

# University of Mumbai

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Academic Authorities,  
Meetings & Services (AAMS)  
Room No. 128, M. G. Road, Fort,  
Mumbai – 400 032.  
Tel. 022-68320033

Re- accredited with A ++ Grade (CGPA 3.65) by NAAC  
Category- I University Status awarded by UGC

No. AAMS\_UGS/ICD/2024-25/424

Date : 24<sup>th</sup> March, 2025.

To,  
The Director,  
Garware Institute of Career Education  
and Development,  
Vidyanagari  
Santacruz (East)  
**Mumbai – 400 098.**

**Sub : BCA (Fintech) (Three year) (Sem I & II)**

Sir,

With reference to the subject noted above, this is to inform you that the recommendations made by the **Advisory Committee & Board of Management** of Garware Institute of Career Education & Development at its Meeting held on **4<sup>th</sup> September, 2023** & resolution passed by the **Board of Deans** at its meeting held on **9<sup>th</sup> August, 2023** vide Item No. 9.2 have been accepted by the **Academic Council** at its meeting held on **1<sup>st</sup> November, 2023** vide Item no. 9.4 (C) 6 (N) and subsequently approved by the **Management Council** at its meeting held on **5<sup>th</sup> February, 2024** vide Item No. 3 that in accordance therewith, in exercise of the powers conferred upon the Management Council under Section 74(4) of the Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017) the following program with Ordinance for Title of the Program, Eligibility and Regulation numbers for Duration of Program, Intake Capacity, Scheme of Examinations, Standard of Passing and Credit Structure along with syllabus of **BCA (Fintech) (Sem I & II)** (Appendix – 'A') have been introduced and the same have been brought into force with effect from the academic year **2023-24**.

The New Ordinances & Regulations as per NEP 2020 is as follows :-

Sr. No.	Name of the Program	Ordinance no. for Title	Ordinance no. for Eligibility	Duration
A	U.G. Certificate in Fintech	O.GUA – 513 A	O.GUA – 514 A	One year
B	U.G. Diploma in Fintech	O.GUA – 513 B	O.GUA – 514 B	Two year
C	BCA ( Fintech)	O.GUA – 513 C	O.GUA – 514 C	Three year
D	BCA (Hons) (Fintech)	O.GUA – 513 D	O.GUA – 514 D	Four year



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Date: 24<sup>th</sup> March, 2025

: 2 :

Regulation Nos	
Duration	R.GUA – 531
Intake Capacity	R.GUA – 532
Scheme of examination	R.GUA – 533
Standard of Passing	R.GUA – 534
Credit Structure	R.GUA – 535 A
	R.GUA – 535 B
	R.GUA – 535 C
	R.GUA – 535 D

  
(Dr. Prasad Karande)  
REGISTRAR

**A.C/9.4(C)6(N)/01/11/2023**  
**M.C/3/5/2/2024**

\*\*\*\*\*

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans
- 2) The Dean, Faculty of Science & Technology.
- 3) The Director, Board of Examinations and Evaluation,
- 4) The Director, Board of Students Development,
- 5) The Director, Department of Information & Communication Technology,
- 6) The Co-ordinator, MKCL.

<b>Copy forwarded for information and necessary action to :-</b>	
1	The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Dept)(AEM), <a href="mailto:dr@eligi.mu.ac.in">dr@eligi.mu.ac.in</a>
2	The Deputy Registrar, Result unit, Vidyanagari <a href="mailto:drresults@exam.mu.ac.in">drresults@exam.mu.ac.in</a>
3	The Deputy Registrar, Marks and Certificate Unit,. Vidyanagari <a href="mailto:dr.verification@mu.ac.in">dr.verification@mu.ac.in</a>
4	The Deputy Registrar, Appointment Unit, Vidyanagari <a href="mailto:dr.appointment@exam.mu.ac.in">dr.appointment@exam.mu.ac.in</a>
5	The Deputy Registrar, CAP Unit, Vidyanagari <a href="mailto:cap.exam@mu.ac.in">cap.exam@mu.ac.in</a>
6	The Deputy Registrar, College Affiliations & Development Department (CAD), <a href="mailto:deputyregistrar.uni@gmail.com">deputyregistrar.uni@gmail.com</a>
7	The Deputy Registrar, PRO, Fort, (Publication Section), <a href="mailto:Pro@mu.ac.in">Pro@mu.ac.in</a>
8	The Deputy Registrar, Executive Authorities Section (EA) <a href="mailto:eau120@fort.mu.ac.in">eau120@fort.mu.ac.in</a>  He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to the above circular.
9	The Deputy Registrar, Research Administration & Promotion Cell (RAPC), <a href="mailto:rapc@mu.ac.in">rapc@mu.ac.in</a>
10	The Deputy Registrar, Academic Appointments & Quality Assurance (AAQA) dy.registrar.tau.fort.mu.ac.in <a href="mailto:ar.tau@fort.mu.ac.in">ar.tau@fort.mu.ac.in</a>
11	The Deputy Registrar, College Teachers Approval Unit (CTA), <a href="mailto:concolsection@gmail.com">concolsection@gmail.com</a>
12	The Deputy Registrars, Finance & Accounts Section, fort <a href="mailto:draccounts@fort.mu.ac.in">draccounts@fort.mu.ac.in</a>
13	The Deputy Registrar, Election Section, Fort <a href="mailto:drelection@election.mu.ac.in">drelection@election.mu.ac.in</a>
14	The Assistant Registrar, Administrative Sub-Campus Thane, <a href="mailto:thanesubcampus@mu.ac.in">thanesubcampus@mu.ac.in</a>
15	The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan, <a href="mailto:ar.seask@mu.ac.in">ar.seask@mu.ac.in</a>
16	The Assistant Registrar, Ratnagiri Sub-centre, Ratnagiri, <a href="mailto:ratnagirisubcentar@gmail.com">ratnagirisubcentar@gmail.com</a>
17	The Director, Centre for Distance and Online Education (CDOE), Vidyanagari, <a href="mailto:director@idol.mu.ac.in">director@idol.mu.ac.in</a>
18	Director, Innovation, Incubation and Linkages, Dr. Sachin Laddha <a href="mailto:pinkumanno@gmail.com">pinkumanno@gmail.com</a>
19	Director, Department of Lifelong Learning and Extension (DLLE), <a href="mailto:dlleuniversityofmumbai@gmail.com">dlleuniversityofmumbai@gmail.com</a>

Copy for information :-	
1	P.A to Hon'ble Vice-Chancellor, <a href="mailto:vice-chancellor@mu.ac.in">vice-chancellor@mu.ac.in</a>
2	P.A to Pro-Vice-Chancellor <a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>
3	P.A to Registrar, <a href="mailto:registrar@fort.mu.ac.in">registrar@fort.mu.ac.in</a>
4	P.A to all Deans of all Faculties
5	P.A to Finance & Account Officers, (F & A.O), <a href="mailto:camu@accounts.mu.ac.in">camu@accounts.mu.ac.in</a>

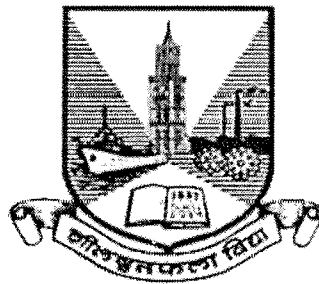
To,

1	The Chairman, Board of Deans <a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>
2	<p><b>Faculty of Humanities,</b></p> <p><b>Dean</b></p> <p>1. Prof.Anil Singh <a href="mailto:Dranilsingh129@gmail.com">Dranilsingh129@gmail.com</a></p> <p><b>Associate Dean</b></p> <p>2. Dr.Suchitra Naik <a href="mailto:Naiksuchitra27@gmail.com">Naiksuchitra27@gmail.com</a></p> <p>3.Prof.Manisha Karne <a href="mailto:mkarne@economics.mu.ac.in">mkarne@economics.mu.ac.in</a></p> <p><b>Faculty of Commerce &amp; Management,</b></p> <p><b>Dean</b></p> <p>1. Dr.Kavita Laghate <a href="mailto:kavitalaghate@jbims.mu.ac.in">kavitalaghate@jbims.mu.ac.in</a></p> <p><b>Associate Dean</b></p> <p>2. Dr.Ravikant Balkrishna Sangurde <a href="mailto:Ravikant.s.@somaiya.edu">Ravikant.s.@somaiya.edu</a></p> <p>3. Prin.Kishori Bhagat <a href="mailto:kishoribhagat@rediffmail.com">kishoribhagat@rediffmail.com</a></p>

