Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

ACADEMIC COUNCIL
ATTENDANCE SHEET FOR 44th MEETING OF
THE ACADEMIC COUNCIL ON 24.02.2024 AT 10.30 am
VENUE: SENATE HALL

S.No	Name	Position	Signature
1	Prof.S.Salivahanan Vice Chancellor, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Chairperson	S. Saliv
2	Prof. R.Venkata Rao Vice Chancellor, International University of Legal Education and Research (IIULER), Goa	External Member	Present
3	Mr. K. Balaji Vice President – People and Culture Delphi – TVS Technologies Chennai	External Member	Present
4	Dr. OR. Nandagopan Director, DRDO Industry Academia, Ramanujan Centre of Excellence, IIT - Madras	External Member	—AB—
5	Mr. Raghuraman Krishnamurthy Chief Enterprise Architect P&R Practise, Cognizant Chennai.	External Member	—AB—
6	Dr. K. Sankaranarayanasamy Professor (HAG), National Institute of Technology (NIT), Tiruchirappalli.	External Member	[illegible]

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
7	Prof. Dr. Krishnan BASKAR. D.Sc. (KTH-Sweden), FRSC (London). Director, Indian Institute of Technology-Senapati, Manipur (An Institute of National Importance by Act of Parliament, Government of India) Mantripukhri, Imphal – 795002, India.	External Member	24/02/2024.
8.	Dr.A.T.Ravichandran Professor & Dean - Academics Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
9	Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology.	Ex-officio	24/02/24
10	Dr. R.S.Valarmathi Professor & Dean - SoEC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
11	Dr. P. Chandrakumar Professor & Dean – R&D and Industry Relations Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
12	Dr.M.Sivakumar Professor & Dean - FME Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
13	Dr. P. Suresh Professor & Dean - International Relations & HRDC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
14	Dr.P.Vijayaraman Assistant Professor & Dean (Campus to Corporate) Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
15	Prof. Dr. B. Venugopal Professor & Dean - SoL Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	26/02/2020
16	Dr. V. Srinivasa Rao Professor & Dean – SoC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science andTechnology.	Ex-officio	
17	Dr. M.S.R. Mariyappan, Professor & Dean - SoM Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	
18	Prof. Dr. Nagalingeswara Raju, Dean (Hostels) Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	
19	Dr. E.Suresh Paul Professor & Dean – Media Technology & Communication Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
20	Dr. N. Lenin, Professor & Dean (SoMC) – Dept. of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
21	Dr. K. Jagajjanani Rao Dean (Academic Research) Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology.	Ex-officio	
22	Dr.R.Sivaraman Professor & Controller of Examinations, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Permanent Invitee	
23	Dr.R.Jaganraj Associate Professor & HoD – Dept. of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
24	Dr. Amala Justus Selvam Professor & HoD – Dept. of Automobile Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
25	Dr.A.Geetha Selvarani, Professor & HoD – Dept. of Civil Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
26	Dr. S. Ramesh Professor & HoD – Dept. of Electrical & Electronics Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
33	Dr. Senthil Kumar Associate Professor & HoD – Dept. of Physics, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
34	Dr.CH.Hazarathaiah Yadav Professor & HoD – Dept. of Chemistry, Vel Tech Rangarajan Dr. Sagunthala R &D Institute of Science and Technology.	Ex-officio	24/2/24
35	Dr. M.R.Bindu Professor & Head - Dept. of English, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	for 27/2/24
36	Dr. D. Balasubramaniam Associate Professor & HoD – Dept. of Bio Medical, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2
37	Dr. P. Azhagu Saravana Babu Professor & HoD – Dept. of Bio Technology, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
38	Dr.B.Someswara Rao Professor & HoD – School of Law, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24-2-24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
27	Dr. A. Selwin Mich Priyadharson, Professor & HoD – Dept. of Electronics & Communication Engineering, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology.	Ex-officio	24/02/2024
28	Dr. J Visumathi Professor & HoD – (Information Technology) Dept. of Computer science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24.
29	Dr. S. Jeyavelu Associate Professor & HoD – Dept. of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	24/02/24.
30	Dr. K. Ravishankar Professor, HoD – Dept. of Management Studies Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
31	Ms.J.Sri Devi Assistant Professor & HoD – Dept. of Commerce and Business Administration Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
32	Dr. J. Viswanath Professor & HoD – Dept. of Mathematics, Vel Tech RangarajanDr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
39	Dr. N.R. Rajalakshmi Professor & HoD – Dept. of Artificial Intelligence and Machine Learning Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
40	Dr.V.Dhilip kumar Professor & HoD – Dept. of Artificial Intelligence (AI) and Data Science Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/02/24
41	Dr. R. Parthasarathy Associate Professor & HoD – Dept. of Computer Science and Design Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/02/24
42	Dr. Muralidhar M S Associate Professor & HoD – Dept. of Computer Science & Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
43	Dr. S.Saravanan, Associate Professor & HoD – Department of CSE (Cyber Security) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
44	Dr. P.Jose, Associate Professor & HoD – Department of CSE(Data Science) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
45	Dr. S. Lalitha, Associate Professor & HoD – Department of CSE (Artificial Intelligence and Machine Learning) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/02/24
46	Dr.S.Irudayaraj Professor Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member	— AD —
47	Dr. S.Samson Professor, Dept of Civil Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/02/24
48	Dr.R.Srinivasan Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	R. Srin
49	Dr.A Bhagyalakshmi Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24
50	Dr. T. Kavitha Professor, Dept. of Electronics and Communication Engineering Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
51	Dr. S. Jana Professor, Dept. of Electronics and Communication Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	
52	Dr.N.Kalaivani Professor, Dept. of Mathematics Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	N. Kalaivani 24/2/24
53	Dr.A.Prakash Professor, Dept. of English Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24.2.24
54	Dr.S.Sridevi Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24
55	Dr. K. Karunanithi Professor, Dept. of Electrical and Electronics Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/02/24
56	Dr. J. Gajendiran Associate Professor, Dept. of Physics, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor	24/02/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
57	Dr. M. Nagoor Meeran Associate Professor, Dept. of Chemistry, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor	24/04/2024
58	Mrs. Lilly Victoria A Assistant Professor School of Law Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor Nominee	24/4/2024
59	Dr. G. Chandramowleeswaran Assistant Professor Dept. of Commerce and Business Administration Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor Nominee	24/02/24
60	Dr.E.Kannan Professor & Registrar Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Secretary	24/02/2024

S. Salivahanan

VICE CHANCELLOR

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

44th MEETING
OF
THE ACADEMIC COUNCIL

Saturday, February 24, 2024

MINUTES

S. Salivahanan
Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

No. 42, Avadi-Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pincode-600 062.
Email: registrar@veltech.edu.in, Website: www.veltech.edu.in.

Contents

44.1 Call to Order and Approval of Agenda of the 44th meeting of the Academic Council. 1

44.2 Confirmation of the minutes of 43rd meeting of the Academic Council held on Saturday, September 23, 2023. 1

44.3 To review the Action Taken Report on the minutes of the 43rd meeting of the Academic Council held on September 23, 2023. 1

44.4 To record leave of absence of the members. 2

44.5 To discuss and approve the minutes of the Board of Studies of Engineering and Technology - Under Graduate & Post Graduate Programmes (all engineering schools). 3

44.6 To consider and approve to conduct arrear examinations for those students who have failed in the (i) Professional Proficiency courses *(under the clause 7.3.7)* (ii) Mandatory courses (Constitution of India & Engineer Society) *(under the clause 7.3.8)* instead of Re-registration under VTR UGE 2021 *(Ref. Section 8.6.4)* 10

44.7 To discuss and approve the introduction of the Bucket System for elective courses under the Regulations VTR UGE 2021 from the summer semester of the Academic Year 2024-25. 10

44.8 To discuss the NAAC reforms with regard to implementation of Binary Accreditations system and Maturity Based Grading Accredations (MBGA) in the place of present NAAC system of ranking Institution. 12

44.9 To discuss the Multiple Exit options for the students admitted under the Regulations VTR UGE 2021. 13

44.10 To consider and approve the proposal of addition/reduction of intake in UG & PG programmes for the Academic Year 2024-25. 14

44.11 To ratify the admission of candidates to Doctoral(Ph.D.) level programmes in Engineering and Technology/ Science / Law / Management / Humanities /Arts for Academic Year 2023-24. 16

44.12 To ratify the admissions under Re-Admission category in the Winter Semester of the Academic Year 2023-24. 17

44.13 To ratify the examination results of Semester End Examinations held during the Summer Semester of Academic Year 2023-24. 18

Prof. S. Salivahanan
Vice Chancellor
S. Salivahanan

Vel Tech
Rangarajan Dr. Sagunthala

44.14To report the results of the Ph.D. viva voce conducted since last Academic Council held on September 23, 2023. 18

44.15To report the letters received from the UGC with regard to :

1. Categorization of this Deemed to be University under Category 1 for Grant of Graded autonomy as per UGC Regulations, 2018.

2. Inclusion of the Deemed to be University under section 12B of the UGC Act, 1956. 19

44.16To record the progression and achievements of the following Schools and divisions: 20

44.17Any other items with the permission of the Chairperson. 24

44.18To decide the date of holding the next meeting of the Academic Council. 24

44.19Vote of Thanks. 24

44.20Adjournment 24

List of Tables

1 Action Taken Report in respect of 43rd meeting of the Academic Council held on September 23, 2023. 2

2 UG / PG - Programme for which the students intake is increased 14

3 UG / PG - Programme for which the students intake is reduced 15

4 PG - Closure Programme due to poor intake 15

5 Ph.D. Admission for the Winter Semester of the Academic Year 2023-24 16

6 List of students admitted under Re-Admission category AY 2023-24 (Winter Semester) 17

S. Salivah

Minutes of the 44th MEETING OF THE ACADEMIC COUNCIL

Saturday, February 24, 2024, at 10.30 a.m.

The Vice Chancellor welcomed all the members and highlighted the significant academic activities took place recently along with the progressive developments especially with regard to research and developmental activities of the Institution.

A. Opening

44.1 Call to Order and Approval of Agenda of the 44th meeting of the Academic Council.

The Vice Chancellor called to order and placed it the agenda of the 44th meeting of the Academic Council for confirmation which was also circulated to the members by e-mail.

- Resolved to approve and record the agenda of the meeting.

44.2 Confirmation of the minutes of 43rd meeting of the Academic Council held on Saturday, September 23, 2023.

The minutes of the 43rd meeting of the Academic Council held on Saturday, September 23, 2023 were circulated to the members for approval.

The draft minutes of the 43rd meeting of the Academic Council can be accessed *here*

Appendix A

The Minutes of the 43rd meeting of the Academic Council held on September 23, 2023 has been confirmed.

44.3 To review the Action Taken Report on the minutes of the 43rd meeting of the Academic Council held on September 23, 2023.

The Vice Chancellor, placed it before the Academic Council, the Action Taken Report on the discussion held at the 43rd meeting of the Academic Council as described in Table 1.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

Table 1: Action Taken Report in respect of 43rd meeting of the Academic Council held on September 23, 2023.

S.No	Decision Taken	Action Taken Report as decided in the ACM
1	**Item No 43.7 - Page 5** To consider and approve the New Regulations of M.B.A. Programme. VTR PGM 2024	The National Conference included with International Conference/Scopus indexed journals as mandatory to submit the project work thesis.

Resolved that the Action Taken report of the 43rd meeting of the Academic Council be approved.

44.4 To record leave of absence of the members.

The following member have expressed their inability to attend the meeting due to various reasons.

* **Dr. OR. Nandagopan,**
  Director,
  DRDO Industry Academia Ramanujan Centre of Excellence, IIT - Madras

* **Mr. Raghuraman Krishnamurthy,**
  Chief Enterprise Architect
  P&R Practise, Cognizant, Chennai.

* **Dr.S.Irudayaraj,**
  Professor & Dept. of Mech,
  Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.

The Chair has noted their leave of absence.

The list of members attended the 43st meeting of the Academic Council can be accessed *here*

Appendix Attendance

The Letter for grant of absence can be accessed *here*

Appendix Grant of absence

• Resolved to place it on record, the absence of the members due to various reasons for not attending the ACM.

S. Sakiral

B. Items for Discussion

44.5 To discuss and approve the minutes of the Board of Studies of Engineering and Technology - Under Graduate & Post Graduate Programmes (all engineering schools).

1. Engineering and Technology - Under Graduate & Post Graduate Programmes

A. B.Tech. - Aeronautical Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 26th Board of Studies of Department of Aeronautical Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. R. Jegan Raj, Associate Professor & Head, Department of Aeronautical Engineering, presented the recommendations of the 26th meeting of the Board of Studies.

The Minutes of the BoS meeting can be accessed here

Appendix AERO

Dr. R. Jegan Raj, Associate Professor & Head, Department of Aeronautical Engineering, moved the recommendations of the 26th Board of Studies of Aeronautical Engineering to be implemented with effect from the Winter semester of the Academic Year 2023-24, be approved.

Dr. Amala Justus Selvam,, Professor & Head, Department of Automobile Engineering, seconded it.

The motion was carried

B. B.Tech. - Artificial Intelligence (AI) and Data Science

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 5th Board of Studies of Department of Artificial Intelligence (AI) and Data Science to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. V. Dhilip kumar, Professor & Head, Department of Artificial Intelligence (AI) and Data Science, presented the recommendations of the 5th meeting of the Board of Studies conducted on December 23, 2023.

The Minutes of the BoS meeting can be accessed here

Appendix AI&DS

Dr. V. Dhilip kumar, Professor & Head, Department of Artificial Intelligence and Data Science, moved the recommendations of the 5th Board of Studies of Artificial Intelligence and Data Science to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. N. R. Rajalakshmi, Professor & Head, Department of Artificial Intelligence and Machine Learning, seconded it.

Prof. S. Salivahanan
Vice Chancellor

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

The motion was carried

C. B.Tech. - Artificial Intelligence and Machine Learning

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 5th Board of Studies of Department of Artificial Intelligence and Machine Learning to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. N. R. Rajalakshmi, Professor & Head, Department of Artificial Intelligence and Machine Learning , presented the recommendations of the 5th meeting of the Board of Studies conducted on December 23, 2023.

The Minutes of the BoS meeting can be accessed here

Appendix AI&ML

Dr. N. R. Rajalakshmi, Professor & Head, Department of Artificial Intelligence and Machine Learning, moved the recommendations of the 5th Board of Studies of Artificial Intelligence and Machine Learning to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. V. Dhilip kumar, Associate Professor & Head, Department of Artificial Intelligence and Data Science, seconded it.

The motion was carried

D. B.Tech. - Bio Medical Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 11th Board of Studies of Department of Bio Medical Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. D. Balasubramaniam, Associate Professor & Head, Department of Bio Medical Engineering, presented the recommendations of the 11th meeting of the Board of Studies conducted on January 08, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix BIOMED

Dr. D. Balasubramaniam, Associate Professor & Head, Department of Bio Medical Engineering, moved the recommendations of the 11th Board of Studies of Bio Medical Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr.S.Ramesh, Professor & Head,Department of Electrical and Electronics Engineering, seconded it.

S. Salivel

The motion was carried

E. B.Tech. - Biotechnology

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 11th Board of Studies of Department of Biotechnology to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. P. Azhagu Saravana Babu, Professor & Head, Department of Biotechnology, presented the recommendations of the 11th meeting of the Board of Studies conducted on January 03, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix Biotech

Dr. P. Azhagu Saravana Babu , Professor & Head, Department of Biotechnology, moved the recommendations of the 11th meeting of the Board of Studies of Biotechnology to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. A. Selwin Mich Priyadharson, Professor & Head,Department of Electronics & Communication Engineering, seconded it.

The motion was carried

F. B.Tech. - Civil Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 26th Board of Studies of Department of Civil Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. A. Geetha Selvarani, Professor & Head, Department of Civil Engineering, presented the recommendations of the 26th Board of Studies meeting conducted on December 30, 2023.

The Minutes of the BoS meeting can be accessed here

Appendix Civil

Dr. A. Geetha Selvarani, Professor & Head, Department of Civil Engineering, moved the recommendations of the 26th Board of Studies of Civil Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. S. Jeyavelu, Associate Professor & Head – Department of Mechanical Engineering, seconded it.

The motion was carried

G. B.Tech. - Computer Science & Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 38th Board of Studies of Department of Computer Science & Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Prof. S. Salivahanan
Vice Chancellor

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

Dr. M. S. Muralidhar, Associate Professor & Head, Department of Computer Science & Engineering, presented the recommendations of the 38th meeting of the Board of Studies conducted on December 09, 2023.

The Minutes of the BoS meeting can be accessed here

Appendix CSE

Dr. M. S. Muralidhar, Associate Professor & Head, Department of Computer Science & Engineering, moved the recommendations of the 38th Board of Studies of Computer Science & Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. R. Parthasarathy, Associate Professor & Head, Department of Computer Science and Design, seconded it.

The motion was carried

H. B.Tech. - Computer Science and Design

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 5th Board of Studies of Department of Computer Science and Design to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. R. Parthasarathy, Associate Professor & Head, Department of Computer Science and Design, presented the recommendations of the 5th meeting of the Board of Studies conducted on December 09, 2023.

The Minutes of the BoS meeting can be accessed here

Appendix CSD

Dr. R. Parthasarathy, Associate Professor & Head, Department of Computer Science and Design, moved the recommendations of the 5th Board of Studies of Computer Science and Design to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr.M.S.Muralidhar, Associate Professor & Head, Department of Computer Science & Engineering, seconded it.

The motion was carried

I. B.Tech. - CSE (Artificial Intelligence and Machine Learning)

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 3rd Board of Studies of CSE (Artificial Intelligence and Machine Learning) to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

S. Salivah

Dr. S. Lalitha, Associate Professor & Head, Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning), presented the recommendations of the 3rd meeting of the Board of Studies conducted on January 05, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix CSE (AI & ML)

Dr. S. Lalitha, Associate Professor & Head, Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning), moved the recommendations of the 3rd Board of Studies of CSE (Artificial Intelligence and Machine Learning) to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. P. Jose, Associate Professor, Department of Computer Science & Engineering (Data Science), seconded it.

The motion was carried

J. B.Tech. - CSE (Cyber Security)

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 3rd Board of Studies of CSE (Cyber Security) to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. S. Saravanan, Associate Professor & Head, Department of Computer Science and Engineering (Cyber Security), presented the recommendations of the 3rd meeting of the Board of Studies conducted on January 05, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix CSE (CS)

Dr. S. Saravanan, Associate Professor & Head, Department of Computer Science and Engineering (Cyber Security), moved the recommendations of the 3rd Board of Studies of CSE (Cyber Security) to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. S. Lalitha, Associate Professor & Head, Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning), seconded it.

The motion was carried

K. B.Tech. - CSE (Data Science)

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 3rd Board of Studies of CSE (Data Science) to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

The Minutes of the BoS meeting can be accessed here

Appendix CSE (DS)

Dr. P. Jose, Associate Professor & Head, Department of Computer Science and Engineering (Data Science), presented the recommendations of the 3rd meeting of the Board of Studies conducted on January 05, 2024.

Dr. P. Jose, Associate Professor & Head, Department of Computer Science and Engineering (Data Science), moved the recommendations of the 3rd Board of Studies of CSE (Data Science) to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. S. Saravanan, Associate Professor & Head, Department of Computer Science and Engineering (Cyber Security), seconded it.

The motion was carried

L. B.Tech. - Electrical and Electronics Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 30th Board of Studies of Department of Electrical and Electronics Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

The Minutes of the BoS meeting can be accessed here

Appendix EEE

Dr. S. Ramesh, Professor & Head, Department of Electrical and Electronics Engineering, presented the recommendations of the 31st meeting of the Board of Studies conducted on December 30, 2023.

Dr. S. Ramesh, Professor & Head, Department of Electrical and Electronics Engineering, moved the recommendations of the 31st Board of Studies of Electrical and Electronics Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. P. Azhagu Saravana Babu, Professor & Head, Department of Bio Technology, seconded it.

The motion was carried

M. B.Tech. - Electronics and Communication Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 40th Board of Studies of Department of Electronics and Communication Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

S. Salivan

Dr. A. Selwin Mich Priyadharsan, Professor & Head, Department of Electronics and Communication Engineering, presented the recommendations of the 40th Board of Studies meeting conducted on January 12, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix ECE

Dr. A. Selwin Mich Priyadharsan, Professor & Head, Department of Electronics and Communication Engineering, moved the recommendations of the 40th Board of Studies of Electronics and Communication Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. D. Balasubramaniam, Associate Professor & Head, Department of Bio Medical, seconded it.

The motion was carried

N. B.Tech. - Information Technology

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 37th Board of Studies of Department of Information Technology to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. J. Visumathi, Professor & Head, Department of Information Technology, presented the recommendations of the 37th Board of Studies meeting conducted on January 03, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix IT

Dr. J. Visumathi, Professor & Head, Department of Information Technology, moved the recommendations of the 37th Board of Studies of Information Technology to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. P. Jose, Associate Professor & Head, Department of Computer Science and Engineering (Data Science), seconded it.

The motion was carried

O. B.Tech. - Mechanical Engineering

The Vice Chancellor, placed it before the Academic Council, the recommendations of the 38th Board of Studies of Department of Mechanical Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24.

Dr. S. Jeyavelu, Associate Professor & Head, Department of Mechanical Engineering , presented the recommendations of the 38th meeting of the Board of Studies conducted on January 06, 2024.

The Minutes of the BoS meeting can be accessed here

Appendix MECH

Prof. S. Salivahanan
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

Dr. S. Jayavelu, Associate Professor & Head, Department of Mechanical Engineering, moved the recommendations of the 38th Board of Studies of Mechanical Engineering to be implemented with effect from the Winter Semester of the Academic Year 2023-24, be approved.

Dr. R. Jegan Raj, Associate Professor & Head, Department of Aeronautical Engineering, seconded it.

The motion was carried

44.6 To consider and approve to conduct arrear examinations for those students who have failed in the (i) Professional Proficiency courses *(under the clause 7.3.7)* (ii) Mandatory courses (Constitution of India & Engineer Society) (*under the clause 7.3.8*) instead of Re-registration under VTR UGE 2021 *(Ref. Section 8.6.4)*

The Vice Chancellor, placed it before the Academic Council the proposal of conduct arrear examinations for those students who have failed in the (i) Professional Proficiency courses *(under the clause 7.3.7)* (ii) Mandatory courses (Constitution of India & Engineer Society) (*under the clause 7.3.8*) instead of Re-registration under VTR UGE 2021 *(Ref. Section 8.6.4)*.

Dr. A. T. Ravichandran, Professor & Dean Academics, presented the proposal to conduct arrear examinations for those students who have failed in the (i) Professional Proficiency courses *(under the clause 7.3.7)* (ii) Mandatory courses (Constitution of India & Engineer Society) (*under the clause 7.3.8*) instead of Re-registration under VTR UGE 2021 *(Ref. Section 8.6.4)*.

The members have accepted the proposal and suggested to explore the possibilities of arranging Intensive course for the benefit of failed students immediately after the result and conduct arrear examinations accordingly.

Dr. A. T. Ravichandran, Professor & Dean Academics, moved that "the proposal to conduct arrear examinations for those students who have failed in the (i) Professional Proficiency courses *(under the clause 7.3.7)* (ii) Mandatory courses (Constitution of India & Engineer Society) (*under the clause 7.3.8*) instead of Re-registration under VTR UGE 2021 *(Ref. Section 8.6.4)*", be approved.

Dr.R.Sivaraman, Professor & Controller of Examinations, seconded it.

The motion was carried.

44.7 To discuss and approve the introduction of the Bucket System for elective courses under the Regulations VTR UGE 2021 from the summer semester of the Academic Year 2024-25.

The Vice Chancellor, placed it before the Academic Council the proposal of introduction of the Bucket System for elective courses under the Regulations VTR UGE 2021 from the summer semester of the Academic Year 2024-25. S. Sabiral

Dr. A. T. Ravichandran, Professor & Dean Academics, presented a short note about the Bucket System for elective courses under the Regulations VTR UGE 2021 to be operative from the summer semester of the Academic Year 2024-25.

Summary Note:

Our institution has been following the Choice based Credit System, since 2015. The students are free to handpick the electives of their own choice. This enables students to tailor their learning journey, honing the skills and expertise as they desire across various specialized fields by adding courses one by one in the elective categories.

However, students are facing some minor issues like satisfying the pre-requisites before opting for a particular course, completing the courses before the 9 month+ internships in industries or in universities abroad, missing the registration of certain courses in the previous semester and trying to register them at a later stage etc.,

Moreover, the examination schedules are also unique for every student based on the courses he/she has registered and it may also be spaced either continuously or in non-periodic gaps extending till last day of the examination session.

To address these issues and to strengthen the CBCS, it is proposed to implement the bucket/basket system in the institution in line with the practice observed in other leading universities. Each bucket will have a set of mandatory foundation and programme specific courses along with supplemented by a range of elective options. All the buckets will have the same mandatory courses whereas the set of electives will differ and a student is free to choose any bucket/basket.

These buckets will be so designed that, if the student opts for a specific set of electives in one semester, they can advance to move specialized elective courses in subsequent semesters, ensuring a coherent and progressive academic journey.

This will enhance the better deliverability of courses right on the intended semesters and also will help the students to complete all the required courses before 6 month/ 9 month internships thereby maximizing their competency level for the professional world.

The members welcomed the proposal of introducing the bucket system of elective courses. **Dr Krishnan Baskar**, member opined that, the bucket system of elective courses would be much helpful in the effective implementation of CBCS.

Dr Sankaranarayanasamy, member suggested to conduct workshop to the faculty members to familiarise with the bucket system of elective courses and procedures there on while in offering the elective courses.

Dr. A. T. Ravichandran, Professor & Dean Academics, thanked the members for the suggestions and he assured to arrange workshop and training programmes to the HoDs and concerned faculty members to make them aware of the bucket system of elective courses for smooth implementation from the Academic year 2024-25.

Prof. S. Salivahanan
Vice-Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

Dr. A. T. Ravichandran, Professor & Dean Academics, moved that " the introduction of Bucket System for electives courses under the Regulation VTR UGE 2021 from the summer semester of the Academic Year 2024-25" be approved.

Dr. P. Suresh, Professor & Dean International Relations, seconded it.

The motion was carried.

44.8 To discuss the NAAC reforms with regard to implementation of Binary Accreditations system and Maturity Based Grading Accredations (MBGA) in the place of present NAAC system of ranking Institution.

The Vice Chancellor, placed it before the Academic Council the NAAC reforms with regard to implementation of Binary Accreditation system and Maturity Based Grading Accredation (MBGA) in the place of present NAAC system of ranking Institution in detail.

Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance, presented the NAAC reforms with regard to implementation of Binary Accreditations system and Maturity Based Grading Accredations (MBGA) in the place of present NAAC system of ranking Institution.

Summary Note:

As per the National Education Policy (NEP) 2020, a committee has been constituted under the chairmanship of Dr. K. Radhakrishnan to submit the report on "Transformative Reforms for Strengthening Assessment and Accreditation of Higher Education Institutions in India". The report which was submitted by the committee has been approved by the Ministry of Education on 16th January 2024. The salient features of the recommendations are;

Binary Accreditation (Either accredited or not accredited) rather than grades with an aim to encourage all the institutions to get on-boarding in the accreditation process thereby creating a quality culture in the higher education system. The binary accreditation is also in line with the best practices followed from many leading countries in the world.

Maturity-Based Graded Accreditation: Level 1 to 5 to encourage the Institutions to raise their bar, continually improve, evolve in-depth or in-breadth in disciplines from 'Level 1' to 'Level 4' as Institutions of National Excellence, and then to 'Level-5', i.e. Institutions of Global Excellence for Multi-Disciplinary Research and Education. The leveled accreditation shall enable Indian Institutions to significantly improve their quality and position themselves among global top institutions.

Based on Dr. K. Radhakrishnan's committee report, the Executive Committee of NAAC in its 104th meeting held on 27th January 2024 decided the following.

S. Sekhar

The recommended reforms shall be implemented in two stages. In the first stage, the Binary accreditation will be implemented in the next four months and no new applications will be accepted as per the present methodology thereafter. Institutions that have applied and are applying in the next four months shall have the option to either go by the present process or by the new methodology of binary accreditation. The maturity-based graded levels will be implemented by December 2024.

Additionally, it aims to ensure the integrity and transparency of institutional data by centralizing it through a One Nation One Data Platform, serving various purposes such as approval, accreditation, and ranking.

Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance, moved that " NAAC reforms with regard to implementation of Binary Accreditations system and Maturity Based Grading Accredations (MBGA) in the place of present NAAC system of ranking Institution.", be reported.

44.9 To discuss the Multiple Exit options for the students admitted under the Regulations VTR UGE 2021.

The Vice Chancellor, placed it before the Academic Council to discuss the Multiple Exit options for the students admitted under the Regulations VTR UGE 2021.

Dr. A. T. Ravichandran, Professor & Dean Academics, presented the proposal of Multiple Exit options for the students admitted under the Regulations VTR UGE 2021.

Dr Krishnan Baskar, member suggested that, the Certificate or Diploma shall be given to the students those who opted exit under the multiple exit system after ensuring their skill level and finishing school approach may also be considered to enable the students to meet the expectations of Industries.

Dr Sankaranarayanasamy, member suggested that the special training might be given to the students to enable them to acquire required skill and knowledge in the respective areas of study.

After elaborate discussions, the members accepted the proposal and suggested to evolve the implementation strategies of multiple exit before the implementation.

Dr. A. T. Ravichandran, Professor & Dean Academics, moved that "proposal of multiple exit options for the students admitted under the Regulations VTR UGE 2021 may be permitted to present again after evolving the implementation strategies".

Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance, seconded it.

The motion was carried.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

C. Items for Consideration

44.10 To consider and approve the proposal of addition/reduction of intake in UG & PG programmes for the Academic Year 2024-25.

The Vice Chancellor, placed it before the Academic Council the proposal of addition/reduction of intake in UG & PG programmes for the Academic Year 2024-25.

Dr. E. Kannan, Professor & Registrar, presented the proposal of addition/reduction of intake in UG & PG programmes for the Academic Year 2024-25.

Summary Note:

It is submitted that due to the increased demand for B.Tech. Computer Science and Engineering programme, the intake of students for this particular programme is increased from 1104 to 1320. The intake of students for B.Tech. Civil Engineering programme is reduced from 60 to 30 for the academic year 2024-25.

In the case of Post Graduate programmes, there is reduction from 18 to 12 for certain programmes viz (Aeronautical Engineering (Unmanned Aerial Vehicle), Big Data Analytics, Biotechnology, Computer Science & Engineering, Embedded Systems & Technologies, Information & Cyber Security and Power Electronics). Secondly due to the increased demand for the M.Tech. Industrial Safety & Engineering programme, the intake is increased from 18 to 36.

Lastly as the admission for M.Tech. Network Engineering programme is continuously less than the threshold number for the last few years, approval is sought for closure of the programme from 2024-25 onwards.

Table 2: UG / PG - Programme for which the students intake is increased

S.No	UG /PG Programmes	AICTE Approved Intake for 23-24	Admitted Count AY 23-24 (Domestic+ Supernumerary)	Proposed Intake AY 24-25 (Domestic + Supernumerary)
1	Computer Science& Engineering (UG)	1104	1104+159 = 1263	1320+198=1518
2	Industrial Safety and Engineering (PG)	18	18+3=21	36+5=41

S. Selvi

Table 3: UG / PG - Programme for which the students intake is reduced

S.No	UG /PG Programmes	AICTE Approved Intake for 23-24	Admitted Count AY 23-24 (Domestic+ Supernumerary)	Proposed Intake AY 24-25 (Domestic + Supernumerary)
1	Civil Engineering (UG)	60	10	30+5=35
2	Aeronautical Engineering (UNMANNED AERIAL VEHICLE) (PG)	18	4	12
3	Big Data Analytics (PG)	18	11	12
4	Biotechnology (PG)	18	8	12
5	Computer Science and Engineering (PG)	18	8	12
6	Embedded Systems and Technologies (PG)	18	4	12
7	Information and Cyber Security (PG)	18	9	12
8	Power Electronics (PG)	18	4	12

Table 4: PG - Closure Programme due to poor intake

S.No	UG /PG Programmes	AICTE Approved Intake for 23-24	Admitted Count AY 23-24 (Domestic+ Supernumerary)	Proposed Intake AY 24-25 (Domestic + Supernumerary)
1	Network Engineering (PG)	18	0	Sought for closure from 2024-25

The proposed intake for the Academic Year 2024-25 can be accessed here

Appendix Proposed Intake

Dr. E. Kannan, Professor & Registrar, moved that "the proposal of addition/reduction of intake in UG & PG programmes for the Academic Year 2024-25", be approved.

Dr.M.Sivakumar, Professor & Dean - FME , seconded it.

The motion was carried.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

D. Items for Ratification

44.11 To ratify the admission of candidates to Doctoral(Ph.D.) level programmes in Engineering and Technology/ Science / Law / Management / Humanities /Arts for Academic Year 2023-24.

The Vice Chancellor, placed it before the Academic Council the admissions of Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts during the Winter Semester of the Academic Year 2023-24.

Dr. K. Jagajjanani Rao, Associate Professor & Dean - Academic Research, presented the admissions of Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts for Winter Semester of the Academic Year 2023-24.

- **Summary of Ph.D. Admission AY 2023-24 (Winter Semester)**

The Centre for Academic Research received 209 applications through online. Out of 209 candidates, 25 candidates were exempted from written entrance examination, since they have qualified M. Phil/NET/SLET/GATE and 184 candidates shortlisted for entrance exam. Out of 184, 132 candidates were appeared for the entrance examination in which 100 candidates got eligible for the Interview. Totally 125 candidates including 25 exempted candidates got eligible for the Interview in various departments. Through the concerned department DRC, 91 candidates were selected and have been called for certificate verification. Finally, 69 candidates were admitted where 18 candidates registered in the Full-Time mode and 51 candidates registered in the Part Time mode.

Table 5: Ph.D. Admission for the Winter Semester of the Academic Year 2023-24

S.No.	Depart -ment	Applied	Attended for Exam	Provisionally Admitted			
				Full Time	Part Time (Int.)	Part Time (Ext.)	Total
Engineering							
1	Aero	5	5	1	0	0	1
2	Biomed	9	7	0	1	6	7
3	Biotech	17	9	7	0	0	7
4	Civil	14	12	1	0	4	5
5	CSE	34	19	1	0	7	8
6	IT	3	2	0	0	0	0
7	ECE	16	10	1	0	3	4
8	EEE	7	3	0	0	1	1
9	Mech	16	9	0	0	6	6
Total (A)		121	76	11	1	27	39
S&H							
10	Eng	19	11	2	0	5	7
11	Maths	20	7	3	0	5	8
12	Chem	7	3	1	0	2	3
13	Phy	7	5	0	0	2	2

S. Sakiroh

Total (B)		53	26	6	0	14	20
Law &MBA							
14	Law	20	19	0	6	1	7
15	MBA	15	11	1	0	2	3
Total (C)		35	30	1	6	3	10
Over All Total (A+B+C)		**209**	**132**	**18**	**7**	**44**	**69**

Dr. K. Jagajjanani Rao, Associate Professor & Dean - Academic Research, moved that "the admissions in Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts during the Winter Semester of the Academic Year 2023-24", be ratified.

The motion was carried.

44.12 To ratify the admissions under Re-Admission category in the Winter Semester of the Academic Year 2023-24.

The Vice Chancellor, placed it before the Academic Council to ratify the admissions under Re-Admission category in the Winter Semester of the Academic Year 2023-24.

Dr. E. Kannan, Professor & Registrar, presented the list of students admitted under Re-Admission category in the Winter Semester of the Academic Year 2023-24.

Table 6: List of students admitted under Re-Admission category AY 2023-24 (Winter Semester)

S.No.	Batch	VTU No	Name of the Student	Progr-amme	Dept.	Sem/ Year	Circular No. and Date
1	2020-21	VTU 16881	V. Akilan	B.Tech.	Civil	VI/III	Circular No. 85 dated on 05.01.2024
2	2019-20	VTU 16231	Yash Kumar Sha	B.Tech.	Aero	VII/IV	Circular No. 91 dated on 22.01.2024
3	2021-22	VTU 19334	D Chandu	B.Tech.	CSE (AI&ML)	IV/II	Circular No. 94 dated on 31.01.2024
4	2020-21	VTA 963	R Durai Murugan	B.Com.	-	IV/II	Circular No. 96 dated on 01.02.2024

S. Salivah
Prof. S. Salivahanan
Vice Chancellor

5	2020-21	VTA 1153	S Rabindran	B.Com.	-	IV/II	Circular No. 96 dated on 01.02.2024
6	2022-23	VTU 23841	G Sameer Kumar	B.Tech.	CSE	III/II	Circular No. 97 dated on 05.02.2024
7	2021-22	VTU 21309	Mythish.G	B.Tech.	Aero	IV/II	Circular No. 98 dated on 08.02.2024
8	2022-23	VTU 21703	V Mathesh	B.Tech.	AI&DS	IV/II	Circular No. 102 dated on 21.02.2024

Dr. E. Kannan, Professor & Registrar, moved that "the list of students admitted through Re-Admission category in the Winter Semester of the Academic Year 2023-24", be ratified.

The motion was carried.

44.13 To ratify the examination results of Semester End Examinations held during the Summer Semester of Academic Year 2023-24.

The Vice Chancellor, placed it before the Academic Council to record the result analysis of the Semester end examination held during Summer Semester of the Academic Year 2023-24.

Dr. R. Sivaraman, Professor & Controller of Examinations, presented the examination results of Semester End Examinations held during the Summer Semester of Academic Year 2023-24.

Dr. R. Sivaraman, Professor & Controller of Examinations, moved that "the result analysis of the semester end examination held during Winter Semester of the Academic Year 2023-24", be ratified.

The motion was carried.

E. Items for Reporting

44.14 To report the results of the Ph.D. viva voce conducted since last Academic Council held on September 23, 2023.

The Vice Chancellor, placed it before the Academic Council the results of the Ph.D. viva voce examinations conducted since last Academic Council held on September 23, 2023.

S. Salivd

Dr. R. Sivaraman, Controller of Examinations, presented the results of the Ph.D. viva voce examinations conducted since last Academic Council held on September 23, 2023.

Ph.D. viva voce completed candidates list can be accessed here

Appendix Ph.D. viva voce

Dr. R. Sivaraman, Controller of Examinations, moved that "the results of the Ph. D. viva voce examinations conducted since last Academic Council held on September 23, 2023", be ratified.

The motion was carried.

44.15 To report the letters received from the UGC with regard to :

1. Categorization of this Deemed to be University under Category 1 for Grant of Graded autonomy as per UGC Regulations, 2018.

2. Inclusion of the Deemed to be University under section 12B of the UGC Act, 1956.

The Vice Chancellor, placed it before the Academic Council to report the letters received from the UGC with regard to 1. Categorization of this Deemed to be University under Category 1 for Grant of Graded autonomy as per UGC Regulations, 2018, 2. Inclusion of the Deemed to be University under section 12B of the UGC Act, 1956.

Dr. E. Kannan, Professor & Registrar, presented the letters received from the UGC with regard to 1. Categorization of this Deemed to be University under Category 1 for Grant of Graded autonomy as per UGC Regulations, 2018, 2. Inclusion of the Deemed to be University under section 12B of the UGC Act, 1956.

Summary Note:

The UGC has notified UGC [Categorization of Universities (only) for Grant of Grade I [Autonomy]] Regulations, 2018 on 12th February, 2018 in the Gazette of India.

The proposal submitted by the Vel Tech Rangarajhn Dr. Sagunthala R & D Institute of Science and Technology (Deemed to be University) has been examined, processed, and considered by the UGC for the up-gradation of Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology as Category-I Deemed to be University as per the provisions of the above UGC Regulations. Accordingly, the Deemed to be University shall now be eligible for all the benefits as stipulated under Clause 4 (Dimensions of Autonomy for Category-I Universities) of the UGC Regulations.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech

Similarly, the University Grants Commission in its 574th meeting held on 03.11.2023 considered the application submitted by our institution and decided to grant 12B status to Vel Tech Rangarajan Dr. Sagunthaia R & D Institute of Science and Technology, (Deemed to be University) subject to the condition that the financial assistance under all UGC schemes shall be limited to those relating to teachers and students only.

Accordingly, the Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, (Deemed to be University) is included under section l2B of the UGC Act 1956 to be eligible for central assistance. The Acknowledgement has been submitted to the UGC as per this official communication no. VT/R/L/UGC-Grant of graded autonomy/23-24/051 dated 16.11.2011 along with the relevant documents in person for inclusion of the Institution in the list of Institutions in the country coming under Category I deemed to be Universities and publication of the same in the UGC official Website.

Dr. E. Kannan, Professor & Registrar, moved that report the letters received from the UGC with regard to 1. Categorization of this Deemed to be University under Category 1 for Grant of Graded autonomy as per UGC Regulations, 2018, 2. Inclusion of the Deemed to be University under section 12B of the UGC Act, 1956 and the action taken on these letters", be recorded.

The motion was carried.

