

Minutes of the IX BoS meeting – Artificial Intelligence & Data Science Programme held on 29<sup>th</sup> March, 2024 in Online mode (Microsoft Teams) at 3.30PM.

BoS Chairman welcomed all the stake holders to the BoS meeting and started the meeting by highlighting the vision & mission statements of university and department, also PEOs and PO statement of the programs.

### AGENDA and RESOLUTIONS

#### AGENDA ITEM-1

<ul style="list-style-type: none"><li>To consider and approve the resolutions made by DAC conducted on 25th March 2024, in R407B at 10.30AM.</li></ul>	Approved in BoS and recommended for Academic Council approval
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#### RESOLUTION

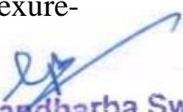
- The discussion of various agenda points proposed in 9<sup>th</sup> DAC meetings (Meeting held on 25-03-2024) happened and all the external members approved the discussed points and recommended the same for the approval of Academic Council.
- Detailed Description on the DAC meeting attached through Annexure -1.

#### AGENDA ITEM-2

<ul style="list-style-type: none"><li>To discuss on stakeholders' feedback and to take necessary action on feedback</li></ul>	Approved in BoS and recommended for Academic Council approval
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#### RESOLUTION

- A discussion on various stakeholders' feedback was held, and appropriate actions were proposed and approved in BoS, further it is recommended for the approval of Academic Council.
- The details of the ATR on stakeholder feedback are given in Annexure-

  
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### AGENDA ITEM-3

<ul style="list-style-type: none"><li>To discuss and approve the Course Structure of B. Tech AI &amp; DS offered for 2024-25 admitting students</li></ul>	Approved in BoS and recommended for Academic Council approval
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### RESOLUTION

- Y24 Proposed course structure is discussed. Proposed academic course structure and flexibilities for B. Tech programs are approved in the discussion and recommended for the approval of B.Tech, B.Tech with Honors, B.Tech Specializations, B.Sc, Diploma, minor and double major from the Academic council
- Y24 admitted batch structure is given in Annexure-III.

### AGENDA ITEM-4

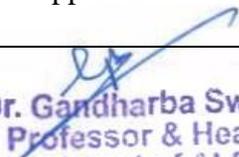
<ul style="list-style-type: none"><li>To discuss and approve the changes in the Course structure of B. Tech AI &amp; DS offered for 2023-24 admitted batch students</li></ul>	Approved in BoS and recommended for Academic Council approval
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### RESOLUTION

- Changes in the course structure was proposed for 2023-24 admitted batch B. Tech AI & DS Programme was discussed and approved by all the external members and recommended for the approval of Academic Council
- Details of course structure after the changes incorporates is given in Annexure - IV

### AGENDA ITEM-5

<ul style="list-style-type: none"><li>To discuss and approve the list of Value-Added courses offering to B. Tech – AI &amp; DS 2022-23, 2023-24 and 2024-25 admitted batch students.</li></ul>	Approved in BoS and recommended for Academic Council approval
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2024-25: B. TECH PROGRAM COURSE STRUCTURE – AI & DS IX BOS

**RESOLUTION**

- The discussion on proposed Value-added course list was held, from the listed courses B. Tech – AI & DS 2022-23, 2023-24 and 2024-25 admitted batch students can opt for any 4 courses to complete as part of their completion of Degree Programme requirements.
- The list of the proposed value-added courses is given in Annexure-V.

**AGENDA ITEM-6**

<ul style="list-style-type: none"><li>• To discuss and approve new courses for the students of B.Tech AI &amp; DS admitting in the Academic Year 2024-25.</li></ul>	Approved in BoS and recommended for Academic Council approval
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**RESOLUTION**

- Y24 Proposed course structure is discussed along with the proposed new courses list.
- The list of the proposed new courses is given in Annexure-VI.

**AGENDA ITEM-7**

<ul style="list-style-type: none"><li>• To discuss on the OBE attainment / Result Analysis / Gap Analysis.</li></ul>	Approved in BoS and recommended for Academic Council approval
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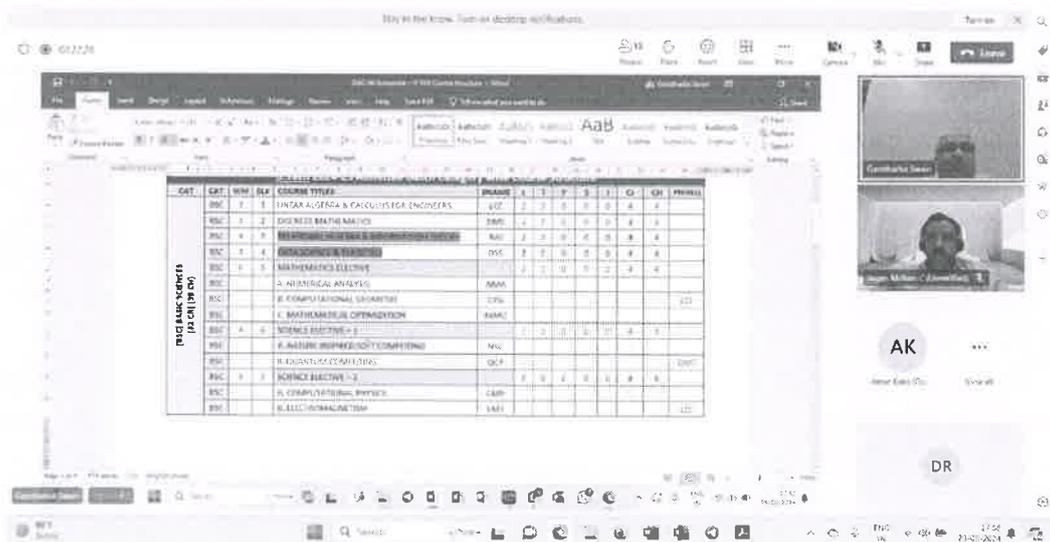
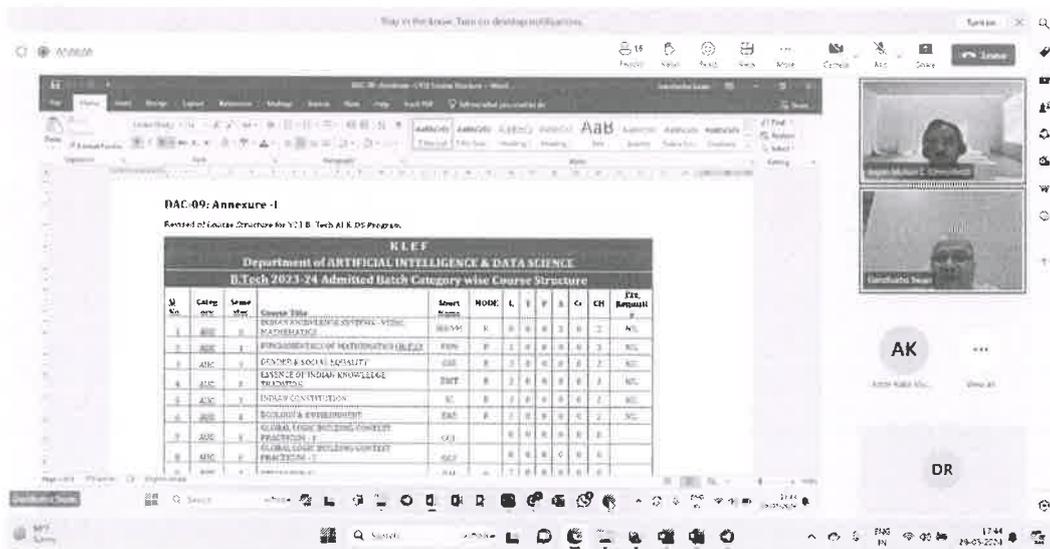
**RESOLUTION**

- Discussed on the OBE Attainment, Result Analysis and Gap Analysis of the previous semester courses.
- The OBE Attainment, Result Analysis and Gap Analysis is given in Annexure-VII.

