Course Description Form

1. Course Name: Recommender Systems

2. Course Code:

3. Semester / Year: Second Semester/ Postgraduate Studies

4. Description Preparation Date:2025-2026

5. Available Attendance Forms: Full time

6. Number of Credit Hours (Total) / Number of Units (Total):30 hour\ 2 units

7. Course administrator's name (mention all, if more than one name)

Name: Ass. Prof.Dr.Nadia Fadhil AL-Bakri
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8. Course Objectives

Course Objectives	The fundamental and practical aspects of Recommender systems are are defined, focusing on theory as well as on the practical use and applications of Recommender systems. Recommendation systems are around us and are encountered on multiple domains such as e-commerce, content and media distribution, social media and so on. The course aims to explain both basics and advanced topics and concepts for recommended systems.

9. Teaching and Learning Strategies

Strategy	**Conceptual Introduction**: Start by introducing the fundamental concepts of recommen systems, such as collaborative filtering, content-based filtering, and hybrid methods. **Real-World Examples**: Use case studies and real-world examples to illustrate how recommender systems are used in various applications such as e-commerce, streaming services, social media, and online learning platforms. **Interactive Discussions**: Facilitate interactive discussions and debates on topics such as algorithmic bias, privacy concerns, ethical considerations, and the social implications of recommender systems. **Assessment**: Assess student learning through a variety of methods such as quizzes, exams, presentations, project reports, code reviews, and peer evaluations

10. Course Structure

Week	Hours	Required	Unit or subject name	Learning method	Evaluation method

1	2 theory		Introduction and basic taxonomy of recommender systems Recommender System Formal Definitions. Personalized verse Non-personalized RSs. Data and Knowledge Sources.	Formal Lectures	Class Activity
2	=		Recommender System challenges. Similarity measures and prediction formulas in RS.	Formal Lectures	Class Activity and Quiz
3	=		Collaborative Filtering (CF)-based Recommender System. Memory-BasedMethods (Neighborhood-Based). User-based Collaborative Filtering.	Formal Lectures	Class Activity
4	=		Item- Based Collaborative Filtering. Model-Based Collaborative Filtering Methods. Collaborative Filtering challenges.	Formal Lectures	Class Activity
5	=		Content-Based Recommender System. Content representation. Similarity-based retrieval. Content-Based challenges.	Formal Lectures	Class Activity
6	Mid1 exam				
7	=		Knowledge-based Recommendation. Knowledge representation and reasoning. Interacting with constraint-based recommenders.	Formal Lectures	Class Activity
8	=		Demographic Recommender System What is demographic features?	Formal Lectures	Class Activity

			Demographic based filtering. Demographic RS applications.		
9			Hybrid Recommendation Approaches Hybridization designs. Monolithic hybridization design.	Formal Lectures	Class Activity and Quiz
10,11	=		Recommender Systems and Linked Open Data. Semantics-aware Recommendation. Linked Open Data for Recommender Systems. Feeding Recommender Systems with LOD. Exploiting Semantic Distance in Linked Open Data for Recommendation	Formal Lectures	Class Activity and Quiz
12	Mid2				
13,14	=		Context-Aware Recommender Systems. Introduction and Motivation. What Is Context? Modeling Contextual Information in RS: Traditional Approach. Paradigms for Incorporating Context in RS.	Formal Lectures	Class Activity
15	=		Recommender Systems Evaluation. Recommender system metrics evaluation. Recommender system decision support.	Formal Lectures	Class Activity

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Third Edition Springer 2022 Francesco Ricci • Lior Rokach • Bracha Shapir 2-Recommender Systems Algorithms and Applications Taylor & Francis Group,2021

	P. Pavan Kumar, S. Vairachilai, Sirisha Potluri,Sachi Nandan Mohanty 3-Recommender Systems An Introduction, Cambridge University Press,2011 DIETMARJANNACH,MARKUS ZANKER,ALEXANDER FELFERNIG GERHARDFRIEDRICH
Main references (sources)	Recommender Systems and Linked Open Data
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	