44.16 To record the progression and achievements of the following Schools and divisions:

a) School of Mechanical and Construction.

b) School of Law.

The Vice Chancellor, placed it before the Academic Council to report the progression of School of Mechanical and Construction, School of Law and their academic achievements.

a) School of Mechanical and Construction.

Dr.N. Lenin, Professor & Dean - School of Mechanical and Construction, presented the Progression of School of Mechanical and Construction and their academic acheivements.

Summary Note:

The School of Mechanical and Construction is comprised of the Aeronautical, Automobile, Civil, and Mechanical Engineering departments. Civil Engineering had been accredited for three years by the National Board of Accreditation (NBA) in their second cycle, which was assessed in August 2022. Aeronautical and Mechanical Engineering departments have been accredited by the National Board of Accreditation in March 2023 for the next three years.

S. Sahil

In the academic year 2023-2024, 747 students were enrolled in the School of Mechanical and Construction. On this, 585 students were in UG programs (Aeronautical: 178, Automobile: 11, Civil: 128, and Mechanical: 268), and 127 students were in PG programs (Aeronautical: 6, Civil: 43, and Mechanical: 78). 35 scholars were admitted to their Ph.D. programs (Aeronautical: 6, Civil: 7, and Mechanical: 22).

The School of Mechanical and Construction has a well-qualified and experienced team of faculty members in the respective disciplines. Presently, 92 full-time faculty members are working at SoMC. 27 are designated as professors, 15 as associate professors, and 50 as assistant professors. On the qualification list, 1 is a post-doctoral fellow, 72 faculty members hold doctoral degrees, 17 faculty members are pursuing their Ph.D., and 2 faculty members are post-graduate degree holders.

The SoMC faculty members are actively participating in research activities. Noble guidance is being provided to all U.G. and P.G. students in their project work. Doctoral faculty members are guiding the Full Time and Part Time research scholars.

Faculty members of SoMC had published 287 journal articles in WoS and Scopus journals from January 2023 to February 2024, with huge citations around 2000. 13 patents were awarded and 17 patents were published to the credit of the faculty members of SoMC in the AY 2023–24.

The funded projects with the total worth of Rs. 99 lakhs were received from various funding agencies such as DST, SERB, ISRO, DRDO, etc. in this academic year. A total of 25 consultancy projects worth Rs. 36.74 lakhs were received from various industries. 30 project proposals had been submitted by SoMC faculty. 13 research scholars at SoMC had completed the Ph.D. degree from January 2023 to February 2024.

Students are continuously encouraged to participate in various events, and the outcome is that 101 students participated in 24 events and won numerous and prestigious awards. 24 students of SoMC are undergoing project internships in world-top-ranked institutes with scholarships, and 83 students are doing their project internships at leading industries all over India. Regarding placements, 198 students out of 458 graduates have been placed it in premier MNCs and industries to date, and 22 students are pursuing their higher studies abroad and in India.

The SoMC raised the graduation ratio to 90%, with Aeronautical at 85%, Automobile at 94%, Civil at 79%, and Mechanical at 95% in the 2023 graduation.

Dr.N. Lenin, Professor & Dean - School of Mechanical and Construction, moved that "the Progression of School of Mechanical and Construction and their academic acheivements", be recorded.

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

b) **School of Law.**

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

Prof. Dr. B. Venugopal , Professor & Dean - School of Law, presented the Progression of School of Law and the academic acheivements.

Summary Note:

The School of Law started in the year 2018 and offers undergraduate programmes of B.A.LLB(Hons), B.Com LLB(Hons) and also Ph.D Programmes . There are more than 50 faculty members in the school and 928 students of which 530 are boys and 398 are girls.

The Academic year 2023-24 has been an eventful year so far. The School of Law organized a Two Days National Seminar on the Interplay of Women, Law, and Society - Issues and Challenges on the 10th and 11th of November 2023.

On the 10th, Honorable Dr. Justice P. Devadass, Former Judge of Madras High Court and currently serving as the Lokayukta Judge was the Chief Guest for the Inaugural Ceremony. Adv. Dr. Shantha Kumari, President of the Tamil Nadu Association of Women Lawyers, was the Guest of Honour. Vice Chancellor Prof. S. Salivahanan and Deans of School of Media Studies and School of Management Studies graced the occasion. The technical sessions were conducted after the inaugural ceremony. On the 11th, research paper presentations were held in seven venues simultaneously. Mr. M.D. Arifur Rahman, Second Secretary & Head of Chancery, Deputy High Commission for the People's Republic of Bangladesh, Chennai, India was the chief guest for the valedictory function and he also released the journal titled ' Interplay of Women, Law, and Society - Issues and Challenges'. Prof. Dr. Gowri Ramesh, Registrar of Tamil Nadu Dr.Ambedkar Law University, also graced the occasion as the Guest of Honour .

The School of Law celebrated Constitutional Day, a significant occasion that marks the adoption of the Constitution of our nation. Mr G Ramar, Assistant Commandant, CRPF, Avadi, Chennai was the chief guest for the event organised on 27.11.2023.

The School of Law conducted the first intra collegiate 'Crime Scene Investigation Competition' on 14/10/2023. The Competition is about introspecting a crime scene to establish the possible link between suspect, victim, and witnesses in relation to a criminal event.

The event was judged by Mr. Vijay Karthik, Faculty of Law, Dr.Ambedkar Govt Law College, Tiruvallur, Ms. Indira, Faculty of Law, Dr. Ambedkar Govt Law College, Chengalpattu and Mr. Anbalagan, Assistant Commissioner of Police, Avadi.

A significant achievement of the School this year was that for the second consecutive year the funding from ICSSR project was awarded to its faculty. Dr. K. Barathiraja, has been awarded ICSSR: Minor Research Project-2023-24with a grant of Rs. 9,65, 600/- for the duration of 1 year. Dr. K. Illakiya, was awarded ICSSR: Minor Research Project - 2022-23 with a grant of Rs. 4,55,000 for the duration 1 year.

S. Salivah

The School conducts various outreach programmes towards legal awareness and legal aid. On 31-05-2023, in the village Koduvalli, an awareness campaign on child rights and also helpline numbers were held. On 02-06-2023 in the village Vellanur, awareness campaign on the rights of the women under the Indian Legal framework was organised.

On 14-07-2023, Anti Ragging awareness campaign was conducted in the School of Law premises. Legal Awareness Programme was conducted in Alamathi Village by Thiru. P.V. Sandilyan, Secretary and Senior Civil Judge, District Legal Service Authority, Thiruvallur District Court along with School of Law Students on 07.08.2023. Legal Awareness Programme was also conducted in the School of Law Campus by Thiru. P.V. Sandilyan, Secretary and Senior Civil Judge, District Legal Service Authority, Thiruvallur District Court, Thiruvallur on 22.09.2023. A legal awareness along with the village president was on 30.09.2023 in Kadhirvedu village.

By way of practical training, a visit to the Juvenile Justice Board in Kelly's, Chennai was organised from June 25th to 27th of 2023, both for the faculty and students.

So far five Special Lectures have been organised. A special lecture on Constitution Amendments: To Mend the Mind & Manage Crisis was delivered by Mr A. Jaison, Member of the Social Justice Monitoring Committee Government of Tamil Nadu on 6th October 2023. Lecture on Article 14- An Overview was delivered by Dr.G.Rajasekar, Head i/c, Department of Legal Studies, University of Madras on the 12th October 2023. A special lecture on the Law of Banking was delivered by Mrs K. S Begum, an Advocate and Notary Public on 20.10.023.A special lecture on Application of Statistical tools in Legal Studies was delivered by Dr.D. Sathiyavan, Prof and Head, Department of Econometrics, University of Madras on 8th February 2024. A special Lecture on Research Methodology in Socio- Legal Perspectives by Dr.M. Thamilarasu by Prof. and Head, Department of Sociology, University of Madras.

The faculty of the school regularly attend faculty development programmes to stay updated on the latest trends in the field of law. The faculty participate and present papers in seminars and conferences and they have also published research papers in edited books, peer reviewed journals, UGC approved journals and a few also have Scopus publication.
The students also bring accolades to the institution. 1st-year student Deepak D has won the "Gold Medal" at the 14th National Youth Games Championship 2023 in SILAMBAM- Surul Vaal under category 19, held at Chougule Sports College, Goa on 07th October 2023. S.Sandhiya & S.Hemavathy from IIIrd BA., LLB got 1st and 2nd Prize respectively in the Alternative Judgement writing competition conducted by Christ Academy of Law, Bengaluru. Sampathi Rao Sindhu (VTA 2377), II Year B. Com LLB, Naval Wing Cadet has participated in the 75th Republic Day Parade 2024.

S. Salivahanan
Prof. S. Salivahanan
Vice Chancellor

Vel Tech

She has also been selected to participate in the Youth Exchange Program (YEP) as a representative of India in other countries. She will be visiting 10 countries.

Prof. Dr. B. Venugopal , Professor & Dean - School of Law, moved that "the Progression of School of Law and the academic acheivements", be recorded.

The motion was carried.

E. Closing

44.17 Any other items with the permission of the Chairperson.

No items other than those included in the agnda were taken-up for discussions.

44.18 To decide the date of holding the next meeting of the Academic Council.

It has been decided to hold the next meeting of the Academic Council in the **Month of June 2024** and to inform the members regarding the exact date and time of the meeting sufficiently in advance.

44.19 Vote of Thanks.

Dr. E. Kannan, Professor & Registrar, extended his thankfulness to all the members for actively participated in discussions and he assured that their suggestions and inputs would be taken into considerations for inclusion in the minutes.

44.20 Adjournment

The meeting was adjourned at 2.00 PM.

★★★

S. Sahir

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

43rd MEETING
OF
THE ACADEMIC COUNCIL

Saturday, September 23, 2023

MINUTES

No. 42, Avadi-Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pincode-600 062.
Email: registrar@veltech.edu.in, Website: www.veltech.edu.in.

Contents

43.1 To record note of appreciation to the members, who are completing the tenure of membership. 1

43.2 To record the welcoming of new members to the Academic Council. 1

43.3 Call to Order and Approval of Agenda of the 43rd meeting of the Academic Council. 2

43.4 Confirmation of the minutes of 42nd meeting of the Academic Council held on Saturday, June 10, 2023. 2

43.5 To review the Action Taken Report on the minutes of the 42nd meeting of the Academic Council held on June 10, 2023. 2

43.6 To record leave of absence of the members. 4

43.7 To consider and approve the new Regulations of the M.B.A. Programme. 5

43.8 To consider and approve the proposal for the conduct of 13th Convocation to be held in the month of November 2023. 5

43.9 To ratify the admissions of candidates in Doctoral (Ph.D.) level programmes in Engineering and Technology/ Science / Law / Management / Humanities /Arts during the Summer Semester of the Academic Year 2023-24. 6

43.10 To ratify the examination results of Semester End Examinations held during the Winter Semester of Academic Year 2022-23. 8

43.11 To ratify the number of students admitted under various programme in the Academic Year 2023-24. 9

43.12 To ratify the admissions under Institution Transfer category during the Summer Semester of the Academic Year 2023-24. 9

43.13 To ratify the admissions under Lateral Entry category during the Summer Semester of the Academic Year 2023-24. 10

43.14 To ratify the admissions under Re-Admission category during the Summer Semester of the Academic Year 2023-24. 11

43.15 To ratify the students migrated from one Programme to another Programme in Under Graduate (UG) during the Summer Semester of the Academic Year 2023-24. 12

43.16 To ratify the Academic Calendar of UG & PG programmes for the Academic Year 2023-24. 15

43.17 To ratify the results of the Ph.D. viva voce examinations conducted since last Academic Council held on June 10, 2023. 15
43.18 To report the status of uploading information relating to B.A.,LL.B.(Hons.) and B.Com., LL.B.(Hons.) Programmes in the Bar Council of India (BCI) portal for obtaining Extension of Approval (EoA) from BCI. 16
43.19 To record the progression and achievements of the following School/Office: 16
43.20 Any other items with the permission of the Chairperson. 18
43.21 To decide the date of holding the next meeting of the Academic Council. 18
43.22 Vote of Thanks. 19
43.23 Adjournment 19

List of Tables

1 External Members completing the tenure of Membership 1
2 New External Members 2
3 Action Taken Report in respect of 42nd meeting of the Academic Council held on June 10, 2023. 3
4 International Admission for the Summer Semester of the Academic Year 2023-24 . 6
5 National Admission for the Summer Semester of the Academic Year 2023-24 7
6 Institution Transfer Student List 9
7 Statistics of Lateral Entry students (Summer Semester AY 23-24) 10
8 Students admitted through Re-Admission in Summer Semester AY 2023-24 11
9 List of Migrated Students during Summer Semester of the AY 2023-24 12

Minutes of the 43rd MEETING OF THE ACADEMIC COUNCIL

Saturday, September 23, 2023, at 10.30 a.m.

The Vice Chancellor welcomed all the members and highlighted the acheivements of the Institution.

A. Opening

43.1 To record note of appreciation to the members, who are completing the tenure of membership.

The Vice Chancellor has placed the appreciation note on the following members who have completed their tenure of membership in the Academic Council of the Institution. Further, the Vice Chancellor pointed out their contribution with reference to Academic Quality improvement of the Institutions.

Table 1: External Members completing the tenure of Membership

S.No	Name	Position
1	Prof. N.V. Ramana Rao, Director, National Institute of Technology, Warangal, Telangana - 506004.	External Member
2	Dr. Shankar Venugopal, Vice President, Technology Innovation & KM Dean – Mahindra Technical Academy Mahindra World City, Chengalpattu, Tamil Nadu.	External Member
3	Mr.Ramakrishna, Chief Executive Officer and Managing Director, Effronics Systems Pvt.Ltd., Vijayawada	External Member

43.2 To record the welcoming of new members to the Academic Council.

The Vice Chancellor has introduced the following new members who are inducted in the Academic Council and extended his hearty welcome on behalf of all members of the Council.

Table 2: New External Members

S.No	Name	Position
1	Mr. K. Balaji, Vice President – People and Culture Delphi – TVS Technologies Chennai	External Member
2	Mr. Raghuraman Krishnamurthy, Chief Enterprise Architect P&R Practise, Cognizant Chennai.	External Member

43.3 Call to Order and Approval of Agenda of the 43rd meeting of the Academic Council.

The Vice Chancellor called to order and placed the agenda of the 43rd meeting of the Academic Council for confirmation which was circulated to members by e-mail.

43.4 Confirmation of the minutes of 42nd meeting of the Academic Council held on Saturday, June 10, 2023.

The minutes of the 42nd meeting of the Academic Council held on June 10, 2023 were circulated to the members.

The draft minutes of the 42nd meeting of the Academic Council can be accessed *here*

Appendix A

The Minutes of the 42nd meeting of the Academic Council held on June 10. 2023 has been confirmed.

43.5 To review the Action Taken Report on the minutes of the 42nd meeting of the Academic Council held on June 10, 2023.

The Vice Chancellor, placed before the Academic Council to consider the Action Taken Report in respect of the 42nd meeting of the Academic Council as described in Table 3 .

Table 3: Action Taken Report in respect of 42nd meeting of the Academic Council held on June 10, 2023.

S.No	Decision Taken	Action Taken Report
1	**Item No 42.5 - Page 3** To consider and approve the New Regulations for the following disciplines. Engineering and Technology - Post Graduate (PG)programmes 1. Retain the allocation of 20 marks in CA exam for the Assignment/Seminar 2. Inclusion of National Conference to present/ the research article. 3.Awarding credits for Patterns Product Development	All decisions are duly incorporated in the new Regulations VTR PGE 2023. 1.The Allocations of 20 marks in CA for Assignement/Seminar retained.*(Ref Section 8.2.1.2)* 2. Inclusion of National Conference *(Ref. Section 7.2.5.3)* 3. Credits for Patterns Product Development *(Ref. Sec. 7.2.6)*
2	**Item No 42.5 - Page 3** Arts & Science (PG Programme) VTR PGAS 2023 1. Same Decision taken as per VTR PGE 2023.	Included in new Regulations VTR PGAS 2023. 1.The Allocations of 20 marks in CA for Assignement/Seminar retained.*(Ref Section 8.2.1.3)* 2. Inclusion of National Conference *(Ref. Section 7.2.4.2)* 3. Credits for Patterns Product Development *(Ref. Sec. 7.2.7)*
3	**Item No 42.6 - Page 5** To consider and approve the minutes of the board of studies of the following disciplines. A) B.Tech. - Aeronautical Engineering Members suggested to include Hypersonic course in the UG & PG Curriculum	B.Tech : 1152AE125 - Hypersonic Aerodynamics. M.Tech : 2162AE114 - Hypersonic Aerodynamics. The above courses are already approved and offered to students from AY 2018-19 and also included in the new Regulations.
4	**Item No 42.6 - Page 10** To consider and approve the minutes of the board of studies of the following disciplines. L) B.Tech. - Electrical and Electronics Engineering Members suggested to introduce the course related to material science Engineering for UG and PG programmes	B.Tech : 10212EE166 - Power Semiconductor materials. M.Tech : 20232EE131 - Smart Materials for Power Electronics Applications. Contents for the above two courses under program electives have been prepared. It will be offered from WS 2023-24 after placing it in the upcoming BOS and ACM.

5	**Item No 42.6 - Page 11** To consider and approve the minutes of the board of studies of the following disciplines. M) B.Tech. - Electronics and Communication Engineering Members suggested to offer the course on new technology "Quantum Computing"	Course code : 10212EC17, Course Name : Fundamentals of Quantum Computing. A new course under program elective category will be offered from WS of the AY 2023-24 after placing it in the next BOS and ACM.
6	**Item No 42.6 - Page 12** To consider and approve the minutes of the board of studies of the following disciplines. O) B.Tech. - Mechanical Engineering Members suggested to offer the course on Electrical Vehicle & Battery storage courses in UG Curriculum	10213EE116 - Hybrid Electric Vehicle, 10213EE135 - Energy Storage system and Control are being offered in EEE department under open elective category. Mechanical students will be recommended to choose the courses from EEE department under Open Elective category.

The Council has taken note on the Action Taken report of the 42nd meeting of the Academic Council held on June 10. 2023.

43.6 To record leave of absence of the members.

The following member have expressed their inability to attend the meeting due to various reasons.

* **Prof. R.Venkata Rao,**
  Vice Chancellor,
  International University of Legal Education and Research (IIULER), Goa

* **Mr. K. Balaji,**
  Vice President – People and Culture
  Delphi – TVS Technologies, Chennai.

* **Prof. Dr. Krishnan Baskar. D.Sc.,**
  Director,
  Indian Institute of Technology-Senapati, Manipur

* **Prof. Dr. B. Venugopal,**
  Professor & Dean - SoL,
  Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology.

* **Dr.B.Someswara Rao,**
  Professor & HoD – School of Law,
  Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.

The Chair has noted their leave of absence.

The list of members attended the 43st meeting of the Academic Council can be accessed *here*

Appendix Attendance

The Letter for grant of absence can be accessed *here*

Appendix Grant of absence

B. Items for Consideration

43.7 To consider and approve the new Regulations of the M.B.A. Programme.

The Vice Chancellor, placed before the Academic Council to consider the proposed changes in the new Regulations **VTR PGM 2024** of Post-graduate (PG) – Management to be implemented with effect from the Summer Semester of the Academic Year 2024-25.

Dr.A.T. Ravichandran, Professor & Dean Academics, presented the proposed changes in the Regulations **VTR PGM 2024** of Post-graduate (PG) – Management.

The proposed changes in the Regulations can be accessed here

Appendix VTR PGM 2024

Dr.K.Sankara Narayanaswamy, member suggested to include National Conference also with International Conference/Scopus indexed journal as mandatory to present/publish the research article for PG Students.

Dr.A.T. Ravichandran, Professor & Dean Academics, moved that "the proposed changes in the Regulations **VTR PGM 2024** for Post-graduate (PG) – Management to be implemented with effect from the summer semester of the Academic Year 2024-25", be approved.

Dr. P. Suresh, Professor & Dean International Relations, seconded it.

The motion was carried.

43.8 To consider and approve the proposal for the conduct of 13th Convocation to be held in the month of November 2023.

The Vice Chancellor, placed before the Academic Council to consider the proposal for the conduct of 13th Convocation to be held in the month of November 2023.

Dr. E. Kannan, Professor & Registrar, presented the proposal for the conduct of 13th Convocation to be held in the month of November 2023.

It has been proposed to hold the 13th Convocation of this Institution in the month of November 2023. The exact date is yet to be finalised. **Prof. (Dr.) T G Sitharam**, Chairman, All India Council for Technical Education (AICTE), New Delhi has confirmed to be the Chief Guest of 13th Convocation. It is also submitted for approval regarding conferment of Honorary Doctoral degree (Honoris Causa) to Prof. Dr. T.G. Sitharam for his outstanding contributions in Geotechnical Infrastructure Engineering, on the day of the Convocation.

Dr. E. Kannan, Professor & Registrar, moved the proposal for the conduct of 13th Convocation to be held in the month of November 2023 and also confirmation of the Honorary Degree (Honoris causa) to **Prof. (Dr.) T G Sitharam**, Chairman, AICTE, New Delhi .

Mr.P.Vijayaraman, Assistant Professor & Dean – (Campus to Corporate) seconded it.

The motion was carried.

C. Items for Ratification

43.9 To ratify the admissions of candidates in Doctoral (Ph.D.) level programmes in Engineering and Technology/ Science / Law / Management / Humanities /Arts during the Summer Semester of the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the admissions of Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts during the Summer Semester of the Academic Year 2023-24.

Dr. K. Jagajjanani Rao, Associate Professor & Dean - Academic Research, presented the admissions of Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts for Summer Semester of the Academic Year 2023-24.

1. **Summary of Ph.D. International Admission AY 2023-24 (Summer Semester)**

   The Centre for Academic Research received 12 applications through online, out of which 10 applications were shortlisted and others are not short listed due to not fulfilling the eligibility criteria. All the 10 shortlisted candidates got eligible for the Interview. Through the concerned department DRC, 06 candidates were selected and have been called for certificate verification. Finally, 03 candidates were admitted in the Full-Time mode.

Table 4: International Admission for the Summer Semester of the Academic Year 2023-24

S.No.	Department	Applied	Shortlisted	Selected in Interview	Provisionally Admitted	Country
1	Aero	0	0	0	0	Nil

2	Civil	0	0	0	0	Nil
3	Mech	0	0	0	0	Nil
4	IT	0	0	0	0	Nil
5	CSE	3	3	1	1	Nigeria - 1
6	ECE	0	0	0	0	Nil
7	EEE	1	1	1	1	Nigeria - 1
8	Biomedical	0	0	0	0	Nil
9	Biotech	3	3	3	1	Nigeria - 1
10	English	0	0	0	0	Nil
11	Maths	0	0	0	0	Nil
12	Physics	0	0	0	0	Nil
13	Chemistry	0	0	0	0	Nil
14	Law	0	0	0	0	Nil
15	MBA	0	0	0	0	Nil
	TOTAL	**12**	**10**	**6**	**3**	**Nigeria - 3**

2. **Summary of Ph.D. National Admission AY 2023-24 (Summer Semester)**

   The Centre for Academic Research received 184 applications through online. Out of 184 candidates, 35 candidates were exempted from written entrance examination, since they have qualified M. Phil/NET/SLET/GATE and 149 candidates shortlisted for entrance exam. Out of 149, 122 candidates appeared for the entrance examination in which 97 candidates got eligible for the Interview. Totally 132 candidates including 35 exempted candidates got eligible for the Interview in various departments. Through the concerned department DRC, 84 candidates were selected and have been called for certificate verification. Finally, 73 candidates were admitted where 26 candidates registered in the Full-Time mode and 47 candidates registered in the Part Time mode.

Table 5: National Admission for the Summer Semester of the Academic Year 2023-24

S.No.	**Department**	**Applied**	**Shortlisted**	**Selected in Interview**	**Provisionally Admitted**		**Total**
					Full Time	**Part Time**	
1	AERO	4	4	4	3	1	4
3	BIOTECH	8	8	3	3	0	3
4	CHEMISTRY	16	16	4	3	1	4
5	CIVIL	11	11	5	0	5	5
6	CSE	27	27	10	1	7	8
7	ECE	21	21	12	4	6	10
8	EEE	5	5	2	1	0	1
9	ENGLISH	14	14	6	1	2	3
10	IT	2	2	1	0	0	0
11	LAW	16	16	5	2	3	5
12	MATHS	26	26	10	3	7	10
13	MBA	8	8	4	0	2	2
14	MECH	17	17	15	3	12	15
15	PHYSICS	9	9	3	2	1	3
TOTAL		**184**	**184**	**84**	**26**	**47**	**73**

Dr. K. Jagajjanani Rao, Associate Professor & Dean - Academic Research, moved that "the admissions in Doctoral (Ph.D.) level Programmes in Engineering and Technology / Science /Law / Management/ Humanities / Arts during the Summer Semester of the Academic Year 2023-24", be approved.

Dr. P. Chandrakumar , Professor & Dean - R&D and Industry Relations, seconded it.

The motion was carried.

43.10 To ratify the examination results of Semester End Examinations held during the Winter Semester of Academic Year 2022-23.

The Vice Chancellor, placed before the Academic Council to record the result analysis of the Semester end examination held during Winter Semester of the Academic Year 2022-23.

Dr. R. Sivaraman, Controller of Examinations, presented the UG / PG Programmes result analysis of the courses offered during the Winter Semester of AY 2022-23.

Result analysis of the Winter Semester of AY 2022-23 can be accessed here

Appendix Result Analysis

Dr. R. Sivaraman, Controller of Examinations, moved that "the result analysis of the semester end examination held during the Winter Semester of the Academic Year 2022-23", be ratified.

Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance, seconded it.

The motion was carried.

43.11 To ratify the number of students admitted under various programme in the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the number of students admitted under various UG & PG programmes in the Academic Year 2023-24.

Dr. E. Kannan, Professor & Registrar, presented the details about the number of students admitted under various UG & PG programmes in the Academic Year 2023-24.

Dr. E. Kannan, Professor & Registrar, presented the details about the number of students admitted under various UG & PG programmes in the Academic Year 2023-24.

Admission Details in the AY 2023-24 can be accessed here

Appendix Admission Details

Dr. E. Kannan, Professor & Registrar, moved that "the details about the number of students admitted under various UG & PG programmes in the Academic Year 2023-24", be ratified.

Dr.M.Sivakumar, Professor & Dean - FME , seconded it.

The motion was carried.

43.12 To ratify the admissions under Institution Transfer category during the Summer Semester of the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the list of students admitted through "Institution Transfer category" in the Summer Semester of the Academic Year 2023-24.

Dr.E. Kannan, Professor & Registrar, presented the list of students admitted through Institution Transfer category in the Summer Semester of the Academic Year 2023-24.

Table 6: Institution Transfer Student List

S.No	ID No.	Name of the Student	Department	Migration From
1	VTU 27189	Siddarth S Chakravarthy	Aeronautical Engineering	Rose Hulman Institute of Technilogy, US.
2	VTU 27285	Nabila A	Aeronautical Engineering	Noorul Islam Centre for Higher Education.
3	VTU 27322	Shaik Suhana Shareen	Biotechnlogy	Aarupadai Veedu Institute of Technology.
4	VTU 27342	Thangamari P	Electronics and Communication Engineering	RMD Engineering College, Chennai.

Dr.E. Kannan, Professor & Registrar, moved that "the list of students admitted through Institution Transfer category in the Summer Semester of the Academic Year 2023-24", be ratified.

Dr. E. Suresh Paul,Professor & Dean - School of Media Technology &

Communication, seconded it.

The motion was carried.

43.13 To ratify the admissions under Lateral Entry category during the Summer Semester of the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the list of students admitted under Lateral Entry category in the Summer Semester of the Academic Year 2023-24.

Dr.E. Kannan, Professor & Registrar, presented that the list of students admitted through Lateral Entry category in the Summer Semester of the Academic Year 2023-24.

List of Lateral Entry students can be accessed here

Lateral Entry Students Name list

Table 7: Statistics of Lateral Entry students (Summer Semester AY 23-24)

S.No	Name of the Programme	Admitted Count
1	B.Tech. - Aeronautical Engineering	1
2	B.Tech. - Artificial Intelligence and Data Science	1
3	B.Tech. - Artificial Intelligence and Machine Learning	2
4	B.Tech.- Artificial intelligence(ai) and Data Science	2
5	B.Tech. - Civil Engineering	8
6	B.Tech. - Computer Science and Engineering (Artificial Intelligence and Machine Learning)	1
7	B.Tech. - Computer Science and Engineering (Data Science)	2
8	B.Tech. - Computer Science and Engineering	92
9	B.Tech. - Electrical and Electronics Engineering	35
10	B.Tech. - Electronics and Communication Engineering	53
11	B.Tech.- Information Technology	6
12	B.Tech. - Mechanical Engineering	31
	Grand Total	**234**

Dr.E. Kannan, Professor & Registrar, moved that "the list of students admitted through Lateral Entry category in the Summer Semester of the Academic Year 2023-24", be ratified.

Dr. R.S.Valarmathi, Professor & Dean - SoEC , seconded it.

The motion was carried.

43.14 To ratify the admissions under Re-Admission category during the Summer Semester of the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the admissions under Re-Admission category in the Summer Semester of the Academic Year 2023-24.

Dr.E. Kannan, Professor & Registrar, presented that the list of students admitted through Re Admission category in the Summer Semester of the Academic Year 2023-24.

Table 8: Students admitted through Re-Admission in Summer Semester AY 2023-24

S.No.	BATCH	ID No.	NAME OF THE STUDENT	PROGRAMME	DEPART -MENT	SEM\ YEAR
1	2021-22	VTU20820	S Krishna Vamsi	B.Tech.	ECE	IV/II
2	2021-22	VTA1336	D Ashwin	BA.LLB.	LAW	III/II
3	2020-21	VTU17353	A Naga Sai Kotesh	B.Tech.	CSE	V/III
4	2021-22	VTA1673	V Roshini	B.COM.LL.B.	LAW	III/II
5	2020-21	VTU15582	Pallapu Madhavi	B.Tech.	ECE	IV/II
6	2022-23	VTU24093	D Sharon	B.Tech.	AIML	IV/II
7	2021-22	VTA1531	Deena Dayalan	B.COM.LL.B.	LAW	III/II
8	2021-22	VTA1506	S Mohammed Abdul Rahim	B.COM.LL.B.	LAW	III/II
9	2020-21	VTU16026	Mohammed Ashfaq	B.Tech.	ECE	VI/III
10	2021-22	VTU20230	Lingaraju Yoga Karthikeswar Rao	B.Tech.	ECE	IV/II
11	2018-19	VTU14236	S George Reddy	B.Tech.	ECE	VIII/IV
12	2021-22	VTP3220	B Balaji	M.Tech.	AERO	IV/II
13	2021-22	VTU21100	P Kalyan Royal Gupta	B.Tech.	AERO	III/II
14	2020-21	VTA1132	K Manoj Kumar	B.Com.	CBA	V/III
15	2021-22	VTA1484	R Bharath	B.Com.	CBA	III/II
16	2019-20	VTU13918	S Gnana Priya	B.Tech.	CIVIL	VIII/IV
17	2019-20	VTU16157	Vikash Kumar	B.Tech.	IT	VI/III

Dr.E. Kannan, Professor & Registrar, moved that "the list of students admitted through Re-Admission category in the Summer Semester of the Academic Year 2023-24", be ratified.

Dr. P. Chandrakumar , Professor & Dean - R&D and Industry Relations, seconded it.

The motion was carried.

43.15 To ratify the students migrated from one Programme to another Programme in Under Graduate (UG) during the Summer Semester of the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the list of students "migrated from one programme to another programme category" in Summer Semester of the Academic Year 2023-24.

Dr. E. Kannan, Professor & Registrar, presented the list of students admitted through migrated from one programme to another programme category in Summer Semester of the Academic Year 2023-24.

Table 9: List of Migrated Students during Summer Semester of the AY 2023-24

S.No	ID No.	Name of the Student	Present Programme	Migrant Applied To	Circular No and Date
1	21444	Agile John Aarun	AI&ML	AERO	Circular No 167 Dated on 30.06.2023
2	24161	Chavva Gayathri	AI&ML	CSE	Circular No 167 Dated on 30.06.2023
3	23383	Mangapati Sai Deekshit	AI&ML	CSE	Circular No 167 Dated on 30.06.2023
4	23877	Amisha	BIOMED	BIOTECH	Circular No 167 Dated on 30.06.2023
5	21575	Mettu Akshaya	BIOMED	ECE	Circular No 167 Dated on 30.06.2023
6	23320	B Shweta	BIOTECH	CIVIL	Circular No 167 Dated on 30.06.2023
7	21699	Anupama	BIOTECH	CSD	Circular No 167 Dated on 30.06.2023
8	23142	Chanchala Madhu	BIOTECH	CSD	Circular No 167 Dated on 30.06.2023
9	23698	Kanta Bhavana	BIOTECH	ECE	Circular No 167 Dated on 30.06.2023
10	23883	Siva Kumar	CIVIL	ECE	Circular No 167 Dated on 30.06.2023
11	22706	Relangi. Naresh	CSD	AI & DS	Circular No 167 Dated on 30.06.2023
12	23280	Sagili Dhanunjay Reddy	CSD	AI&ML	Circular No 167 Dated on 30.06.2023
13	24291	Shushant Karn	CSD	CSE	Circular No 167 Dated on 30.06.2023
14	22801	Aravind J Nair	CSE	MECH	Circular No 167 Dated on 30.06.2023
15	24158	Thirumal Viswa J	CSE (CS)	CSE	Circular No 167 Dated on 30.06.2023
16	24270	Syed Akram	EEE	ECE	Circular No 167 Dated on 30.06.2023
17	24287	Agaram Harika	EEE	ECE	Circular No 167 Dated on 30.06.2023

18	23428	N Veena Reddy	EEE	ECE	Circular No 167 Dated on 30.06.2023
19	23852	Y.Anand Chowdary	EEE	ECE	Circular No 167 Dated on 30.06.2023
20	23839	K Sai Krishna	EEE	ECE	Circular No 167 Dated on 30.06.2023
21	23753	Sachin Kumar	EEE	ECE	Circular No 167 Dated on 30.06.2023
22	23859	M. Bhanu Prakash	EEE	ECE	Circular No 167 Dated on 30.06.2023
23	23874	Yeshmitaa.R.J	EEE	ECE	Circular No 167 Dated on 30.06.2023
24	23623	Nandyala Varun Reddy	ECE	CSD	Circular No 167 Dated on 30.06.2023
25	23322	B. Rahul	ECE	CSD	Circular No 167 Dated on 30.06.2023
26	24286	Atmakuri Leela Naga Premchand	ECE	CSE	Circular No 167 Dated on 30.06.2023
27	23713	Sandi Sravan Sumanth	ECE	CSE	Circular No 167 Dated on 30.06.2023
28	22833	Bhaskaruni Venkata Sai Harini	ECE	CSE	Circular No 167 Dated on 30.06.2023
29	24207	P. Jitthu Singh	ECE	CSE	Circular No 167 Dated on 30.06.2023
30	23752	Ankana Sushma Reddy	ECE	CSE	Circular No 167 Dated on 30.06.2023
31	22010	Padhi Srikanth	ECE	CSE	Circular No 167 Dated on 30.06.2023
32	23305	Bhagath Kalyani	ECE	CSE (CS)	Circular No 167 Dated on 30.06.2023
33	23706	Gunti Harshitha	ECE	IT	Circular No 167 Dated on 30.06.2023
34	22166	Kancharla Guna Naga Siddeshwar	ECE	MECH	Circular No 167 Dated on 30.06.2023
35	24294	M Lasyasree	BIOMED	ECE	Circular No 167 Dated on 30.06.2023
36	21377	Praveen	CSD	AI&ML	Circular No 01 Dated on 10.07.2023
37	23805	Nithyananda Reddy	EEE	AI&ML	Circular No 01 Dated on 10.07.2023
38	24296	T Theerthana	EEE	ECE	Circular No 01 Dated on 10.07.2023
39	23744	B Srija	ECE	CSE (DS)	Circular No 04 Dated on 14.07.2023
40	24204	M Saimanikanta Eswar	EEE	ECE	Circular No 04 Dated on 14.07.2023
41	23863	Syed Faizan Ali	EEE	ECE	Circular No 14 Dated on 25.07.2023

42	23710	Vankayalapati Pavani	ECE	AI & DS	Circular No 14 Dated on 25.07.2023
43	23641	Gujjula Rama Koti Reddy	ECE	CSE (CS)	Circular No 14 Dated on 25.07.2023
44	24230	Kodati Kavya Sri Lalitha	EEE	ECE	Circular No 14 Dated on 25.07.2023
45	23872	Medarametla Bhanu Teja	EEE	ECE	Circular No 14 Dated on 25.07.2023
46	23855	Chinta Venkatawarlu	EEE	ECE	Circular No 14 Dated on 25.07.2023
47	23862	Nagaraju B	ECE	CSE	Circular No 23 Dated on 12.08.2023
48	23600	Bingi Rakesh	ECE	CSE	Circular No 23 Dated on 12.08.2023
49	22100	Suba Swapna G	ECE	CSE	Circular No 23 Dated on 12.08.2023
50	23832	Tejaswini D	ECE	CSE	Circular No 23 Dated on 12.08.2023
51	23762	Pradeepika P	ECE	CSE	Circular No 23 Dated on 12.08.2023
52	23799	Abhinav G	ECE	CSE	Circular No 23 Dated on 12.08.2023
53	24228	Aakriti Karna	ECE	CSE	Circular No 23 Dated on 12.08.2023
54	21792	Raghul K	ECE	CSE	Circular No 23 Dated on 12.08.2023
55	21565	Keerthana C	CSE (CS)	CSE	Circular No 23 Dated on 12.08.2023
56	21738	Mogilisetty Vivekanda	ECE	CSE (CS)	Circular No 23 Dated on 12.08.2023
57	23709	K Veena Bhrgavi	ECE	CSD	Circular No 23 Dated on 12.08.2023
58	24266	Akshaya Prasad	EEE	ECE	Circular No 23 Dated on 12.08.2023
59	23837	Bathula Hemanth Kumar	EEE	ECE	Circular No 23 Dated on 12.08.2023
60	23300	Anjali M	EEE	ECE	Circular No 23 Dated on 12.08.2023
61	23785	Akula Sai	EEE	ECE	Circular No 23 Dated on 12.08.2023
62	23865	Sravani G	EEE	ECE	Circular No 23 Dated on 12.08.2023

Dr.E. Kannan, Professor & Registrar, moved that "the list of students admitted through migrated from one programme to another programme (*under section 12.2 & 12.3 in Regulations VTR UGE 2021*) in the Summer Semester of the Academic Year 2023-24", be ratified.

Dr. M.S.R. Mariyappan, Professor & Dean - SoM, seconded it.

The motion was carried.

43.16 To ratify the Academic Calendar of UG & PG programmes for the Academic Year 2023-24.

The Vice Chancellor, placed before the Academic Council to ratify the Academic Calendar for the Academic Year 2023-24 for Under-graduate (UG) and Post-graduate (PG) level programmes.

Dr.A.T. Ravichandran, Professor & Dean Academics, presented the Academic Calendars for the Academic Year 2023-24 for Under-graduate (UG) and Post-graduate (PG) level programmes.

The Academic Calendar for AY 2023-24 can be accessed here

Appendix Academic calendar

Dr.A.T. Ravichandran, Professor & Dean Academics, moved that "the Academic Calendar for the Academic Year 2023-24 for Under-graduate (UG) and Post-graduate (PG) level programmes", be ratified.

Dr. N. Lenin, Professor & Dean - SoMC, seconded it.

The motion was carried.

43.17 To ratify the results of the Ph.D. viva voce examinations conducted since last Academic Council held on June 10, 2023.

The Vice Chancellor, placed before the Academic Council to ratify the results of the Ph.D. viva voce examinations conducted since last Academic Council held on June 10, 2023.

Dr. R. Sivaraman, Controller of Examinations, presented the results of the Ph.D. viva voce examinations conducted since last Academic Council held on June 10, 2023.

Ph.D. viva voce examinations conducted since last Academic Council held on June 10, 2023 can be accessed here

Appendix Ph.D. viva voce

Dr.K.Sankara Narayanaswamy, member suggested to include " The Vice Chancellor/ Chairman of the Academic Council is empowered to grant Degree for those candidates completing their PhD Viva-Voce examination till the date of Convocation".

Dr. R. Sivaraman, Controller of Examinations, moved that "the results of the Ph. D. viva voce examinations conducted since last Academic Council held on June 10, 2023", be ratified.

Dr. K. Jagajjanani Rao , Associate Professor & Dean (Academic Research) , seconded it.

The motion was carried.

D. Items for Reporting

43.18 To report the status of uploading information relating to B.A.,LL.B.(Hons.) and B.Com., LL.B.(Hons.) Programmes in the Bar Council of India (BCI) portal for obtaining Extension of Approval (EoA) from BCI.

