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University of Mumbai

B.Com. (Banking & Insurance) Programme
Three Year Integrated Programme - Six Semesters
Course Structure

Under Choice Based Credit System

To be implemented from Academic Year- 2016-2017 Progressively

Board of Studies-in-Banking & Finance, University of Mumbai

B.Com. (Banking & Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

F.Y.B.Com. (Banking & Insurance)

(To be implemented from Academic Year- 2016-2017)

No. of Courses	Semester I	Credits	No. of Courses	Semester II	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1	Environment and Management of Financial Services.	**03**	1	Principles and Practices of Banking & Insurance	**03**
2	Principles of Management	**03**	2	Business Law	**03**
3	Financial Accounting - I	**03**	3	Financial Accounting - II	**03**
2	***Ability Enhancement Courses (AEC)***		***2***	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***		***2A***	***Ability Enhancement Compulsory Course (AECC)***	
4	Business Communication-I	**03**	4	Business Communication-II	**03**
2B	****Skill Enhancement Courses (SEC)***		**2B**	*****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**	5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***		***3***	***Core Courses (CC)***	
6	Business Economics-I	**03**	6	Organisational Behaviour	**03**
7	Quantitative Methods-I	**03**	7	Quantitative Methods-II	**03**
	Total Credits	**20**		**Total Credits**	**20**

****List of Skill Enhancement Courses (SEC) for Semester I (Any One)***		*****List of Skill Enhancement Courses (SEC) for Semester II (Any One)***	
1	Foundation Course - I	1	Foundation Course - II
2	Foundation Course in NSS - I	2	Foundation Course in NSS - II
3	Foundation Course in NCC - I	3	Foundation Course in NCC - II
4	Foundation Course in Physical Education - I	4	Foundation Course in Physical Education - II
Note: Course selected in Semester I will continue in Semester II			

S.Y.B.Com. (Banking & Insurance)

(To be implemented from Academic Year- 2017-2018)

No. of Courses	Semester III	Credits	No. of Courses	Semester IV	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1, 2 & 3	*Any three courses from the following list of the courses	**09**	1,2 & 3	*Any three courses from the following list of the courses	**09**
2	***Ability Enhancement Courses (AEC)***		***2***	***Ability Enhancement Courses (AEC)***	
4	Information Technology in Banking & Insurance-I	**02**	4	Information Technology in Banking & Insurance-II	**02**
3	***Core Courses (CC)***		***3***	***Core Courses (CC)***	
5	Laws Governing Banking & Insurance	**03**	5	Corporate Laws & laws Governing Capital Market	**03**
6	Financial Market (Equity, Debt, Forex and Derivatives)	**03**	6	Universal Banking	**03**
7	Taxation of Financial Services	**03**	7	Business Economics-II	**03**
	Total Credits	**20**		**Total Credits**	**20**

****List of Discipline Related Elective(DRE) Courses for Semester III (Any Three)***		****List of Discipline Related Elective(DRE) Courses for Semester IV (Any Three)***	
1	Financial Management -I	1	Financial Management –II
2	Management Accounting (Tools & Techniques, Focus on Banking & Insurance)	2	Financial Market (Equity, Debt, Forex and Derivatives)
3	Organizational Behaviour	3	Wealth Management
4	Risk Management	4	Cost Accounting of Banking & Insurance
5	Mutual Fund Management	5	Entrepreneurship Management

T.Y.B.Com. (Banking & Insurance)

(To be implemented from Academic Year- 2018-2019)

No. of Courses	Semester V	Credits	No. of Courses	Semester VI	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1,2,3 & 4	*Any four courses from the following list of the courses	**12**	1,2,3 & 4	*Any four courses from the following list of the courses	**12**
2	***Core Courses (CC)***		***2***	***Core Courses (CC)***	
5	International Banking & Finance	**04**	5	Central Banking	**04**
3	****Project Work***		***3***	****Project Work***	
6	Project Work-I (Banking)	**04**	6	Project Work-II (Insurance)	**04**
	Total Credits	**20**		**Total Credits**	**20**

Note: *Project work is considered as a special course involving application of knowledge in solving/analyzing/exploring a real life situation/ difficult problem. Project work would be of 04 credits each. A project work may be undertaken in any area of Elective Courses/ study area*

****List of Elective Courses for Semester V (Any Four)***		****List of Elective Courses for Semester VI (Any Four)***	
1	Marketing in Banking & Insurance	1	Security Analysis and Portfolio Management
2	Financial Reporting & Analysis(Corporate Banking & Insurance)	2	Strategic Management
3	Auditing	3	Human Resource Management in Banking & Insurance
4	Business Ethics & Corporate Governance	4	Turnaround Management
5	Financial Services Management	5	International Resource Management in Banking & Insurance
6	Actuarial Analysis in Banking & Insurance	6	Procedures & Documentations in Banking & Insurance

University of Mumbai

Revised Syllabus
and
Question Paper Pattern
of Courses
of
B.Com. (Banking & Insurance)
Programme
at
First Year
Semester I and II

Under Choice Based Credit, Grading and Semester System

(To be implemented from Academic Year- 2016-2017)

Board of Studies-in-Banking & Finance, University of Mumbai

B.Com. (Banking & Insurance) Programme at

Under Choice Based Credit, Grading and Semester System

Course Structure

F.Y.B.Com. (Banking & Insurance)

(To be implemented from Academic Year- 2016-2017)

No. of Courses	Semester I	Credits	No. of Courses	Semester II	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1	Environment and Management of Financial Services.	**03**	1	Principles and Practices of Banking & Insurance	**03**
2	Principles of Management	**03**	2	Business Law	**03**
3	Financial Accounting -I	**03**	3	Financial Accounting -II	**03**
2	***Ability Enhancement Courses (AEC)***		***2***	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***		***2A***	***Ability Enhancement Compulsory Course (AECC)***	
4	Business Communication-I	**03**	4	Business Communication-II	**03**
2B	****Skill Enhancement Courses (SEC)***		**2B**	*****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**	5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***		***3***	***Core Courses (CC)***	
6	Business Economics-I	**03**	6	Organizational Behaviour	**03**
7	Quantitative Methods-I	**03**	7	Quantitative Methods-II	**03**
	Total Credits	**20**		**Total Credits**	**20**

****List of Skill Enhancement Courses (SEC) for Semester I (Any One)***		*****List of Skill Enhancement Courses (SEC) for Semester II (Any One)***	
1	Foundation Course - I	1	Foundation Course - II
2	Foundation Course in NSS - I	2	Foundation Course in NSS - II
3	Foundation Course in NCC - I	3	Foundation Course in NCC - II
4	Foundation Course in Physical Education - I	4	Foundation Course in Physical Education - II
Note: Course selected in Semester I will continue in Semester II			

B.Com. (Banking & Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

(To be implemented from Academic Year- 2016-2017)

Semester I

No. of Courses	Semester I	Credits
1	***Elective Courses (EC)***	
1	Environment and Management of Financial Services.	**03**
2	Principles of Management	**03**
3	Financial Accounting-I	**03**
2	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***	
4	Business Communication-I	**03**
2B	****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***	
6	Business Economics-I	**03**
7	Quantitative Methods-I	**03**
	Total Credits	**20**

