Text Books :
1. Jannach, D., Zanker, M., Felfernig, A., & Friedrich, G. (2010). Recommender systems: an introduction.Cambridge University Press.
2. Ricci, F., Rokach, L., & Shapira, B. (2011). Introduction to Recommender Systems Handbook. Springer, Boston, MA.

Reference Books :
1. Aggarwal, C. C. (2016). Recommender systems (Vol. 1). Cham: Springer International Publishing.

Course Instructor: Prof. Nawal Dandekar