

KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

Coimbatore - 641 029



DEPARTMENT OF COMPUTER SCIENCE WITH DATA ANALYTICS

**CURRICULUM AND SCHEME OF EXAMINATIONS
(2025 - 2026)**

DEPARTMENT OF COMPUTER SCIENCE WITH DATA ANALYTICS

Vision

To emerge as a throbbing and pioneering academic and research hub of global standards to empower students in Computer Science with Data Analytics.

Mission

- To incorporate modern trends in Data Science and Analytics.
- To fuel the passion in student community to excel in all fronts like logical thinking, decision making, reliability and application based on strong theoretical foundation and extensive practical training.
- To undertake industry – institute collaborations for knowledge and technology exchange.
- To generate new knowledge by high impact research in data analytics that has significant benefits for individual, industry and society by enabling better decision making.

Programme Outcomes (POs)**On successful completion of the B.Sc. Computer Science with Data Analytics**

PO1	Apply analytical and critical thinking to identify, formulate, analyze, and solve complex problems in order to reach authenticated conclusions
PO2	Establish the ability to Listen, read, proficiently communicate and articulate complex ideas with respect to the needs and abilities of diverse audiences.
PO3	Design and develop research-based solutions for complex problems with specified needs through appropriate consideration for the public health, safety, cultural, societal, and environmental and sustainability concerns
PO4	Deliver innovative ideas to instigate new business ventures and possess the qualities of a good entrepreneur
PO5	Function as socially responsible individual with ethical values and accountable to ethically validate any actions or decisions before proceeding and actively contribute to the societal concerns.

Programme Specific Outcomes (PSOs)**After the successful completion of B.Sc. Computer Science with Data Analytics programme the students are expected to**

PSO1	Impart education with domain knowledge effectively and efficiently in par with the expected quality standards for Data analyst professional.
PSO2	Ability to apply the mathematical, technical and critical thinking skills in the discipline of Data analytics to find solutions for complex problems.
PSO3	Ability to engage in life-long learning and adopt fast changing technology to Prepare for professional development.
PSO4	Expose the students to key technologies in data science and business analytics: data mining, machine learning, visualization techniques, predictive modeling, and statistics.
PSO5	Inculcate effective communication skills combined with professional & ethical Attitude.

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Programme Name: **B. Sc Computer Science with Data Analytics**

Curriculum and Scheme of Examination under CBCS

(Applicable to the students admitted during the Academic Year 2025-2026)