	<b>Faculty of Science &amp; Technology</b> <b>Dean</b> 1. Prof. Shivram Garje <a href="mailto:ssgarje@chem.mu.ac.in">ssgarje@chem.mu.ac.in</a> <b>Associate Dean</b> 2. Dr. Madhav R. Rajwade <a href="mailto:Madhavr64@gmail.com">Madhavr64@gmail.com</a> 3. Prin. Deven Shah <a href="mailto:sir.deven@gmail.com">sir.deven@gmail.com</a>
	<b>Faculty of Inter-Disciplinary Studies,</b> <b>Dean</b> 1. Dr. Anil K. Singh <a href="mailto:aksingh@trcl.org.in">aksingh@trcl.org.in</a> <b>Associate Dean</b> 2. Prin. Chadrashekhhar Ashok Chakradeo <a href="mailto:cachakradeo@gmail.com">cachakradeo@gmail.com</a>
3	Chairman, Board of Studies,
4	The Director, Board of Examinations and Evaluation, <a href="mailto:dboee@exam.mu.ac.in">dboee@exam.mu.ac.in</a>
5	The Director, Board of Students Development, <a href="mailto:dsd@mu.ac.in">dsd@mu.ac.in</a> DSW <a href="mailto:directr@dsd.mu.ac.in">directr@dsd.mu.ac.in</a>
6	The Director, Department of Information & Communication Technology, <a href="mailto:director.dict@mu.ac.in">director.dict@mu.ac.in</a>

**As Per NEP 2020**

# **University of Mumbai**



## **Title of the program**

- A- U.G. Certificate in Fintech
- B- U.G. Diploma in Fintech
- C- BCA (Fintech)
- D- BCA (Hons.) (Fintech)

**(Garware Institute of Career Education and Development)**

**Syllabus for  
Semester- Semester I and II**

**Ref: GR dated 20<sup>th</sup> April,2023 for Credit Structure of UG**

**(with effect from the academic year 2023-24 Progressively)**



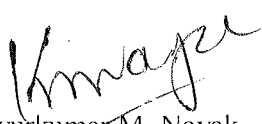
# UNIVERSITY OF MUMBAI

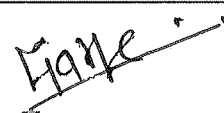


(AS PER NEP 2020)

Sr. No.	Heading	Particulars	
1	Title of program O: <u>GUA – 513</u> A	A	U.G. Certificate in Fintech
	O: <u>GUA – 513</u> B	B	U.G. Diploma in Fintech
	O: <u>GUA – 513</u> C	C	BCA (Fintech)
	O: <u>GUA – 513</u> D	D	BCA(Hons.) (Fintech)
2	Eligibility O: <u>GUA – 514</u> A	A	H.S.C. Passed in any Stream <b>OR</b> Passed Equivalent Academic Level 4.0 Admissions on the basis of Written Test & Interview 50% passing marks in the Entrance assessment.
	O: <u>GUA – 514</u> B	B	1. The candidate who has successfully completed U.G. Certificate in Fintech <b>OR</b> Passed Equivalent Academic Level 4.5  2. The candidate who's Under Graduate Certificate credits are 60% equivalent to U.G. Diploma in Fintech & he/she earns minimum 8 Credits from U.G. Certificate in Fintech.  3. As per NEP criteria on the basis of RPL-Recognition of Prior Learning, Candidate to be admitted to 2 <sup>nd</sup> Year subject to He/she securing minimum 50% in the 1 <sup>st</sup> Year assessment of U.G. Certificate in Fintech.
	O: <u>GUA – 514</u> C	C	1. The candidate who has successfully completed U.G. Diploma in Fintech <b>OR</b> Passed Equivalent Academic Level 5.0  2. The candidate who's Under Graduate Diploma credits are 60% equivalent to BCA (Fintech) & he/she earns minimum 8 Credits from U.G. Diploma in Fintech.  3. As per NEP criteria on the basis of RPL-Recognition of Prior Learning, Candidate to be admitted to 3 <sup>rd</sup> Year subject to He/she securing minimum 50% in the 2 <sup>nd</sup> Year assessment of U.G. Diploma in Fintech.
	O: <u>GUA – 514</u> D	D	1. The candidate who has successfully completed BCA (Fintech) with minimum

			CGPA of 7.5 <b>OR</b> Passed Equivalent Academic Level 5.5
3	Duration of Program R: <u>GUA – 531</u>	A	1 Year
		B	2 Years
		C	3 Years
		D	4 Years
4	R: <u>GUA – 532</u> Intake Capacity	60	
5	R: <u>GUA – 533</u> Scheme of Examination	NEP 50% Internal – Continuous Evaluation 50% External- Semester End Examination Individual Passing in Internal and External Examination	
6	Standards of Passing R: <u>GUA – 534</u>	50% in each component	
7	Credit Structure R: <u>GUA – 535 A</u> R: <u>GUA – 535 B</u> R: <u>GUA – 535 C</u> R: <u>GUA – 535 D</u>	Attached herewith	
8	Semesters	A	Sem I & II
		B	Sem I, II, III, & IV
		C	Sem I, II, III, IV, V, & VI
		D	Sem I, II, III, IV, V, VI, VII & VIII
9	Program Academic Level	A	4.5
		B	5.0
		C	5.5
		D	6.0
10	Pattern	Semester	
11	Status	New	
12	To be implemented from Academic Year	From Academic Year 2023-24	

  
 Dr. Keyurkumar M. Nayak,  
 Director,  
 UM-GICED

  
 Prof. (Dr.) Shivram S. Garje  
 Dean,  
 Faculty of Science



# Preamble

## Introduction:

The Bachelor of Computer Applications (Fintech) is a specialized program that combines the disciplines of computer science and finance to provide students with a comprehensive understanding of the rapidly evolving field of financial technology. This program equips students with the necessary knowledge and skills to leverage cutting-edge technologies, such as blockchain, artificial intelligence, and data analytics, to transform the financial industry. By integrating computer programming, finance, and business skills, the BCA (Fintech) program prepares students for diverse career opportunities in financial institutions, technology companies, and fintech startups.

## Program Objectives:

The program objectives of the BCA in Fintech course aim to provide students with a strong foundation in both computer science and finance, while also focusing on the specific needs of the financial technology industry. The objectives include developing students' technical proficiency in fintech-related technologies, such as blockchain and data analytics, and equipping them with the skills to design and develop innovative financial solutions. The program also aims to foster critical thinking, problem-solving, and decision-making abilities in the context of financial technology. Overall, the objectives of the course are to prepare graduates to be competent fintech professionals who can drive technological advancements and contribute to the transformation of the financial sector.

## Course Objectives:

The course objectives of the BCA in Fintech program are designed to equip students with a comprehensive set of skills and knowledge required to excel in the field of financial technology. The objectives include providing students with a strong understanding of core computer science principles and finance fundamentals. Students will develop proficiency in fintech-related technologies and tools, such as blockchain, artificial intelligence, and data analytics. The course aims to cultivate problem-solving and critical thinking abilities, enabling students to analyze complex financial data and design innovative fintech solutions.

## Course Outcomes:

- CO1:** Demonstrate a strong understanding of core computer science principles and finance fundamentals in the context of financial technology.
- CO2:** Apply fintech-related technologies, such as block chain, artificial intelligence, and data analytics, to develop innovative financial solutions.
- CO3:** Analyze and interpret complex financial data using computational tools and techniques, making data-driven decisions within the fintech domain.
- CO4:** Collaborate effectively in interdisciplinary teams to design and implement fintech projects, considering both technical and financial aspects.
- CO5:** Communicate and present fintech concepts, solutions, and insights to diverse stakeholders in a clear and concise manner, fostering effective professional communication skills.

# 5) Credit Structure of the program – Parishisth- 2

R: GUA – 535 A

## BCA (Fintech)

First Year										
Level	Semester	Major		Minor	OE	VC, SEC	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr./ Sem.	Degree/ Cum. Cr.
		Mandatory*	Electives Any one							
4.5	I	Foundation of Computer Science Credits 2	-	-	Financial Accountin g Credits 2	VC: Found ation Course 1 Credits 2	AEC: Grammatical and Composition Skills English Credits 2	CC: Sports and Cultural Activities Credits 2	22	UG Certific ate 40-44
		Foundation of Fintech Credits 4			Business Finance Credits 2	SEC: Leader ship Skills- 1 Credits 2	VEC: Indian Values and Ethics Credits 2 IKS : Indian Knowledge System Credits 2			
	<b>Credits</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>22</b>	
	II	Introduction to programming using Java Credits 4	-	Finan cial Infor mation Systems Credits 2	Economi c Environ ment of Business Credits 2	VC: Found ation Course 1 Credits 2	AEC Conversational Skills Credits :2,	CC Sports and Cultural Activities Credits 2	22	
		Statistical Thinking Credits 2			Introduct ion to Financia l Markets Credits 2	SEC: Leader ship Skills- 2 Credits 2	VEC: Social Media Solutions Credits 2			
<b>Credits</b>		<b>6</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>22</b>	
<b>Cum Cr.</b>		<b>12</b>	<b>-</b>	<b>2</b>	<b>8</b>	<b>8</b>	<b>10</b>	<b>4</b>	<b>44</b>	
Exit option: Award of UG Certificate in Major with 40-44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor										