****List of Skill Enhancement Courses (SEC) for Semester I (Any One)***	
1	Foundation Course - I
2	Foundation Course in NSS - I
3	Foundation Course in NCC - I
4	Foundation Course in Physical Education - I

*Revised Syllabus of courses of B.Com. (*Banking & Insurance*)*
Programme at Semester I
with effect from the Academic Year 2016-2017

Elective Courses (EC)

1. Environment and Management of Financial Services

Sr. No.	Modules	No. of Lectures
1	Introduction to Financial System	15
2	Phases of Development of Banking and Insurance	15
3	Management, Regulation and Development	15
4	Regulatory and Developmental Framework of Banking & Insurance	15
	Total	**60**

Sr. No.	Modules / Units
1	**Introduction to Financial System**
	• **Financial System** ▪ Institutional set- up ▪ Marketing Structure ▪ Instruments ▪ Overview of different kinds of financial services. (e.g Leasing, Hire purchase, factoring, forfaiting, Bill financing/Bill discounting, housing finance, letter of credit, insurance, venture capital, merchant banking, stock broking and credit rating.) • Meaning, Definition and scope of Banking and Insurance.
2	**Phases of Development of Banking and Insurance**
	• Significance and Role of Banking and Insurance in mobilizing savings, investment, accumulation and economic growth. • Functions and working of banking and insurance companies
3	**Management, Regulation and Development**
	• Risk management within the organizations of Banks and Insurance companies • Asset - Liability Management in Banking and Insurance • Organisational structure and management
4	**Regulatory and Developmental Framework of Banking & Insurance**
	• Banking companies and RBI Acts and legal framework governing the insurance. • Developmental Activities of RBI and IRDA • Mechanism of supervision and regulation. • Prudential Norms.

Elective Courses (EC)

2. Principles of Management

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to Management	15
2	Management Process	15
3	Organization Structure of Banking and Insurance companies	15
4	Business Leaders	15
	Total	**60**

Sr. No.	Modules / Units
1	**Introduction to Management**
	• Definition of Management • Management as a Profession • Traditional Vs Contemporary Management (Henry Fayol, F.W. Taylor, Peter Drucker) (C.K.Pralhad, Mr. Vijay Govindarajan)
2	**Management Process**
	• Management Process, Practices, Functions of Management related to Banking and Insurance companies
3	**Organization Structure of Banking and Insurance companies**
4	**Business Leaders**
	• Leaders in the Indian Industry (J.R.D Tata, Ratan Tata, Aditya Birla, Kumar Mangalam Birla, Mr Dhirubhai Ambani and Sons, Kiran Mazumdar Shaw, Verghese Kurien) • Leaders in the Banking and Insurance Industry ▪ **Indian Leaders** (Banking & Insurance: H.Shanbagh. Uday Kotak, K.V. Kamath Naina Kidwai, Deepak Parekh, Chanda Kochhar, Hinduja, Godrej,Aziz Premzi, Narayan Murthy, Anand Mahindra , Governor of RBI) ▪ **International Leader** President of World bank, President of Asian Development Bank, President of Fed Reserve, President of International Monetary Fund

Elective Courses (EC)

3. Financial Accounting

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to accounting	12
2	Classification of Income & Expenses & Accounting Standards	12
3	Issues of Shares, Stock Valuation & Hire purchase	20
4	Final Accounts	16
	Total	**60**

Revised Syllabus of Courses of B.Com. (Banking & Insurance) Programme at Semester I with Effect from the Academic Year 2016-2017

Ability Enhancement Courses (AEC)

4. Business Communication - I

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Theory of Communication	15
2	Obstacles to Communication in Business World	15
3	Business Correspondence	15
4	Language and Writing Skills	15
	Total	**60**

Sr. No.	Modules / Units
	C. Search and Rescue • SAR Organization in the Indian ocean **D. Swimming** Floating for three minutes and Free style swimming for 50 meters ***OR*** **AIR** **A. General Service Knowledge** • Development of Aviation • History of IAF **B. Principles of Flight** • Introduction • Laws of Motion • Glossary of Terms. **C. Airmanship** • Introduction • Airfield Layout • Rules of the Air • Circuit Procedure • ATC/RT Procedures • Aviation Medicine **D. Aero- Engines** • Introduction to Aero-engines

B.Com. (Banking & Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

(To be implemented from Academic Year- 2016-2017)

Semester II

No. of Courses	Semester II	Credits
1	***Elective Courses (EC)***	
1	Principles and Practices of Banking & Insurance	**03**
2	Business Law	**03**
3	Financial Accounting -II	**03**
2	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***	
4	Effective Communication-II	**03**
2B	*****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***	
6	Organisational Behaviour	**03**
7	Quantitative Methods-II	**03**
	Total Credits	**20**

*****List of Skill Enhancement Courses (SEC) for Semester II (Any One)***	
1	Foundation Course - II
2	Foundation Course in NSS - II
3	Foundation Course in NCC - II
4	Foundation Course in Physical Education - II

*Revised Syllabus of courses of B.Com. (*Banking & Insurance*)*
Programme at Semester II
with effect from the Academic Year 2016-2017

Elective Courses (EC)

1. Principles and Practices of Banking & Insurance

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to Banking	15
2	Banking Scenario in India	15
3	Introduction to Insurance	15
4	Insurance Business Environment in India	15
	Total	**60**

Sr. No.	Modules / Units
1	**Introduction to Banking**
	Basic Concepts: Origin, Need, Types, Scope and Functions of Banking - Need for Regulation and Supervision
2	**Banking Scenario in India**
	Banking Operations -Types of accounts - Banking Services - Current Scenario, Financial Inclusion and Banking Regulations & Role of RBI.
3	**Introduction to Insurance**
	Understanding Risk - Kinds of business risks - Need and Scope of insurance - Evolution of. insurance - Principles of insurance - Types of insurance and policies - Risk and Return relationship
4	**Insurance Business Environment in India**
	Growth of Insurance Business - Actuarial Role - Claim and Settlement Procedures - Insurance Regulations Role of IRDA.

