



Bachelor of
Computer Applications
(B.C.A)
Specialization In
Data Science (DS)
CURRICULUM AND SYLLABUS
(Based on Choice Based Credit System)

Effective from the Academic year

2019 - 2022

DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF COMPUTING SCIENCES

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES (VISTAS)**BCA DEGREE COURSE****COURSES OF STUDY AND SCHEME OF ASSESSMENT****(TOTAL NO OF CREDITS: 140)**

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	SEE	Total
SEMESTER 1								
LANG	Tamil I / Hindi / French	5	0	0	5	40	60	100
ENG	English I	5	0	0	5	40	60	100
CORE	Programming in C	5	0	0	5	40	60	100
CORE	Mathematics - I	4	0	0	4	40	60	100
CORE	Programming in C Lab	0	0	4	2	40	60	100
CORE	MS Office Lab	0	0	4	2	40	60	100
		19	0	8	23			

SEMESTER 2

LANG	Tamil II / Hindi / French	5	0	0	5	40	60	100
ENG	English II	5	0	0	5	40	60	100
CORE	Data Structures and Algorithms	5	0	0	5	40	60	100
CORE	Mathematics II	4	0	0	4	40	60	100
CORE	Operating System Lab	0	0	4	2	40	60	100
CORE	Data Structures and Algorithm Lab	0	0	4	2	40	60	100
		19	0	8	23			

CA - Continuous Assessment

SEE - Semester End Examination

VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES

BCA DEGREE COURSE

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	SEE	Total
SEMESTER 3								
CORE	Programming in Java	5	0	0	5	40	60	100
CORE	Computer Networks	5	0	0	5	40	60	100
CORE	Statistics and Probability	5	0	0	5	40	60	100
CORE	Introduction to Data Science	4	0	0	4	40	60	100
CORE	Programming in Java Lab	0	0	4	2	40	60	100
CORE	Computer Networks Lab	0	0	4	2	40	60	100
SEC	Soft Skills – I	2	0	0	2	40	60	100
		21	0	8	25			

SEMESTER 4

CORE	Database Management Systems.	5	0	0	5	40	60	100
CORE	Machine Learning	5	0	0	5	40	60	100
CORE	R Programming Language	4	0	0	4	40	60	100
CORE	R Programming Language Lab	0	0	4	2	40	60	100
CORE	DBMS Lab	0	0	4	2	40	60	100
AECC	Environmental Studies	2	0	0	2	40	60	100
SEC	Soft Skills – II	2	0	0	2	40	60	100
		18	0	8	22			

CA - Continuous Assessment

SEE - Semester End Examination

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BCA DEGREE COURSE

Code No.	Course	Hour / Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	SEE	Total
SEMESTER 5								
DSE	Discipline Specific Elective -1	5	0	0	5	40	60	100
DSE	Discipline Specific Elective -2	4	0	0	4	40	60	100
DSE	Discipline Specific Elective -3	4	0	0	4	40	60	100
DSE	Discipline Specific Elective -4	4	0	0	4	40	60	100
DSE	Discipline Specific Elective -2 Lab	0	0	4	2	40	60	100
GE	Generic Elective -1	2	0	0	2	40	60	100
SEC	SEC-1	2	0	0	2	40	60	100
		21	0	4	23			

SEMESTER 6

DSE	Discipline Specific Elective -5	5	0	0	5	40	60	100
DSE	Discipline Specific Elective -6	5	0	0	5	40	60	100
GE	Generic Elective -2	2	0	0	2	40	60	100
SEC/VA C	SEC -2	2	0	0	2	40	60	100
DE	Project Work	0	0	0	10	40	60	100
		14	0	0	24			

CA - Continuous Assessment

SEE - Semester End Examination

List of Discipline Specific Elective (DSE)

Subject code	Title of the Paper
DSE 1A	Data Analytics using SQL
DSE 1B	NoSQL databases
DSE 2A	Big Data Analytics
DSE 2B	Exploratory Data Analysis
DSE 2AL	Big Data Analytics Lab
DSE 2BL	Exploratory Data Analysis
DSE 3A	Multivariate Statistical Analysis
DSE 3B	Design and Analysis of Experiments
DSE 4A	Sampling Methods
DSE 4B	Optimization Techniques
DSE 5A	Data Visualization
DSE 5B	Dimension Reduction and Model Validation Techniques.
DSE 6A	Advanced Big Data Analytics
DSE 6B	Real Time Data Processing

List of Generic Elective (GE)

Subject Code	Title of the Paper
GE 1A	Web Technology Fundamentals
GE 1B	Computer Organization & Architecture
GE 1C	Server side Scripting Language
GE 1D	Advanced Excel
GE 2A	Python Programming
GE 2B	Internet of Things
GE 2C	Artificial Intelligence
GE 2D	Disaster Recovery and Business Continuity Management

List Of Languages

Subject Code	Title of the Paper
18LEN001	Foundation Course English I
18LTA001	Foundation Course Language I
18LHN001	Hindi Paper – I
18LFR001	French Paper - I
18LEN002	Foundation Course English II
18LTA002	Foundation Course Language II
18LHN002	Hindi Paper – II
18LFR002	French Paper - II

List of Skill Enhancement Course (SEC)

Subject Code	Title of the Paper
SEC 1	Soft Skill -I
SEC 2	Soft Skill - II
SEC 3	Personality Development
SEC 4	National Service Scheme (NSS).
SEC 5	Ethics. Quantitative Aptitude.

List of Ability Enhancement Compulsory Course(AECC)

AECC 1	Environmental Science
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