**R: GUA – 535 B**
**SECOND YEAR**

Level	Semester	Major		Minor	OE	VC, SEC	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr./ Sem.	Degree/ Cum. Cr.
		Mandatory*	Electives Any one							
5.0	III	Big Data Credits 4  Block chain Applications Credits 2	-	Banking Operations and Technology Credits 4	Marketing and Sales of Financial Products Credits 2	VC: Business Ethics & CSR Credits:2,	AEC: Communication Skills Credits 2	FP: Community Engagement & Services (CES)Credits 2  CC: Sports and Cultural Activities Credits :2	20	UG Diploma 80-88
<b>Credits</b>		<b>6</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>20</b>	
	IV	Open Stacks APIs and Cloud Computing Credits 4  Data Visualization Credits 2	-	Machine Learning Credits 4	Business Research Methods Credits 2	Excel and Advanced Excel Credits :2	AEC Corporate and Business Communication Credits :2	CEP: Community Engagement & Services (CES)Credits: 2  CC: Sports and Cultural Activities Credits 2	20	
<b>Credits</b>		<b>6</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>		
<b>Cum Cr.</b>		<b>24</b>	<b>0</b>	<b>10</b>	<b>12</b>	<b>4</b>	<b>4</b>	<b>12</b>	<b>84</b>	
Exit option: Award of UG Diploma in Major and Minor with 80-88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor.										

**R: GUA – 535 C**
**THIRD YEAR**

Level	Semester	Major		Minor	OE	VC, SEC	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr./ Sem.	Degree/ Cum. Cr.
		Mandatory*	Electives Any one							
5.5	V	Cyber security Technology Credits 4  Time Series Analysis Credits 4	Cyber Security Analysis and Counter Measures Credits 4  OR Investment Banking Credits 4	Financial Risk Management Credits 4		VC: Principles of Management Credits 2		FP: Field Project Credits : 2	20	UG Degree 120-132
	Credits	8	4	4	0	2	0	2	20	
	VI	Database Management System with NO SQL Credits 4  Python Programmming Credits 4	Artificial Intelligence Credits 4 Or Becoming an Effective Technology Analyst Credits 4	Private Equity and Venture Capital Credits 4				OJT Industrial Training Credits :4	20	
Credits		8	4	4	0	0		4		
Cum Cr.		40	8	18	12	14	14	18	126	

**Exit option: Award of UG Degree in Major with 120-132 credits OR Continue with Major and Minor**



R: GUA – 535 D

**FOURTH YEAR**

Level	Semester	Major		Minor	OE	VC, SEC	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr./ Sem.	Degree/ Cum. Cr.
		Mandatory*	Electives Any one							
6.0	VII	Fintech Evolution and emerging Trends Credits 4	User Story Mapping Credits 4 OR Design Thinking and Business Models Credits 4	RM: Credits : 4					20	UG Honours Degree 160-176
		Probability and Statistics Credits 4								
		Algorithmic Trading Credits 2								
	Project Credits 2									
	Credits	12	4	4					20	
	VIII	Financial Modeling Credits 4	Next Generation Databases Credits 4 OR Behavioural Data Analytics Credits 4					OJT Industrial Training-2 Credits :4	20	
Advanced Programming for Fintech Credits 4										
Applied People Skills Credits 2										
		Entrepreneurship Management Credits 2								
		12	4					4	20	
Cum Cr.		64	16	22	12	14	14	22	164	
Four Year UG Honors Degree in Major and Minor with 160-176 credits										

*Keyurkumar*

Dr. Keyurkumar M. Nayak,  
Director,  
UM-GICED

*Garje*

Prof.(Dr.) Shivram S. Garje  
Dean,  
Faculty of Science

## EXAMINATION PATTERN

(TOTAL MARKS: 5100 TOTAL CREDITS :124)

	Subject Code	Core Subject	Assessment Pattern			Teaching Hours			
	Subject Code	Topics	Internal Marks 50	External Marks 50	Total Marks (CA) 50/100	Theory Hours	Practical Hours	Total Hours	Total Credits
S E M E S T E R I	<b>Major Mandatory</b>								
	BCAS1 MJP1	Foundations of Computer Science	25	25	50	30	--	30	2
	BCAS1 MJP2	Foundations of Fintech	50	50	100	60	--	60	4
	<b>Open Elective (OE)</b>								
	BCAS1 P3	Financial Accounting	25	25	50	30	--	30	2
	BCAS1 P4	Business Finance	25	25	50	30	--	30	2
	<b>Vocational Courses (VC)</b>								
	BCAS1 P5	Foundation Course I	25	25	50	30	--	30	2
	<b>Skills Enhancement Course (SEC)</b>								
	BCAS1 P6	Leadership Skills I	25	25	50	30	--	30	2
	<b>Ability Enhancement Course (AEC)</b>								
	BCAS1 P7	Grammatical and Composition Skills English	25	25	50	30	--	30	2
	<b>Value Education Course (VEC)</b>								
	BCAS1 P8	Indian Values and Ethics	25	25	50	30	--	30	2
	<b>Indian Knowledge System (IKS)</b>								
	BCAS1 P9	Indian Knowledge System	25	25	50	30	--	30	2
	<b>Co-curricular</b>								

	BCAS1 P10	Sports and Cultural Activities	50	--	50	--	30	30	2
		<b>Total</b>	<b>300</b>	<b>250</b>	<b>550</b>	<b>300</b>	<b>30</b>	<b>330</b>	<b>22</b>
	<b>Subject Code</b>	<b>Topics</b>	<b>Internal Mark s 50</b>	<b>Extern al Marks 50</b>	<b>Total Marks (CA) 50/100</b>	<b>Theory Hours</b>	<b>Practical Hours</b>	<b>Total Hours</b>	<b>Total Credits</b>
<b>S E M E S T E R I I</b>	<b>Major Mandatory</b>								
	BCAS2 MJP11	Introduction to Programming using Java	50	50	100	60	--	60	4
	BCAS2 MJP12	Statistical Thinking	25	25	50	30	--	30	2
	<b>Minor</b>								
	BCAS2 MRP13	Financial Information Systems	25	25	50	30	--	30	2
	<b>Open Elective (OE)</b>								
	BCAS2 P14	Economic Environment of Business	25	25	50	30	--	30	2
	BCAS2P 15	Introduction to Financial Markets	25	25	50	30	--	30	2
	<b>Vocational Courses (VC)</b>								
	BCAS2P 16	Foundation Course -2*	25	25	50	30	--	30	2
	<b>Skills Enhancement Course (SEC)</b>								
	BCAS2P 17	Leadership Skills-2	25	25	50	30	--	30	2
	<b>Ability Enhancement Course (AEC)</b>								
	BCAS2P 18	Conversational Skills	50	--	50	30	--	30	2
	<b>Value Education Course (VEC)</b>								
	BCAS2P 19	Social Media Solutions	25	25	50	30	--	30	2
	<b>Co-curricular</b>								
	BCAS2P 20	Community Engagement & Services	50	--	50	--	30	30	2
		<b>Total</b>	<b>325</b>	<b>225</b>	<b>550</b>	<b>300</b>	<b>30</b>	<b>330</b>	<b>22</b>
<b>Exit option: Award of UG Certificate in Major with 40-44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Min</b>									
		<b>Topics</b>	<b>Internal Marks 50</b>	<b>External Marks 50</b>	<b>Total Marks 100</b>	<b>Lectures/ Tutorials</b>			<b>Credit</b>

S E M E S T E R I I	Major Mandatory								
	BCAS3M JP21	Big Data	50	50	100	60	--	60	4
	BCAS3M JP22	Blockchain Applications	25	25	50	30	--	30	2
	Minor								
	BCAS3M NP23	Banking Operations and Technology	50	50	100	60	--	60	4
	Open Elective (OE)								
	BCAS3P 24	Marketing and Sales of Financial	25	25	50	30	--	30	2
	Vocational Courses (VC)								
	BCAS3P 25	Business Ethics & CSR	25	25	50	30	--	30	2
	Ability Enhancement Course (AEC)								
	BCAS3P 26	Communication Skills	25	25	50	30	--	30	2
	Field Project (FP)								
	BCAS3P 27	FP: Community Engagement & Services (CES)	50	--	50	--	30	30	2
	BCAS3P 28	Sports and Cultural Activities	50	--	50	--	30	30	2
		<b>Total</b>	<b>300</b>	<b>200</b>	<b>500</b>	<b>240</b>	<b>60</b>	<b>300</b>	<b>20</b>
	<b>Subject Code</b>	<b>Topics</b>	<b>Internal Marks 50</b>	<b>External Marks 50</b>	<b>Total Marks 100</b>	<b>Lectures/Tutorials</b>	<b>Practical Hours</b>	<b>Total Hours</b>	<b>Credit</b>
S E M E S T E	Major Mandatory								
	BCARM S4MJP30	Open Stacks APIs and Cloud Computing	50	50	100	60	--	30	4