The Vice Chancellor, placed before the Academic Council to about the status of uploading information relating to B.A.,LL.B.(Hons.) and B.Com., LL.B.(Hons.) Programme in the Bar Council of India (BCI) portal for obtaining Extension of Approval (EoA) from BCI.

The documents relating to the approval of Extension of Approval (EoA) by the Bar Council of India (BCI) for 2023-24 in respect of B.A.,LL.B.(Hons.) and B.Com.,LL.B.(Hons.) programmes have been uploaded under relevant Categories in the BCI portal. The Extension of Approval (EoA) is expected shortly.

Dr. E. Kannan, Professor & Registrar, moved the report about the status of uploading information relating to B.A.,LL.B.(Hons.) and B.Com., LL.B.(Hons.) Programmes in the Bar Council of India (BCI) portal for obtaining Extension of Approval (EoA) from BCI.

43.19 To record the progression and achievements of the following School/Office:

The Vice Chancellor, placed before the Academic Council to report the progression of School of Computing, School of Media Technology and Communication and office of R&D and the academic achievements.

a) **School of Computing**.

Dr. V. Srinivasa Rao, Professor & Dean - School of Computing, presented the Progression of School of Computing and the academic acheivements for the Academic Year 2022-23.

Dr. V. Srinivasa Rao, Professor & Dean - School of Computing, moved the Progression of School of Computing and the academic acheivements", be recorded.

b) School of Media Technology and Communication.

Dr. E.Suresh Paul, Professor & Dean - School of Media Technology & Communication, presented the Progression of School of Media Technology and Communication and the academic acheivements.

Summary Note:

School of Media Technology and Communication offers two undergraduate programmes namely BSc Visual Communication and BSc Multimedia. The school was established in the year 2016 and now it has well-equipped and advanced media facilities including a Television Studio and Photography Studio, an E-Content Studio for News Production and e-learning), a Sound Studio for Sound Recording and dubbing, a Visual Arts Studio for Drawing, an Edit Suite for Video Editing and a Multimedia lab for 2D&3D productions. It has well-furnished adequately spacious classrooms and a seminar hall.

The course curriculum is structured based on industry requirements and development. Software (the latest technology software). We organise a lot of interactive sessions with industry experts and industrial visits for the students to expose them to the world of media. The faculty mostly drawn from the industry has participated in various workshops, Faculty Development Programmes (FDP) and presented research papers at national and international conferences.

Our Students have undergone internship training in well-known media organisations and Industries in India. Our students are placed in reputed media industries in various capacities and some are pursuing higher studies abroad. And we are progressing steadily.

Dr. E.Suresh Paul, Professor & Dean - School of Media Technology & Communication, moved the Progression of School of Media Technology and Communication and the academic acheivements", be recorded.

c) **Office of R&D**.

Dr. P. Chandrakumar , Professor & Dean - R&D and Industry Relations, presented the Progression of Office of R&D and the academic acheivements.

Summary Note:

The progress achieved during the financial year 2022-23 by the Office of Research & Development is presented as follows:

- *Number of Sponsored Projects Received : 11 (worth Rs. 1.76 Crore)*
- *Number of Consultancy Projects received : 14 (worth Rs. 34.24L)*
- *Number of SEED Projects Sanctioned : 24 (worth Rs. 29.22L)*
- *Total Number of Publications : 2094*
- *Total Number of Patents Granted during FY 2022-23 : 26*
- *Number of Patents Filed : 21*

Vel Tech has established 23 Research Centers and 5 Centers of Excellence to actively promote research and development activities. The institute maintains an active research and consultancy policy to guide faculty members in engaging with R&D initiatives. Faculty members who excel in publications, sponsored projects, industrial consultancy, and patent activities were recognized and awarded cash prizes and appreciation certificates. These awards were presented by guest speaker Prof. B. S. Murty, Director of IIT Hyderabad, during an event held on 24/06/2023. A total incentive of Rs. 53 Lakhs was distributed to the faculty members as recognition for their outstanding contributions.

Dr. P. Chandrakumar , Professor & Dean - R&D and Industry Relations, moved the Progression of Office of R&D and the academic acheivements", be recorded.

E. Closing

43.20 Any other items with the permission of the Chairperson.

There is no other item brought to the notice of Chairperson.

43.21 To decide the date of holding the next meeting of the Academic Council.

44th Regular Meeting of the Academic Council is tentatively scheduled in the **Month of January**.

43.22 Vote of Thanks.

Dr. E. Kannan, Professor & Registrar, expressed his thanks to all the members of the Academic Council for their presence and valuable contributions.

43.23 Adjournment

The meeting was adjourned at 12.30 PM.

☆☆☆

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

44th MEETING
OF
THE ACADEMIC COUNCIL

Saturday, February 24, 2024

ATTENDANCE SHEET

No. 42, Avadi-Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pincode-600 062.
Email: registrar@veltech.edu.in, Website: www.veltech.edu.in.

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

ACADEMIC COUNCIL
ATTENDANCE SHEET FOR 44th MEETING OF
THE ACADEMIC COUNCIL ON 24.02.2024 AT 10.30 am
VENUE: SENATE HALL

S.No	Name	Position	Signature
1	Prof.S.Salivahanan Vice Chancellor, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Chairperson	S. Saliv
2	Prof. R.Venkata Rao Vice Chancellor, International University of Legal Education and Research (IIULER), Goa	External Member	Present
3	Mr. K. Balaji Vice President – People and Culture Delphi – TVS Technologies Chennai	External Member	Present
4	Dr. OR. Nandagopan Director, DRDO Industry Academia, Ramanujan Centre of Excellence, IIT - Madras	External Member	—AB—
5	Mr. Raghuraman Krishnamurthy Chief Enterprise Architect P&R Practise, Cognizant Chennai.	External Member	—AB—
6	Dr. K. Sankaranarayanasamy Professor (HAG), National Institute of Technology (NIT), Tiruchirappalli.	External Member	[illegible]

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
7	Prof. Dr. Krishnan BASKAR. D.Sc. (KTH-Sweden), FRSC (London). Director, Indian Institute of Technology-Senapati, Manipur (An Institute of National Importance by Act of Parliament, Government of India) Mantripukhri, Imphal – 795002, India.	External Member	2-7/02/2024
8.	Dr.A.T.Ravichandran Professor & Dean - Academics Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
9	Dr. M. Rajeev Kumar, Professor & Dean - Quality Assurance Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology.	Ex-officio	24/02/2024
10	Dr. R.S.Valarmathi Professor & Dean - SoEC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
11	Dr. P. Chandrakumar Professor & Dean – R&D and Industry Relations Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
12	Dr.M.Sivakumar Professor & Dean - FME Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
13	Dr. P. Suresh Professor & Dean - International Relations & HRDC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
14	Dr.P.Vijayaraman Assistant Professor & Dean (Campus to Corporate) Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
15	Prof. Dr. B. Venugopal Professor & Dean - SoL Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
16	Dr. V. Srinivasa Rao Professor & Dean – SoC Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science andTechnology.	Ex-officio	
17	Dr. M.S.R. Mariyappan, Professor & Dean - SoM Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	
18	Prof. Dr. Nagalingeswara Raju, Dean (Hostels) Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	
19	Dr. E.Suresh Paul Professor & Dean – Media Technology & Communication Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
20	Dr. N. Lenin, Professor & Dean (SoMC) – Dept. of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology,	Ex-officio	
21	Dr. K. Jagajjanani Rao Dean (Academic Research) Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology.	Ex-officio	
22	Dr.R.Sivaraman Professor & Controller of Examinations, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Permanent Invitee	
23	Dr.R.Jaganraj Associate Professor & HoD – Dept. of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
24	Dr. Amala Justus Selvam Professor & HoD – Dept. of Automobile Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
25	Dr.A.Geetha Selvarani, Professor & HoD – Dept. of Civil Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
26	Dr. S. Ramesh Professor & HoD – Dept. of Electrical & Electronics Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
27	Dr. A. Selwin Mich Priyadharson, Professor & HoD – Dept. of Electronics & Communication Engineering, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology.	Ex-officio	24/02/2024
28	Dr. J Visumathi Professor & HoD – (Information Technology) Dept. of Computer science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
29	Dr. S. Jeyavelu Associate Professor & HoD – Dept. of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Ex-officio	24/02/24
30	Dr. K. Ravishankar Professor, HoD – Dept. of Management Studies Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
31	Ms.J.Sri Devi Assistant Professor & HoD – Dept. of Commerce and Business Administration Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	24/2/24
32	Dr. J. Viswanath Professor & HoD – Dept. of Mathematics, Vel Tech RangarajanDr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
33	Dr. Senthil Kumar Associate Professor & HoD – Dept. of Physics, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
34	Dr.CH.Hazarathaiah Yadav Professor & HoD – Dept. of Chemistry, Vel Tech Rangarajan Dr. Sagunthala R &D Institute of Science and Technology.	Ex-officio	
35	Dr. M.R.Bindu Professor & Head - Dept. of English, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
36	Dr. D. Balasubramaniam Associate Professor & HoD – Dept. of Bio Medical, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
37	Dr. P. Azhagu Saravana Babu Professor & HoD – Dept. of Bio Technology, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	
38	Dr.B.Someswara Rao Professor & HoD – School of Law, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Ex-officio	

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
39	Dr. N.R. Rajalakshmi Professor & HoD – Dept. of Artificial Intelligence and Machine Learning Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	23/2/24
40	Dr.V.Dhilip kumar Professor & HoD – Dept. of Artificial Intelligence (AI) and Data Science Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
41	Dr. R. Parthasarathy Associate Professor & HoD – Dept. of Computer Science and Design Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/02/24
42	Dr. Muralidhar M S Associate Professor & HoD – Dept. of Computer Science & Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
43	Dr. S.Saravanan, Associate Professor & HoD – Department of CSE (Cyber Security) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24
44	Dr. P.Jose, Associate Professor & HoD – Department of CSE(Data Science) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
45	Dr. S. Lalitha, Associate Professor & HoD – Department of CSE (Artificial Intelligence and Machine Learning) Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Ex-officio	24/02/24
46	Dr.S.Irudayaraj Professor Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member	— AB —
47	Dr. S.Samson Professor, Dept of Civil Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/02/24
48	Dr.R.Srinivasan Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	R. Srin
49	Dr.A Bhagyalakshmi Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24
50	Dr. T. Kavitha Professor, Dept. of Electronics and Communication Engineering Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
51	Dr. S. Jana Professor, Dept. of Electronics and Communication Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	
52	Dr.N.Kalaivani Professor, Dept. of Mathematics Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	N. Kalaivani 24/2/24
53	Dr.A.Prakash Professor, Dept. of English Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24.2.24
54	Dr.S.Sridevi Professor, Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/2/24
55	Dr. K. Karunanithi Professor, Dept. of Electrical and Electronics Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Professor	24/02/24
56	Dr. J. Gajendiran Associate Professor, Dept. of Physics, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor	24/02/24

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

S.No	Name	Position	Signature
57	Dr. M. Nagoor Meeran Associate Professor, Dept. of Chemistry, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor	24/04/2024
58	Mrs. Lilly Victoria A Assistant Professor School of Law Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor Nominee	24/4/2024
59	Dr. G. Chandramowleeswaran Assistant Professor Dept. of Commerce and Business Administration Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Internal Member Representing as Assistant Professor Nominee	24/02/24
60	Dr.E.Kannan Professor & Registrar Dept. of Computer Science and Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology.	Secretary	24/02/2024

S. Salivan
VICE CHANCELLOR

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

44th MEETING
OF
THE ACADEMIC COUNCIL

Saturday, February 24, 2024

LETTER FOR GRANT OF ABSENCE

No. 42, Avadi-Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pincode-600 062.
Email: registrar@veltech.edu.in, Website: www.veltech.edu.in.

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

LETTER FOR GRANT OF ABSENCE

From

Date: 1/3/2024.

~~Mr./Mrs./Ms.~~/Dr. : S. Irudayaraj.

Designation : Professor

Dept : Mechanical Engg. Id.No: TTS 2423

To
The Chairman,
Board of Meeting
Vel Tech Rangarajan Dr.Sagunthala
R&D Institute of Science and Technology,
Avadi, Chennai – 600 062.

Respected Sir,

I received your Invitation to attend the 44th Academic Council/ Board of Management/ Finance Committee/ Planning & Monitoring Meeting to be held on February 24, 2024 at Senate Hall. It is to inform that due to my personal reason I can't attend the meeting. I kindly request you to grant leave of absence.

Thanking you,

Yours truly,

S. Salim

Prof. S. Salivahanan
Vice Chancellor
Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

1/3/2024.
(Dr. S. Irudayaraj.)

School of Mechanical and Construction

Department of Aeronautical Engineering

26th Board of Studies Meeting

Saturday, Jan 20, 2024

9.00 am, Aero CAD Lab 2224

Minutes of Meeting

Members Present

S. No	Name	Designation	Signature
1	Dr. R. Jaganraj, Head / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Chairman	
2	Dr. K. M. Parammasivam Professor / Aerospace Engineering, MIT, Chennai	Academic Expert	
3	Dr. Dinesh Manoharan Operations Head – UCAL Fuel Systems, Aerospace Division	Industry Expert	
4	Dr. B.L. Jaiswal, Professor of Emeritus / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
5	Dr.J.V.Sai Prasanna Kumar, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
6	Dr.Naga Lingeswara Raju, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
7	Dr.Ganesan, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
8	Mr. G. Boopathy, Asso. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
9	Dr. G. Surendar, Asso. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
10	Mr. B. Kirubadurai, Asst. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
11	Miss. Nithya S, Asst. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	

Members Present

No	Name	Designation	Signature
	Dr. R. Jaganraj, Head / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Chairman	
	Dr. K. M. Parammasivam Professor / Aerospace Engineering, MIT, Chennai	Academic Expert	
	Dr. Dinesh Manoharan Operations Head – UCAL Fuel Systems, Aerospace Division	Industry Expert	
	Dr. B.L. Jaiswal, Professor of Emeritus / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Dr.J.V.Sai Prasanna Kumar, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Dr.Naga Lingeswara Raju, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Dr.Ganesan, Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Mr. G. Boopathy, Asso. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Dr. G. Surendar, Asso. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Mr. B. Kirubadurai, Asst. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	
	Miss. Nithya S, Asst. Professor / Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R&D Inst of Sci & Tech	Member	

26th Board of Studies Meeting

WS 2023-24

Date: 20/01/2024 **Time: 9.00 am**

Place: Aero CAD Lab, 2224

Agenda for Meeting

26. A. Items for Confirmation

26.1. Action taken of 25th BOS dated 03 June 2023

26.2. Minutes of meeting of the 25th BOS dated 03 June 2023 for Aeronautical Engineering

26.3. Leave of absence of the members

26. B. Items for Discussions

26.4. Specialization courses under "Aerospace & Defense Technology" for B.Tech. Aeronautical Engineering under VTUR 2021.

26.5 Revision of the curriculum and syllabus for B.Tech. Aeronautical Engineering under VTUR 2021 for WS 23-24.

26.6 Revision of the curriculum and syllabus for M.Tech. Aeronautical Engineering (Unmanned Aerial Vehicle) under VTR PGE 2023.

26.C. Items for Reporting

26.7. Award of credits for the students as per VTU R15 & VTUR 21

26.8 Ratification of Courses, if any

26.D. Closing

26.9. Any other item with the permission of chair

Vote of Thanks

Summary of the 26th Board of Studies meeting of the Department of Aeronautical Engineering

The 26th Board of Studies of the Department of Aeronautical Engineering is convened on Saturday, Jan 20, 2024 9.00 am, Aero CAD Lab (2224) & Google Meet as hybrid mode. The members discussed and recommended the following.

A. No	Recommendations & Discussions	Support Document
26.4.	Specialization courses under "Aerospace & Defense Technology" for B.Tech. Aeronautical Engineering under VTUR 2021. The courses and syllabus for the specialization on Aerospace & Defence is discussed in detail. Members reviewed the proposed & approved contents of 25th BoS. Members suggested to include at least 3 courses under defense topics. Members also suggested referring to M.Tech. in Defence contents from AICTE. BoS chairman constituted the three member committee to decide the list of courses to be included under defense topics.	Existing Curriculum : 03 Export Copy UG Aeronautical R21 Curriculum & Syllabus.docx Defence Curriculum : Syllabi_for_M_Tech_web.pdf
25.5	Revision of the curriculum and syllabus for B.Tech. Aeronautical Engineering under VTUR 2021 for WS 23-24. The following courses were discussed in BoS meeting and finalized by experts. Aircraft Design Rules and Certification, Computational Fluid Dynamics, Fundamentals of Combustion, Airplane Stability and Control, Scientific Control, Data Analysis & System Identification, Aerospace Structures and Materials, Satellite Launch Vehicle	WS2324 - Course Syllabus Submission (Responses)
25.6	Revision of the curriculum and syllabus for M.Tech. Aeronautical Engineering (Unmanned Aerial Vehicle) under VTR PGE 2023 Advanced Aerodynamics, Aerospace Propulsion Flight Dynamics and Control, Aircraft Navigation, Guidance and Control, Aircraft Engineering Laboratory, Computer Aided Engineering Lab, Unsteady flow Aerodynamics	FileWS2324 - Course Syllabus Submission (Responses)

Minutes of Meeting – 26th BOS of Department of Aeronautical Engineering

The chair welcomed all to the meeting. The following agenda items were discussed and recommended action items were finalized.

26. A. Items for Confirmation

26.1. Action taken of 25th BOS dated 03 June 2023

The chair presented the action taken report of the 25th BOS to the board.

Recommendations	Action Taken
25.4. Revision of syllabus for B.Tech. Aeronautical Engineering under VTUR 2021 for SS 23-24 & Specialization courses under "Aerospace & Defense Technology". The courses and syllabus for the upcoming semester is discussed in detail. Members reviewed the proposed & approved contents of 23rd BoS. The following course syllabus is revised after discussions. Airplane Performance, High Speed Aerodynamics, Rocket & Space Propulsion, Aircraft Structural Dynamics, Flapping Wing Dynamics, Engineering Computation Flight Testing Computational motion planning Navigation, Guidance & Control UAV Survey Techniques UAV & Satellite Remote Sensing Smart Structures	Courses were implemented in SS 2023-24.
25.5. Revisit the M.Tech. Aeronautical Engineering (Unmanned Aerial Vehicle) Curriculum and Syllabus The proposed regulation changes are discussed. It is recommended to keep Applied mathematics in core and UAV survey techniques as lab experiments. The finalized curriculum is recommended.	PG courses for I sem were implemented in SS2023-24

Action: Members reviewed the action taken.

26.2. Minutes of meeting of the 25th BOS dated 03 June 2023 for Aeronautical Engineering

The chair presented the minutes of the meeting of the 25th BoS, dated June 03, 2023, to the board.

Action: Members reviewed the minutes of the meeting.

26.3. Leave of absence of the members

Leave of absence is recorded.

25. B. Items for Discussions

26.4. Specialization courses under "Aerospace & Defense Technology" for B.Tech. Aeronautical Engineering under VTUR 2021.

The curriculum and syllabus for the specialization on Aerospace & Defence is discussed in detail. Members reviewed the proposed & approved contents of 25th BoS. Members suggested to include at least 3 courses under defense topics.

Members also suggested referring to M.Tech. in Defence contents from AICTE. BoS chairman constituted the three member committee to decide the list of courses to be included under defense topics.

Aerospace Materials - Keep topics for all 60 hours in elaborate manner and experiments. Include aerospace structure introduction.

Action:

1. **The syllabus for Aerospace Materials and Structures is recommended with modifications.**
2. **The board agreed to appoint Dr. G. Boopathy, Dr. Vinothkumar and B. Kirubadurai as a 3 member committee to study M.Tech. Defence Technology syllabus and recommend the modifications in specialization.**

26.5 Revision of the curriculum and syllabus for B.Tech. Aeronautical Engineering under VTUR 2021 for WS 23-24.

The following courses have been modified as per expert and stakeholders suggestions.

Aircraft Design Rules and Certification - No change in proposed content
Computational Fluid Dynamics -
Fundamentals of Combustion - Change title to Combustion & Flame Dynamics, Add basics of combustion, flame holder dynamics.
AIRPLANE STABILITY AND CONTROL
SCIENTIFIC COMPUTATION - reduce content , keep upto k3. dont go beyond k3. Keep all topics as know how. It will be difficult to teach actual HPC working and practicing.
Data Analysis & System Identification
Aerospace Structures and Materials - Keep all 60 hours title separately. Eloborate topics. Add topics of satellite and spacecraft structural elements and basic structural design aspects. Only material alone dont keep. Add topics from structures as well.
Satellite Launch Vehicle - All COs check with K level. Keep up to k3 for open elective. Course will be taken by other department students - add introduction to aerospace industry, satellite types and fundamentals for rocket propulsion. No numeric part shall be kept.

Action : Proposed suggestions are incorporated into the syllabus.

26.6 Revision of the curriculum and syllabus for M.Tech. Aeronautical Engineering (Unmanned Aerial Vehicle) under VTR PGE 2023.

The following courses have been modified as per expert and stakeholders suggestions.

Advanced Aerodynamics - Keep flow over wings.
Aerospace Propulsion - no change
Flight Dynamics and Control - no change
Aircraft Navigation, Guidance and Control - no change Avionis - no change
Aircraft Engineering Laboratory - Add heat transfer topics, keep study of jet engine, Piston engine assembly, AD characteristic studies on symmetric and unsymmetric
Computer Aided Engineering Lab - Add CFD models and meshing
UNSTEADY FLOW AERODYNAMICS - PhD course work elective. No change in proposed.

Action : Proposed suggestions are incorporated into the syllabus.

25.C. Items for Reporting

26.7. Award of credits for the students as for UG and PG courses.

The following is the summary of award of credits to the students.

Type	Course Name	No of students completed
IL	Aircraft Design Project - I	2
MOOC	Hybrid Vehicles	2
IL	Industry Internship - I	3
IL	Industry Internship - II	1
IL	Industry Internship - III	2
IL	Major Project	2
IHL	Materials and Additive Manufacturing for Sustainable Development	37
IL	Mini Project (Aircraft Design) - II	30
IL	Technical Seminar - I	5
IL	Technical Seminar - II	10
IHL	Fundamentals of MEMS	24

Action : The award of credits is reported to board.

25.7 Ratification of Courses, if any

No items available

25.D. Closing

25.8. Any other item with the permission of chair

The chair, proposed the online PG program on Product development & design. The board advised to check the AICTE and UGC approval process and keep NEP in mind to prepare guidelines.

The chiar expressed sincere thanks to all the members of the BoS.

Chairman - BOS
Aeronautical Engineering

25.7 Ratification of Courses, if any

No items available

25.D. Closing

25.8. Any other item with the permission of chair

The chair, proposed the online PG program on Product development & design. The board advised to check the AICTE and UGC approval process and keep NEP in mind to prepare guidelines.

The chiar expressed sincere thanks to all the members of the BoS.

Chairman - BOS
Aeronautical Engineering

Dr. R. Jayaraj
Head of the Department
Aeronautical Engineering
Vel Tech
Rangarajan Dr. Sagunthala

Prof. Dr. N. Lenin
Dean - School of Mechanical and Construction
Vel Tech
Rangarajan Dr. Sagunthala

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor
Vel Tech
Rangarajan Dr. Sagunthala

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

5th MEETING of BOARD of STUDIES

Minutes

for

B.Tech Artificial Intelligence and Data Science

Programme

[CBCS]

On

23.12.2023

B.Tech Artificial Intelligence and Data Science

School of Computing

INDEX

S.No	Content	Page Number
1	Agenda	3
2	BoS Members	5
3	Confirmation of 4thBoS meeting minutes	7
4	Action Taken Report	7
5	Discussion and approval of Program Core and Program Elective Course Structure and course contents of Program Core and few Program Electives with effect from Winter 2023-2024.	8
6	Discussion and approval of the courses to be offered in Online MOOCs platforms under Open Elective Category during the academic year Winter, 2023-2024.	8
7	Discussion and approval of the courses to be offered in Value added courses under Complementary skills Category during the academic year ,winter 2023-2024.	
8	Discussion of the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Data Science taken for the academic year 2022-2023	
9	Any other Items	8
10	ANNEXURE-I – [Confirmation of 4th BoS meeting minutes]	9
11	ANNEXURE-II – [Action Taken Report]	10
12	ANNEXURE-III – [Approval of Program Elective Course Structure and course contents of few Program Electives]	11
13	ANNEXURE-IV – [Approval of courses to be offered in Online MOOCs platforms under Open Elective Category]	162
14	ANNEXURE-V-[Approval of the courses to be offered in Value added courses under Complementary skills Category]	
15	ANNEXURE-VI-[Discussion of the Stakeholders feedback on curriculum]	
16	ANNEXURE -VII-[Ratification of courses offered under the category of Industry / Higher Institute Learning Interaction (IHL)]	
17	ANNEXURE -VIII –[Ratification of Value added Courses offered under Complementary skills Category]	

5thMEETING of BOARD of STUDIES
For
B.Tech Artificial Intelligence and Machine Learning

Date: 23.12.2023– 10.30 AM
Venue: School of Computing

Item No	Agenda
A. Opening	
1.	Confirmation of 4th BoS meeting minutes held on 27.05.2023 **(Annexure-I).**
2.	To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies **(Annexure-II).**
B. Items to be considered	
3.	To discuss and approve **Program Core and Program Elective Course Structure** and **course contents** to be offered in the programme B.Tech Artificial Intelligence and Data Science under the regulation VTR UGE 2021 with effect from Winter 2023-2024 (**Annexure – III) .**
4.	To discuss and approve the **courses to be offered in Online MOOCs platforms under Open Elective Category** during the academic year Winter, 2023-2024 for B.Tech Artificial Intelligence and Data Science. (**Annexure-IV)**

S.No.	Course Code	Course Name	Course Provider	Duration in weeks	Credits
1.	10213AD419	Machine Learning for Soil and Crop Management	NPTEL	12 Weeks	2
2.	10213AD420	Business Intelligence & Analytics	NPTEL	12 Weeks	2
3.	10213AD421	Multi-Criteria Decision Making and Applications	NPTEL	12 Weeks	2
4.	10213AD422	Recommender Systems	NPTEL	8 Weeks	1
5.	10213AD423	Science Communication: Research Productivity and Data Analytics using Open Source Software	NPTEL	12 Weeks	2
6.	10213AD425	Data Analysis and Decision Making – I	NPTEL	12 Weeks	2

5. To discuss and approve the **courses to be offered in Value added courses under Complementary skills Category** during the academic year ,winter 2023-2024 for B.Tech Artificial Intelligence and Data Science (**Annexure-V).**

S. No	Course Code	Course Name	L	T	P	C
1	10218AD922	Code X	3	0	0	0
2	10218AD923	Code Dakshah	3	0	0	0

6. To discuss the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Data Science taken for the academic year 2022-2023 (**Annexure-VI**).

Items to be Ratified

7. Ratification of **courses offered under the category of Industry / Higher Institute Learning Interaction (IHL)** offered by Industry and Higher Institute Experts for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24. **(Annexure-VII).**

Sno	Course code	Course Name	L	T	P	C
1	10215AD102	Agile Methodologies	1	0	0	1
2	10215AD110	Programming for Data Analysis	1	0	0	1

8. **Ratification of Value added Courses** offered for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24 (**Annexure-VIII**).

Sno	Course code	Course Name	L	T	P	C
1	10218AD913	Programming Skill In C	2	0	0	0
2	10218AD915	Wipro Talent Next Training Using Java	2	0	0	0

9. Any other cognate item

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

5thMEETING of BOARD of STUDIES
For
B.Tech Artificial Intelligence and Data Science

Date: 23.12.2023– 10.30 AM
Venue: School of Computing

Members Present:

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao,Professor, Dean(SoC)	Chairperson	
2	Dr. C. Mala, Professor Department of Computer Science Engineering NIT, Tiruchirapalli, Tamil Nadu	Academic Expert Nominee	
3	Dr.KomondoorV.Raghavan Associate Professor Department of Computer Science and Automation Indian Institute of Science, Bangalore, Karnataka	Academic Expert Nominee	
4	Mr. Sivaprakasam Perumal Software Engineer, Hewlett-Packard Enterprise, Chennai, Tamil Nadu	Industry Expert Nominee	
5	Mr. E. Sunil, Assistant General Manager, ATRIA Convergence Technologies Ltd, T.Nagar, Chennai, Tamil Nadu	Industry Expert Nominee	
6	Ms. Malini Consultant- Data Analytics Det Norske Veritas	Alumni	
7	Dr.V.Dhilipkumar, Professor	Professor Nominee	
8	Dr. N. Malarvizhi,Professor	Professor Nominee	
9	Dr. M. Kavitha, Professor	Professor Nominee	
10	Dr.M.Shyamala Devi, Professor	Professor Nominee	
11	Dr.R.Srinivasan, Professor	Professor Nominee	
12	Dr.J.Visumathi, Professor	Professor Nominee	
13	Dr.S.Sridevi, Professor	Professor Nominee	
14	Dr.A.Bhagyalakshmi, Professor	Professor Nominee	
15	Dr.S.Jagan, Professor	Professor Nominee	

15	Dr.N.Rajkumar, Professor	Professor Nominee	
16	Dr.N.R.Rajalakshmi, Professor	Professor Nominee	
17	Mrs.T.Kujani,Assistant Professor	Assistant Professor Nominee	
18	Mrs.C.Shyamala Kumari, Assistant Professor	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation
1	Dr.M.S.Muralidhar	Associate Professor
2	Dr.S.Lalitha	Associate Professor
3	Dr.M Prabha	Assistant Professor

The Chair expressed his happiness in welcoming all the members for the 5th meeting of BOS and thanked them for sparing their valuable time.

05-BoS-01	Confirmation of 4th BoS meeting minutes held on 27.05.2023
Action Taken:	The minutes of 4th BoS meeting minutes held on 27.05.2023 was circulated to members through e-mail, the members confirmed the minutes. [Annexure - I]
05-BoS-02	To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies
Action Taken	The members reviewed the action taken report on the decisions of 4th BoS meeting minutes held on 27.05.2023 [Annexure - II]
05-BoS-03	To discuss and approve **Program Core and Program Elective Course Structure** and **course contents** to be offered in the programme B.Tech Artificial Intelligence and Data Science under the regulation VTR UGE 2021 with effect from Winter 2023-2024 **(Annexure – III) .**
Discussion	Members suggested to include framework in the Laboratory Tasks of Time Series Analytics Course, ethical concern topics in social media analytics and to refine the text books for Cognitive Computing Course.
Resolution	The members suggestions is considered and the changes will be made in the Course course contents in the courses. Course structure and content are available in [Annexure - III]
05-BoS-04	To discuss and approve the **courses to be offered in Online MOOCs platforms under Open Elective Category** during the academic year Winter, 2023-2024 for B.Tech Artificial Intelligence and Data Science. (**Annexure-IV)**

S.No.	Course Code	Course Name	Course Provider	Duration in weeks	Credits
1.	10213AD419	Machine Learning for Soil and Crop Management	NPTEL	12 Weeks	2
2.	10213AD420	Business Intelligence & Analytics	NPTEL	12 Weeks	2
3.	10213AD421	Multi-Criteria Decision Making and Applications	NPTEL	12 Weeks	2
4.	10213AD422	Recommender Systems	NPTEL	8 Weeks	1
5.	10213AD423	Science Communication: Research Productivity and Data Analytics using Open Source Software	NPTEL	12 Weeks	2

6.	10213AD424	Emotional Intelligence	NPTEL	8 Weeks	1
7.	10213AD425	Data Analysis and Decision Making – I	NPTEL	12 Weeks	2

Discussion: The members reviewed the above list of courses and suggested to remove Emotional Intelligence course

Resolution: The members approved the courses to be offered under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech-Artificial Intelligence and Data Science. The course credits are revised as per the members suggestion. **[Annexure-IV]**

05-BoS-05: To discuss and approve the **courses to be offered as Value added courses under Complementary skills Category** during the academic year ,winter 2023-2024 for B.Tech Artificial Intelligence and Data Science (**Annexure-V)**

S. No	Course Code	Course Name	L	T	P	C
1	10218AD922	Code X	3	0	0	0
2	10218AD923	Code Dakshah	3	0	0	0

Discussion: The members reviewed the above list of courses and the course contents to be offered as **Value added courses under Complementary skills Category** for B.Tech-Artificial Intelligence and Data Science.

Resolution: The members appreciated and approved the courses and course contents to be offered as **Value added courses under Complementary skills Category** during the academic year ,winter 2023-2024 for B.Tech-Artificial Intelligence and Data Science. [**Annexure-V]**

05-BoS-06: To discuss the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Data Science taken for the academic year 2022-2023 (**Annexure-VI**).

Discussion: The members reviewed the action taken based on Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Data Science for the academic year 2022-2023.

Resolution: The members approved the changes made in the curriculum structure in the curriculum under various category based on the feedback analysis for the academic year 2022-2023 (**Annexure-VI**).

05-BoS-07: Ratification of **courses offered under the category of Industry / Higher Institute Learning Interaction (IHL)** by Industry and Higher Institute Experts for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24. **(Annexure-VII).**

Sno	Course code	Course Name	L	T	P	C
1	10215AD102	Agile Methodologies	1	0	0	1

	2	10215AD110	Programming for Data Analysis	1	0	0	1

Discussion	The members reviewed the above list of courses and course contents **offered under the category of Industry / Higher Institute Learning Interaction (IHL)** by Industry and Higher Institute Experts.
Resolution	The members approved the courses and course contents offered by Industry and Higher Institute Experts for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24. **(Annexure-VII).**
05-BoS-08	**Ratification of Value added Courses** offered for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24 (**Annexure-VIII**).

Sno	Course code	Course Name	**L**	**T**	**P**	**C**
1	10218AD913	Programming Skill In C	2	0	0	0
2	10218AD915	Wipro Talent Next Training Using Java	2	0	0	0

Discussion	The members reviewed the above list of course and course contents of Value added courses offered under Complementary skills Category for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24
Resolution	The members approved the courses and course contents of Value added courses offered under Complementary skills Category for B.Tech Artificial Intelligence and Data Science in Summer Semester 2023-24. **(Annexure-VIII).**
05-BoS-07	Any other Cognate Item
Resolution	The next BoS meeting will be conducted in the month of May 2024.

Annexure – I

1.	Confirmation of 4thBoS meeting minutes held on 27.05.2022

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

5th MEETING of BOARD of STUDIES

Minutes

for

B.Tech Artificial Intelligence and Machine Learning Programme

[CBCS]

On

23.12.2023

B.Tech Artificial Intelligence and Machine Learning

School of Computing

INDEX

S.No	Content	Page Number
1	Agenda	3
2	BoS Members	5
3	Confirmation of 4thBoS meeting minutes	7
4	Action Taken Report	7
5	Discussion and approval of Curriculum Structure and course contents of few Program Core and Program Electives with effect from Winter 2023-2024.	8
6	Discussion and approval of the courses to be offered in Online MOOCs platforms under Open Elective Category during the academic year Winter, 2023-2024.	8
7	Discussion and approval of the courses to be offered in Value added courses under Value added Category during the academic year ,Winter 2023-2024..	8
8	Discussion of the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Machine Learning taken for the academic year 2022-2023	8
9	Any other Items	9
10	ANNEXURE-I – [Confirmation of 4th BoS meeting minutes]	10
11	ANNEXURE-II – [Action Taken Report]	11
12	ANNEXURE-III – [Approval of Program Core and Program Elective Course Structure and course contents of few Program Core and Program Electives]	12
13	ANNEXURE-IV – [Approval of courses to be offered in Online MOOCs platforms under Open Elective Category]	70
14	ANNEXURE-V-[Approval of the courses to be offered in Value added courses under Value Added Category]	86
15	ANNEXURE-VI-[Discussion of the Stakeholders feedback on curriculum]	92
16	ANNEXURE -VII-[Ratification of courses offered under the category of Industry / Higher Institute Learning Interaction (IHL)]	97
17	ANNEXURE -VIII –[Ratification of Value added Courses offered under Complementary skills Category]	98

5thMEETING of BOARD of STUDIES
For
B.Tech Artificial Intelligence and Machine Learning

Date: 23.12.2023– 10.30 AM
Venue: School of Computing

Item No	Agenda
A. Opening	
1.	Confirmation of 4th BoS meeting minutes held on 27.05.2023 **(Annexure-I).**
2.	To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies **(Annexure-II).**
B. Items to be considered	
3.	To discuss and approve **Program Core and Program Elective Course Structure** and **course contents** to be offered in the programme B.Tech Artificial Intelligence and Machine Learning under the regulation VTR UGE 2021 with effect from Winter 2023-2024 (**Annexure – III) .**
4.	To discuss and approve the **courses to be offered in Online MOOCs platforms under Open Elective Category** during the academic year Winter, 2023-2024 for B.Tech Artificial Intelligence and Machine Learning. (**Annexure-IV)**

S.No.	Course Code	Course Name	Course Provider	Duration in weeks	Credits
1.	10213AM419	Foundation of Cloud IoT Edge ML	NPTEL	8 Weeks	1
2.	10213AM420	Introduction To Soft Computing	NPTEL	8 Weeks	1
3.	10213AM421	Machine Learning for Engineering and science applications	NPTEL	12 Weeks	2
4.	10213AM422	GPU Architectures and Programming	NPTEL	12 Weeks	2
5.	10213AM423	Modern Computer Vision	NPTEL	12 Weeks	2
6.	10213AM424	Edge Computing	NPTEL	8 Weeks	1

7.	10213AM425	Business Intelligence & Analytics	NPTEL	12 Weeks	2

5. To discuss and approve the **courses to be offered in Value added courses under Value added Category** during the academic year ,winter 2023-2024 for B.Tech Artificial Intelligence and Machine Learning (**Annexure-V).**

S. No	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1	10218AM922	Code X	3	0	0	0
2	10218AM923	Code Dakshah	3	0	0	0

6. To discuss the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Machine Learning taken for the academic year 2022-2023 (**Annexure-VI**).

Items to be Ratified

7. Ratification of **courses offered under the category of Industry / Higher Institute Learning Interaction (IHL)** offered by Industry and Higher Institute Experts for B.Tech Artificial Intelligence and Machine Learning in Summer Semester 2023-24. **(Annexure-VII).**

Sno	Course code	Course Name	**L**	**T**	**P**	**C**
1	10215AM102	Agile Methodology	1	0	0	1
2	10215AM110	Applied Artificial Intelligence and Intelligence Systems	1	0	0	1

8. **Ratification of Value added Courses** offered for B.Tech Artificial Intelligence and Machine Learning in Summer Semester 2023-24 (**Annexure-VIII**).

Sno	Course code	Course Name	**L**	**T**	**P**	**C**
1	10218AM913	Programming Skill In C	2	0	0	0
2	10218AM915	Wipro Talent Next Training Using Java	2	0	0	0

9. Any other cognate item

5thMEETING of BOARD of STUDIES
For
B.Tech Artificial Intelligence and Machine Learning

Date: 23.12.2023– 10.30 AM
Venue: School of Computing

Members Present:

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao,Professor, Dean(SoC)	Chairperson	
2	Dr. C. Mala, Professor Department of Computer Science Engineering NIT, Tiruchirapalli, Tamil Nadu	Academic Expert Nominee	
3	Dr.KomondoorV.Raghavan Associate Professor Department of Computer Science and Automation Indian Institute of Science, Bangalore, Karnataka	Academic Expert Nominee	
4	Mr. Sivaprakasam Perumal Software Engineer, Hewlett-Packard Enterprise, Chennai, Tamil Nadu	Industry Expert Nominee	
5	Mr. E. Sunil, Assistant General Manager, ATRIA Convergence Technologies Ltd, T.Nagar, Chennai, Tamil Nadu	Industry Expert Nominee	
6	Ms. Malini Consultant- Data Analytics Det Norske Veritas	Alumni	
7	Dr. N. Malarvizhi,Professor	Professor Nominee	
8	Dr. M. Kavitha, Professor	Professor Nominee	
9	Dr.N.R.Rajalakshmi, Professor	Professor Nominee	
10	Dr.M.Shyamala Devi, Professor	Professor Nominee	
11	Dr.R.Srinivasan, Professor	Professor Nominee	
12	Dr.J.Visumathi, Professor	Professor Nominee	
13	Dr.S.Sridevi, Professor	Professor Nominee	
14	Dr.A.Bhagyalakshmi, Professor	Professor Nominee	

15	Dr.S.Jagan, Professor	Professor Nominee	
15	Dr.N.Rajkumar, Professor	Professor Nominee	
16	Dr.V.Dhilipkumar,Professor	Professor Nominee	
17	Mrs.T.Kujani,Assistant Professor	Assistant Professor Nominee	
18	Mrs.C.Shyamala Kumari, Assistant Professor	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation
1	Dr.M.S.Muralidhar	Associate Professor
2	Dr.S.Lalitha	Associate Professor
3	Dr.M Prabha	Assistant Professor

The Chair expressed his happiness in welcoming all the members for the 5thmeeting of BOS and thanked them for sparing their valuable time.