  
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2024-25: B. TECH PROGRAM COURSE STRUCTURE – AI & DS IX BOS

Few screenshots of the IX BoS meeting



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**2024-25: B. TECH PROGRAM COURSE STRUCTURE – AI & DS IX BOS**

Sl. No.	Course Name	Credits	1	2	3	4	5	6	7	8	9	10	11	12
1	C. COMPUTATIONAL MECHANICS FOR NON-PC	3												
2	SCIENCE ELECTIVE - I	3												
3	1. PHYSICAL CHEMISTRY & THE MACROSCOPIC	3												
4	2. COMPUTATIONAL CHEMISTRY	3												
5	3. BIOMECHANICS & BIOMEDICAL ENGINEERING	3												
6	4. DATA STRUCTURES & ALGORITHMS	3												
7	5. DATA STRUCTURES & ALGORITHMS	3												
8	6. DATA STRUCTURES & ALGORITHMS	3												
9	7. DATA STRUCTURES & ALGORITHMS	3												
10	8. DATA STRUCTURES & ALGORITHMS	3												
11	9. DATA STRUCTURES & ALGORITHMS	3												
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**IX BOS Members - Artificial Intelligence & Data Science**

S.No	Name of the Member	Designation	Email ID	Phone Number
1	DR. GANDHARBA SWAIN	HOD and Chairman	gandharba.swain@kluniversity.in	9573975571
2	MR. JAGAN MOHAN CHEVVAKULA	Sr. QA Manager, NGA HR Pvt Ltd, Hyderabad	jaganmohanch@gmail.com	9966662626
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11	DR. SUNITHA PACHALA	Associate Professor	drsunitha.pachala@kluniversity.in	7981132213
12	DR. B. SREENIVASULU	Associate Professor	bsreenivasulu@kluniversity.in	9705438474
13	DR. PITTALA RAMESH BABU	Associate Professor	p.rameshbabu@kluniversity.in	8309449157
14	DR. N.B.ARUNE KUMAR	Assistant Professor	nbarunekumar@kluniversity.in	8124038039
15	DR. DYUTI BANERJEE	Assistant Professor	dbanerjee@kluniversity.in	7389900379
16	DR. M. PRAVEENA	Assistant Professor	praveena.mandapati@kluniversity.in	9347017206

  
 Chairman BOS - AI & DS  
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## BoS – IX: ANNEXURE -I



### **Koneru Lakshmaiah Education Foundation**

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. 08645 - 350200: www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2576129.

### **PROGRAMME: ARTIFICIAL INTELLIGENCE & DATA SCIENCE** **MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING - IX**

Covering letter to Dean Academics for submission of DAC minutes

To  
The Dean Academics  
K L E F,  
Vaddeswaram

Dear Sir,

**Sub: Minutes of the DAC Meeting - Artificial Intelligence & Data Science Department held on 25-03-2024 (Monday) from 10.30 AM at R407B – Reg.**

Head of the department welcomed DAC members and started the meeting by highlighting the vision & mission statements of Department and University, PEO Statements and POs/PSOs of the department.

We, the Department of Artificial Intelligence & Data Science has organized DAC meeting for the Academic year 2024-25 in which we discussed the following points

1. Discussion on revision of Course Structure for Y23 B.Tech AI & DS Program
2. Proposal on New Courses for Y23 Batch B.Tech Programs
3. Proposal on Course Structure for Y24 Admitted BTech AI & DS program
4. Discussion on feedback received from the various stakeholder
5. Discussion on 2023-24 Odd semester course closure meeting
6. Discussion on OBE and gap analysis
7. Discussion on Placements, Higher Education & Entrepreneurship
8. Discussion on list of Value-Added Courses to be offered to Y24, Y23, Y22 students.
9. Any other points with the permission of chair

In this context, we would like to submit DAC meeting minutes and action taken report from our end.

Thanking You,

Yours Sincerely

  
DAC Chairman  
Professor & Head  
Department of AI & DS  
K L E F  
Green Fields, Vaddeswaram,  
Guntur Dist., A.P. PIN: 522302



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### Programme: Artificial Intelligence & Data Science

### Appointment of Department Academic Council Members - AI & DS

Date: 20-03-2024

The following members are appointed as Department Academic Council (DAC) Members, to discuss the Y23 & Y24 Academic Structure and revision.

The meeting is scheduled on 25-03-2024 at 10.30AM in R407B. So, I am requesting all the DAC members to be presented at the venue on the scheduled data and time.

Sl No	Name of the DAC Member	Designation
1.	Dr. Vijayalakshmi P.	Professor
2.	Dr. V. Rama Krishna	Professor
3.	Dr. Aadapa Srinivasa Rao	Professor
4.	Dr. P. Praveen Kumar	Professor
5.	Dr. T. Sajana	Associate Professor
6.	Dr. Jagjit Singh Dhatte Wall	Associate Professor
7.	Dr. Elangovan Guruva Reddy	Associate Professor
8.	Dr. Sunitha Pachala	Associate Professor
9.	Dr. B. Sreenivasulu	Associate Professor
10.	Dr. Pittala Ramesh Babu	Associate Professor
11.	Dr. M. Praveena	Assistant Professor
12.	Dr. N.B.Arune Kumar	Assistant Professor
13.	Dr. Dyuti Banerjee	Assistant Professor
14.	Dr. KV Gurunatham Naidu	Assistant Professor

15.	Mr. Nichenametla Rajesh	Assistant Professor
16.	Mrs. Arpita Roy	Assistant Professor
17.	Mrs. Vuyyuru Lakshmi Lalitha	Assistant Professor
18.	Mrs. SN. Lakshmi Malluvalasa	Assistant Professor
19.	Mr. Gunti Surendra	Assistant Professor
20.	Mr. Karnati Raja Ram Mohan Rao	Assistant Professor
21.	Mr. V. Ramesh Babu	Assistant Professor
22.	Ms. Pendem Swetha	Assistant Professor
23.	Mr. Raveendra Reddy Enumula	Assistant Professor
24.	Mr. Veguri Joenithin	Assistant Professor
25.	Mr. Prabhat Kumar Bharti	Assistant Professor
26.	Mrs. J. Venkata Sandhya Arundathi	Assistant Professor
27.	Mr. K. Sudheer	Assistant Professor

Thanking you

Yours Sincerely

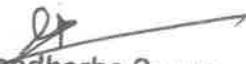
  
BoS - Chairman  
**Dr. Gandharba Swain**  
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## B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

### DAC-09: Annexure -I

Revised of Course Structure for Y23 B. Tech AI & DS Program

K L E F													
Department of ARTIFICIAL INTELLIGENCE & DATA SCIENCE													
B.Tech 2023-24 Admitted Batch Category wise Course Structure													
Sl No	Category	Semester	Course Code	Course Title	Short Name	MODE	L	T	P	S	Cr	CH	Pre Requisite
1	AUC	8	23UC0017	INDIAN KNOWLEDGE SYSTEMS - VEDIC MATHEMATICS	IKS-VM	R	0	0	0	2	0	2	NIL
2	AUC	1	23UC0018	FUNDAMENTALS OF MATHEMATICS (Bi.P.C)	FOM	R	3	0	0	0	0	3	NIL
3	AUC	7	22UC0011	GENDER & SOCIAL EQUALITY	GSE	R	2	0	0	0	0	2	NIL
4	AUC	8	23UC0019	ESSENCE OF INDIAN KNOWLEDGE TRADITION	EIKT	R	2	0	0	0	0	2	NIL
5	AUC	7	22UC0008	INDIAN CONSTITUTION	IC	R	2	0	0	0	0	2	NIL
6	AUC	8	22UC0009	ECOLOGY & ENVIRONMENT	E&E	R	2	0	0	0	0	2	NIL
7	AUC	5		GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 1	GC1		0	0	0	0	0	0	
8	AUC	6		GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 2	GC2		0	0	0	0	0	0	
9	AUC	7		ETHICS FOR AI	EAI	R	2	0	0	0	0	0	
10	BSC	1	22MT1101	MATHEMATICS FOR COMPUTING	MFC	R	2	2	0	0	4	4	NIL