R I V	BCARM S4MJP31	Data Visualization	25	25	50	30	--	30	2
	Minor								
	BCARM S4MRP3 3	Machine Learning	50	50	100	60	--	60	4
	Open Elective (OE)								
	BCARM S4P35	Business Research Methods	25	25	50	30	--	30	2
	Skills Enhancement Course (SEC)								
	BCARM S4P36	Excel and Advanced Excel	50	--	50	30	--	30	2
	Ability Enhancement Course (AEC)								
	BCARM S4P37	Corporate and Business Communicati on	25	25	50	30	--	30	2
	Field Project (FP)								
	BCARM S4P38	Field Project	50	--	50	--	60	60	2
	BCARM S4P39	Sports and Cultural Activities	50	--	50	--	30	30	2
		<b>Total</b>	<b>325</b>	<b>175</b>	<b>500</b>	<b>240</b>	<b>120</b>	<b>360</b>	<b>20</b>
	<b>Subject Code</b>	<b>Topics</b>	<b>Internal Marks 50</b>	<b>External Marks 50</b>	<b>Total Marks 100</b>	<b>Lectures/T utorials</b>	<b>Practical Hours</b>	<b>Total Hours</b>	<b>Credit</b>
S E M E S T E R V	Major Mandatory								
	BCARM S5MJP40	Cyber security Technology	50	50	100	60	---	60	4
	BCARM S5MJP41	Time Series Analysis	50	50	100	60	---	60	4
	Open Elective (OE)								
	BCARM S5P42A	Cyber Security Analysis & Counter Measures	50	50	100	60	---	60	4
	BCARM S5P42B	Investment Banking	50	50	100	60	---	60	4

	Minor								
	BCARM S5MRP4 3	Financial Risk Management	50	50	100	60	---	60	4
	Vocational Courses (VC)								
	BCARM S5MRP4 5	Principles Of Managemen t	25	25	50	30	--	30	2
	Field Project (FP)								
	BCARM S5MRP4 6	Field Project: Guest Sessions	50	--	50	--	30	30	2
		Total	300	200	500	270	30	300	20
	Subject Code	Topics	Internal Marks 50	External Marks 50	Total Marks 100	Lectures/ Tutorials	Practical Hours	Total Hours	Credit
S E M E S T E R V I	Major Mandatory								
	BCARM S6MJP47	Database Management System with NO SQL	50	50	100	60	--	60	4
	BCARM S6MJP48	Python Programming	50	50	100	60	--	60	4
	Elective (E)								
	BCARM S6MJP49 A	Artificial Intelligence	50	50	100	60	--	60	4
	BCARM S6MJP49 B	OR							
		Becoming an Effective Technology Analyst	50	50	100	60	--	60	4
	Minor								
	BCARM S6P50	Private Equity and Venture Capital	50	50	100	60	--	60	4
		On Job Training (OJT)							
	BCARM S6P51	On Job Training: Industrial Training	100	--	100		60	60	4

		<b>Total</b>	<b>300</b>	<b>200</b>	<b>500</b>	<b>240</b>	<b>60</b>	<b>300</b>	<b>20</b>	
	<b>Subject Code</b>	<b>Topics</b>	<b>Internal Marks 50</b>	<b>External Marks 50</b>	<b>Total Marks 100</b>	<b>Lectures/Tutorials</b>	<b>Practical Hours</b>	<b>Total Hours</b>	<b>Credit</b>	
S E M E S T E R V I	Major Mandatory									
	BCARM S7MJP52	Fintech Evolution and Emerging Trends	50	50	100	60	---	60	4	
	BCARM S7MJP53	Probability and Statistics	50	50	100	60	---	60	4	
	BCARM S7MJP54	Algorithmic Trading	25	25	50	30	---	30	2	
	BCARM S7MJP55	Project	50		50	30	--	30	2	
	Elective (E)									
	BCARM S7P56A	User Story Mapping	50	50	100	60	---	60	4	
	OR									
	BCARM S7P56B	Design Thinking and Business Models		50	50	100	60	---	60	4
	Minor									
	BCARM S7MRP57	Research Methodology	50	50	100	60	---	60	4	
		<b>Total</b>	<b>275</b>	<b>225</b>	<b>500</b>	<b>300</b>	<b>--</b>	<b>300</b>	<b>20</b>	
	<b>Subject Code</b>	<b>Topics</b>	<b>Internal Marks 50</b>	<b>External Marks 50</b>	<b>Total Marks 100</b>	<b>Lectures/Tutorials</b>	<b>Practical Hours</b>	<b>Total Hours</b>	<b>Credit</b>	
S E M E S T E R V	Major Mandatory									
	BCARM S8MJP58	Financial Modelling	50	50	100	60	---	60	4	
	BCARM S8MJP59	Advanced Programming for Fintech	50	50	100	60	---	60	4	

I I I	<b>BCARM S8MJP60</b>	Applied People Skills	25	25	50	30	---	30	2
	<b>BCARM S8MJP61</b>	Entrepreneurs hip Management	25	25	50	30	---	30	2
	<b>Elective (E)</b>								
	<b>BCARM S8P62A</b>	Next Generation Databases	50	50	100	60	---	60	4
	<b>OR</b>								
	<b>BCARM S8P62B</b>	Behavioural Data Analytics	50	50	100	60	---	60	4
	<b>On Job Training (OJT)</b>								
	<b>BCARM S8P63</b>	On Job Training: Industrial Training-2	100	--	100		60	60	4
		<b>Total</b>	<b>300</b>	<b>200</b>	<b>500</b>	<b>240</b>	<b>60</b>	<b>300</b>	<b>20</b>



# Sem.-I

	<b>SEMESTER 1</b>
<b>1.1</b>	<p><b>FOUNDATION OF COMPUTER SCIENCE</b></p> <p><b>Introduction to Computer Science</b></p> <ul style="list-style-type: none"> <li>● History and Evolution of Computers</li> <li>● Basic Computer Architecture and Components</li> <li>● Introduction to Programming Paradigms</li> <li>● Problem-Solving Techniques</li> <li>● Algorithms and Flowcharts</li> <li>● Introduction to Programming Languages</li> </ul> <p><b>Data Structures and Algorithms</b></p> <ul style="list-style-type: none"> <li>● Introduction to Data Structures</li> <li>● Arrays and Strings</li> <li>● Linked Lists</li> <li>● Stacks and Queues</li> <li>● Trees and Graphs</li> <li>● Sorting and Searching Algorithms</li> <li>● Time and Space Complexity Analysis</li> </ul> <p><b>Computer Organization and Operating Systems</b></p> <ul style="list-style-type: none"> <li>● Computer Organization and Architecture</li> <li>● Memory Hierarchy and Caches</li> <li>● Input/Output Systems</li> <li>● Introduction to Operating Systems</li> <li>● Process Management</li> <li>● Memory Management</li> <li>● File Systems and Storage</li> </ul> <p><b>Software Engineering Principles</b></p> <ul style="list-style-type: none"> <li>● Software Development Life Cycle</li> <li>● Requirements Engineering</li> <li>● Software Design Principles</li> <li>● Software Testing and Quality Assurance</li> <li>● Software Maintenance and Configuration Management</li> <li>● Software Project Management</li> <li>● Introduction to Agile Development</li> </ul> <p><b>Networks and Communications</b></p> <ul style="list-style-type: none"> <li>● Introduction to Computer Networks</li> <li>● Network Protocols and Architecture</li> <li>● TCP/IP and Internet Protocols</li> <li>● Network Security and Cryptography</li> <li>● Wireless and Mobile Networks</li> <li>● Cloud Computing and Distributed Systems</li> </ul>

	<p><b>Computer Security and Ethics</b></p> <ul style="list-style-type: none"> <li>● Computer Security Fundamentals</li> <li>● Authentication and Access Control</li> <li>● Network Security and Firewalls</li> <li>● Cybersecurity Threats and Countermeasures</li> <li>● Privacy and Data Protection</li> <li>● Computer Ethics and Professional Responsibilities</li> </ul> <p><b>References:</b> Handbook of Computer Science &amp; IT by Arihant Experts, Computer Science Distilled: Learn the Art of Solving Computational Problems by Raimondo Pictet Wladston Ferreira Filho</p>
1.2	<p><b>FOUNDATION OF FINTECH</b></p> <p><b>Introduction to Fintech</b></p> <ul style="list-style-type: none"> <li>● Introduction to FinTech ?, Financial Services Sector</li> <li>● Financial Institutions</li> <li>● Non-Banking Financial Institutions</li> <li>● Financial Sector – Through the Years</li> <li>● Types of Financial Services</li> <li>● Evolution of Financial institutions in India</li> <li>● FinTech - Definition</li> <li>● FinTech – Technology meets Finance</li> <li>● Key Disruptions in the Financial Services Sector</li> <li>● FinTech - Evolution</li> </ul> <p><b>Encryption and Information Security</b></p> <ul style="list-style-type: none"> <li>● Introduction to Encryption and Information Security</li> <li>● Encryption - Protection of Data: Encryption – What does it mean?</li> <li>● Types of Encryption, Symmetric Encryption</li> <li>● Asymmetric Encryption</li> <li>● PKI Encryption</li> </ul> <p><b>Blockchains and Cryptocurrencies</b></p> <ul style="list-style-type: none"> <li>● Introduction To Block Chain</li> <li>● Block Chain and Payments</li> <li>● Defining Qualities of a Blockchain</li> <li>● Protected Blockchain Capabilities in Business, Smart Contracts</li> <li>● Cryptocurrency Market</li> <li>● Cryptocurrency and Money Functions</li> </ul> <p><b>Privacy and financial data</b></p> <ul style="list-style-type: none"> <li>● Privacy and financial data</li> <li>● Recent Cyber-attacks on Financial Service Sector</li> <li>● Simple Steps that could help Prevent these Cyber Attacks</li> <li>● Financial Innovations and Risk Associated with it</li> </ul> <p><b>References:</b> Foundations For Fintech (Global Fintech Institute - World Scientific Series On Fintech) by David Kuo Chuen Lee (Editor), Joseph Lim (Editor), Kok Fai Phoon (Editor), Yu Wang (Editor), ISBN-13: 978-9811239267</p>

