KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near **VIRUDHUNAGAR).**

MINUTES OF THE MEETING OF FOURTH BOARD OF STUDIES MEETING HELD ON 11-03-2022 AT 02:00 PM IN ONLINE TOWARDS CONSIDERING THE PROPOSED R2020 UG PROGRAMME, B. TECH. (ARTIFICIAL INTELLIGENCE AND DATA SCIENCE) CURRICULUM & SYLLABI (V SEMESTER TO VIII SEMESTER), COMMON FIRST YEAR CURRICULUM R2021, SECOND YEAR CURRICULUM R2021.

Platform: Microsoft Teams
Meeting Recording Link:
https://kcetvnrorg-
my.sharepoint.com/:v:/g/personal/ramyacse_kamarajengg_edu_in1/EWszGrhZy69KtGWahSluvwIB
HR-hOep8Y7FzTmvotjAoCg?e=sPeFJG

Dr. A. Meenakshi, HoD (Department of Computer Science and Engineering) welcomed all the members of the Board of Studies and Faculty members of CSE department to the 4th BOS meeting. The following members were present:

S. No.	Name of the Expert	Designation	Capacity
1.	Dr.R.B.V.Subramaanyan	Professor and Head, Department of Computer Science and Engineering National Institute of Technology, Warangal E-mail ID: rbvs66@nitw.ac.in Phone No: 9491346969	Academic Council nominated BoS Expert Member
2.	Mr.G.S.Raman	Director, Training Division, Sri Moogambikai Infotech Solutions, Madurai raman.g@mookambikainfo.com ramansriranga@gmail.com Phone No: 8870324388	Industrialist
3.	Dr.R.Venkatesan	Assistant Professor, CSE, Karunya University, Coimbatore rlvenkei2000@karunya.edu Phone No: 98948 80563	Alumni

Internal Members of BoS – Faculty members of CSE and AI & DS

S. No.	Name	Designation
1.	Dr.A.Meenakshi	Associate Professor and Head
2.	Dr.M.IndraDevi	Professor PG (M.E - CSE) Programme Co-ordinator
3.	Dr.R.Muthuselvi	Professor NBA Coordinator
4.	Dr.R.Ramya	Assistant Professor / CSE UG (B. E. CSE) Programme Co-ordinator
5.	Dr.A.Anandh	Associate Professor / CSE UG (B. Tech. AI &DS) Programme Co-ordinator
6.	Dr.G.Nirmala	Assistant Professor / CSE
7.	Mr.G.Srinivasan	Assistant Professor / CSE
8.	Mrs.S.Athilakshmi	Assistant Professor / CSE
9.	Mr.B.Muthukrishnavinayagam	Assistant Professor / CSE
10.	Mrs.K.Muthulakshmi	Assistant Professor / CSE
11.	Mrs.K.Leelarani	Assistant Professor / CSE
12.	Mr.M.Rajasekaran	Assistant Professor / CSE
13.	Ms.G.Vijayalalitha	Assistant Professor / CSE
14.	Mrs.J.Lavanya	Assistant Professor / CSE
15.	Dr.G.Mahalakshmi	Assistant Professor / CSE
16.	Mrs.P.Kavitha	Assistant Professor / CSE
17.	Mrs.K.Arunasakthi	Assistant Professor / CSE
18.	Ms.M.Balameenakshi	Assistant Professor / CSE
19.	Mrs.R.Indhuja	Assistant Professor / CSE
20.	Dr.P.Praveen Kumar	Assistant Professor / AI & DS
21.	Ms.T.Rajashree	Assistant Professor / AI & DS
22.	Ms.S.Shopika	Assistant Professor / AI & DS
23.	Mrs.K.Indumathi	Assistant Professor / AI & DS

After the brief introduction by Dr.A.Meenakshi, HoD (Department of Computer Science and Engineering) about the expert members, industrialist, alumni, faculty from the Department of Computer Science and Engineering, the agenda items were taken up for discussion. The discussion started with R2020 UG Programme curriculum and syllabi of 5th to 8th semester of B. Tech. (Artificial Intelligence and Data Science) as well as the R2021 curriculum and syllabi of 3rd to 4th semester of B. Tech. (Artificial Intelligence and Data Science) and then continued with the suggestions and recommendations received from all BOS members.

Discussions:

BOS 004.01

HoD / CSE gave a brief presentation for the Approval of the Minutes of the third BoS and pointed out the Actions Taken for the Previous BoS.