  
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11	BSC	2	22MT2102	MATHEMATICS FOR ENGINEERS	MFE	R	2	2	0	0	4	4	NIL
12	BSC	3	23MT2013	DATA SCIENCE & STATISTICS	DSS	R	2	2	0	0	4	4	
13	BSC	5		MATHEMATICAL OPTIMIZATION	MMO	R	2	2	0	0	4	4	
14	BSC	4	23MT2014	RELATIONAL ALGEBRA & INFORMATION THEORY	RAI	R	2	2	0	0	4	4	
15	BSC	7		COMPUTATIONAL MECHANICS FOR ROBOTICS(SE-2)	CMR	R	3	0	2	0	4	4	
16	BSC	6		NATURE INSPIRED SOFT COMPUTING (SE-1)	NSC	R	2	2	0	0	4	4	
17	BSC	8	22SCXXX	BIOCHEMISTRY / AI IN BIOMEDICAL ENGINEERING (SE-3)	BCM	R	3	0	2	0	4	5	NIL
18	ESC	1	23SC1101	COMPUTATIONAL THINKING FOR STRUCTURED DESIGN	CTSD	R	3	0	2	4	5	9	NIL
19	ESC	2	23SC1202	DATA STRUCTURES	DST	R	2	0	2	4	4	8	CTSD
20	ESC	1	22ME1103	DESIGN TOOLS WORKSHOP	DTW	R	0	0	4	0	2	4	NIL
21	ESC	2	23EC1203	BASIC ELECTRICAL & ELECTRONIC CIRCUITS	BEEC	R	2	0	0	0	2	2	NIL
22	ESC	3	22UC3108	COMPUTATIONAL THINKING FOR OBJECT ORIENTED DESIGN	CTOD	R	3	0	2	0	4	5	NIL
23	ESC	2	23EC1202	DIGITAL DESIGN & COMPUTER ARCHITECTURE	DDCA	R	3	0	2	0	4	5	NIL
24	ESC	1	23EC1011	FUNDAMENTALS OF IOT & SENSORS	FITS	R	3	0	4	0	5	7	NIL
25	ESC	2	23CS1207	OBJECT ORIENTED PROGRAMMING	OOP	R	2	0	2	4	4	8	CTSD
35	ESC	4	23CS22050	DESIGN & ANALYSIS OF ALGORITHMS	DAA	R	3	0	2	0	5	5	DS
26	HAS	1	23UC1101	INTEGRATED PROFESSIONAL ENGLISH	IPE	R	0	0	4	0	2	4	NIL
27	HAS	2	23UC1202	ENGLISH PROFICIENCY	EP	R	0	0	4	0	2	4	NIL
28	HAS	3	22UC2103	ESSENTIAL SKILLS FOR EMPLOYABILITY	ESE	R	0	0	4	0	2	4	NIL

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29	HAS	1	22UC1203	DESIGN THINKING AND INNOVATION	DTI	R	0	0	4	0	2	4	NIL
30	HAS	3	22FLXXXX	FOREIGN LANGUAGE ELECTIVE	FLE	R	0	0	0	0	3	0	NIL
31	OEC	4	22MBXXXX	MANAGEMENT ELECTIVE	ME	R	0	0	0	0	4	0	NIL
32	OEC	5		OPEN ELECTIVE - 1	OE-1	R/M	0	0	0	0	4	4	RELEVENT COURSE
33	OEC	6		OPEN ELECTIVE - 2	OE-2	R/M	0	0	0	0	4	4	RELEVENT COURSE
34	OEC	7		OPEN ELECTIVE - 3	OE-3	R/M	0	0	0	0	4	4	RELEVENT COURSE
36	PCC	3	23AD2103R	SYSTEM DESIGN & INTRODUCTION TO CLOUD	SDC	R	3	0	2	0	4	4	DDCA
37	PCC	3	23AD2001R	ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	AML	R	3	0	2	4	5	5	CTSD
38	PCC	4	23AD2204R	DATA MANAGEMENT & WAREHOUSING	DMW	R	3	0	2	0	4	5	RAI
39	PCC	4	23AD2205R	DEEP LEARNING	DL	R	3	0	2	0	4	4	AML
40	PCC	6	22ADXX	NATURAL LANGUAGE PROCESSING	NLP	R	3	0	2	0	4	5	AML
41	PCC	5	22AD3104R	BIG DATA ENGINEERING	BDE	R	3	0	2	0	4	5	DMW
41	PEC	5		PROFESSIONAL ELECTIVE - 1	PE-1	R	3	0	2	4	5	9	RELEVENT COURSE
42	PEC	6		PROFESSIONAL ELECTIVE - 2	PE-2	R	3	0	0	0	3	3	RELEVENT COURSE
43	PEC	6		PROFESSIONAL ELECTIVE - 3	PE-3	R	3	0	2	4	5	9	RELEVENT COURSE
44	PEC	6		PROFESSIONAL ELECTIVE - 4	PE-4	M	3	0	0	0	3	3	RELEVENT COURSE

  
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45	PEC	5		FLEXI CORE	FC	R	3	0	0	0	3		RELEVENT COURSE
46	PRI	1S	22IE2040	SOCIAL INTERNSHIP	SIP	R	0	0	0	0	0	0	RELEVENT COURSE
47	PRI	2S	22IE3041	TECHNICAL INTERNSHIP	TIP	R	0	0	0	0	0	0	RELEVENT COURSE
48	PRI	7	22IE4053R	ENGINEERING CAPSTONE PROJECT - PHASE 1	ECP-1	R	0	0	4	8	8	8	RELEVENT COURSE
49	PRI	8	22IE4054R	ENGINEERING CAPSTONE PROJECT - PHASE 2	ECP-2	R	0	0	4	8	8	8	RELEVENT COURSE
50	SDC	3	23SDAD01 R	DATA ANALYTICS AND VISUALISATION	SDP-1	R	0	0	2	4	2	6	RELEVENT COURSE
51	SDC	4	23SDCS02A	FULL STACK APPLICATION DEVELOPMENT	FSD	R	0	0	2	4	2	6	RELEVENT COURSE
52	SDC	5		COMPUTER VISION USING OPENCV	CVO	R	0	0	2	4	2	6	RELEVENT COURSE
53	SIL	3	22UC0021	SOCIAL IMMERSIVE LEARNING - 1	SIL-1	R	0	0	0	0	1	0	NIL
54	SIL	4	22UC0022	SOCIAL IMMERSIVE LEARNING - 2	SIL-2	R	0	0	0	0	1	0	NIL
55	SIL	7	22UC0023	SOCIAL IMMERSIVE LEARNING - 3	SIL-3	R	0	0	0	0	1	0	NIL
<b>Total Credit: 163</b>													

  
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## B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

### **DAC-09: Annexure -II**

Course Code - 23AD2103R Course Name **System Design and Introduction to Cloud**

L-T-P-S: 3 0 2 0

Credits: 4

Prerequisite: DCO

CO#	Course Outcome (CO)	PO	PSO	BTL
CO1	Understand the key concepts of system design and cloud computing.			
CO2	Learn the architecture and components of operating systems and how they integrate with cloud services.			
CO3	Gain knowledge of network design and protocols relevant to cloud-based systems.			
CO4	Develop skills to design, deploy, and manage cloud-based applications and services.			

#### **Syllabus:**

CO1: Introduction to System Design: Overview of System Design Principles, System Design Life Cycle, Operating Systems and their role in System Architecture, OS Structures and Network Models Introduction to Cloud Computing and its impact on System Design, Understanding of OS roles in networking and cloud environments.

CO2: System Architecture and Networking: OS Structures and Network Models, Process, Thread Management, and Data Transmission Methods, Scheduling and Routing Algorithms, Design of the Network System, Network-Based Software Architectures, Case Studies of Networked System Architectures

CO-3: Cloud Computing and System Scalability: Cloud Service Models: IaaS, PaaS, SaaS, Virtualization and Cloud Storage, designing for the Cloud: Scalability and Reliability, Designing and Managing and Securing Cloud Infrastructure, Cloud-based Applications and Services

CO-4: Security and Compliance: Distributed Operating Systems and Computing Paradigms, Advanced Networking and Cloud Technologies, Security Mechanisms in Operating Systems and Networks, Cloud Security, Privacy, and Compliance Standards, Best Practices for System Security and Data Protection

#### **Reference Books:**

  
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1	System Analysis and Design	Dennis, Wixom, and Roth	wiley	6th
2	Cloud Computing: Concepts, Technology & Architecture	Zaigham Mahmood, Ricardo Puttini, Thomas Erl	Pearson	2013
3	Introduction to Operating Systems and Networks	Ruth A. Watson	PHI	2003

**MOOCS/Web Links:**

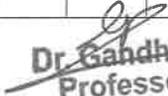
  
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## B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

### DAC-09: Annexure - III

Y24 B.Tech AI&DS Course Structure

K L E F														
Department of ARTIFICIAL INTELLIGENCE & DATA SCIENCE														
B.Tech 2024-25 Admitted Batch Category wise Course Structure														
CAT	CAT	SEM	SL#	COURSE TITLES	SNAME	L	T	P	S	I	Cr	CH	PREREQ	
[BSC] BASIC SCIENCES [32 CR] [36 CH]	BSC	2	1	LINEAR ALGEBRA & CALCULUS FOR ENGINEERS	LCE	2	2	0	0	0	4	4		
	BSC	1	2	DISCRETE MATHEMATICS	DMS	2	2	0	0	0	4	4		
	BSC	4	3	RELATIONAL ALGEBRA & INFORMATION THEORY	RAI	2	2	0	0	0	4	4		
	BSC	3	4	DATA SCIENCE & STATISTICS	DSS	2	2	0	0	0	4	4		
	BSC	6	5	MATHEMATICS ELECTIVE		2	2	0	0	0	4	4		
	BSC			A. NUMERICAL ANALYSIS	NMA									
	BSC			B. COMPUTATIONAL GEOMETRY	CPG									LCE
	BSC			C. MATHEMATICAL OPTIMIZATION	MMO									
	BSC	4	6	SCIENCE ELECTIVE – 1		2	2	0	0	0	4	4		
	BSC			A. DATA SCIENCE & STATISTICS	DSS									
	BSC			B. NATURE INSPIRED SOFT COMPUTING	NSC									DMS
	BSC			C. QUANTUM COMPUTING	QCP									
	BSC	5	7	SCIENCE ELECTIVE – 2		3	0	2	0	0	4	5		
	BSC			A. COMPUTATIONAL PHYSICS	CMP									
	BSC			B. ELECTROMAGNETISM	EMT									LCE

