

**VIGNAN'S**

Foundation for Science, Technology & Research

(Deemed to be University)

-Estd. u/s 3 of UGC Act 1956

DEPARTMENT OF ADVANCED COMPUTER SCIENCE & ENGINEERING

Date: 21-12-2023

The department of ACSE is conducting a Board of Studies (BoS) meeting to review the B. Tech CSE Data Science program curriculum on 23.12.2023 from 10:30 AM in blended mode. (Physical meeting: ACSE Department HoD room, 6th floor, Nagarjuna Block, VFSTR and virtual meeting link:

<https://us06web.zoom.us/j/83748475911?pwd=DHWFbCIygn02aMUZKk6L8YT4ltUGvP.1>

All the members of B. Tech- CSE Data Science Board of Studies are requested to make it convenient to attend the meeting.

S.No.	Name of the Member	Designation & Affiliation	Role
1	Dr. Venkatesulu Dondeti	Professor & Head, Department of ACSE, VFSTR Deemed to be University Contact: +91 98408 50744 Mail: hod_acse@vignan.ac.in	Chair Person
2	Dr. Sivadi Balakrishna	Asst. Professor, Department of ACSE, VFSTR Deemed to be University Contact: +91 9441540580 Mail: drsbk_acse@vignan.ac.in	Secretary (Ex-officio)
3	Prof. C. Raghavendra Rao	Professor SCIS, University of Hyderabad, Hyderabad, Telangana, Email: Crcs@uohyd.ac.in Mobile: +91 92474 65125	External Member
4	Dr. M. Dinesh	Research Scientist, Philips, Bangalore, Email: dineshmys@gmail.com Mobile: +91 98803 82993	External Member
5	Dr. Y Raghu Reddy	Associate Professor, IIIT Hyderabad Mobile: +91 98493 71681 Email: raghu.reddy@iiit.ac.in	External Member
6	Dr. Vinay Kumar N	Data and Analytics Managing Consultant, DIF AIML Team, NTT DATA Services D7 White field Bangalore66 Mobile: 9632454934 Email: vinaykumar.natraj@gmail.com	Invited Member
7	M. Venu Gopal	Chief Data Scientist Juxtsmart Mandate Analytics Solutions Pvt. Medeva.io, Padma Rao Nagar Hyderabad Telangana. Email: venugopal@jasm.email Mobile: +91 98666 33975	Invited Member

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8	Dr. Jyotsna Devi Bodapati	Associate Professor, Department of ACSE, VFSTR Deemed to be University Contact: +91 7358209553 Mail: bjd_acse@vignan.ac.in	Internal Member
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For signature

Agenda of the BoS Meeting:

1. Reviewing the course structure and content introduced in R22 regulation
1. Discussion on revision of Course contents.
2. Honors/SWAYAM-NPTEL courses identification
3. Discussion on L-T-P structure for a few courses (DLCO, Probability & Statistical Analysis, etc)
4. Any other points based on the requirements with the permission of the Chair.
5. Discuss the addition of the department electives, open electives, and the fulfillment of prerequisites for the department electives.
6. Formative and summative assessment results
7. Discussion on CO-PO-PSO
8. Fixing the CO-PO-PSO-PEO target values
9. Any other points based on the requirements with the permission of the Chair.

Chair Person
(Dr. Venkatesulu Dondeti)

HOD
Dept. of Advanced Computer Science & Engineering
VIGNAN'S FOUNDATION
FOR SCIENCE, TECHNOLOGY AND RESEARCH
Deemed to be University
(Estd u/s. 3 of UGC Act 1956)
VADLAMUDI - 522 213
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DEPARTMENT OF ADVANCED COMPUTER SCIENCE & ENGINEERING