BOS 004.02

Dr.A.Meenakshi presented the R2020 UG Curriculum, B. Tech. (Artificial Intelligence and Data Science) for the following. The presentation of detailed syllabus was given by Dr.R.Ramya.

a. **B. Tech. (AI & DS) (5th to 8th semester)**

SEMESTER V

| Sl. No | Course Code | Course Name | Category | Credits | | | | |
				L	T	P	Contact Periods	C
THEORY								
1	AD1501	Big Data Analytics	PC	3	0	0	3	3
2	AD1502	Networks and Security	PC	3	0	0	3	3
3	AD1503	Object Oriented Programming using Java	PC	2	0	2	4	3
4	PE1	Professional Elective – I	PE	3	0	0	3	3
5	PE2	Professional Elective - II	PE	3	0	0	3	3
6	OE1	Open Elective – I	OE	3	0	0	3	3
PRATICALS								
7	AD1511	Big Data Analytics Laboratory	PC	0	0	4	4	2
8	AD1512	Networks and Security Laboratory	PC	0	0	4	4	2
		TOTAL		17	0	10	27	22

SEMESTER VI

Sl. No	Course Code	Course Name	Category	Credits				
				L	T	P	Contact Periods	C
THEORY								
1	AD1601	Computer Vision	PC	3	0	0	3	3
2	AD1602	Deep Learning	PC	3	0	0	3	3
3	GE1671	Total Quality Management	HS	3	0	0	3	3
4	OL1	Online Course – I	OL	0	2	0	2	2
5	PE3	Professional Elective - III	PE	3	0	0	3	3
6	PE4	Professional Elective - IV	PE	3	0	0	3	3
PRATICALS								
7	CS1681	Mobile Application Development Laboratory	PC	0	0	4	4	2
8	AD1611	Computer Vision Laboratory	PC	0	0	4	4	2
9	AD1612	Deep Learning Laboratory	PC	0	0	4	4	2
10	HS1521	Professional Communication	EEC	0	0	2	2	1
		TOTAL		15	2	14	31	24

SEMESTER VII

Sl. No	Course Code	Course Name	Category	Credits				
				L	T	P	Contact Periods	C
THEORY								
1	AD1701	Data Visualization	PC	3	0	0	3	3
2	AD1702	Natural Language Processing	PC	3	0	0	3	3
3	CS1635	Full Stack Development	PC	2	0	2	4	3
4	PE5	Professional Elective – V	PE	3	0	0	3	3
5	PE6	Professional Elective – VI	PE	3	0	0	3	3
6	OE2	Open Elective – II	OE	3	0	0	3	3
PRATICALS								
7	AD1711	Data Visualization Laboratory	PC	0	0	4	4	2
8	AD1712	Natural Language Processing Laboratory	PC	0	0	4	4	2
9	AD1721	Mini Project	EEC	0	0	4	4	2
		TOTAL		17	0	14	31	24

SEMESTER VIII

Sl. No	Course Code	Course Name	Category	Credits				
				L	T	P	Contact Periods	C
THEORY								
1	OL2	Online Course – II	OL	0	2	0	2	2
PRATICALS								
2	AD1821	Project Work	EEC	0	0	16	16	8
		TOTAL		**0**	**2**	**16**	**18**	**10**

b. List of Professional Elective Courses

(Elective – I) Semester V

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
1.	CS1531	Computer Graphics	3	0	0	3	3
2.	AD1531	Information Retrieval	3	0	0	3	3
3.	AD1532	Modern Application Development	2	0	2	4	3
4.	AD1533	Soft Computing	3	0	0	3	3
5.	CS1402	Software Engineering with UML Design	3	0	0	3	3

(Elective – II) Semester V

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
6.	CS1537	C# and .Net Fundamentals	2	0	2	4	3
7.	CS1538	Data Science using R	2	0	2	4	3
8.	CS1532	Data Warehousing and Data Mining	3	0	0	3	3
9.	AD1534	Ethical Hacking	3	0	0	3	3
10.	AD1535	Human Computer Interaction	3	0	0	3	3

(Elective – III) – Semester VI

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
1.	IT1631	Block chain Technologies	3	0	0	3	3
2.	AD1631	Cognitive Science	3	0	0	3	3
3.	EC1633	Digital Image Processing	3	0	0	3	3
4.	AD1632	MATLAB Programming for Numerical Computations	2	0	2	4	3

Sl. No.	Course Code	Course Name	L	T	P	Contact Periods	C
5.	CS1535	Software Testing and Quality Assurance	3	0	0	3	3

