

# School of Computing Science & Engineering

## Department of Computer Application

**Program name: BCA & BCA IOPs**

**Program Structure 2023-25**

**ASSESSMENT PATTERNS (Common for All Semesters)**

### COURSES

CONTINUOUS INTERNAL EXAMINATION (CIE)								Semester End Examination (SEE)	
Rubric and Assessment Tools								Total CIE Marks	Max. Marks
Course Type	QUIZ 1/AAT	CAT1	QUIZ2/AAT	CAT2	LAB	LAB Test	Course-based Project		
Theory	20	30	20	30	0	0	0	100	100
Blended	0	30	0	30	20	20	0	100	100
Comprehensive	0	30	0	30	20	0	20	100	100

### Rubric for Course-based Project

S.No.	Type of Assessment Tools	CIE Marks (Rubric)					Total
		PPP	TS1	TS2	Viva	Total	
1	Course-based Project Work	5	5	5	5	20	

### PASS REQUIREMENTS

Condition1-Continuous

Internal Examination (CIE) -Should secure 30% of marks in every individual assessment in the CIE and 40% in total; otherwise not permitted to appear in SEE;

Condition2-Semester End Examination (SEE) or End Term Examination (ETE)-should secure 40% in the SEE/ETE

Condition3- The overall marks both CIE and SEE together should be more than or equal to 40% to declare pass in a Course.

\*-: Students have to secure minimum 30% marks in each assessment to eligible for appearing in ETE/SEE.(minimum 3 marks in QUIZ 1/AAT and QUIZ2/AAT individually & minimum 12 marks each in both CAT1 & CAT2). Same rule applies to all assesment tools.

\*\* -: Student need to secure minimum 40 marks separately in ETE/SEE along with above mentioned criterion to pass the respective Course.

PPP(Preliminary Project Plan )	To submit the PPP before the Quiz1 by a group of 4 students; After Quiz-1 the course faculty shuold approve the PPP and permit the student group to commnece the project.	The preliminary project plan (PPP) provides an initial, overview of the project and all of its known parameters. It outlines the project's objectives, relevance to the program merit, and conformity to current industry/government policy, proposed methodology, and expected outcomes. It should also include any known constlainats related to the time frame (Gantt Chart).budget, and, etc.
TS1 (Technical Seminar 1 )	After Quiz-1	After the second Quiz, the course faculty member should take 1st review of th status byh all the student groups
TS2 (Technical Seminar 2)	After CAT-1	After CAT1 the course faculty member should take trhe 2nd review of the status byh all the student groups

VIVA	After CAT-2	After CAT2 the course faculty member should take trhe 2nd review of the status byh all the student groups				
<b>RUBRICS</b>						
Lab	Rubrics 1 (..marks)	Rubrics 2 (..marks)	Rubrics 3 (..marks)	Rubrics 4 (..marks)	Rubrics 5 (..marks)	To be defined by the respective faculty handling the course
Project	Rubrics 1 (..marks)	Rubrics 2 (..marks)	Rubrics 3 (..marks)	Rubrics 4 (..marks)	Rubrics 5 (..marks)	To be defined by the respective faculty handling the course

**Program Structure 2023-26**

**Not to include in the program structure file (Only for Reference)**

Instruction Components	Credits	Contact Hours/week
L	1	1
T	1	1
P	1	2
S	1	3

**First Semester**

			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1		Open Elective-I	3	0	0	0	3	3	✓			
2	E1UA101B	Fundamentals of Digital Computers	3	0	0	0	3	3	✓			
3	E1UA102B	Foundation of Computer Applications	3	0	0	0	3	3	✓			
4		Vocational Elective-I	3	0	1	0	4	5			✓	
5	E1UA103C	Programming Paradigm and problem solving	3	0	1	1	5	8	✓		✓	
6		Co-Curricular Elective-I	2	0	0	0	2	2				
		Specialization Core-I	3	0	1	0	4	5				
<b>Total credits</b>							<b>24</b>	<b>29</b>				

**Second Semester**

			Credit Structure									
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Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1	E1UJ204T	Discrete Mathematics	3	0	0	0	3	3				
2		Open Elective-II	3	0	0		3	3	✓			
3	E1UA201B	Data Structure Using C	3	0	1	0	4	5	✓		✓	Code Chef
4		Vocational Elective-II	3	0	1	0	4	5			✓	
5	E1UA201C	Object Oriented Programming using C++	3	0	1	1	5	8	✓		✓	
6		Co-Curricular Elective-II	2	0	0	0	2	2				
		Specialization Core-II	3	0	1	0	4	5				
<b>Total credits</b>							<b>25</b>	<b>31</b>				

