KONGU ENGINEERING COLLEGE, PERUNDURAI, ERODE- 638 060

MINUTES OF THE MEETING OF BOARD OF STUDIES IN MCA

MEETING No. 21

DATE : 19-06-2021

TIME : 10.00 A.M (Online)

Google Meet Id: https://meet.google.com/opq-tyzo-nqc

The following members were present for the meeting:

1.	Dr. R. Thamilselvan Professor and Head Department of Computer Applications Kongu Engineering College, Perundurai	Chairman
2. .	Dr.Arun Sahayadhas Professor, Vels Institute of Science, Technology and Advanced Studies,Chennai	Academic Council Nominee
3.	Dr. S. Chandrakala Professor, Sastra Deemed University, Thanjavur	Academic Council Nominee
4.	Ms.Anuradha Subramanian Technical Project Lead, Wipro Limited, Bengaluru	Alumni Representative
5.	Mr.Mouleeswaran Subramaniyan Technical Consultant,Wipro Limited, Chennai	Industry Representative
6.	Dr. A. Tamilarasi Professor	Internal Member
7.	Dr. P.A.Selvaraj Associate Professor	Internal Member
8.	Dr. T.M.Saravanan Associate Professor	Internal Member
9.	Dr. M. Jagadeesan Associate Professor	Internal Member
10.	Dr. L.Rahunathan Associate Professor	Internal Member
11. .	Dr. D.Sivabalaselvamani Associate Professor	Internal Member
12. .	Ms.S.Hemalatha Assistant Professor (Sr.Gr.)	Internal Member
13.	Ms. K.Chitra Assistant Professor (Sr.Gr.)	Internal Member
14.	Dr. M.Pyingkodi Assistant Professor (Sr.Gr.)	Internal Member
15.	Ms. K. Nanthini Assistant Professor (Sr.Gr.)	Internal Member
16.	Dr. T.Kavitha Assistant Professor (Sr.Gr.)	Internal Member
17. .	Mr. M. Karthikeyan Assistant Professor (Sr.Gr.)	Internal Member

The following members were present as special invitees:
Nil

The following members have requested for leave of absence:
1. Dr. A. Sankar, Professor, PSG College of Technology, Coimbatore (University Nominee)

MEETING OF THE MCA BOARD:

Dr. R. Thamilselvan, Chairman/BoS welcomed the members and briefed on the rules and regulations governing the autonomous scheme and presented the agenda points including the curriculum and syllabi of all semester under Regulation 2020 of MCA Programme.

The board discussed and approved the following points as per the agenda:

Item No. 21.1: Confirmation of Minutes of the previous Board of Studies meeting

Resolved to confirm the minutes of the previous Board of Studies Meeting held on 29.08.2020.

Item No. 21.2: Ratification of the following items under R2018 & R2020 as given in Appendix-I.

a. Course and Syllabi for PhD Course work
b. One credit courses
c. On line courses
d. Curriculum and Syllabi amendments under R2018 & R2020
e. Introduction of new electives under R2018 &R2020
f. Credit transfer from Foreign Universities, Change of Regulations for readmitted students, Transferred candidates
g. Other items if any

It is resolved to ratify the above items b and d as given in Appendix – I.

Item No. 21.3. Approval of the Syllabi from 3rd semester and 4th semester of MCA under R2020 as given in Annexure-II
Approved in 19th BoS meeting.

Item No. 21.4. Approval for one credit courses, on-line courses with syllabi, Transfer of credits from UGC & AICTE approved institutions and Credit transfer from foreign universities under R2018 & R2020 as given in Annexure-III.
Nil

