Course Code	Type	Course	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Offering Dept.	Pre-Requisites Course		Equivalent Course Codes
							Theory			Practical					
							CA	MS	ES	CA	ES		Code	Name	
CACSC19	CC	AI Hardware and Tools Workshop	2	0	4	4	30	-	20	30	20	CSE			None

COURSE OUTCOMES:

1. To get acquaintance with the concept of machine learning libraries, usages for different platforms
2. Getting Exposure to R programming and hands on project in R for Analytics
3. Exposure and usage of the analytics tools such as PowerBI etc
4. Understanding the distributed databases with Apache spark and implementation
5. Implement projects, based on the open source libraries and get acquainted with the current trends in the industry.

COURSE CONTENTS:

UNIT-1
Introduction to Machine Learning on AI Hardware
Introduction to Machine Learning libraries such as TinyML etc.
Capstone Project 1: Utilizing TinyML library, develop a project on a single board computer or microcontroller. Team should comprise a group with 2-3 students.

UNIT-2
Data visualization and Analytics
Introduction to automation and data visualization using R Language.
Capstone 2 Project: Utilizing R library, develop a project on data visualization and analytics. Team should comprise a group with 2-3 students.

UNIT-3
Advances in Data Visualization and Analytics
Introduction to advances in data visualization and analytics such as PowerBI etc.
Capstone 3 Project: Utilizing PowerBI library, develop a project on data visualization and analytics. Team should comprise a group with 2-3 students.

UNIT-4
Distributed Databases for AI
Introduction of distributed databases for AI using Open Source frameworks like Apache Spark etc.
Capstone 4 Project: Utilizing Apache Spark, develop a project on distributed databases. Team should comprise a group with 2-3 students.

UNIT-5
DevOps for AI
Introduction to DevOps for AI using any Open Source frameworks.
Capstone 5 Project: Utilizing Open Source framework, develop a project focused on DevOps for AI deployment. Team should comprise a group with 2-3 students.

References (but not limited to)

https://www.tinyml.org/
S. van Buuren. Flexible Imputation of Missing Data. Chapman & Hall/CRC Interdisciplinary Statistics. CRC Press LLC, 2018. ISBN 9781138588318.
https://www.routledge.com/Flexible-Imputation-of-Missing-Data-Second-Edition/Buuren/p/book/9781138588318]
Dan E. Kelley. Oceanographic Analysis with R. Springer-Verlag, New York, October 2018. ISBN 978-1-4939-8842-6. https://www.springer.com/us/book/9781493988426]
https://powerbi.microsoft.com/en-us/
https://medium.datadriveninvestor.com/distributed-data-processing-with-apache-spark-2a5e473b0cb1
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