Semester	Part	Subject Code	Title of the Paper	Instruction hours/week	Exam. Marks			Duration of Exam (hours)	Credits
					CIA	ESE	TOTAL		
I	I	25TML101	Language I@	6	25	75	100	3	3
	II	25ENG101	English -I	6	25	75	100	3	3
	III	25UDA101	Core Paper 1- Problem Solving using C Programming	5	25	75	100	3	4
	III	25UDA1CL	Core Practical 1- Problem Solving using C Lab	5	40	60	100	3	2
	III	25UDA1A1	Allied Paper 1 - Discrete Mathematics and Statistics	6	25	75	100	3	5
	IV	25EVS101	Environmental Studies **	2	-	50	50	3	2
	Total			30	-	-	550	-	19
II	I	25TML202	Language II@	6	25	75	100	3	3
	II	25ENG202	English –II	6	25	75	100	3	3
	III	25UDA202	Core Paper 2 - Object Oriented Programming in Java	5	25	75	100	3	4
	III	25UDA2CM	Core Practical 2- Object Oriented Programming in Java Lab	5	40	60	100	3	2
	III	25UDA2A2	Allied Paper 2 - Optimization Techniques and Linear Algebra	6	25	75	100	3	5
	IV	25VED201	Value Education- Moral and Ethics**	2	-	50	50	3	2
	Total			30	-	-	550	-	19
III	I	25TML303	Language III@	6	25	75	100	3	3
	II	25ENG303	English –III	6	25	75	100	3	3
	III	25UDA303	Core Paper 3- Python Programming	3	25	75	100	3	4
	III	25UDA3CN	Core Practical 3 - Python Programming Lab	5	40	60	100	3	4
	III	25UDA3A3	Allied Paper 3 – Distributed Operating System	6	25	75	100	3	5
	IV	25UGC3S1	Skill Based Subject 1- Cyber Security	2	100	-	100	3	3
	IV	25TBT301/ 25TAT301/ 25UHR3N1	Basic Tamil* / Advanced Tamil**/ Non-major elective- I**	2	-	75	75	3	2
	Total			30	-	-	675	-	24
IV	I	25TML404	Language IV@	6	25	75	100	3	3
	II	25ENG404	English –IV	6	25	75	100	3	3
	III	25UDA404	Core Paper 4- Fundamentals of Data Analytics	3	25	75	100	3	4
	III	25UDA4CO	Core Practical 4- Data Analytics Lab	5	40	60	100	3	4
	III	25UDA4A4	Allied Paper 4 – Design and Analysis of Algorithms	6	25	75	100	3	5
	IV	25UDA4SL	Skill Based Subject 2- Web Design Lab	2	40	60	100	3	3
	IV	25TBT402/ 25TAT402/ 25UWR4N2	Basic Tamil* / Advanced Tamil**/ Non-major elective- II**	2	-	75	75	3	2
	Total			30	-	-	675	-	24
V	III	25UDA505	Core Paper 5- R Programming	6	25	75	100	3	4
	III	25UDA5CP	Core Practical 5- R Programming Lab	6	40	60	100	3	4
	III	25UDA506	Core Paper 6- Relational Database Management System	5	25	75	100	3	4
	III	25UDA5CQ	Core Practical 6 – Relational Database Management System Lab	6	40	60	100	3	4
	III	25UDA5E1	Major Elective Paper 1 -	5	25	75	100	3	5
	IV	-	EDC	2	100	-	100	3	3
	-	25UDA5IT	Internship Training ****	Grade					
	Total			30	-	-	600	-	24
VI	III	25UDA607	Core Paper 7- Artificial Intelligence and its Applications	5	25	75	100	3	4
	III	25UDA6CR	Core Practical 7- Artificial Intelligence and Machine Learning Lab	5	40	60	100	3	4
	III	25UDA608	Core Paper 8- Machine Learning	5	25	75	100	3	4
	III	25UDA6CS	Core Practical 8- Data Visualization Lab	4	40	60	100	3	4

	III	25UDA6E2	Major Elective Paper 2 -	5	25	75	100	3	5
	III	25UDA6Z1	Project and Viva Voce***	4&&	20	80	100	-	5
	IV	25UBI6S3	Skill Based Subject 3- Basics of IPR	2	100	-	100	3	3
			Total	30	-	-	700	-	29
	V	25NCC \$ / NSS/YRC /PYE/ECC/ RRC/WEC10 1#	Cocurricular Activities*	-	50	-	50	-	1
			Grand Total	-	-	-	3800	-	140

Note :

CBCS – Choice Based Credit system, CIA– Continuous Internal Assessment, ESE– End of Semester Examinations

\$ For those students who opt NCC under Cocurricular activities will be studying the prescribed syllabi of the UGC which will include Theory, Practical & Camp components. Such students who qualify the prescribed requirements will earn an additional 24 credits.

@ Hindi/Malayalam/ French/ Sanskrit – 25HIN/MLM/FRN/SAN101 - 404

* - No End-of-Semester Examinations. Only Continuous Internal Assessment (CIA)

** - No Continuous Internal Assessment (CIA). Only End-of-Semester Examinations (ESE)

*** Project Report – 60 marks; Viva voce – 20 marks; Internal-20 marks

&& 4 Hours allotted for project will not be allocated in staff workload.

**** The students shall undergo Internship training / field work for a minimum period of 14 working days at the end of the fourth semester during summer vacation and submit the report in the fifth semester which will be evaluated for 100 marks by the concerned guide and followed by an Internal Viva voce by the respective faculty or HOD as decided by the department. According to their marks, the grades will be awarded as given below.