Date: 30-12-2023

Minutes of Board of Studies Meeting

The department of ACSE is conducted a Board of Studies (BoS) meeting to review the B. Tech CSE Data Science program curriculum on 23.12.2023 from 10:30 AM to 12:30PM in blended mode. (Physical meeting: ACSE Department HoD room, 6th floor, Nagarjuna Block, VFSTR and virtual meeting link:

<https://us06web.zoom.us/j/83748475911?pwd=DHWBfCIygn02aMUZKk6L8YT4ltUGvP.1>

Agenda of the BoS Meeting:

1. Reviewing the course structure and content introduced in R22 regulation
1. Discussion on revision of Course contents.
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5. Discuss the addition of the department electives, open electives, and the fulfillment of prerequisites for the department electives.
6. Formative and summative assessment results
7. Discussion on CO-PO-PSO
8. Fixing the CO-PO-PSO-PEO target values
9. Any other points based on the requirements with the permission of the Chair.

The following members were present either offline or online.

S.No.	Name of the Member	Designation & Affiliation	Role	Mode of presence/ Signature
1	Dr. Venkatesulu Dondeti	Professor & Head, Department of ACSE, VFSTR (Deemed to be University) Contact: +91 98408 50744 Mail: hod_acse@vignan.ac.in	Chair Person	
2	Dr. Sivadi Balakrishna	Asst. Professor, Department of ACSE, VFSTR (Deemed to be University) Contact: +91 9441540580 Mail: drsbk_acse@vignan.ac.in	Secretary (Ex-officio)	
3	Prof. C. Raghavendra Rao	Professor SCIS, University of Hyderabad, Hyderabad, Telangana, Mobile:+91 92474 65125 Email: crrcs@uohyd.ac.in	External Member	online

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4	Dr. Vinay Kumar N	Data and Analytics Managing Consultant, DIF AIML Team, NTT DATA Services D7 White field Bangalore66 Mobile: 9632454934 Email: vinaykumar.natraj@gmail.com	Invited Member	online
5	Dr. Jyotsna Devi Bodapati	Associate Professor, Department of ACSE, VFSTR (Deemed to be University) Contact: +91 7358209553 Mail: bjd_acse@vignan.ac.in	Internal Member	

The following members are not present due to their busy schedule.

S.No.	Name of the Member	Designation & Affiliation	Role
1	Dr. M. Dinesh	Research Scientist, Philips, Bangalore, Email: dineshmys@gmail.com Mobile: +91 98803 82993	External Member
2	Dr. Y Raghu Reddy	Associate Professor, IIIT Hyderabad Mobile: +91 98493 71681 Email: raghu.reddy@iiit.ac.in	External Member
3	M. Venu Gopal	Chief Data Scientist Juxtsmart Mandate Analytics Solutions Pvt. Medeva.io, Padma Rao Nagar, Hyderabad Telangana. Mobile: +91 9866633975 Email: venugopal@jism.mail	Invited Member

Chairperson Dr. Venkatesulu Dondeti, Professor and Head, Department of ACSE, VFSTR initiated the meeting by welcoming and introducing the external members, invitees to the internal members. Secretary Dr. Sivadi Balakrishna, Assistant Professor, Department of ACSE, VFSTR presented program curriculum along with course content to the board.

The following points were discussed in the BoS meeting:

1. Reviewed R22 CSE-Data Science curriculum
2. Discussed on revision of Course contents
3. Discussed on L-T- P-C structure of various courses. (DLCO, Probability & Statistical Analysis, etc)
4. SWAYAM-NPTEL course identification for the department, open electives, and honors
5. Presented Formative and summative assessment results
6. Discussed on CO-PO-PSO
7. CO-PO-PSO-PEO target values finalization



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The following resolutions are incorporated after the discussion:

1. Dr. Sivadi Balakrishna, secretary, B. Tech CSE- Data Science program, initiated the meeting by welcoming and introducing the board members and presenting the program curriculum along with course content to the board. The External Board members expressed their opinion that the overall course structure of the program and the content of the courses are well-designed and are sufficient for the program at under graduate level They provided a few suggestions to improve the quality of the existing curriculum further.
2. The internal BOS members proposed to change L-T-P structure for Digital Logic and Computer Organization (22AM202), and Probability & Statistical Analysis (22ST203) courses. As the hands-on skill is important in these courses. Prof. CR Rao and Dr. Vinay have agreed to our proposal to change the L-T-P-C structure of the Digital Logic and Computer Organization (22AM202) course from 2-2-0-3 to 2-0-2-3 and Probability and Statistical Analysis (22ST203) course from 3-2-0-4 to 3-0-2-4. The board accepted the recommendation and the changes incorporated. This change is going to be effective from A.Y. 2024-25.
3. Prof CR Rao suggested to move the Operating Systems (22CS207) course to III-I and introduce the Artificial Intelligence course in II-II as a core course to ensure that students have a strong foundation in the specialized subjects early part of the program. The board accepted the recommendation and the changes incorporated.
4. The external BOS member Prof. Arul Agarwal recommended to rename the "Object-Oriented Programming through JAVA" (22CS203) course title to "Object-Oriented Programming". The same course is offered in Data Science program under ACSE department. Therefore, the internal BOS board proposed to change the course title of "Object-Oriented Programming through JAVA" (22CS203) to "Object-Oriented Programming" and Prof. CR Rao accepted our proposal to rename the course title. This change is proposed to allow flexibility in using any object-oriented programming language as part of any course, rather than being limited to Java alone. A different Course code need to be given by AAA office for this course. This change is going to be effective from A.Y. 2024-25.
5. The external BOS member Prof. DS Guru suggested to change the course title of Design and Analysis of Algorithms to "Algorithms and Analysis". Therefore, In B. Tech CSE-Data Science program also offers the same course under ACSE department, therefore the Internal BOS board members proposed to change the Design and Analysis of Algorithms course title and Prof. CR Rao accepted to change the title of the "Design and Analysis of Algorithms" (22CS206) course and renaming it "Algorithms and Analysis". Internal members of the BoS accepted these suggestions and updated the course titles accordingly. A different Course code need to be given by AAA office for this course. This change is going to be effective from A.Y. 2023-24.



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6. Prof. CR Rao has suggested to change the contents of the Artificial Intelligence course as per the GATE syllabus for Artificial Intelligence and Data Science. The Internal board members accepted the changes in content and updated contents accordingly. This change is going to be effective from A.Y. 2023-24.
7. BoS chairman proposed to start Ph.D program in the area of in Data Science, Cross-media data analytics and learning, Advanced learning and to introduce a Master of Technology (M.Tech) by Research program from A.Y. 2024-25. All the BoS members accepted the proposal.
8. During the discussion, Prof. CR Rao suggested to remove the "Data Science Applications" course in III-I as the contents of this course have already been covered in "Advanced Statistical Methods" which was offered in II-II. Additionally, he recommended to introduce a "Data Analytics" course (Code needs to be given by AAA) during the third year second semester in place of Computer Vision (22DS304). The Computer Vision (22DS304) course is moved to department electives. These courses are essential for Data Science graduates and provide foundational knowledge. The Internal Board acknowledged these suggestions and agreed with the proposed changes. However, they emphasized the need for a thorough discussion in the next Board of Studies (BoS) meeting before implementing these alterations. If approved in the upcoming BoS meeting, these changes are expected to take effect from the next academic year.
9. After thorough discussions, the board suggested to consider the Optimization Techniques course as an Honors in the II-II semester in place of the "Multivariate Analysis" course (22DS951). The optimization techniques are important to solving business and data analysis problems.
10. At the end there was a discussion on Course Outcomes (CO), Program Outcomes (PO), Program Specific Outcomes (PSO), Formative Assessment results, Summative Assessment results, and the target values for CO-PO-PSO-PEO.