  
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	BSC			C. COMPUTATIONAL MECHANICS FOR ROBOTICS	CMR								
	BSC	8	8	SCIENCE ELECTIVE – 3		3	0	2	0	0	4	5	
	BSC			A. PHYSICAL CHEMISTRY & THERMODYNAMICS	PCT								
	BSC			B. COMPUTATIONAL CHEMISTRY	CPC								
	BSC			C. BIOCHEMISTRY / AI IN BIOMEDICAL ENGINEERING	BCM								
[ESC] ENGINEERING SCIENCES [35 CR] [51 HR]	ESC	1	9	DESIGN THINKING FOR INNOVATION	DTI	2	0	2	0	0	3	4	
	ESC	2	10	DESIGN TOOLS WORKSHOP	DTW	0	0	4	0	0	2	4	DTI
	ESC	1	11	FUNDAMENTALS OF IOT & SENSORS	FIS	2	0	4	0	0	4	6	
	ESC	2	12	DIGITAL LOGIC & COMPUTER ORGANIZATION	DCO	3	0	2	0	0	4	5	
	ESC	1	13	COMPUTATIONAL THINKING FOR PROBLEM SOLVING	CTP	3	0	2	4	0	5	9	
	ESC	3	14	COMPUTATIONAL THINKING FOR OBJECT ORIENTED DESIGN	CTO	3	0	2	0	0	4	5	CTP
	ESC	2	15	DATA STRUCTURES USING PYTHON	DSP	3	0	2	4	0	5	9	CTP
	ESC	4	16	DESIGN & ANALYSIS OF ALGORITHMS	DAA	3	0	2	4	0	5	9	DSP
[PCC] PROFESSIONAL CORE [22 CR] [29 CH]	PCC	2	17	ARTIFICIAL INTELLIGENCE	AI	3	0	0	0	0	3	3	
	PCC	3	18	SYSTEM DESIGN & INTRODUCTION TO CLOUD	SDC	3	0	2	0	0	4	5	DCO
	PCC	4	19	DATA MANAGEMENT & WAREHOUSING	DMW	3	0	2	0	0	4	5	RAI
	PCC	4	20	DEEP LEARNING	DL	3	0	2	0	0	4	5	ML
	PCC	5	21	BIG DATA ENGINEERING	BDE	3	0	2	0	0	4	5	DWM
	PCC	6	22	NATURAL LANGUAGE PROCESSING	NLP	3	0	2	0	0	3	5	ML
	PCC	3	23	MACHINE LEARNING	ML	3	0	2	4	0	5	9	AI

  
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[SDC] SKILL DEVELOPMENT COURSES [6]	SDC	3	24	DATA ANALYTICS AND VISUALISATION	DAV	0	0	2	4	0	2	6	CTP
	SDC	4	25	FULL STACK APPLICATION DEVELOPMENT	FSD	0	0	2	4	0	2	6	CTP
	SDC	5	26	COMPUTER VISION USING OPENCV	CVO	0	0	2	4	0	2	6	ML
[PRI] PROJECT RESEARCH & RESERACH [6]	PRI	2S	27	TECHNICAL INTERNSHIP	TEI	0	0	0	0	4	0	0	
	PRI	1S	28	SOCIAL INTERNSHIP	SIP	0	0	0	0	4	0	0	
	PRI	7	29	ENGINEERING CAPSTONE PROJECT - 1	ECP1	0	0	4	8	8	8	12	
	PRI	8	30	ENGINEERING CAPSTONE PROJECT - 2	ECP2	0	0	4	8	8	8	12	ECP1
[PEC] PROFESSIONAL ELECTIVES [19CR] [27]	PEC	5	31	FLEXI CORE	FCC	3	0	0	0	0	3	3	
	PEC	5	32	PROFESSIONAL ELECTIVE - 1	PEC-1	3	0	2	4	0	5	9	
	PEC	6	33	PROFESSIONAL ELECTIVE - 2	PEC-2	3	0	0	0	0	3	3	
	PEC	6	34	PROFESSIONAL ELECTIVE - 3	PEC-3	3	0	2	4	0	5	9	
	PEC	7	35	PROFESSIONAL ELECTIVE - 4	PEC-4	3	0	0	0	0	3	3	
[HAS] HUMANITIES ARTS & SOCIAL SCIENCES	HAS	1	36	LANGUAGE SKILLS FOR ENGINEERS	LSE	2	0	2	0	0	3	4	
	HAS	2	37	COMMUNICATION SKILLS FOR ENGINEERS	CSE	2	0	2	0	0	3	4	
	HAS	3	38	FOREIGN LANGUAGE ELECTIVE	FLE	0	0	0	0	6	3	0	
	HAS	1	39	HUMAN VALUES, GENDER EQUALITY & PROFESSIONAL ETHICS	HGP	0	0	0	0	4	2	0	
[AUC] AUDIT COURSES [0 CR]	AUC	7	40	INDIAN CONSTITUTION	ICT	0	0	0	0	2	0	0	
	AUC	8	41	ECOLOGY & ENVIRONMENT	EEN	0	0	0	0	2	0	0	
	AUC	1	42	INDIAN KNOWLEDGE SYSTEMS : VEDIC MATHEMATICS	IKS	2	0	0	0	0	0	2	
	AUC	5	43	GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 1	GC1	0	0	0	0	2	0	0	

  
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[OE] OPEN ELECTIVES	AUC	6	44	GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 2	GC2	0	0	0	0	2	0	0	
	OEC	5	45	OPEN ELECTIVE - 1	OE-1	0	0	0	0	8	4	0	
	OEC	6	46	OPEN ELECTIVE - 2	OE-2	0	0	0	0	8	4	0	
	OEC	7	47	OPEN ELECTIVE - 3	OE-3	0	0	0	0	8	4	0	
	OEC	4	48	MANAGEMENT ELECTIVE	MGE	0	0	0	0	8	4	0	
[SIL] SOCIAL IMMERSIVE LEARNING [3]	SIL	2	49	SOCIAL IMMERSIVE LEARNING - 1	SIL1	0	0	0	0	2	1	0	
	SIL	3	50	SOCIAL IMMERSIVE LEARNING - 2	SIL2	0	0	0	0	2	1	0	
	SIL	4	51	SOCIAL IMMERSIVE LEARNING - 3	SIL3	0	0	0	0	2	1	0	
<b>TOTAL</b>						<b>79</b>	<b>12</b>	<b>58</b>	<b>52</b>	<b>80</b>	<b>162</b>	<b>201</b>	

  
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**B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**DAC-09: ANNEXURE – IV**

**Summary of Stakeholders Feedback**

**Academic Peers**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Dr. Rajkumar S	Ph.D	Associate Professor	VIT, Chennai, India	Recommended that Including Statistics, Python Programming in first year may be helpful to students
2	Dr. Nagaraju Baydeti	Ph.D	Assistant Professor	NIT Nagaland, India	suggested that accommodating tableau, as well as topics like generative AI and prompt engineering may be helpful.

**Industry**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Mr. Lomin Joy	B. Tech	Project Engineer	Palakkad Technology IHUB Foundation	suggested that Ai and ML can be separated.
2	Mr. Naveen Raj Dorairaj	B. Tech	Lead Architect AI &ML	USA.	suggested that DAA,OS must be studied in prior semesters.

**Alumni**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
NA					

  
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Y24 B. TECH PROGRAM COURSE STRUCTURE – AI & DS – BOS No: IX

**Faculty**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Dr. P. Ramesh Babu	Ph.D	Associate Professor	KLEF	Proposed to include MLOps Subject.
2	Dr. B. Sreenivasulu	Ph.D	Associate Professor	KLEF	Suggested that natural language processing should be included.

