Seminar Topics Summary Report

Institution Name: Basaveshwar Engineering College , Bagalkot

Department of Computer Application (MCA)

Course : MCA

Semester : II

Seminar Topic : Educational Data Mining

Submitted by:

USN : 2BA24MC003

Student Name : Aishwarya S. Chilal

Submission date:

Guide/Facutly Name : S.M.Magi

Guide Signature:

Table of Contents

1. Introduction

2. Seminar Topic Details

3. Topic Summary

4. Relevance to MCA Curriculum

5. Learning Objectives

6. Expected Outcome

7. References

8. Signatures

1. Introduction

Educational Data Mining (EDM) is a multidisciplinary field that applies data mining techniques to educational settings. It focuses on analyzing student data to enhance learning outcomes, improve teaching strategies, and assist institutions in academic planning. As education becomes increasingly digital, EDM helps to interpret complex educational data for better decision-making.

2. Seminar Topic Details

- **Title of the Topic**:

  Educational Data Mining

- **Area/Domain**:
  - Educational Technology
  - Data Mining
  - Artificial Intelligence in Education
  - Learning Analytics
- **Keywords**:
  - Educational Data Mining
  - Student Performance Prediction
  - Learning Behavior
  - Adaptive Learning
  - Dropout Detection
  - Classification & Clustering

3.Topic Summary

This seminar presents an overview of Educational Data Mining and its techniques such as classification, clustering, regression, and association rule mining. The session highlights how EDM is used to analyze student behavior, improve course design, and personalize learning paths. Practical examples from online learning platforms and academic institutions are included to show real-world use cases.

4. Relevance to MCA Curriculum

Educational Data Mining aligns well with the MCA curriculum due to its interdisciplinary nature.

Related Subjects

- **Mining and Warehousing –** EDM uses similar techniques like clustering, association rule mining, and classification.
- **Machine Learning and AI** – Core to EDM, enabling predictive and adaptive learning models.
- **Database Management Systems** – EDM relies on structured educational databases for mining insights.
- **Software Engineering** – Development of adaptive learning software and analytics tools.
- **Research Methodology** – EDM projects often require data collection, hypothesis testing, and report generation.

Practical Application:

- Application of data mining tools (WEKA, RapidMiner, Python libraries).
- Designing intelligent educational software.
- Institutional performance analysis and student profiling.

5. Learning Objectives

After completing this seminar, students will be able to:

- Understand the scope and techniques of EDM.
- Apply mining methods to real educational datasets.
- Predict student performance and learning outcomes.
- Design adaptive learning systems.
- Address ethical issues in educational data handling.

6. Expected Outcome

- Improved understanding of EDM tools and their real-world applications.
- Ability to use EDM in project work or research.
- Enhanced skills in data analytics within the educational domain.
- Preparation for roles in EdTech, analytics, and AI education systems.

7. References

1. Romero, C., & Ventura, S. (2010). *Educational Data Mining: A Review*. IEEE.
2. Baker, R. S. (2015). *Data Mining for Education*. Encyclopedia of Education.
3. Peña-Ayala, A. (2014). *Educational Data Mining: A Survey*. Expert Systems.
4. B. K. Baradwaj, S. Pal (2012). *Mining Educational Data*. IJACSA.
5. www.educationaldatamining.org

Coordinate Signature **HOD Signature**