(Elective – IV) – Semester VI

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
1.	CS1536	Agile Development	3	0	0	3	3
2.	CS1540	Multimedia Systems	3	0	0	3	3
3.	AD1633	Robotics and Intelligent Systems	3	0	0	3	3
4.	CS1636	Mobile Adhoc Networks	3	0	0	3	3
5.	CS1637	Social Media Analytics	3	0	0	3	3
6.	AD1634	Reinforcement Learning	3	0	0	3	3

(Elective – V) – Semester VII

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
1.	CS1634	Augmented Reality and Virtual Reality	3	0	0	3	3
2.	AD1731	Business Intelligence	3	0	0	3	3
3.	CS1632	Game Design and Development	2	0	2	4	3
4.	CS1733	Principles of Cyber Security	3	0	0	3	3
5.	CS1731	Software Project Management	3	0	0	3	3

(Elective – VI) – Semester VII

Sl. No.	Course Code	Course Name	Credits				
			L	T	P	Contact Periods	C
6.	CS1732	2D & 3D Techniques for Graphics Modeling and Simulation	3	0	0	3	3
7.	AD1732	Statistical Tools for Data Science Engineers	2	0	2	4	3
8.	AD1733	Application of Robotics	3	0	0	3	3
9.	AD1734	Enterprise Application Development	2	0	2	4	3
10.	CS1734	Risk Modeling and Assessment	3	0	0	3	3
11.	AD1735	Virtualization and Cloud Computing	2	0	2	4	3

List of Open Electives

Open Elective I (Semester V) - Offered to other departments

S. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	OAD151	Foundations of Data Science using Excel	3	0	0	3

OPEN ELECTIVE – II (SEMESTER VII)

S.No.	Course Code	Course Name	Credits			
			L	T	P	C
1	OAD171	Artificial Intelligence and Machine Learning	3	0	0	3

BOS 004.03

Dr.A.Meenakshi presented the list of Audit courses available in the curriculum and the audit courses completed in semester III and registered in semester IV during the academic year 2021 – 2022.

List of Audit Courses

Audit Courses - Offered

S. No	Course Code	Course Name	Credits			
			L	T	P	C
1.	AUD101	Constitution of India	3	0	0	0
2.	AUD102	Value Education	3	0	0	0
3.	AUD103	Pedagogy Studies	3	0	0	0
4.	AUD104	Stress Management by Yoga	3	0	0	0
5.	AUD105	Personality Development and Soft Skills	3	0	0	0
6.	AUD106	Essence of Indian Knowledge Tradition	3	0	0	0
7.	AUD107	Sanga Tamil Literature Appreciation	3	0	0	0
8.	AUD108	Design Thinking	3	0	0	0

Audit courses completed and registered - <u>R2020</u>

S No	Class	No of students Completed	Name & Code of the course	Semester
1	II ADS	45	Constitution of India & AUD101	III

S No	Class	No of students Registered	Name & Code of the course	Semester
1	II ADS	45	Design Thinking & AUD108	IV

BOS 004.04

Dr.A.Meenakshi presented about the list of integrated courses and assessment procedures of B. Tech. (Artificial Intelligence and Data Science).

List of Integrated Courses

S.No	Semester	Course Code	Course Title	Category	L	T	P	Contact Periods	Credits
			THEORY INTEGRATED WITH PRACTICAL COURSES						
1	V	AD1503	Object Oriented Programming using Java	PC	2	0	2	4	3

Conduct of Integrated Courses

Sl. No.	Degree	Regulation	Category of Course	Continuous Assessment	End Semester Examination
1.	UG	R2020 & R2021	Theory Integrated with Laboratory Courses	Assessment through theory – 20% (Two assessments) Assessment through Practical – 20 % (Continuous evaluation) Total – 40 %	Theory Examination – 60%

2.	PG	R2020 & R2021	Laboratory Integrated with Theory courses	Assessment through 15% (One assessment) Assessment through Practical – 35 % (continuous evaluation) (Total – 50 %)	Practical Examination – 50%

BOS 004.05

Approval of Online courses

The online courses are included in curriculum at VI and VIII semester. The following were discussed and presented for approval.

Online courses in phase manner: Approval was sought by Dr.A.Meenakshi to do the course in the phase manner and decision - vested to the three member committee.

