UNIVERSITY OF MUMBAI



Syllabus for Approval

	Heading	Particulars	
1	Title of the Course	Master In Financial Technology (MFT)	
2	Eligibility for Admission	 Graduate with minimum 50% from a recognized University having a flair for numbers can apply. Consideration will be given to SC/ST candidates and Persons with Disability (PWD). Candidates from Engineering / MCA /BCA / Mathematics / Economics background will get an edge over the remaining applicants for FinTech Admissions on the basis of Written Test & Interview. 	
3	Passing Marks	50% PASSING MARKS	
4	Ordinances / Regulations (if any)		
5	No. of Years / Semesters	2 YEARS / 4 SEMESTERS	
6	Level	GRADUATE	
7	Pattern	SEMESTER	
8	Status	NEW	
9	To be implemented from Academic Year	From Academic Year 2017-18	

Date: 11/5/2017 Signature:

Dr. Anil Karnik, I/C. Director, Garware Institute of Career Education & Development



UNIVERSITY OF MUMBAI'S

GARWARE INSTITUTE OF CAREER EDUCATION & DEVELOPMENT



M. In Financial Technology

Proposed syllabus

Credit Based Semester and Grading System with effect from the Academic Year

(w.e.f. Academic Year 2017-18)

UNIVERSITY OF MUMBAI GARWARE INSTITUTE OF CAREER EDUCATION & DEVELOPMENT Ordinances, Regulations and Syllabus Relating to

M. in Financial Technology

(TWO YEAR FULL-TIME COURSE)

Preamble / Scope:

The financial markets arena is a field which is constantly evolving; in which updated and specialized knowledge is essential. Financial companies today seek candidates who not only have excellent knowledge of their field and specialist skills, but who can cope with dynamism and lead the company successfully through changes. The innovations of the financial markets, as well as the globalization process and technological changes require highly trained professionals, able to face the challenges of the financial areas of corporate business. They seek individuals who can represent the company in a positive light when dealing with clients and transmitting in them, confidence of the company's ability to manage the funds.

The PGP - Global Financial Markets program is intended to prepare students for a wide range of careers both inside and outside the financial markets industry, including Investment Banking, Fund Management, Debt and Capital Markets, Mergers and Acquisitions, Investment Analysis and Research to name a few.

Objective of the Course:

Learning in practice

The classroom sessions are a combination of lively case study discussions and hands on practice exercises. This ensures that the learning is an enriching experience. To experience our learning sessions is to go inside the issues that matter - and to reach inside yourself for the knowledge, skills, and confidence you will develop to analyze and address complex situations. In every case, class, event, and activity, you are asked not only to develop new skills, but also to demonstrate it.

Blended Learning

Our Blended learning programs are perhaps the highest impact, lowest cost way to drive major corporate learning initiatives. It offers you the advantages of face to face learning as well as those of technology based learning. We design blended learning programs that are:

- It was well-structured (all steps were well-defined and scheduled in advance);
- Takes advantage of best-in-class media of the day
- Saves time, since part of the learning can be done by learners directly from their desktop
- Helps create a social culture (learners do spent a lot of time together);
- Uses demonstration and experiential learning

Students will have a solid understanding of the fundamental quantitative tools ranging from applied economic theory, probability and statistics, to financial modeling and securities law all of which are becoming increasingly vital in the financial industry. As for any aspirant looking forward to entering this vibrant field, it is essential to have sound technical knowledge. However at the same time, it is also essential for one to be well versed in their soft skills, that is, their communication abilities and overall presentation. One cannot learn about the financial markets operations without participating in it. Keeping this in mind the PGP - Global Financial Markets from BIL has been designed to interlace practical sessions such as case study discussions, projects, group discussions, class presentation, simulation programs and internships along with the theory sessions so that the students can correlate between theory and practice and develop a wholesome understanding of the subject.

