

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF COMPUTER APPLICATIONS

NAAC CRITERIA 1.2.2



Scheme of Instructions & Syllabi

of

**Bachelor of Science (Honors)
in Computer Science**

(Effective from session 2016-17)

Department of Computer Applications

INVERTIS UNIVERSITY

Bareilly-243123 U.P.

Santosh
Registrar
Invertis University
Bareilly

B. Sc. (Honors) in Computer Science
Scheme of Instructions
(Effective from session 2016-2017)

1st YEAR

I Semester				Teaching Scheme			Marks Distribution		
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MS M	Tota l
Paper 1	CSH 101	Computer Fundamentals	4	3	1	0	70	30	100
Paper 2	CSH 102	Programming using C	4	3	1	0	70	30	100
Paper 3	CSH 103	Digital Electronics and Applications	4	3	1	0	70	30	100
Paper 4	CSH 104	Communication Skills	4	3	1	0	70	30	100
Lab 1	CSH 151	C Programming Lab	2	0	0	4	35	15	50
Lab 2	CSH 152	Digital Electronics Lab	2	0	0	4	35	15	50
Total				1 2	4	8	350	150	500
II Semester									
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MS M	Tota l
Paper 1	CSH 201	Discrete Structures	4	3	1	0	70	30	100
Paper 2	CSH 202	Operating Systems using UNIX	4	3	1	0	70	30	100
Paper 3	CSH 203	Computer Based Numerical Techniques	4	3	1	0	70	30	100
Paper 4	CSH 204	Data Structures using C	4	3	1	0	70	30	100
Lab 1	CSH 251	UNIX and CBNT Lab	2	0	0	4	35	15	50
Lab 2	CSH 252	Data Structures Lab	2	0	0	4	35	15	50
Total				1 2	4	8	350	150	500

L – Lecture

T – Tutorial

P – Practical

ESM – End Semester Marks

MSM – Max. Sessional Marks

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B. Sc. (Honors) in Computer Science
Scheme of Instructions
 (Effective from session 2016-17)
2nd YEAR

III Semester				Teaching Scheme			Marks Distribution		
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MS M	Tota I
Paper 1	CSH 301	RDBMS	4	3	1	0	70	30	100
Paper 2	CSH 302	OOPs using C++	4	3	1	0	70	30	100
Paper 3	CSH 303	Computer Networking	4	3	1	0	70	30	100
Paper 4	CSH 304	System Analysis and Design	4	3	1	0	70	30	100
Lab 1	CSH 351	RDBMS Lab	2	0	0	4	35	15	50
Lab 2	CSH 352	OOPs using C++ Lab	2	0	0	4	35	15	50
Total			20	12	4	8	350	150	500

IV Semester									
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MS M	Tota I
Paper 1	CSH 401	Graph Theory and it's Applications	4	3	1	0	70	30	100
Paper 2	CSH 402	Computer Graphics	4	3	1	0	70	30	100
Paper 3	CSH 403	E-Commerce	4	3	1	0	70	30	100
Paper 4	CSH 404	Environment and Ecology	2	3	0	0	35	15	50
Paper 5	CSH 405	Human Values & Ethics	2	3	0	0	35	15	50
Lab 1	CSH 451	Computer Graphics Lab	2	0	0	4	35	15	50
	CSH452	Seminar	2	2	0	0	35	15	50
Total			20	17	3	4	350	150	500

L – Lecture
 T – Tutorial
 P – Practical
 ESM – End Semester Marks
 MSM – Max. Sessional Marks

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B. Sc. (Honors) in Computer Science
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3rd YEAR