For UG

- VI sem - Doing the course phase wise – Minimum 8 Weeks
    - Phase-1 in V / VI SEM :
        - 12 weeks course (or)
        - 8 weeks course (or)
        - 4+ 4 weeks   AND/OR
    - Phase-2:
        - 4 weeks (in V SEM) + 12 weeks (in VI SEM) and vice versa (or)
        - 4 weeks (in V SEM) + 8 weeks (in VI SEM) and vice versa (or)
        - 4 weeks (in V SEM) + 4 weeks (in VI SEM) and vice versa
- VIII sem - Doing the course phase wise – Minimum 8 Weeks
    - Phase-1 in VII / VIII SEM :
        - 12 weeks course (or)
        - 8 weeks course (or)
        - 4+ 4 weeks   AND/OR
    - Phase-2:
        - 4 weeks (in VII SEM) + 12 weeks (in VIII SEM) and vice versa (or)
        - 4 weeks (in VII SEM) + 8 weeks (in VIII SEM) and vice versa (or)

- 4 weeks (in VII SEM) + 4 weeks (in VIII SEM) and vice versa

Courses identified from NPTEL Swayam and Mentors

Dr.A.Meenakshi presented about the list of courses that were identified from NPTEL Swayam to be offered for students along with faculty mentors.

S.No	Course Name	Duration	Mentor
1	Data Mining	8 Weeks	Dr.M.Indra Devi,Mrs.P.Kavitha Ms.Bala Meenakshi
2	Cloud computing and Distributed Systems	8 Weeks	Dr.R.Muthuselvi
3	Cloud computing	8 Weeks	Dr.Anandh, Mr.M.Rajasekaran Mrs.J.Lavanya, Mrs.K.Arunasakthi Dr.P.Praveen Kumar
4	Data Science for Engineers	8 Weeks	Dr.R.Ramya, Mrs.S.Athilakshmi Mr.B.MuthuKrishna Vinayagam Mrs.K.Muthulakshmi Mrs.K.Leelarani
5	Introduction to Internet of Things	12 weeks	Dr.Anandh, Mr.G.Srinivasan Ms.G.Vijayalalitha, Ms.S.Shopika Dr.G.Mahalakshmi, Ms.T.Rajashree
6	Software Testing	12 weeks	Dr.G.Nirmala, Mrs.K.Indumathi Mrs.R.Indhuja

Dr.A.Meenakshi presented about the grading system that is going to be followed for online Courses and re-exam score evaluation procedure.

R2021 Grading System – Absolute Grading System

Range of Total Marks in Absolute Grading	Range of Total Marks in NPTEL Examination	Letter Grade	Grade Point
$91 \leq$ to ≤ 100	$88 \leq$ to ≤ 100	O	10
$81 \leq$ to ≤ 90	$76 \leq$ to ≤ 87	A+	9
$71 \leq$ to ≤ 80	$64 \leq$ to ≤ 75	A	8

$61 \leq$ to ≤ 70	$52 \leq$ to ≤ 63	B+	7
$50 \leq$ to ≤ 60	$40 \leq$ to ≤ 51	B	6

R2020 Grading System – Hybrid Relative Grading System

Range of Total Marks in Hybrid Relative Grading	Range of Total Marks in NPTEL Examination	Letter Grade	Grade Point
$91 \leq$ to ≤ 100	$88 \leq$ to ≤ 100	O	10
$61 \leq$ to ≤ 90 Intermediate Grade will be fixed based on Mean Marks between 61 and 90	$52 \leq$ to ≤ 87 Intermediate Grade will be fixed based on Mean Marks between 52 and 87	A+	9
		A	8
		B+	7
$50 \leq$ to ≤ 60	$40 \leq$ to ≤ 51	B	6

Re-Examinations for online courses

25% NPTEL SCORE + 75% REEXAM SCORE

BOS 004.06

Approval of Value Added courses:

- Dr.A.Meenakshi discussed about the process that we followed for conducting Value Added Courses.
- She also discussed about the role of three member committee and presented the list of value added courses offered for the second year and third year students for this academic year.

Value Added Courses Conducted – II Year students

Name of the VAC course	Name of Company	Name of the Trainer(s)	Name of the Co ordinator	No. of Students
Redhat Linux	School of Linux, Madurai	Mr.S.Suresh Kannan & K.Muthukumar	Mrs.K.Indumathi & Mrs.R.Indhuja	40
Machine Learning with Scikit-Learn, Keras and Tensorflow	Quantanics TechServ Pvt. Ltd., Madurai.	Mr.Farhadh Manaz and Mr.K.Vasanth Junior AI Developer	Dr.P.Praveen Kumar Dr.R.Ramya	29
Spring Boot	Silicon Software	Mr.S.Rajendran	Mr.B.Muthukrishna	55

	Services, Chennai	Ms.Domini Neya	vinayagam Ms.P.Kavitha	
Django Framework	Lamdatech Softics, Virudhunagar	Mr.S.Balaji Ms.V.Rajeshwari	Mrs.K.Leela Rani, Dr.MahaLakshmi	25

BOS 004.07

HoD/CSE presented First year common curriculum for all Departments which will be followed from the current academic year 2021-2022. It will come under new Regulations 2021.