SEMESTER- WISE SYLLABUS:

	Master In Financial Technology - Duration Two Years								
	Subject Code	Core Subject	Assess	ment Pa	ttern	Teaching Hours			
		Topics	Internal Marks 60	Externa l Marks 40	Total Marks 100	Theory Hours	Practical Hours	Total Hours	Total Credits
	1.1	Business Communication	60	40	100	45	-	45	3
	1.2	Financial Accounting	60	40	100	45	-	45	3
	1.3	Business Statistics	60	40	100	45	-	45	3
I	1.4	Dealing with Data	60	40	100	45	-	45	3
SEMESTER- I	1.5	Economic Environment of Business	60	40	100	45	-	45	3
SEME	1.6	Introduction to Financial Management	60	40	100	45	-	45	3
	1.7	Financial Information Systems	60	40	100	45	-	45	3
	1.8	Fintech Personal Finance and Payments	60	40	100	45	-	45	3
		Total			800	360	-		24
	2.9	Competitive Strategy	60	40	100	45	-	45	3
	2.10	Business Law	60	40	100	45	-	45	3
	2.11	Business Research Methods	60	40	100	45	-	45	3
R- II	2.12	Strategic Financial Management	60	40	100	45	-	45	3
SEMESTER	2.13	Marketing and Sales of Financial Products	60	40	100	45	-	45	3
SEN	2.14	Derivatives	60	40	100	45	-	45	3
	2.15	Fund Management and Portfolio Selection	60	40	100	45	-	45	3
	2.16	Leadership Development	60	40	100	45	-	45	3
		Total			800	420			24

	Master In Financial Technology – Duration Two Years									
	Subject Code	Core Subject	Assess	sment Pat	tern		Teachin	g Hours		
		Topics	Internal Marks 60	Externa l Marks 40	Total Marks 100	Theory Hours	Practical Hours	Total Hours	Total Credits	
	3.17	International Business	60	40	100	45	-	45	3	
	3.18	Strategy Management	60	40	100	45	-	45	3	
	3.19	Securities Law	60	40	100	45	-	45	3	
III	3.20	Technical Analysis	60	40	100	45	-	45	3	
rer-	3.21	Financial Modelling	60	40	100	45	-	45	3	
SEMESTER- III	3.22	Robo-Advisors and Systematic Trading	60	40	100	45	-	45	3	
• 1	3.23	Retail Banking Technology and Operations	60	40	100	45	-	45	3	
	3.24	FinTech Analysis: Data Driven Credit Modelling	60	40	100	45	-	45	3	
	3.25	Summer Internship	100	-	100	-		2 mth	8	
		Total			900	360			32	
		Entrepreneurship		4.0						
	4.26	Management	60	40	100	45		45	3	
	4.27	Algorithmic Trading	60	40	100	45	-	45	3	
IV	4.28	Cyber security Technology and Applications	60	40	100	45	-	45	3	
SEMESTER- IV	4.29	Financial Risk Management: Technology and Operations	60	40	100	45	-	45	3	
SEMI	4.30	Fintech Application in Entrepreneurial Finance	60	40	100	45	-	45	3	
	4.31	Debt Markets	60	40	100	45	-	45	3	
	4.32	Project Work	100	-	100	-			2	

Total

FINAL TOTAL

SEMESTER-I

PAPER NO.	SUBJECT	Total Hours	SESSION OF 3 Hrs. Each
1.1	Unit 1: Introduction to Business Communication Unit 2: Communicating for Employment Unit 3: Business Ethics Unit 4: E-mails, Memos, Routine Letters Unit 5: Persuasive Writing Unit 6: Giving Oral Presentations Unit 7: Formal/Informal Reports Unit 8: Proposals Unit 9: Dealing with the Public and Media	45	15
1.2	Unit 1: Introduction to Accounting Unit 2: Double Entry Unit3: Accounting Concepts Unit4: Accounting Conventions Unit5: Basic Accounting Process Unit6: Final Accounts Unit7: Inventory Accounting Unit8: Accounting for Depreciation Unit9: Accounting for Capitalization Unit10: Financial Statements Unit11: Financial Statement Analysis Unit12: Balance Sheet, Profit & Loss Account Unit13: Ratio Unit14: Cash and Funds Flow Statement	45	15
1.3	Unit1: Introduction to Statistical Analysis Unit2: Counting, Probability and Probability Unit3: Distributions Unit4: The Normal Distribution Unit5: Sampling and Sampling Distribution Unit6: Estimation and Hypothesis Testing Unit7: Correlation and Regression	45	15
1.4	Unit 1: Introduction to data Unit 2: Statistical Inference Unit 3: Exploratory Data Analysis	45	15