Revised Syllabus of courses of B.Com. (Banking & Insurance) Programme at Semester II with effect from the Academic Year 2016-2017

Elective Courses (EC)

2. Business Law

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to Law	08
2	Indian Constitution	10
3	Contract Act	12
4	Special Contract	12
5	Negotiable Instrument Act	10
6	Information Technology Act	08
	Total	**60**

Sr. No.	Modules / Units
1	**Introduction to Law**
	Meaning, Definitions, Features, Types, Sources and Classification
2	**Indian Constitution**
	Natural Justice, Special Leave Appeal, Features, Writs, Fundamental Rights
3	**Contract Act**
	Meaning, Essentials, Agreement, Offer, Acceptance, Consent, Free Consent, Consideration, Capacity of contract, Kinds and Classification of Contract, Performance, Discharge and Termination of Contract, Void - Quasi- Contingent - Wager - Minor Contracts, Breach and Remedies For the Contract.
4	**Special Contract**
	• Indemnity & Guarantee - Meaning, Features, distinguish, position, Surety, discharge of surety • Bailment : Meaning, Types, Features, Position, Lien, Finder of Goods Pledge • Agency: Meaning, Features, types, Position, Ratification, Modes of Creation and Termination, Liabilities. • Sale of Goods Act: Introduction, Meaning, Features, Terms, Goods Classification, Sale and Agreement to sell, Unpaid Seller and position Conditions and Warranty
5	**Negotiable Instrument Act**
	Features, Promissory Notes, Bills of Exchange, Cheque, Features, Distinguish, Acceptance, Crossing, Dishonor, Position Of Banker, Holder and Holder In Due Course, Privilages, Payment In and Out of Due Course, Types of Instruments, Penalties For Dishonour, Endorsement
6	**Information Technology Act**
	Objectives, Scheme, Digital Signature, Authorization, E- Governance, Certifying Authorities, Digital Certificates, Cyber

Revised Syllabus of courses of B.Com. (Banking & Insurance) Programme at Semester II with effect from the Academic Year 2016-2017

Elective Courses (EC)

3. Financial Accounting - II

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Valuation of Goodwill and Shares	15
2	Buyback of equity shares	15
3	Redemption of preference shares	15
4	Redemption of debentures (excluding buy back of own debentures)	15
	Total	**60**

Sr. No.	Modules / Units
1	**Valuation of Goodwill and Shares**
	Valuation of Goodwill Maintainable Profit method, Super Profit Method Capitalization method, Annuity Method **Valuation of Shares** Intrinsic Value Method, Yield method and Fair Value Method
2	**Buyback of equity shares**
	Company Law/ Legal Provisions (including related restrictions, power, transfer to capital redemption reserve account and prohibitions) Compliance of conditions including sources, maximum limits and debt equity ratio
3	**Redemption of preference shares**
	Company Law / Legal Provisions for redemption of preference shares in Companies Act Sources of redemption including divisible profits and proceeds of fresh issue of shares Premium on redemption from security premium and profits of company Capital Redemption Reserve Account - creation and use
4	**Redemption of debentures**
	Redemption of debentures by payment from sources including out of capital and / or out of profits. Debenture redemption reserve and debenture redemption sinking fund excluding insurance policy. Redemption of debentures by conversion into new class of shares or debentures with options- including at par, premium and discount

Revised Syllabus of Courses of B.Com. (Banking & Insurance) Programme at Semester II with Effect from the Academic Year 2016-2017

Ability Enhancement Courses (AEC)

4. Business Communication - II

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Presentation Skills	15
2	Group Communication	15
3	Business Correspondence	15
4	Language and Writing Skills	15
	Total	**60**

Sr. No.	Modules / Units
1	**Presentation Skills**
	Presentations: (to be tested in tutorials only) 4 Principles of Effective Presentation Effective use of OHP Effective use of Transparencies How to make a Power-Point Presentation
2	**Group Communication**
	Interviews: Group Discussion Preparing for an Interview, Types of Interviews – Selection, Appraisal, Grievance, Exit **Meetings:** Need and Importance of Meetings, Conduct of Meeting and Group Dynamics Role of the Chairperson, Role of the Participants, Drafting of Notice, Agenda and Resolutions **Conference:** Meaning and Importance of Conference Organizing a Conference Modern Methods: Video and Tele – Conferencing **Public Relations:** Meaning, Functions of PR Department, External and Internal Measures of PR
3	**Business Correspondence**
	Trade Letters: Order, Credit and Status Enquiry, Collection (just a brief introduction to be given) **Only following to be taught in detail:-** Letters of Inquiry, Letters of Complaints, Claims, Adjustments Sales Letters, promotional leaflets and fliers Consumer Grievance Letters, Letters under Right to Information (RTI) Act [Teachers must provide the students with theoretical constructs wherever necessary in order to create awareness. However students should not be tested on the theory.]
4	**Language and Writing Skills**
	Reports: Parts, Types, Feasibility Reports, Investigative Reports **Summarisation:** Identification of main and supporting/sub points Presenting these in a cohesive manner

Revised Syllabus of Courses of B.Com. (Banking & Insurance)
Programme at Semester II
with Effect from the Academic Year 2016-2017

Skill Enhancement Courses (SEC)

5. Foundation Course – II

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Globalisation and Indian Society	07
2	Human Rights	10
3	Ecology	10
4	Understanding Stress and Conflict	10
5	Managing Stress and Conflict in Contemporary Society	08
	Total	**45**

Sr. No.	Modules / Units
5	**Specialized Subject: Army Or Navy Or Air**
	Army **Desired outcome:** The training shall instill patriotism, commitment and passion to serve the nation motivating the youth to join the defence forces. It will also acquaint, expose & provide basic knowledge about armed, naval and air-force subjects **A. Map reading** • Introduction to types of Maps and Conventional signs • Scales and Grid system • Topographical forms and technical terms • Relief, contours and Gradients • Cardinal points and Types of North • Types of bearings and use of Service Protractor • Prismatic compass and its use and GPS **B. Field Craft and Battle Craft** • Introduction • Judging distance • Description of ground • Recognition, Description and Indication of landmarks and targets ***OR*** **Navy** **A. Naval Communication** • Introduction to Naval Modern Communication, Purpose and Principles ▪ Introduction of Naval communication ▪ Duties of various communication sub-departments • Semaphore ▪ Introduction of position of letters and prosigns ▪ Reading of messages ▪ Transmission of messages **B. Seamanship** • **Anchor work** ▪ Parts of Anchor and Cable, their identification • **Rigging** ▪ Types of ropes and breaking strength- stowing, maintenance and securing of ropes ▪ Practical Bends and Hitches: Reef Knot, Half hitch, Clove Hitch, Rolling Hitch, Timber Hitch, Bow Line, Round Turn and Two half hitch and Bow line on the Bight and its basic elements and uses. ▪ Introduction to Shackles, Hooks, Blocks and Derricks, Coiling Down and Splicing of rope **C. Boat work** • Parts of Boat and Parts of an Oar • Instruction on boat Pulling- Pulling orders • Steering of boat under oars, Practical instruction on Boat Pulling, Precautions while pulling

Sr. No.	Modules / Units
	OR **Air** **A. Air frames** • Aircraft Controls • Landing Gear **B. Instruments** • Basic Flight Instruments **C. Aircraft Particulars** • Aircraft Particulars (Type specific) **D. Aero modelling** • History of Aero modelling • Materials used in Aero modelling • Type of Aero models • Flying/ Building of Aero models

Revised Syllabus of Courses of B.Com. (Banking & Insurance) Programme at Semester I and II with effect from the Academic Year 2016-2017

Scheme of Evaluation

The performance of the learners will be evaluated in two Components. One component will be the Internal Assessment component carrying 25% marks and the second component will be the Semester-wise End Examination component carrying 75% marks. The allocation of marks for the Internal Assessment and Semester End Examinations will be as shown below:-