Third Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1		Open Elective-III	3	0	0	0	3	3	✓			
2		Operating System with Linux	3	0	1	0	4	5	✓		✓	Red Hat
3		Database Management System	3	0	1	0	4	5	✓		✓	
4		Vocational Elective-III	3	0	1	0	4	5			✓	
5		Programming in Python	3	0	1	1	5	8	✓		✓	
6		Co-Curricular Elective-III	2	0	0	0	2	2				
		Specialization Core-III	3	0	1	0	4	5				
<b>Total credits</b>							<b>26</b>	<b>33</b>				

Forth Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1	E1UA401T	Software Engineering & Testing	3	0	0	0	3	3	✓			
2	E1UA402T	Foundation of Big data	3	0	0	0	3	3	✓			Cebral Technologies
3	E1UA401B	Computer Networks	3	0	1	0	4	5	✓		✓	
4		Vocational Elective-IV	3	0	1	0	4	5			✓	

5	E1UA401C	Web Technology	3	0	1	1	5	8	✓		✓	Celebal Technologies
6		Co-Curricular Elective-IV	2	0	0	0	2	2				
		Internship	0	0	2	0	2	4			✓	
		Specialization Core-IV	3	0	1	0	4	5				
<b>Total credits</b>							<b>27</b>	<b>35</b>				

Fifth Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1		Foundation of Internet of Things (IoT)	3	0	0	0	3	3	✓			Microchip
2		Algorithm analysis and Design	3	0	1	0	4	5	✓		✓	
3		Campus to Corporate	3	0	0	0	3	3			✓	
4		Professional Elective -I	3	0	1	0	4	3	✓			
5		Programming in Java	3	0	1	1	5	8	✓		✓	
6		Project Work	0	0	2	0	2	4			✓	
		Specialization Core-V	3	0	1	0	4	5				
<b>Total credits</b>							<b>25</b>	<b>31</b>				

Sixth Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	
1		MOOC Subject	3	0	0	0	3	3	✓			
2		Capstone Project	0	0	10	0	10	26			✓	
<b>Total credits</b>							<b>13</b>	<b>29</b>				

<b>Total Credits</b>	<b>120</b>	NORMAL
<b>Total Credits</b>	<b>140</b>	SPL

Seventh Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	Value added Course
1		Research Methodology	2	0	0	0	2	2	✓			
2		AI and ML	3	0	1	1	4	8	✓		✓	
3		Data Science	3	0	1	0	4	5	✓		✓	Altair

4		Digital Image Processing	3	0	0	0	3	3	✓			
5		Professional Elective -II	3	0	1	0	3	5	✓		✓	
6		Research Project	0	0	0	4	4	8			✓	
<b>Total credits</b>							<b>20</b>	<b>31</b>				

Eight Semester												
			Credit Structure									
Sl. No.	Course Code	Course Title	L	T	P	S	Credits	Hours	EM	EP	SKILL	
1		Colloquium (Research Oriented)	0	0	0	0	5	10			✓	
2		Research Project (Minimum Scopus Indexed Journal Research Paper) -IV	0	0	0	0	15	20			✓	
<b>Total credits</b>							<b>20</b>	<b>30</b>				

<b>Total Credits</b>	<b>160</b>	NORMAL
<b>Total Credits</b>	<b>180</b>	SPL

Co-Curricular Electives									
BCA-IOP									
			Credit Structure						
SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	SEM
1	UF102T/ C2UF22	Food, Nutrition and Hygiene/ First aid and health	2	0	0	0	2	2	I
2	K1UE421T	Professional Ethics & Human values/ Environmental Studies	2	0	0	0	2	2	II

List of Professional Electives-I for Semester- V									
Sl No	Course Code	Name of the Electives (Choose one)	Credit Structure				Credits	Total hrs	
			L	T	P	S			
1	E1UA504B	Agile Methodology	3	0	1	0	4	5	
2	E1UA505B	Android App Development	3	0	1	0	4	5	NIELIT
3		Data Analytics	3	0	1	0	4	5	
4		Data Science	3	0	1	0	4	5	NIELIT

List of Professional Electives-II for Semester- VII									
Name of the Electives			Credit Structure						

Sl No	Course Code	Name of the Electives (Choose one)	L	T	P	S	Credits	Total hrs
1		Statistical Computing and R Programming	3	0	1	0	4	5
2		Python Programming And Numerical Methods	3	0	1	0	4	5

Specializations Core-I									
BCA-IOP Core for I SEM									
Credit Structure									
SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	BCA Specialization
1		Fundamentals of AI	3	0	1	0	4	5	AIML
2		Introduction to Big Data Science	3	0	1	0	4	5	DA
3		Cryptography and Network Security	3	0	1	0	4	5	CNCS
4		Fundamentals of Animation	3	0	1	0	4	5	MMA