<table>
<tr><td>05-BoS-01</td><td>Confirmation of 4th BoS meeting minutes held on 27.05.2023</td></tr>
<tr><td>Action Taken:</td><td>The minutes of 4th BoS meeting minutes held on 27.05.2023 was circulated to members through e-mail, the members confirmed the minutes.[Annexure - I]</td></tr>
<tr><td>05-BoS-02</td><td>To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies</td></tr>
<tr><td>Action Taken</td><td>The members reviewed the action taken report on the decisions of 4th BoS meeting minutes held on 27.05.2023. [Annexure - II]</td></tr>
<tr><td>05-BoS-03</td><td>To discuss and approve Program Core and Program Elective Course Structure and course contents to be offered in the programme B.Tech Artificial Intelligence and Machine Learning under the regulation VTR UGE 2021 with effect from Winter 2023-2024. [Annexure – III]</td></tr>
<tr><td>Discussion</td><td>Experts reviewed the courses under the Artificial Intelligence bucket like Artificial Intelligence Techniques, Optimization Techniques, Natural Language Processing and Cognitive Computing. Experts suggested to include few contents in Cognitive Computing Course and also members reviewed courses under the Machine Learning buckets like Machine Learning Techniques, Deep Learning , Reinforcement Learning , Computer Vision, Time Series and Forecasting, Social Media Analytics. Experts suggested to include few contents in Time Series and Forecasting, Social Media Analytics courses. Experts appreciated for offering Majority of the courses as Integrated courses in this Program. The Chairman informed that course outcomes of all the courses are mapped with Program Outcomes.</td></tr>
<tr><td>Resolution</td><td>By considering the suggestion of the members, changes made in the course contents of the Program Elective courses. Members approved the Program Core and Program Elective courses and course content to be offered with effect from Winter 2023-2024. Course structure and details are available in [Annexure - III]</td></tr>
<tr><td>05-BoS-04</td><td>To discuss and approve the courses to be offered in Online MOOCs platforms under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech Artificial Intelligence and Machine Learning. (Annexure-IV)
<table>
<tr><th>S.No.</th><th>Course Code</th><th>Course Name</th><th>Course Provider</th><th>Duration in weeks</th><th>Credits</th></tr>
<tr><td>1.</td><td>10213AM419</td><td>Foundation of Cloud IoT Edge ML</td><td>NPTEL</td><td>8 Weeks</td><td>1</td></tr>
<tr><td>2.</td><td>10213AM420</td><td>Introduction To Soft Computing</td><td>NPTEL</td><td>8 Weeks</td><td>1</td></tr>
</table></td></tr>
</table>

3.	10213AM421	Machine Learning for Engineering and science applications	NPTEL	12 Weeks	2
4.	10213AM422	GPU Architectures and Programming	NPTEL	12 Weeks	2
5.	10213AM423	Modern Computer Vision	NPTEL	12 Weeks	2
6.	10213AM424	Edge Computing	NPTEL	8 Weeks	1
7.	10213AM425	Business Intelligence & Analytics	NPTEL	12 Weeks	2

Discussion: Online MOOCs platform courses under Open Elective Category during the Winter Semester 2023-2024 were presented and reviewed the same. Experts recommended to revise the credits for Online MOOCs platforms courses as per the guidelines given by NPTEL/Swayam Platform.

Resolution: The course credits are revised as per the members suggestion. The members approved the courses and course contents to be offered under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech-Artificial Intelligence and Machine Learning.. **[Annexure-IV]**

05-BoS-05: To discuss and approve the **courses to be offered as Value added courses under Value added Category** during the academic year ,winter 2023-2024 for B.Tech Artificial Intelligence and Machine Learning (**Annexure-V)**

S. No	Course Code	Course Name	L	T	P	C
1	10218AM922	Code X	3	0	0	0
2	10218AM923	Code Dakshah	3	0	0	0

Discussion: Code X and Code Dakshah under Value added category was presented and members appreciciated for taking initiatives to enhance the Employability skills.

Resolution: The members approved the Code X and Code Dakshah courses and course contents to be offered **under Value added Category** during the academic year ,winter 2023-2024 for B.Tech-Artificial Intelligence and Machine Learning. [**Annexure-V]**

05-BoS-06: To discuss the Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Machine Learning taken for the academic year 2022-2023 [**Annexure-VI**].

Discussion: The members reviewed the action taken based on Stakeholders feedback on curriculum of B.Tech Artificial Intelligence and Machine Learning for the academic year 2022-2023.

<table>
<tr><td>Resolution</td><td>The members appreciated for incorporating changes in the programme structure based on Stakeholders feedback analysis for the academic year 2022-2023 (Annexure-VI).</td></tr>
<tr><td>05-BoS-07</td><td>Ratification of courses offered under the category of Industry / Higher Institute Learning Interaction (IHL) by Industry and Higher Institute Experts for B.Tech Artificial Intelligence and Machine Learning in Summer Semester 2023-24. (Annexure-VII).
<table>
<tr><th>Sno</th><th>Course code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10215AM102</td><td>Agile Methodology</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>2</td><td>10215AM110</td><td>Applied Artificial Intelligence and Intelligence Systems</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
</table></td></tr>
<tr><td>Discussion</td><td>The members reviewed the above list of courses and course contents offered under the category of Industry / Higher Institute Learning Interaction (IHL) by Industry and Higher Institute Experts.</td></tr>
<tr><td>Resolution</td><td>Members ratified courses and course contents of Agile methodology and Applied Artificial Intelligence & Intelligence Systems offered during Summer Semester 2023-2024 by Industry and Higher Institute Experts to enrich the students knowledge and skill in emerging areas. [Annexure-VII]</td></tr>
<tr><td>05-BoS-08</td><td>Ratification of Value added Courses offered for B.Tech Artificial Intelligence and Machine Learning in Summer Semester 2023-24 (Annexure-VIII).
<table>
<tr><th>Sno</th><th>Course code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10218AM913</td><td>Programming Skill In C</td><td>2</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2</td><td>10218AM915</td><td>Wipro Talent Next Training Using Java</td><td>2</td><td>0</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>Discussion</td><td>The members reviewed the above list of course and course contents of Value added courses offered for B.Tech Artificial Intelligence and Machine Learning in Summer Semester 2023-24</td></tr>
<tr><td>Resolution</td><td>The members finally ratified two Value added Courses offered during Summer Semester 2023-24. [Annexure-VIII].</td></tr>
<tr><td>05-BoS-07</td><td>Any other Cognate Item</td></tr>
<tr><td>Resolution</td><td>The next BoS meeting will be conducted in the month of May 2024.</td></tr>
</table>

School of Electrical and Communication

DEPARTMENT OF BIOMEDICAL ENGINEERING

Minutes of Meeting for 11th BoS

Date: 08/01/2024

Time: 10 AM

Venue: Room No. 2406

The 11th BoS meeting for B-Tech for the Department of Bio-Medical Engineering was held on 08th Jan 2024 with the presence of external and internal BoS members. The meeting started with greetings and approval of the 10th MoM held on 06/06/23 by the Head of the Department Dr. D. Balasubramaniam. The agenda items of the meeting are:

11.1 Approval of MoM for 10th BoS held on 06/06/2023
11.2 Changes in maths foundation course
11.3 Comparison of NPTEL Machine Learning Syllabus with the available syllabus and ratification of other NPTEL courses
11.4 Ratification for changes in Course Code and Course name
11.5 Change in Content- Introduction to Deep Learning and ratification for the changes in list of experiment SNT Lab, DTE lab, Pathology Lab, DSP Lab
11.6 New open elective course- Human Computer Interface
11.7 Ratification of PhD new syllabus-40211BM104- Advanced Sensor and Instrumentation Technology

Dr. Deepa presented the agendas and followed by the presentation of the newly framed and modified syllabus by the respective faculties

Discussion:

Agenda 11.1: Approval of MoM for 10th BoS held on 06/06/2023

Members approved the Minutes of 10th BoS held on 06/06/2023

Agenda 11.2: Changes in maths foundation course

The change in foundation maths course was discussed based on the feedback from student and maths handling faculty and the new course was presented

OLD COURSE NAME	NEW COURSE NAME	ACTION TAKEN
Vector Calculus and Complex Variables	Calculus and Differential Equation	Approved

Agenda 11.3: Comparison of NPTEL Machine Learning Syllabus with the available syllabus and ratification of other NPTEL courses

The following NPTEL courses were discussed

S. No	Course Code-Course Name	Category	Discussion & Action taken
1	10212BM115 (12 weeks)-Introduction to Machine Learning	Specialization Elective	A discussion of credits to be assigned in this 12-week NPTEL course was done. Since 12 weeks is equivalent to 3 credits, the members suggested adding a project for this course and giving the course 4 credits.
2	10213BM115- Foundation Certificate in Palliative Care	Open Elective	Approved
3	10213BM116- Introduction to Internet of Things	Open Elective	Approved

Agenda 11.4: Ratification for Changes in Course Code and Course Name

B-Tech Biomedical Engineering (VTRUGE2021)

OLD COURSE CODE-COURSE NAME	NEW COURSE CODE-COURSE NAME	ACTION TAKEN
10211BM109-Biomaterials	10211BM113-Biomaterials and its Application	Approved
10213BM105-Drone in Healthcare	10213BM117-Drone Technology in Healthcare	Approved

Ph.D. Biomedical Engineering (VTDR21)

OLD COURSE CODE-COURSE NAME	NEW COURSE CODE-COURSE NAME	ACTION TAKEN
4061BM101-Applied Machine Learning	40211BM101-Applied Machine Learning Techniques	Approved
4061BM102-Advanced Digital Signal Processing	40211BM102-Advanced Digital Signal Processing Techniques	Approved
4061BM103-Medical Image Processing	40211BM103-Medical Image Processing & Its Applications	Approved

Agenda 11.5: Change in Content- Introduction to Deep Learning and ratification of the changes in the list of experiments for Sensor and Transducer Lab, Diagnostic and Therapeutic Lab, Biochemistry Lab, Digital Signal Processing Lab

OLD COURSE CODE-COURSE NAME	NEW COURSE CODE-COURSE NAME	ACTION TAKEN
10212BM204- Introduction to Deep Learning	10212BM205-Deep Learning Fundamentals	Approved

COURSE CODE-COURSE NAME	ACTION TAKEN
10211BM301-Biochemistry and Physiology Laboratory	Approved
10211BM303- Sensors and Transducers Laboratory	Approved
10211BM305- Digital Signal Processing Laboratory	Approved
10211BM307- Diagnostic and Therapeutic Equipments Laboratory	Approved

Agenda 11.6: New open elective course- Human-Computer Interface

COURSE CODE-COURSE NAME	ACTION TAKEN
10213BM118-Human-Computer Interface	Approved

Agenda 11.7: Ratification of PhD new syllabus-40211BM104- Advanced Sensor and Instrumentation Technology

COURSE CODE-COURSE NAME	ACTION TAKEN
40211BM104- Advanced Sensor and Instrumentation Technology	The member suggested to rephrase the unit title and some topics can be interchanged. The following suggestion will be implemented in the next batch

General Comments: To add basics of UNIX/ Java/ SQL for database as a 1 credit course in the curriculum.

Syllabus Content Changes

OLD COURSE CODE-COURSE NAME	NEW COURSE CODE-COURSE NAME
10212BM204- Introduction to Deep Learning	10212BM205-Deep Learning Fundamentals

S. No	Content to be removed	Content Added/ modified to	Reason
1		**ML Basics-**Representation Learning, Width and Depth of Neural Networks, Learning Algorithms: Capacity - Overfitting - Underfitting	No clarity in the depth to which the contents to be delivered to students
	Bayesian Classification		Included in Machine learning syllabus
2	Applications		Application is dealt in Unit 4 and 5
3	Case studies in classification, Regression and deep networks.	Case studies- Regression and Classification in deep networks?	
	Computer vision		Unit 3 talks about RNN and its variant.
4	Generative Adversarial Networks by **Keras MXnet.**		It is again a library like TensorFlow. Students get confused with many libraries. Instead learning one with deep understanding will help them in future
5	Can we reduce the number of applications for case study?		

CO Changes

CO	Old	New	Level
CO4	Develop the test procedures to assess the efficacy of the developed model.	Describe different performance improving techniques for deep learning models	K2
CO5	Apply simple deep learning for object detection and recognition in images	Apply deep learning models to some real-world problems	K2

As all the experiments in the syllabus directly starts with the application, the experiments list is changed to show the intermediate functionalities of the DL algorithm

S. No	List of experiments	Modified List of experiments
1	MNIST Handwritten Recognition using Fully Connected Neural Networks	Getting Started with Deep Learning
2	American sign language detection using Fully Connected Neural Networks	Manual data fitting
3	Diabetic Foot Ulcer classification using Alexnet (CNN)	Experimenting with activation functions
4	Object Detection with CNN	Manual tuning of Edge detection filters
5	Electrocardiogram (ECG) Signal Analysis using RNN	Text vectorization and embedding
6	Protein Structure Prediction using Recursive Neural Networks	Back propagation
7	Medical Image Generation using GANs	Data Augmentation
8	Synthetic Data Generation for Privacy-preserving Healthcare	Sentiment analysis
		Generative Adversarial Network
		Assignment-AlexNet/VGG/ResNets

10211BM301-Biochemistry and Physiology Laboratory

Exp No	Old list of Experiments	New List of Experiments
1	Blood Pressure Measurement	Blood Pressure Measurement
2	Hearing loss test	Hearing loss test
3	Blood grouping test	Blood grouping test
4	Bleeding and Clotting test	Study of Histological slides
5	Qualitative Tests For Carbohydrates	Qualitative Tests For Carbohydrates
6	Quantitative Tests For Carbohydrates	Quantitative Tests For Carbohydrates
7	Quantitative analysis of protein.	Quantitative analysis of protein.
8	Sepa ration of amino acids	Separation of amino acids
9	Body Organization – a) cavities and organs, b) skeleton.	Body Organization – a) cavities and organs, b) skeleton.
10	Virtual dissection of arteries and vein	Virtual dissection of arteries and vein
11	Virtual dissection to locate joints	Virtual dissection to locate joints
12	Visual tests and eye anatomy.	Visual tests and eye anatomy.

10211BM303- Sensors and Transducers Laboratory

Old Experiments	New Experiments	Remarks
Measurement of Static Characteristics Of RTD Sensor	Measurement of Static Characteristics Of RTD Sensor	Experiments without changes
Study of thermistor characteristics for temperature measurements	Measurement of Characteristics of Thermistor	
Measurement of strain gauge characteristics	Measurement of Characteristics of Strain Gauge	
Study of the working principle of photodiodes and optoelectronics	Study of the Working Principle of Photodiodes and Light Dependent Resistor	
Design of electronics for respiration rate measurements	Respiration Rate Measurement	From Design to measurement
Study of bioelectrode design and biosignal acquisition		Experiments that are removed
Measurement of lung capacity using lung plethysmography		
Design of electronics for ECG signal acquisition		
Fiber optic sensor for force measurements		
Fiber optic sensor for temperature measurements		
	Measurement of Resistance By Bridge	Newly added experiments as basic sensing experiments are missing in the syllabus
	Measurement of Capacitance And Inductance	
	Measurement of Pressure Using Bridge and Piezo-Resistivity	
	Measurement of Differential Pressure	
	Displacement Measurement and Piezo-Electric Measurement	
	Measurement of Flow Using Orifice	
	Measurement of Distance using Ultrasound, and Speed using Hall Effect sensor	

10211BM305- Digital Signal Processing Laboratory

Old Syllabus	New Syllabus	Changes
1.Waveform Generation	1.Waveform Generation	
2.Basic operation on DT signals	2.Basic operation on DT signals	
3.Demonstration of sampling and aliasing	3.Demonstration of sampling and aliasing	
4.Demonstration of ECG filtering	4.Demonstration of EEG filtering to separate different bands	As the 5th is using ECG , this is changed to EEG
5.Demonstration of FIR Filter	5.Demonstration of FIR Filter	
6.Creating Project Using Ccstudio For MSP430 & TMS320C6748 Board	6.Creating Project Using Ccstudio TMS320C6748 Board	Removed MSP430 only as they are learning in 4th semester with new regulation.
7.Timer Mode 0 with MSP430	-	Removed MSP430 only as they are learning in 4th semester with new regulation.
8.Sine wave generation using MSP430 PWM Module	-	Removed MSP430 only as they are learning in 4th semester with new regulation.
9.Audio Loop back using TMS320C6748	9.Audio Loop back using TMS320C6748	
10.FIR filter implement using TMS320C6748	8.FIR filter implement using TMS320C6748	
11.Sine Wave generation using TMS320C6748	9.Sine Wave generation using TMS320C6748	

10211BM307- Diagnostic and Therapeutic Equipments Laboratory

Changes in Lists of experiments

Prerequisite

Old- 10211BM102- Analog and Digital Integrated Circuits and 10211BM105-Bio Sensors and Transducers

New-10211BM102- Analog and Digital Integrated Circuits

Original	Changes-Reason	Reason
Measurement of various physiological signals using biotelemetry	No change	

Study of medical stimulator	No change	
Analyse the working of ESU–cutting and coagulation modes	No change	
Recording of Audiogram	No change	
Analysis of ECG, EEG and EMG signals using the simulator	No change	
Pure tone conduction measurement using an audiometer	Ultrasonic Blood flowmeter	Pure tone conduction measurement will be included in the Audiogram Experiment
Real-time wireless health monitoring using mobile devices	Study of Ultrasound machine	Repetition of experiment
Real-time monitoring and comprehensive determination of emotional characteristics from physiological parameters.	Study of the infusion pump and syringe	GSR experiment is included in BMILAB. Infusion and syringe pump are in the syllabus
ECG heart rate alarm using patient monitoring	No change	
Working methods of shortwave diathermy.	Design of Humidifier/Hearing Aid/Ultrasound Sensor/Pressure Sensor/Pulse Sensor/ Functional Electrical Stimulator	Due to budget limit, we were unable to purchase
	Study of artificial pacemaker with various arrhythmia	
	Continuous wave mode testing of AFE5809 (Ultrasound analog front end)	High ended question

Course Code	Course Title	L	T	P	C
10213BM118	**Human Computer Interface**	3	0	0	3

a) Course Category
Open Elective

b) Preamble
This course helps to understand the components of the brain computer interface system.

c) Prerequisite
None

d) Related Courses

AEIC

e) Course Outcomes

Upon the successful completion of the course, students will be able to:

CO Nos.	Course outcomes	Knowledge Level (Based on Revised Bloom's Taxonomy)
1	Explain the anatomy physiology of the human brain and discuss different types of BCI signals from instruments	K2
2	Discuss and compare different types of brain signals used for feature extraction	K2
3	Discuss the major components of BCI which makes up the system	K2
4	Explain the applications based on BCI	K2
5	Use the toolbox BCILAB	K2

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1										2	1	2
CO2	2	1	2	1	2	2						2	3	1
CO3	3	1	2	2	3							2	3	1
CO4	1	1	1		2							2	2	1
CO5	1	2	1	1	3							2	3	1

f) Course Content

UNIT-I Brain computer interface **9**

Anatomy and physiology of brain and function of nervous system, what is BCI? How BCI works- structure of BCI, BCI category-synchronous and asynchronous, Types of BCI-Invasive, Partially invasive, Non-invasive, Brain signal acquisition methods-EEG, MEG, fNIRS, fMRI, Non brain signals for BCI

UNIT-II EEG features used in BCI **9**

EEG characteristic- Temporal characteristics, Spatial Characteristics, Types of control signal - Oscillatory EEG activity, event-related potentials (ERP), slow cortical potentials (SCP), and Sensory motor rhythms, BCI modality: Motor Imagery BCI, p300 speller, steady state visual evoked potential (SSVEP)

UNIT-III Brain signal processing approaches 9

Challenges in BCI, Filtering approaches-Spatial, temporal, spectral, spatio-temporal filters, Feature extraction, Classifier- linear discriminant analysis, Support vector machine, machine learning,

UNIT-IV BCI application 9

Medical BCI application- neuro prosthetic devices and wheel chair controlled, Communication device, gaming, monitoring workload

UNIT-V BCI LAB Tool Box 9

Toolbox Architecture, Plug-in concepts, analysis and comparison of feature extraction and classification methods, calibration and visualization of model, Implementing ERP Based BCI, ERP Analysis in BCI Lab

Total: 45 Hrs.

g) Learning Resources

Text Books

1. R. Wolpaw and Elizabeth Winter Wolpaw, "Review of "Brain-Computer Interfaces, principles and practice", Biomed Engineering online
2. Christian Kothe,"Introduction to Modern Brain Computer Interface design video lectures,

https://sccn.ucsd.edu/wiki/Introduction_To_Modern_BrainComputer_Interface_Design

Reference Books

1. "Brain Computer Principles and Practices",Jonathan Wolpaw ,Elizabeth Winter Wolpaw, Oxford University Press

Research Paper

1. Nicolas-Alonso, L. F., & Gomez-Gil, J. (2012). Brain computer interfaces, a review. *sensors*, *12*(2), 1211-1279.

Course Code	Course Name	L	T	P	C
40211BM104	**Advanced Sensor and Instrumentation Technology**	**3**	**1**	**0**	**4**

a) Course Category:

PhD

b) Preamble:

This course covers the basics of advance sensor and instrumentation required for research

c) Prerequisite:

None

d) Related Course:

Biosenor and transducer, nanomaterials

e) Outcome:

Upon the successful completion of the course, students will be able to:

CO Nos.	Course outcomes	Knowledge Level (Based on Revised Bloom's Taxonomy)
1	Classify nanoscale sensors based on sensor parameters and characteristics	K3
2	Compare the different chemical and physical synthesis and fabrication process	K3
3	Identify proper techniques for characterization of specific nanomaterials	K3
4	Design an optical nanosensor for detecting blood glucose	K4
5	Design a polymer based substrate for healthcare application	K4

f) Course Content

Unit - 1 Introduction to Nanoscale Sensors 10

Introduction to Nanoparticles, Nanomaterials, and Nanosensors. Sensor parameters and Characteristics - Macro sensor to Microsensor and the necessity for nanoscale measurement - Micro- and macro-sized nanosensors. Nanosensors – Based on Nanoparticles, Nanotubes, Nanowires and Graphene.

Unit - 2 Synthesis and Fabrication of Nanomaterials 12

Chemical processes: Chemical precipitation and co-precipitation, Sol-Gel, Hydrothermal, Solvothermal, Microwave and Sonochemical Methods. Physical processes: Arc discharge, RF plasma, Ion sputtering, Laser ablation, Laser pyrolysis, Ball Milling, Physical and Chemical vapour deposition methods. Sensor Preparation environments: Clean rooms, Vibration-free environments, Sample cleaning, chemical purification, chemical/biological contamination and Safety issues.

Unit - 3 Nanomaterials as Nanosensors and their Characterization Techniques 14

Quantum Dots – Carbon Quantum Dots, and Carbon-based nanomaterials - Carbon Nanotubes (CNT) and Graphene - Structure and optical properties. Metallic nanomaterials (Au, Ag) and their Optical Properties – Surface Plasmon Resonance (SPR), Localized Surface Plasmon Resonance (LSPR) and Surface-Enhanced Raman Spectroscopy (SERS). Characterization

Techniques: X-ray Diffraction (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Fourier-Transform Infrared Spectroscopy (FTIR), UV(Ultra Violet)-visible spectrophotometer, Laser Raman Spectroscopy, Differential Scanning Calorimeter and a particle size analyzer.

Unit - 4 Optical Nanosensors 12

Properties- Absorbance, reflectance, fluorescence, luminescence, refractive index, and light scattering. Noble-metal nanoparticles With LSPR and UV-visible spectroscopy, Nanosensors Based on Surface-Enhanced Raman Scattering, Colloidal SPR Colorimetric Gold Nanoparticle Spectrophotometric Sensor, Fiber-Optic Nanosensors, Fabry-Perot Reflectometric Optochemical Nanosensor, Using Optical Fibers and Single-Walled Carbon Nanotubes (SWCNTs). Disadvantages of Optical Fiber and Fluorescent Nanosensors for Living Cell Studies.

Unit - 5 Recent advances 12

Application of Carbon Nano Structures: Diamond-Like Carbons (DLCs), C60, C80 Single-Walled Carbon Nanotube (SWNT) and Multi-Walled Carbon Nanotube (MWNT); Properties: Optical and Electrical properties; Application of Nano Semiconductors, Application of Nanopolymers: Preparation and characterization of Copolymer based nanocomposites, Nanoparticles polymer ensembles.

TOTAL : 60 periods

g) Learning Resources

REFERENCE BOOKS

1. Khanna, V. K. (2021). *Nanosensors: physical, chemical, and biological*. CRC press.
2. Pal, K. (2020). *Nanofabrication for smart nanosensor applications*. Elsevier.

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

SCHOOL OF ELECTRICAL AND COMMUNICATION
DEPARTMENT OF BIOTECHNOLOGY

Minutes of

11th Meeting

of

Board of Studies

DEPARTMENT OF BIOTECHNOLOGY

SCHOOL OF ELECTRICAL & COMMUNICATION

Date: 03/01/2023

Time: 11:00 AM

Venue: Room No 3235

AGENDA

11 BoS 01 To confirm the Minutes of Meeting of the 10th Board of Studies.

11 BoS 02 To confirm the minutes of the meeting of the 11th Board of Studies.

11 BoS 03 To record the leave of absence of members

ITEMS FOR CONSIDERATION AND APPROVAL

11 BoS 04 Report on Specialization, Minors and Honors status and methods to improve

11 BoS 05 Changes in syllabus and code

11 BoS 06 Updating of course codes of DBT prescribed PG syllabus as per the regulations.

11 BoS 07 Credit changes in few courses according to the suggestions of BOS members.

11 BoS 08 Submitted for approval of NPTEL courses

ITEMS FOR DISCUSSION AND RATIFICATION

11 BoS 09 Courses to be offered in the academic year under various categories including Specialization, Minor, Honors

ITEMS FOR REPORTING

11 BoS 10 Any other items with the permission of chair

OPENING

CALL TO ORDER

The Chairman called the meeting to order and welcomed the members and invitees.

11 BoS 01 To confirm the Minutes of Meeting of the 10th Board of Studies.

Minutes of Meeting of the 10th Board of Studies held on 30/05/2023 was confirmed as received and ratified by the members present

11 BoS 02 To confirm the minutes of the meeting of the 11th Board of Studies.

Minutes of Meeting of the 11th Board of Studies meeting being held was confirmed to all members present.

11 BoS 03 To record the leave of absence of members

S.No	Name	Designation
1	Dr. P. Azhagu Saravana Babu Head of the Department, and Professor Department of Biotechnology Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Chairman
2	Dr. Vignesh Muthuvijayan Professor, Department of Biotechnology Bhupat and Jyoti Mehta School of Biosciences Indian Institute of Technology Madras Chennai	Academic Expert
3	Dr. Abhishek Mathur DGM – Technical and R&D Prathista Industries Limited (Prathista Group) Telengana State	Industry Expert
4	Dr. R. Ravikumar Professor, Department of Biotechnology Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Member
5	Dr. K. Jagajjanani Rao Associate Professor, Department of Biotechnology Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Member
6	Dr. S. Mugesh Associate Professor, Department of Biotechnology Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Member
7	Dr. R. Sai Nandhini Assistant Professor, Department of Biotechnology Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	Member
8	Ms. Nithya sree DXC Technology Guindy Industrial Estate, SIDCO Industrial Estate, Guindy, Chennai, Tamil Nadu 600032	Alumni

11 BoS 04 Report on Specialization, Minors and Honors status and methods to improve

Member Dr. P. Azhagu Saravana Babu presented the proposed changes in the list of courses as follows:

11 BoS 05 Changes in syllabus and course code.
11 BoS 06 Updating of course codes of M. Tech syllabus as per the regulation
11 BoS 07 Credit changes in M. Tech syllabus

UG

1. Request to transfer Biochemistry course from Foundation Course to Basic Sciences. Instead of Biochemistry, the students will be studying Engineering Chemistry in their first semester.
2. Instead of Advanced Biochemistry, students will study **Biochemistry**.
3. Transfer of Advanced Biochemistry course from Program core to Program elective.
4. Transfer of Unit operations in Biotechnology course from industrial domain to Chemical Engineering Domain.
5. Instead of Marine biotechnology, the committee has suggested to offer **Plant and Animal Biotechnology**.
6. Instead of Computational Biology course, the committee has advised to offer **Bioinformatics** course and also the committee has agreed to transfer the computational biology from program core to program elective category.
7. Request to change the credits of Engineering Advances in Food Preservation from 2 credits to 3 credits.
8. Request to modify the syllabus of Biomolecular modelling.
9. NPTEL courses are proposed for approval.

Course Code	Course Title	L	T	P	C
10211BT109	**BIOCHEMISTRY**	**3**	**0**	**0**	**3**

Course Content:

UNIT–I INTRODUCTION TO BIOCHEMISTRY 9

Introduction and scope of biochemistry, basic principles of organic chemistry, chemistry of nucleic acids, Introduction to physiological buffers, role of biological buffers, pH, Weak acids and bases, water as universal solvent. Principle of viscosity, surface tension, diffusion, osmosis in biological system

UNIT–II INTRODUCTION TO BIOMOLECULES 9

Structure, function and properties of carbohydrates - mono, di and polysaccharides - homopolysaccharides (starch and glycogen); heteropolysaccharides, Carbohydrates, Lipids: classification, structure, properties and functions, Amino acids: classification and general properties, Proteins: Primary, Secondary, Tertiary and Quaternary. Nucleic acid: structure of purine and pyrimidine

UNIT–III METABOLIC PATHWAYS OF CARBOHYDRATES AND FATTY ACIDS 9

Metabolic pathways of Carbohydrates - Glycolysis, Glucogenesis, Glucogenolysis, TCA and ETC; Metabolism of fatty acids, synthesis and degradation of fatty acids.

UNIT–IV METABOLIC PATHWAYS OF NUCLEIC ACIDS AND LIPIDS 9

Biosynthesis of nucleotides, de novo and salvage pathways for purines and pyrimidines, regulatory mechanisms: Degradation of nucleic acid by exo and endo nucleases. Triacylglycerol and phospholipid biosynthesis and degradation; Cholesterol biosynthesis and regulation and targets and action of cholesterol lowering drugs, statins.

Unit V BIOENERGETICS 9

Bioenergetics - High energy compounds, electronegative potential of compounds, respiratory chain, ATP cycle, calculation of ATP yield during oxidation of glucose and fatty acids.

LEARNING RESOURCES:

i. TEXT BOOKS:

1. Nelson D.L., Cox M.M., & Lehninger A.L., “Principles of Biochemistry”, McMillan Learning, New York, USA, 2014
2. Voet D.J., Voet J.G. and Pratt C.W., “Principles of Biochemistry”, 3rd Edition, John Wiley & Sons Inc., 2008.
3. Murray R.K., et al., “Harper’s Illustrated Biochemistry”. XXVIIth Edition, McGraw-Hill, 2006.

ii. REFERENCE BOOKS:

1. Berg J.M., Tymoczko, J.L. and Stryer, L., “Biochemistry”,6th Edition, WH Freeman, 2006.
2. Salway J.G., “Metabolism at a Glance”, 2nd Edition, Blackwell Science Ltd., 2000.

Course Code	Course Title	L	T	P	C
10211BT116	PLANT AND ANIMAL BIOTECHNOLOGY	3	0	0	3

Course Content:

Unit I Animal cell culture **8**

Animal cell culture; media composition and growth conditions; Animal cell and tissue preservation; Anchorage and non-anchorage dependent cell culture; Primary and secondary culture; Animal cell growth characteristics and kinetics; somatic cell fusion; cell cultures as a source of valuable products; organ cultures.

Unit II Advances in animal cell culture **8**

Micro & macro- carrier culture; Hybridoma technology; monoclonal antibodies and their use in diagnosis, Stem cell technology; Concepts of transgenic animal technology; strategies for the production of transgenic animals and their importance in biotechnology, Animal cloning, *In vitro* fertilization technology

Unit III Plant cell culture **10**

Totipotency; Plant growth regulators; Regeneration and micropropagation of plants: clonal propagation, organogenesis, shoot-tip and meristem culture, haploid culture, triploid culture, protoplast culture; Somaclonal variation; Tissue culture and Cell suspension culture system: methodology, growth kinetics and nutrient optimization; Plant Transformation methods (emphasis on Agrobacterium mediated transformation); Hairy root culture; Production of transgenic plants - herbicide resistance, Insect resistance and stress tolerance.

Unit IV Secondary metabolite production **10**

Principles, design and operation of bioreactors: specific design criteria for mammalian and plant systems; Strategies for fermentation with recombinant organisms; Isolation, characterization and production of secondary metabolites from different plant cell types; Plant products of industrial importance, Production of secondary metabolites, Plant derived vaccines.

Unit V Processing of cell cultures **9**

Bioprocess monitoring and control: current practices in the bioprocess industries, advanced methodologies; Overview of downstream processing: centrifugation, filtration and chromatographic techniques.

Recommended Textbooks and References:

1. Butterworth Heinemann Ltd., (1994) Biotol Series, In vitro Cultivation of Plant cell.
2. Bhojwani S.S. and Razdan M.K. (1996) Plant Tissue Culture: Theory and Practice, a Revised Edition, Elsevier Science
3. T. A. Brown, (2001) Gene Cloning and DNA Analysis: an Introduction, Blackwell Science.
4. M. L Shuler and F. Kargi. (2002), Bioprocess Engineering, Prentice Hall Inc.
5. A. Slater, N. Scott and M. Fowler (2003), Plant Biotechnology: the Genetic Manipulation of Plants, Oxford University Press.
6. M. M. Ranga (2007), Animal Biotechnology, 3rd Revised Edition, Agrobios.
7. Freshney. (2016) Culture of Animal Cells.
8. Meyer, Handschel, Wiesmann (2009). Fundamentals of Tissue Engineering and Regenerative Medicine.
9. Chawla H.S., “Introduction to Plant Biotechnology”, 3rd Edition, Science Publishers, 2009.
10. Selected Papers from Scientific Journals, particularly Nature & Science.

10211BT201	BIOINFORMATICS	L	T	P	C
		3	0	0	3

Unit I Introduction to Bioinformatics **9**

Introduction to the biomolecules (DNA, RNA, Proteins, Lipids and Carbohydrates); gene, genome, DNA and Protein sequence,sequence assembly, sequence comparison. Overview of biological databases, nucleic acid & protein databases.

Unit II Biological Databases **9**

Primary, secondary, composite, structural classification database, Sequence formats & storage, Access databases, GenBank, NCBI, DDBJ, Heuristic approach: BLAST, FASTA in DNA and protein sequence. Protein databases: SwissProt, PIR, PRF, PDB and STRING.

Unit III Sequence Alignment **9**

Introduction to Next Generation Sequencing technologies. Local alignment, Global alignment, Whole Genome Assembly and challenges, Sequencing and analysis of large genomes, Gene prediction, Functional annotation, Comparative genomics, Probabilistic functional gene networks,

Unit IV Structure Analysis **9**

Dynamic programming approach: Needleman and Wunsch Algorithm, Smith and Waterman, Multiple sequence alignment: progressive alignment, iterative alignment, Pairwise sequence alignment: CLUSTAL W, Clustal Omega, ClustalW2. Scoring matrices - PAM, BLOSUM, Gaps and penalties, Dot plots.

Unit V Bioinformatics in Drug development **9**

Introduction to drug discovery, genomic sequence and exome data in drug discovery, genetic diseases, human diseases caused by pathogens, drug target identification using bioinformatics, clinical application and other applications of bioinformatics.

Recommended Textbooks and References:

1. Mount, D. W. (2001). Bioinformatics: Sequence and Genome Analysis. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.

2. Bourne, P. E., & Gu, J. (2009). Structural Bioinformatics. Hoboken, NJ: Wiley-Liss.

3. Lesk, A. M. (2004). Introduction to Protein Science: Architecture, Function, and Genomics. Oxford: Oxford University Press.

4. Campbell, M & Heyer, L. J. (2006), Discovering Genomics, Proteomics and Bioinformatics, Pearson Education.

5. Oprea, T. (2005). Chemoinformatics in Drug Discovery, Volume 23. Wiley Online Library.

6. Gasteiger, J. & Engel,T. (2003), Chemoinformatics: a Textbook, Wiley Online Library.

PG

As per the Institution regulation course code of the following subject has been changed. The course codes of all the subjects have been presented to the committee.

S.no	Course Code	Course Title	Old code	New code
1	20231BT301	Biochemistry & Analytical Techniques Laboratory	4	3
2	20231BT302	Microbiology Laboratory	4	3
3	20231BT303	Molecular Biology and Genetic Engineering Laboratory	4	3
4	20231BT305	Downstream Processing in Biotechnology Laboratory	2	3
5	20231BT104	Microbiology	2	3
6	20231BT105	Plant and Animal Cell Culture Technology	2	3
7	20231BT113	Bioenterpreneurship	3	2
8	20231BT114	Instrumentation and Control	2	3

External Academic expert Dr. Vignesh Muthuvijayan reviewed the syllabus of all the courses and he has suggested the following points to improve the curriculum.

1. Biochemistry course can be transferred from foundation course to program core. He suggested to merge both Biochemistry and Advanced biochemistry subject.
2. Instead of Biochemistry, Students will be studying Engineering chemistry course in the first year.
3. He has also suggested to reframe the plant and animal biotechnology course for UG students. It can be offered instead of Marine biotechnology.
4. Bioinformatics course can be replaced with computation biology.

11 BOS 08 - Suggested NPTEL Courses

Various NPTEL courses have been presented for course offering as Open Elective for ratification by the Board of Studies members. Both the Academic expert and alumni student gave valuable suggestions for relevance of courses from NPTEL and provided the importance of non repeatability with existing curriculum. The following NPTEL courses were ratified for offering courses to the students:

S. No	Course Code	Name	Professor Name	Credits	Course registration
Program elective					
1	10212BT137	Plant Developmental Biology	Prof. Shri Ram Yadav, IIT Roorkee	1	Jan 29, 2024
2	10212BT138	Medical Biomaterials	Prof. Mukesh Doble, IIT Madras	2	Jan 29, 2024
3	10212BT139	Structural Biology	Prof. Saugata Hazra, IIT Roorkee	3	Jan 29, 2024
Open Elective					
4	10213BT106	Bioelectrochemistry	Prof. Mainak Das, IIT Kanpur	1	Jan 29, 2024
5	10213BT107	Data Analysis For Biologists	Prof. Biplab Bose, IIT Guwahati	2	Jan 29, 2024

6	10213BT108	Machine Learning For Soil And Crop Management	Prof. Somsubhra Chakraborty, IIT Kharagpur	3	Jan 29, 2024

ITEMS FOR DISCUSSION CONSIDERATION AND APPROVAL

11 BoS 09 Courses to be offered in the academic year under various categories including Specialization, Minor, Honors. Discussion was held for the offering of various courses in the upcoming semester under various categories.

Course Category	Course Code	Course Name
Program Core	10211BT106	Chemical Reaction Engineering
Program Core	10211BT107	Mass Transfer Operations in Biotechnology
Program Core	10211BT111	Downstream processing
Program Core	10211BT113	Metabolic Engineering
Program Core	10211BT114	Green Biotechnology & Pollution Abetment
Program Core	10211BT306	Downstream processing Lab
Program Elective	10212BT113	Enzyme Technology and Biotransformation
Program Elective	10212BT122	Plant Biotechnology
Program Elective	10212BT133	Food preservation, packaging Technologies
Honors	10212BT138	Biomolecular Modelling
Honors	10212BT139	Biomechanics
Independent Learning	10214BT601	Minor Project I
Program Core	10211BT103	Biostatistics
Program Core	10211BT104	Molecular Biology: Concepts and Techniques
Program Core	10210BT110	Bioprocess engineering
Program Core	10211BT112	Unit Operations in Biotech Industry
Program Core	10211BT116	Immunology and Immunotechnology
Program Elective	10212BT130	Precision agricultural biotechnology
Program Elective	10212BT117	Biopharmaceutical technology
Honors	10212BT140	Bionanotechnology
Honors	10212BT137	Instrumentation and Process Control
Program Core	10211BT304	Molecular biology lab
Program Core	10211BT307	Immunology lab
Independent Learning	1156BT701	Minor Project I
Minors	10213BT107	Bioprocess Control components
Minors	10213BT108	Advanced Analytical and Instrumentation bioprocess applications

ITEMS FOR REPORTING

11 BoS 10 Any other items with the permission of chair

Chairman reported the following:

Chairman thanked the members and called the meeting to close.