A) Internal Assessment: 25 %

Question Paper Pattern
(Internal Assessment- Courses without Practical Courses)

Sr. No.	Particular	Marks
1	**One class test (20 Marks)**	
	Match the Column/ Fill in the Blanks/ Multiple Choice Questions ***(½ Mark each)***	05 Marks
	Answer in One or Two Lines (Concept based Questions) ***(01 Mark each)***	05 Marks
	Answer in Brief (Attempt Any Two of the Three) ***(05 Marks each)***	10 Marks
2	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities	05 Marks

Question Paper Pattern
(Internal Assessment- Courses with Practical Courses)

Sr. No.	Particular	Marks
1	**Semester End Practical Examination (20 Marks)**	
	Journal	05 Marks
	Viva	05 Marks
	Laboratory Work	10 Marks
2	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities articulation and exhibit of leadership qualities in organizing related academic activities	05 Marks

B) Semester End Examination: 75 %

i) Duration: The examination shall be of 2 ½ Hours duration

ii) Theory question paper pattern

- There shall be five questions each of 15 marks.
- All questions shall be compulsory with internal choice within the questions.
- Question may be subdivided into sub-questions a, b, c… and the allocation of marks depends on the weightage of the topic.
  (Detail question paper pattern has been given separately)

Passing Standard

The learners to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Internal Assessment and Semester End Examination. The learners shall obtain minimum of 40% marks (i.e. 10 out of 25) in the Internal Assessment and 40% marks in Semester End Examination (i.e. 30 Out of 75) separately, to pass the course and minimum of Grade E to pass a particular semester A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

Question Paper Pattern

(Practical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 ½ Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A) Sub Questions to be asked 10 and to be answered any 08 B) Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2 Q-2	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-3 Q-3	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-4 Q-4	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-5 Q-5	A) Theory questions B) Theory questions ***OR*** Short Notes To be asked 05 To be answered 03	08 Marks 07 Marks 15 Marks

Note:

Practical question of 15 marks may be divided into two sub questions of 7/8 and 10/5 Marks. If the topic demands, instead of practical questions, appropriate theory question may be asked.

Question Paper Pattern

(Theoretical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 ½ Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A) Sub Questions to be asked 10 and to be answered any 08 B) Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2 Q-2	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-3 Q-3	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-4 Q-4	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-5 Q-5	A) Theory questions B) Theory questions ***OR*** Short Notes To be asked 05 To be answered 03	08 Marks 07 Marks 15 Marks

Note:

Theory question of 15 marks may be divided into two sub questions of 7/8 and 10/5 Marks.

University of Mumbai

Revised Syllabus
and
Question Paper Pattern
of Courses of
B.Com. (Banking & Insurance)
Programme
Second Year
Semester III and IV

Under Choice Based Credit, Grading and Semester *System*

(To be implemented from Academic Year 2017-2018)

Board of Studies-in-Banking & Finance

B.Com. (Banking and Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

S.Y.B.Com. (Banking & Insurance)

(To be implemented from Academic Year- 2017-2018)

No. of Courses	Semester III	Credits	No. of Courses	Semester IV	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1,2 & 3	*Any three courses from the following list of the courses	**09**	1,2 & 3	**Any three courses from the following list of the courses	**09**
2	***Ability Enhancement Courses (AEC)***		***2***	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***		***2A***	***Ability Enhancement Compulsory Course (AECC)***	
4	Information Technology in Banking & Insurance- I	**03**	4	Information Technology in Banking & Insurance- II	**03**
2B	***Skill Enhancement Courses (SEC)***		**2B**	****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**	5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***		***3***	***Core Courses (CC)***	
6	Financial Markets	**03**	6	Corporate & Securities Law	**03**
7	Direct Taxation	**03**	7	Business Economics-II	**03**
	Total Credits	**20**		**Total Credits**	**20**

*List of Skill Enhancement Courses (SEC) for Semester III (Any One)		**List of Skill Enhancement Courses (SEC) for Semester IV (Any One)	
1	Foundation Course – III (An Overview of Banking Sector)	1	Foundation Course - IV (An Overview of Insurance Sector)
2	Foundation Course- Contemporary Issues- III	2	Foundation Course- Contemporary Issues- IV
3	Foundation Course in NSS - III	3	Foundation Course in NSS – IV
4	Foundation Course in NCC - III	4	Foundation Course in NCC – IV
5	Foundation Course in Physical Education - III	5	Foundation Course in Physical Education -IV

*List of Elective Courses (EC) for Semester III (Any Three)		**List of Elective Courses (EC) for Semester IV (Any Three)	
1	Financial Management - I	1	Financial Management –II
2	Management Accounting	2	Cost Accounting
3	Organizational Behaviour	3	Entrepreneurship Management
4	Risk Management	4	Wealth Management
5	Mutual Fund Management	5	Customer Relationship Management
Note: Course selected in Semester III will continue in Semester IV			

B.Com. (Banking & Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

(To be implemented from Academic Year 2017-2018)

Semester III

No. of Courses	Semester III	Credits
1	***Elective Courses (EC)*** ****Any three courses from the following list of the courses***	
1	Financial Management - I	**03**
2	Management Accounting	**03**
3	Organizational Behaviour	**03**
4	Risk Management	**03**
5	Mutual Fund Management	**03**
2	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***	
4	Information Technology in Banking & Insurance - I	**03**
2B	****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***	
6	Financial Markets	**03**
7	Direct Taxation	**03**
	Total Credits	**20**

****List of Skill Enhancement Courses (SEC) for Semester III (Any One)***	
1	Foundation Course – III (An Overview of Banking Sector)
2	Foundation Course- Contemporary Issues- III
3	Foundation Course in NSS - III
4	Foundation Course in NCC - III
5	Foundation Course in Physical Education - III

Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)
Programme at Semester III
with Effect from the Academic Year 2017-2018

1. Elective Courses (EC)

Financial Management - I
Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to Finance and Financial Management	15
2	Financial Goal Setting & Time value of Money	15
3	Investment Decisions: Capital Budgeting	15
4	Financial Decisions	15
	Total	60

*Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)*
Programme at Semester III
with Effect from the Academic Year 2017-2018

1. Elective Courses (EC)

Management Accounting

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Introduction to Management Accounting	10
2	Financial Statement analysis	20
3	Working Capital Management	15
4	Management of Profits/Dividend Policy	15
	Total	60