	77 1: 4 D 1 34 1 1 7 1 41 11		
	Unit 4: Basic Machine Learning Algorithms		
	Unit 5: Feature generation and feature selection		
	Unit 6: Building a user facing data product		
	Unit 7: Data Visualization		
	Unit 8: Data Science and Ethical Issues		
1.5	Economics Environment of Business		
	W. D. A. V. J. D.		
	Unit 1: Introduction to Micro Economics		
	Unit 1: Demand		
	Unit 2: Utility Concepts		
	Unit 3: Indifference Analysis		
	Unit 4: Supply side economics	45	15
	Unit 5: Equilibrium		
	Unit 6: Competition and Market Forms		
	Unit 7: Oligopoly and Duopoly		
	Unit 8: Introduction to Macro Economics		
	Unit 9: Aggregate Demand and Supply, GDP		
	Unit 10: Inflation and Interest Rates		
	Unit 11: Monetary and Fiscal Policy		
	Unit 12: Fiscal Deficit and Balance of Payments		
	Unit 13: Exchange Rates		
	One 13. Exchange Rates		
1.6	Introduction to Financial Management		
	Unit 1: Characteristics of financial markets		
	Unit 2: Interest rate determinants	45	15
		43	13
	Unit 3: Time value of money		
	Unit 4: Bond pricing		
	Unit 5: Fundamental Stock Pricing		
	Unit 6: Finish Stock Pricing		
	Unit 7: Weighted average cost of capital		
	Unit 8: Capital Budgeting		
1.7	Financial Information Systems		
	Unit 1: Introduction and Overview of course topics	45	15
	Unit 2: Financial Software and Analytic Tools	7.5	13
	Unit 3: Banking and Payment Processing Systems		
	Unit 4: Information Technology in Financial Markets		
	Unit 5: Financial Markets Infrastructure		
	one 5. i manetai markets inii asti ucture		
1.8	Fintech Personal Finance and Payments		
	Unit 1: Peer to Peer Currency exchange framework	45	15
	Unit 2: Digital Currencies		10
	Unit 3: Insuretech		
	Unit 4: Peer to Peer Lending		
	Unit 5: Regulatory Issues		
	Onic J. Regulatory 135ucs		

SEMESTER-II

PAPER NO.	SUBJECT	Total Hours	SESSION OF 3 Hrs. Each
2.9	Unit 1: Basics of Strategy Unit 2: Competitive Advantage Unit 3: Strategic Interactions Unit 4: Industry Dynamics and Competition Unit 5: Corporate Strategy Unit 6: Technology Strategy	45	15
2.10	Unit 1: Introduction of law and court procedures Unit 2: Business Crimes and Torts Unit 3: Government Regulation of Business Unit 4: Contracts-nature and Capacity to contract Unit 5: Offer and acceptance Unit 6: Defective and illegal agreements Unit 7: Termination of Contract and Consumer Protection	45	15
2.11	Unit 1: Background to Research Unit 2: Literature Review Unit 3: Qualitative Methods Unit 4: Quantitative Methods Unit 5: Research Proposal	45	15
2.12	Unit 1: Financial management objectives and conflicting stakeholder interests Unit 2: Financial strategy formulation and ethical issues in financial management Unit 3: Corporate valuation and strategies for acquisitions and mergers Unit 4: Application of option pricing theory in investment decisions Unit 5: International investment and financing decisions Unit 6: The nature of the equity and debt markets and sources of finance including hybrids Unit 7: The estimation of cost of capital Unit 8: Review of capital structure and distribution theory	45	15

