

Name of the Faculty : FACULTY OF ENGINEERING & TECHNOLOGY D

Name of the Program (As to be printed on the Degree Certificate) : Bachelor of Computer Applications (Cloud Computing/Web P

Session: 2024-2025

S. No.	Semester/Year/Prof	Council code (if any)	Subject Code (If already existing)	Nomenclature	Theory/Practical (Result Combined or Separate)	Core/ DSE/ AECC/ SEC/ VAC/ GE/ MGEC/S ubsidary	Theory/P ractical (Result Combine d or Separate)	L	T	P	Credits	Theory External		Attendance Marks	
												Max	Pass		
Semester I															
1	I/I		13060108	Mathematics-I	Theory	Core	Separate	3	1	0	4	60	24	5	
2			13060109	Fundamentals of Computers and IT	Theory	Core	Separate	3	0	0	3	60	24	5	
3			13060110	Introduction to Programming Methodology using C	Theory	Core	Separate	3	0	0	3	60	24	5	
4			13060111	Fundamentals of Computers and IT Lab	Practical	Core	Separate	0	0	2	1	-	-	-	
5			13060112	Introduction to Programming Methodology using C Lab	Practical	Core	Separate	0	0	2	1	-	-	-	
6			13060113	SEC - I (New Age Skill)	Practical	Core	Separate	0	0	4	2	-	-	-	
8			University Umbrella		MGEC-I	Theory	MGEC	Separate	4	0	0	4	60	24	

9		University Umbrella	AECC-I	Theory	AECC	Separate	2	0	0	2	30	12	
10		University Umbrella	VAC-I	Theory	VAC	Separate	2	0	0	2	30	12	
Total Credits for the Semester							17	1	8	22			
Semester II													
11	II/I	13060209	Statistics for Computing	Theory	Core	Separate	3	1	0	4	60	24	5
12		13060210	Data Structure and Algorithms using C	Theory	Core	Separate	3	0	0	3	60	24	5
13		13060211	Web Programming	Theory	Core	Separate	3	0	0	3	60	24	5
14		13060212	Data Structure and Algorithms using C Lab	Practical	Core	Separate	0	0	2	1	-	-	-
15		13060213	Web Programming Lab	Practical	Core	Separate	0	0	2	1	-	-	-
16		13060214	SEC - II (MATLAB)	Practical	Core	Separate	0	0	4	2	-	-	-
17		University Umbrella	MGEC-II	Theory	MGEC	Separate	4	0	0	4	60	24	
18		University	AECC-II	Theory	AECC	Separate	2	0	0	2	30	12	
19		University Umbrella	VAC-II	Theory	VAC	Separate	2	0	0	2	30	12	
Total Credits for the Semester							17	1	8	22			
Semester III													
20		13060309	Object oriented Development using C++	Theory	Core	Separate	3	0	0	3	60	24	5
21		13060310	Networks and Systems	Theory	Core	Separate	3	0	0	3	60	24	5
22		13060311	Personality Development & Career Building	Theory	Teaching Only	Separate	2*	0	0	-	-	-	-
23		13060312	Object oriented Development using C++ Lab	Practical	Core	Separate	0	0	2	1	-	-	-
24		13060313	Networks and Systems Lab	Practical	Core	Separate	0	0	2	1	-	-	-
25		13060314	Summer Internship - I	Practical	Core	Separate	0	0	4	2	-	-	-
26		University Umbrella	MGEC-III	Theory	MGEC	Separate	4	0	0	4	60	24	-
27		University	AECC-III	Theory	AECC	Separate	2	0	0	2	30	12	-

28	University Umbrella	VAC-III	Theory	VAC	Separate	2	0	0	2	30	12	-
			Total Credits for the Semester			14	0	8	18			
		Specialization I(Cloud Computing)										
29	13060315	Virtualization Concepts	Theory	DSE	Separate	3	0	0	3	60	24	5
30	13060316	Virtualization Concepts Lab	Practical		Separate	0	0	2	1	-	-	-
			Total Credits for the Semester			17	0	10	22			
		Specialization II(Artificial Intelligence and Machine Learning)										
31	13060317	Essentials of AI & ML	Theory	DSE	Separate	3	0	0	3	60	24	5
32	13060318	Essentials of AI & ML Lab	Practical		Separate	0	0	2	1	-	-	-
			Total Credits for the Semester			17	0	10	22			
		Specialization III(Data Science)										
33	13060319	Overview of Data Science and Machine Learning	Theory	DSE	Separate	3	0	0	3	60	24	5
34	13060320	Overview of Data Science and Machine Learning Lab	Practical		Separate	0	0	2	1	-	-	-
			Total Credits for the Semester			17	0	10	22			
		Specialization IV(Web Programming)										
35	13060321	Web Development Frameworks(React, Angular, Vue.js)	Theory	DSE	Separate	3	0	0	3	60	24	5
36	13060322	Web Development Frameworks(React, Angular, Vue.js) Lab	Practical		Separate	0	0	2	1	-	-	-
			Total Credits for the Semester			17	0	10	22			
		Specialization V(Cyber Security)										
37	13060323	Cyber Security Fundamentals	Theory	DSE	Separate	3	0	0	3	60	24	5
38	13060324	Cyber Security Fundamentals Lab	Practical		Separate	0	0	2	1	-	-	-
			Total Credits for the Semester			17	0	10	22			
Semester IV												
39	13060409	Database Management Systems	Theory	Core	Separate	3	0	0	3	60	24	5
40	13060410	Java Programming	Theory	Core	Separate	3	0	0	3	60	24	5

