



## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date: 28.06.2022

### Minutes of Board of Studies Meeting


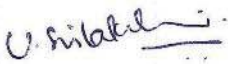



Board of Studies (BoS) meeting of B.Tech.,CSE – Data Science programme was conducted on 28.06.2022 in blended mode from 11.30AM to 01.00PM. (Physical meeting : CSE Conference Hall, Third floor, JC Bose Block, VFSTR and virtual meeting link : <https://us02web.zoom.us/j/6400485257?pwd=jN9EMqLRUorw6gcZ3T5gmA-QP1BvNQ>)

#### Agenda of the BoS Meeting:

1. Discussions and approval of R22 B.Tech. CSE – Data Science Program Structure.
2. Discussion on revision of R22 B.Tech. CSE – Data Science course contents.
3. Any other point with the permission of Chair.

The following members were present either thorough offline or online.

S.No.	Name and designation of the Member	Position	Signature
1	Dr. Venkatesulu Dondeti Professor & Head, Department of CSE, VFSTR Deemed to be University	Chair Person	
2	Prof. R.V.B.Subramanyam Professor Department of CSE, NIT Warangal	External Member (Academic)	Attended online
3	Prof. C.R.Rao Professor SCIS, University of Hyderabad	External Member (Academic)	Attended online
4	Dr.B.VenkataRamana Assoc. Professor & HoD Department of CSE, IIT Tirupathi	External Member (Academic)	Attended online
5	Dr. NageshBhattuSristy Asst. Professor Department of CSE, NIT AP	External Member (Academic)	Attended online.
6	Dr. Nirupama Bhat Professor, Department of CSE, VFSTR Deemed to be University	Internal Member	
7	Dr. S V Phani Kumar Assoc. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member	

8	Dr. Mainak Biswas Assoc. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member	
9	Dr. U. Srilakshmi Asst. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member	
10	Mrs. B. Jyostna Devi Asst. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member	
11	Dr. D. Radha Rani Asst. Professor, Department of CSE, VFSTR Deemed to be University	Invited Member (Nominee – Dean R&D)	
12	Mr. V Ramakrishna Sajja Asst. Professor, Department of CSE, VFSTR Deemed to be University	Secretary (Ex-officio)	

The following members have taken leave of absence:

S.No.	Name and designation of the Member	Position
1	Dr.V. Radha Assoc. Professor IDRBT, Hyderabad	External Member (Academic)
2	Dr.M.Dinesh Research Scientist Philips, Bangalore	External Member (Industry)

Chairperson Dr. Venkatesulu Dondeti, Professor and Head, department of CSE, VFSTR opened the meeting by welcoming and introducing the external members, invitees to the internal members. Chairperson presented about the *NEP 2020 Compliant Regulation - R22* which emphasis on creating *learning centric* (continuous learning and continuous assessment model), offering B.Tech., B.Tech. with Honours/ Research Honours/ Minor/ Add-on Diploma, *Dual degree* (B.Tech. + M.Tech./MBA, or M.Tech. + Ph.D.), providing multiple entry and multiple exits.

**The following points were discussed in the BoS meeting:**

1. Regulation R22.
2. Curriculum structure with credits, credits distribution.
3. 2 Modules instead of 5 units.
4. Assessment methods (Formative & Summative).
5. Grading Schemes.
6. Electives and streams/pools.
7. Minor / Honor courses.