Item No. 21.5. Approval of Syllabus for PhD courses under R2020 as given in Annexure-IV.
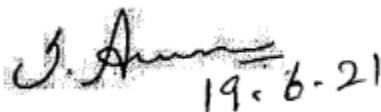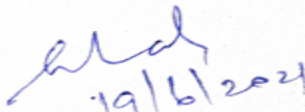Nil
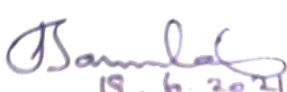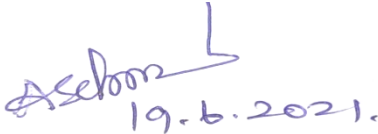
Item No. 21.6. To recommend the online examination system to be followed for the April/May 2021 End Semester Examinations as given in Annexure-V.
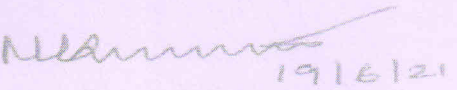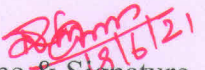
The members discussed recommend the online examination system to be followed for the April/May 2021 End Semester Examinations as given in Annexure-V

The members suggested and discussed the following points in the meeting:
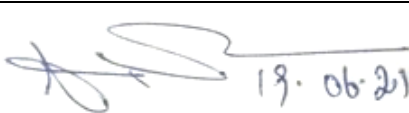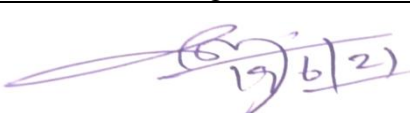
1. Courses can be introduced with hands on sessions to increase the employability like hardware components, troubleshooting and IoT
2. Revisit the bridge courses for beginners to include very basic grammar in English
3. Subject related to behavioral attitude can be included. There is a mandatory course Universal Human Values which covers the same in our present curriculum
4. Industries are moving towards cloud computing and python. As well as students should gain knowledge on those specific areas.
5. Animations can be included in the part of Data Visualization techniques
6. Suggested to exclude the topics as Polynomial Regression Model and Logistic Regression in fourth unit and finding patterns using association rule mining of fifth unit in the proposed syllabus of Machine Learning.

The meeting was concluded with a vote of thanks to the members.

Name & Signature (Dr.Arun Sahayadhas)	Name & Signature (Dr. S. Chandrakala)
Name & Signature (Ms.Anuradha Subramanian)	Name & Signature (Mr.Mouleeswaran Subramaniyan)
Name & Signature (Dr. A. Tamilarasi)	Name & Signature (Dr. P.A.Selvaraj)
Name & Signature (Dr. T.M. Saravanan)	Name & Signature (Dr. M. Jagadeesan)
Name & Signature (Dr. L. Rahunathan)	Name & Signature (Dr. D. Sivabalaselvamani)

Name & Signature (Ms. S.Hemalatha)	Name & Signature (Ms. K. Chitra)
Name & Signature (Dr. M. Pyingkodi)	Name & Signature (Ms. K. Nanthini)
Name & Signature (Dr. T.Kavitha)	Name & Signature (Mr. M. Karthikeyan)
	Name & Signature (Dr. R. Thamilselvan) Chairman/BoS

Ratification items under R2020 during the academic year 2021-2022

Syllabi for 2nd Semester of MCA under R2020

20MCT23 –MACHINE LEARNING

Programme & Branch	MCA & Computer Applications	Sem.	Category	L	T	P	Credit
Prerequisites	Nil	2	PC	3	0	0	3

Preamble	Provides a concise introduction to the fundamental concepts of machine learning and popular machine learning algorithms.	
Unit - I	**Introduction to Machine Learning**	**9**
Human Learning - Types – Machine Learning - Types - Problems not to be solved - Applications - Languages/Tools– Issues. Preparing to Model: Introduction - Machine Learning Activities - Types of data - Exploring structure of data - Data quality and remediation - Data Preprocessing		
Unit - II	**Model Evaluation and Feature Engineering**	**9**
Model Evaluation: Model Selection - Training Model - Model Representation and Interpretability - Evaluating Performance of a Model - Improving Performance of a Model - Feature Engineering: Introduction - Feature Transformation - Feature Subset Selection		
Unit - III	**Probability and Bayesian Concept Learning**	**9**
Introduction-Importance of Statistic Tools – Concept of Probability-Random Variables - Discrete distributions-Continuous distributions- Multiple Random Variables. Bayesian Concept Learning: Bayes Theorem-Concept Learning- Bayesian Belief Network.		
Unit - IV	**Supervised Learning**	**9**
Classification: Introduction-Example-Classification model-Learning steps- Common classification algorithms- K-Nearest Neighbor-Decision Tree-Random Forest Model - Support Vector Machines. **Regression:** Introduction-Example-Simple linear regression-Multiple linear regression-Assumptions and problems in Regression Analysis- Improving the accuracy.		
Unit – V	**Unsupervised Learning and Artificial Neural Network**	**9**
Introduction - Unsupervised Learning Vs Supervised Learning – Applications – Clustering - Introduction-Biological neuron - Artificial Neuron- Types of activation function-Architectures of NN – Learning process in ANN – Backpropagation. Other types of Learning		