**Parents**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Sri siva nagaraja	Degree		Business	suggested to include basic things of HTML, CSS, Java Script to develop the front end. then later it is easy to develop applications.
2	Ch. Ravi kumar	B.Com		private job	proposed that Instead of CTOD(Python ) if we provide CTOD (Java ) will helpful in next application development using Java course.
3	T. Baaji babu	Degree		Private job	proposed that after having the course Java they can choose python course too.

**Students**

S.NO	Name	Reg. No	Program of study	Year of Study	Recommendation/Suggestion received
1	N. Charan	2100080096	B. Tech	III	Suggested that Operating systems and cloud computing can be separated.

  
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2	K. A. Yamuna	2200080082	B. Tech	II	Suggested that structure should contain labs that provides hand-on experience in applying real-world problems.
3	R.Mounika	2100080117	B. Tech	III	Suggested to include python programming language in 1-2 semester.
4	G. Kavya	2200080047	B. Tech	II	Suggested to include more ds specialization related subjects.

  
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**B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**DAC-09: Annexure - V**

**Course Closure meetings and Action Taken**

Course Code	22CI2001	22SDCS01A	22SDAD01R	22SDCI01R(A/P)	22AD2102A	22UC2103	22MT2004	22EC2210R/ 22EC2210A	22MT2005	22CS2205R
Course Name	ADAPTIVE SOFTWARE ENGINEERING	MERN STACK WEB DEVELOPMENT	APPLICATION DEVELOPMENT USING JAVA	PYTHON FULL STACK DEVELOPMENT WITH DJANGO	DATABASE MANAGEMENT SYSTEMS	Essential Skills for Employability	Mathematical Programming	Network Protocols & Security	PROBABILITY, STATISTICS AND QUEUING THEORY	Design & Analysis of algorithms
Course Coordinator	DR. MOTHUKURI RADHA	CHITTIBABU RAVELA	Dr. Nafees Akhter Farooqui	B.UMAMAHESWARARAO	Dr VEERASWAMY AMMISSETTY	Shaik Mastan Vali	Dr.P.Ithaya Rani	MR. TUSHAR KANTI DE	Dr N.RAGHAVEN DRA SAI	B. Yamini Supriya
Emp ID	5422	7004	8422		7347	7483	6442	7060	5908	7097
Whether the course objective and rationale has been met?	YES	YES	YES	YES	YES	Yes	yes	YES	YES	YES
Whether the course outcomes have been attained to threshold value decided by the course team or not?	YES	YES	YES	YES	YES	Yes	yes	YES	YES	YES
Average attendance of the students across the semester.	YES	80%	85%	85%	YES	Yes	yes	YES	YES	YES

  
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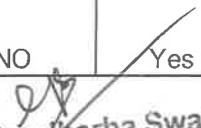
Quality of the question paper and the performance on Higher Order Thinking (HOT) questions justified?	YES	BTL-3	YES	-	YES	Yes	Yes	YES	YES	YES
Number of students taken part in remedial classes and the outcome of the same.	YES	NA	NIL	0	YES	Lab taken class	436	YES	YES	500/YES
Consolidation on feedback given by students (both preliminary and end semester) and remedial/ corrective action proposed by the course team.	YES	90%	As per the requests/feedback from students we have revised some topics and discussed the modified question paper pattern	80	YES	Yes	Yes	YES	YES	YES
Projects / Hackathons / publications or any other achievements done as a part of the course under case studies etc.	NO	HACKTHON-PROJECTS	Students did in Coursera projects and participated in Kaggle and Internal Hackathon.	Learthon and Hackathons	YES	Not applicable	Yes	NA	YES	NA
Impact of FDP and SRP conducted prior to handling of the course, on the	YES	VERY USEFUL AND GOOD	GOOD	Impact on Course Evaluation: Quality of Assessments:	YES	Positive	No	YES	YES	YES

  
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delivery and evaluation of the course and suggestions by the course team to improvise the same in future.				Alignment with Learning Outcomes: Feedback Mechanisms: Data-Driven Decision Making Suggestions for Improvement: Regular Training Sessions: Customized Workshops: Peer Mentoring Programs Feedback Loops:						
Feedback about the course from Industry experts on the topics, lab modules etc.	YES	GOOD	Overall feedback is good, suggested to add real time examples more	updating or expanding existing topics to ensure relevance to industry needs.  additional resources, case studies, or practical examples to enhance students' understanding of complex concepts.	YES	The syllabus is in alignment with industry requirements.	No	NO	YES	GOOD
Industry Lectures conducted towards the course outcome and the effectiveness of the same.	YES	NA	yes, attended some webinars	No	YES	No	No	NO	YES	YES

  
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Benchmarking done against any Industry standard tools / International certification courses.	YES	MOOCS, LINK ED-IN	Skilling experiments were developed using industry standard tools like NETBEANS.	Benchmarking against these standards and certifications involves comparing processes, performance metrics, and outcomes to the established criteria set by these frameworks or courses are Global certifications	YES	Yes	Yes	YES	YES	YES
Feed back on course from the alumni.	YES	GOOD	GOOD	Alumni can assess the quality of instruction, including the effectiveness of teaching methods, clarity of explanations, and engagement with students.	YES	Feedback from the industry	no	NO	YES	GOOD
Challenges / hurdles with respect to implementing any ALMs, use of tools, complexity of the course, following the session plan, etc.	NO	NA	No Challenges	Assessment and Evaluation Complexity Session Plan Flexibility vs. Rigidity	NO	No	yes	NO	NO	NO
Consolidate the recommendations given by the CC and the course instruction team for improving	NO	BETTER TO CHANGE THE PROBLEMS	Lectures from industry are needed, FDP for faculty on NODE STRUCT	Curriculum Enhancement Faculty Development Technology Integration	NO	Yes	Yes	YES	NO	NO

  
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the future delivery of same/ similar course be submitted to DAC.			and Advance JAVA.	Quality Assurance collaboration with industry partners, professional organizations, and other academic institutions to stay abreast of industry developments, foster experiential learning opportunities, and enhance the relevance of the course curriculum.						
Deliberations of DAC on each such recommendation and the action to be taken / recommendations to be forwarded to BoS.	NO	25% SHOULD BE MODIFIED FOR EACH BATCH	YES	DAC reviews proposed changes to assessment methods and feedback mechanisms, evaluating their alignment with course objectives and accreditation standards.	NA	Yes	No	NO	NA	NA

  
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## **B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

### **List of Value-Added Courses**

#### **DAC-09: Annexure – VIII**

##### **List of VAC courses for Y22 & Y23 - B. Tech AI & DS**

<b>SL No</b>	<b>Name of the Course</b>
1	AWS Certified Cloud Practitioner
2	Google Cloud Associate Cloud Engineer
3	Microsoft Certified: Azure Fundamentals (AZ-900)
4	Microsoft Azure Fundamentals AZ-204
5	Power BI Data analyst
6	Tableau Certified Data Analyst
7	TensorFlow Developer Certificate
8	Google Cloud Professional Data Engineer
9	Microsoft Certified: Azure Developer Associate
10	Microsoft Azure AI-900 Fundamentals
11	Microsoft Certified: Azure Data Engineer Associate (DP-203)
12	PCAP: certified Associate in python programming certification
13	CLA: Programming Essentials in C
14	AWS Certified Data Analytics -Specialty

##### **List of VAC courses for Y24 - B. Tech AI & DS**

<b>SL No</b>	<b>Name of the Course</b>
1	AWS Certified Cloud Practitioner
2	Google Cloud Associate Cloud Engineer
3	Microsoft Certified: Azure Fundamentals (AZ-900)
4	Microsoft Azure Fundamentals AZ-204
5	Power BI
6	Tableau Certified Data Analyst
7	TensorFlow Developer Certificate
8	Google Cloud Professional Data Engineer
9	Microsoft Certified: Azure Developer Associate
10	Microsoft Azure AI-900 Fundamentals
11	Microsoft Certified: Azure Data Engineer Associate (DP-203)
12	PCAP: certified Associate in python programming certification
13	CLA: Programming Essentials in C
14	AWS Certified Data Analytics -Specialty
15	SAS CERTIFIED SPECIALIST: TEXT ANALYTICS, TIME SERIES, EXP & OPTIMIZATION
16	IBM CERTIFIED DATA ENGINEER - BIG DATA
17	AWS CERTIFIED DATA ANALYTICS - SPECICALITY

  
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## BOS – IX: ANNEXURE-II

### B. TECH ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

#### Summary of Stakeholders Feedback

##### Academic Peers

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Dr. Rajkumar S	Ph.D	Associate Professor	VIT, Chennai, India	Recommended that Including Statistics, Python Programming in first year may be helpful to students
2	Dr. Nagaraju Baydeti	Ph.D	Assistant Professor	NIT Nagaland, India	suggested that accommodating tableau, as well as topics like generative AI and prompt engineering may be helpful.