ANNEXURES

ANNEXURE 1: Curriculum of VT UGE21 and PG M. Tech Biotechnology

ANNEXURE 1: Curriculum of VT UGE21

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

SCHOOL OF ELECTRICAL AND COMMUNICATION

DEPARTMENT OF BIOTECHNOLOGY

CURRICULUM AND SYLLABI

VT UG Regulation 2021

Department of Biotechnology

List of Courses – UG
B. Tech - Biotechnology

PROGRAM CORE COURSES VTR UGE 2021						
		Course Name	L	T	P	C
	Course Code	BASIC SCIENCES				
1	10211BT101	Microbiology	3	0	0	3
2	10211BT102	Cell Biology	3	0	0	3
3	10211BT115	Analytical and Instrumentation Engineering	3	0	0	3
4	10211BT301	Microbiology Lab	0	0	2	1
5	10211BT302	Biochemistry Lab	0	0	2	1
6	10211BT303	Cell Biology Lab	0	0	2	1
7	10211BT109	Biochemistry	3	0	0	3
GENETIC ENGINEERING / MOLECULAR BIOLOGY						
7	10211BT104	Molecular Biology: Concepts and Techniques	3	0	0	3
8	10211BT105	Genetic Engineering	3	0	0	3
9	10211BT304	Molecular Biology & Genetic Engineering Lab	0	0	2	1
CHEMICAL ENGINEERING						
10	10211BT106	Chemical Reaction Engineering	3	0	0	3
11	10211BT107	Mass Transfer Operations in Biotechnology	3	0	0	3
12	10211BT108	Principles of Chemical Engineering	3	1	0	4
13	10211BT112	Unit Operations in Biotech Industry	3	0	0	3
INDUSTRIAL BIOTECHNOLOGY						
14	10211BT110	Bioprocess Engineering	3	0	0	3
15	10211BT111	Downstream Processing	3	0	0	3
17	10211BT113	Metabolic Engineering	3	0	0	3
18	10211BT114	Green Biotechnology & Pollution Abetment	2	0	0	2
19	10211BT117	Animal Biotechnology	3	0	0	3
20	10211BT305	Bioprocess Engineering Lab	0	0	2	1
21	10211BT306	Downstream Processing Lab	0	0	2	1
PHARMACEUTICAL & MEDICAL BIOTECHNOLOGY						
22	10211BT201	Bioinformatics	2	0	2	3
23	10211BT116	Immunology and Immunotechnology	3	0	0	3
24	10211BT307	Immunology Lab	0	0	2	1
		TOTAL				58

PROGRAM ELECTIVE COURSES VTR UGE 2021						
Course Name			L	T	P	C
INDUSTRIAL DOMAIN						
1	10212BT101	Fluid Mechanics and Transport phenomena	3	0	0	3
2	10212BT102	Bioenergy	3	0	0	3
3	10212BT103	Food Processing Technology	3	0	0	3

4	10212BT104	Agricultural Biotechnology	3	0	0	3
5	10212BT105	Algal Biotechnology	3	0	0	3
6	10212BT106	Nanobiotechnology and application	3	0	0	3
7	10212BT107	Fermentation Technology	3	0	0	3
8	10212BT108	Protein Engineering	3	0	0	3
9	10212BT109	Process Instrumentation and dynamic control	3	0	0	3
10	10212BT110	Bioreactor design and Instrumentation control	3	0	0	3
11	10212BT111	Valorisation	3	0	0	3
12	10212BT112	Environmental Biotechnology	3	0	0	3
13	10212BT113	Enzyme technology and Biotransformation	3	0	0	3
14	10212BT114	Synthetic Biology	3	0	0	3
MEDICAL DOMAIN						
15	10212BT115	Cancer Biology	3	0	0	3
16	10212BT116	Molecular Pathogenesis	3	0	0	3
17	10212BT117	Biopharmaceutical Technology	3	0	0	3
18	10212BT118	Stem cell Technology	3	0	0	3
19	10212BT119	Biosensor and Instrumentation	3	0	0	3
20	10212BT120	Biomaterials	3	0	0	3
21	10212BT121	Biochips and Microarray technologies	3	0	0	3
22	10212BT122	Plant Biotechnology	3	0	0	3
23	10212BT123	Animal Biotechnology	3	0	0	3
24	10212BT124	Tissue Engineering	3	0	0	3
25	10212BT125	Herbal and Phytochemical Engineering	3	0	0	3
26	10212BT126	Medical Genomics and Proteomics	3	0	0	3
27	10212BT127	Cellular Engineering	3	0	0	3
28	10212BT128	Bioprinting	3	0	0	3
29	10212BT129	Augmented Reality & Virtual Reality	3	0	0	3
30	10212BT130	Precision Agricultural Biotechnology	3	0	0	3
31	10212BT131	Computational Biology:Techniques and Applications(Integrated)	3	0	0	3
32	10212BT132	Advanced Biochemistry	3	0	0	3

		FOOD BIOTECHNOLOGY				
33	10212BT131	Principles of Functional Food and Applications	3	0	0	3
34	10212BT132	Nutraceuticals	3	0	0	3
35	10212BT133	Food Preservation, Packaging Technologies	3	0	0	3
36	10212BT134	Marine Biotechnology and Aquaculture	3	0	0	3
37	10212BT135	Food Safety, Quality and Regulation	3	0	0	3
38	10212BT136	Storage Engineering	3	0	0	3
INDEPENDENT LEARNING						
39	10214BT501	Community service project				1
40	10214BT601	Minor Project I				2
41	10214BT602	Minor Project II				2
42	10214BT701	Major Project I				9

OPEN ELECTIVE COURSES

S. No.	Course Code	Course Name	L	T	P	C
1	10213BT101	Biochips	3	0	0	3

2	10213BT102	Biosensors	3	0	0	3
3	10213BT103	Biomaterials engineering	3	0	0	3
4	10213BT104	Bio-inspired design: principles and practice	3	0	0	3
5	10213BT105	Engineering advances in food preservation	3	0	0	3

Minor Course

S.No	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1	10213BT107	Bioprocess Control components	3	0	0	3
2	10213BT108	Advanced Analytical and Instrumentation bioprocess applications	3	0	0	3
3	10213BT109	Biosensors	3	0	0	3
4	10213BT110	Biochips	3	0	0	3
5	10213BT111	Biomaterials	3	0	0	3
6	10213BT112	Computational applications in Bioprocess	3	0	0	3

Honors courses

S.No	Course Code	Course Name	L	T	P	C
1	10212BT137	Instrumentation and Process Control	3	0	0	3
2	10212BT138	Biomolecular Modelling	2	0	2	3
3	10212BT139	Biomechanics	2	0	2	3
4	10212BT140	Bio-nanotechnology	2	0	2	3
5	10212BT141	Biochemical Engineering	3	0	0	3
6	10212BT142	OMICS Technologies	3	0	0	3

Specialization Courses

S.No	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1	10212BT131	Principles of Functional Food and Applications	3	0	0	3
2	10212BT132	Nutraceuticals	3	0	0	3
3	10212BT133	Food preservation, packaging technologies	3	0	0	3
4	10212BT135	Food Safety, Quality and Regulation	3	0	0	3
5	10212BT130	Precision Agricultural Biotechnology	3	0	0	3
6	10212BT122	Agricultural Biotechnology	3	0	0	3

List of Courses – PG
M. Tech – Industrial Biotechnology

FOUNDATION COURSES						
S.No	Course Code	Course Name	L	T	P	C
1	20230BT101	Basics of Mathematics and Statistics	2	0	0	2
2	20230BT102	Basics of Chemistry and Physics	2	0	0	2
PROGRAM CORE THEORY COURSES						
S.No	Course Code	Course Name	L	T	P	C
1	20231BT101	Biochemistry	3	0	0	3
2	20231BT102	Cell and Molecular Biology	3	0	0	3
3	20231BT103	Introduction to Engineering Principles	3	0	0	3
4	20231BT104	Microbiology	3	0	0	3
5	20231BT105	Plant and Animal Cell Culture Technology	3	0	0	3
6	20231BT106	Genetic Engineering	3	0	0	3
7	20231BT107	Immunology	3	0	0	3
8	20231BT108	Bioprocess Engineering and Technology	3	0	0	3
9	20231BT109	Downstream Processing in Biotechnology	3	0	0	3
10	20231BT110	Bioreactor Operations	3	0	0	3
11	20231BT111	Computational Biology	3	0	0	3
12	20231BT112	Bioprocess Equipment Design and Economics	3	0	0	3
13	20231BT113	Bioenterpreneurship	2	0	0	2
14	20231BT114	Instrumentation and Control	3	0	0	3
15	20231BT115	Research Methodology and Scientific Communication skills	2	0	0	2
16	20231BT116	Intellectual Property Rights, Biosafety and Bioethics	2	0	0	2
PROGRAM CORE LABORATORY COURSES						
1	20231BT301	Biochemistry & Analytical Techniques Laboratory	0	0	6	3
2	20231BT302	Microbiology Laboratory	0	0	6	3
3	20231BT303	Molecular Biology and Genetic Engineering Laboratory	0	0	6	3
4	20231BT304	Immunology Laboratory	0	0	6	3
5	20231BT305	Downstream Processing in Biotechnology Laboratory	0	0	6	3
PROGRAM ELECTIVE COURSES						
S.No	Course Code	Course Name	L	T	P	C

1	20232BT101	Bioreaction Engineering	2	0	0	2
2	20232BT102	Computational Programming	2	0	0	2
3	20232BT103	Environmental Biotechnology	2	0	0	2
4	20232BT104	Enzyme Engineering and Technology	2	0	0	2
5	20232BT105	Metabolic and Systems Biology	2	0	0	2
6	20232BT106	Medical Devices	2	0	0	2
7	20232BT107	Molecular Diagnostics	2	0	0	2
8	20232BT108	Nano biotechnology	2	0	0	2
9	20232BT109	Production of Bio Therapeutics	2	0	0	2
10	20232BT110	OMICS Technologies	2	0	0	2
INDEPENDENT LEARNING						
1	20234BT401	Project Proposal Preparation and Presentation	0	2	0	2
2	20234BT701	Project Work Phase - I	0	0	12	6
3	20234BT702	Project Work Phase - II	0	0	40	20

MINUTES OF

26th BOARD OF STUDIES MEETING

on

30-12-2023

at

10:30AM

held in

CASA LAB

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF MECHANICAL AND CONSTRUCTION

VISION AND MISSION OF THE INSTITUTE

Vision:

To create, translate and share frontiers of knowledge embedded with wisdom and innovation for a positive transformation of emerging society.

Mission:

To nurture excellence in teaching, learning, creativity and research; translate knowledge into practice; foster multidisciplinary research across science, medicine, engineering, technology and humanities; incubate entrepreneurship; instill integrity and honour; inculcate scholarly leadership towards global competence and growth beyond self in a serene, inclusive and free academic environment.

VISION AND MISSION OF THE DEPARTMENT

Vision:

To impart knowledge and excellence in Civil Engineering with global perspectives to the student community and to make them ethically strong engineers to build the nation.

Mission:

M1: To produce Civil Engineers of high calibre with advanced technical skills and ethical values to serve the society and the nation.

M2: To make the department as a centre of excellence in the field of Civil Engineering and allied research activities.

M3: To provide knowledge base and consultancy services to the community in all areas of Civil Engineering

M4: To promote innovative ideas which original thinking in the minds of budding Engineers to face the future challenges.

School of Mechanical & Construction
Department of Civil Engineering
26th Board of Studies Meeting of Civil Engineering
30th December 2023 @10.30a.m.

Ref: -Civil/BOS-26/Agenda/2023

Agenda No.	**Agenda**
OPENING	
26BoS01	To confirm the minutes of meeting of the 25th BoS, held on 03.06.2023
26BoS02	Action taken report on Minutes of 25th BoS meeting
26BoS03	To record leave of Absence of members
ITEMS FOR CONSIDERATION AND APPROVAL	
26BoS04	Curriculum and Syllabi for M. Tech under "VTR PGE 2023"
ITEMS FOR DISCUSSION AND RATIFICATION	
26BoS05	Courses offered under Industry/Higher Learning Institute Interaction
ITEMS FOR REPORTING AND RECORDING	
26BoS06	Any other points

Attendance

Sl.No	Name	Designation	Remarks
1.	Dr. GEETHA SELVARANI. A.	Chairman – BOS, Professor &HOD/Civil	Attended
External Members			
2.	Dr. SENTHIL SELVAN. S.	Professor, Department of Civil Engineering, Faculty of Engineering and Technology, Kattankulathur Campus, SRM Institute of Science and Technology.	Attended
3.	Er. SURESH KUMAR. L.	Assistant Engineer, Central Public Works Department.	Attended
Internal Members			
4.	Dr. SAMSON. S.	Professor	Attended
5.	Dr. ASWIN SIDHAARTH. K.R.	Assoc. Professor	Attended
6.	Dr. KUMAR. G.	Assoc. Professor	Attended
7.	Dr. VINODKUMAR. M.	Assoc. Professor	Attended
8.	Dr. KANDASAMY. S.	Assoc. Professor	Attended
9.	Dr. LOGESHWARI. J.	Assoc. Professor	Attended
10.	Dr. TAMILARASAN. K.	Asst. Professor	Attended
11.	Dr. SELVAKUMAR. S.	Asst. Professor	Attended
Alumni and Student Representative			
12.	Mr. KUSHAL KUMAR	Alumni	Attended
13.	Mr. DINESH SHARMA GURUMAYUM – VTU16911	Student Representative	Not Attended

Welcome Address: Chairman – BOS, welcomed the Special invitees and other members for the 26th BOS meeting.

Agenda 26.01 **: Confirmation of the Minutes of Meeting of 25th BOS held on 03.06.2023.**

Discussion **:** Chairman – BOS, presented the minutes of the 25th BOS held on 03.06.2023.

Action : BOS members have approved the action taken report on the minutes of 25th BOS Meeting, held on 03.06.2023.

Agenda 26.02 **: To review the Action Taken report on the Minutes of 25th BOS Meeting.**

Discussion **:** Chairman – BOS, highlighted the follow-up action taken on the suggestions given by the expert members. These are:

S.No	Points Discussed	Action Taken
1	The Chairman – BoS listed the Independent-Learning courses to be offered through NPTEL Platform, under MOOC option, for completing the Independent Learning category, during the Academic Year: 2023-2024.	Members accepted and recommended the different courses and their corresponding credits for the forth coming semester.
2	Chairman – BoS, presented the proposed revisions for "VTR PGE 2023".	BoS members have approved the revision of regulation for M.Tech under "VTR PGE 2023". The members have suggested to offer the course "Technical Writing" to be mandatory under independent learning category and also appreciated the inclusion of mandatory publication.

Action **:** BOS Members gone through the action taken report and approved the same.

Agenda 26.03 **: To record leave of absence of members.**

Discussion **:** Our student representative Mr. Dinesh Sharma Gurumayum was absent in view of academic and personal constraint.

Action **:** The BOS members accepted and the same was recorded.

ITEMS FOR CONSIDERATION AND APPROVAL

Agenda 26.04 : **Curriculum and Syllabi for M.Tech under "VTR PGE 2023".**

Discussion : PG-Coordinator's, presented the Curriculum and Syllabi for M.Tech (Structural Engineering and Environmental Engineering) under "VTR PGE 2023".

M.TECH STRUCTURAL ENGINEERING

20231CE105 - ADVANCED STEEL DESIGN
Academic Expert: Dr. S. Senthil Selvam
Title of Unit I is to be changed as Biaxial bending of beams from previous title Introduction.

20231CE106 - SEISMIC DESIGN OF STRUCTURES
Academic Expert: Dr. S. Senthil Selvan
It is suggested to remove following references.

- Short course on Seismic Design of Reinforced Concrete Buildings, CEP, IIT, Kanpur, Dec.1995.
- Course Notes, "*Structural Design for Dynamic Loads*", SRM Engineering College, 2002.

Industrial Expert: Er. L Suresh Kumar
It is suggested to add new reference mentioned below.

- C.V.R. Moorthy, *"Earthquake Tips"*, Building Material and Technology Promotion Council Ministry of Urban Development & Poverty Alleviation, Government of India, New Delhi, Sep 2005.

20231CE107 - DESIGN OF BRIDGES
Academic Expert: Dr. S. Senthil Selvan

- Unit V title is to be changed from Bearings and Substructures to Bearings and Substructures for Bridges.

20231CE104 - DESIGN OF ADVANCED CONCRETE STRUCTURES
Industrial Expert: Er. L Suresh Kumar

- Name of deep beam are to be mentioned as spandrel beam in Unit II title.
- Design of spandrel beams are to be included in Unit II.

20231CE108 - INDUSTRIAL STRUCTURES
Industrial Expert: Er. L Suresh Kumar

- In Unit IV, the topic Tubular stacked tower is to be added.
- In Unit V, the topic Concrete in-filled steel tubes are to be added.

20231CE301 - ADVANCED STRUCTURAL ENGINEERING LABORATORY
Industrial Expert: Er. L Suresh Kumar

- The experiments necessary for strength parameters and durability parameters are to be grouped under strength, durability headings.
- J funnel flow tests are to be added for flowability tests.

20231CE302 - STRUCTURAL ANALYSIS AND DESIGN LABORATORY USING SOFTWARE
Industrial Expert: Er. L Suresh Kumar

- FEM / Latest software's are to be used for analysis.
- Suggested to purchase the software ETABS.

20232CE101 - ANALYSIS AND DESIGN OF TALL BUILDINGS
Industrial Expert: Er. L Suresh Kumar

- The axial compression effects are to be included in Unit I.
- The Cantilever and Portal methods of analysis are to be added in Unit III.

20232CE102 - MAINTENANCE AND REHABILITATION OF STRUCTURES
Industrial Expert: Er. L Suresh Kumar

- It is suggested to include AI technology for Health monitoring of structures in UNIT I.
- Epoxy injections of low and high density are to be included in Unit IV.

20232CE104 - ADVANCED CONCRETE TECHNOLOGY
Industrial Expert: Er. L Suresh Kumar

- The contents Bendable concrete, UHPC, C&D Waste Concrete, Smart dynamic concrete, vacuum dewatered concrete, Roller compact concrete is to be added in Unit IV.
- The fiber reinforced concrete is to be removed from Unit IV.

20232CE103- PREFABRICATED STRUCTURES
Both the BoS Experts are suggested to move the course "PREFABRICATED STRUCTURES" from Programme elective to programme core.

Refer: Annexure 1

M.TECH ENVIRONMENTAL ENGINEERING

20231CE111 - TRANSPORT OF WATER AND WASTEWATER
Academic Expert: Dr. S. Senthil Selvan
It is suggested to buy original software (LOOP version 4.0, SEWER, BRANCH, and Canal ++) in Unit 5 if budget is available.

20231CE1114 - AIR POLLUTION CONTROL ENGINEERING
Academic Expert: Dr. S. Senthil Selvan
It is suggested to include Carbon sequestration & trapping in Unit 5.

20231CE303 - ENVIRONMENTAL CHEMISTRY LABORATORY
Industrial Expert: Er. L Suresh Kumar
It is suggested to remove pH, turbidity, hardness and electrical conductivity experiments from the syllabus and along with existing experiments it is suggested to add a few advanced experiments which includes 1) Study on determination of fluoride 2) Study on determination of surfactants. 3) Study on determination of oil & grease 4) Settling column analysis of flocculating particles 4) Filtration and 5) Colour removal by adsorption.

20232CE107 - MEMBRANE TECHNOLOGIES FOR WATER AND WASTEWATER TREATMENT
Industrial Expert: Er. L Suresh Kumar

- It is suggested to take students for industrial visit to wastewater treatment.
- It is also recommended to make MBBR plant site visit at Anna Nagar, Chennai.
- Volunteered to share study material for any additional reference if required for internal circulation.

Refer: Annexure 2

ITEMS FOR DISCUSSION AND RATIFICATION

Agenda 25.07 : Courses offered by Industry/Higher Learning Institute Interaction – Specialized Courses under VTUR UGE 2021 & R15 section 7.2.8.3 for summer semester of AY 2023-2024.

Discussion : The Chairman – BOS presented the Courses offered by Industry/Higher Learning Institute Interaction – Specialized Courses under VTUR UGE 2021 & R15 section 7.2.6.3 & 7.2.8.3 for Summer Semester of AY 2023-2024.

Course offered by Industry/Higher Learning Institute Interaction – Specialized Courses

S.NO	COURSE CODE	COURSE NAME	CREDIT	REGULATION
1	1157CE929	Foundation Marking and Layout Preparation for Building	1	VTR UGE 2021 & R15

Refer: Annexure 3

Action : Members have noted and ratified.

Agenda 25.09 **:** Any other Points

Discussion : NIL

Action : NIL

Meeting ended with a Vote of thanks proposed by Dr. S. Samson, Professor, Department of Civil Engineering.

Submitted to Vice-Chancellor for approval

Dr. A. Geetha Selvarani – Chairman, BOS.

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

38th MEETING of BOARD of STUDIES

Minutes

for

B.Tech(Computer Science & Engineering)

M.Tech(Computer Science and Engineering)

M.Tech(Big Data Analytics)

&

M.Tech(Network Engineering)

[CBCS]

On

09.12.2023

Department of Computer Science & Engineering

School of Computing

Department of Computer Science and Engineering
School of Computing
38th MEETING of BOARD of STUDIES
For
B.Tech(CSE), M.Tech(CSE), M.Tech(BDA), and M.Tech(NE)

INDEX

S. No	Particulars	Pg. No
1.	Confirmation of 37th BoS meeting minutes held on 27.05.2023.	6
2.	Action Taken Report on the minutes of the 37th meeting of the Board of Studies.	6
3.	Stakeholders feedback on curriculum of B.Tech CSE taken for the academic year 2022-2023	6
4.	Discussion and approval of the existing curriculum structure of B.Tech CSE for program core courses	6
5.	Discussion and approval of the Program Electives to be offered in various specialization in the existing B.Tech CSE curriculum VTR UGE 2021	6
6.	Discussion and approval of new courses in various domains under Industry Institute Interaction(III) Initiatives collaboration of ATOS	7
7.	Discussion and approval of Online MOOCs platforms for B.Tech CSE	7
8.	Discussion and approval of course structure and course contents of PG programmes	8
9.	Discussion and approval of Online MOOCs platforms for PG programmes	8
10.	Discussion and approval of new course under Open Elective – General Engineering Category	8
11	Ratification of Program Core courses to be offered in the PG programmes	9
12.	Ratification of new Program Elective courses offered in the PG programme during Summer 2023-2024	9
13.	Ratification of new course and the course contents under Open Elective – General Engineering Category offered during Summer Semester 2023-2024 for B.Tech(CSE).	9

14.	Ratification of courses offered by Industry Experts for B.Tech CSE for Skill enhancement and Employment during Summer Semester 2023-2024	9
15.	Ratification of Value added Courses offered during the Summer 2023-2024 for B.Tech CSE programme.	10
16.	Annexure-I – Confirmation of 37th BoS meeting minutes	11
17.	Annexure-II- Action Taken Report	12
18.	Annexure-III-Stakeholders Feedback	14
19.	Annexure-IV-Approval of Program Core Courses	21
20.	Annexure-V-Approval of Program Electives Courses	32
21.	Annexure-VI- Approval of Industry Collaborated Program Electives Courses	48
22.	Annexure-VII - Approval of Online MOOCs platforms for B.Tech CSE	67
23.	Annexure-VIII-Approval of course structure and course contents of PG programmes	119
24.	Annexure-IX- Approval of Online MOOCs platforms for PG programmes	199
25.	Annexure-X-Approval of Open Elective Courses	207
26.	Annexure-XI- Ratification of Program Core courses of PG Programmes	216
27.	Annexure-XII- Ratification of new Program Elective courses offered in the PG programme	236
28.	Annexure-XIII - Ratification of Open Elective Courses of B.Tech CSE	238
29.	Annexure-XIV- Ratification of courses offered by Industry Experts for B.Tech CSE	242
30.	Annexure-XV- Ratification of Value added Courses for B.Tech CSE	249

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

School of Computing
38th MEETING of BOARD of STUDIES
For
B.Tech(CSE), M.Tech(CSE), M.Tech(BDA), and M.Tech(NE)

Date: 09.12.2023 – 10.00 am
Venue: 33023

Members Present:

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor & Dean(SoC) Vel Tech	Chairperson	
2	Dr.Debasis Samanta Associate Professor Department of Computer Science and Engineering, IIT Kharagpur,	Academic Expert Nominee	
3	Dr. Sarma Venkataraman (Retired as Group Director from ISRO/DoS in June 2020) Director, CR Rao AIMSCS. University of Hyderabad Campus, Gachibowli, Telangana.	Academic Expert Nominee	
4	Mr.Ashwin RaghunathaChari Vice President, Global Insurance Capgemini, India	Industry Expert Nominee	
5	Dr.Arish Senior Associate in Innovation Hub, PWC, Bangalore	Industry Expert Nominee	
6	Mr.Beniston Alumni, 2011 Passed out Associate Director, Bounteous, Chennai	Alumni	
	Dr.M.S.Murali Dhar, Head, CSE, Vel Tech	Associate Professor Nominee	
7	Dr.E.Kannan, Professor, CSE, Vel Tech	Professor Nominee	
8	Dr.N.Malarvizhi, Professor, CSE, Vel Tech	Professor Nominee	
9	Dr.R.Suguna, Professor, CSE, Vel Tech	Professor Nominee	
10	Dr.N.Gomathi, Professor, CSE, Vel Tech	Professor Nominee	

11	Dr.M.Kavitha, Professor, CSE, Vel Tech	Professor Nominee	
12	Dr.N.R.Rajalakshmi, Professor, CSE, Vel Tech	Professor Nominee	
13	Dr.M.ShyamalaDevi, Professor, CSE, Vel Tech	Professor Nominee	
14	Dr.R.Srinivasan, Professor, CSE, Vel Tech	Professor Nominee	
15	Dr.S.Sridevi, Professor, CSE, Vel Tech	Professor Nominee	
16	Dr.A.Bhagyalakshmi, Professor, CSE, Vel Tech	Professor Nominee	
17	Dr.S.Jagan, Professor, CSE, Vel Tech	Professor Nominee	
18	Mrs.V.Usha, Associate Professor, CSE, Vel Tech	Assistant Professor Nominee	
19	Mr.A.S. Syed Fiaz, Assistant Professor, CSE, Vel Tech	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation
1	Dr.V.DhilipKumar	Associate Professor & Head, Dept of AI&DS
2	Dr.R.Parthasarathy	Associate Professor & Head, Dept of CSD
3	Dr.S.Saravanan	Associate Professor & Head, Dept of CSE(CS)
4	Dr.P.Jose	Associate Professor & Head, Dept of CSE(DS)

The Chair expressed his happiness in welcoming all the members for the 38th meeting of BOS and thanked them for sparing their valuable time.

Item No	Agenda
A. Opening	
38-BoS-1	Confirmation of 37th BoS meeting minutes held on 27.05.2023.
Action Taken:	The minutes of 37th BoS meeting minutes held on 27.05.2023 was circulated to members through e-mail, the members confirmed the minutes. [Annexure - I]
38-BoS-2	To review the Action Taken Report on the minutes of the 37th meeting of the Board of Studies.
Resolution	The members reviewed the action taken report on the decisions of 37th BoS meeting minutes held on 27.05.2023 [Annexure - II]
B. Items to be considered	
38-BoS-3	To discuss the stakeholders feedback on curriculum of B.Tech CSE taken for the academic year 2022-2023 The Chair presented the Feedback on curriculum received from various stake holders and action taken with respect to feedback. Dr. Sarma Venkataraman suggested that percentage of weight shall be given to stakeholders' feedback and based on that analysis shall be done.
Resolution	The members suggestion may be considered. [Annexure - III]
38-BoS-4	To discuss and approve the existing curriculum structure of B.Tech CSE under the Regulation VTR UGE 2021 for program core courses required for CSE students to be implemented with effect from the academic year Winter 2023-2024. The Chairman presented the changes made in the existing curriculum structure of of B.Tech CSE under the Regulation VTR UGE 2021. The Chairman informed that Learning Outcome Curriculum Framework (LOCF) is adopted, so the Course Outcomes of all the courses are in line with Program Outcomes. Dr. Arish reviewed the Syllabus of Machine Learning course and suggested modifications in the syllabus. He also recommended few tasks to be included in the Machine Laboratory course.
Resolution	The suggestion of the members is considered and changes is made in the course. The approved the courses to be offered with effect from Winter 2023-2024. Course structure and details are available in [Annexure - IV]
38-BoS-5.	To discuss and approve the Program Electives to be offered in various specialization in the **existing B.Tech CSE curriculum VTR UGE 2021** keeping in view of NEP 2020 to be implemented with effect from the academic year Winter 2023 - 2024 in view of breadth, depth and employability Skills. Dr. Sarma Venkataraman by reviewing the courses recommended to make changes in the following courses **Virtual and Augmented Reality** – Inclusion of topics like occlusion, Level of Detail, Texture tone, Triangulation & Grid Model for 3D Terrain Data and 3D modelling with Stereo Effects. **Block Chain Technology** – Distributed Storage, Web 3, IPFS, Merkel Tree, Peer to Peer Protocol, DID (Zero Knowledge Proof) **Ethical Hacking** – Dark Net, Tor Services, WIFI Hacking Ransomware attacks and Mitigation Tools
Resolution	The suggestion of the members is considered and changes will be made in the course. Course structure and details are available in [Annexure - V]

<table>
<tr><td>38-BoS-6</td><td>To discuss and approve the introduction of <u>new Program Elective courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS in the existing</u> B<u>.Tech CSE curriculum under the regulation VTR UGE 2021</u> to be implemented with effect from the academic year Winter 2023-2024 in view of employability skills.

<u>Cloud Infrastructure Management</u>
<table>
<tr><th>S.No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10212CS253</td><td>Windows Server Administration Operating System*</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
</table>
<u>Network and Server Management</u>
<table>
<tr><th>S.No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10212CS260</td><td>Advanced Routing Techniques and Security</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
</table>
<u>Application Modernization Service</u>
<table>
<tr><th>S.No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10212CS264</td><td>Application Server Technologies</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>2</td><td>10212CS268</td><td>Database Administration Using MSSQL Server</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
</table>
The members appreciated the initiatives taken to offer the Program Elective courses as per the industry requirements. As per the requirement of ATOS industry 5 specializations – Cloud Infrastructure Management, Network Management, Application Modernization Service, Mainframe. Under these domains ATOS industry trained (one week in industry) 40 faculty members to handle the courses. As a result of offering ATOS IBM Mainframe course, 30 students got Internship Cum Placement.</td></tr>
<tr><td>Resolution</td><td>Experts approved the courses and course contents of Industry(ATOS) collaborated courses to be offered under Program Elective Category from Winter 2023-2024. Course structure and details are available in [Annexure - VI]</td></tr>
<tr><td>38-BoS-7</td><td>To discuss and approve the courses to be offered in Online MOOCs platforms under Open Elective Category for B.Tech CSE under regulation VTR UGE 2021 and under Independent Learning for B.Tech CSE under regulation VTU R15 during the Winter 2023-2024.

The Chairman presented the courses to be offered in Online MOOCs platforms during the Winter 2023-2024</td></tr>
<tr><td>Resolution</td><td>Members reviewed and approved the courses to be offered during Winter 2023-2024. [Annexure - VII]</td></tr>
</table>

<table>
<tr><td>38-BoS-8</td><td>To discuss and approve the course structure and course contents of Program Core and few Program Electives of following PG programmes under the regulation VTR PGE 2023 keeping in view of AICTE and National Education Policy (NEP) 2020 and employability skills to be implemented with effect from the academic year 2023-2024
1. M.Tech Computer Science and Engineering
2. M.Tech Big Data Analytics
3. M.Tech Network Engineering
The Chairman presented the revised curriculum structure of all PG Programmes under the Regulation VTR PGE 2023.
Dr. Arish suggested to include few concepts in the following courses
Machine Learning - Reinforcement Learning Recommendation Algorithms concepts in Machine Learning course and recommended few Use cases to be included in the laboratory tasks.
Deep Learning- Inception Net, ImageNet, and overview of Transformation.
Big Data Analytics - MongoDB
Computer Vision - Types of Images, Different Object detection and Segmentation, Face detection Algorithms, Biometric concepts, and Industry applications
Natural Language Processing – Generative AI
He also advised to include Quantum Computing course in the Program Elective Category.</td></tr>
<tr><td>Resolution</td><td>The suggestion of the members is considered and changes will be made in the course. Course structure and details are available in [Annexure - VIII]</td></tr>
<tr><td>38-BoS-9</td><td>To discuss and approve the courses to be offered in Online MOOCs platforms <u>under Independent Learning Category (MOOCs)</u> during the Winter 2023-2024 for PG programmes.

The Chairman presented the courses to be offered in Online MOOCs platforms during the Winter 2023-2024</td></tr>
<tr><td>Resolution</td><td>Members reviewed and approved the courses to be offered during Winter 2023-2024.</td></tr>
<tr><td>38-BoS-10</td><td>To discuss and approve the following <u>new course</u> and the course contents under <u>Open Elective – General Engineering Category</u> to be offered during Winter Semester 2023-2024 for B.Tech(CSE) under regulation <u>VTR UGE 21</u> in view of <u>Skill enhancement and Employability</u> suggested by Genpact Industry, Chennai.
<table>
<tr><th>Course Code</th><th>Course Name</th><th>Category</th><th>Credit</th></tr>
<tr><td>10213GE305</td><td>Application Development and Maintenance (Industry(Genpact) Collaborated Course)</td><td>Open Elective</td><td>3</td></tr>
<tr><td>10213GE301</td><td>Code Dakshah</td><td>Open Elective</td><td>1</td></tr>
</table>
Chairman presented new Open Elective course to be offered to B.Tech CSE under the regulation VTR UGE 21 during Winter Semester 2023-2024.

The members appreciated the initiatives taken to offer the Open Elective courses as per the industry requirements. Genpact industry suggested the course Application Development and Maintenance concepts covering the contents to develop any application for B.Tech students' under Open elective category.</td></tr>
</table>

<table>
<tr><td>Resolution</td><td>All members appreciated the initiatives taken in collaborating with Genpact for offering courses as per the industry requirements for students' better skilling.</td></tr>
<tr><td></td><td>Items to be Ratified</td></tr>
<tr><td>38-BoS-11</td><td>To ratify the Program Core courses offered in the following PG programmes under the regulation VTR PGE 2023 implemented with effect from the academic year Summer 2023-2024, keeping in view of National Education Policy (NEP) 2020, AICTE, employability and research foundations
1. M.Tech Computer Science and Engineering
2. M.Tech Big Data Analytics
3. M.Tech Network Engineering
Chairman presented the revised curriculum structure of all PG Programmes under the Regulation VTR PGE 2023 to be offered from Academic Year 2023-2024.</td></tr>
<tr><td>Resolution</td><td>Experts ratified the Program Core Courses offered in the PG programmes under the regulation VTR PGE 2023 during the Summer 2023-2024. Course Content is available in [Annexure-XI]</td></tr>
<tr><td>38-BoS-12</td><td>To ratify the <u>new Program Elective course offered in</u> the following PG programme under the previous regulation VTU R16 keeping in view of NEP 2020, and AICTE to be implemented with effect from the academic year Summer 2023 - 2024 in view of employability skills.
M.Tech Big Data Analytics
<table>
<tr><th>Course Code</th><th>Course Name</th><th>Category</th><th>Credit</th></tr>
<tr><td>2162CS207</td><td>Natural Language Processing</td><td>Program Elective</td><td>3</td></tr>
</table>
Chairman presented new Program Elective course offered to M.Tech Big Data analytics under the regulation VTU R16 during Summer 2023-2024</td></tr>
<tr><td>Resolution</td><td>Experts ratified the Program Elective Course offered during the Summer 2023-2024. Course Content is available in [Annexure-XII]</td></tr>
<tr><td>38-BoS-13</td><td>To ratify the following <u>new course</u> and the course contents under <u>Open Elective – General Engineering Category</u> offered during Summer Semester 2023-2024 for B.Tech(CSE) under regulation <u>VTR UGE 21</u> in view of <u>Skill enhancement and Employability</u>.
<table>
<tr><th>Course Code</th><th>Course Name</th><th>Category</th><th>Credit</th></tr>
<tr><td>10213GE302</td><td>Programming Challenges</td><td>Open Elective</td><td>2</td></tr>
</table>
Chairman presented new Open Elective course offered to B.Tech CSE under the regulation VTR UGE 21 during Summer 2023-2024</td></tr>
<tr><td>Resolution</td><td>Experts ratified the Open Elective Course offered during the Summer 2023-2024 for B.Tech(CSE). Course Content is available in [Annexure-XIII]</td></tr>
<tr><td>38-BoS-14</td><td>Ratification of courses offered by <u>Industry Experts</u> for B.Tech CSE for <u>Skill enhancement and Employment opportunities</u> under Industry/Higher Institute Interaction Learning Category during the Summer Semester of academic year 2023-2024 for B.Tech CSE
The Chairman presented courses offered by <u>Industry Experts</u> for B.Tech CSE under the regulation VTR UGE 21 during Summer 2023-2024</td></tr>
</table>

Resolution	Experts ratified the courses offered by Industry Experts for B.Tech(CSE) for Skill enhancement and Employment opportunities under Industry/Higher Institute Interaction Learning Category during the Summer semester of academic year 2023-2024 for B.Tech(CSE). Course Content is available in [Annexure-XIV]
38-BoS-15	Ratification of **Value added Courses** offered during the Summer 2023-2024 for B.Tech CSE programme. The Chairman presented the Value added Courses offered for B.Tech CSE under the regulation VTR UGE 21 during Summer 2023-2024
Resolution	Experts ratified the **Value added Course** offered during the Summer 2023-2024 for B.Tech(CSE). Course Content is available in [Annexure-XV]
38-BoS-16	Any other cognate item Chairman said that Institute is in process of changing curriculum structure of the B.Tech programmes and requested the members to brief about their curriculum structure. Dr. Sarma Venkataraman suggested to conduct Hackathons and credits also be awarded for the well performing students. Dr.Debasis Sarma suggested include seminars where student can present on his own topic and another seminar to be given by faculty. He also said Dual Degree Programme can be offered by integrating B.Tech and M.Tech Programmes, which can be offered as 5 yrs programme. Next Meeting is Tentatively scheduled in the month of May 2024

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

5th MEETING of BOARD of STUDIES

Minutes

for

B.Tech Computer Science and Design Programme[CBCS]

On

23.12.2023

B.Tech Computer Science and Design

School of Computing

INDEX

S.No	Content	Page No
1	Agenda	3
2	BoS Members	5
3	Confirmation of 4th BoS meeting minutes	7
4	Action Taken Report	7
5	Stakeholders feedback on curriculum of B.Tech Computer Science and Design taken for the academic year 2022-2023	7
6	Discussion and approval of any changes in the Program Core and Program Elective Course Structure and course contents of program Electives to be offered with effect from Winter 2023-2024	7
7	Discussion and approval of Online MOOCs platforms for B.Tech Computer Science and Design	7
8	Discussion and approval of new courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS	7
9	Discussion and approval of Value-added Courses to be offered during academic year Winter, 2023-2024	8
10	Ratification of new courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS	8
11	Ratification of courses offered by Industry Experts for B.Tech CSD for Skill enhancement and Employment during Summer Semester 2023- 2024	8
12	Ratification of Value-added Courses offered in Summer Semester 2023-24	8
13	Any other Items	8
14	ANNEXURE-I – [Confirmation of 4th BoS meeting minutes held on 27.05.2023]	9
15	ANNEXURE - II – [4th BoS Action Taken Report]	10
16	ANNEXURE - III – [Stake Holders Feedback]	11
17	ANNEXURE - IV – [Approval of Program Core and Program Electives Courses]	16
18	ANNEXURE - V – [Approval of Online MOOCs Platforms]	67
19	ANNEXURE – VI – [Approval of Value added Courses for B.Tech CSD]	74
20	ANNEXURE – VII – [Ratification of courses offered by Industry Experts for B.Tech CSD]	81
21	ANNEXURE – VIII – [Ratification of Value-added Courses offered in Summer Semester 2023-24]	83

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

School of Computing
5th MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Design

Date: 23.12.2023
Venue: SoC Block

Item No	Agenda
A.	**Opening**
1.	Confirmation of 4th BoS meeting minutes held on 27.05.2023
2.	To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies
B.	**Items to be considered**
3.	To discuss the stakeholders feedback on curriculum of B.Tech Computer Science and Design taken for the academic year 2022-2023
4.	To discuss and approve the Program Core and Program Electives to be offered in the existing B.Tech CSD curriculum VTR UGE 2021 keeping in view of NEP 2020 to be implemented with effect from the academic year Winter 2023 - 2024 in view of breadth, depth and employability Skills.
5.	To discuss and approve the courses to be offered in Online MOOCs platforms under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech Computer Science and Design

S. No	Course Code	Course Name	Course Provider	Duration in weeks	Credits
1.	10213CD419	Machine Learning for Engineering and science applications	NPTEL	12 Weeks	3
2.	10213CD420	Advanced Computer Networks	NPTEL	12 Weeks	3
3.	10213CD421	Blockchain and its Applications	NPTEL	12 Weeks	3
4.	10213CD422	Foundations of Cyber Physical Systems	NPTEL	12 Weeks	3
5.	10213CD423	Games and Information	NPTEL	12 Weeks	3
6.	10213CD424	Design, Technology and Innovation	NPTEL	8 Weeks	1

6.	To discuss and approve the introduction of new Program Elective courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS in the existing B.Tech Computer Science and Design curriculum under the regulation VTR UGE 2021 to be implemented with effect from the academic year Winter 2023-2024 in view of employability skills
7.	To approve the Value added Courses to be offered during the Winter 2023-2024 for B.Tech CSD programme

S. No	Course Code	Course Name	L	T	P	C
1	10218CD922	Code X	3	0	0	0
2	10218CD923	Code Dakshah	3	0	0	0

C. Items to be ratified

8. To Ratify new Program Elective courses offered during Summer 2023-2024 in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS in the existing B.Tech Computer Science and Design curriculum under the regulation VTR UGE 2021

9. To ratify the courses offered by Industry Experts for B.Tech Computer Science and Design for Skill enhancement and Employment opportunities under Industry/Higher Institute Interaction Learning Category during the Summer Semester of academic year 2023-2024 for B.Tech Computer Science and Design

S. No	Course code	Course Name	L	T	P	C
1	10215CD101	IoS Application Creation	1	0	0	1
2	10215CD102	Agile Methodology	1	0	0	1
3	10215CD111	Virtual and Augmented Reality	1	0	0	1
4	10215CD110	Game Development for Android	1	0	0	1

10. To Ratify the Value-added Courses offered in Summer Semester 2023-24 for B.Tech Computer Science and Design

Sno	Course code	Course Name	L	T	P	C
1	10218CD913	Programming Skill In C	2	0	0	0
2	10218CD915	Wipro Talent Next Training Using Java	2	0	0	0

11. Any other cognate item

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

School of Computing
5th MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Design

Date: 23.12.2023
Venue: SoC Block

Members Present:

S. No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor, Dean (SoC)	Chairperson	
2	Dr. C. Mala Professor Department of Computer Science Engineering NIT, Tiruchirapalli, Tamil Nadu	Academic Expert Nominee	
3	Dr. Komondoor V.Raghavan Associate Professor Department of Computer Science and Automation Indian Institute of Science, Bangalore, Karnataka	Academic Expert Nominee	
4	Mr. Sivaprakasam Perumal Software Engineer, Hewlett-Packard Enterprise, Chennai, Tamil Nadu	Industry Expert Nominee	
5	Mr. E. Sunil, Assistant General Manager, ATRIA Convergence Technologies Ltd, T.Nagar, Chennai, Tamil Nadu	Industry Expert Nominee	
6	Ms. Malini Associate Consultant- Data Analytics Det Norske Veritas	Alumni	
7	Dr. N. Malarvizhi, Professor	Professor Nominee	
8	Dr. M. Kavitha, Professor	Professor Nominee	
9	Dr. N.R. Rajalakshmi, Professor	Professor Nominee	
10	Dr. R. Srinivasan, Professor	Professor Nominee	
11	Dr. J. Visumathi, Professor	Professor Nominee	
12	Dr. S. Sridevi, Professor	Professor Nominee	
13	Dr. A. Bhagyalakshmi, Professor	Professor Nominee	
14	Dr. S. Jagan, Professor	Professor Nominee	

16	Dr. N. Rajkumar, Professor	Professor Nominee	
17	Dr.V.Dhilipkumar, Associate Professor and Head – AI & DS	Associate Professor Nominee	
18	Dr. R. Parthasarathy, Associate Professor and Head - CSD	Associate Professor Nominee	
19	Mrs. T. Kujani, Assistant Professor	Assistant Professor Nominee	
20	Mrs. C. Shyamala Kumari, Assistant Professor	Assistant Professor Nominee	

Invited Members

S. No	Name	Designation	
1	Dr. M. S. Muralidhar	Associate Professor – Head – CSE	
2	Dr. S. Saravanan	Associate Professor – Head – CSE (CS)	
3	Dr. S. Lalitha	Associate Professor – Head – CSE (AIML)	
4	Dr. P. Jose	Associate Professor – Head – CSE (DS)	

The Chair expressed his happiness in welcoming all the members for the 5th meeting of BOS and thanked them for sparing their valuable time.