Total: 45

REFERENCES:

1.	Saikat Dutt, Subramanian Chandramouli and Amit Kumar Das, "Machine Learning", 1st Edition, Pearson Education, 2019
2.	AurelienGeron, "Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow", 2nd Edition, O'Reilly, 2019.
3.	Willi Richert, Luis Pedro Coelho, "Building Machine Learning Systems with Python", 2nd Edition, Packt Publishing Ltd., 2015.

COURSE OUTCOMES: On completion of the course, the students will be able to	BT Mapped (Highest Level)
CO1 illustrate the foundations of machine learning and apply suitable dimensionality reduction techniques for an application	Applying(K3)
CO2 select the appropriate model and use feature engineering techniques	Applying(K3)
CO3 make use of Probability and Bayesian Concept Learning to solve the given problem	Applying(K3)
CO4 Implement various Classification and regression algorithms and its performance	Analyzing (K4)
CO5 apply clustering and neural networks concepts to solve real world problems	Analyzing (K4)

Mapping of COs with POs and PSOs														
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	1					1	2	2	1	2	2
CO2	2	1	1	1					1	2	2	1	2	2
CO3	3	3	2	1					2	3	3	2	2	3
CO4	3	2	1	1					2	3	3	2	2	3
CO5	3	2	1	1					2	3	3	2	2	3

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN - THEORY							
Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		50	50				100
CAT2		50	50				100
CAT3		20	40	40			100
ESE		30	50	20			100

20MCL23 – MACHINE LEARNING LABORATORY

Programme & Branch	MCA & Computer Applications	Sem.	Category	L	T	P	Credit
Prerequisites	Nil	2	PC	0	0	4	2

List of Exercises / Experiments :

1.	Exploration of a Data Set in the IDE and create dataset and perform pandas and numpy operations
2.	Python program to calculate mean, median, variance, standard deviation and exploring relationship between variables of the given numerical data
3.	Implementation of various data preprocessing techniques on real time dataset
4.	Python program to implement Naïve Bayes Classifier Algorithm
5.	Python program to find the attribute with maximum information gain and gain ratio and construct the decision tree for the given data
6.	Python program to implement Random Forest Algorithm and K-NN algorithm
7.	Python program to implement Support Vector Machines learning algorithm
8.	Python program to implement Simple Linear regression, Multi Linear regression and Logistic Regression algorithms
9.	Python program to implement k-means clustering algorithm
10	Python program to implement multi-layer Artificial Neural Network

Total: 60

REFERENCES/MANUAL/SOFTWARE:

1.	Operating System : Windows/Linux
2.	Software : Python packages, IDE etc.,
3.	Laboratory Manual

COURSE OUTCOMES: On completion of the course, the students will be able to	BT Mapped (Highest Level)
CO1 understand the implementation procedures for the machine learning algorithms	Applying (K3), Manipulation (S2)
CO2 apply appropriate data sets to the machine learning algorithms	Applying (K3), Precision (S3)
CO3 identify and apply machine learning algorithms to solve real world problems	Applying (K3), Precision (S3)

Mapping of COs with POs and PSOs													
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	1	1								2	1
CO2	3	3	3	1	1								2	1
CO3	3	3	3	1	1								2	1
1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy														