Based on the suggestions given by the members, the Chairperson of BoS said that these fruitful suggestions would be considered in the curriculum and syllabi of the regulation R22.

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

Member Secretary

Chairperson
HoD

Dept. of Advanced Computer Science & Engineering,
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VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

Program: CSE – Data Science (DS)

Regulation: R22

I Year I Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22MT103	Linear Algebra and Ordinary Differential Equations	3	2	0	4
2	22PY105	Semiconductor Physics and Electromagnetics	2	0	2	3
3	22EE101	Basics of Electrical and Electronics Engineering	2	0	2	3
4	22CS103	IT Workshop and Tools	0	2	2	2
5	22TP103	Problem Solving through Programming-I	2	2	2	4
6	22EN102	English Proficiency and Communication Skills	0	0	2	1
7	22SA101	Physical Fitness, Sports and Games – I	0	0	3	1
8	22TP101	Constitution of India	0	2	0	1
		Total	9	8	13	19
		Total	30			19

I Year II Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22MT105	Advanced Engineering Mathematics	3	2	0	4
2	22MT107	Discrete Mathematical Structures	2	2	0	3
3	22ME101	Engineering Graphics	2	0	2	3
4	22TP104	Problem Solving through Programming-II	1	2	2	3
5	22EN104	Technical English Communication	2	0	2	3
6	22CS104	Python Programming	2	0	2	3
7	22SA103	Physical Fitness, Sports and Games – II	0	0	3	1
8	22SA102	Orientation Session	0	0	6	3
		Total	12	6	17	23
		Total	35			23

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

Program: CSE – Data Science (DS)

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II Year I Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22ST203	Probability and Statistical Analysis	3	0	2	4
2	22TP201	Data Structures	2	2	2	4
3	22MS201	Management Science	2	2	0	3
4	22CS201	Database Management Systems	2	2	2	4
5	22DS201	Data Handling and Visualization	2	0	2	3
6	22AM202	Digital Logic and Computer Organization	2	0	2	3
7	22CT201	Environmental Studies	0	1	1	1
8	22SA201	Life Skills – I	0	0	2	1
9		NCC/ NSS/ SAC/ E-cell/ Student Mentoring/ Social activities/ Publication with good impact factor (Only 2 students can claim 1 paper/patent). These credits maybe earned on or before the end of IV semester	0	0	0	1
Total			13	7	13	24
Total						24
Total						33

II Year II Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22TP203	Advanced Coding Competency	0	0	2	1
2	22TP204	Professional Communication	0	0	2	1
3	XXXXX	Object Oriented Programming	2	0	4	4
4	XXXXX	Analysis and Algorithms	2	2	2	4
5	XXXXX	Artificial Intelligence	3	0	2	4
6	22DS202	Advanced Statistical Methods	2	0	2	3
7	22SA202	Life Skills – II	0	0	2	1
8		Open Elective – 1	3	0	0	3
Total			12	2	16	21
9		Minor / Honors – 1	3	0	2	4
Total			15	2	18	25
Total						25
Total						35

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

Program: CSE – Data Science (DS)

Regulation: R22

III Year I Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22TP301	Soft Skills Lab	0	0	2	1
2	22CS303	Web Technologies	2	0	4	4
3	22AM204	Machine Learning	3	0	2	4
4	22CS207	Operating Systems	2	0	2	3
5	22DS302	Inter Departmental Project – Phase I	0	0	2	0
6	22DS303	Industry Interface Course	1	0	0	1
7		Department Elective – 1	3	0	2	4
8		Open Elective – 2	3	0	0	3
9		NCC/ NSS/ SAC/ E-cell/ Student Mentoring/ Social activities/ Publication with good impact factor (Only 2 students can claim 1 paper/patent). These credits maybe earned on or before the end of VI semester	0	0	0	1
		Total	13	0	14	20
10		Minor / Honors – 2	3	0	2	4
		Total	16	0	16	24
		Total	32			24