**The following resolutions made after the discussion:**

1. Mrs. B. Jyostna Devi has initiated the presentation on R22 CSE – DS Curriculum. All the BoS members have approved the curriculum.
2. Dr. C. R. Rao has suggested to include Introduction to data Science as one unit in the course “Data Handling & Visualization” to get more idea about various data. Also suggested to include paradigm of data science in the same course.  
Committee accepted the comment, and it has been considered.
3. Dr. C. R. Rao Sir has suggested to include “R Programming” in electives as industry is more insisting “R Programming”. He has also suggested to include courses such as “Evolutionary Algorithms” and “Soft Computing” under electives as those are more specialization specific courses. He also advised to ensure the inclusion of topics such as “Stochastic gradient descent” and “Genetic Programming”.  
Committee accepted the comment, “Evolutionary Algorithms” and “Soft Computing” courses are included under electives. R Programming will be offered as modular/ MooC course. “Stochastic gradient descent” algorithms are thoroughly covered in “Deep Learning” course and “Genetic Programming” is covered in “Nature Inspired Computing.”
4. Dr. C. R. Rao sir suggested to offer courses such as “Kernel methods “or “Rough sets”  
Committee accepted the comment, “Kernel Methods and Pattern Analysis” course has been included under electives.
5. Dr. C. R. Rao has suggested to conduct few FDPs on DataScience to enrich the faculty members.  
Committee accepted the comment, and it has been considered.
6. Dr. C. R. Rao has suggested to keep “Knowledge Representation Reasoning” in electives course as it is more relevant to specialization.  
Committee accepted the comment, and it has been considered.
7. BoS Members approved the revised regulations, curriculum structure, syllabus of B.Tech., CSE – Data Science programmes and it follows based on the NEP 2020. Curriculum structure is provided in Appendix-I.
8. Major restructuring has taken place in the curriculum which is oriented towards continuous learning and assessment based on Module structure.
9. Major reformation has taken place in the curriculum by offering Honours/Specialization degree or Minor degree thorough 20 more credits with additional courses.

10. The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development, provided in Appendix- II.
11. The significant changes are made in the content of all courses and hence the courses are considered as new courses provided in Appendix- III.
12. This programme has been introduced from the academic year 2022-23, hence the syllabus curriculum

Based on the suggestions given by the members, the Chairperson of BoS told that, those fruitful suggestions would be incorporated appropriately in the curriculum and syllabi of the regulation R22 and this will be recommended to the Academic Council of VFSTR for the approval.

There being no further points for discussion, the Chairperson thanks all the external, internal, invited members and announced that the meeting was adjourned.

  
Member Secretary

  
Chairperson



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### APPENDIX I

#### CSE-Data Science Programme: Curriculum Structure

##### I Year I Semester

Sl. No.	Course Title	L	T	P	C	Course Category
1	Linear Algebra and Ordinary Differential Equations	3	2	0	4	Basic Sciences
2	Semiconductor Physics and Electromagnetics	2	0	2	3	Basic Sciences
3	Basics of Electrical and Electronics Engineering	2	0	2	3	Basic Engineering
4	IT Workshop and Tools	0	2	4	3	Basic Engineering
5	Programming in C	2	0	4	4	Basic Engineering
6	English Proficiency and Communication Skills	0	0	2	1	Humanities
7	Physical Fitness, Sports and Games – I	0	0	3	1	Binary grade
8	Constitution of India	0	2	0	1	Binary grade
	<b>Total</b>	<b>9</b>	<b>6</b>	<b>17</b>	<b>20</b>	
	<b>Total</b>		<b>32</b>		<b>20</b>	

##### I Year II Semester

Sl. No.	Course Title	L	T	P	C	Course Category
1	Advanced Engineering Mathematics	3	2	0	4	Basic Sciences
2	Discrete Mathematical Structures	2	2	0	3	Basic science
3	Engineering Graphics	2	0	2	3	Basic Engineering
4	Basic Coding Competency	0	1	3	2	Basic Engineering
5	Technical English Communication	2	0	2	3	Humanities
6	Python Programming	2	0	2	3	Professional core
7	Physical Fitness, Sports and Games – II	0	0	3	1	Binary grade
8	Orientation Session	0	0	6	3	Binary grade
	<b>Total</b>	<b>11</b>	<b>5</b>	<b>18</b>	<b>22</b>	
	<b>Total</b>		<b>34</b>		<b>22</b>	

**II Year I Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	Probability and Random Variables	3	0	2	4	Basic Sciences
2	Data Structures	2	2	2	4	Basic Engineering
3	Management Science	2	2	0	3	Humanities
4	Data Handling and Visualization	2	0	2	3	Professional core
5	Statistical Foundations of Data Science	2	0	2	3	Professional core
6	Artificial Intelligence	2	2	2	4	Professional core
7	Environmental Studies	1	1	0	1	Basic Sciences
8	Life Skills - I	0	0	2	1	Binary grade
9	NCC/ NSS/ SAC/ E-cell/ Student Mentoring/ Social activities/ Publication	0	0	0	1	Binary grade
	<b>Total</b>	<b>14</b>	<b>7</b>	<b>12</b>	<b>24</b>	
	<b>Total</b>		<b>33</b>		<b>24</b>	