## 1.3 FINANCIAL ACCOUNTING

### Accounting standards

- Concepts
- Benefits
- Procedures for issue of Accounting Standards
- Various AS:
- AS – 1: Disclosure of Accounting Policies
- AS – 2: Valuation of Inventories (Stock)
- AS – 9: Revenue Recognition

### Inventory Valuation

- Meaning of inventories
- Cost for inventory valuation
- Inventory systems : Periodic Inventory system and Perpetual
- Inventory System Valuation: Meaning and importance
- Methods of Stock Valuation as per AS – 2
- FIFO Method
- Weighted Average Method
- Computation of valuation of inventory as on balance sheet date

### Final Accounts

- Expenditure – Capital and Revenue
- Receipts - Capital and Revenue
- Adjustment and Closing Entries
- Final accounts of Manufacturing concerns (Proprietary Firm)

### Departmental Accounts

- Meaning
- Basis of Allocation of Expenses and Incomes/Receipts
- Inter Departmental Transfer - at Cost Price and at Invoice Price
- Stock Reserve
- Departmental Trading and Profit & Loss Account and
- Departmental Balance Sheet

### Accounting for Hire Purchase

- Meaning
- Calculation of interest
- Accounting for hire purchase transactions by asset purchase method based on full cash price
- Journal entries for hirer and vendor
- Ledger accounts for hirer and vendor
- Disclosure in balance sheet for hirer and vendor (Excluding Default, Repossession and Calculation of cash price)

### Accounting from Incomplete Records

- Introduction
- Problems on preparation of final accounts of Proprietary Trading Concern (conversion method)

	<p><b>Consignment Accounts</b></p> <ul style="list-style-type: none"> <li>• Accounting for consignment transactions</li> <li>• Valuation of stock Invoicing</li> </ul> <p><b>Branch Accounts</b></p> <ul style="list-style-type: none"> <li>• Meaning</li> <li>• Classification of branch</li> <li>• Accounting for Dependent Branch not maintaining full books</li> <li>• Debtors method</li> <li>• Stock and debtors method</li> </ul> <p><b>Fire Insurance Claim</b></p> <ul style="list-style-type: none"> <li>• Computation of Loss of Stock by Fire</li> <li>• Ascertainment of Claim as per the Insurance Policy</li> <li>• Exclude:</li> <li>• Loss of Profit</li> <li>• Consequential Loss</li> </ul> <p><b>References:</b> "Financial Accounting: Tools for Business Decision-Making" by Paul D. Kimmel, Jerry J. Weygandt, and Donald E. Kieso (2021)., "Intermediate Accounting" by Donald E. Kieso, Jerry J. Weygandt, and Terry D. Warfield (2022)</p>
1.4	<p><b>BUSINESS FINANCE</b></p> <p><b>Basics of Fundamental Analysis</b></p> <ul style="list-style-type: none"> <li>• Need for fundamental analysis</li> <li>• Macroeconomic Parameters</li> <li>• Concept of Gross Domestic Product (GDP)</li> <li>• Inflation and Interest rate</li> </ul> <p><b>Calculate NPV, IRR Using Excel</b></p> <ul style="list-style-type: none"> <li>• TMV Calculation</li> <li>• Always remember rule of 72!</li> <li>• Annuities</li> <li>• The Power of Compound Interest</li> <li>• Nominal and Effective Rate of Interest</li> </ul> <p><b>Exploring the Key Financial Statements</b></p> <ul style="list-style-type: none"> <li>• Inconsistency in financials and their adjustments</li> <li>• Purpose of Financial Statement Analysis</li> <li>• Standards and Types for Comparison</li> <li>• Tools and Techniques of Analysis</li> </ul> <p><b>Working Capital Management</b></p> <ul style="list-style-type: none"> <li>• Assets</li> <li>• Working of the working capital schedule.</li> <li>• How to project balance sheet items (non- cash current assets and non-debt current liabilities).</li> <li>• Calculation of working capital items.</li> <li>• Link between working capital changes and cash flow.</li> <li>• Liabilities</li> <li>• Working of the working capital schedule.</li> <li>• How to project balance sheet items (non-debt current liabilities)</li> </ul>

	<ul style="list-style-type: none"> <li>• Calculation of working capital items and forecasting.</li> <li>• Link between working capital changes and cash flow.</li> </ul> <p><b>Capital Budgeting and Discounted Cash Flow</b></p> <ul style="list-style-type: none"> <li>• Key Concepts of Discounted Cash Flow Methods</li> <li>• Calculate Net Present Value</li> <li>• Calculate the Profitability Index</li> <li>• Calculate Internal Rate of Return</li> </ul> <p><b>Time Value of Money</b></p> <ul style="list-style-type: none"> <li>• Importance of the Time Value of Money</li> <li>• Difference between Simple Interest and Compound Interest</li> <li>• How to solve for Present value, Future value, Time or Rate</li> <li>• Annuities and Perpetuities</li> <li>• Payback Period, Discounted Payback Period</li> <li>• Dividend Discount Model/Gordon Growth Model</li> </ul> <p><b>References:</b></p> <p>"Principles of Corporate Finance" by Richard A. Brealey, Stewart C. Myers, and Franklin Allen, "Fundamentals of Financial Management" by Eugene F. Brigham and Joel F. Houston</p>
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	<b>Course objectives:</b>	<b>Learning Outcome:</b>
<b>1.1</b>	<p>To provide students with a solid understanding of the fundamental concepts and principles of computer science.</p> <p>To introduce students to the basic components of a computer system, including hardware, software, and operating systems.</p> <p>To familiarize students with the basics of programming languages and algorithms, enabling them to write simple programs and solve computational problems.</p> <p>To develop critical thinking and problem-solving skills through the application of computer science principles in practical scenarios.</p>	<p>Understand the fundamental concepts and principles of computer science, including data representation, computer architecture, and the role of algorithms in solving problems.</p> <p>Demonstrate proficiency in programming languages, including the ability to write, debug, and modify code to solve simple computational problems.</p> <p>Apply computational thinking skills to break down complex problems into smaller, manageable tasks and develop algorithmic solutions.</p> <p>Analyze and evaluate the efficiency and correctness of algorithms, and make informed decisions about selecting appropriate algorithms for specific problem-solving scenarios.</p>

1.2	<p>To provide students with a comprehensive understanding of the fundamental concepts and principles of fintech, including the intersection of finance and technology.</p> <p>To introduce students to various technologies and innovations that are transforming the financial industry, such as blockchain, artificial intelligence, machine learning, and big data analytics.</p> <p>To explore the implications of fintech on financial institutions, markets, and consumers, including changes in business models, risk management, and regulatory frameworks.</p> <p>To equip students with the knowledge and skills to critically analyze and evaluate fintech solutions, and to identify opportunities and challenges in implementing fintech innovations.</p>	<p>Understand the key concepts and principles of fintech, including its relationship with finance, technology, and innovation.</p> <p>Gain knowledge about various fintech technologies, such as blockchain, AI, and big data analytics, and understand how they are applied in different financial domains.</p> <p>Analyze and evaluate the impact of fintech on financial institutions, markets, and consumers, including changes in customer experience, risk management, and regulatory compliance.</p> <p>Develop the ability to identify and assess opportunities and challenges in implementing fintech solutions, and propose innovative approaches to address them.</p>
1.3	<p>To provide students with a comprehensive understanding of the principles and concepts underlying financial accounting, including the preparation, presentation, and interpretation of financial statements.</p> <p>To familiarize students with the accounting standards and regulations that govern financial reporting, ensuring compliance and accuracy in financial statements.</p> <p>To develop the ability to analyze and interpret financial information, enabling students to assess the financial performance and position of an organization.</p> <p>To equip students with the skills to prepare basic financial statements, including the income statement, balance sheet, and cash flow statement, and understand the relationship between these statements.</p>	<p>Understand the fundamental principles and concepts of financial accounting, including the accrual basis of accounting, the matching principle, and the concept of materiality.</p> <p>Apply the accounting standards and regulations, such as Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS), to prepare and present financial statements accurately and in compliance with applicable rules.</p> <p>Analyze and interpret financial statements to assess the financial performance, liquidity, and solvency of an organization, and make informed decisions based on financial information.</p> <p>Demonstrate proficiency in preparing basic financial statements, including income statements, balance sheets, and cash flow statements, and understand the interrelationships between these statements.</p>