V Semester				Teaching Scheme			Marks Distribution		
PAPE R	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1	CSH 501	Introduction to Java Programming	4	3	1	0	70	30	100
Paper 2	CSH 502	Internet Technologies	4	3	1	0	70	30	100
Paper 3	CSH 503	Theory of Computation	4	3	1	0	70	30	100
Paper 4	CSH 504	Elective – I	4	3	1	0	70	30	100
Lab 1	CSH 551	Java Programming Lab	2	0	0	4	35	15	50
Lab 2	CSH 552	Internet Technologies Lab	2	0	0	4	35	15	50
Total			20	12	4	8	350	150	500
Elective – I i. Artificial Intelligence ii. Artificial Neural Network iii. Data Mining									
VI Semester									
PAPE R	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1	CSH 601	GUI using .Net Framework	4	3	1	0	70	30	100
Paper 2	CSH 602	Digital Image Processing	4	3	1	0	70	30	100
Paper 3	CSH 603	Elective – II	4	3	1	0	70	30	100
Paper 4	CSH 604	Elective – III	4	3	1	0	70	30	100
Lab 2	CSH 651	GUI using .Net Framework Lab	2	0	0	4	35	15	50
Lab 3	CSH 652	Image Processing Lab using MATLAB	2	0	0	4	35	15	50
Total			20	12	4	8	350	150	500
Elective – II i. Numerical Algorithms and Operation Research ii. Simulation and Modeling iii. Advanced Algorithms									
Elective – III i. Project Work ii. Dissertation									

L – Lecture

T – Tutorial

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ESM – End Semester Marks

MSM – Max. Sessional Marks

Sanjiv Kumar
 Registrar
 J. J. Somaiya Institute of Technology
 Vashi, Mumbai

**Scheme of Instructions & Syllabi of
Bachelor of Computer
Applications**

(Effective from Session 2018-19)

Department of Computer Applications

**INVERTISUNIVERSITY
Bareilly-243123U.P.**

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Bareilly

**B.C.A. (Bachelor of Computer
Applications) Scheme of
Instructions**
(Effective from Session 2018-19)

1YEAR

I Semester				Teaching Scheme			Marks Distribution		
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MSM	Tota l
Paper 1	BCA 101	Environment and Ecology	4	3	1	0	70	30	100
Paper 2	BPC 101	Professional Communication I	4	3	1	0	70	30	100
Paper 3	BCA 103	Computer Fundamentals and C Programming Concepts	4	3	1	0	70	30	100
Paper 4	BCA 104	Principles of Management	4	3	1	0	70	30	100
Paper 5	BCA 105	Digital Electronics and Computer Organization	4	3	1	0	70	30	100
Paper 6	BCA198 *	Remedial Mathematics	4	3	1	0	70	30	100
Lab 1	BCA 151	Computer Fundamentals Lab	2	0	0	4	35	15	50
Lab 2	BCA 152	Digital Electronics LAB	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600
II Semester									
PAPE R	CODE	SUBJECT	CREDI T	L	T	P	ES M	MSM	Tota l
Paper 1	BCA 201	Engineering Mathematics	4	3	1	0	70	30	100
Paper 2	BCA 202	Introduction to Operating Systems	4	3	1	0	70	30	100
Paper 3	BCA 203	C Programming	4	3	1	0	70	30	100
Paper 4	PCP 201	PC Package	4	3	1	0	70	30	100
Paper 5	BCA 205	Human Values & Business Ethics	4	3	1	0	70	30	100
Lab 1	BCA 251	C Programming Lab	2	0	0	4	35	15	50
Lab 2	BCA 252	Operating System Lab	2	0	0	4	35	15	50
Total			24	13	5	8	420	180	600

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B.C.A. (Bachelor of Computer Applications)
Scheme of Instructions
 (Effective from session 2018-19)
2nd YEAR

III Semester				Teaching Scheme			Marks Distribution		
PAPER	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1	BCA 301	Discrete Mathematics	4	3	1	0	70	30	100
Paper 2	BCA 302	Database Management Systems	4	3	1	0	70	30	100
Paper 3	BCA 303	Data Structures using C	4	3	1	0	70	30	100
Paper 4	BCA 304	Computer Networking	4	3	1	0	70	30	100
Paper 5	BCA 305	Computer Based Numerical and Optimization Techniques	4	3	1	0	70	30	100
Lab 1	BCA 351	DBMS LAB	2	0	0	4	35	15	50
Lab 2	BCA 352	Data Structure LAB	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600
IV Semester									
PAPER	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1	BCA 401	Software Engineering	4	3	1	0	70	30	100
Paper 2	BCA 402	Computer Graphics and Animation	4	3	1	0	70	30	100
Paper 3	BCA 403	Object Oriented Programming using C++	4	3	1	0	70	30	100
Paper 4	BCA 404	Organization Behavior	4	3	1	0	70	30	100
Paper 5	BCA 405	Financial Accounting and Applications	4	3	1	0	70	30	100
Lab 1	BCA 451	C++ LAB	2	0	0	4	35	15	50
Lab 2	BCA 452	Computer Graphics LAB	2	0	0	4	35	15	50
Lab 3	BCA 495	Mini Project	4	0	0	4	35	15	50
Total			28	13	5	12	455	195	650