Sr. No.	Modules / Units
1	**Introduction to Management Accounting**
	Meaning and Definition , Scope, Functions , Objectives, Importance, Role of Management Accounting, Management Accounting Framework, Tools of Management Accounting
2	**Financial Statement analysis**
	A) Introduction to Corporate Financial Statements : Understanding the Balance sheet and Revenue statements with the headings and sub headings, Uses of financial statements, Users of Financial Statements. **B) Financial Statement Analysis** Introduction and Meaning of Financial Statement Analysis, Steps, Objective, Types of Analysis. • **Ratio analysis**: Meaning, classification, Du Point Chart, advantages & limitations. • **Balance Sheet Ratios**: Current Ratio, Liquid Ratio, Stock Working Capital Ratio, Proprietary Ratio, Debt Equity Ratio, Capital Gearing Ratio. **Revenue Statement Ratios**: Gross Profit Ratio, Expenses Ratio , Operating Ratio, Net Profit Ratio , Net Operating Profit Ratio , Stock Turnover Ratio, Combined Ratio, Return on Capital employed (Including Long Term Borrowings), Return on proprietor's Fund (Shareholders Fund and Preference Capital , Return on Equity Capital, Dividend Payout Ratio, Debt Service Ratio, Debtors Turnover, Creditors Turnover.
3	**Working Capital Management:**
	Concept, Nature of Working Capital, Planning of Working Capital, Estimation /Projection of Working Capital Requirements in case of Trading and Manufacturing Organization Operating Cycle.
4	**Management of Profits/Dividend Policy**
	Meaning, Types, Factors influencing dividend policy, Forms of dividend. Determinants of Dividends Policy: Factors; Dividend Policy in India; Bonus Shares (Stock dividend) and Stock (Share) Splits; Legal, Procedural; and Tax Aspects associated with Dividend Decision

*Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)*
Programme at Semester III
with Effect from the Academic Year 2017-2018

1. Elective Courses (EC)

Organizational Behaviour

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	The Individual Behaviour	15
2	The Group Dynamics	15
3	The Organizational Dynamics	15
4	Organization Behaviour In Financial Services	15
	Total	**60**

Sr. No.	Modules / Units
1	**The Individual Behaviour**
	A) Personality: Meaning, Determinants of Personality, Major personality traits influencing OB, The Big Five Model, Trait Theory of personality, Psychoanalytic theory of Personality, Freud Stages of Personality Development, Locus of Control, Self-Monitoring. **B)** Learning: Meaning and Definition of Learning-The Learning Process, Principles of Learning, Theories of Learning-Classical conditioning, Operant Conditioning, Social Learning Theory, Learning through Reinforcement, Learning by Observing, Learning through Experience. **C)** Perception-Meaning, Factors Influencing Perception, Attribution Theory, Improving Perceptions- Johari Window, Empathy. **D)** Workplace Emotions, Values and Ethics: Meaning of Emotions, Cognitive Dissonance, Emotional Dissonance, Managing Emotions at Work (Emotional Labor) - The Six Universal Emotions. Meaning and Types of Values, Sources of Value systems, Values across Cultures, Values and Ethical Behaviour. **E)** Individual Decision Making: How are Decisions made in organization, Decision Making process, Decisional Styles.
2	**The Group Dynamics**
	A) Group Communication: Importance, Corporate Communication – Need, Importance and Techniques of Corporate Communication. **B)** Power and Politics: Meaning of Power, Bases of Power, Power Tactics, Organizational Politics, Reasons for Organizational Politics, Managing Organizational Politics. **C)** Negotiations: Meaning, Process, Strategies, Third Party Negotiations, Crisis Negotiations, Focus Areas of Negotiations. **D)** Transactional Analysis Model: Types of Transactions, Ego states, Life Positions, Elaboration of Transactional styles. **E)** Virtual teams and Group Cohesiveness: Structure, Types, Stages in Management of Virtual teams, Features of Cohesive Groups, Effects/Consequences/Impact of Group Cohesion. **F)** Group Decision-Making: Advantages, Disadvantages, Assumptions, Managing Group Decision-Making, Strength and Weakness of Group Decision-Making.
3	**The Organizational Dynamics**
	A) Organization structure: Meaning, Meaning and key features of the concept of Centralization, Decentralization, Span of control and Departmentation, Simple structure, Bureaucratic & Matrix structure. **B)** New design options: Team structure, Virtual organizations, Boundary less organizations **C)** Organization structure differentiation: Strategy, Organization size, Technology & Environment, Organizational Designs and employee behaviour.

	D) Organizational Climate: Impact of Communication, Impact of Rewards & Punishment, Quality work life with reference to Banking & Insurance, Job Frustration-Sources, Causes, Effects, Ways to Overcome Frustration, Impact of Frustration on Banking and Insurance companies.
4	**Organization Behaviour In Banking and Insurance Sector**
	A) Practices of OB in Banks and Insurance **B)** Issue of organization behaviour in Banks **C)** Strategies to manage issues of organization behaviour in banks **D)** Case Studies – Transfer, Promotion, Separation.

Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)
Programme at Semester III
with Effect from the Academic Year 2017-2018

1. Elective Courses (EC)

Risk Management

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Foundations of Risk Management	15
2	Capital markets Risk Management	15
3	Credit Market Risk Management	15
4	Risk Measurement	15
	Total	**60**

*Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)*
Programme at Semester III
with Effect from the Academic Year 2017-2018

2B. Skill Enhancement Courses (SEC)

Foundation Course- Contemporary Issues- III

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Human Rights Provisions, Violations and Redressal	12
2	Dealing With Environmental Concerns	11
3	Science and Technology I	11
4	Soft Skills for Effective Interpersonal Communication	11
	Total	**45**

Projects / Assignments (for Internal Assessment)

i. Projects/Assignments should be drawn for the component on Internal Assessment from the topics in **Module 1 to Module 4**.

ii. Students should be given a list of possible topics - at least 3 from each Module at the beginning of the semester.

iii. The Project/Assignment can take the form of Street-Plays / Power-Point Presentations / Poster Exhibitions and similar other modes of presentation appropriate to the topic.

iv. Students can work in groups of not more than 8 per topic.

v. Students must submit a hard / soft copy of the Project / Assignment before appearing for the semester end examination.

QUESTION PAPER PATTERN (Semester III)

The Question Paper Pattern for Semester End Examination shall be as follows:

TOTAL MARKS: 75 **DURATION: 150 MINUTES**

QUESTION NUMBER	DESCRIPTION	MARKS ASSIGNED
1	**i.** Question 1 A will be asked on the meaning / definition of concepts / terms from all Modules. **ii.** Question 1 B will be asked on the topic of the Project / Assignment done by the student during the Semester **iii.** In all 8 Questions will be asked out of which 5 have to be attempted.	**a)** Total marks: 15 **b)** For 1 A, there will be 3 marks for each sub-question. **c)** For 1 B there will be 15 marks without any break-up.
2	Descriptive Question with internal option (A or B) on Module 1	15
3	Descriptive Question with internal option (A or B) on Module 2	15
4	Descriptive Question with internal option (A or B) on Module 3	15
5	Descriptive Question with internal option (A or B) on Module 4	15

*Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)*
Programme at Semester III
with Effect from the Academic Year 2017-2018

2B. Skill Enhancement Courses (SEC)

Foundation Course in NSS - I

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Value System & Gender sensitivity	12
2	Disaster preparedness & Disaster management	10
3	Health, hygiene & Diseases	13
4	Environment & Energy conservation	10
	Total	**45**

B.Com. (Banking & Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

(To be implemented from Academic Year 2017-2018)