1.4	<p>To provide students with a comprehensive understanding of the principles and theories of business finance, including the time value of money, risk and return, and the cost of capital.</p> <p>To familiarize students with the various sources of funding for businesses, including equity, debt, and retained earnings, and the implications of different financing decisions.</p> <p>To develop the skills necessary to analyze and evaluate investment opportunities, including capital budgeting techniques and risk assessment.</p> <p>To equip students with the knowledge and tools to make informed financial decisions in a business context, such as evaluating investment projects, managing working capital, and assessing financial performance.</p>	<p>Understand the foundational concepts and theories of business finance, including the time value of money, risk and return, and the concept of financial markets and institutions.</p> <p>Apply financial analysis techniques to evaluate investment opportunities, such as net present value (NPV), internal rate of return (IRR), and payback period.</p> <p>Analyze and assess the cost of capital for a business, incorporating the cost of debt, cost of equity, and weighted average cost of capital (WACC) calculations.</p> <p>Demonstrate proficiency in financial decision-making, including evaluating financing options, managing working capital, and interpreting financial statements to assess the financial health and performance of a business.</p>
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# Sem.-II

	SEMESTER 2
2.1	<p><b>INTRODUCTION TO PROGRAMMING (USING JAVA)</b></p> <p><b>Introduction to Programming using Java</b></p> <ul style="list-style-type: none"> <li>• Introduction to Programming using Java</li> <li>• Java Environment Setup</li> <li>• Java Keywords and Identities</li> <li>• Java Syntax</li> <li>• Java Program Structure</li> <li>• Java Data Types</li> </ul> <p><b>Components of Java</b></p> <ul style="list-style-type: none"> <li>• Comments in Java</li> <li>• Modifiers in Java</li> <li>• Variables in Java</li> <li>• Operators in Java</li> </ul> <p><b>Java Control Flow</b></p> <ul style="list-style-type: none"> <li>• Java Control Flow - Decision Making</li> <li>• Java Control Flow – Looping Statements</li> <li>• Java Control Flow – Branching Statements</li> </ul> <p><b>Commands in Java</b></p> <ul style="list-style-type: none"> <li>• Java Strings</li> <li>• Java Numbers</li> <li>• Java Characters</li> <li>• Java Date and Time</li> <li>• Java Arrays</li> <li>• Java ArrayList</li> </ul> <p><b>Java IO and Methods</b></p> <ul style="list-style-type: none"> <li>• Java IO - File Handling</li> <li>• Java Methods - User Defined Methods</li> <li>• Java Methods - Built-in Methods</li> <li>• Exception Handling in Java</li> </ul> <p><b>Reference:</b> Introduction to Java Programming and Data Structures, Comprehensive Version Paperback – 4 December 2019 by Y. Liang (Author), Y. Daniel Liang (Author), Intro to Java Programming, Comprehensive Version Paperback – 27 December 2013 by Y. Daniel Liang (Author)</p>
2.2	<p><b>STATISTICAL THINKING</b></p> <p><b>Working with Data</b></p> <ul style="list-style-type: none"> <li>• Collection of Data</li> <li>• Tools for Collection of Data</li> </ul> <p><b>Probability</b></p> <p><b>Summarizing Data</b></p>

	<p><b>Fitting Models to Data</b></p> <p><b>Data Distribution and its types of Data Distribution</b></p> <p><b>Data Visualization Charts</b></p> <p><b>Logistic Regression</b></p> <p><b>Sampling</b></p> <p><b>Types of Sampling</b></p> <p><b>Hypothesis Testing</b></p> <p><b>Bayesian Statistics</b></p> <p><b>Reproducible Research</b></p> <p>Reference: "The Art of Statistics: Learning from Data" by David Spiegelhalter, "Statistical Thinking: Improving Business Performance" by Roger W. Hoerl and Ronald D. Snee</p>
2.3	<p><b>FINANCIAL INFORMATION SYSTEMS</b></p> <p><b>Business Structure &amp; I.T. Framework</b></p> <ul style="list-style-type: none"> <li>● Need for Technology</li> <li>● Recent Technology Developments</li> <li>● General Business Structure &amp; I.T</li> <li>● I.T Framework</li> <li>● Regulatory Framework</li> </ul> <p><b>Core Banking Solution &amp; Transaction Cycles</b></p> <ul style="list-style-type: none"> <li>● Core Banking - Channels</li> <li>● Core Banking Solution Framework</li> <li>● Branch Banking, I.T Infrastructure &amp; Process Flow</li> <li>● Transaction Cycle - Credit Cards &amp; Trade Finance</li> <li>● SME Lending Solution</li> <li>● Foreign Exchange &amp; Treasury Solutions</li> </ul> <p><b>Clearing, Settlements &amp; Transaction Processing</b></p> <ul style="list-style-type: none"> <li>● Clearing &amp; Settlements</li> <li>● Back Office Operations</li> <li>● Transaction Processing</li> <li>● Clearing Process – Client Verification Process</li> <li>● Electronic Clearing &amp; Funds Transfer</li> </ul> <p><b>IPO &amp; Book Building</b></p> <ul style="list-style-type: none"> <li>● Capital Market Structure</li> <li>● IPO Process Flow</li> <li>● BSE's Book Building System</li> <li>● Online Bidding &amp; ASBA Process</li> <li>● Regulatory Framework</li> </ul>

	<p><b>Secondary Markets &amp; Technology Set-up</b></p> <ul style="list-style-type: none"> <li>• Secondary Markets &amp; Technology Set-up Stock Exchange &amp; Main Constituents</li> <li>• Technology Set-up at Stock Exchange Level</li> <li>• General Business Structure of Brokers</li> <li>• Technology Set-up at Stock Broker Level</li> <li>• Electronic Trading System</li> <li>• Front End Technology – BOLT / NEAT / ODIN</li> <li>• Order Mechanism</li> <li>• Trading Technology Developments</li> </ul> <p><b>Technology Set-Up &amp; Risk Management</b></p> <ul style="list-style-type: none"> <li>• Data Warehousing &amp; Architecture</li> <li>• Electronic &amp; Digital Banking</li> <li>• Management Information System (MIS)</li> <li>• Risk Management &amp; Fraud Detection</li> <li>• Cyber Frauds &amp; Security</li> </ul> <p><b>Back Office Technology</b></p> <ul style="list-style-type: none"> <li>• Real time transaction</li> <li>• Back Office Operations</li> <li>• Software Structure</li> <li>• Transaction Processing &amp; Reporting</li> </ul> <p><b>Investment Banking &amp; Technology Set-up</b></p> <ul style="list-style-type: none"> <li>• Overview of Business Structure</li> <li>• Technology Set-up</li> <li>• CRM Software's</li> <li>• Data Warehousing &amp; Architecture</li> <li>• Electronic &amp; Digital Banking</li> <li>• Management Information System (MIS)</li> <li>• Risk Management &amp; Fraud Detection</li> <li>• Cyber Frauds &amp; Security</li> </ul> <p><b>Distribution Channel &amp; Technology Set-up</b></p> <ul style="list-style-type: none"> <li>• Technology Structure</li> <li>• Risk Management Framework</li> <li>• Claim Management Process</li> </ul> <p><b>Technology Set-up</b></p> <ul style="list-style-type: none"> <li>• Technology Structure</li> <li>• Risk Management Framework</li> <li>• Claim Management Process</li> </ul> <p><b>Reference:</b> “Financial Information Systems: A Practitioner's Guide Author: Bhavesh M. Patel”</p>
2.4	<p><b>ECONOMIC ENVIRONMENT OF BUSINESS</b></p> <p><b>Introduction to Micro - Economics</b></p> <ul style="list-style-type: none"> <li>• What is Economics?</li> <li>• Micro and Macroeconomics</li> <li>• Basic assumption of microeconomic study</li> </ul>