NIELIT

Specializations Core-II									
BCA-IOP Core-II for II SEM									
Credit Structure									
SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	BCA Specialization
1	E1UA202B	Machine Learning	3	0	1	0	4	5	AIML
2	E1UA203B	Mathematics of Big Data & Optimization	3	0	1	0	4	5	DA
3	E1UA204B	Cyber Laws & Security Policies	3	0	1	0	4	5	CNCS
4	E1UA205B	Multimedia and Computer Graphics	3	0	1	0	4	5	MMA

Value added Course

Cebral Technologies

Specializations Core-III									
BCA-IOP Core-III for III SEM									
Credit Structure									

SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	BCA Specialization
2		Probability for Data Science	3	0	1	0	4	5	AIML
3		Business Data Analytics	3	0	1	0	4	5	DA
4		Wireless Sensor Networks	3	0	1	0	4	5	CNCS
5		2D Animation	3	0	1	0	4	5	MMA

Specializations Core-IV									
BCA-IOP Core-IV for IV SEM									
			Credit Structure						
SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	BCA Specialization
1	E1UB401B	Data analysis and handling	3	0	1	0	4	5	AIML
2	E1UE401B	Data Visualization	3	0	1	0	4	5	DA
3	E1UD401B	Distributed Operating System	3	0	1	0	4	5	CNCS
4	E1UG401B	Introduction to 3D Animation & Modeling	3	0	1	0	4	5	MMA

Specializations Core-V									
BCA-IOP Core-V for V SEM									
			Credit Structure						
SN.	Course Code	Course Name	L	T	P	S	Credits	Total hrs	BCA Specialization
1		Machine learning for Data Science	3	0	1	0	4	5	AIML
3		Data Mining and Data Warehouse	3	0	1	0	4	5	DA
5		Ethical Hacking	3	0	1	0	4	5	CNCS
7		Scripting for Animation & Games	3	0	1	0	4	5	MMA

Courses offered under Vocational category for the programmes which follow NEP 2020											
Sem	Course code	course name	L	T	P	C	IA	CAT	ETE	School	Division

1	E1UA103B	HTML & CSS	3	0	1	4	20	15	30	SCSE	Web Designing (Track-19)
2	E1UJ203B	Java Script & PHP	3	0	1	4	20	15	30		
3	I190301T	User Interface Design	3	0	1	4	20	15	30		
4	E1UA402B	Full Stack Development using F	3	0	1	4	20	15	30		
1		Computing And Peripherals	3	0	1	4	20	15	30	SCSE	Computer Hardware & Networking Track-23
2		Computer Hardware	3	0	1	4	20	15	30		
3		Networking & Storage	3	0	1	4	20	15	30		
4		Telecom Technician-IoT devices/System	3	0	1	4	20	15	30		

Sem	Course code	course name	L	T	P	C	IA	CAT	ETE	School	Division
1	D1UA102B	Data Analysis	3	0	0	3	20	15	30	SOB	Management (Track-21)
2	D1U1220B	AI for Managers	3	0	0	3	20	15	30		
3		Stock Market Analysis	3	0	0	3	20	15	30		
4		FlnTECH	3	0	0	3	20	15	30		

Courses offered under Open Elective category for the programmes which follow NEP 2020											
Sem	Course code	Course name	L	T	P	C	IA	CAT	ETE	School	
1	E2UC101T	Decision Making with Spreadsheet	3	1	0	4	20	30	50	DCSE	
2	K1UC221T	Elements of Literature and Creative Communication	3	0	0	3	20	40	50	NPTEL	
	K1UC222T	Training and Development	3	0	0	3	20	40	50	NPTEL	
	K1UC223T	English Language for Competitive Exams	3	0	0	3	20	40	50	NPTEL	
		E-Business	3	0	0	3	20	40	50	NPTEL	

S. No.	Broad Category of Course	Minimum Credit Requirement			Sub Category
		3-year UG	BCA	BCA IOP	
1	Major (Core)	60	58	58	DC
2	Minor Stream	24	9	9	OE
3	Multidisciplinary	9	8	8	CCE
4	Ability Enhancement Courses (AEC)	8	8	8	2 DC

5	Skill Enhancement Courses (SEC) UG	9	16	16	VE
6	Value Added Courses common for all	06 - 08	6	6	PE & MooC
7	Summer Internship	02 - 04	2	2	Internship
8	Research Project / Dissertation	-	13	13	Projects
9	Specialization			20	
	<b>Total</b>	<b>120</b>	<b>120</b>	<b>140</b>	