Semester IV

No. of Courses	Semester IV	Credits
1	***Elective Courses (EC)*** *Any three courses from the following list of the courses	
1	Financial Management –II	**03**
2	Cost Accounting	**03**
3	Entrepreneurship Management	**03**
4	Wealth Management	**03**
5	Customer Relationship Management	**03**
2	***Ability Enhancement Courses (AEC)***	
2A	***Ability Enhancement Compulsory Course (AECC)***	
4	Information Technology in Banking & Insurance-II	**03**
2B	*****Skill Enhancement Courses (SEC)***	
5	Any one course from the following list of the courses	**02**
3	***Core Courses (CC)***	
6	Corporate & Securities Law	**03**
7	Business Economics-II	**03**
	Total Credits	**20**

*****List of Skill Enhancement Courses (SEC) for Semester IV (Any One)***	
1	Foundation Course – IV (An Overview of Insurance Sector)
2	Foundation Course –Contemporary Issues-IV
3	Foundation Course in NSS - IV
4	Foundation Course in NCC - IV
5	Foundation Course in Physical Education - IV

*Revised Syllabus of Courses of B.Com. (*Banking & Insurance*)*
Programme at Semester IV
with Effect from the Academic Year 2017-2018

1. Elective Courses (EC)

Financial Management -II

Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Working Capital Management	15
2	Management of Components of Working Capital	15
3	Financial Planning	15
4	Financial Policy and Corporate Strategy	15
	Total	60

Revised Syllabus of Courses of B.Com.(Banking & Insurance) Programme at Semester III and IV with effect from the Academic Year 2017-2018

Scheme of Evaluation

The performance of the learners will be evaluated in two Components. One component will be the Internal Assessment component carrying 25% marks and the second component will be the Semester-wise End Examination component carrying 75% marks. The allocation of marks for the Internal Assessment and Semester End Examinations will be as shown below:-

A) Internal Assessment: 25 %

Question Paper Pattern
(Internal Assessment- Courses without Practical Courses)

Sr. No.	Particular	Marks
1	**One class test (20 Marks)**	
	Match the Column/ Fill in the Blanks/ Multiple Choice Questions ***(½ Mark each)***	05 Marks
	Answer in One or Two Lines (Concept based Questions) ***(01 Mark each)***	05 Marks
	Answer in Brief (Attempt Any Two of the Three) ***(05 Marks each)***	10 Marks
2	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities	05 Marks

Question Paper Pattern
(Internal Assessment- Courses with Practical Courses)

Sr. No.	Particular	Marks
1	**Semester End Practical Examination (20 Marks)**	
	Journal	05 Marks
	Viva	05 Marks
	Laboratory Work	10 Marks
2	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities articulation and exhibit of leadership qualities in organizing related academic activities	05 Marks

B) Semester End Examination: 75 %

i) Duration: The examination shall be of 2 ½ Hours duration

ii) Theory question paper pattern

- There shall be five questions each of 15 marks.
- All questions shall be compulsory with internal choice within the questions.
- Question may be subdivided into sub-questions a, b, c… and the allocation of marks depends on the weightage of the topic.
  (Detail question paper pattern has been given separately)

Passing Standard

The learners to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Internal Assessment and Semester End Examination. The learners shall obtain minimum of 40% marks (i.e. 10 out of 25) in the Internal Assessment and 40% marks in Semester End Examination (i.e. 30 Out of 75) separately, to pass the course and minimum of Grade E to pass a particular semester A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

Question Paper Pattern

(Practical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 ½ Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A) Sub Questions to be asked 10 and to be answered any 08 B) Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2 Q-2	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-3 Q-3	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-4 Q-4	Full Length Practical Question ***OR*** Full Length Practical Question	15 Marks 15 Marks
Q-5 Q-5	A) Theory questions B) Theory questions ***OR*** Short Notes To be asked 05 To be answered 03	08 Marks 07 Marks 15 Marks

Note:

Practical question of 15 marks may be divided into two sub questions of 7/8 and 10/5 Marks. If the topic demands, instead of practical questions, appropriate theory question may be asked.

Question Paper Pattern

(Theoretical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 ½ Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A) Sub Questions to be asked 10 and to be answered any 08 B) Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2 Q-2	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-3 Q-3	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-4 Q-4	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-5 Q-5	A) Theory questions B) Theory questions ***OR*** Short Notes To be asked 05 To be answered 03	08 Marks 07 Marks 15 Marks

Note:

Theory question of 15 marks may be divided into two sub questions of 7/8 and 10/5 Marks.

UNIVERSITY OF MUMBAI

No. UG/7 of 2018-19

CIRCULAR:-

Attention of the Principals of the affiliated Colleges and Directors of the recognized Institutions in Commerce & Management Faculty is invited to this office Circular No.UG/121 of 2016-17, dated 27th October, 2016 relating to syllabus of Bachelor of Commerce (B.Com.) degree course.

They are informed that the recommendations made by the I/c Dean, Faculty of Commerce & Management in Banking and Finance at its meeting held on 28th February, 2018 have been accepted by the Academic Council at its meeting held on 5th May, 2018 **vide** item No. 4.45 and that in accordance therewith, the revised syllabus as per the (CBCS) for the T.Y.B.Com. (Banking and Insurance) (Sem. V & VI)), has been brought into force with effect from the academic year 2018-19, accordingly. (The same is available on the University's website www.mu.ac.in).

(Dr. Dinesh Kamble)
I/c REGISTRAR

MUMBAI – 400 032
12th June, 2018

To

The Principals of the affiliated Colleges and Directors of the recognized Institutions in Commerce & Management Faculty. (Circular No. UG/334 of 2017-18 dated 9th January, 2018.)

A.C./4.45/05/05/2018

****

No. UG/ 7 -A of 2018 MUMBAI-400 032 12th June, 2018

Copy forwarded with Compliments for information to:-

1) The I/c Dean, Faculty of Commerce & Management,
2) The Director, Board of Examinations and Evaluation,
3) The Director, Board of Students Development,
4) The Professor-cum-Director, Institute of Distance and Open Learning (IDOL),
5) The Co-Ordinator, University Computerization Centre,

(Dr. Dinesh Kamble)
I/c REGISTRAR

University of Mumbai

Revised Syllabus
and
Question Paper Pattern
of Courses of
B.Com. (Banking and Insurance)
Programme at
Third Year
Semester V and VI

Under Choice Based Credit, Grading and Semester *System*

(To be implemented from Academic Year 2018-2019)

Board of Studies-in-Banking & Finance

B.Com. (Banking and Insurance) Programme

Under Choice Based Credit, Grading and Semester System

T.Y.B.Com. (Banking and Insurance)

(To be implemented from Academic Year 2018-2019)

No. of Courses	Semester V	Credits	No. of Courses	Semester VI	Credits
1	***Elective Courses (EC)***		***1***	***Elective Courses (EC)***	
1,2,3 &4	*Any four courses from the following list of the courses	**12**	1,2,3 &4	**Any four courses from the following list of the courses	**12**
2	***Core Courses (CC)***		***2***	***Core Courses (CC)***	
5	International Banking and Finance	**04**	5	Central Banking	**04**
3	***Ability Enhancement Course(AEC)***		***3***	***Ability Enhancement Course (AEC)***	
6	Research Methodology	**04**	6	***Project Work*** In Banking & Insurance	**04**
	Total Credits	**20**		**Total Credits**	**20**