III Year II Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22TP302	Quantitative Aptitude and Logical Reasoning	1	2	0	2
2	22CS204	Computer Networks	3	0	2	4
3	XXXXX	Data Analytics	2	0	2	3
4	22DS305	Formal Languages and Automata Theory	2	2	0	3
5	22DS306	Inter Departmental Project – Phase II	0	0	2	2
6		Department Elective – 2	3	0	2	4
7		Open Elective – 3	3	0	0	3
		Total	14	4	8	21
8		Minor / Honors – 3	3	0	2	4
		Total	17	4	10	25
		Total	31			25

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

Program: CSE – Data Science (DS)

Regulation: R22

IV Year I Semester

Course Structure

Sl. No.	Course Code	Course Title	L	T	P	C
1	22CS403	Cloud Computing & Analytics	3	0	2	4
2	22AM301	Deep Learning	3	0	2	4
3	22CS402	Big Data Analytics	3	0	2	4
4		Department Elective – 3	3	0	2	4
5		Department Elective – 4	3	0	2	4
		Total	15	0	10	20
6		Minor / Honors – 4	3	0	2	4
		Total	18	0	12	24
		Total	30			24

IV Year II Semester

Sl. No.	Course Code	Course Title	L	T	P	C
1	22DS401 / 22DS402	Internship / Project Work	0	2	22	12
		Total	0	2	22	12
2		Minor / Honors – 5 (for project)	0	2	6	4
		Total	0	4	28	16
		Total	32			16

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH**Program: CSE – Data Science (DS)****Regulation: R22****Department Electives**

Sl. No.	Course Code	Course Title	L	T	P	C
1	22DS801	Data Wrangling	2	0	4	4
2	22DS802	Multi-modal Data Processing & Learning	3	0	2	4
3	22DS803	Knowledge Representation and Reasoning	3	2	0	4
4	22DS804	Security aspects of Data and Machine Learning Models	3	0	2	4
5	22DS805	Speech Analytics	3	0	2	4
6	22DS806	Biometrics Applications	3	0	2	4
7	22DS807	Artificial Intelligence search strategies	2	2	2	4
8	22AM802	Compiler Design	3	2	0	4
9	22AM806	Data Warehousing and Data Mining	3	0	2	4
10	22AM807	Nature Inspired Computing Methods	3	2	0	4
11	22AM808	Soft Computing	3	2	0	4
12	22AM810	Software Engineering principles	3	0	2	4
13	22DS808	Time series analysis and Forecasting	3	0	2	4
14	22DS809	Parallel and Distributed Computing	3	0	2	4
15	22DS810	Evolutionary Computing	3	2	0	4
16	22CS801	Advanced Data Structures (DE-II)	2	2	2	4
17	22CS803	Advanced JAVA Programming	2	2	2	4
18	22CS806	Text Analytics and Natural Language Processing (DE- III)	3	0	2	4
19	22CS810	Internet of Things	3	0	2	4
20	22CS811	Mobile Application Development (DE-I)	2	0	4	4
21	22DS304	Computer Vision	2	0	2	3

Suggested Value Added Courses

Agile Methodologies

MLOps

Research Methodologies

Large Language Models

Prompt Engineering

Business Intelligence

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY AND RESEARCH

Program: CSE – Data Science (DS)

Regulation: R22

Honours for CSE - DS

Sl.No	Course Code	Course Title	L	T	P	C
1	22CS815	Optimization Techniques	3	2	0	4
2	22DS951	Multi-Variate Analysis	3	-	2	4
3	22DS952	Visual Analytics	3	-	2	4
4	22DS953	Data Clustering	3	-	2	4
5	22DS954	Kernel Methods for Pattern Analysis	3	-	2	4
6	22CS909	Capstone Project	-	2	6	4


Chairperson

**HoD, ACSE
VFSTR
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