##### Industry

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Mr. Lomin Joy	B. Tech	Project Engineer	Palakkad Technology IHUB Foundation	suggested that Ai and MI can be separated.
2	Mr. Naveen Raj Dorairaj	B. Tech	Lead Architect AI &ML	USA.	suggested that DAA,OS must be studied in prior semesters.

##### Alumni

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
NA					

  
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 Department of AI & DS  
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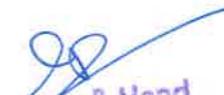
**Y24 B. TECH PROGRAM COURSE STRUCTURE – AI & DS – BOS No: IX**

**Faculty**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Dr. P. Ramesh Babu	Ph.D	Associate Professor	KLEF	Proposed to include MLOps Subject.
2	Dr. B. Sreenivasulu	Ph.D	Associate Professor	KLEF	Suggested that natural language processing should be included.

**Parents**

S.NO	Name	Qualification	Designation	Organization	Recommendation/Suggestion received
1	Sri siva nagaraja	Degree		Business	suggested to include basic things of HTML, CSS, Java Script to develop the front end. then later it is easy to develop applications.
2	Ch. Ravi kumar	B.Com		private job	proposed that Instead of CTOD(Python ) if we provide CTOD (Java ) will helpful in next application development using Java course.
3	T. Baaji babu	Degree		Private job	proposed that after having the course Java they can choose python course too.

  
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**Y24 B. TECH PROGRAM COURSE STRUCTURE – AI & DS – BOS No: IX**

**Students**

S.NO	Name	Reg. No	Program of study	Year of Study	Recommendation/Suggestion received
1	N. Charan	2100080096	B. Tech	III	Suggested that Operating systems and cloud computing can be separated.
2	K. A. Yamuna	2200080082	B. Tech	II	Suggested that structure should contain labs that provides hand-on experience in applying real-world problems.
3	R.Mounika	2100080117	B. Tech	III	Suggested to include python programming language in 1-2 semester.
4	G. Kavya	2200080047	B. Tech	II	Suggested to include more ds specialization related subjects.

  
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## Koneru Lakshmaiah Education Foundation

(Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' Grade University ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

Campus: Green Fields, Vaddeswaram - 522 502, Guntur District, Andhra Pradesh, INDIA.

Phone No. 0863 - 2399999; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 -2577715, Fax: +91-866-2577717.

### Stake Holders Feedback

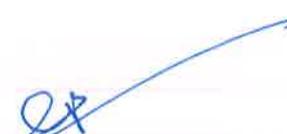
- Industry
- Faculty
- Academic Peers (IIT/IIM Professors)
- Parents
- Students

### Report- Analysis of Feedback on the curriculum – received from the stakeholders prior to the commencement of the Academic Year 2023-24 EVEN Semester

S. No.	Type of Stakeholder	Number of feedbacks
1	Students	230
2	Parents	70
3	Faculty	25
4	Academic peers	12
5	Industry persons	11
Total		348

### The following recommendations are resolved and recommended to BoS

S. No.	Recommendations	Action Taken
<b>Students Feedback</b>		
1	2100080096: Suggested that Operating systems and cloud computing can be separated.	For AI&DS students, the required fundamentals is given in the course SYSTEM DESIGN AND INTRODUCTION TO CLOUD.
2	2200080082: Suggested that structure should contain labs that provides hand-on experience in applying real-world problems.	To practice real-world problems, skilling sessions were included wherever it is required.

  
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3	2100080117: Suggested to include python programming language in 1-2 semester.	The structure contains the content of python programming in the course Computational thinking for problem solving.
4	2200080047: Suggested to include more ds specialization related subjects.	Sufficient data science courses are there in the structure.

#### Faculty Feedback

1	Dr.P. Ramesh Babu, Assoc Prof proposed to include MLOps Subject.	MLOps tools is included in the skilling component of Machine learning course.
2	Dr. B. Sreenivasulu, Assoc Prof suggested that natural language processing should be included.	Recommended to BoS.

#### Industry Persons Feedback

1	Mr. Lomin Joy, Project Engineer, IIT Palakkad Technology IHUB Foundation suggested that Ai and MI can be separated.	It is made as two different courses in Y24 structure.
2	Mr. Naveen Raj Dorairaj, Lead Architect AI &ML, USA suggested that DAA,OS must be studied in prior semesters.	Operating Systems concepts are discussed in 2-1, DAA course is included in 2-2 semester.

#### Academic Feedback

1	Dr Rajkumar S, Associate Professor, VIT, Chennai, India the recommended that Including Statistics, Python Programming in first year may be helpful to students	Python Programming is included in the 1-1 semester, statistics included in 2-1 semester.
2	Dr. Nagaraju Baydeti , Assistant Professor, Department of CSE, NIT Nagaland, India suggested that accommodating tableau, as well as topics like generative AI and prompt engineering may be helpful.	Tableau included in the Big Data Analytics course , gen AI and prompt engineering are included in the machine learning course.

  
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Parents Feedback		
1	Sri siva nagaraja, parent of 2200080211:suggested to include basic things of HTML,CSS,Java Script to develop the front end.then later it is easy to develop applications.	Web designing concepts were included in the SDC course full stack development.
2	Ch Ravikumar, parent of 2200080103:proposed that Instead of CTOD(Python ) if we provide CTOD (Java ) will helpful in next application development using Java course.	Python is offered in Computational thinking for problem solving in semester 1-1, java is offered in Computational thinking for object oriented design in semester 2-1.
3	T. Baaji babu, parent of 2200080015: proposed that after having the course Java they can choose python course too.	Both java and python is offered.

  
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**B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**BOS - IX: Annexure - III**

Y24 B.Tech AI&DS Course Structure

K L E F														
Department of ARTIFICIAL INTELLIGENCE & DATA SCIENCE														
B.Tech 2024-25 Admitted Batch Category wise Course Structure														
CAT	CAT	SE M	SL #	COURSE TITLES	SNAM E	L	T	P	S	I	Cr	CH	PRERE Q	
[BSC] BASIC SCIENCES [32 CR] [36 CH]	BSC	2	1	LINEAR ALGEBRA & CALCULUS FOR ENGINEERS	LCE	2	2	0	0	0	4	4		
	BSC	1	2	DISCRETE MATHEMATICS	DMS	2	2	0	0	0	4	4		
	BSC	4	3	RELATIONAL ALGEBRA & INFORMATION THEORY	RAI	2	2	0	0	0	4	4		
	BSC	3	4	DATA SCIENCE & STATISTICS	DSS	2	2	0	0	0	4	4		
	BSC	6	5	MATHEMATICS ELECTIVE		2	2	0	0	0	4	4		
	BSC			A. NUMERICAL ANALYSIS	NMA									
	BSC			B. COMPUTATIONAL GEOMETRY	CPG									LCE
	BSC			C. MATHEMATICAL OPTIMIZATION	MMO									
	BSC	4	6	SCIENCE ELECTIVE – 1		2	2	0	0	0	4	4		
	BSC			A. DATA SCIENCE & STATISTICS	DSS									
	BSC			B. NATURE INSPIRED SOFT COMPUTING	NSC									DMS
	BSC			C. QUANTUM COMPUTING	QCP									
	BSC	5	7	SCIENCE ELECTIVE – 2		3	0	2	0	0	4	5		