L – Lecture

T – Tutorial

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3rd YEAR

V Semester				Teaching Scheme			Marks Distribution		
PAPER	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1	BCA 502	Java Programming	4	3	1	0	70	30	100
Paper 2	BCA 505	Data and Network Security	4	3	1	0	70	30	100
Paper 3	BCA 506	Data Mining and Warehousing	4	3	1	0	70	30	100
Paper 4	BCA 507	Grid and Cloud Computing	4	3	1	0	70	30	100
Paper 5		Elective – I	4	3	1	0	70	30	100
Lab 2	BCA 551	Java Programming LAB	2	0	0	4	35	15	50
Lab 2		Elective – I LAB	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600

Elective – I

i. BCA 511	Multimedia and Applications	Lab Code: BCA 552
ii. BCA 512	Android Programming	Lab Code: BCA 553
iii. BCA 513	Advanced SQL Programming	Lab Code: BCA 554
iv. BCA514	Artificial Intelligence	Lab Code: BCA 555

VI Semester

PAPER	CODE	SUBJECT	CREDIT	L	T	P	ESM	MSM	Total
Paper 1		Elective – II	4	3	1	0	70	30	100
Paper 2	BCA 602	GUI using .Net Framework	4	3	1	0	70	30	100
Paper 3	BCA 603	Web Based System Development	4	3	1	0	70	30	100
Lab 1	BCA 651	GUI using .Net Framework LAB	2	0	0	4	35	15	50
Lab 2	BCA 652	Web Based System Development LAB	2	0	0	4	35	15	50
Lab 3	BCA 696	Major Project	6	0	0	6	105	45	150
Total			22	9	3	14	385	165	550

Elective – II

i. BCA 611	Software Project Management
ii. BCA 612	Mobile Computing
iii. BCA 613	Artificial Neural Network (ANN)
iv. BCA614	E-Business with Security issues

L – Lecture

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Faculty of Computer Applications

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M.C.A. (Master of Computer Applications)
Scheme of Instructions
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1st YEAR

I Semester				Teaching Scheme			Marks Distribution		
Paper	Code	Subject	Credit	L	T	P	ES M	MS M	Total
Paper 1	MCA 101	Computer Concepts and C Programming	4	3	1	0	70	30	100
Paper 2	MCA 102	Computer Organization	4	3	1	0	70	30	100
Paper 3	MCA 103	Discrete Mathematics	4	3	1	0	70	30	100
Paper 4	MCA 104	Professional Communication	4	3	1	0	70	30	100
Paper 5	MCA 105	Accounting and Financial Management	4	3	1	0	70	30	100
Lab 1	MCA 151	C Language Lab	2	0	0	4	35	15	50
Lab 2	MCA 152	Computer Organization Lab	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600
II Semester									
Paper	Code	Subject	Credit	L	T	P	ES M	MS M	Total
Paper 1	MCA 201	Data Structure using C	4	3	1	0	70	30	100
Paper 2	MCA 202	Database Management Systems	4	3	1	0	70	30	100
Paper 3	MCA 203	Principles of Management	4	3	1	0	70	30	100
Paper 4	MCA 204	Computer Based Optimization Techniques	4	3	1	0	70	30	100
Paper 5	MCA 205	Operating Systems	4	3	1	0	70	30	100
Paper 6**	MCA 298**	Human Values and Ethics	4	3	1	0	70	30	100
Lab 1	MCA 251	Data Structure Lab	2	0	0	4	35	15	50
Lab 2	MCA 252	DBMS Lab	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600