Approval of R2021 Curriculum for B.Tech Artificial Intelligence and Data Science
(I sem. to IV Sem.)

R2021 Syllabus for B.Tech AI & DS (I Sem to II Sem)

Semester I

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	C
THEORY							
1	SH2101	Technical English	HS	3	0	0	3
2	MA2101	Matrices and Differential Calculus	BS	3	1	0	4
3	PH2101	Engineering Physics	BS	3	0	0	3
4	CY2101	Engineering Chemistry	BS	3	0	0	3
5	GE2101	Principles of Engineering	BS	3	0	0	3
6	EM2101	Coding Techniques – I	EEC	3	0	0	3
PRACTICALS							
7	PH2102	Physics Laboratory	BS	0	0	3	1
8	MA2102	Mathematics Laboratory	BS	0	0	2	1
9	EM2102	Coding Techniques - I Laboratory	EEC	0	0	3	1
TOTAL				18	1	8	22

SEMESTER II

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	C
THEORY							
1		Technical Communication Skill Development	HS	3	0	0	3
2		Vector Calculus, Complex Integration and Laplace Transforms	BS	3	1	0	4
3		Renewable Energy Sources	BS	3	0	0	3
4		Environmental Science and Engineering	BS	3	0	0	3
5		Engineering Graphics	ES	2	0	3	3
6		Coding Techniques - II	EEC	3	0	0	3
PRACTICALS							
7		Engineering Practices Laboratory	ES	0	0	4	2
8		Chemistry Laboratory	BS	0	0	3	1
9		Coding Techniques – II Laboratory	EEC	0	0	3	1
		TOTAL		17	1	13	23

Proposed R2021 Syllabus for B.Tech AI & DS (III Sem & IV Sem)
SEMESTER III

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	C
THEORY							
1		Linear Algebra and Boundary Value Problems	BS	3	1	0	4

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	C
2		Data Structures and Algorithms	PC	3	0	0	3
3		Foundations for Data Science	PC	3	0	0	3
4		Introduction to Artificial Intelligence	PC	3	0	0	3
5		System Software and Operating Systems	PC	3	0	0	3
6		Design Thinking	ES	3	0	0	3
PRACTICALS							
7		Data Structures and Algorithms Laboratory	PC	0	0	4	2
8		Programming in Java Laboratory	PC	0	0	4	2
9		Foundations for Data Science Laboratory	PC	0	0	4	2
10		Audit Course	AU	3	0	0	0
		TOTAL		21	1	12	25

SEMESTER IV

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	C
THEORY							
1		Probability and Statistics	BS	3	1	0	4
2		Database Management Systems	PC	3	0	0	3
3		Digital System Design and Microprocessors	PC	3	1	0	4
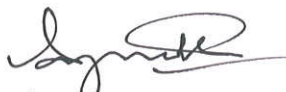
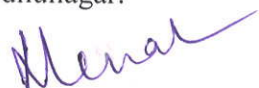| 4		Big Data Analytics – Tools and Techniques	PC	2	0	2	3
5		Professional Ethics and Human Values	HS	3	0	0	3
PRACTICALS							
6		Internet of Things Laboratory	PC	0	0	4	2
7		Database Management Systems Laboratory	PC	0	0	4	2
8		Digital System Design and Microprocessors Laboratory	ES	0	0	4	2
9		Audit Course	AU	3	0	0	0
10		Value Added Course/Internship	EEC	0	0	4	2
		TOTAL		17	2	18	25

DISCUSSIONS

- Dr. R. B. V. Subramaanyan accepted the curriculum
- Dr.R.Venkatesan and Mr.G.S.Raman accepted the curriculum

RESOLVED TO APPROVE the R2020 curriculum and detailed syllabi for V to VIII Semester of B. Tech. (AI & DS), Detailed syllabus of coding techniques – II (Theory and Laboratory) and R2021 curriculum and detailed syllabi for III to IV Semester of B. Tech. (AI & DS).

The meeting ended with the Vote of Thanks by Dr. A. Anandh, Associate Professor, Department of CSE, Kamaraj College of Engineering and Technology, Virudhunagar.

(Dr. A. Meenakshi)
BoS Chairman & HoD - CSE

(Dr. A. Anandh)