**II Year II Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	Advanced Coding Competency	0	0	2	1	Basic Engineering
2	Professional Communication	0	0	2	1	Humanities
3	Software Engineering	2	2	0	3	Professional core
4	Database Management Systems	2	2	2	4	Professional core
5	Object Oriented Programming through JAVA	2	0	4	4	Professional core
6	Machine Learning	3	0	2	4	Professional core
7	Life Skills - II	0	0	2	1	Binary grade
8	Open Elective – 1	3	0	0	3	Open Elective
	<b>Total</b>	<b>12</b>	<b>4</b>	<b>14</b>	<b>21</b>	
9	Minor / Honours – 1	<b>3</b>	<b>0</b>	<b>2</b>	<b>4</b>	
	<b>Total</b>	<b>15</b>	<b>4</b>	<b>16</b>	<b>25</b>	
	<b>Total</b>		<b>35</b>		<b>25</b>	

**III Year I Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	Soft Skills Laboratory	0	0	2	1	Humanities
2	Design and Analysis of Algorithms	2	2	2	4	Professional core
3	Web Technologies	2	0	4	4	Professional core
4	Introduction to Data Analytics	2	0	2	3	Professional core
5	Inter-Disciplinary Project – Phase I	0	0	2	0	Project
6	Industry Interface Course	1	0	0	1	Binary Grades
7	Department Elective – 1	3	0	2	4	Department Elective
8	Open Elective – 2	3	0	0	3	Open Elective
9	NCC/ NSS/ SAC/ E-cell/ Student Mentoring/ Social activities/ Publication	0	0	0	1	Binary grade
	<b>Total</b>	<b>13</b>	<b>2</b>	<b>14</b>	<b>21</b>	
10	Minor / Honours – 2	3	0	2	4	
	<b>Total</b>	<b>16</b>	<b>2</b>	<b>16</b>	<b>25</b>	
	<b>Total</b>	<b>34</b>			<b>25</b>	

**III Year II Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	Quantitative Aptitude and Logical Reasoning	1	2	0	2	Humanities
2	Digital Logic and Computer Organization	2	2	0	3	Professional core
3	Computer Networks	3	0	2	4	Professional core
4	Operating Systems	2	0	2	3	Professional core
5	Inter-Disciplinary Project – Phase II	0	0	2	2	Project
6	Department Elective – 2	3	0	2	4	Department Elective
7	Open Elective – 3	3	0	0	3	Open Elective
	<b>Total</b>	<b>14</b>	<b>4</b>	<b>8</b>	<b>21</b>	
8	Minor / Honours – 3	3	0	2	4	
	<b>Total</b>	<b>17</b>	<b>4</b>	<b>10</b>	<b>25</b>	
	<b>Total</b>	<b>31</b>			<b>25</b>	

**IV Year I Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	IoT and Cloud Analytics	3	0	2	4	Professional core
2	Text Analytics and Natural Language Processing	3	0	2	4	Professional core
3	Big Data Analytics	3	0	2	4	Professional core
4	Department Elective – 3	3	0	2	4	Department Elective
5	Department Elective – 4	3	0	2	4	Department Elective
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>	
6	Minor / Honours – 4	3	0	2	4	
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>12</b>	<b>24</b>	
	<b>Total</b>		<b>30</b>		<b>24</b>	

**IV Year II Semester**

Sl. No.	Course Title	L	T	P	C	Course Category
1	Project Work	0	2	22	12	Project
	<b>Total</b>	<b>0</b>	<b>2</b>	<b>22</b>	<b>12</b>	
2	Minor / Honours – 5	0	2	6	4	
	<b>Total</b>	<b>0</b>	<b>4</b>	<b>28</b>	<b>16</b>	
	<b>Total</b>		<b>32</b>		<b>16</b>	