  
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	BSC			A. COMPUTATIONAL PHYSICS	CMP								
	BSC			B. ELECTROMAGNETISM	EMT								LCE
	BSC			C. COMPUTATIONAL MECHANICS FOR ROBOTICS	CMR								
	BSC	8	8	SCIENCE ELECTIVE – 3		3	0	2	0	0	4	5	
	BSC			A. PHYSICAL CHEMISTRY & THERMODYNAMICS	PCT								
	BSC			B. COMPUTATIONAL CHEMISTRY	CPC								
	BSC			C. BIOCHEMISTRY / AI IN BIOMEDICAL ENGINEERING	BCM								
[ESC] ENGINEERING SCIENCES [35 CR] [51 HR]	ESC	1	9	DESIGN THINKING FOR INNOVATION	DTI	2	0	2	0	0	3	4	
	ESC	2	10	DESIGN TOOLS WORKSHOP	DTW	0	0	4	0	0	2	4	DTI
	ESC	1	11	FUNDAMENTALS OF IOT & SENSORS	FIS	2	0	4	0	0	4	6	
	ESC	2	12	DIGITAL LOGIC & COMPUTER ORGANIZATION	DCO	3	0	2	0	0	4	5	
	ESC	1	13	COMPUTATIONAL THINKING FOR PROBLEM SOLVING	CTP	3	0	2	4	0	5	9	
	ESC	3	14	COMPUTATIONAL THINKING FOR OBJECT ORIENTED DESIGN	CTO	3	0	2	0	0	4	5	CTP
	ESC	2	15	DATA STRUCTURES USING PYTHON	DSP	3	0	2	4	0	5	9	CTP
	ESC	4	16	DESIGN & ANALYSIS OF ALGORITHMS	DAA	3	0	2	4	0	5	9	DSP
[PCC] PROFESSIONAL	PCC	2	17	ARTIFICIAL INTELLIGENCE	AI	3	0	0	0	0	3	3	
	PCC	3	18	SYSTEM DESIGN & INTRODUCTION TO CLOUD	SDC	3	0	2	0	0	4	5	DCO
	PCC	4	19	DATA MANAGEMENT & WAREHOUSING	DMW	3	0	2	0	0	4	5	RAI
	PCC	4	20	DEEP LEARNING	DL	3	0	2	0	0	4	5	ML
	PCC	5	21	BIG DATA ENGINEERING	BDE	3	0	2	0	0	4	5	DWM

  
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	PCC	6	22	NATURAL LANGUAGE PROCESSING	NLP	3	0	2	0	0	3	5	ML
	PCC	3	23	MACHINE LEARNING	ML	3	0	2	4	0	5	9	AI
[SDC] SKILL DEVELOPMENT COURSES [6]	SDC	3	24	DATA ANALYTICS AND VISUALISATION	DAV	0	0	2	4	0	2	6	CTP
	SDC	4	25	FULL STACK APPLICATION DEVELOPMENT	FSD	0	0	2	4	0	2	6	CTP
	SDC	5	26	COMPUTER VISION USING OPENCV	CVO	0	0	2	4	0	2	6	ML
[PRI] PROJECT RESEARCH &	PRI	2S	27	TECHNICAL INTERNSHIP	TEI	0	0	0	0	4	0	0	
	PRI	1S	28	SOCIAL INTERNSHIP	SIP	0	0	0	0	4	0	0	
	PRI	7	29	ENGINEERING CAPSTONE PROJECT - 1	ECP1	0	0	4	8	8	8	12	
	PRI	8	30	ENGINEERING CAPSTONE PROJECT - 2	ECP2	0	0	4	8	8	8	12	ECP1
[PEC] PROFESSIONAL ELECTIVES [19CR] [27]	PEC	5	31	FLEXI CORE	FCC	3	0	0	0	0	3	3	
	PEC	5	32	PROFESSIONAL ELECTIVE - 1	PEC-1	3	0	2	4	0	5	9	
	PEC	6	33	PROFESSIONAL ELECTIVE - 2	PEC-2	3	0	0	0	0	3	3	
	PEC	6	34	PROFESSIONAL ELECTIVE - 3	PEC-3	3	0	2	4	0	5	9	
	PEC	7	35	PROFESSIONAL ELECTIVE - 4	PEC-4	3	0	0	0	0	3	3	
[HAS] HUMANITIES ARTS & SOCIAL SCIENCES	HAS	1	36	LANGUAGE SKILLS FOR ENGINEERS	LSE	2	0	2	0	0	3	4	
	HAS	2	37	COMMUNICATION SKILLS FOR ENGINEERS	CSE	2	0	2	0	0	3	4	
	HAS	3	38	FOREIGN LANGUAGE ELECTIVE	FLE	0	0	0	0	6	3	0	
	HAS	1	39	HUMAN VALUES, GENDER EQUALITY & PROFESSIONAL ETHICS	HGP	0	0	0	0	4	2	0	
[AUC] AUDIT	AUC	7	40	INDIAN CONSTITUTION	ICT	0	0	0	0	2	0	0	
	AUC	8	41	ECOLOGY & ENVIRONMENT	EEN	0	0	0	0	2	0	0	

  
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	AU C	1	42	INDIAN KNOWLEDGE SYSTEMS : VEDIC MATHEMATICS	IKS	2	0	0	0	0	0	2	
	AU C	5	43	GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 1	GC1	0	0	0	0	2	0	0	
	AU C	6	44	GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 2	GC2	0	0	0	0	2	0	0	
[OE] OPEN ELECTIVES	OEC	5	45	OPEN ELECTIVE - 1	OE-1	0	0	0	0	8	4	0	
	OEC	6	46	OPEN ELECTIVE - 2	OE-2	0	0	0	0	8	4	0	
	OEC	7	47	OPEN ELECTIVE - 3	OE-3	0	0	0	0	8	4	0	
	OEC	4	48	MANAGEMENT ELECTIVE	MGE	0	0	0	0	8	4	0	
[SIL] SOCIAL IMMERSIVE LEARNING [3]	SIL	2	49	SOCIAL IMMERSIVE LEARNING - 1	SIL1	0	0	0	0	2	1	0	
	SIL	3	50	SOCIAL IMMERSIVE LEARNING - 2	SIL2	0	0	0	0	2	1	0	
	SIL	4	51	SOCIAL IMMERSIVE LEARNING - 3	SIL3	0	0	0	0	2	1	0	
<b>TOTAL</b>						<b>79</b>	<b>12</b>	<b>58</b>	<b>52</b>	<b>80</b>	<b>162</b>	<b>201</b>	

  
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# K L E F

## Programme: Artificial Intelligence & Data Science

### B. Tech 2024-25 Admitted Batch Category wise Courses, Credits, and Contact Hours Count

SI No	Course Category	Short Name	#Courses	Minimum Credits	Contact Hours	As per AICTE Credits
1	Humanities, Arts & Social Sciences	HAS	4	11	8	11
2	Social Immersive Learning	SIL	3	3	6	3
3	Basic Sciences	BSC	8	32	36	32
4	Engineering Sciences	ESC	9	35	57	35
5	Professional Core Courses	PCC	7	27	37	27
6	Professional Electives	PEC	5	19	27	19
7	Project Courses	PRI	4	16	24	16
8	Open Electives	OEC	4	16	32	16
9	Skill Development Courses	SDC	3	6	18	6
10	Audit Courses	AUC	5	0	8	0
11	Value Added Courses	VAC	4	0	0	0
<b>Total</b>			<b>56</b>	<b>162</b>	<b>202</b>	<b>160</b>

This program must be executed with complete CBCS. Departments offer the courses to enable students with various choices of courses and flexibilities of credits. The only limitation for a student to register in a course is that he/she should have been promoted in the pre-requisite course.

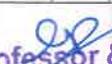
  
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## B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

### BOS-IX: Annexure -IV

Revised of Course Structure for Y23 B. Tech AI & DS Program

K L E F													
Department of ARTIFICIAL INTELLIGENCE & DATA SCIENCE													
B.Tech 2023-24 Admitted Batch Category wise Course Structure													
Sl No	Category	Semester	Course Code	Course Title	Short Name	MODE	L	T	P	S	Cr	CH	Pre Requisite
1	AUC	8	23UC0017	INDIAN KNOWLEDGE SYSTEMS - VEDIC MATHEMATICS	IKS-VM	R	0	0	0	2	0	2	NIL
2	AUC	1	23UC0018	FUNDAMENTALS OF MATHEMATICS (Bi.P.C)	FOM	R	3	0	0	0	0	3	NIL
3	AUC	7	22UC0011	GENDER & SOCIAL EQUALITY	GSE	R	2	0	0	0	0	2	NIL
4	AUC	8	23UC0019	ESSENCE OF INDIAN KNOWLEDGE TRADITION	EIKT	R	2	0	0	0	0	2	NIL
5	AUC	7	22UC0008	INDIAN CONSTITUTION	IC	R	2	0	0	0	0	2	NIL
6	AUC	8	22UC0009	ECOLOGY & ENVIRONMENT	E&E	R	2	0	0	0	0	2	NIL
7	AUC	5		GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 1	GC1		0	0	0	0	0	0	
8	AUC	6		GLOBAL LOGIC BUILDING CONTEST PRACTICUM - 2	GC2		0	0	0	0	0	0	
9	AUC	7		ETHICS FOR AI	EAI	R	2	0	0	0	0	0	
10	BSC	1	22MT1101	MATHEMATICS FOR COMPUTING	MFC	R	2	2	0	0	4	4	NIL