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M.C.A. (Master of Computer Applications)
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2nd YEAR

III Semester				Teaching Scheme			Marks Distribution		
Paper	Code	Subject	Credit	L	T	P	ES M	MSM	Total
Paper 1	MCA 301	OOPs Concepts using Java	4	3	1	0	70	30	100
Paper 2	MCA 302	Web Engineering: Tools & Technologies	4	3	1	0	70	30	100
Paper 3	MCA 303	Data Communication & Computer Network	4	3	1	0	70	30	100
Paper 4	MCA 304	Design and Analysis of Algorithm	4	3	1	0	70	30	100
Paper 5	MCA 305	Software Engineering	4	3	1	0	70	30	100
Paper 6*	MCA 398*	Elementary Mathematics	4	3	1	0	70	30	100
Lab 1	MCA 351	Java Lab	2	0	0	4	35	15	50
Lab 2	MCA 352	Web Tech Lab	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600
IV Semester									
Paper	Code	Subject	Credit	L	T	P	ES M	MSM	Total
Paper 1	MCA 401	.Net Framework Using C#	4	3	1	0	70	30	100
Paper 2	MCA 402	Computer Graphics	4	3	1	0	70	30	100
Paper 3	MCA 403	Data Warehousing And Data Mining	4	3	1	0	70	30	100
Paper 4		Elective-1	4	3	1	0	70	30	100
Paper 5		Elective-2	4	3	1	0	70	30	100
Paper 6**	MCA498**	Aptitude Course – I	0	4	0	0	35	15	50
Lab 1	MCA 451	Computer Graphics Lab	2	0	0	4	35	15	50
Lab 2	MCA 452	.Net Framework Using C# Lab	2	0	0	4	35	15	50
Total			24	15	5	8	420	180	600
Elective – I			Elective – II						
I.	MCA 411	Advanced Computer Network	I.	MCA 421	Android Programming				
II.	MCA 412	Cryptography And Network Security	II.	MCA 422	Oracle DBA				
III.	MCA 413	Distributed Database System	III.	MCA 424	UNIX and Shell Programming				
IV.	MCA 414	Theory of Computation	IV.	MCA 425	Advanced Java and Internet Programming				

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3rd YEAR

V Semester				Teaching Scheme			Marks Distribution		
Paper	Code	Subject	Credit	L	T	P	ES M	MS M	Total
Paper 1	MCA 501	PHP Programming	4	3	1	0	70	30	100
Paper 2	MCA 505	Grid and Cloud Computing	4	3	1	0	70	30	100
Paper 3	MCA 503	Artificial Intelligence	4	3	1	0	70	30	100
Paper 4		Elective-3	4	3	1	0	70	30	100
Paper 5		Elective-4	4	3	1	0	70	30	100
Paper 6**	MCA 598**	Aptitude Course – II	0	3	1	0	35	15	50
Lab 1	MCA 595	Mini Project	4	0	0	4	70	30	100
Lab 2	MCA 551	PHP Lab	2	0	0	4	35	15	50
Total			24	18	6	4	420	180	600
Elective – III			Elective – IV						
I. MCA 511 Python			I. MCA 521 Digital Image Processing						
II. MCA 512 Big Data and R-Programming			II. MCA 522 Artificial Neural Networks						
III. MCA 513 MATLAB			III. MCA 523 Distributed System						
IV. MCA 514 SQL Server			IV. MCA 524 Enterprise Resource Planning						
V. MCA 515 Compiler Design			V. MCA 525 Software Testing Tools						
VI Semester									
Paper	Code	Subject	Credit	L	T	P	ES M	MS M	Total
	MCA 691	Project Work	16	0	0	0	280	120	400
	MCA 692	Seminar/Colloquium	4	0	0	0	140	60	200
Total			24	0	0	0	420	180	600

*Qualifying paper for Non-mathematic Candidates.

** Qualifying paper for all candidates.

L – Lecture

T – Tutorial

P – Practical

ESM – End Semester Marks

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