- ✓ ***Note:*** *Project work is considered as a special course involving application of knowledge in solving/analyzing/exploring a real life situation/ difficult problem. Project work would be of 04 credits each. A project work may be undertaken in any area of Elective Courses/ Study Area*

****List of Elective Courses for Semester V (Any Four)***		*****List of Elective Courses for Semester VI (Any Four)***	
01	Financial Reporting & Analysis(Corporate Banking & Insurance)	01	Security Analysis and Portfolio Management
02	Auditing - I	02	Auditing - II
03	Strategic Management	03	Human Resource Management
04	Financial Services Management	04	Turnaround Management
05	Business Ethics and Corporate Governance	05	International Business
06	Actuarial Analysis in Banking & Insurance	06	Marketing in Banking & Insurance
Note: Course selected in Semester V will continue in Semester VI			

B.Com. (Banking and Insurance) Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

(To be implemented from Academic Year 2018-2019)

Semester V

No. of Courses	Semester V	Credits
1	***Elective Courses (EC)***	
1,2,3 & 4	*Any four courses from the following list of the courses	**12**
2	***Core Courses (CC)***	
5	International Banking and Finance	**04**
6	Research Methodology	**04**
	Total Credits	**20**

****List of Elective Courses for Semester V (Any Four)***	
01	Financial Reporting and Analysis(Corporate Banking & Insurance)
02	Auditing- I
03	Strategic Management
04	Financial Services Management
05	Business Ethics and Corporate Governance
06	Actuarial Analysis in Banking & Insurance

Revised Syllabus of Courses of B.Com. (Banking and Insurance) Programme at Semester V with effect from the Academic Year 2018-2019

1. Elective Courses (EC)

1. Financial Reporting and Analysis (Corporate Banking & Insurance)

Modules at a Glance

Sr. No.	Modules	No. of Lectures
01	Final Accounts of Banking Company	16
02	Final Accounts of Insurance Company	12
03	Preparation of Final Accounts of Companies	12
04	Cash Flow Analysis & Ethical Behavior and Implications for Accountants	12
05	Introduction to IFRS	08
	Total	**60**

1. Elective Courses (EC)

3. Human Resource Management

Modules at a Glance

Sr. No.	Modules	No. of Lectures
01	Framework of Human Resource Management	15
02	HR Procurement	10
03	HR Planning and Recruitment	10
04	Training and Development	15
05	Compensation	10
	Total	**60**

1. Elective Courses (EC)

5. International Business

Modules at a Glance

Sr. No.	Modules	No. of Lectures
01	Introduction to International Business	10
02	International Economic Institutions and Regional Groupings	12
03	International Marketing, Human Resource Management	10
04	Preliminaries for Export Import and Documentation	14
05	Export Import Procedures and Foreign Trade Policy	14
	Total	**60**

Revised Syllabus of Courses of B.Com. (Banking and Insurance) Programme at Semester VI with effect from the Academic Year 2018-2019

1. Elective Courses (EC)

6. Marketing in Banking and Insurance

Modules at a Glance

Sr. No.	Modules	No. of Lectures
01	Introduction to Marketing	12
02	Introduction to Service Marketing	12
03	Consumer Behaviour	12
04	Rural Marketing	12
05	E- Marketing	12
	Total	**60**

2. Core Course (CC)

1. Central Banking

Modules at a Glance

Sr. No.	Modules	No. of Lectures
01	An Overview of Central Banking	12
02	RBI as the Central Bank of India	12
03	Supervisory Role of RBI	12
04	Central Banking in Other Countries	12
05	Central Banking in the Cyber World	12
	Total	**60**

Reference Books

Reference Books
Marketing in Banking & Insurance
• *Marketing Management -Philip Kotler, PrenticeHall of India New Delhi.* • *Service Marketing- S.M.Jha,Himalaya Publishing House, Mumbai.* • *Essence of Service Marketing- Adrian Payne, Prentice Hall of India New Delhi.* • *Service Marketing- Hellen Woodruffle,Macmillan Publishers,India, Delhi.* • *E- Marketing - Judy Strauss, Raymond Frost, Pearson Prentice Hall, 2009, 5th Edition* • *Marketing Management – An Asian Perspective Philip Kotler, Gary Armstrong, Prafulla Y. Agnihotri, Ehsan UlHaque – Pearson Education 2010.* • *Rural Marketing – Text and Cases , C.S Krishnamacharayu and Lathiha Ramkrishnan, Pearson Education.* • *Service Marketing – Christopher Loveloca, Pearson Education*
Core Course (CC)
Central Banking
• *Central Banking- IIBF- MacMillan Publishers, 2011* • *Central Banking – ICFAI Press,2008* • *Theory and Practice of Central Banking in India- V.A.Avdhani, Second Edition, Published by Somaiya Publications Pvt. Ltd.* • *Central Banking- M H deKock,Publisher Staples Press.* • *Central Banking in Planned Economy- The Indian Experiment- C.R.Basu, Edition2,Publisher Tata McGraw-Hill Publishing . Co, 1977.*

University of Mumbai

B.Com. (Banking and Insurance) Programme
Guidelines for Project Work
at
Third Year
Semester VI

Under Choice Based Credit, Grading and Semester System

(To be implemented from Academic Year 2018-2019)

Board of Studies-in-Banking and Finance

Introduction

Inclusion of project work in the course curriculum of the B.Com. (Banking and Insurance) programme is one of the ambitious aspects in the programme structure. The main objective of inclusion of project work is to inculcate the element of research analyse and scientific temperament challenging the potential of learner as regards to his/ her eager to enquire and ability to interpret particular aspect of the study. It is expected that the guiding teacher should undertake the counselling sessions and make the awareness among the learners about the methodology of formulation, preparation and evaluation pattern of the project work.

- There are two modes of preparation of project work
  1. Project work based on research methodology in the study area
  2. Project work based on internship in the study area

Guidelines for preparation of Project Work

1. General guidelines for preparation of project work based on Research Methodology

- The project topic may be undertaken in any area of Elective Courses.
- Each of the learner has to undertake a Project individually under the supervision of a teacher-guide.
- The learner shall decide the topic and title which should be specific, clear and with definite scope in consultation with the teacher-guide concerned.
- University/college shall allot a guiding teacher for guidance to the students based on her / his specialization.
- The project report shall be prepared as per the broad guidelines given below:
  - Font type: Times New Roman
  - Font size: 12-For content, 14-for Title
  - Line Space : 1.5-for content and 1-for in table work
  - Paper Size: A4
  - Margin : in Left-1.5, Up-Down-Right-1
  - The Project Report shall be bounded.
  - The project report should be 80 to 100 pages

Format

1st page (Main Page)

Title of the problem of the Project

A Project Submitted to

University of Mumbai for partial completion of the degree of

Bachelor in Commerce (Banking and Insurance)

Under the Faculty of Commerce

By

Name of the Learner

Under the Guidance of

Name of the Guiding Teacher

Name and address of the College

Month and Year

2nd Page

This page to be repeated on 2nd page (i.e. inside after main page)

On separate page

Index

List of tables, if any, with page numbers.

