



Computer science paper- IV
Practical on Software Architecture & Design Pattern,
Web frameworks and Machine learning
[Compulsory Core Course]

Semester III	Credits: 4	Subject Code: MS32004	Lectures: 48
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Course outcomes:
<p>At the end of this course, the learner will be able to:</p> <ul style="list-style-type: none"> ● Identify the appropriate design patterns to solve object oriented design problems. ● Design an application using Pattern Oriented Architectures in spring framework ● Apply Machine Learning algorithms to solve real world problems ● Perform evaluation of learning algorithms and model selection. ● Create basic web applications using server side programming such nodeJs, Express JS ● Create a web application using Python web Framework-Django.


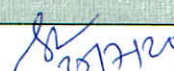
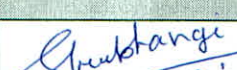

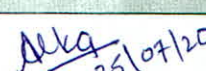
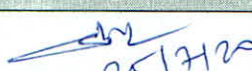
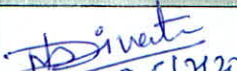
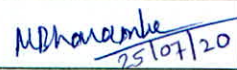
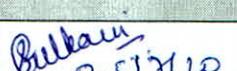

Unit 1: Assignments on Software Architecture & Design Pattern	16
<ul style="list-style-type: none"> ● Assignment based on Observable pattern. ● Assignment based on Decorator. ● Assignment to implement Factory method. ● Assignment based on Singleton pattern. ● Assignment based on command pattern ● Assignment based on Adapter pattern. ● Assignment based on Iterator Pattern. ● Assignment based on State Pattern. ● Design a simple application using Spring Framework 	

Unit 2: Assignments on Machine learning	16
<ul style="list-style-type: none"> ● Introduction to python libraries for machine learning ● (Numpy, Pandas, matplotlib, seaborn, scikit learn) ● Assignment based on plotting a scatter plot (Use Iris Dataset) ● Assignment based on preprocessing techniques for a training data set . ● Assignment based on Regression models. ● Assignment based on classification models. ● Assignment based on clustering models. 	

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Unit 3: Assignments on Web frameworks	16
<ul style="list-style-type: none">• Assignment based on Java Script.• Assignment based on npm package.• Assignment based on database connectivity using node js.• Assignment for creating Web Server using node js.• Assignment based on Publishing your own package in npm• Simple Assignment based on Express JS.• Simple Assignment based on Angular JS• Assignment based on Django framework.• Assignment based on Django's Object Relational Mapper.• Assignment on designing an application using Django framework	

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