Semester: 7th			
Paper code: AIML413P	**L**	**T/P**	**Credits**
Subject: Machine Learning in Healthcare Lab	**0**	**2**	**1**
Marking Scheme:			
1. Teachers Continuous Evaluation: As per university examination norms from time to time			
2. End term Examination: As per university examination norms from time to time			
INSTRUCTIONS TO EVALUATORS: Maximum Marks: As per university norms			

1. This is the practical component of the corresponding theory paper.
2. The practical list shall be notified by the teacher in the first week of the class commencement under the intimation to the office of the HOD/ Institution in which they appear is being offered from the list of practicals below.
3. Instructors can add any other additional experiments over and above the mentioned in the experiment list which they think is important.
4. At least 8 experiments must be performed by the students.

Course Objectives:	
1.	Gain hands-on experience in analyzing and modeling complex systems using network analysis, time series analysis, and simulation techniques. Understand the challenges and approaches for handling big data in complex systems and apply machine learning algorithms for predictions and decision-making.
2.	Explore the application of data science techniques in interdisciplinary fields to address complex challenges in today's interconnected world.

Course Outcomes:	
CO1	Develop practical skills in data science techniques for analyzing complex systems and understanding their behavior.
CO2	Apply data science methodologies to solve real-world problems in various domains, such as social networks, finance, and healthcare, and gain insights into complex system dynamics.

Course Outcomes (CO) to Programme Outcomes (PO) Mapping

(Scale 1: Low, 2: Medium, 3: High)

CO/PO	PO01	PO02	PO03	PO04	PO05	PO06	PO07	PO08	PO09	PO10	PO11	PO12
CO1	2	2	2	2	1	-	-	-	-	-	-	1
CO2	2	2	2	2	1	1	1	1	1	1	1	2

List of Experiments:

1. Data Preprocessing and Cleaning for Electronic Health Records (EHR) Data
2. Exploratory Data Analysis (EDA) on Medical Imaging Datasets
3. Building a Binary Classification Model for Disease Diagnosis
4. Implementing Multiclass Classification for Disease Severity Prediction
5. Applying Time Series Analysis for Patient Vital Sign Forecasting
6. Developing a Convolutional Neural Network (CNN) for Medical Image Classification
7. Building a Recurrent Neural Network (RNN) for Predicting Patient Readmission
8. Implementing Transfer Learning for Medical Image Feature Extraction

9. Evaluating Model Fairness and Bias in Healthcare Data

10. Applying Reinforcement Learning for Personalized Treatment Recommendations

11. Building an Explainable AI Model for Medical Diagnosis

12. Developing a Predictive Analytics System for Hospital Resource Management.