



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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