	<ul style="list-style-type: none"> <li>● Relation between households and firms through the circular flow model</li> <li>● Uses of Microeconomics</li> </ul> <p><b>Demand</b></p> <ul style="list-style-type: none"> <li>● Meaning of demand</li> <li>● Ceteris Paribus</li> <li>● Demand curve and its interpretation</li> <li>● Determinants of Demand</li> <li>● Types of Demand</li> <li>● Reasons for shift in the demand curve and its effect</li> </ul> <p><b>Supply side Economics</b></p> <ul style="list-style-type: none"> <li>● Meaning of the term Supply</li> <li>● Law of supply</li> <li>● Supply curve</li> <li>● Movement along the supply curve</li> <li>● Shift along in the supply curve</li> </ul> <p><b>Equilibrium</b></p> <ul style="list-style-type: none"> <li>● Meaning of equilibrium</li> <li>● Equilibrium is achieved in the market place</li> <li>● Situations of excess demand and impact on equilibrium</li> <li>● Situations of excess supply and impact on equilibrium</li> <li>● Equilibrating process</li> </ul> <p><b>Competition And Market Forms</b></p> <ul style="list-style-type: none"> <li>● Role of competition in the economy</li> <li>● Concept of Economies of scale</li> <li>● Types of market structures</li> <li>● Perfect Competition</li> <li>● Monopoly</li> <li>● Monopolistic Competition</li> </ul> <p><b>Oligopoly and Duopoly</b></p> <ul style="list-style-type: none"> <li>● Oligopolistic markets</li> <li>● Duopolistic markets</li> <li>● Characteristics of various market forms</li> <li>● Meaning and application of Game theory in markets</li> </ul> <p><b>Profit Maximization</b></p> <ul style="list-style-type: none"> <li>● Calculate the total cost, average cost and marginal cost.</li> <li>● Calculate the total revenue, average revenue and marginal revenue.</li> <li>● Find out the profit maximizing output of a firm</li> </ul> <p><b>Introduction To Macroeconomics</b></p> <ul style="list-style-type: none"> <li>● Meaning of macroeconomics</li> <li>● Birth and evolution of macroeconomic study</li> <li>● Importance of macroeconomic study Indicators and components of study</li> <li>Application of macroeconomic study</li> </ul> <p><b>Aggregate Demand And Supply</b></p> <ul style="list-style-type: none"> <li>● Meaning of Aggregate Demand and Aggregate Supply</li> </ul>
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	<ul style="list-style-type: none"> <li>• Components of aggregate Demand GDP, GNP as indicators of aggregate demand</li> <li>• GDP of India and the International context</li> </ul> <p><b>Inflation and Interest Rates</b></p> <ul style="list-style-type: none"> <li>• Concepts of inflation and interest rates</li> <li>• Application of inflation and interest rates on capital market Types of interest rates in India Application of these rates in controlling inflation and liquidity</li> </ul> <p><b>Monetary And Fiscal Policy</b></p> <ul style="list-style-type: none"> <li>• Meaning of Monetary Policy</li> <li>• Monetary Policy objectives</li> <li>• The instruments of monetary policy</li> <li>• Difference between Monetary and Fiscal Policy</li> <li>• Meaning of Fiscal Policy</li> <li>• Fiscal Policy objectives</li> <li>• The instruments of fiscal policy</li> </ul> <p><b>Fiscal Deficit and Balance of Payments</b></p> <ul style="list-style-type: none"> <li>• Concepts of Fiscal Deficit</li> <li>• Application of Fiscal Deficit</li> <li>• Scenario across the world and India in terms of government budget deficit</li> <li>• Balance of Payment account and significance of gold and other essential commodities on the economy</li> </ul> <p><b>Exchange Rates</b></p> <ul style="list-style-type: none"> <li>• Concepts of exchange rates</li> <li>• Application of exchange rate in the economy</li> <li>• Concepts of fiscal deficit</li> <li>• Application of fiscal deficit</li> </ul> <p><b>Utility Concepts</b></p> <ul style="list-style-type: none"> <li>• Concept of Utility</li> <li>• Concept of utility and preferences to real life situations and arrive at decisions</li> <li>• Law of Diminishing marginal utility</li> <li>• Law of Equi-marginal utility</li> <li>• Elasticity of Demand</li> <li>• Impact of price of a product, income of consumer and price of a close competitive product on the demand for the product</li> <li>• Various degrees of elasticity and their impact</li> </ul> <p><b>Reference Books</b> "Economics for Business, Author: John Sloman and Kevin Hinde"</p>
2.5	<p><b>INTRODUCTION TO FINANCIAL MARKETS</b></p> <p><b>Introduction to Financial Markets</b></p> <ul style="list-style-type: none"> <li>• Financial System Of The Economy</li> <li>• Components Of Security Markets Stock Exchange</li> <li>• Debt, Equity &amp; Money Market</li> </ul> <p><b>Components of Securities Markets</b></p> <ul style="list-style-type: none"> <li>• Market Information</li> <li>• Components of Securities Markets</li> </ul>



- Objectives of various investors
- Equity vs Debt
- Debt markets
- Money Markets

#### **Financial Instruments and Participants**

- Mutual Funds
- Derivatives
- Commodity Markets
- Forex Markets
- Private Equity
- Different Types of Investors

#### **Alternate Investment Schemes and Other Investment Products**

- Alternative Investment Schemes
- Other Investment Products

#### **Regulators**

- Regulatory Bodies & The Structure
- Role Of Regulators
- Regulatory Acts

#### **Public Issues and Process**

- Issue of securities
- Difference between public issues & private placements and list category of investors
- FPO and process of IPO
- Payment methodology in IPO
- Basis of allotment and book building process

#### **Index**

- Index Theory
- Stock Selection, Index Calculation & Maintenance
- Free-Float Concept
- Utility Indices

#### **Demat and Bolt**

- Demat
- Depository System
- Trading on BSE
- BOLT

#### **Trading and Clearing and Settlement**

- Trading, Clearing & Settlement
- Making An Investment
- Clearing & Settlement
- Auction

#### **Investor Services**

- Classification Of Stocks
- Types Of Accounts To Be Opened
- Trading Process

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>• Types Of Trading</li><li>• Settlement Process</li><li>• Investor Grievance Redressal Mechanism</li><li>• Arbitration Mechanism</li></ul> <p><b>Reference Books</b> "Financial Markets and Institutions" by Frederic S. Mishkin and Stanley G. Eakins (2021), "The Economics of Money, Banking, and Financial Markets" by Frederic S. Mishkin (2021), "A Random Walk Down Wall Street" by Burton G. Malkiel (2021), "Principles of Corporate Finance" by Richard A. Brealey, Stewart C. Myers, and Franklin Allen (2021)</p> |
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	<b>Course objectives :</b>	<b>Learning Outcome:</b>
<b>2.1</b>	<p>To introduce students to the fundamental concepts and principles of programming, with a focus on the Java programming language.</p> <p>To provide students with a solid foundation in programming logic and problem-solving skills, enabling them to develop and implement algorithms.</p> <p>To familiarize students with the syntax, data types, control structures, and object-oriented programming (OOP) concepts in Java.</p> <p>To equip students with the skills to design, code, debug, and test Java programs, and to understand the process of software development.</p>	<p>Understand the basic concepts of programming, including variables, data types, control structures, and functions, and their implementation in Java.</p> <p>Apply programming logic and problem-solving techniques to develop algorithms and implement them using the Java programming language.</p> <p>Demonstrate proficiency in writing Java programs, including proper use of syntax, data structures, and object-oriented programming principles.</p> <p>Develop debugging and testing skills to identify and fix errors in Java programs, and understand the importance of code quality and documentation in software development.</p>
<b>2.2</b>	<p>To introduce students to the principles and concepts of statistical thinking, emphasizing the importance of data-driven decision making.</p> <p>To familiarize students with basic statistical techniques and methods for data analysis, including descriptive statistics and inferential statistics.</p> <p>To develop critical thinking skills in interpreting and evaluating data, allowing students to make informed conclusions and recommendations based on statistical analysis.</p> <p>To provide hands-on experience with statistical software and tools, enabling students to apply statistical techniques to real-world data sets.</p>	<p>Understand the fundamental principles of statistical thinking, including the concepts of variability, probability, and hypothesis testing.</p> <p>Apply descriptive statistical techniques to summarize and visualize data, such as measures of central tendency, dispersion, and graphical representations.</p> <p>Apply inferential statistical techniques to draw conclusions and make inferences about a population based on sample data, including hypothesis testing and confidence intervals.</p> <p>Use statistical software and tools to analyze data sets, interpret the results, and communicate findings effectively.</p>
<b>2.3</b>	<p>To provide students with an understanding of the role and importance of financial information systems in supporting financial</p>	<p>Understand the fundamental concepts and principles of financial information systems, including the role of financial databases, transaction processing, and</p>

