Course Title: Recommender Systems and AI-powered Personalization

Course Description: This 5-week online course on Moodle 4.5 introduces learners to recommender systems and how AI-powered tools enhance personalization. Participants will explore different types of recommender systems, implement their own, and integrate AI-based methods such as ChatGPT to improve recommendations. Each week includes video lectures, readings, hands-on activities, discussions, quizzes, and peer-reviewed assignments.

Week 1: Introduction to Recommender Systems & AI in Education

- Learning Objectives:
 - o Understand the basics of recommender systems.
 - Explore AI's role in personalization and adaptive learning.
- Activities:
 - Video Lecture: Introduction to recommender systems.
 - **Reading:** History and evolution of recommendation algorithms.
 - **Discussion:** How do recommender systems impact your online experience?
 - Hands-on Activity: Exploring AI-powered educational tools.
 - **Quiz:** Fundamentals of recommender systems.

Week 2: Collaborative and Content-Based Filtering

- Learning Objectives:
 - Understand the difference between collaborative and content-based filtering.
 - Implement basic recommendation models.
- Activities:
 - Video Lecture: Collaborative vs. content-based filtering.
 - **Reading:** Strengths and weaknesses of different filtering methods.
 - **Discussion:** Ethical implications of personalization in education.
 - Hands-on Activity: Using ChatGPT to generate recommendations.

• **Quiz:** Comparison of filtering techniques.

Week 3: Hybrid Recommender Systems & AI Integration

- Learning Objectives:
 - Learn about hybrid approaches that combine multiple techniques.
 - Explore AI-powered enhancements in recommender systems.
- Activities:
 - Video Lecture: Hybrid recommender systems.
 - **Reading:** Case studies on AI-enhanced recommendations.
 - **Discussion:** Challenges of AI-driven personalization.
 - Hands-on Activity: Implementing a simple hybrid model in Python.
 - **Quiz:** Hybrid recommendation techniques.

Week 4: Evaluating Recommender Systems

- Learning Objectives:
 - Measure the effectiveness of a recommendation algorithm.
 - Understand key evaluation metrics such as precision, recall, and RMSE.
- Activities:
 - Video Lecture: Metrics for evaluating recommendations.
 - **Reading:** Best practices in testing recommender systems.
 - Discussion: When does personalization go too far?
 - **Hands-on Activity:** Evaluating a recommender system using AI-generated data.
 - **Quiz:** Evaluation metrics and their applications.

Week 5: Final Project - Building an AI-Powered Recommender System

- Learning Objectives:
 - Apply knowledge from previous weeks to develop a functional recommender system.

- Integrate AI tools to enhance recommendations.
- Activities:
 - **Project Guidelines:** Build a personalized recommendation engine.
 - **Discussion:** Share insights and challenges in developing your system.
 - **Peer Review:** Evaluate and provide feedback on peers' projects.
 - **Final Submission:** Submit the completed recommender system.
 - **Certificate of Completion:** Awarded upon successful completion.

Additional Features:

- **AI-Powered Tools for Educators:** Integration of ChatGPT for personalized learning pathways.
- Interactive Quizzes: Assessments for each week.
- **Discussion Forums:** Encourage collaboration and knowledge sharing.
- Live Q&A Sessions: Optional real-time support for learners.

By the end of this course, learners will have hands-on experience in building AI-driven recommender systems and a deep understanding of personalization techniques in education.