05-BoS-01	Confirmation of 4th BoS meeting minutes held on 27.05.2023
Action Taken:	The minutes of 4th BoS meeting minutes held on 27.05.2022 was circulated to members through e-mail, the members confirmed the minutes. [Annexure - I]
05-BoS-02	To review the Action Taken Report on the minutes of the 4th meeting of the Board of Studies
Resolution	The members reviewed the action taken report on the decisions of 4th BoS meeting minutes held on 27.05.2023 [Annexure - II]
05-BoS-03	To discuss the stakeholders feedback on curriculum of B.Tech Computer Science and Design taken for the academic year 2022-2023
Resolution	The members reviewed the stakeholders feedback on curriculum of B.Tech Computer Science and Design [Annexure - III]
05-BoS-04	To discuss and approve the Program Core and Program Electives to be offered in the existing B.Tech CSD curriculum VTR UGE 2021 keeping in view of NEP 2020 to be implemented with effect from the academic year Winter 2023 - 2024 in view of breadth, depth and employability Skills.
Discussion	Experts reviewed the content of 10212CD238 – Design, Drawing and Visualization Course and suggested to reduce the course content as per the allotted hour for Design, Drawing and Visualization Course
Resolution	By considering the suggestion of the members, changes were made and the updated Course structure and details are made available [Annexure - IV]
05-BoS-05	To discuss and approve the courses to be offered in Online MOOCs platforms under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech Computer Science and Design
Discussion	Members reviewed and suggested to modify the credits as per the credits specified in NPTEL portal.
Resolution	The members approved the MOOC courses and course content to be offered under Open Elective Category during the academic year Winter, 2023-2024 for B.Tech Computer Science and Design and as per the suggestion the Credit for 12 Weeks has been increased from 2 to 3 and 1 to 2 for 8 Weeks Course [Annexure-V]
05-BoS-06	To discuss and approve the introduction of new Program Elective courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS in the existing B.Tech Computer Science and De sign curriculum under the regulation VTR UGE 2021 to be implemented with effect

	from the academic year Winter 2023-2024 in view of employability skills
Discussion	Experts appreciated for taking initiative for offering ATOS Industry suggested course as per their requirement. Members suggested to offer the courses in General Category instead of offering under separate track
Resolution	By considering the suggestion of the members, the new Program Elective courses under Industry Institute Interaction (III) Initiatives collaboration of ATOS were included under Industry Institute Category of Program Elective [Annexure - IV]
05-BoS-07	To approve the Value added Courses to be offered during the Winter 2023-2024 for B.Tech CSD programme
Resolution	The members approved the Value added courses and course content to be offered under during the academic year Winter, 2023-2024 for B.Tech Computer Science and Design [Annexure-V]
05-BoS-08	To Ratify new Program Elective courses offered during Summer 2023-2024 in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS in the existing B.Tech Computer Science and Design curriculum under the regulation VTR UGE 2021
Discussion	Experts reviewed the new Program Elective courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS and suggested to include the courses under General Program Elective Category
Resolution	By considering the suggestion of the members, the new Program Elective courses in various domains under Industry Institute Interaction (III) Initiatives collaboration of ATOS were included under Industry Institute Category of Program Elective [Annexure - IV]
05-BoS-09	To ratify the courses offered by Industry Experts for B.Tech Computer Science and Design for Skill enhancement and Employment opportunities under Industry/Higher Institute Interaction Learning Category during the Summer Semester of academic year 2023-2024 for B.Tech Computer Science and Design
Resolution	The members ratified the offered by Industry Experts for B.Tech Computer Science and Design for Skill enhancement and Employment opportunities under Industry/Higher Institute Interaction Learning Category during the Summer Semester of academic year 2023-2024 for B.Tech Computer Science and Design [Annexure-VI]
05-BoS-10	To Ratify the Value-added Courses offered in Summer Semester 2023-24 for B.Tech Computer Science and Design
Resolution	The members ratified the Value-added Courses offered in Summer Semester 2023-24 for B.Tech Computer Science and Design [Annexure-VII]
05-BoS-11	Any other Cognate Item
Resolution	The next BoS meeting will be conducted in March 2024

3rd MEETING of BOARD of STUDIES

Minutes

for

B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning) Programme

[CBCS]

On

05.01.2024

B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning)

School of Computing

3rd MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Engineering (Artificial Intelligence & Machine Learning)

Date: 05.01.2024
Time : 2.30 pm
Venue: 33023

Index

Item No	Agenda	Page No
1.	Agenda	3
2.	**Annexure - I -**Confirmation of 2nd BoS meeting minutes	7
3.	**Annexure - II** - To review the Action Taken Report on the minutes of the 2nd BoS meeting	8
A. Items to be considered		
4.	**Annexure - III** - Discussion and approval of course to be offered under Program Core category.	9
5.	**Annexure - IV** - Discussion and approval of Value Added Course	63
6.	**Annexure - V** - Ratification of Value Added Course offered in Summer Semester 2023-24.	67

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning)

School of Computing

3rd MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning)

Date: 05.01.2024
Time : 2.30 pm
Venue: 33023

AGENDA

Item No	Agenda
A. Opening	
1.	Confirmation of 2nd BoS meeting minutes held on 05.06.2023 (Annexure-I)
2.	To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies (Annexure-II)
B. Items to be considered	
3.	To discuss and approve the courses and course contents of Program Core courses to be offered in the programme B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning) under the regulation VTR UGE 2021 with effect from Winter Semester 2023-2024. (Annexure-III)
4.	To discuss and approve the Value-added courses to be offered in the programme B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning) under the regulation VTR UGE 2021 during Winter Semester 2023-2024. (Annexure-IV)

S. No	Course Code	Course Name	L	T	P	C
1	10218CA922	Code X	3	0	0	0

C. Items to be ratified	
5.	To ratify the value added courses offered in Summer Semester 2023 -24 for B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning) under the regulation VTR UGE 2021 with effect from 2023-2024. (Annexure-V)

S. No	Course Code	Course Name	L	T	P	C
1	10218CA913	Programming Skills in C	2	0	0	0

6.	Any other cognate item

School of Computing
3rd Meeting of Board of Studies
For
B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning)

Members Present: **Date:05.01.2024**

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor and Dean, SoC, Vel Tech	Chairperson	
2	Dr.V.Masilamani, Associate Professor & Head Department of Computer Science Engineering IIITDM Kancheepuram, Chennai, Tamil Nadu	Academic Expert Nominee	
3	Dr.Saravanan Krishnan Senior Assistant Professor& Head, Department of Computer Science Engineering Anna University, Tirunelveli, Tamil Nadu	Academic Expert Nominee	
4	Ms.T. K.Chandravadhana, Senior Technical Consultant and Atos Expert, Java Cloud Full Stack Engineer , Atos FSI, Chennai, Tamil Nadu	Industry Expert Nominee	
5	R.V.Chandrashekhar, Manager - Cyber Liaison Ford Motor Private Ltd, Chennai, Tamil Nadu	Alumni	
6	Dr.M.Kavitha Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
7	Dr.N.R.Rajalakshmi Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
8	Dr.S.Sridevi Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
9	Dr.M.S.Muralidhar Associate Professor & Head Department of CSE,	Associate Professor Nominee	

	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology		
10	Dr.V.Dhilip kumar Associate Professor & Head Department of AI & DS Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
11	Dr.R.Thangaselvi Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	
12	Mrs.K.Prema Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation
1	Dr.J.Visumathi	Professor and Head, Department of IT, Vel Tech
2	Mrs.Kujani	Assistant Professor, CSE, Vel Tech

The Chair expressed his happiness in welcoming all the members for the 3rd meeting of BOS and thanked them for sparing their valuable time.

03-BoS-01	Confirmation of 2nd BoS meeting minutes held on 05.06.2023
Action taken	Chairman BoS presented the confirmation of 2nd BoS meeting minutes held on 05.06.2023 in the new programme B.Tech Computer Science and Engineering (Artificial Intelligence & Machine Learning) under the regulation VTR UGE 2021. (Annexure-I)
03-BoS-02	To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies.
Action Taken	Chairman BoS presented the action taken report on the 2nd BoS meeting minutes held on 05.06.2023 in the new programme B.Tech Computer Science and Engineering (Artificial Intelligence & Machine Learning) under the regulation VTR UGE 2021. (Annexure-II)
03-BoS-03	To discuss and approve the changes made in the courses and course contents of Program Core courses to be offered in the programme B.Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021 with effect from 2023-2024.
Discussion	Chairman BoS presented the curriculum structure of B.Tech CSE(Artificial Intelligence & Machine Learning) under the regulation VTR UGE 2021. The Course related to Computer Science and Engineering and Artificial Intelligence & Machine Learning domain specific courses Artificial Intelligence Techniques, Machine Learning Techniques and Big Data Analytics were presented to the members.
Resolution	The members approved the changes made in the courses and course contents of Program Core courses to be offered in the programme B.Tech Computer Science and Engineering (Artificial Intelligence & Machine Learning) under the regulation VTR UGE 2021 with effect from 2023-2024. Course Structure and Course details are shown in (Annexure-III)
03-BoS-04	To discuss and approve the value added course to be offered in the programme B.Tech Computer Science and Engineering (Artificial Intelligence & Machine Learning) during Winter 2023-2024.
Discussion	Chairman BoS presented the experts suggestion to change the modification in the value added course CodeX. The BoS members suggested to include C++ in CodeX instead of C programming course.
Resolution	The members approved the value added course to be offered during Winter semester 2023-2024. The course content is available (Annexure-IV)
03-BoS-05	**To ratify the value added course offered in summer semester 2023-2024 for B.Tech Computer Science and Engineering (**Artificial Intelligence & Machine Learning**). The chairman BoS presented the value added course offered during summer semester 2023-2024.**
Resolution	**The members ratified the value added course offered during summer semester 2023-2024.** (Annexure-V)
03-BoS-05	**Any other Cognate Item**
Resolution	The Chairman informed next BoS meeting may be scheduled in the month of March 2024

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

3rd MEETING of BOARD of STUDIES

Minutes

for

B.Tech Computer Science and Engineering (Cyber Security) Programme [CBCS]

On

05.01.2024

B.Tech Computer Science and Engineering (Cyber Security)

School of Computing

3rd MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Engineering (Cyber Security)

Date: 05.01.2024
Time : 2.30 pm
Venue: 33023

Index

Item No	Agenda	Page No
1.	Agenda	3
2.	**Annexure - I -**Confirmation of 2nd BoS meeting minutes	7
3.	**Annexure - II** - To review the Action Taken Report on the minutes of the 2nd BoS meeting	8
A. Items to be considered		
4.	**Annexure - III** - Discussion and approval of course to be offered under Program Core Category.	9
5.	**Annexure - IV** – Discussion and approval of the Value-Added Course.	47
6.	**Annexure - V** -Ratification of Value-Added Courses offered in Summer Semester 2023-24.	51

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)
Avadi, Chennai-600062, Tamil Nadu, India

3rd MEETING of BOARD of STUDIES
For
B.Tech Computer Science and Engineering (Cyber Security)

Date: 05.01.2024
Time : 2.30 pm
Venue: 33023

AGENDA

Item. No	Agenda
A. Opening	
1.	Confirmation of 2nd BoS meeting minutes held on 05.06.2023 (Annexure-I)
2.	To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies (Annexure-II)
B. Items to be considered	
3.	To discuss and approve the courses and course contents of Program Core to be offered in the programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021 with effect from 2023-2024. (Annexure-III)
4.	To discuss and approve the value-added course to be offered in the programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021 during Winter 2023-2024. (Annexure-IV)

S. No	Course Code	Course Name	L	T	P	C
1	10218CC922	Code X	3	0	0	0

C. Items to be ratified	
5.	To Ratify the value added course offered in Summer Semester 2023-24 for B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021. (Annexure-V)

S. No	Course Code	Course Name	L	T	P	C
1	10218CC913	Programming Skill in C	2	0	0	0

6.	Any other cognate item.

School of Computing
3rd Meeting of Board of Studies
For
B.Tech Computer Science and Engineering (Cyber Security)

Members Present: **Date: 05.01.2024**

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor and Dean, SoC, Vel Tech	Chairperson	
2	Dr.V.Masilamani, Associate Professor & Head Department of Computer Science Engineering IIITDM Kancheepuram, Chennai, Tamil Nadu	Academic Expert Nominee	
3	Dr.Saravanan Krishnan, Senior Assistant Professor& Head, Department of Computer Science Engineering Anna University, Tirunelveli, Tamil Nadu	Academic Expert Nominee	
4	Ms.T. K.Chandravadhana, Senior Technical Consultant and Atos Expert, Java Cloud Full Stack Engineer, Atos FSI, Chennai, Tamil Nadu	Industry Expert Nominee	
5	R.V.Chandrashekhar, Manager - Cyber Liaison Ford Motor Private Ltd, Chennai, Tamil Nadu	Alumni	
6	Dr.S.Saravanan, Associate Professor & Head, Department of CSE (Cyber Security), Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
7	Dr.M.Kavitha, Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
8	Dr.N.R.Rajalakshmi , Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
9	Dr.S.Sridevi, Professor, Department of CSE,	Professor Nominee	

	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology		
10	Dr.M.S.Muralidhar, Associate Professor & Head Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
11	Dr.V.Dhilip kumar, Professor & Head Department of AI & DS Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
12	Dr.R.Thangaselvi, Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	
13	Mrs.K.Prema, Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	

Invited Members

S. No	Name	Designation
1	Dr.J.Visumathi	Professor and Head, Department of IT, Vel Tech
2	Mrs.Kujani	Assistant Professor, CSE, Vel Tech

The Chair expressed his happiness in welcoming all the members for the 3rd meeting of BOS and thanked them for sparing their valuable time.

03-BoS-01	Confirmation of 2nd BoS meeting minutes held on 05.06.2023
Action taken	Chairman BoS presented the confirmation of 2nd BoS meeting minutes held on 05.06.2023 in the new programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021. (Annexure-I)
03-BoS-02	To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies.
Action Taken	Chairman BoS presented the action taken report on the 2nd BoS meeting minutes held on 05.06.2023 in the new programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021. (Annexure-II)
03-BoS-03	To discuss and approve the courses and course contents of Program Core to be offered in the programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021 with effect from 2023-2024.
Discussion	The Chairman presented the Curriculum Structure of B.Tech CSE (Cyber Security) under the regulation VTR UGE2021. The Course related to Computer Science and Engineering and Cyber Security Domian specific courses such as Cryptography and Network Security and Cyber Security were presented to the members.
Resolution	Members reviewed and approved the courses to be offered in the B.Tech CSE (Cyber Security) programme during winter 2023-2024. The Course Structure and Course Content is available in (Annexure-III)
03-BoS-04	To discuss and approve the value-added course to be offered in the programme B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021 during Winter 2023-2024.
Discussion	Chairman BoS presented the Experts suggestion to change the modification in the Value-Added Course Code X. The BoS members suggested to include C++ in CodeX instead of C Programming course.
Resolution	The member approved the Value-added course to be offered during winter semester 2023-2024. The Course Content is available in Annexure-IV.
03-BoS-05	To Ratify the value added course offered in Summer Semester 2023-24 for B.Tech Computer Science and Engineering (Cyber Security) under the regulation VTR UGE 2021. Chairman BoS presented the Value-added course offered during Summer Semester 2023-24.
Resolution	The members ratified the Value-added course offered during Summer Semester 2023-24. (Annexure-V)
03-BoS-06	Any other cognate item.
Resolution	The Chairman informed next BoS meeting may be scheduled in the month of March 2024.

3rd MEETING of BOARD of STUDIES

Minutes

for

B. Tech Computer Science and Engineering (Data Science)

Programme

[CBCS]

On

05.01.2024

B.Tech Computer Science and Engineering (Data Science)

School of Computing

3rd MEETING of BOARD of STUDIES
For
B. Tech Computer Science and Engineering (Data Science)

Date: 05.01.2024
Time : 2.30 pm
Venue: 33023

Index

Item No	Agenda	Page No
1.	Agenda	3
2.	**Annexure - I -**Confirmation of 2nd BoS meeting minutes	7
3.	**Annexure - II -** To review the Action Taken Report on the minutes of the 2nd BoS meeting	8
A. Items to be considered		
4.	**Annexure - III -** Discussion and approval of course to be offered under Program Core Category.	9
5.	**Annexure - IV** – Discussion and approval of the Value Added Course.	56
6.	**Annexure - V -**Ratification of Value Added Courses offered in Summer Semester 2023-24.	59

B. Tech Computer Science and Engineering (Data Science)

School of Computing

3rd MEETING of BOARD of STUDIES
For
B. Tech Computer Science and Engineering (Data Science)

Date: 05.01.2024
Time: 2.30 pm
Venue: 33023

AGENDA

<table>
<tr><th>Item No</th><th>Agenda</th></tr>
<tr><td colspan="2">A. Opening</td></tr>
<tr><td>1.</td><td>Confirmation of 2nd BoS meeting minutes held on 05.06.2023 (Annexure-I)</td></tr>
<tr><td>2.</td><td>To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies (Annexure-II)</td></tr>
<tr><td colspan="2">B. Items to be considered</td></tr>
<tr><td>3.</td><td>To discuss and approve the courses and course contents of Program Core courses to be offered in the programme B.Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021 with effect from 2023-2024. (Annexure-III)</td></tr>
<tr><td>4.</td><td>To discuss and approve the Value-added courses to be offered in the programme B. Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021 during Winter semester 2023-2024. (Annexure-IV)
<table>
<tr><th>S. No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10218DS922</td><td>Code X</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td colspan="2">C. Items to be ratified</td></tr>
<tr><td>5.</td><td>To ratify the Value added course offered in Summer Semester 2023 -24 for B. Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021. (Annexure-V)
<table>
<tr><th>S. No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10218DS913</td><td>Programming Skills In C</td><td>2</td><td>0</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>6.</td><td>Any other cognate item</td></tr>
</table>

School of Computing
3rd Meeting of Board of Studies
For
B. Tech Computer Science and Engineering (Data Science)

Members Present: **Date:05.01.2024**

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor and Dean, SoC, Vel Tech	Chairperson	
2	Dr.V. Masilamani, Associate Professor & Head Department of Computer Science Engineering IIITDM Kancheepuram, Chennai, Tamil Nadu	Academic Expert Nominee	
3	Dr.Saravanan Krishnan Senior Assistant Professor& Head, Department of Computer Science Engineering Anna University, Tirunelveli, Tamil Nadu	Academic Expert Nominee	
4	Ms.T. K. Chandravadhana, Senior Technical Consultant and Atos Expert, Java Cloud Full Stack Engineer, Atos FSI, Chennai, Tamil Nadu	Industry Expert Nominee	
5	Dr. Darbaneswer Senior Data Scientist, EntroPik Technologies, SIDCO Industrial Estate ,Chennai	Industry Expert Nominee	
6	R.V. Chandrashekhar, Manager - Cyber Liaison Ford Motor Private Ltd, Chennai, Tamil Nadu	Alumni	
7	Dr.M.Kavitha Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
8	Dr.N.R.Rajalakshmi Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Professor Nominee	
9	Dr.S.Sridevi	Professor Nominee	

	Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology		
10	Dr.M.S.Muralidhar Associate Professor & Head Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
11	Dr.V.Dhilip kumar Associate Professor & Head Department of AI & DS Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Associate Professor Nominee	
12	Dr.R.Thangaselvi Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	
13	Mrs.K.Prema Assistant Professor, Department of CSE, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation
1	Dr.J.Visumathi	Professor and Head, Department of IT, Vel Tech
2	Mrs.Kujani	Assistant Professor, CSE, Vel Tech

The Chair expressed his happiness in welcoming all the members for the 3rd meeting of BOS and thanked them for sparing their valuable time.

03-BoS-01	Confirmation of 2nd BoS meeting minutes held on 05.06.2023
Action taken	Chairman BoS presented the confirmation of 2nd BoS meeting minutes held on 05.06.2023 in the new programme B.Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021. (Annexure-I)
03-BoS-02	To review the Action Taken Report on the minutes of the 2nd meeting of the Board of Studies.
Action Taken	Chairman BoS presented the action taken report on the 2nd BoS meeting minutes held on 05.06.2023 in the new programme B. Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021. (Annexure-II)
03-BoS-03	To discuss and approve the courses and course contents of Program Core to be offered in the programme B.Tech Computer Science and Engineering (Data Science) under the regulation VTR UGE 2021 with effect from 2023-2024.
Discussion	The Chairman presented the Curriculum Structure of B. Tech CSE (Data Science) under the regulation VTR UGE2021. The Course related to Computer Science and Engineering and Data Science Domian specific courses such as Artificial Intelligence Techniques, Big Data Analytics and Data Science were presented to the members.
Resolution	Members reviewed and approved the courses to be offered in the B.Tech CSE (Data Science) programme during winter 2023-2024. The Course Structure and Course Content is available in (Annexure-III)
03-BoS-04	To discuss and approve the value-added course to be offered in the programme B.Tech Computer Science and Engineering (Data Science) during Winter 2023-2024.
Discussion	Chairman BoS presented the Experts suggestion to change the modification in the Value-Added Course Code X. The BoS members suggested to include C++ in CodeX instead of C Programming course.
Resolution	The member approved the Value-added course to be offered during winter semester 2023-2024. The Course Content is available in Annexure-IV.
03-BoS-05	To Ratify the value added course offered in Summer Semester 2023-24 for B.Tech Computer Science and Engineering (Data Science). Chairman BoS presented the Value-added course offered during Summer Semester 2023-24.
Resolution	The members ratified the Value-added course offered during Summer Semester 2023-24. ((Annexure-V)
03-BoS-06	Any other cognate item.
Resolution	The Chairman informed next BoS meeting may be scheduled in the month of March 2024.

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

SCHOOL OF ELECTRICAL & COMMUNICATION

MINUTES OF MEETING
31st BOARD OF STUDIES

For

B.TECH./M.TECH. DEGREE PROGRAMME
ELECTRICAL AND ELECTRONICS ENGINEERING
VTR UGE 2021/VTU PGE 2023
REGULATIONS

DATE: 30/12/2023

TIME: 10:30 AM

VENUE: SIMULATION LABORATORY, ROOM NO.2213

31st Board of Studies Meeting

Department: Electrical and Electronics Engineering

School: School of Electrical and Communication

Date of Meeting: 30-12-2023

S.No	Name of the Member	Responsibility
1	**Dr. S. Ramesh** Professor and Head Department of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Chairman, Board of Studies
External Experts		
2	**Dr. S. Senthil Kumar** Professor Department of Electrical Engineering National Institute of Technology Trichy	Academic Expert
3	**Mr. Kiran Krishna Dhandale** Technical Lead GE Renewables Chennai	Industry Expert
Internal Experts		
4	**Dr. P. K. Dhal** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai	Member
5	**Dr. P. Chandrasekar** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member
6	**Dr. K. Karunanithi** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member

7	**Dr. S. Sivakumar** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member
8	**Dr. K. Vinoth** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member
9	**Dr. K. Karthikumar** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member
10	**Dr. S. Vinoth John Prakash** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology Chennai	Member
11	**Mrs. Priscilla Whitin** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member
12	**Mr. R. Sreedhar** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology Chennai	Member
Special Invitee		
13	**Mr. S.G. Raja,** M.Tech. Batch 2017-2019, Lead Customer Service, Danfoss Industries Pvt.Ltd., Chennai.	Alumni Representative

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

School of Electrical and Communication

Electrical and Electronics Engineering

31st Board of Studies

Date of Meeting: 30-12-2023

Venue: Simulation Lab

Attendance

S.No	Name of the Member	Responsibility	Signature
1	**Dr. S. Ramesh** Professor and Head Department of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Chairman, Board of Studies	30/12/23
	External Experts		
2	**Dr. S. Senthil Kumar** Professor Department of Electrical Engineering National Institute of Technology Trichy	Academic Expert	
3	**Mr. Kiran Krishna Dhandale** Technical Lead GE Renewables Chennai	Industry Expert	
	Internal Experts		
4	**Dr. P. K. Dhal** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	

5	**Dr. P. Chandrasekar** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	
6	**Dr. K. Karunanithi** Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai	Member	
7	**Dr. S. Sivakumar** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	
8	**Dr. K. Vinoth** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	
9	**Dr. K. Karthikumar** Associate Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	
10	**Mrs. Priscilla Whitin** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology Chennai	Member	AB

11	**Dr. S. Vinoth John Prakash** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology Chennai	Member	AB
12	**Mr. R. Sreedhar** Assistant Professor Dept of Electrical and Electronics Engineering Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology Chennai	Member	
	Special Invitee		
13	**Mr. S.G. Raja,** M.Tech. Batch 2017-2019, Lead Customer Service, Danfoss Industries Pvt.Ltd., Chennai.	Alumni Representative	
14	**Mr. Kuntrumalai Vasan** (VTP 3660), II Year M.Tech.	Student Representative	
15	**Mr.N. Prudhvi Venkat,** (VTU 18224), IV Year EEE.	Student Representative	

BoS Chairman 20/12/23

Dr. S. Ramesh
Head of the Department
Electrical and Electronics Engineering
Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and

SCHOOL OF ELECTRICAL & COMMUNICATION

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

31st BOARD OF STUDIES MEETING

Date: 30-12-2023 **Time:** 10:30 A.M**.** **Venue:** Simulation Laboratory **Room No.**2213

AGENDA

Items for confirmation

31.01 To confirm and approve the 30th Minutes of Board of Studies meeting of Electrical and Electronics Engineering department held on 3rd June 2023.

31.02 To record the leave of absence of members.

Items for discussion

31.03 Curriculum and syllabi for B.Tech. – EEE with Specialization in Electric Vehicles under VTR UGE 2021 regulations.

31.04 Program/Open Elective Courses for B.Tech. – EEE Programme (VTR UGE 2021) and M.Tech. – Power Electronics Programme (VTU PGE 2023).

31.05 FME-EEE syllabi

31.06 Winter semester course list for the academic year (AY) 2023-24.

31.07 Value added courses for the AY 2023-24.

31.08 Self-learning courses (NPTEL/SWAYAM) course list for AY 2023-24.

Items for ratification

31.09 Industry/Higher Learning Institute Interaction courses offered in summer semester AY 2023-24.

Items for reporting

31.10 Result analysis of winter semester AY 2022-23.

31.11 Interim feedback analysis of summer semester AY 2023-24.

31.12 Faculty and students accomplishments of CY 2023.

31.13 Any other items: B.Tech. – Electrical and Computer Engineering Programme.

The Chairman-Board of Studies welcomed all the members for the BoS meeting and thanks them for sparing their valuable time. The Chair introduced the External BoS members.

Items for Confirmation

AGENDA 31.01	**To confirm and approve the 30th Minutes of Board of Studies meeting of Electrical and Electronics Engineering department held on 3rd June 2023.**
DISCUSSION	The 30th Board of Studies meeting minutes is presented to the members and it is confirmed for approval.
AGENDA 31.02	**To record the leave of absence of members.**
DISCUSSION	The internal BoS members Dr.S.Vinoth John Prakash and Mrs. Priscilla Whitin have informed their absence from attending 31st BoS meeting.

Items for Discussion and Approval

AGENDA 31.03	**Curriculum and syllabi for B.Tech. – EEE with Specialization in Electric Vehicles under VTR UGE 2021 regulations.**
DISCUSSION	The syllabi for the list of program elective courses to be offered for B.Tech. – EEE with Specialization in Electric Vehicles under VTR UGE 2021 regulations are presented and discussed. *Discussion on **"10212EE111 - EV Technology"*** **Dr.S.Senthil Kumar** has appreciated the syllabus contents. He has mentioned that the contents of Unit II may be treated as qualitative rather than quantitative. The title of course may be considered as "Principles of EV Technology". **Mr.Kiran Krishna Dhandale** has pointed out to include the topics "comparison between IC engine and EV and need for EV technology" in Unit I. **Dr.P.Chandrasekar** and **Dr.K.Vinoth** have agreed the above suggestions and they felt that this course may be offered as introductory level course in Electric Vehicles Specialization. *Discussion on **"10212EE112 - EV Motors"*** **Dr.S.Senthil Kumar** has suggested to generalize the topics of Unit II, III, IV and V to address the construction, working principle, speed control characteristics and power electronic controllers. Insisted to include a separate unit on Permanent Magnet Synchronous Motor. Advised to rename the title of Unit III as "Induction Motor Drives for EV". Also, suggested to revise the title of course as "EV Drives and Control". **Mr.Kiran Krishna Dhandale** has insisted to incorporate the topics "Drive-load characteristics and Introduction to EV motors" in Unit I contents. He has also suggested to rename the title of Unit II as "BLDC

	Motor Drive for EV”. **Dr. K. Karunanithi** and **Mr. R. Sreedhar** have agreed the above suggestion and consider this course may be offered in III year so that it may be convenient for the students to understand the concepts of electric drives and control. *Discussion on course **“10212EE113 - Energy Storage and Management System”*** **Dr.S.Senthil Kumar** has suggested to rename the course title as “Energy Storage Systems”. He has also insisted to revise Unit IV title as “Battery Management System”. **Mr. Kiran Krishna Dhandale** has recommended to revise the preamble of the course. He has suggested to include a topic “disposal policy” in Unit V contents. He has also advised to move the topic “Thermal runaway” from Unit V to Unit IV and insisted to add a topic “communication protocol” in Unit IV. **Dr.P.K.Dhal** and **Dr.K.Karthikumar** have agreed the suggestion of the experts and consider incorporating the suggestion in the revised course contents. *Discussion on course **“10212EE114 - EV Charging Station”*** **Dr.S.Senthil Kumar** has given the suggestions to rename the title of Unit II as “EV Charger Components” and he has also insisted to incorporate the topics “”Power electronic controllers” and “EV charger” in Unit V contents. **Dr.S.Sivakuma**r and **Mr.R.Sreedhar** have accepted the recommendation given by the expert and consider revising the course contents accordingly. *Discussion on course **“10212EE204 - EV Modelling and Simulation”*** **Dr.S.Senthil Kumar** has suggested to rename the titles of Unit I and Unit V as “Introduction” and “EV Dynamic Control”, respectively. **Mr.S.G.Raja**, Alumni representative suggested to include modelling of renewable energy based EV charging station in the list of experiments. **Dr. K. Karunanithi** and **Mr. R. Sreedhar** have agreed the suggestion of the expert and consider including it in the revised course contents.
ACTION	The syllabi for Program Elective courses are revised as per the suggestion given by the experts and it is attached as Annexure – I.
AGENDA 31.04	**Program/Open Elective Courses for B.Tech. – EEE Programme (VTR UGE 2021) and M.Tech. – Power Electronics Programme (VTU PGE 2023).**
DISCUSSION	*Discussion on course **“10212EE166 - Power Semiconductor Materials”***

	Dr.S.Senthil Kumar has suggested to revise the syllabus by considering GaN and SiC based devices. *Discussion on course* ***"10213EE130 - Wind and Solar Power System"*** **Dr.S.Senthil Kumar** has suggested to modify the contents of Unit I, Unit III, Unit IV and Unit V as "Wind Energy Systems", "Solar PV Systems" and "Hybrid Systems", "Grid Integration" respectively. He has also insisted to include a topic "Grid code of conducts" in Unit V contents. *Discussion on course* ***"20232EE131 - Smart Materials for Power Electronics Application"*** **Dr.S.Senthil Kumar** has suggested to revise the course contents by considering SiC and GaN based devices. **Dr.K.Vinoth** and **Mr. R. Sreedhar** have agreed the above suggestions and consider incorporating the same in the revised syllabus.
ACTION	The syllabus for the Program Elective/Open Elective courses are revised as per the suggestion given by the experts and is attached as Annexure –II.
AGENDA 31.05	**FME-EEE syllabi**
DISCUSSION	*Discussion on course* ***"10210EE201-Basic Electrical, Electronics and Measurement Engineering"*** **Dr.S.Senthil Kumar** has suggested to combine the contents of Units III and IV. He has insisted to revise the title of Unit IV as "Transistor Characteristics". Also, he has suggested to restrict the number of laboratory experiments to 8 or 10. *Discussion on course* ***"10210EE202-Basic Electrical and Instrumentation Engineering"*** **Dr.S.Senthil Kumar** has advised to rename the title of Unit I as "Measurements and Instrumentation". Also, he has suggested to restrict the number of laboratory experiments to 8 or 10. *Discussion on course* ***"10201EE203-Basic Electronics and Measurement Engineering"*** **Dr.S.Senthil Kumar** has insisted to include a topic "Communication systems" in Unit V contents. Also, he has recommended to restrict the number of laboratory experiments to 8 or 10. **Dr.N.K.Rayaguru** and **Mr.P.Sivaraj** have agreed to incorporate the above suggestions in the revised syllabus.
ACTION	The syllabus is revised as per the expert's suggestion and is attached as Annexure-III.

AGENDA 31.06	**Winter semester course list for the academic year (AY) 2023-24.**
DISCUSSION	The list of courses to be offered in winter semester AY 2023-24 are discussed and recommended.
ACTION	It is attached as Annexure-IV.
AGENDA 31.07	**Value added courses for the AY 2023-24**
DISCUSSION	The expert members approved the value added course (VAC) on "Basics of Arduino and Programming". Also, suggested to offer VAC on AI and IoT technology.
ACTION	The VAC course content is attached as Annexure-V.
AGENDA 31.08	**Self-learning courses (NPTEL/SWAYAM) course list for AY 2023-24.**
DISCUSSION	The list of self-learning courses to be offered from NPTEL/SWAYAM for B.Tech. – EEE and M.Tech. - Power Electronics programmes are presented and recommended.
ACTION	The list of self-learning courses is attached as Annexure-VI.

Items for Ratification

AGENDA 31.09	**Industry/Higher Learning Institute Interaction courses offered in summer semester AY 2023-24**
DISCUSSION	The industry/higher learning institute interaction course offered during the summer semester AY 2023-24 is presented and ratified.
ACTION	It is attached as Annexure-VII.

Items for Reporting

AGENDA 31.10	**Result analysis of winter semester AY 2022-23**
DISCUSSION	The result analysis of winter semester AY 2022-23 is presented and discussed.
ACTION	The experts appreciated the performance of students. It is attached as Annexure-VIII.
AGENDA 31.11	**Interim feedback analysis of summer semester AY 2023-24**
DISCUSSION	The interim feedback analysis of summer semester AY 2023-24 for the UG courses are presented and discussed.
ACTION	It is attached as annexure-IX.
AGENDA 31.12	**Faculty and students accomplishments CY 2023**
DISCUSSION	The accomplishments and recognitions of the faculty and students during CY 2023 are presented. The expert members greatly appreciated the involvements of students and faculties in academic and research activities.

ACTION	It is attached as annexure-X.
AGENDA 31.13	**Any other items: B.Tech. – Electrical and Computer Engineering Programme**
DISCUSSION	The expert members discussed about the new B.Tech. - Programme in Electrical and Computer Engineering.

CHAIRMAN – BoS 22/1/24

Vel Tech
Rangarajan Dr. Sagunthala

Dr. Valarmathi. R.S
Dean - School of Electrical & Communication

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

S, Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

AGENDA - 40th BOARD OF STUDIES MEETING

Agenda No.	Agenda
	Item for Confirmation
1	To confirm the minutes of meeting of the 39th Board of Studies held on 27.05.2023
	Items for Reporting
2	Ratification of Open Elective Course FPGA Architecture and Applications in VTR UGE 2021
3	Courses offered under Industry and Higher Learning (IHL) category during summer semester of AY 2023- 24 in VTR UGE 2021
4	Policy for Identifying the Slow & Advanced Learners and Activities in VTR UGE 2021
5	Student Performance during Winter semester of AY 2022- 23 and Placement Details of B.Tech. ECE
	Items for Discussion
6	New Programme Elective courses proposed in VTR UGE 2021 regulation
7	Courses offered under Industry and Higher Learning (IHL) category during winter semester of AY 2023- 24 in VTR UGE 2021.
8	NPTEL courses to be offered as Programme Elective and Open Elective courses in VTR UGE 2021 regulation
9	List of courses offered under B.Tech. ECE with Specialization in IoT
10	M.Tech. Regulation VTR PGE 2023 curriculum and syllabi
11	New course proposed under Ph.D. Course work with syllabus
12	Any other Points

The 40th BoS meeting started with a warm welcome by the Chairman of the BoS. Board Chairman appraised the External BoS members about the **Category-1 Deemed to be University** by the **University Grants Commission (UGC).**

Agenda #1: To confirm the minutes of meeting of the 39th Board of Studies held on 27.05.2023

Discussion #1 The BoS chairman briefed the action taken for the agenda points discussed in 39th Board of Studies meeting held on 27.05.2023. The points are given below

Agenda No.	Agenda – 39th BoS Meeting
	Item for Confirmation
1	To confirm the minutes of meeting of the 38th Board of Studies held on 24.09.2022
	Items for Reporting
2	Courses offered under Ph.D. Course work during winter semester of AY 2022- 23
3	Courses offered under Independent Learning (MOOC) category during winter semester of AY 2022- 23
4	Policy for Identifying the Slow & Advanced Learners and Activities
5	Major Changes proposed in the M.Tech. Regulations VTU PGE 2023
6	Student Performance during summer semester of AY 2022- 23 and Placement Details
	Items for Discussion
7	New Courses to be offered under Independent Learning (MOOC) category
8	New Courses proposed under Ph.D. Course work Syllabi
9	New Lab proposed under VTR UGE21
10	Any other Points

S.No.	Agenda	Suggestions by Members	Action Taken
1	NPTEL Courses	• Faculty can do NPTEL Courses before the students are allotted to facilitate the students to have better understanding of the course • Every Wednesday classes may be scheduled for students to complete the assignments on time by having a healthy discussion	• 50 Faculty enrolled and successfully completed the NPTEL Courses during summer semester of AY2023-24 • Library hours are included in the Time Table for catalyzing the students enrolling the NPTEL courses.