	<p>decision-making and reporting processes within organizations.</p> <p>To familiarize students with the components and functionalities of financial information systems, including financial databases, accounting software, and reporting tools.</p> <p>To explore the integration of financial information systems with other business systems and processes, such as supply chain management and customer relationship management.</p> <p>To develop the skills necessary to analyze, design, and evaluate financial information systems, considering factors such as data integrity, security, and regulatory compliance.</p>	<p>reporting in organizational financial management.</p> <p>Analyze and evaluate the design and functionality of financial information systems, considering factors such as data accuracy, timeliness, and relevance for financial decision-making.</p> <p>Apply accounting software and reporting tools to process financial data, generate financial reports, and analyze financial performance indicators.</p> <p>Demonstrate an understanding of the integration of financial information systems with other business systems, and the ability to identify opportunities and challenges associated with such integration.</p>
2.4	<p>To provide students with an understanding of the economic factors that influence business operations and decision-making.</p> <p>To familiarize students with key economic concepts and theories, such as supply and demand, market structures, and macroeconomic indicators.</p> <p>To explore the impact of economic policies, regulations, and global economic trends on business environments.</p> <p>To develop the ability to analyze and evaluate the economic environment to make informed business decisions and strategic planning.</p>	<p>Understand key economic concepts and theories relevant to business environments, such as supply and demand, elasticity, market structures, and competition.</p> <p>Analyze and interpret macroeconomic indicators, such as GDP, inflation, and unemployment, to assess the overall economic health and trends.</p> <p>Evaluate the impact of government policies, regulations, and economic factors on business operations and decision-making.</p> <p>Apply economic analysis to assess market conditions, competition, and consumer behavior, enabling informed business decisions and strategic planning.</p>
2.5	<p>To provide students with an understanding of the economic factors that influence business operations and decision-making.</p> <p>To familiarize students with key economic concepts and theories, such as supply and demand, market structures, and macroeconomic indicators.</p>	<p>Understand key economic concepts and theories relevant to business environments, such as supply and demand, elasticity, market structures, and competition.</p> <p>Analyze and interpret macroeconomic indicators, such as GDP, inflation, and unemployment, to assess the overall economic health and trends.</p>

	<p>To explore the impact of economic policies, regulations, and global economic trends on business environments.</p> <p>To develop the ability to analyze and evaluate the economic environment to make informed business decisions and strategic planning.</p>	<p>Evaluate the impact of government policies, regulations, and economic factors on business operations and decision-making.</p> <p>Apply economic analysis to assess market conditions, competition, and consumer behavior, enabling informed business decisions and strategic planning.</p>
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**PASSING PERFORMANCE GRADING :**

The Performance Grading of the learner shall be on ten point scale be adopted uniformly.

**Letter Grades and Grade Point**

Semester GPA/ Program CGPA Semester / Program	% of Marks	Alpha-Sign/Letter Grade Result	Grading Point
9.00 – 10.00	90.0 - 100	O (Outstanding)	10
8.00 - < 9.00	80.0 < 90.0	A+ (Excellent)	9
7.00 - < 8.00	70.0 < 80.0	A (Very Good)	8
6.00 - < 7.00	60.0 < 70.0	B+ (Good)	7
5.50 - < 6.00	55.0 < 60.0	B (Average)	6
5.00 - < 5.50	50.0 < 55.0	C (Pass)	5
Below 5.00	Below 50	F (Fail)	0
AB (Absent)		Absent	

NOTE : VC : Vocational Courses, SEC : Skill Enhancement Courses, AEC : Ability Enhancement Courses, VEC : Value Education Courses, VSC : Vocational Skill Course, IKS : Indian Knowledge System, OJT: On The Job Training, FP: Field Projects.

The performance grading shall be based on the aggregate performance of Internal Assessment and Semester End Examination.

The Semester Grade Point Average (SGPA) will be calculated in the following manner:

$SGPA = \frac{\sum CG}{\sum C}$  for a semester, where C is Credit Point and G is Grade Point for the Course/ Subject.

The Cumulative Grade Point Average (CGPA) will be calculated in the following manner:

$CGPA = \frac{\sum CG}{\sum C}$  for all semesters taken together.

**R. PASSING STANDARD FOR ALL COURSES:**

Passing 50% in each subject /Course separate Progressive Evaluation (PE)/Internal Evaluation and Semester-End/Final Evaluation (FE) examination.

R. \_\_\_\_\_

- A. Carry forward of marks in case of learner who fails in the Internal Assessments and/ or Semester-end examination in one or more subjects (whichever component the learner has failed although passing is on total marks).
- B. A learner who PASSES in the Internal Examination but FAILS in the Semester-end Examination of the Course shall reappear for the Semester-End Examination of that

Course. However, his/her marks of internal examinations shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

- C. A learner who PASSES in the Semester-end Examination but FAILS in the Internal Assessment of the course shall reappear for the Internal Examination of that Course. However, his/her marks of Semester-End Examination shall be carried over and he/she shall be entitled for grade obtained by him/her on passing

**R ALLOWED TO KEEP TERMS (ATKT)**

- A. A learner shall be allowed to keep term for Semester II irrespective of number of heads/courses of failure in the Semester I.
- B. A learner shall be allowed to keep term for Semester III wherever applicable if he/she passes each of Semester I and Semester II.

**OR**

- C. A learner shall be allowed to keep term for Semester III wherever applicable irrespective of number of heads/courses of failure in the Semester I & Semester II.
- D. A learner shall be allowed to keep term for Semester IV wherever applicable if he/she passes each of Semester I, Semester II and Semester III.

**OR**

- E. A learner shall be allowed to keep term for Semester IV wherever applicable irrespective of number of heads/courses of failure in the Semester I, Semester II, and Semester III

- F. A learner shall be allowed to keep term for Semester V wherever applicable if he/she passes each of Semester I, Semester II, Semester III and Semester IV.

**OR**

- G. A learner shall be allowed to keep term for Semester V wherever applicable irrespective of number of heads/courses of failure in the Semester I, Semester II, Semester III, and Semester IV.

- H. The result of Semester VI wherever applicable OR final semester shall be kept in abeyance until the learner passes each of Semester I, Semester II, Semester III, Semester IV, Semester V wherever applicable.

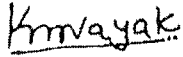
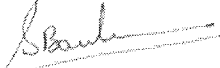

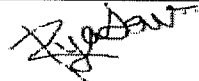




**OR**

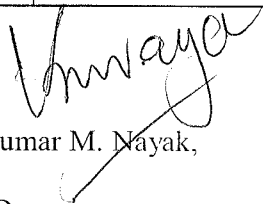
- I. A learner shall be allowed to keep term for Semester VI wherever applicable irrespective of number of heads/courses of failure in the Semester I, Semester II, Semester III, Semester IV and Semester V.


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**University of Mumbai's**  
**Garware Institute of Career Education and Development**  
**Board of Studies – Committee members**  
**Course Name: BCA (Fintech)**  
**Date- 30th September, 2022 & Time- 3.00 pm**

	Name	Signature
1	Dr. Keyurkumar Nayak Director, UM-GICED and Chairman- BOS	
2	Smt. Shilpa Borkar, Placement Officer	
3	Rahul Ranadive Course Coordinator Member Secretary	
4	Mr. Roshani Yadav Industry Experts	
5	Mr. Afshan Dadan Industry Experts	AB
6	Mr. Parth Shah Alumni	AB
7	Ms. Reet Kanodia Alumni	
8	Dr. Samveg Patel NMIMS	
9	Dr. Abhilas Nair Professor IIMK	AB
10	Mr. Rakesh Nair Subject Experts	
11	Dr. Pallavi Gupta Subject Experts	

  
Dr. Keyurkumar M. Nayak,  
Director,  
UM-GICED

  
Prof. (Dr.) Shivram S. Garje  
Dean,  
Faculty of Science

**Appendix B**  
**Justification for Bachelor of Computer Application (Fintech)**

1.	<b>Necessity for starting the course</b>	The University of Mumbai's Garware Institute of Career Education & Development plans to introduce a four years full time Bachelor of Computer Application in Fintech. The course objectives of the BCA in Fintech program are designed to equip students with a comprehensive set of skills and knowledge required to excel in the field of financial technology.
2.	<b>Whether the UGC has recommended the course:</b>	Yes, UGC has recommended the course as per gazette no. DL(N)-04/0007/2003-05 dated 11th July 2014. UGC encourages the incorporation of skill oriented and value-added courses to develop skilled manpower.
3.	<b>Whether all the courses have commenced from the academic year 2023-2024</b>	Yes, it would be commencing from the Academic year 2023-24 as per NEP 2020.
4.	<b>The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?</b>	Yes, this course is self-financed. The expert visiting faculty from industries come to teach this course.
5.	<b>To give details regarding the duration of the Course and is it possible to compress the course?</b>	The duration of the course is four years (Eight Semesters). It cannot be further compressed.
6.	<b>The intake capacity of each course and no. of admissions given in the current academic year:</b>	The intake capacity of this course is 60 students. The admission procedure is still ongoing.
7.	<b>Opportunities of Employability/ Employment available after undertaking these courses:</b>	BCA in Fintech program prepares students for diverse career opportunities in financial institutions, technology companies, and fintech startups.

*M. Nayak*

Dr. Keyurkumar M. Nayak,  
Director,  
UM-GICED

*Garje*

Prof.(Dr.) Shivram S. Garje  
Dean,  
Faculty of Science