2.13	Unit 9: Option pricing theory and real options Unit 10: The valuation of intangibles Unit 11: Methods of interest rate risk and currency risk management Marketing and Sales of Financial Products		
2.13	Unit 1: Introduction to Marketing Unit 2: Environment Scanning Unit 3: Marketing Strategy and Consumer buying Unit 4: Segmentation and Targeting Unit 5: Positioning Unit 6: Product and Branding Unit 7: Introduction to Services Marketing Unit 8: Price Unit 9: Place Unit 10: Promotion	45	15
2.14	Unit 1: Introduction to Derivatives and Derivative Products Unit 2: Options Unit 3: Futures Unit 4: Types of Margins Unit 5: Future and Option Strategies Unit 6: Derivative Markets	45	15
2.15	Fund Management and Portfolio Selection Unit 1: Financial markets and instruments Unit 2: Active Fund Management and Investor Strategies Unit 3: Market microstructure Unit 4: Diversification Unit 5: Risk and Performance Management Unit 6: Introduction to Portfolio Management Unit 7: Portfolio Management Models Unit 8: Portfolio Manager Unit 9: Security Analysis Unit 10: Case Studies and Practical Application	45	15
2.16	Leadership Development Unit 1: Foundational Skill Building Unit 2: Cross Functional Business Approach Unit 3: Strategy Formulation and Implementation Unit 4: Leading Charge Unit 5: Personal Leadership	45	15

SEMESTER-III

PAPER NO.	SUBJECT	Total Hours	SESSION OF 3 Hrs. Each
3.17	Unit 1: Overview of International Business Unit 2: The evolution of International Business Unit 3: Regional Economic Integration Unit 4: The international flow of funds Unit 5: International Business Environment Unit 6: Market Entry modes and decision making Unit 7: International Business Strategies Unit 8: International HRM Unit 9: International Marketing Unit 10: Global Value chain	45	15
3.18	Strategic Management Unit 1: The Concept of Strategy Unit 2: Industry & Competitive Analysis Unit 3: Competitive Advantage Unit 4: Competitive Dynamics Unit 5: Corporate and Global Strategy	45	15
3.19	Unit 1: Introduction to Indian Capital Markets Unit 2: SEBI Act 1992 Unit 3: Securities Contract (Regulations) Act 1956 Unit 4: Companies Act 2013 Unit 5: Company Formation Unit 6: Corporate Governance Unit 7: Other Regulations	45	15
3.20	Unit 1: Introduction to Technical Analysis Unit 2: Theories, Techniques & Benefits Unit 3: Important Aspects of Technical Analysis Unit 4: Charts and their patterns Unit 5: Technical Indicators Unit 6: Trend Lines - Support and Resistance Unit 7: Importance of Volume Unit 8: Charts and Chart Types Unit 9: Chart Patterns Unit 10: Moving Averages Unit 11: Indicators and Oscillators	45	15

	Unit 12: Technical Analysis Step by Step		
3.21	Financial Modelling		
	Unit 1: Overview of Financial Modelling Unit 2: Best Practices Unit 3: Core Statements Unit 4: Forecasting Revenue and Expenses Unit 5: Scenario Analysis Unit 6: Working Capital Schedule – (Assets and Liabilities) Unit 7: Depreciation and Amortization Schedule Unit 8: Long-Term Items and completion of income statement logic Unit 9: Shareholder's equity Schedule Unit 10: Debt and Interest Unit 11: Troubleshooting your Financial Model Unit 12: Data Tables Unit 13: Basics of Valuation Unit 14: Valuation Of Companies - DDM Unit 15: Discounted Cash Flow Model	45	15
3.22	Robo-Advisors and Systematic Trading		
	Unit 1: Smart beta and Robo advisors Unit 2: Signal, noise, randomness Unit 3: Markets and basic measurements of performance, direction and volatility Unit 4: Comparing strategies Unit 5: Systematic Trading: Trend Following Systems & Futures Markets Unit 6: Systematic trading: Trend and Counter-trend systems Unit 7: Systematic trading: Trend and Counter-trend systems Unit 8: Technical trading: Spreads and pairs trading in Equities Markets Unit 9: Pairs trading review Unit 10: Fundamentals and currency trading strategies Unit 11: Currencies: Flow-based strategies and carry trades; Unit 12: Co-integration and basket trading Unit 13: Machine Learning and Artificial Intelligence in Financial Prediction Unit 14: High frequency trading	45	15
3.23	Retail Banking Technology and Operations Unit 1: Overview of Financial Ecosystem and Retail Banking Unit 2: The universal Banking Process Framework		