Marks %	Grade
85 – 100	O
70 – 84	D
60 – 69	A
50 – 59	B
40 – 49	C
< 40	U (Reappear)

Major Elective Papers (2 papers are to be chosen from the following 8 papers)

1. Internet of Things
2. Software Testing and Quality Assurance
3. Cloud Computing Fundamentals
4. Digital Forensics
5. Natural Language Processing
6. Deep Learning
7. Data Warehousing and Data Mining
8. Cryptography and Information system

Non-Major Elective Papers

1. Human Rights
2. Women's Rights
3. Consumer Affairs

Sub. Code & Title of the Extra Departmental Course (EDC):

25UDA5XL - Internet Basics and Advanced Excel Lab

List of Cocurricular Activities:

1. National Cadet Corps (NCC)
2. National Service Scheme (NSS)
3. Youth Red Cross (YRC)
4. Physical Education (PYE)
5. Eco Club (ECC)
6. Red Ribbon Club (RRC)
7. Women Empowerment Cell (WEC)

Note: In core/ allied subjects, no. of papers both theory and practical are included wherever applicable. However, the total credits and marks for core/allied subjects remain the same as stated below.

Tally Table:

S.No.	Part	Subject	Marks	Credits
1.	I	Language – Tamil/Hindi/Malayalam/ French/ Sanskrit	400	12
2.	II	English	400	12
3.	III	Core – Theory/Practical	1600	60
	III	Allied	400	20
		Electives/Project	300	15
4.	IV	Basic Tamil / Advanced Tamil (OR) Non- major electives	150	4
		Skill Based subject	300	9
		EDC	100	3
		Environmental Studies	50	2
		Value Education	50	2
5.	V	Cocurricular Activities	50	1
		Total	3800	140

- 25 % CIA is applicable to all subjects except JOC, COP and SWAYAM courses which are considered as extra credit courses.
- 100 % CIA for Cyber Security, EDC and Basics of IPR.
- The students should complete **Health and Wellness Programme (25UHW401)###** in the 4th semester and the completion marks should be submitted through the HOD to the Controller of Examinations. Extra credits will be given to the candidates who have successfully completed.
- The students should complete any **MOOC course available for Online learning platforms like SWAYAM, NPTEL, Coursera\$, IIT Bombay Spoken Tutorial, e-Pathshala etc.**, with a minimum of 4 weeks in duration before the completion of the 5th semester and the course completion certificate should be submitted through the HOD to the Controller of Examinations. Extra credits will be given to the candidates who have successfully completed.

\$\$Note: One course to be taken from course era for all the under graduate students of self-finance stream during the even semester of the I year. Appropriate extra credits and certification as applicable shall be awarded to the students who have completed the course.

- An **Onsite Training** preferably relevant to the course may be undertaken as per the discretion of the HOD.
- Students who successfully complete **Naan Mudhalvan** courses in 3rd and 5th semester will be given 2 extra credits for each course. They are asked to submit the marks to Controller of Examinations through and undersigned by the HOD.

Semester	Naan Mudhalvan Course Title
III	E-COMMERCE APPLICATION DEVELOPMENT WITH MENDIX
V	DATA ANALYTICS USING TABLEAU AND SIEMENS INSIGHT HUB

Components of Continuous Internal Assessment

Continuous Internal Assessment			
Components		Marks	Total
Theory			
CIA I	75	(75+75 = 150/10)	25
CIA II	75		
Assignment/Seminar		5	
Attendance		5	
Practical			
CIA Practical		25	40
Observation Notebook		10	
Attendance		5	
Project			
Review		15	20
Regularity		5	

BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN

K1-Remembering;**K2**-Understanding;**K3**-Applying;**K4**-Analyzing;**K5**-Evaluating

1. ESE Theory Examination:**(i) CIA I & II and ESE: 75 Marks**

Knowledge Level	Section	Marks	Description	Total
K1 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ	75
K1 – K5 Q11 to 15	B (Either or pattern)	5 x 5 = 25	Short Answers	
K2 – K5 Q16 to 20	C (Either or pattern)	5 x 8 = 40	Descriptive / Detailed	

2. ESE Practical Examination:

Knowledge Level	Section	Marks	Total
K3	Experiments Record Work	50	60
K4		10	
K5			

3. ESE Project Viva Voce:

Knowledge Level	Section	Marks	Total
K3	Project Report	60	80
K4		20	
K5	Viva voce		

Scheme of Evaluation - Health and Wellness Programme (25UHW401)###

Part	Description	Mark
A	Report	40
B	Attendance	20
C	Activities (Observation during Practice)	40
Total		100