*D. Venkatesh*



## Department Electives

Sl. No.	Course Title	L	T	P	C
1	Data Wrangling	2	0	4	4
2	Speech Processing and Analytics	3	0	2	4
3	Social, Web and Mobile Analytics	3	0	2	4
4	Time series analysis and Forecasting	3	0	2	4
5	Visual Analytics	3	0	2	4
6	Advanced Data Structures	2	2	2	4
7	Advanced JAVA Programming	2	2	2	4
8	Deep Learning	3	0	2	4
9	Mobile Application Development	2	0	4	4
10	Optimization Techniques	3	2	0	4
11	Compiler Design	3	2	0	4
12	Computer Vision	3	0	2	4
13	Data Warehousing and Data Mining	3	0	2	4
14	Evolutionary Computing	3	2	0	4
15	Nature Inspired Computing Methods	3	2	0	4
16	Soft Computing	3	2	0	4
17	Theory of Computation	3	0	2	4
18	Kernel Methods for Pattern Analysis	3	0	2	4
19	Reinforcement Learning	3	0	2	4
20	Cryptography and Network Security	3	0	2	4
21	Data Forensics	3	0	2	4

## HONOURS

Sl.No	Course Title	L	T	P	C
1	Pattern Analysis	2	2	2	4
2	Business Analytics	3	0	2	4
3	Medical Image Processing	3	0	2	4
4	Health Care Analytics	3	0	2	4
5	Finance and Security Analytics	3	0	2	4
6	Capstone Project	0	2	6	4

MINORS

Data Science Stream

Sl.No	Course Title	L	T	P	C
1	Introduction to Python Programming	3	0	2	4
2	Data Science using Python	2	2	2	4
3	Statistical Analysis and Data Visualization	2	2	2	4
4	Social, Web and Mobile Analytics	3	0	2	4
5	Big Data Analytics	3	0	2	4
6	Capstone Project	0	2	6	4

*A. Venkatesh*  
Chairperson



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### APPENDIX II

#### List of Courses that Enables Employability /Entrepreneurship / Skill Development

S. No.	Year and Semester	Course Title	Employability / Entrepreneurship / Skill development
1.	I Year I Semester	IT Workshop & Tools	Skill development
2.	I Year I Semester	Programming in C	Skill development
3.	I Year I Semester	English Proficiency and Communication Skills	Employability and Entrepreneurship
4.	I Year II Semester	Basic CodingCompetency	Skill development
5.	I Year II Semester	Technical English Communication	Employability and Entrepreneurship
6.	I Year II Semester	Python Programming	Skill development
7.	II Year I Semester	Data Structures	Skill development
8.	II Year I Semester	Data Handling and Visualization	Skill development
9.	II Year I Semester	Managerial Science	Entrepreneurship
10.	II Year I Semester	Advance CodingCompetency	Skill development
11.	II Year II Semester	Professional Communication	Employability and Entrepreneurship
12.	II Year II Semester	Object Oriented Programming through JAVA	Skill development
13.	II Year II Semester	Machine Learning	Skill development
14.	II Year II Semester	Database Management Systems	Skill development
15.	III Year I Semester	Web Technologies	Skill development
16.	III Year I Semester	Soft Skills Laboratory	Employability
17.	III Year I Semester	Design and Analysis of Algorithms	Skill development
18.	III Year I Semester	Introduction to Data Analytics	Skill development
19.	III Year I Semester	Industry interface course (Modular course)	Employability and Entrepreneurship
20.	III Year II Semester	Quantitative Aptitude and Logical Reasoning	Employability
21.	IV Year I Semester	Text Analytics and Natural Language Processing	Employability and Skill development
22.	IV Year I Semester	Big Data Analytics	Employability and Skill development
23.	IV Year I Semester	IoT and Cloud Analytics	Employability and Skill development