3.25	Summer Internship	months	ď
2.25	Commence that comment in	2	8
	Unit 8: Mortgages		
	modelling		
	Unit 7: Loss Given Default: theory, data acquisition and		
	Unit 6: Tree-based models		
	pre-processing		
	Unit 4: PD model calibration Unit 5: Regression-based models of default and data		
	Unit 3: PD model validation		
	Unit 2: R tutorial and data sets		
	Unit 1: Introduction to credit risk modelling concepts	45	15
3.24	FinTech Analysis: Data Driven Credit Modelling		
	Architecture and Applications		
	Unit 6: Data warehouse and analytics – Concepts,		
	Planning		
	Unit 4: Compliance and Risk managementUnit 5: Disaster recovery and Business Continuity		
	Unit 3: Payments Ecosystem	45	15

SEMESTER-IV

PAPER NO.	SUBJECT	Total Hours	SESSION OF 3 Hrs. Each
4.26	Unit 1: Business Opportunity Unit 2: The process of building a business Unit 3: Idea to business model Unit 4: Venturing through innovating the business model Unit 5: Discovery driven planning Unit 6: Crafting a business plan Unit 7: Modes of venturing Unit 8: Raising venture capital Unit 9: Mobilizing Resource for the venture Unit 10: Venturing in emerging markets Unit 11: Paths to entrepreneurship	45	15
4.27	Unit 1: Introduction and Overview of Algorithmic Trading Unit 2: The Mathematics of Algorithmic Trading Unit 3: Global Trends in Algorithmic Trading Unit 4: Lifecycle of Algorithmic Trading Unit 5: Risk, Costs and Roles in Algorithmic Trading Unit 6: The trading strategies Unit 7: Business aspect of algorithmic trading Unit 8: India in algorithmic trading	45	15
4.28	Cyber security Technology and Applications Unit 1: Introduction to cyber security Unit 2: Systems Security Unit 3: Cryptograph and Network Security Unit 4: The Landscape of Cyber security and Case Studies	45	15
4.29	Financial Risk Management: Technology and Operations Unit1: Market structure & Participant ant Unit2: Solution Architecture & Design Unit3: Financial Market Product life Cycle Development & Implementation Unit4: Introduction to Risk Unit5: Market Risk Unit6: Algorithmic Trading & complex event processing	45	15

4.30	Fintech Application in Entrepreneurial Finance Unit 1: Crowd funding Unit 2: Peer to Peer Equity Unit 3: Regulatory Issues	45	15
4.31	Unit 1: Overview of debt contracts and classification of debt securities Unit 2: Players and their objectives Unit 3: Government debt markets Unit 4: The money market Unit 5: The repo market Unit 6: MBS and ABS markets Unit 7: Fixed income derivatives markets Unit 8: No-arbitrage and the law of one price Unit 9: Risks of debt securities	45	15
4.32	Project Work		2

PASSING STANDARD AND PERFORMANCE GRADING:

MARKS	GRADE POINTS	GRADE
75 TO 100	7.5 TO 10.0	0
65 TO 74	6.5 TO 7.49	A
60 TO 64	6.0 TO 6.49	В
55 TO 59	5.5 TO 5.99	С
50 TO 54	5.0 TO 5.49	D
0 TO 49	0.0 TO 4.99	F (FAILS)

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 = Σ CG / Σ 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 : $CGPA = \sum CG / \sum C$ for all semesters taken together.

R. _____ PASSING STANDARD FOR ALL COURSES:

Passing 50% in each subject /Course combined Progressive Evaluation (PE)/Internal Evaluation and Semester-End/Final Evaluation (FE) examination taken together. i.e. (Internal plus External 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 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 IV and Semester V.