18VAC59– Cross Platform App Development with Flutter

L	T	P	Credit
2	0	2	1

Preamble	This course provides the ability to build beautiful cross platform mobile apps for iOS and Android devices using Flutter Framework

Unit – I	Dart Programming Language	5

Dart Programming Language: Installation - Class, function, variable skeleton - Local variable, global variable - Parameters and arguments - Return type, return statement and reusability - Datatypes (Number, Strings, Boolean, Lists, Maps, Runes, Symbols) - Operators (Arithmetic, Assignment, Relational, Type test, Logical, Conditional) - Enumeration - Constant (final, const)- Conditions (if, if..else, if .. else if… else, switch) - Loops (for, for.. in, while, do... while) - OOPs [classes & object, Constructor, this keyword, static keyword, super keyword, inheritance, super constructor, method overriding, getters & setters, abstract classes, interfaces] - Exception - Typedef - Metadata – Collection-Generics - Packages - Libraries - Generators - Callable classes - Isolates – Async.

Unit – II	Flutter Frameworks	5

Installation [Flutter SDK, Android Studio, Dart] - Hello World application - Flutter widget: Scaffold - Container -Row & Column - Text - TextField - Buttons - Stack - Forms - AlertDialogue - Icons - Images - Card - Tabbar - Drawer - Lists - GridView - Toast - CheckBox - RadioButton - Progress Bar - SnackBar - Tooltip - Slider - Switch - Charts - Navigation Bar - Themes - Table - Calendar - Database – Sqlite (CRUD App Creation)

List of Exercises / Experiments:

1.	To do simple programs using Dart Language
2.	To do string programs using Dart Language
3.	Create a simple program using OOPS concept
4.	Create a simple program using list and set objects
5.	Create a Dart programs using Iterating Collections
6.	How to create a simple application in android studio to understand the basics of the Flutter application
7.	To create program using Flutter Layouts and user management
8.	Develop Flutter App Navigation and Routing
9.	Create simple application using importing external libraries
10.	Simple login and sign in functionalities

Lecture: 10, Practical: 20, Total: 30

REFERENCES:

1.	Alessandro Biessek, "Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2", Packt Publishing, First Edition, 2019.
2.	Marco L. Napoli, "Beginning Flutter: A Hands On Guide to App Development", Wrox Publisher, First Edition, 2019.

COURSE OUTCOMES: On completion of the course, the students will be able to	BT Mapped (Highest Level)
CO1 use various features in Dart Programming Language	Applying (K3)
CO2 implement simple applications using various components in Flutter Framework	Applying (K3), Precision (S3)
CO3 build interactive mobile applications for iOS and Android devices	Applying (K3) Precision (S3)

Mapping of COs with POs and PSOs

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3	2										2
CO2	2	2	3	2									3	2
CO3	3	2	3	2									3	3

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		60	40				100
CAT2		30	70				100

* As per the approval

Syllabi from 3rd semester to 4th semester MCA under R2020
Approved in 19th BoS Meeting

List of One credit courses, on-line courses and syllabi, Transfer of credits from UGC and AICTE approved institutions and Credit transfer from foreign universities under R2018 & R2020 (from the year 2021-22 onwards)

Nil

Syllabi for PhD courses under R2020 from the academic year 2021-22 onwards

Nil

Annexure – V

Online examination system to be followed for the April/May 2021 End Semester Examinations as given below:

Question Paper Pattern:
- ❖ Each Question paper will contain 75 Multiple Choice Questions (MCQ) with 15 questions from each unit.
- ❖ All the questions should be answered.
- ❖ Time duration: 90minutes.
- ❖ There is no negative marking

Examination Procedure:
- ❖ Students are allowed to answer the questions, one after another in ascending order only.
- ❖ Students are not allowed to answer previous questions.
- ❖ Without answering the current question, students are not allowed to move on to the next / subsequent questions.
- ❖ Once a question is answered and submitted, then the answer cannot be altered.