Schemes and Syllabus

(For academic session 2025-26 onwards)

B. Voc. in Data Science

Atal Shiksha Nagar (Kalujhanda), P.O.
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Table of Content

SECTION 1

Program Outcomes and Program Specific Outcomes

Program Outcomes

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Program Specific Outcomes

PSO1: should be able to demonstrate proficiency in programming languages commonly used in the field, such as Python, Java, C++, etc., and apply this knowledge to solve real-world problems.

PSO2: Students should be able to design, develop, and maintain software applications, including skills in software engineering principles and practices.

PSO3: Graduates should possess knowledge of information security concepts and techniques, including encryption, authentication, and cybersecurity best practices.

PSO4: Graduates should be able to design, configure, and manage computer networks, including an understanding of network protocols, security, and troubleshooting.

SECTION 2

Semester wise Scheme

First Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B Voc. DS-101	Basics of Computer	4	-	-	4	4	40	60	100
B VOC. DS-102	Introduction to IT	4	-	-	4	4	40	60	100
B VOC. DS-103	Fundamentals of Computer and Software Development	4	-	-	4	4	40	60	100
B VOC. DS-104	OJT-I (On Job Training NSQF Level-4)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Second Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B VOC. DS-201	Professional Communication	4	-	-	4	4	40	60	100
B VOC. DS-202	Fundamentals of Windows and Server Administration	4	-	-	4	4	40	60	100
B VOC. DS-203	Internet & Web Development	4	-	-	4	4	40	60	100
B VOC. DS-204	OJT-II (On Job Training NSQF Level-5)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Third Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B VOC. DS-301	Environment Studies	4	-	-	4	4	40	60	100
B VOC. DS-302	Introduction to Data Science	4	-	-	4	4	40	60	100
B VOC. DS-303	Object Oriented Programming in C++	4	-	-	4	4	40	60	100
B VOC. DS-304	OJT-III (On Job Training NSQF Level-6)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Fourth Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B VOC. DS-401	Human Values & Ethics	4	-	-	4	4	40	60	100
B VOC. DS-402	Python Programming	4	-	-	4	4	40	60	100
B VOC. DS-403	Artificial Intelligence	4	-	-	4	4	40	60	100
B VOC. DS-404	OJT-IV (On Job Training NSQF Level-6)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Fifth Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B VOC. DS-501	Disaster Management	4	-	-	4	4	40	60	100
B VOC. DS-502	Data Science Industrial perspective	4	-	-	4	4	40	60	100
B VOC. DS-503	Data mining Techniques	4	-	-	4	4	40	60	100
B VOC. DS-504	OJT-V (On Job Training NSQF Level-7)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Sixth Semester

Course Code	Course Title	L	T	P	CH	CP	Int. A	ESE	Total
B VOC. DS-601	Current Affairs	4	-	-	4	4	40	60	100
B VOC. DS-602	Categorical data Analysis	4	-	-	4	4	40	60	100
B VOC. DS-603	Machine Learning and Data Analytics	4	-	-	4	4	40	60	100
B VOC. DS-604	OJT-VI (On Job Training NSQF Level-7)	-	-	36	36	18	300	200	500
	TOTAL	12	-	36	48	30	480	320	800

Assessment Criteria (100 Marks per Subject)

(For General Components)

S. No.	Components	Maximum Marks
1	Assignment-1	20
2	Assignment-2	20
3	ESE	60

Assessment Criteria (500 Marks) (For OJT)
For Skill Component

S. No.	Components	Maximum Marks
1	Attendance	50
2	General Behaviour & Discipline	50
3	Technical Skill	200
4	Presentation Skill	200