41	13060411	Quantitative Aptitude & Logical Reasoning	Theory	Teaching Only	Separate	2*	0	0	-	-	-	-
42	13060412	Database Management Systems Lab	Practical	Core	Separate	0	0	2	1	-	-	-
43	13060413	Java Programming Lab	Practical	Core	Separate	0	0	2	1	-	-	-
44	13060414	SEC-III (PC Networking)	Practical	Core	Separate	0	0	4	2	-	-	-
45	University Umbrella	AECC-IV	Theory	AECC	Separate	2	0	0	2	30	12	
Choose any one of the following (Theory)												
46	13060415	Advances in Operating Systems	Theory	DSE	Separate	3	0	0	3	60	24	5
47	13060416	IoT Networks and Protocols										
48	13060417	Industrial and Medical IoT										
Total Credits for the Semester						11	0	8	15			
Specialization I(Cloud Computing)												
49	13060418	Cloud Security Essentials	Theory	DSE	Separate	3	0	0	3	60	24	5
50	13060419	Private Cloud Management	Theory	DSE	Separate	3	0	0	3	60	24	5
51	13060420	Private Cloud Management Lab	Practical		Separate	0	0	2	1	-	-	-
Total Credits for the Semester						17	0	10	22			
Specialization II(Artificial Intelligence and Machine Learning)												
52	13060421	Data Mining & Predictive Modeling	Theory	DSE	Separate	3	0	0	3	60	24	5
53	13060422	Deep Learning and Neural Network	Theory	DSE	Separate	3	0	0	3	60	24	5
54	13060423	Deep Learning and Neural Network Lab	Practical		Separate	0	0	2	1	-	-	-
Total Credits for the Semester						17	0	10	22			
Specialization III(Data Science)												
55	13060424	Introduction to Data Science Tools	Theory	DSE	Separate	3	0	0	3	60	24	5
56	13060425	Computational Data Analytics	Theory	DSE	Separate	3	0	0	3	60	24	5
57	13060426	Computational Data Analytics Lab	Practical		Separate	0	0	2	1	-	-	-
Total Credits for the Semester						17	0	10	22			
Specialization IV(Web Programming)												
58	13060427	Advanced Web Development(APIs, AJAX)	Theory	DSE	Separate	3	0	0	3	60	24	5
59	13060428	UI / UX Design	Theory	DSE	Separate	3	0	0	3	60	24	5

IV/II

60	13060429	UI / UX Design Lab	Practical	DSE	Separate	0	0	2	1	-	-	-
		Total Credits for the Semester				17	0	10	22			
	Specialization V(Cyber Security)											
61	13060430	Cryptography and Network Security	Theory	DSE	Separate	3	0	0	3	60	24	5
62	13060431	DB Security and Access Control	Theory	DSE	Separate	3	0	0	3	60	24	5
63	13060432	DB Security and Access Control Lab	Practical		Separate	0	0	2	1	-	-	-
		Total Credits for the Semester				17	0	10	22			