2	PhD Course works	• Have at least 6 COs for PhD courses. Unit V can have two COs • Include application based contents in Unit V • Try to have one or two Text books with majority of the syllabus coverage. Others may be included as Reference Books • COs with K3 level is preferable	• Around 80% of the syllabi content is covered in the text books given • Course outcomes have been revised
3	10211EC104 Linear Integrated Circuits	• To include only basics of Op-Amp in Unit I • Suggested to add Non- Linear term in Unit II title • Active filter topic may be removed from Unit III and may be included in Unit IV and then the title to be changed accordingly. PLL topic may be removed from Unit IV and included in Unit V	• Corrections have been incorporated in the syllabus.
4	10211EC107 Electromagnetics and Transmission Lines	• Suggested to concise the content of Unit I	• Course content is revised in the syllabus.
5	10211EC111 – Discrete-Time Signal Processing	• Reconsider K4 knowledge levels of course outcomes and they may be reduced to K3 levels	• Knowledge levels of K4 are reconsidered and revised to K3.
6	10211EC202 Internet of Things	• Design and simulate may be added in Experiments 3 and 5	• Suggested modifications are done in the course content
7	10211EC303 Signal Processing Lab	• Elaborate the experiment titles as Design and Simulation & Design and implementation. • Recent Textbooks may be included	• Recent text book of 2020 edition has been included.
8	10211EC304 Microprocessor and Microcontroller Lab	• Mini project may be removed	• The term Mini Project has been removed from the syllabus.
9	10212EC109 Embedded System Design	• Unit I to Unit V contents may be modified	• Corrections are incorporated in all 5 units.
10	10212EC156 – Data Analysis and Visualization	• Avoid using 'Introduction to' in unit titles • Reconsider K4 knowledge levels of course outcomes	• Except for Unit 1, all other unit titles are corrected. • Knowledge levels of course outcomes have been revised to K2 and K3.

11	10212EC171 Basics of Flexible Electronics	• Course Name to be changed as Flexible Electronics • Title of Unit I is to be changed to Measurements and Sensors • Suggested to reduce the unit contents	• Course name has been changed to Flexible Electronics • Syllabus content has been reduced.
12	10212EC172 Smart City	• Suggested to change the Course Title. • Suggested to reduce the unit contents	• Course name has been changed to Smart City • Syllabus content has been reduced.
13	10212EC174 Principles of Data Science	• Pre-requisites may be included • Case Studies may be included	• Suggested corrections are incorporated
14	10212EC204 Embedded C Programming	• Modify the Course outcomes • In Unit I Introduction to M0 may be changed to M4 • From Unit II to IV Heading has to be modified as per the content • Lab experiments to be modified	• Modifications are done in course outcomes. • Unit 1-In Introduction M4 topic has been included in place of M0. • Lab experiments are modified.
15	10212EC213 – Digital Image and Video Processing	• Heavy content in unit 2 and unit 3, to be covered in six hours for a theory-dominated integrated course.	• Corrections are incorporated in the syllabus.
16	10212EC216 FPGA Architecture Technologies and Tools	• Review of PLD may be included in Unit I	• Unit 1- PLD is included in the chapter.
17	10212EC222 Principles of Networking and Cybersecurity	• Mini project may be removed	• Mini project is removed in course content
18	10212EC228 - Data Science and Visualization	• Course content may be reduced.	• Course content has been reduced.
19	10213EC106 - Image Processing and its Applications	• Contents in unit 3 and unit 5 may be reduced considering other department students	• Course content has been reduced.
20	10213EC107 Industrial Automation	• Suggested to reduce the course content • In Unit I Introduction of Automation is to be changed as Fundamentals of Automation	• Unit 1 title has been changed to Fundamentals of Automation
21	10213EC108 Building Automation	• Suggested to reduce the course content • In Unit I Introduction To Building	• Unit 1 title has been changed to Building Management System and Automation Fundamentals

		Management System And Automation is to be changed to Building Management System And Automation Fundamentals	
22	10213EC111 - Intelligent Transportation Systems	• Headings may be modified avoiding the abbreviation ITS	• Unit I title modified as per the suggestions provided.
23	10213EC112 Wireless Communication Technologies	• To include 5G waveforms in Unit V • Suggested to add NPTEL lectures in reference	• NPTEL lectures included under online learning resources.
24	Slow Learners and Fast Learners policy	• The fast learner who assists the slow learners may be provided with some form of appreciation. • Follow up initiatives for slow learners who fail in the end semester exams must be taken	• Activities for measuring the slow learner performance has been devised at institute level.
25	M.Tech. Courses	• Conduct retest for absentees of Internal exam • Avoid Introduction in Title and Case studies can be included in the unit contents	• Suggestions have been considered for the forth coming academic year
26	Placement details	• Record of students placed in off campus may also be maintained	• Suggestions are taken into consideration.
27	Any other Remarks	• As majority of the faculty are PhD holders with vast experience Question paper setters may be from Internal Faculty and percentage of External QP setters may be reduced considerably. • The knowledge levels for UG courses may start with K2 levels for CO1 and may end with K3/K4 for CO5. • Student Representative suggested to display the prize winner details of the competitions conducted at department level and institution level in the Department Notice Boards	• The suggestions are taken into consideration for discussion in department meeting. • Suggestions are incorporated during design of syllabus. • Prize winner details of the competitions conducted at department level and institution level are regularly maintained in the Department Notice Boards.

All the members reviewed the action taken for the points discussed above and suggested to move on to next agenda.

Action #1: Resolved, that the action taken for the points discussed in the 39th Board of Studies are hereby approved by the members of BoS and shall be finalized.

Agenda #2: Ratification of Open Elective Course FPGA Architecture and Applications in VTR UGE 2021.

Discussion #2: The BoS chair reported the syllabus for ratification of Open Elective Course '**10213EC113** - FPGA Technology and Applications'.

Action #2: The BoS members, suggested to avoid using the word Introduction in titles of Units 1-3. Members also suggested to remove the topics Case study and Power on reset from Unit 4.

Agenda #3: Reporting of courses offered under Industry and Higher Learning (IHL) category during summer semester of AY 2023- 24 in VTR UGE 2021.

Discussion #3: The BoS chair reported the list of New Courses offered under Industry and Higher Learning (IHL) category during summer semester of AY 2023- 24.

- 10215EC101 Security and Privacy in 6G Networks
- 10215EC102 Ethical Hacking and Pen Testing
- 10215EC110 Geospatial Modelling in Precision Agriculture and Plant Science
- 10215EC111 UAV/Drone Technology and its Applications
- 10215EC112 Remote Sensing and Digital Image Processing Techniques
- 10215EC105 Digital Forensics and Incident Response
- 10215EC107 Fundamentals of MEMS
- 1157EC907 Internet of Things
- 10215EC108 Internet of Things Ethical Hacking and Pen Testing
- 10215EC109 SoC Design Flow

Action #3: Resolved, that the inclusion of 10 new courses in the IHL category are hereby approved by the members of BoS.

Agenda #4: Reporting of Policy for identifying the Slow & Advanced Learners and activities in VTR UGE 2021.

Discussion #4: The chairperson of the BoS conveyed the standard policy implemented across the University for identifying Slow & Advanced Learners and related activities.

The following parameters and weightages would be considered for slow learners and advanced learners:

1. Performance in the current semester Continuous Evaluation Test – 1 : 50 %
2. Previous Semester End Examination Performance : 40 %
3. Observations by the Course Faculty : 10 %

A student who has secured 60% and above of total weightage will be considered as advanced learner and a student secured less than 50% weightage will be identified as slow learner.

The activities to be followed by the course handling faculty for slow and advanced learners are discussed.

Action #4: Resolved, and the members of BoS appreciated the activities identified and the procedures followed. They suggested that the faculty may motivate the advanced learners to take up additional NPTEL course according to their preference.

Agenda #5: Reporting of Student Performance during Winter semester of AY 2022- 23 and Placement Details in VTR UGE 2021.

Discussion #5: The BoS Chair presented the Student Performance during the winter semester of AY 2022- 2023 for the batches 2019-2020, 2020-2021 and 2021-2022. The BoS chair also reported that the results of 2021-22 batch was pulled down due to their poor performance in the analytical courses. The BoS members suggested to reduce and simplify the contents of II year courses so as to improve the results.

The Chair also reported the placement details of 2019- 2020 batch in core and IT companies.

Action #5: Resolved, necessary steps are to be taken to improve the performance of students in the forthcoming semester.

Agenda #6: Discussion of New Programme elective courses proposed in VTR UGE 2021.regulation

Discussion #6: The BoS chair listed the new courses proposed under Programme Elective category and discussed the syllabus:

- 10212EC175 Fundamentals of Quantum Computing
- 10212EC232 Reconfigurable System Design
- 10212EC233 VLSI Chip Design

The BoS members suggested to add application topics in some of the units where applicable in '10212EC175 - Fundamentals of Quantum Computing'.

Members insisted to add suitable verb to all the experiments in the course '10212EC233- VLSI Chip Design'

A common suggestion was given by the BoS members to give the Online Resources in proper format in the syllabus.

Action #6: Resolved, the three new courses proposed under Programme Elective category and the syllabus content is hereby approved by the members of BoS.

Agenda #7: Discussion on Courses offered under Industry and Higher Learning (IHL) category during winter semester of AY 2023- 24 in VTR UGE 2021.

Discussion #7: The BoS chair listed new courses proposed under Industry and Higher Learning (IHL) category during winter semester of AY 2023- 24:

1. Data Analytics
2. Digital Forensics and Incident Response
3. Cybersecurity threat handling and Incident Response
4. Next Generation of Wired and Wireless Networks
5. Fieldbus architectures
6. Cognitive Computing and Applications
7. RISC V based SOC on FPGA
8. Virtual Instrumentation for Industrial Measurement Practice
9. Application of Digital Twin in Aerospace Field
10. Introduction to Digital Forensics Tools
11. Augmented & Virtual Reality for Gaming Industry

Action #7: Resolved, the 11 New Courses proposed under Industry and Higher Learning (IHL) category during winter semester of AY 2023- 24 is hereby approved by the members of BoS.

Agenda #8: Discussion on NPTEL courses to be offered as Programme Elective and Open Elective courses in VTR UGE 2021 regulation.

Discussion #8: The BoS chair listed NPTEL Courses proposed under Programme Elective and Open Elective courses:

- 10212EC406 Millimeter Wave Technology
- 10212EC407 Optical Wireless Communications for Beyond 5G Networks and IoT
- 10212EC408 Embedded Sensing, Actuation and Interfacing Systems
- 10212EC409 Sensors and Actuators
- 10212EC410 Information Security - 5 - Secure Systems Engineering
- 10212EC411 Natural Language Processing
- 10212EC412 Reinforcement Learning
- 10212EC413 Design and Analysis of VLSI Subsystems
- 10213EC401 Introduction To Industry 4.0 And Industrial Internet of Things

- 10213EC402 Biomedical Signal Processing
- 10213EC403 CMOS Digital VLSI Design

Action #8: Resolved, the 11 NPTEL courses to be offered as Programme Elective and Open Elective courses in VTR UGE 2021 regulation is hereby approved by the members of BoS.

Agenda #9: Discussion on list of courses offered under B.Tech. ECE with Specialization in IoT

Discussion #9: The Chair discussed the list of courses to be offered under B.Tech. ECE with Specialization in IoT as follows:

S.No.	Course Title
1	Internet of Things and its Applications
2	Artificial Intelligence and Machine Learning
3	IoT Security
4	Industry 4.0 and IIoT
5	IoT Sensors
6	IoT System Design Using Raspberry Pi

Action #9: Resolved, the list of courses offered under B.Tech. ECE with Specialization in IoT is approved by the members of BoS.

Agenda #10: Discussion of M.Tech. Regulation VTR PGE 2023 curriculum and syllabi.

Discussion #10: The Chair discussed the VTR PGE 2023 curriculum and syllabus of programme core courses.
Suggestions were given by the BoS members to avoid using two statements for one CO and to remove the term Introduction in unit titles. It is suggested to rephrase the experiment titles with Design and Simulation.
In Open Elective course Electric Vehicle Technology suggestions were given to remove the term Controllers in Unit 4 title and to add a topic on Green Energy.

Action #10: Resolved, M.Tech. Regulation VTR PGE 2023 curriculum and syllabus is approved by the members of BoS.

Agenda #11: Discussion on the new course proposed under Ph.D. course work with syllabus

Discussion #11: The BoS chair reported the syllabus of the PhD course **40211EC130** -LoRa and its applications.
Suggestions were given to include text books of recent year under learning resources and also suggested to include online resources.

Action #11: Resolved, that the inclusion of course in the Ph.D. is hereby approved by the members of BoS.

Agenda #12: Any other points - Discussion on list of courses offered under Minor degree in Semiconductor Technologies, 5G and Beyond for VTR UGE 2021.

Discussion #12: The BoS chair discussed the list of courses to be offered under the Minor degree in Semiconductor Technologies, 5G and Beyond in VTR UGE 2021.

List of courses to be offered under the Minor degree in Semiconductor Technologies:

S.No.	Course Title
1	Semiconductor Materials and Devices
2	Semiconductor Process Technology
3	VLSI and Post CMOS Electronics
4	Semiconductor Packaging
5	VLSI Testing and Verification
6	Quantum Technologies for VLSI
7	Semiconductor Optoelectronics & Photovoltaics
8	FPGA based System Design
9	VLSI Design Flow: RTL to GDS

List of courses to be offered under the Minor degree in 5G and Beyond:

S.No.	Course Title
1	Wireless Communication -Compulsory
2	5G Technology- Compulsory
3	5G New Radio-Compulsory
4	MM Wave Technology- Compulsory
5	5G Networks / MIMO Wireless Communication
6	5G Security/ 6G Mobile Networks

As per the recommendations of the BoS members the following were discussed:

- To maintain the list of ECE students undergoing minor in other departments.

Action #11: Resolved, that the proposed list of courses under Minor degree in Semiconductor Technologies, 5G and Beyond may be offered after approval in Academic Council Meeting (ACM). Further the points suggested as recommendations of the external BoS members and Student representative are to be considered.

The meeting ended with a formal thanks by the chair of BoS. The suggestions given by the external BoS members are incorporated and ratified. Further it is submitted for approval in ACM.

HOD/ECE

Dr.A. Srilvin Mich Priyadharson
Head of the Department
Electronics & Communication Engineering

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

S. Salivahanan

Prof. S. Salivahanan
Vice Chancellor

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

DEAN/SoEC

Dr. Valarmathi. R.S
Dean - School of Electrical & Communication

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology

37th MEETING of BOARD of STUDIES

Minutes

for

B.Tech (Information Technology)

and

M.Tech (Information and Cyber Security)

[CBCS]

On

03.01.2024

Department of Information Technology

School of Computing

Department of Information Technology
School of Computing
37th MEETING of BOARD of STUDIES
for
B.Tech.(IT) & M.Tech.(ICS)

Date: 03.01.2024 – 10:00 AM

Venue: SoC Block

INDEX

S. No	Particulars	Pg. No
1.	Agenda	**4**
2.	BoS Members	**6**
3.	Confirmation of 36th BoS meeting minutes held on 01.06.2023.	**8**
4.	Action Taken Report on the minutes of the 36th meeting of the Board of Studies.	**8**
5.	Stakeholders feedback on curriculum of B.Tech IT taken for the academic year 2022-2023	**8**
6.	Discussion and approval of the existing curriculum structure of B.Tech IT for program core courses	**8**
7.	Discussion and approval of the Program Electives to be offered in the existing B.Tech IT curriculum VTR UGE 2021	**8**
8.	Discussion and approval of new course in various domains under Industry Institute Interaction(III) Initiatives collaboration of ATOS	**9**
9.	Discussion and approval of Online MOOCs platforms for B.Tech IT	**9**
10	Discussion and approval of value added courses for B.Tech IT	**10**
11.	Discussion and approval of course structure and course contents of PG programme M.Tech.- ICS	**10**
12.	Discussion and approval of Online MOOCs platforms for PG programme. M.Tech.- ICS	**10**
13.	Ratification of Program Core courses to be offered in the programme M.Tech.- ICS	**11**
14	Ratification of courses offered by Industry Experts for B.Tech IT for Skill enhancement and Employment during Summer Semester 2023-2024	**11**
15.	Ratification of value added course content offered summer 203-2024 in the existing B.Tech (IT) curriculum	**11**
16.	Ratification of course content offered under the category of Program Electives in the existing B.Tech (IT) curriculum VTU R15	**12**

17.	Annexure-I – Confirmation of 36th BoS meeting minutes	**13**
18	Annexure-II- Action Taken Report	**14**
19	Annexure-III- Curriculum Feedback	**17**
20.	Annexure-IV-Approval of course structure and Program Core Courses	**23**
21.	Annexure-V- Approval of Industry Collaborated Program Electives Courses	**30**
22	Annexure-VI - Approval of Online MOOCs platforms for B.Tech IT	**33**
23.	Annexure-VII - Approval of Online VAC for B.Tech IT	**44**
24.	Annexure-VIII-Approval of course structure and course contents of PG programmes	**51**
25.	Annexure-IX- Approval of Online MOOCs platforms for PG programmes	**75**
26.	Annexure-X- Ratification of Program Core courses of PG Programmes	**83**
27	Annexure-XI- Ratification of courses offered by Industry Experts for B.Tech IT	**106**
28	Annexure-XII- Ratification of Value added Courses for B.Tech IT	**108**
29	Annexure- XIII- Ratification of course content offered under the category of Program Electives in the existing B.Tech (IT) curriculum VTU R15	**113**

Department of Information Technology
School of Computing
37th MEETING of BOARD of STUDIES
For
B.Tech.(IT) & M.Tech.(ICS)

Date: 03.01.2024 – 10:00 AM

Venue: SoC

AGENDA

Item No	Agenda
A.	**Opening**
1.	Confirmation of 36thBoS meeting minutes held on 01.06.2023. **(Annexure-I)**
2.	To review the Action Taken Report on the minutes of the 36th meeting of the Board of Studies **(Annexure-II)**
B.	**Items to be considered**
3	To discuss the feedback on curriculum of B.Tech IT taken for the academic year 2022-2023. **(Annexure-III)**
4.	To discuss and approve the existing **curriculum structure** of B.Tech IT under the Regulation VTR UGE 2021 for program core courses required for students to be implemented with effect from the academic year Winter 2023-2024**.(Annexure-IV)**
5	To discuss and approve any **changes in the Program Elective Course Structure** and **course contents of few Program Electives** are proposed in this BoS as per the list attached, to be offered in the programme B.Tech IT under the regulation VTR UGE 2021 with effect from Winter 2023-2024.
6.	To discuss and approve the introduction of **new Program Elective course in various domains under Industry Institute Interaction(III) Intiatives collaboration of ATOS in the existing** B**.Tech IT curriculum under the regulation VTR UGE 2021** to be implemented with effect from the academic year Winter 2023-2024 in view of employability skills. . (**Annexure – V)** **Cloud Infrastructure Management** S.No | Course Code | Course Name | L | T | P | C 1 | 10212IT253 | Windows Server Administration Operating System* | 2 | 0 | 2 | 3
7.	To discuss and approve the courses to be offered in **Online MOOCs platforms under Open Elective Category** for B.Tech IT under regulation VTR UGE 2021 and under Independent Learning for B.Tech IT under regulation VTU R15 during the Winter 2023-2024. . (**Annexure – VI)**
8	To discuss and approve the **courses to be offered inValue added courses under Complementary skills Category** during the academic year ,winter 2023-2024 for B.Tech IT. (**Annexure-VII).** S.No | Course Code | CoursewNmae | L | T | P | C 1 | 10218IT916 | Code X | 3 | 0 | 0 | 0 2 | 10218IT917 | Code Dakshah | 3 | 0 | 0 | 0 3 | 10218IT918 | Employability Skill in Python | 3 | 0 | 0 | 0 4 | 10218IT919 | Wipro Talent nextTraing using .Net | 3 | 0 | 0 | 0

9.	To discuss and approve the **course structure and course contents** of Program Core and few Program Electives of following **PG programmes M.Tech Information and Cyber Security** under the regulation **VTR PGE 2023** keeping in view of AICTE and National Education Policy (NEP) 2020 and employability skills to be implemented with effect from the academic year 2023-2024. **(Annexure-VIII).**
10.	To discuss and approve the courses to be offered in Online MOOCs platforms **under Independent Learning Category (MOOCs)** during the Winter 2023-2024 for PG programmes. . **(Annexure-IX)**
	Items to be Ratified
11	To ratify the Program Core courses offered in M.Tech Information and Cyber Security under the regulation VTR PGE 2023 implemented with effect from the academic year Summer 2023-2024, keeping in view of National Education Policy (NEP) 2020, AICTE, employability and research foundations. **(Annexure-X)**
12.	Ratification of courses offered by **Industry Experts** for B.Tech IT for **Skill enhancement and Employment opportunities** under Industry/Higher Institute Interaction Learning Category during the **Summer Semester of academic year 2023-2024** for B.Tech IT **(Annexure XI).**

Sno	Course code	Course Name	L	T	P	C
1	1157IT921	Medical Image Analysis with AI and ML	1	0	0	1
2	1157IT922	Exploratory Data Analysis and Visualization	1	0	0	1

13 **Ratification of Value added Courses** offered for B.Tech. IT in Summer Semester 2023-24 (**Annexure-XII**).

Sno	Course code	Course Name	L	T	P	C
1	10218IT913	Programming Skills in C	2	0	0	0
2	10218IT914	InfyTQ Training using Python	2	0	0	0
3	10218IT915	Wipro Talent Next Training Using Java	2	0	0	0

14 Ratification of Program Electives course contents in the existing B.Tech (IT) curriculum VTU R15. (**Annexure – XIII**)

S. No	Course Code	Course Name	L	T	P	C
1	1152IT233	Internet of Things and Cloud	2	0	2	3
2	1152IT236	Introduction to Cyber Security	2	0	2	3
3	1152IT237	Digital Forensics Methods	2	0	2	3
4	1152IT238	Blockchain Technology and its Application	2	0	2	3
5	1152IT241	Identity Access Mangement	2	0	2	3
6	1152IT241	Data Visualization Techniques	2	0	2	3

15 Any other cognate item

Department of Information Technology
37th MEETING of BOARD of STUDIES
for
B.Tech(IT) & M.Tech(ICS)

Date: 03.01.2024 – 10:00 AM

Venue: SOC

Members Present:

Sl.No	Name and Designation	Nominee	Signature
1	Dr. V. Srinivasa Rao, Professor and Dean School of Computing, Vel Tech.	Chairperson	
2	Dr Noor Mahammed SK Associate Professor. CSE, IIITDM. Kancheepuram, Chennai.	Academic Expert Nominee	
3	Dr H. Khanna Nehemiah Professor & Additional Director, Ramanujan Computing Centre, Anna University, Chennai	Academic Expert Nominee	03.01.2024
4	Mr. Balaji Sridharan Senior Developer, Cognizant Technology Solutions, Chennai.	Industry Expert Nominee	
5	Dr. Michael Dinesh Senior Project Manager Verizon IndiaChennai, Tamil Nadu	Industry Expert Nominee	03.01.2024
6	Mr. Krishna Muralidharan Alumni, Project Engineer, Wipro Technologies, Chennai	Alumni	
7	Dr.J.Visumathi , Professor& Head, IT, Vel Tech	Professor Nominee	
8	Dr Sugumaran D	Associate Professor Nominee	
9	Dr N.Kathirvel	Assistant Professor, (Sr.Grade)Nominee	
10	Dr S.Sureshu	Assistant Professor Nominee	

11	Dr C.Sureshkumar	Assistant Professor Nominee	
12	Mr. K.Durairaj	Assistant Professor Nominee	
13	Mrs.Deepa J	Assistant Professor Nominee	
14	Mrs. Ramya D	Assistant Professor Nominee	
15	Mrs. Lijetha C Jaffrin	Assistant Professor Nominee	

Invited Members

S.No	Name	Designation	Signature
1	Dr.M.Kavitha	Professor, CSE, Vel Tech	
2	Dr.N.R.Rajalakshmi,	Professor & Head, AI&DS, Vel Tech.	
3	Dr.V.DhilipKumar	Professor & Head, AI&ML,Vel Tech.	
4	Dr MS.Murali Dhar	Professor & Head, CSE, Vel Tech.	
5	Dr.R.Parthasarathy	Associate Professor & Head, CSD, Vel Tech.	
6	Dr. S. Saravanan	Associate Professor & Head, CSE(CS), Vel Tech	
7	Dr.P.Jose	Associate Professor & Head, CSE(DS), Vel Tech	
8	Dr. S.Lalitha	Associate Professor & Head, CSE(AI& ML), Vel Tech	

The Chair expressed his happiness in welcoming all the new members for the 37th meeting of BOS and thanked them for sparing their valuable time.

37-BoS-01	Confirmation of 36th BoS meeting minutes held on 01.06.2023.
Action Taken	The minutes of 36th BoS meeting minutes held on 01.06.2023 was circulated to members through e-mail, the members confirmed the minutes. (Annexure - I)
37-BoS-02	To review the Action Taken Report on the minutes of the 36th meeting of the Board of Studies.
Resolution	The members reviewed the action taken report on the decisions of 36th BoS meeting minutes held on 01.06.2023. (Annexure - II)
	Items to be considered
37-BoS-03	To discuss the feedback on curriculum of B.Tech IT taken for the academic year 2022-2023. (Annexure-III)
Discussion	The members reviewed the feedback on curriculum of B.Tech IT taken for the academic year 2022-2023
Resolution	The members reviewed the student feedback and Aluminin feedback for curriculum and suggedted the value for stake holders feedback.
37-BoS-04	To discuss and approve the existing **curriculum structure** of B.Tech IT under the Regulation VTR UGE 2021 for program core courses required for students to be implemented with effect from the academic year Winter 2023-2024. (Annexure-IV)
Discussion	The members reviewed existing **curriculum structure** proposed in this BoS, to be offered in the programme B.Tech Information Technology under the regulation VTR UGE 2021
Resolution	The members approved the **Course Structure** proposed in this BoS, to be offered in the programme B.Tech Information Technology under the regulation VTR UGE 2021 and these will be offered with effect from Summer winter 2023-2024. Course structure and details are available in [Annexure - IV].
37-BoS-05	To discuss and approve any **changes in the Program Elective Course Structure** and **course contents of few Program Electives** are proposed in this BoS as per the list attached, to be offered in the programme B.Tech IT under the regulation VTR UGE 2021 with effect from Winter 2023-2024.
Discussion	The members reviewed **changes in the Program Elective Course Structure** and **course contents of few Program Electives** are proposed in this BoS .
Resolution	By considering the suggestion of the members, changes and these will be offered with effect from winter 2023-2024.

<table>
<tr><td>37-BoS-06</td><td>To discuss and approve the introduction of <u>new Program Elective course in various domains under Industry Institute Interaction(III) Intiatives collaboration of ATOS in the existing B.Tech IT curriculum under the regulation VTR UGE 2021</u> to be implemented with effect from the academic year Winter 2023-2024 in view of employability skills. (Annexure – V)
<u>Cloud Infrastructure Management</u>
<table>
<tr><th>S.No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>10212IT253</td><td>Windows Server Administration Operating System*</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
</table></td></tr>
<tr><td>Discussion</td><td>Experts reviewed the courses and course contents of Windows Server Administration Operating System. Experts proposed to include Linux administrator course.
Experts recommended a slight modification in the course name to "Windows Operating Systems – Server Administration" and subsequently granted approval for the course. Course details are available in [Annexure -V].
All members appreciated the initiatives taken in collaborating with ATOS for offering courses as per the industry requirements for student’s better skilling and placement opportunities.</td></tr>
<tr><td>Resolution</td><td>The members approved the new course and course contents of Windows Server Administration Operating System in the existing B.Tech (IT) curriculum under the regulation VTR UGE 2021 to be implemented with effect from the academic year winter 2023-2024.</td></tr>
<tr><td>37-BoS-07</td><td>To discuss and approve the courses to be offered in Online MOOCs platforms under Open Elective Category for B.Tech IT under regulation VTR UGE 2021 and under Independent Learning for B.Tech IT under regulation VTU R15 during the Winter 2023-2024. (Annexure – VI)</td></tr>
<tr><td>Discussion</td><td>Experts reviewed the courses to be offered in Online MOOCs platforms under open Elective of B.Tech(IT) under regulation VTR UGE 2021 and Independent Learning Category (MOOCs) under regulation VTU R 15.</td></tr>
<tr><td>Resolution</td><td>The members approved the courses to be offered in Online MOOCs platforms under Independent Learning Category (MOOCs) during the Winter semester of academic year 2023-2024 for B.Tech(IT). Course details are available in [Annexure - VI]</td></tr>
</table>

<table>
<tr><td>37-BoS-08</td><td>To discuss and approve the courses to be offered inValue Added courses during the academic year ,winter 2023-2024 for B.Tech IT. (Annexure-VII).
<table>
<tr><td>S.No</td><td>Course Code</td><td>CoursewNmae</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>1</td><td>10218IT916</td><td>Code X</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2</td><td>10218IT917</td><td>Code Dakshah</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>3</td><td>10218IT918</td><td>Employability Skill in Python</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>4</td><td>10218IT919</td><td>Wipro Talent nextTraing using .Net</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>Discussion</td><td>Experts reviewed the new courses and course contents of Value Added Courses during the academic year winter 2023-2024 for B.Tech IT. Experts suggested to do some changes in the course Code Dakshah.</td></tr>
<tr><td>Resolution</td><td>The members approved the courses to be offered in Value Added Courses during the academic year winter 2023-2024 for B.Tech IT. Course details are availbale in Annexure-VII</td></tr>
<tr><td>37-BoS-09</td><td>To discuss and approve the course structure and course contents of Program Core and few Program Electives of following PG programmes M.Tech Information and Cyber Security under the regulation VTR PGE 2023 keeping in view of AICTE and National Education Policy (NEP) 2020 and employability skills to be implemented with effect from the academic year 2023-2024. (Annexure-VIII).</td></tr>
<tr><td>Discussion</td><td>The members reviewed the course structure and course contents of Program Core and few Program Electives of PG programmes M.Tech Information and Cyber Security under the regulation VTR PGE 2023.
Dr H. Khanna Nehemiah suggested to revisit the contents of Database System Concepts and IoT and Cloud Computing. Experts also suggested to include Cloud security in Information Security course.</td></tr>
<tr><td>Resolution</td><td>The members approved the course structure and course contents of Program Core and few Program Electives of PG programmes M.Tech Information and Cyber Security under the regulation VTR PGE 2023. By considering the suggestion of the members, Changes and thgese will be offered with effect from winter 2023-2024. Course details are available in [Annexure - VIII]</td></tr>
<tr><td>37-BoS-10</td><td>To discuss and approve the courses to be offered in Online MOOCs platforms under Independent Learning Category (MOOCs) during the Winter 2023-2024 for PG programmes. (Annexure-IX)</td></tr>
<tr><td>Discussion</td><td>Experts reviewed the list of courses to be offered in Online MOOCs platforms under Independent Learning Category (MOOCs) during the Winter 2023-2024 for PG programmes.</td></tr>
</table>

Resolution	Experts approved the list of courses to be offered in Online MOOCs platforms under **Independent Learning Category (MOOCs)** during the Winter 2023-2024 for PG programmes. Course details are available in [Annexure - IX]
	Items to be Ratified
37-BoS-11	To ratify the Program Core courses offered in M.Tech Information and Cyber Security under the regulation VTR PGE 2023 implemented with effect from the academic year Summer 2023-2024, keeping in view of National Education Policy (NEP) 2020, AICTE, employability and research foundations. (**Annexure-X)**
Resolution	The members ratified the Program Core courses offered in M.Tech Information and Cyber Security under the regulation VTR PGE 2023 implemented with effect from the academic year Summer 2023-2024. The list of courses offered and course contents are available in (Annexure-X)
37-BoS-12	Ratification of courses offered by **Industry Experts** for B.Tech IT for **Skill enhancement and Employment opportunities** under Industry/Higher Institute Interaction Learning Category during the **Summer Semester of academic year 2023-2024** for B.Tech IT **(Annexure XI).**

Sno	Course code	Course Name	**L**	**T**	**P**	**C**
1	1157IT921	Medical Image Analysis with AI and ML	1	0	0	1
2	1157IT922	Exploratory Data Analysis and Visualization	1	0	0	1

Resolution	The members ratified the courses offered by **Industry Experts** for B.Tech.(IT) for **Skill enhancement and Employment opportunities** under **Industry/Higher Institute Interaction Learning** Category during the **Summer semester of academic year 2023-2024** for B.Tech.(IT). The list of courses offered and course contents are available in (Annexure-XI)
37-BoS-13	**Ratification of Value added Courses** offered for B.Tech. IT in Summer Semester 2023-24 (**Annexure-XII**).

Sno	**Course code**	**Course Name**	**L**	**T**	**P**	**C**
1	10218IT913	Programming Skills in C	2	0	0	0
2	10218IT914	InfyTQ Training using Python	2	0	0	0
3	10218IT915	Wipro Talent Next Training Using Java	2	0	0	0

Resolution	The members ratified **Value added Courses** offered for B.Tech. IT in Summer Semester 2023-24.). The list of courses offered and course contents are available in (Annexure-XII)

<table>
<tr><td>37-BoS-14</td><td>Ratification of Program Electives course contents in the existing B.Tech (IT) curriculum VTU R15.(Annexure – XIII)
<table>
<tr><th>S. No</th><th>Course Code</th><th>Course Name</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td>1</td><td>1152IT233</td><td>Internet of Things and Cloud</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>2</td><td>1152IT236</td><td>Introduction to Cyber Security</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>3</td><td>1152IT237</td><td>Digital Forensics Methods</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>4</td><td>1152IT238</td><td>Blockchain Technology and its Application</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>5</td><td>1152IT241</td><td>Identity Access Mangement</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>6</td><td>1152IT241</td><td>Data Visualization</td><td>2</td><td>0</td><td>2</td><td>3</td></tr>
</table></td></tr>
<tr><td>Resolution</td><td>The members ratified the Program Electives course contents in the existing B.Tech (IT) curriculum VTU R15. The list of courses offered and course contents are available in (Annexure-XIII)</td></tr>
<tr><td>37-BoS-15</td><td>Any other cognate item</td></tr>
<tr><td></td><td>The next BoS meeting will be conducted in May/ June 2024</td></tr>
</table>

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

38th Board of Studies

6th January 2024, Saturday at 10.00 a.m.

Minutes of Meeting

DEPARTMENT OF MECHANICAL ENGINEERING

SCHOOL OF MECHANICAL & CONSTRUCTION

School of Mechanical & Construction

Department of Mechanical Engineering

Minutes of 38th Board of Studies Meeting of Mechanical Engineering

6th January 2024 @ 10.00 a.m. Hall No. 2122 (CASA Lab)

The 38th Board of Studies Meeting was held on 6th January 2024 at 10.00 a.m. in Hall No. 2122 (CASA Lab) and the following members were present during the meeting.

Members Present

Chairman, Board of studies (Mechanical Engineering)

1. Dr.S.Jayavelu, Associate Professor & Head, Department of Mechanical Engineering.

External Experts

2. Dr.G.L.Samuel, Professor, IIT-Madras
3. Dr.Omkumar, Professor, Anna University

Industry Experts

4. Mr.Ravikumar Samuthiram, General Manager, Daimler India

Internal Experts

5. Dr.N.Lenin, Professor
6. Dr.P.Sivamurugan, Professor
7. Dr.S.Christopher, Professor
8. Dr. Mohammad Iqbal, Professor
9. Dr.Sumathy Muniamuthu, Professor
10. Dr.P. Anand, Professor
11. Dr.M.Meikandan, Professor
12. Dr.C.Rathinasuriyan, Associate Professor
13. Dr.V.Balaji, Assistant Professor

Alumni Representative

14. Mr.S.Prabhu

Final Year Student

15. Mr.Arpit Sinha

The Chairman of the Board of Studies (BoS) extended a warm welcome to the new members and expressed gratitude to the external experts who served in the previous term. Acknowledging the necessity to adhere to NBA norms, it was emphasized that external experts undergo a change every two years.

The Chairman then introduced the new external experts to the Board, providing them with a comprehensive overview of the institution's curriculum, syllabus, and other pertinent details. In

particular, the discussion centred on the requirements of regulation VTR UGE -2021, and the Chairman requested the expertise of the new external experts in updating the syllabus and course content in line with the institution's goals.

School of Mechanical & Construction

Department of Mechanical Engineering

38th Board of Studies Meeting of Mechanical Engineering

6th January 2024 @ 10.00 a.m. Hall No. 2122 (CASA Lab)

Agenda No.	**Agenda**
OPENING	
38 BoS 01	To confirm the minutes of meeting of the 37th Board of Studies, held on 27th May 2023
38 BoS 02	Action taken report on Minutes of 37th BoS meeting
38 BoS 03	To record leave of Absence of members
ITEMS FOR CONSIDERATION AND APPROVAL	
38 BoS 04	MOOC Courses (NPTEL) recommended under self-learning courses for UG & PG Programs for the Winter Semester of AY 2023 – 24
38 BoS 05	New Courses for PhD Scholars under Course work category.
38 BoS 06	List of Program Elective Courses offered under VTR UGE -2021 Regulations for B.Tech. Mechanical with Energy Management Specialization
ITEMS FOR DISCUSSION AND RATIFICATION	
38 BoS 07	Minor Revision in the syllabus of Courses offered under VTR UGE -2021 Regulations.
ITEMS FOR REPORTING AND RECORDING	
38 BoS 08	Students awarded credits for independent learning– MOOC Courses under VTU R15 7.2.7.1 for UG
38 BoS 09	Courses offered by International Faculty/Industry Experts under VTUR15 Section 7.2.8.3, Specialized Courses
38 BoS 10	Any other points (Bucket system, PSO)

OPENING

38 BoS 01 To confirm the minutes of meeting of the 37th Board of Studies, held on 27th May 2023

The chairman –BoS briefed about the minutes of meeting of the 37th Board of Studies, held on 27th May 2023.

The members noted and confirmed it.

38 BoS 02 Action taken report on Minutes of 37th BoS meeting

The chairman –BoS presented the Action taken report on Minutes of 37th BoS meeting held on 27th May 2023.

S.No.	Agenda No.	Points Discussed	Action Taken
1	37 BoS 01	To confirm the minutes of meeting of the 36th BoS meeting held on 05.01.2023. Minutes of meeting of the 36th BoS meeting held on 05.01.2023 was confirmed by the members of BoS.	Confirmed by the members of BoS
2	37 BoS 02	To review the Action Taken Report on the minutes of 36th BoS meeting	Reports were presented by the Chairman - BoS, members noted.
3	37 BoS 04	New PG programmes regulation and curriculum revision for M.Tech. Metallurgical and Materials Science Engineering and Industrial Safety and Engineering was discussed.	BoS accepted PG programmes regulation and curriculum revision are introduced.
4	37 BoS 05	Members recommended to include some advance contents in the Program Elective courses - Project Based Advanced Machining Processes, 3D Modeling and Printing, 3D Modelling and Assembly Creation by using CREO, Power Plant Engineering	The suggestions were incorporated at appropriate places of the syllabus
5	37 BoS 06	To discuss the list of NPTEL courses recommended under self-learning courses for UG (7.2.7.1) & PG (7.2.4.1) Programs for the forthcoming Winter Semester of AY 2022-23.	Approved NPTEL Courses offered to the students

6	37 BoS 07	To discuss the Policy for Slow and Advanced Learners	Members noted and accepted the policy framed by the department.
7	37 BoS 08	BoS presented the list of Institute Elective Courses offered under section 7.2.5 for the Summer Semester of AY 2023-24.	Approved Institute Elective Courses offered to the students
8	37 BoS 09	BoS presented the List of Open Elective Courses offered under regulation R21 for the Summer Semester of AY 2022-23.	Approved Open Elective Courses offered to the students
9	37 BoS 10	Presented the details of Students awarded credits for independent learning – MOOC Courses under VTUR15 7.2.7.1 for UG & under VTUR16 7.2.4.1 for PG during Winter Semester of AY 2021-22.	Credits awarded to the students
10	37 BoS 11	Discussed about the No. of Students awarded credits for independent learning - Seminar under VTUR15 Sec.7.2.7.2 (a) in Winter Semester of AY 2022 – 23 and number of students registered during the Summer Semester of AY 2022-23.	Credits awarded to the students
12	37 BoS 15	Discussed about the syllabus of Thermal Engineering under R21 regulation.	Changes implemented as per the BOS Suggestions.