  
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11	BSC	2	22MT2102	MATHEMATICS FOR ENGINEERS	MFE	R	2	2	0	0	4	4	NIL
12	BSC	3	23MT2013	DATA SCIENCE & STATISTICS	DSS	R	2	2	0	0	4	4	
13	BSC	5		MATHEMATICAL OPTIMIZATION	MMO	R	2	2	0	0	4	4	
14	BSC	4	23MT2014	RELATIONAL ALGEBRA & INFORMATION THEORY	RAI	R	2	2	0	0	4	4	
15	BSC	7		COMPUTATIONAL MECHANICS FOR ROBOTICS(SE-2)	CMR	R	3	0	2	0	4	4	
16	BSC	6		NATURE INSPIRED SOFT COMPUTING (SE-1)	NSC	R	2	2	0	0	4	4	
17	BSC	8	22SCXXXX	BIOCHEMISTRY / AI IN BIOMEDICAL ENGINEERING (SE-3)	BCM	R	3	0	2	0	4	5	NIL
18	ESC	1	23SC1101	COMPUTATIONAL THINKING FOR PROBLEM SOLVING	CTP	R	3	0	2	4	5	9	NIL
19	ESC	2	23SC1202	DATA STRUCTURES	DST	R	2	0	2	4	4	8	CTSD
20	ESC	1	22ME1103	DESIGN TOOLS WORKSHOP	DTW	R	0	0	4	0	2	4	NIL
21	ESC	2	23EC1203	BASIC ELECTRICAL & ELECTRONIC CIRCUITS	BEEC	R	2	0	0	0	2	2	NIL
22	ESC	3	22UC3108	COMPUTATIONAL THINKING FOR OBJECT ORIENTED DESIGN	CTOD	R	3	0	2	0	4	5	NIL
23	ESC	2	23EC1202	DIGITAL DESIGN & COMPUTER ARCHITECTURE	DDCA	R	3	0	2	0	4	5	NIL
24	ESC	1	23EC1011	FUNDAMENTALS OF IOT & SENSORS	FITS	R	3	0	4	0	5	7	NIL
25	ESC	2	23CS1207	OBJECT ORIENTED PROGRAMMING	OOP	R	2	0	2	4	4	8	CTSD
35	ESC	4	23CS22050	DESIGN & ANALYSIS OF ALGORITHMS	DAA	R	3	0	2	0	5	5	DS
26	HAS	1	23UC1101	INTEGRATED PROFESSIONAL ENGLISH	IPE	R	0	0	4	0	2	4	NIL
27	HAS	2	23UC1202	ENGLISH PROFICIENCY	EP	R	0	0	4	0	2	4	NIL
28	HAS	3	22UC2103	ESSENTIAL SKILLS FOR EMPLOYABILITY	ESE	R	0	0	4	0	2	4	NIL

  
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29	HAS	1	22UC1203	DESIGN THINKING AND INNOVATION	DTI	R	0	0	4	0	2	4	NIL
30	HAS	3	22FLXXXX	FOREIGN LANGUAGE ELECTIVE	FLE	R	0	0	0	0	3	0	NIL
31	OEC	4	22MBXXXX	MANAGEMENT ELECTIVE	ME	R	0	0	0	0	4	0	NIL
32	OEC	5		OPEN ELECTIVE - 1	OE-1	R/M	0	0	0	0	4	4	RELEVENT COURSE
33	OEC	6		OPEN ELECTIVE - 2	OE-2	R/M	0	0	0	0	4	4	RELEVENT COURSE
34	OEC	7		OPEN ELECTIVE - 3	OE-3	R/M	0	0	0	0	4	4	RELEVENT COURSE
36	PCC	3	23AD2103R	SYSTEM DESIGN & INTRODUCTION TO CLOUD	SDC	R	3	0	2	0	4	4	DDCA
37	PCC	3	23AD2001R	ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	AML	R	3	0	2	4	5	5	CTSD
38	PCC	4	23AD2204R	DATA MANAGEMENT & WAREHOUSING	DMW	R	3	0	2	0	4	5	RAI
39	PCC	4	23AD2205R	DEEP LEARNING	DL	R	3	0	2	0	4	4	AML
40	PCC	6	22ADXX	NATURAL LANGUAGE PROCESSING	NLP	R	3	0	2	0	4	5	AML
41	PCC	5	22AD3104R	BIG DATA ENGINEERING	BDE	R	3	0	2	0	4	5	DMW
41	PEC	5		PROFESSIONAL ELECTIVE - 1	PE-1	R	3	0	2	4	5	9	RELEVENT COURSE
42	PEC	6		PROFESSIONAL ELECTIVE - 2	PE-2	R	3	0	0	0	3	3	RELEVENT COURSE
43	PEC	6		PROFESSIONAL ELECTIVE - 3	PE-3	R	3	0	2	4	5	9	RELEVENT COURSE
44	PEC	6		PROFESSIONAL ELECTIVE - 4	PE-4	M	3	0	0	0	3	3	RELEVENT COURSE

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45	PEC	5		FLEXI CORE	FC	R	3	0	0	0	3		RELEVENT COURSE
46	PRI	1S	22IE2040	SOCIAL INTERNSHIP	SIP	R	0	0	0	0	0	0	RELEVENT COURSE
47	PRI	2S	22IE3041	TECHNICAL INTERNSHIP	TIP	R	0	0	0	0	0	0	RELEVENT COURSE
48	PRI	7	22IE4053R	ENGINEERING CAPSTONE PROJECT - PHASE 1	ECP-1	R	0	0	4	8	8	8	RELEVENT COURSE
49	PRI	8	22IE4054R	ENGINEERING CAPSTONE PROJECT - PHASE 2	ECP-2	R	0	0	4	8	8	8	RELEVENT COURSE
50	SDC	3	23SDAD01 R	DATA ANALYTICS AND VISUALISATION	SDP-1	R	0	0	2	4	2	6	RELEVENT COURSE
51	SDC	4	23SDCS02A	FULL STACK APPLICATION DEVELOPMENT	FSD	R	0	0	2	4	2	6	RELEVENT COURSE
52	SDC	5		COMPUTER VISION USING OPENCV	CVO	R	0	0	2	4	2	6	RELEVENT COURSE
53	SIL	3	22UC0021	SOCIAL IMMERSIVE LEARNING - 1	SIL-1	R	0	0	0	0	1	0	NIL
54	SIL	4	22UC0022	SOCIAL IMMERSIVE LEARNING - 2	SIL-2	R	0	0	0	0	1	0	NIL
55	SIL	7	22UC0023	SOCIAL IMMERSIVE LEARNING - 3	SIL-3	R	0	0	0	0	1	0	NIL

**Total Credit: 163**

  
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## **B. TECH - ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

### **List of Value-Added Courses**

#### **BOS-IX: Annexure – V**

##### **List of VAC courses for Y22 & Y23 - B. Tech AI & DS**

<b>SL No</b>	<b>Name of the Course</b>
1	AWS Certified Cloud Practitioner
2	Google Cloud Associate Cloud Engineer
3	Microsoft Certified: Azure Fundamentals (AZ-900)
4	Microsoft Azure Fundamentals AZ-204
5	Power BI Data analyst
6	Tableau Certified Data Analyst
7	TensorFlow Developer Certificate
8	Google Cloud Professional Data Engineer
9	Microsoft Certified: Azure Developer Associate
10	Microsoft Azure AI-900 Fundamentals
11	Microsoft Certified: Azure Data Engineer Associate (DP-203)
12	PCAP: certified Associate in python programming certification
13	CLA: Programming Essentials in C
14	AWS Certified Data Analytics -Specialty

##### **List of VAC courses for Y24 - B. Tech AI & DS**

<b>SL No</b>	<b>Name of the Course</b>
1	AWS Certified Cloud Practitioner
2	Google Cloud Associate Cloud Engineer
3	Microsoft Certified: Azure Fundamentals (AZ-900)
4	Microsoft Azure Fundamentals AZ-204
5	Power BI
6	Tableau Certified Data Analyst
7	TensorFlow Developer Certificate
8	Google Cloud Professional Data Engineer
9	Microsoft Certified: Azure Developer Associate
10	Microsoft Azure AI-900 Fundamentals
11	Microsoft Certified: Azure Data Engineer Associate (DP-203)
12	PCAP: certified Associate in python programming certification
13	CLA: Programming Essentials in C
14	AWS Certified Data Analytics -Specialty
15	SAS CERTIFIED SPECIALIST: TEXT ANALYTICS, TIME SERIES, EXP & OPTIMIZATION
16	IBM CERTIFIED DATA ENGINEER - BIG DATA
17	AWS CERTIFIED DATA ANALYTICS - SPECIALITY

  
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