Semester V														
64	V/III	13060509	Principles of Cyber Security	Theory	Core	Separate	3	0	0	3	60	24	5	
65		13060510	Empirical Software Engineering	Theory	Core	Separate	3	0	0	3	60	24	5	
66		13060511	Web development using PHP	Theory	Core	Separate	3	0	0	3	60	24	5	
67		13060512	Principles of Cyber Security Lab	Practical	Core	Separate	0	0	2	1	-	-	-	
68		13060513	Empirical Software Engineering Lab	Practical	Core	Separate	0	0	2	1	-	-	-	
69		13060514	Web development using PHP Lab	Practical	Core	Separate	0	0	2	1	-	-	-	
70		13060515	Summer Internship - II	Practical	Core	Separate	0	0	4	2	-	-	-	
Choose any two of the following (Theory+ Corresponding Practical)														
71		13060516	Algorithms Design and Complexity Theory	Theory	DSE	Separate	3	0	0	3	60	24	5	
72		13060517	Automata Theory and Computability											
73		13060518	Reinforcement Learning											
74		13060519	Algorithms Design and Complexity Theory Lab	Practical		Separate	0	0	2	1	-	-	-	
75		13060520	Automata Theory and Computability Lab											
76		13060521	Reinforcement Learning Lab											
Total Credits for the Semester							12	0	12	18				
Specialization I(Cloud Computing)														
77		13060522	Cloud Computing Architecture and Deployment models	Theory	DSE	Separate	3	0	0	3	60	24	5	
78		13060523	Cloud Computing Architecture and Deployment models Lab	Practical		Separate	0	0	2	1	-	-	-	
Total Credits for the Semester							15	0	14	22				
Specialization II(Artificial Intelligence and Machine Learning)														
79		13060524	Natural Language Processing	Theory	DSE	Separate	3	0	0	3	60	24	5	
80	13060525	Natural Language Processing Lab	Practical	Separate		0	0	2	1	-	-	-		
Total Credits for the Semester							15	0	14	22				
Specialization III(Data Science)														
81	13060526	Data Analysis and Visualization	Theory	DSE	Separate	3	0	0	3	60	24	5		
82	13060527	Data Analysis and Visualization Lab	Practical		Separate	0	0	2	1	-	-	-		
Total Credits for the Semester							15	0	14	22				

		Specialization IV(Web Programming)										
83	13060528	Mobile Web Development(Responsive Design, PWA)	Theory	DSE	Separate	3	0	0	3	60	24	5
84	13060529	Mobile Web Development(Responsive Design, PWA) Lab	Practical		Separate	0	0	2	1	-	-	-
		Total Credits for the Semester				15	0	14	22			
		Specialization V(Cyber Security)										
85	13060530	Cyber Threats and Attacks	Theory	DSE	Separate	3	0	0	3	60	24	5
86	13060531	Cyber Threats and Attacks Lab	Practical		Separate	0	0	2	1	-	-	-
		Total Credits for the Semester				15	0	14	22			
Semester VI												
87	13060607	Problem Solving using Python	Theory	Core	Separate	3	0	0	3	60	24	5
88	13060608	Datawarehousing and Data Mining	Theory	Core	Separate	3	0	0	3	60	24	5
89	13060609	Innovations & Entrepreneurship	Theory	Core	Separate	3	0	0	3	60	24	5
90	13060610	Problem Solving using Python Lab	Practical	Core	Separate	0	0	2	1	-	-	-
91	13060611	Datawarehousing and Data Mining Lab	Practical	Core	Separate	0	0	2	1	-	-	-
92	13060612	Innovations & Entrepreneurship Lab	Practical	Core	Separate	0	0	2	1	-	-	-
93	13060613	SEC-IV (Mobile Application Development)	Practical	Core	Separate	0	0	4	2	-	-	-
		Choose any one of the following (Theory+ Corresponding Practical)										
94	13060614	Computer Graphics & Vision	Theory	DSE	Separate	3	0	0	3	60	24	5
95	13060615	Compiler Design										
96	13060616	Image and Video Processing										
97	13060617	Computer Graphics & Vision Lab	Practical	DSE	Separate	0	0	2	1	-	-	-
98	13060618	Compiler Design Lab										
99	13060619	Image and Video Processing Lab										
		Total Credits for the Semester				12	0	12	18			
		Specialization I(Cloud Computing)										
100	13060620	Cloud and Fog Computing	Theory	DSE	Separate	3	0	0	3	60	24	5
101	13060621	Cloud and Fog Computing Lab	Practical		Separate	0	0	2	1	-	-	-
		Total Credits for the Semester				15	0	14	22			

VI/III

late of SOE Submission: 07/06/2024

rogramming/Data Science/Cyber Security/Artificial Intelligence and Machine Learning)

Theory (Internal)					Practical External				Practical (Internal)							
Mid Term Weightage	Assignment	Professional Activities	Max	Pass	Demonstration/Presentation	Viva-voce	Max	Pass	Attendance	Midterm oral Examination / assesment	Project/Laboratory Work/ Lab Performance	Max	Pass	Overall Pass Marks	End Term Examination Overall Passing Criteria: Theory: [External+Internal] or Practical: [External+Internal]	If Combined : Theory+ Practical
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	10	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	

10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	10	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	10	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	

10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	

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-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	
10	5	5	20	8	-	-	-	-	-	-	-	-	-	20	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	

20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	

20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	

20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
-	-	-	-	-	20	10	30	12	5	10	5	20	8	20	External + Internal	

20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	
20	5	10	40	16	-	-	-	-	-	-	-	-	-	40	External + Internal	