The members have gone through the actions taken on the discussions and satisfied.

38 BoS 03 To record leave of Absence of members

The following members were absent for the 38th BoS meeting and the attendance has been recorded.

1. Industry Expert -Mr.Ravikumar Samuthiram, General Manager, Daimler India
2. Alumni Representative - Mr.S.Prabhu
3. Final Year Student - Mr.Arpit Sinha

ITEMS FOR CONSIDERATION AND APPROVAL

38 BoS 04 MOOC Courses (NPTEL) recommended under self-learning courses for UG & PG Programs for the Winter Semester of AY 2023 – 24

The Chairman of the Board of Studies presented a list of NPTEL courses recommended for self-learning in both UG (7.2.3 & 7.2.4) and PG (7.2.4.1) programs for the upcoming Winter Semester of the Academic Year 2023-24.

MOOC Courses (NPTEL) recommended for UG under 7.2.3 Programme Electives Courses

Sl. No.	Course ID	Discipline	Course Name	Course Link
1.	noc24-me17	Mechanical Engineering	Principles Of Industrial Engineering	https://onlinecourses.nptel.ac.in/noc23_me06/preview
2.	noc24-me23	Mechanical Engineering	Robotics: Basics and Selected Advanced Concepts	https://onlinecourses.nptel.ac.in/noc23_me67/preview
3.	noc24-me24	Mechanical Engineering	Advanced Robotics	https://onlinecourses.nptel.ac.in/noc23_me51/preview
4.	noc24-me42	Mechanical Engineering	Introduction To Mechanical Micro Machining	https://onlinecourses.nptel.ac.in/noc23_me43/preview
5.	noc24-me45	Mechanical Engineering	Machinery Fault Diagnosis And Signal Processing	https://onlinecourses.nptel.ac.in/noc23_me41/preview
6.	noc24-me57	Mechanical Engineering	Power Plant System Engineering	https://onlinecourses.nptel.ac.in/noc24_me57/preview
7.	noc24-me58	Mechanical Engineering	Product Design and Manufacturing	https://onlinecourses.nptel.ac.in/noc23_me14/preview
8.	noc24-me72	Mechanical Engineering	Advanced Machining Processes	https://onlinecourses.nptel.ac.in/noc24_me72/preview
9.	noc24-cs08	Computer Science and Engineering	An Introduction to Artificial Intelligence	https://onlinecourses.nptel.ac.in/noc23_cs05/preview
10	noc24-cs51	Computer Science and Engineering	Introduction to Machine Learning	https://onlinecourses.nptel.ac.in/noc23_cs98/preview

MOOC Courses (NPTEL) recommended for UG under 7.2.4 Open Electives Courses

Sl. No.	Course ID	Discipline	Course Name	Course Link
1.	noc24-cs14	Computer Science and Engineering	Artificial Intelligence: Knowledge Representation And Reasoning	https://onlinecourses.nptel.ac.in/noc23_cs09/preview
2.	noc24-de06	Design Engineering	Understanding Incubation and Entrepreneurship	https://onlinecourses.nptel.ac.in/noc23_de16/preview
3.	noc24-cs35	Computer Science and Engineering	Introduction To Internet Of Things	https://onlinecourses.nptel.ac.in/noc23_cs83/preview
4.	noc24-cs38	Computer Science and Engineering	Machine Learning for Engineering and science applications	https://onlinecourses.nptel.ac.in/noc19_cs82/preview
5.	noc24-de06	Design Engineering	Understanding Incubation and Entrepreneurship	https://onlinecourses.nptel.ac.in/noc23_de16/preview
6.	noc24-ee56	Electrical and Electronics Engineering	Industrial Automation And Control	https://onlinecourses.nptel.ac.in/noc23_ee56/preview
7.	noc24-ee69	Electrical and Electronics Engineering	Basics of Semiconductor Microwave Devices	https://onlinecourses.nptel.ac.in/noc24_ee69/preview
8.	noc24-ge15	Multidisciplinary	Entrepreneurship Essentials	https://onlinecourses.nptel.ac.in/noc23_ge16/preview

MOOC Courses (NPTEL) recommended under self-learning courses for PG

Sl. No.	Course ID	Discipline	Course Name	Course Link
Open Electives Courses				
1.	noc24-hs12	Humanities and Social Sciences	Training and Development	https://nptel.ac.in/courses/109105192
2.	noc24-hs38	Humanities and Social Sciences	Intellectual Property	https://nptel.ac.in/courses/109106137
3.	noc24-mg47	Management	Principles of Management	https://nptel.ac.in/courses/110107150
Programme Electives Courses				
4.	noc24-ce39	Civil Engineering	Water and waste water treatment	https://nptel.ac.in/courses/105107207
5.	noc24-ch15	Chemical Engineering	Environmental Quality Monitoring & Analysis	https://nptel.ac.in/courses/103106162
6.	noc24-me31	Mechanical Engineering	Explosions and Safety	https://nptel.ac.in/courses/112106177
Independent Learning Courses				
7.	noc24-ge21	Multidisciplinary	Research Methodology	https://nptel.ac.in/courses/121106007

Discussion: The members accepted and endorsed the recommendations.

38 BoS 05 New Courses for PhD Scholars under Course work category.

The chairman BoS presented two new courses offered for PhD scholars under the course work category.

COURSE CODE	SOLAR PUMPING SYSTEM	L	T	P	C
		3	0	0	3

1. Preamble:

The course on solar water pumping systems provides information on solar energy, its benefits, and its uses. Through this course, you will gain a conceptual grasp of water pumps, particularly solar PV water pumping systems. Additionally, the primary elements of the solar PV water pumping system are thoroughly covered. However, this course will cover the core elements of farm-level operation and maintenance (O&M), as well as the usual operational and safety considerations.

2. Course Educational Objectives:

1. To comprehend how the solar energy can be tapped for solar pumping system through solar photovoltaic cell.
2. To become familiar with the crucial principles and the components used for solar photovoltaic water pumping system.
3. To comprehend the system's financial design (costing) for pumping water.

3. Course Content

UNIT I – OVERVIEW OF SOLAR ENERGY & PHOTOVOLTAIC CELL 9

Solar radiation – solar angle - solar tracker – measurement of irradiance – temperature measurement - various seasons in India – Statistics of solar energy in India. Solar Cells – solar PV modules – I V and P V characteristics – factor affecting solar PV modules – solar PV module arrays (parallel/series) – standard test conditions – energy losses.

UNIT II – SOLAR CONTROLLER & MOTORS 9

Power converters– inverters – DC to DC converters – charge controllers – functions and working – features of controllers – Maximum Power Point Tracking (MPPT) – pulse width modulated – variable frequency drive – Motor – classifications – characteristics of motor - selection criteria for pumping applications.

UNIT III – PUMPS & PUMPING SYSTEM 9

Pump terminologies - classification of pumps - losses in pumps - power consumption - pump characteristics for radial, mixed, and axial flow pumps - affinity law - series and parallel pump characteristics. System curve - static head - total dynamic head calculation - cavitation in pumps.

UNIT IV – PUMPS SELECTION, INSTALLATION, & TESTING 9

Pump selection - installation of pumps – surface pump – submersible pump – floating pump - pump testing – classification of tests - measurement of characteristics quantities - test rig for rotodynamic pumps - measurement error – test guidelines using Indian standard.

UNIT V – SOLAR PUMP APPLICATIONS & ECONOMIC ANALYSIS 9

Solar pump applications – site survey - solar characteristics of pump - Importance of economic considerations – life cycle cost analysis (LCCA) – costing for water pumping systems – comparing LCCA of solar and generator systems – cost of ownership.

Total: 45 Periods

4. Text Books

1. Chetan Singh Solanki, Solar Photovoltaic Technology and Systems: A Manual for Technicians, Trainers and Engineers, PHI learning private limited, Delhi, 2013
2. Asenath W. Kiprono and Alberto Ibáñez Llario, Solar Pumping for Water Supply, Practical Action Publishing, UK, 2020
3. Guidelines on testing procedure for solar photovoltaic water pumping system, Annexure-II of Circular No. F.No. 41/3/2018-SPC division head dated on 17.07.2019, Ministry of New and Renewable Energy, Government of India; 2019 [accessed on 8 Dec 2022]. https://mnre.gov.in/img/documents/uploads/file_s-1584510806957.pdf

5. References

1. Karassik, I. Centrifugal Pump Clinic. 2nd Ed., New York, CRC Press, 2017.
2. Guelich, J.F. Centrifugal Pumps, Springer Verlag, New York, 2014.
3. IS 11346:2002 Test for agricultural and water supply pumps – cods of acceptance, First revision, 2002. https://law.resource.org/pub/in/bis/S08/is.11346.2002.pdf
4. IS 9137:1978 Code for acceptance tests for centrifugal, mixed flow and axial pumps-Class C, reaffirmed 2002. https://ia903000.us.archive.org/14/items/gov.in.is.9137.1978/is.9137.1978.pdf
5. IEC 61215-1:2021 Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 1: Test requirements. https://kupdf.net/download/iec-61215-1-2021_63e395cde2b6f5ad0f51d911_pdf

COURSE CODE	FIRE FIGHTING PUMPING SYSTEM	L	T	P	C
		3	0	0	3

UNIT I: INTRODUCTION TO FIRE FIGHTING PUMPING SYSTEM 9

Historical firefighting pumping system – Types of fire protection system - General philosophy active & passive fire protection types – Basic of fire triangle parameters -Selection criteria for fire protection system – Basic of system demand & fire water flow requirements – Sources of firewater – Water quality

UNIT II: STANDARDS & PUMP TYPES FOR FIGHTING APPLICATON 9

History of NFPA20, FM & UL Standard - Types & overview of NFPA20 standards -General requirements of NFPA20 - Pumping terminology - Types of pumps & its applications in firefighting system– Fire pumps for high rise building, centrifugal pumps for industries (split case & vertical turbine) - Positive displacement pump - Vertical Inline for Jockey

UNIT III: FIRE FIGHTING SYSTEM AND ITS COMPONENTS 9

General scope of supply -Fire pump hydraulic requirement-Basic details & Selection criteria for Major Components in fire system – Details of Electrical Motor, Deisel Engine Driver, Controller, Fuel tank, Pressure relief Valve, Flowmeter, waste cone, Pressure gauges & Air release valves

UNIT IV: PUMP DRIVES AND POWER TRANSMISSION 9

Electric motors (AC/DC) – NEMA classifications - Diesel engines – Gasoline engines – Different types of starting system (Electrical, Hydraulic, Pneumatic) – Instrument panel – steam turbine – Driver pump coupling – Acoustical enclosure & its concerns – Engineered fire pump packages - Open skid systems - Fire pump houses - Maintenance access

UNIT V: FIREWATER PUMP ACCEPTANCE & TESTING, OTHER FACTORS 9

Basic of performance parameters & its testing, various testing standards & its limitation - Fire pumps factory acceptance test – Site acceptance test and commissioning – Periodic testing & inspection & maintenance of fire systems – Basic trouble shooting of fire systems

TOTAL: 45 PERIODS

Text Book

1. NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection, 2022, National Fire Protection Association Standards.
2. Karassik, I. Centrifugal Pump Clinic. 2nd Ed., New York, CRC Press, 2017.
3. Val. S. labnoff & Robert Ross , 2nd Ed.Jaico Publishing House -New Delhi-2016
4. Dennis P. Nolan, Fire Pump Arrangements at Industrial Facilities, 3rd Edition, 2017. Gulf Professional Publishing.
5. Ron Palgrave, Troubleshooting Centrifugal Pumps and their Systems, 2nd Edition, Butterworth-Heinemann, 2019.

6. Guelich, J.F. Centrifugal Pumps, Springer Verlag, New York, 2014.

References

1. National Fire Protection Association (NFPA), 1997. Fire Protection Handbook. 18th Edition NFPA, Quincy, MA.
2. API 610 Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries.
3. Examination Standard for Centrifugal Fire Pumps Split-Case Type (Axial or Radial) Class Number 1311, FM Approvals, August 2023
4. Underwriter's Laboratories (UL), UL-218 Standard for Fire Pump Controllers, Northbrook, IL.
5. NFPA 70R, National Electrical Code R, 2017 edition.
6. NFPA 37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, 2018 edition
7. IS 12469 (1988): Specification for Pumps for Fire Fighting System [MED 20: Pumps]
8. International Standardization Organization (ISO), ISO 2548, Centrifugal, Mixed Flow and Axial Pumps, Code for Acceptance, Class C, 1973.
9. Karassik, I.J., et al., 1986. Pump Handbook. Second Edition McGraw-Hill, New York,
10. SFPE/NFPA, 1995. The SFPE Handbook of Fire Protection Engineering. 2nd Edition NFPA, Boston, MA.
11. H.E. Hickey, Hydraulics for Fire Protection, National Fire Protection Association, Quincy, MA (1980).
12. IS 3844 (1989): Code of practice for installation and maintenance of internal fire hydrants and hose reels on premises

Discussion: External member Dr. G.L. Samuel expressed that the topics are very advanced and inquired why these courses are not offered to other M.Tech students.

The Chairman-BoS explained that the concerned research scholar is pursuing doctoral research in the area of solar pumps. Hence, their guide required these coursework components for the scholar.

Action: The members were satisfied with the explanation and recommended the courses.

38 BoS 06 List of Program Elective Courses offered under VTR UGE -2021 Regulations for B.Tech. Mechanical with Energy Management Specialization

The Chairman – BoS presented the program elective courses offered under VTR UGE -2021 regulations for B.Tech. Mechanical engineering with Energy Management Specialization.

COURSE CODE	HYDROGEN AND FUEL CELL	L	T	P	C
		3	0	0	3

Course Content

UNIT I – HYDROGEN – BASICS AND PRODUCTION TECHNIQUES

Hydrogen – physical and chemical properties, salient characteristics. Production of hydrogen – steam reforming – water electrolysis – gasification and woody biomass conversion – biological hydrogen production – photo dissociation – direct thermal or catalytic splitting of water, Photoelectrochemical (PEC), Photobiological.

UNIT II – HYDROGEN STORAGE AND APPLICATIONS

Hydrogen storage options – compressed gas – liquid hydrogen – Hydride – chemical Storage – comparisons. Safety and management of hydrogen. Applications of Hydrogen, Bottling of hydrogen.

UNIT III – FUEL CELLS

History – principle - working - thermodynamics and kinetics of fuel cell process – performance evaluation of fuel cell – comparison on battery Vs fuel cell.

UNIT IV – FUEL CELL – TYPES

Types of fuel cells – AFC, PAFC, SOFC, MCFC, DMFC, PEMFC – relative merits and demerits. Membrane and its types

UNIT V – APPLICATION OF FUEL CELL AND ECONOMICS

Fuel cell usage for domestic power systems, large scale power generation, Automobile, Space. Economic and environmental analysis on usage of Hydrogen and Fuel cell. Future trends in fuel cells.

Text Books

1. Barclay F.J., Fuel Cells, Engines and Hydrogen, Wiley, 2009.
2. Rebecca L. and Busby, Hydrogen and Fuel Cells: A Comprehensive Guide, Penn Well Corporation, Oklahoma, 2005.

3. Bent Sorensen (Sørensen), Hydrogen and Fuel Cells: Emerging Technologies and Applications, Elsevier, UK (2005)

References

1. Hart A.B. and G.J.Womack, Fuel Cells: Theory and Application, Prentice Hall, New York Ltd., London 1989.
2. Jeremy Rifkin, The Hydrogen Economy, Penguin Group, USA 2002.
3. Kordesch K. and G.Simader, Fuel Cell and Their Applications, Wiley-Vch, Germany 1996.
4. Viswanathan B. and Aulice Scibioh.M, Fuel Cells – Principles and Applications, Universities Press, 2006.

COURSE CODE	ELECTRIC VEHICLE MANAGEMENT	L	T	P	C
		3	0	0	3

Course Content

UNIT I – INTRODUCTION TO ELECTRIC VEHICLES

EV verses gasoline vehicles, vehicle dynamics fundamentals, e-drivetrain, Electric motor, Power electronic in electric vehicles, Regenerative braking. Batteries-Working principle of battery, primary and secondary (flow) batteries, battery performance evaluation methods, major battery chemistries and their voltages- Li-ion battery& Metal hydride battery vs lead-acid battery.

UNIT II – BATTERY THERMAL MANAGEMENT SYSTEM

Battery design for transportation, Mechanical Design and Packaging of Battery Packs for Electric Vehicles, Advanced Battery-Assisted Quick Charger for Electric Vehicles, Charging Optimization Methods for Lithium-Ion Batteries, Thermal run-away for battery systems, and Thermal management of battery systems, State of Charge and State of Health Estimation over the Battery Lifespan, Recycling of Batteries from Electric Vehicles.

UNIT III – CHARGING TECHNOLOGY OF EVS

AC charging - Type 1,2,3, DC charging, Fast charging and its limitations, Smart charging and applications, Vehicle to X(V2X), X2V technology. Storage technologies for EV, Battery working principles, Battery losses, Li-ion batteries, Battery pack and battery management system.

UNIT IV – VEHICLE DYNAMICS

Introduction and tractive effort, Vehicle Dynamics and dynamic equation Vehicle movement, Rolling Resistance, Aerodynamic Drag, Grading Resistance, Maximum tractive effort, Vehicle performance, Maximum speed, Grade ability, slip ratio, Calculation of normal tire forces, calculation of effective tyre radius, static forces, longitudinal forces cornering forces, Interaction between longitudinal and side forces.

UNIT V – FUTURE TRENDS IN E-VEHICLES AND E-MOBILITY

Wireless charging of EV, On-road charging of EV, Battery swap technology, Solar powered EVs, Charging EVs from renewables. Electrification challenges, business, connected mobility and autonomous mobility case study in Indian Roadmap Perspective, Policy- EVs in infrastructure system, integration of EVs in smart grid, social dimensions of EVs.

Text Books

1. Iqbal Hussain, “Electric & Hybrid Vehicles – Design Fundamentals”, Second Edition, CRC Press, 2011.
2. James Larminie, “Electric Vehicle Technology Explained”, John Wiley & Sons, 2003.

3. Mehrdad Ehsani, Yimin Gao, Ali Emadi, “Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals”, CRC Press, 2010.
4. Frank S. Barnes and Jonah G. Levine, Large Energy Storage Systems Handbook (Mechanical and Aerospace Engineering Series), CRC press (2011)
5. Ralph Zito, Energy storage: A new approach, Wiley (2010)

References

1. Sheldon S. Williamson, Energy Management Strategies for Electric and Plug-in Hybrid Electric Vehicles, Springer, 2013.
2. Sandeep Dhameja, “Electric Vehicle Battery Systems”, Newnes, 2000 .http://nptel.ac.in/courses/108103009/
3. Tariq Muneer and Irene Illescas García, “The automobile, In Electric Vehicles: Prospects and Challenges”, Elsevier, 2017.

COURSE CODE	REFRIGERATION AND AIR CONDITIONING	L	T	P	C
		3	0	0	3

Course Content

UNIT I – REFRIGERATION SYSTEM & TYPES

Concepts of Thermodynamics & Heat Transfer- Review, Refrigeration- Definition & Need, Types of Refrigeration System- Vapour compression, Aircraft refrigeration, Steam jet refrigeration and Vapour absorption, Cycle analysis and Performance calculations.

UNIT II – COMPONENTS OF REFRIGERATION SYSTEM & REFRIGERANTS

Essential Components of Theoretical Refrigeration System, Compressors – Types, Selection Criteria, Condensers - Types, Selection Criteria, Evaporators- Types, Selection Criteria, Expansion Valve- Types, Selection Criteria. Refrigerants–Nomenclature, Groups - Desired Thermal, Chemical & Physical Properties – Selection of refrigerants based on property. Impact of refrigerants on Environment- ODP & GWP.

UNIT III – PSYCHROMETRY

Fundamental properties of psychrometry – Use of psychometric relations & psychrometric chart – Psychrometric processes – Grand and Room Sensible Heat Factors – By pass factor.

UNIT IV – COOLING LOAD ESTIMATION

Heat transmission through & inside building- Solar radiation, Infiltration, Internal heat sources (sensible and latent), Outside air and fresh air load. Estimation of total load, Effective Temperature- Concept & Governing Factors, Comfort Chart.

UNIT V – AIR CONDITIONING SYSTEM- CONCEPT & DESIGN

Air conditioning system – Concept, Need, Types & Applications, Requirements of comfort air conditioning. Duct design – Air distribution system, recommended design conditions and Ventilation standards.

Text Books

1. Arora, S. C. and Domkundwar, S., A course in Refrigeration and Air conditioning, Dhanpat Rai (P) Ltd., New Delhi, 2018
2. Khurmi R.S., and Gupta, J. K., A text book of Refrigeration and Air Conditioning, Eurasia Publishing housing (P) Ltd, New Delhi, 2006. 9.
3. Ashrae Hand Book', 4 Vol., Carrier Air Conditioning Co., 'Hand Book of Air Conditioning', Prentice Hall of India, 2021

References

1. Manohar Prasad, Refrigeration and Air conditioning, New Age International (P) Ltd, New Delhi, 3rd Edition (2021).

COURSE CODE	HEATING VENTILATION AND AIR CONDITIONING SYSTEM	L	T	P	C
		3	0	0	3

Course Content

UNIT I – PSYCHROMETRICS OF AIR CONDITIONING PROCESSES

Properties of Moist Air, Psychrometric Chart and processes - Air Washer - Summer and winter Air conditioning processes – Psychrometric Analysis, Evaporative Cooling.

UNIT II – AIR CONDITIONING LOAD ESTIMATION

Sources of heat load – Influence of Geographic location, orientation, Building envelopes – Procedures for estimating heat loads for Summer and Winter Air conditioning – Different Applications.

UNIT III – AIR CONDITIONING SYSTEMS

Packaged Air conditioning systems, Centralized Air conditioning systems, VAV systems, Under floor distribution systems, Radiant cooling systems, Hydronic systems, Air handling systems.

UNIT IV – AIR DISTRIBUTION

Flow through Ducts, Static and Dynamic Losses, Diffusers, Duct Design – Equal Friction Method and Static Regain Method, Duct Balancing. Selection of Fans, Operational Characteristics - Fan Coil units.

UNIT V – MAC SYSTEMS AND CONTROLS

Automotive A/c System layout, Components and Safety devices – Start - Stop systems, Refrigerants and oils, Influence of Suction line heat exchangers, Control of temperature, humidity and air flow, MAC for Electric Vehicles.

Text Books

1. Billy C. Langley., Fundamentals of Air Conditioning Systems, The Fairmont Press, Inc., 2000.
2. Carrier Air Conditioning Co., Handbook of Air Conditioning Systems design, McGraw Hill, 1985.
3. Jones, Air Conditioning Engineering, Edward Amold pub. 2001.

References

1. Arora C.P., Refrigeration and Air Conditioning, Tata McGraw Hill Pub. Company, 2010.
2. ALI VEDAVARZ, SUNIL KUMAR, Mohammed Iqbal, Hussain Handbook of Heating, Ventilation and Air conditioning for Design Implementation, Industrial press Inc,2007.
3. ASHRAE , Fundamentals and equipment , 4 volumes-ASHRAE Inc. 2005.

COURSE CODE	HVAC PUMPING SYSTEM	L	T	P	C
		3	0	0	3

Course Content

UNIT I – ENERGY LOSSES IN PIPES 9

Flow through pipes, Reynolds number, major losses-Darcy Weisbach equation, minor losses, Moody's chart and its applications, Williams-Hazen Formula - energy and hydraulic gradients.

UNIT II – PUMPS ` 9

Pump terminologies, classification of pumps, losses in pumps, power consumption, specific speed, construction of pumps - Pump characteristics of radial, mixed, and axial flow pumps, iso efficiency curve - affinity law, series and parallel pump characteristics

UNIT III – PUMPING SYSTEM& DRIVES 9

System curve, static head, dynamic head calculation, straight pipe equivalent length, pump selection, operating point - cavitation in pumps, NPSH, and installation of pumps – pump drivers, variable speed drives

UNIT IV – TESTING OF PUMPS 9

Pump testing – classification of tests, Hydrostatic test, performance test, NPSH test, priming time test, measurement of characteristics quantities, test rig for rotodynamic pumps, acceptance test, test report - measurement error

UNIT V – HVAC SYSTEM 9

PID Symbols - HVAC cooling systems – hot water systems – open cooling tower pumps – pumping open thermal storage tanks, chiller pumps – condensate pumps – Trouble shooting – Energy conservation techniques –

Total: 45 Periods

Text Books

1. James B. Rishel, HVAC Pump Handbook, McGraw-Hill Companies, 2006.
2. ASHRAE handbook, 2016.
3. Karassik, I. *Centrifugal Pump Clinic*. 2nd Ed., New York, CRC Press, 2017.
4. Guelich, J.F. *Centrifugal Pumps*, Springer Verlag, New York, 2014.

References

1. Srinivasan, K. M., Centrifugal Pumps, 1st Edition, New Age International (P) Ltd Publishers, 2016.
2. IS 9137:1978 (Reaffirmed 2002) Code for Acceptance Test for Centrifugal, Mixed Flow and Axial Pumps – Class C.
3. Stepanoff, A.J. *Centrifugal and Axial Flow Pumps.* 2nd Ed., John Wiley, New York, 1991.

COURSE CODE	PUMPING SYSTEM LABORATORY	L	T	P	C

1. Experimental performance prediction of parallel pumps
2. Experimental performance prediction of series pumps
3. Flow analysis through pipes, pipe fittings using commercial CFD tools
4. Water supply system studies through MATLAB Simulink
5. Pump with pressure reduction valve with loads studies through MATLAB Simulink
6. Vehicle HVAC system studies using MATLAB Simulink

Website Link:

- Pumping - MATLAB & Simulink - MathWorks India
- https://in.mathworks.com/help/hydro/pumping-category.html
- Water Supply System - MATLAB & Simulink - MathWorks India
- Pump with Pressure-Reducing Valve and Two Loads - MATLAB & Simulink - MathWorks India
- Vehicle HVAC System - MATLAB & Simulink - MathWorks India

COURSE CODE	EV MANAGEMENT LABORATORY	L	T	P	C

1. Vector control of PMSM and IM drives over complete drive cycle of EV Objective: - To familiarize with the basic vector control of PMSM and IM drive with speed/torque control operation. Two-level DC-AC voltage source converter, fed from a DC power source, would be used for operating the motor.

2. Characterization of power, torque and efficiency for EV over drive cycle Objective: - Chassis of 4-wheeller EV would be operated in all possible modes for this experiment. Power, torque and efficiency would be plotted against speed of EV over the complete range of operation.

3. Power flow in EV power train during charging, V2G feeding, motoring and braking Objective: - To understand the flow of energy in the power train of EV during various modes of operation i.e. charging, V2G feeding, motoring and braking. EV would be operated in the aforementioned modes and power would be measured at different sections of EV.

4. Forward & backward motoring and regenerative braking of EV consisting of multiple motordrives Objective: - EV must be capable of operating in all four quadrants viz. forward motoring, forward braking, reverse motoring and reverse braking. This experiment would consider operation of EV in all four quadrants with necessary PWM and control techniques.

5. Synchronized PWM techniques for high-power and high-speed IM drives Objective: - Special PWM techniques would be implemented on IM drive in context with the high-power and/or high-speed applications. Field weakening would be demonstrated on the experimental setup.

COURSE CODE	REFRIGERATION AND AIR CONDITIONING LABORATORY	L	T	P	C

1. Find the COP of given refrigeration experimental testing
2. Find the COP of given Air - Conditioner experimental testing

Discussion: External member Dr. Om Kumar noted that some topics in the courses 'Refrigeration and Air Conditioning' and 'Heating Ventilation and Air Conditioning System' are repeated. The members recommended reframing the syllabus for one of the courses and also suggested arranging industrial visits relevant to HVAC.

Action: The Chairman-BoS agreed to reframe the syllabus. Members accepted and recommended.

ITEMS FOR DISCUSSION AND RATIFICATION

38 BoS 07 Minor Revision in the syllabus of Courses offered under VTR UGE -2021 Regulations.

The Chairman presented the updated syllabus for the Winter Semester of the Academic Year 2023-24, responding to feedback from faculty members on the courses they handle under the VTR UGE-2021 regulations. This presentation marked the initiation of a comprehensive discussion within the Board of Studies (BoS) regarding the necessary modifications to the course syllabi.

During this session, the Chairman took the opportunity to acquaint the new external experts with the department's vision, mission, Program Outcomes (PO), Program Educational Objectives (PEO), and Program Specific Outcomes (PSO). This ensured that the external experts gained a comprehensive understanding of the department's overarching goals.

Additionally, the Chairman elaborated on the credit distribution across various categories of courses, providing insights into how credits are strategically allocated to meet the specified learning objectives. This holistic overview facilitated a better understanding among the members regarding the strategic alignment of credit distribution in each category of courses to achieve the educational objectives of the department.

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

UNDER GRADUATE - ENGINEERING PROGRAMMES

S.NO	PROGRAMME	Department	AICTE - Approved Intake for 23-24 (Domestic + Supernumerary)	Admitted Count 23-24 (Domestic + Supernumerary)	Proposed Intake for the AY 24-25 (Domestic + Supernumerary)
1	B.TECH	AERONAUTICAL ENGINEERING	60+9 = 69	60+3 = 63	60+9 = 69
2	B.TECH	ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE	60+9 = 69	60+9 = 69	60+9 = 69
3	B.TECH	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	60+9 = 69	60+8 = 68	60+9 = 69
4	B.TECH	BIOMEDICAL ENGINEERING	60+9 = 69	56+2 = 58	60+9 = 69
5	B.TECH	BIOTECHNOLOGY	60+9 = 69	60+6 = 66	60+9 = 69
6	B.TECH	CIVIL ENGINEERING	60+9 = 69	9+1 = 10	30+5 = 35
7	B.TECH	COMPUTER SCIENCE AND ENGINEERING	1104+166 = 1270	1104+159 = 1263	1320+198=1518
8	B.TECH	COMPUTER SCIENCE AND DESIGN	60+9 = 69	60+8 = 68	60+9 = 69
9	B.TECH	COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)	60+9 = 69	60+9 = 69	60+9 = 69
10	B.TECH	COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)	60+9 = 69	60+9 = 69	60+9 = 69
11	B.TECH	COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)	60+9 = 69	60+8 = 68	60+9 = 69
12	B.TECH	ELECTRICAL AND ELECTRONICS ENGINEERING	60+9 = 69	51+7 = 58	60+9 = 69
13	B.TECH	ELECTRONICS & COMMUNICATION ENGINEERING	480+72 = 552	480+71 = 551	480+72=552
14	B.TECH	INFORMATION TECHNOLOGY	60+9 = 69	60+8 = 68	60+9 = 69
15	B.TECH	MECHANICAL ENGINEERING	60+9 = 69	48+1 = 49	60+9 = 69
	TOTAL		**2719**	**2597**	**2933**

POST GRADUATE - PROGRAMMES

S.NO	PROGRAMME	Specialization	AICTE - Approved Intake for 23-24 (Domestic + Supernumerary)	Admitted Count 23-24 (Domestic + Supernumerary)	Proposed Intake for the AY 24-25 (Domestic + Supernumerary)
1	M.TECH	AERONAUTICAL ENGINEERING(Unmanned Aerial Vehicles)	18	4	12
2	M.TECH	BIG DATA ANALYTICS	18	11	12
3	M.TECH	BIO TECHNOLOGY	18	8	12
4	M.TECH	COMPUTER SCIENCE AND ENGINEERING	18	8	12
5	M.TECH	EMBEDDED SYSTEMS AND TECHNOLOGIES	18	4	12
6	M.TECH	ENVIRONMENTAL ENGINEERING	18	13	18
7	M.TECH	INDUSTRIAL SAFETY AND ENGINEERING	18+3=21	18+3=21	36+5=41
8	M.TECH	INFORMATION AND CYBER SECURITY	18	9	12
9	M.TECH	METALLURGICAL AND MATERIAL SCIENCE ENGINEERING	18	18	18
10	M.TECH	NETWORK ENGINEERING	18	0	Sought for Closure from 2024-25 *
11	M.TECH	POWER ELECTRONICS	18	4	12
12	M.TECH	STRUCTURAL ENGINEERING	18	18	18
13	M.B.A	MASTER OF BUSINESS ADMINISTRATION	120+18=138	120+18=138	120+18=138
		TOTAL	**357**	**256**	**318**

UG & PG - LAW, ARTS & SCIENCE PROGRAMMES

S.NO	PROGRAMME	Specialization	AICTE - Approved Intake for 23-24 (Domestic + Supernumerary)	Admitted Count 23-24 (Domestic + Supernumerary)	Proposed Intake for the AY 24-25 (Domestic + Supernumerary)
1	B.COM	-	300	297	300
2	B.B.A	-	60	60	60
3	B.SC	Visual Communication	30	24	30
4	B.SC	Multimedia	30	15	30
5	B.A.L.L.B (Hons.)	-	120	119	120
6	B.Com. L.L.B (Hons.)	-	120	120	120
PG - ARTS & SCIENCE PROGRAMMES					
7	M.A.,	English	30	18	30
8	M.Sc.,	Mathematics	30	6	30
9	M.Sc.,	Physics	30	8	30
10	M.Sc.,	Chemistry	30	30	30
11	M.Sc.,	Data Analytics	30	30	30
	Total		**810**	**727**	**810**

Centre for Academic Research

Statistics of Ph.D. National Admission Winter Session 2023-24 (Batch 44)

S.No.	DEPARTMENT	Application	Mode of Study			Entrance Exam					Interview		Provisionally Admitted				Yet to be reported
											Selected for Interview			Mode of Study			
		Applied	Full Time	Part Time	Total	Exemption from Entrance Exam	Full Time	Part Time	Eligible for Entrance Exam	Attended for Exam	Through Entrance Exam	Exemption from Entrance Exam	Total	Full Time	Part Time Internal	Part Time External	
Engineering																	
1	**AERO**	5	4	1	5	0	0	0	5	5	4	0	1	1	0	0	3
2	**BIOMEDICAL**	9	0	9	9	1	0	1	8	7	7	1	7	0	1	6	1
3	**BIOTECH**	17	16	1	17	4	4	0	13	9	7	4	7	7	0	0	0
4	**CIVIL**	14	6	8	14	0	0	0	14	12	10	0	5	1	0	4	1
5	**CSE**	34	6	28	34	1	1	0	33	19	9	1	8	1	0	7	1
6	**IT**	3	2	1	3	0	0	0	3	2	2	0	0	0	0	0	0
7	**ECE**	16	8	8	16	0	0	0	16	10	5	0	4	1	0	3	0
8	**EEE**	7	0	7	7	0	0	0	7	3	2	0	1	0	0	1	1
9	**MECH**	16	3	13	16	0	0	0	16	9	7	0	6	0	0	6	0
TOTAL		**121**	**45**	**76**	**121**	**6**	**5**	**1**	**115**	**76**	**53**	**6**	**39**	**11**	**1**	**27**	**7**
S&H																	
10	**ENGLISH**	19	9	10	19	7	2	5	12	11	10	7	7	2	0	5	0
11	**MATHS**	20	9	11	20	10	5	5	10	7	3	10	8	3	0	5	0
12	**CHEMISTRY**	7	4	3	7	2	0	2	5	3	3	2	3	1	0	2	0
13	**PHYSICS**	7	4	3	7	0	0	0	7	5	4	0	2	0	0	2	0
TOTAL		**53**	**26**	**27**	**53**	**19**	**7**	**12**	**34**	**26**	**20**	**19**	**20**	**6**	**0**	**14**	0
LAW &MBA																	
14	**LAW**	20	1	19	20	0	0	0	20	19	18	0	7	0	6	1	0
15	**MBA**	15	4	11	15	0	0	0	15	11	9	0	3	1	0	2	4
TOTAL		**35**	**5**	**30**	**35**	**0**	0	0	**35**	**30**	**27**	**0**	**10**	**1**	**6**	**3**	4
OVER ALL TOTAL		**209**	**76**	**133**	**209**	**25**	**12**	**13**	**184**	**132**	**100**	**25**	**69**	**18**	**7**	**44**	**11**

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

Ph.D. Awarded List - ACM - FEBRUARY 2024 (Since last ACM dated 23.09.2023)

S.No	Reg.No	Name	Dept	Circular Date	Viva-voce Date	Supervisor Name	Title
1	17RECS1010	Praveen Kumar Yechuri	CSE	05.09.2023	23.09.2023	Dr. Suguna	Analyzing Retail Environments with Sentiment Reviews using Deep Learning Models
2	17REAU1001	P.B. Senthil Kumar	AUTO	22.09.2023	14.10.2023	Dr. Amala Justus	Assessment of CI Engine Characteristics Operated by Nanoadditive Biodiesel Blend with Various EGR Ratio
3	17RECS1037	Rupali Amit Bagate	CSE	30.09.2023	16.10.2023	Dr. R. Suguna	An Improved Ensemble Approach for Sarcasm Detection and Classification in Textual Data
4	16RECS1005	Priyadarshini R	CSE	09.10.2023	25.10.2023	Dr. N. Malarvizhi	A Hybrid Approach to Bi-directional Trust Management in Fog Computing
5	12RECS1012	Sujatha J	CSE	05.10.2023	27.10.2023	Dr M Gokuldhev	Empirical Technique for Agricultural Crop Yield Prediction using MapReduce and Hadoop
6	17RECS1024	G. Chandra Sekhar	CSE	12.10.2023	30.10.2023	Dr. R. Aruna	Building Secure Infrastructure for IoT Application using BlockChain Technology
7	18RECS1004	Antony Kumar K	CSE	12.10.2023	30.10.2023	Dr. R. Aruna	Diagnosis of Rheumatic Heart Disease using Multi-Layered Acoustic Neural Networks on Heart Sound Signal
8	19REBT1002	R. Sai Nandhini	BIOTECH	16.10.2023	30.10.2023	Dr. Mugesh S	Development and Validation of Strategies to Enhance 3-Hydroxypropionic Acid from Glycerol using Metabolically Engineered Organisms
9	20REAE1001	Ganesan V G	AERO	11.10.2023	31.10.2023	Dr. R. Naren Shankar	Effect of Increasing Bypass Ratio on Co-Flow Jet with Critical LIP Thickness

10	19RECS1024	P. Rajesh	CSE	13.10.2023	31.10.2023	Dr. V. Dhilip Kumar	A Study on Precise Human Behaviour Analysis using Binary Sensor Data and Deep Learning
11	18RECS1009	Lakshmi Anusha Kothamasu	CSE	14.10.2023	31.10.2023	Dr. E. Kannan	Modified Optimization Algorithms in Sentiment Analysis using Machine Learning Classifiers
12	16RECS1002	Kishore Kumar	CSE	17.10.2023	31.10.2023	Dr. E. Kannan	Detection of Rice Plant Leaf Disease using Ensemble Learning Classification Model
13	17REEE1013	Syed Abdul Razzaq	EEE	13.10.2023	01.11.2023	Dr S Sivakumar	An Ameliorate Power Control Strategy for Hybrid Micro Grid Interlinking Converter
14	16REEC1003	Farithkhan A	ECE	17.10.2023	01.11.2023	Dr. E D Kanmani Ruby	Performance Analysis of QoS Enhanced Energy Efficient Routing Protocols for Inter-cluster Communications in Flying Ad-Hoc Networks
15	18REME1008	Belgin Paul D L	MECH	19.10.2023	02.11.2023	Dr. Praveen A S	Direct Ink Writing of Tri-Calcium Phosphate Scaffolds for Biomedical Applications: Process Parameter Optimization and Evaluation
16	13REEC1001	Ambika Bhuvaneswari C	ECE	14.12.2023	04.01.2024	Dr. E.D. Kanmani Ruby	Design and Development of QoS Enhanced Energy Efficient Secured Dynamic Optimal Routing Protocol for Heterogeneous Wireless Sensor Networks
17	18REEC1006	Ezilarasan M R	ECE	12.12.2023	08.01.2023	Dr. J. Britto Pari	An Efficient FPGA Architectures for Blind Source Separation
18	20RHEG1010	M . Caleb Theodar	ENGLISH	21.12.2023	27.01.2024	Dr. Bindu	Adapting words into Visuals: Approaching DAN Brown's Select Novels
19	19RECS1005	Vivek Justus	CSE	11.01.2024	29.01.2024	Dr. G.R. Kanagachidambaresan	An Efficient Smart System Architecture for Prognostics in Industry 4.0 using Internet of Things
20	19RECS1012	Saiyed Faiayaz Waris	CSE	13.01.2024	01.02.2024	Dr. Arun.M	Disease Prediction by using Improved KNN Classifier and combined CNN and KCC Classification Techniques
21	19REME1010	Rajesh D	MECH	18.01.2024	05.02.2024	Dr. Lenin N	Experimental Investigation on Flax and Ramie Fiber Reinforced Hybrid Polymer Composites