24.	Elective Course	Data Wrangling	Employability and Skill development
25.	Elective Course	Speech Processing and Analytics	Employability and Skill development
26.	Elective Course	Social, Web and Mobile Analytics	Employability and Skill development
27.	Elective Course	Time series analysis and Forecasting	Employability and Skill development
28.	Elective Course	Visual Analytics	Skill development
29.	Elective Course	Advanced Data Structures	Employability and Skill development
30.	Elective Course	Advanced JAVA Programming	Employability and Skill development
31.	Elective Course	Deep Learning	Employability and Skill development
32.	Elective Course	Mobile Application Development	Employability and Skill development
33.	Elective Course	Optimization Techniques	Employability and Skill development
34.	Elective Course	Compiler Design	Employability and Skill development
35.	Elective Course	Computer Vision	Employability and Skill development
36.	Elective Course	Data Warehousing and Data Mining	Employability and Skill development
37.	Elective Course	Evolutionary Computing	Employability and Skill development
38.	Elective Course	Nature Inspired Computing Methods	Employability and Skill development
39.	Elective Course	Soft Computing	Skill development
40.	Elective Course	Theory of Computation	Employability and Skill development
41.	Elective Course	Kernel Methods for Pattern Analysis	Employability and Skill development
42.	Elective Course	Reinforcement Learning	Employability and Skill development
43.	Elective Course	Cryptography and Network Security	Skill development
44.	Elective Course	Data Forensics	Skill development
45.	Honours	Pattern Analysis	Skill development
46.	Honours	Business Analytics	Employability and Skill development
47.	Honours	Medical Image Processing	Employability and Skill development
48.	Honours	Health Care Analytics	Skill development
49.	Honours	Finance and Security Analytics	Skill development

  
Chairperson



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### APPENDIX III

#### List of New Courses

S. No.	Year and Semester	Course Title
1.	I Year I Semester	IT Workshop & Tools
2.	I Year I Semester	Programming in C
3.	I Year I Semester	English Proficiency and Communication Skills
4.	I Year II Semester	Basic CodingCompetency
5.	I Year II Semester	Technical English Communication
6.	I Year II Semester	Python Programming
7.	II Year I Semester	Data Structures
8.	II Year I Semester	Data Handling and Visualization
9.	II Year I Semester	Managerial Science
10.	II Year I Semester	Advance CodingCompetency
11.	II Year II Semester	Professional Communication
12.	II Year II Semester	Object Oriented Programming through JAVA
13.	II Year II Semester	Machine Learning
14.	II Year II Semester	Database Management Systems
15.	III Year I Semester	Web Technologies
16.	III Year I Semester	Soft Skills Laboratory
17.	III Year I Semester	Design and Analysis of Algorithms
18.	III Year I Semester	Introduction to Data Analytics
19.	III Year I Semester	Industry interface course (Modular course)
20.	III Year II Semester	Quantitative Aptitude and Logical Reasoning
21.	IV Year I Semester	Text Analytics and Natural Language Processing
22.	IV Year I Semester	Big Data Analytics
23.	IV Year I Semester	IoT and Cloud Analytics
24.	Elective Course	Data Wrangling
25.	Elective Course	Speech Processing and Analytics
26.	Elective Course	Social, Web and Mobile Analytics
27.	Elective Course	Time series analysis and Forecasting
28.	Elective Course	Visual Analytics
29.	Elective Course	Advanced Data Structures
30.	Elective Course	Advanced JAVA Programming

31.	Elective Course	Deep Learning
32.	Elective Course	Mobile Application Development
33.	Elective Course	Optimization Techniques
34.	Elective Course	Compiler Design
35.	Elective Course	Computer Vision
36.	Elective Course	Data Warehousing and Data Mining
37.	Elective Course	Evolutionary Computing
38.	Elective Course	Nature Inspired Computing Methods
39.	Elective Course	Soft Computing
40.	Elective Course	Theory of Computation
41.	Elective Course	Kernel Methods for Pattern Analysis
42.	Elective Course	Reinforcement Learning
43.	Elective Course	Cryptography and Network Security
44.	Elective Course	Data Forensics
45.	Honours	Pattern Analysis
46.	Honours	Business Analytics
47.	Honours	Medical Image Processing
48.	Honours	Health Care Analytics
49.	Honours	Finance and Security Analytics

*A. Venkatesh*  
Chairperson