List of Graphs, if any, with page numbers.

List of Appendix, if any, with page numbers.

Abbreviations used:

Structure to be followed to maintain the uniformity in formulation and presentation of Project Work

(Model Structure of the Project Work)

- **Chapter No. 1: Introduction**

  In this chapter Selection and relevance of the problem, historical background of the problem, brief profile of the study area, definition/s of related aspects, characteristics, different concepts pertaining to the problem etc can be incorporated by the learner.

- **Chapter No. 2: Research Methodology**

  This chapter will include Objectives, Hypothesis, Scope of the study, limitations of the study, significance of the study, Selection of the problem, Sample size, Data collection, Tabulation of data, Techniques and tools to be used, etc can be incorporated by the learner.

- **Chapter No. 3: Literature Review**

  This chapter will provide information about studies done on the respective issue. This would specify how the study undertaken is relevant and contribute for value addition in information/ knowledge/ application of study area which ultimately helps the learner to undertake further study on same issue.

- **Chapter No. 4: Data Analysis, Interpretation and Presentation**

  This chapter is the core part of the study. The analysis pertaining to collected data will be done by the learner. The application of selected tools or techniques will be used to arrive at findings. In this, table of information's, presentation of graphs etc. can be provided with interpretation by the learner.

- **Chapter No. 5: Conclusions and Suggestions**

  In this chapter of project work, findings of work will be covered and suggestion will be enlisted to validate the objectives and hypotheses.

Note: If required more chapters of data analysis can be added.

- **Bibliography**
- **Appendix**

On separate page

Name and address of the college

Certificate

This is to certify that Ms/Mr _____has worked and duly completed her/his Project Work for the degree of Bachelor in Commerce (Banking and Insurance) under the Faculty of Commerce in the subject of _____ and her/his project is entitled, "_____*Title of the Project*_____" under my supervision.

I further certify that the entire work has been done by the learner under my guidance and that no part of it has been submitted previously for any Degree or Diploma of any University.

It is her/ his own work and facts reported by her/his personal findings and investigations.

Seal of the College

Name and Signature of

Guiding Teacher

Date of submission:

On separate page

Declaration by learner

I the undersigned Miss / Mr. _____*Name of the learner*_____here by, declare that the work embodied in this project work titled "_____ _____*Title of the Project*_____", forms my own contribution to the research work carried out under the guidance of _____*Name of the guiding teacher*_____ is a result of my own research work and has not been previously submitted to any other University for any other Degree/ Diploma to this or any other University.

Wherever reference has been made to previous works of others, it has been clearly indicated as such and included in the bibliography.

I, here by further declare that all information of this document has been obtained and presented in accordance with academic rules and ethical conduct.

Name and Signature of the learner

Certified by

Name and signature of the Guiding Teacher

On separate page

Acknowledgment

(Model structure of the acknowledgement)

To list who all have helped me is difficult because they are so numerous and the depth is so enormous.

I would like to acknowledge the following as being idealistic channels and fresh dimensions in the completion of this project.

I take this opportunity to thank the **University of Mumbai** for giving me chance to do this project.

I would like to thank my **Principal, _____**for providing the necessary facilities required for completion of this project.

I take this opportunity to thank our **Coordinator_____**, for her moral support and guidance.

I would also like to express my sincere gratitude towards my project guide _____ whose guidance and care made the project successful.

I would like to thank my **College Library**, for having provided various reference books and magazines related to my project.

Lastly, I would like to thank each and every person who directly or indirectly helped me in the completion of the project especially **myParents and Peers** who supported me throughout my project.

2. Guidelines for Internship based project work

- Minimum 20 days/ 100 hours of Internship with an Organisation/ NGO/ Charitable Organisation/ Private firm.
- The theme of the internship should be based on any study area of the elective courses
- Experience Certificate is Mandatory
- A project report has to be brief in content and must include the following aspects:
  - **Executive Summary:**

    A bird's eye view of your entire presentation has to be precisely offered under this category.
  - **Introduction on the Company:**

    A Concise representation of company/ organization defining its scope, products/ services and its SWOT analysis.
  - **Statement and Objectives:**

    The mission and vision of the organization need to be stated enshrining its broad strategies.
  - **Your Role in the Organisation during the internship:**

    The key aspects handled, the department under which you were deployed and brief summary report duly acknowledged by the reporting head.
  - **Challenges:**

    The challenges confronted while churning out theoretical knowledge into practical world.
  - **Conclusion:**

    A brief overview of your experience and suggestions to bridge the gap between theory and practice.
- The project report based on internship shall be prepared as per the broad guidelines given below:
  - Font type: Times New Roman
  - Font size: 12-For content, 14-for Title
  - Line Space : 1.5-for content and 1-for in table work
  - Paper Size: A4
  - Margin : in Left-1.5, Up-Down-Right-1
  - The Project Report shall be bounded.
  - The project report should be of minimum 50 pages

Evaluation pattern of the project work

The Project Report shall be evaluated in two stages viz.	
• **Evaluation of Project Report (Bound Copy)**	**60 Marks**
▪ Introduction and other areas covered	20 Marks
▪ Research Methodology, Presentation, Analysis and interpretation of data	30 Marks
▪ Conclusion& Recommendations	10 Marks
• **Conduct of Viva-voce**	**40 Marks**
▪ In the course of Viva-voce, the questions may be asked such as importance / relevance of the study, objective of the study, methodology of the study/ mode of Enquiry (question responses)	10 Marks
▪ Ability to explain the analysis, findings, concluding observations, recommendation, limitations of the Study	20 Marks
▪ Overall Impression (including Communication Skill)	10 Marks

Note:

- ***The guiding teacher along with the external evaluator appointed by the University/ College for the evaluation of project shall conduct the viva-voce examination as per the evaluation pattern***

Passing Standard

- Minimum of Grade E in the project component
- In case of failing in the project work, the same project can be revised for ATKT examination.
- Absence of student for viva voce: If any student fails to appear for the viva voce on the date and time fixed by the department such student shall appear for the viva voce on the date and time fixed by the Department, such student shall appear for the viva voce only along with students of the next batch.

Revised Syllabus of Courses of B.Com. (Banking and Insurance) Programme at Semester V and VI
with effect from the Academic Year 2018-2019

Scheme of Evaluation

The performance of the learners will be evaluated in two Components. One component will be the Internal Assessment component carrying 25% marks and the second component will be the Semester-wise End Examination component carrying 75% marks. The allocation of marks for the Internal Assessment and Semester End Examinations will be as shown below:-

A) Internal Assessment: 25 %

Question Paper Pattern
(Internal Assessment- Courses without Practical Courses)

Sr. No.	Particular	Marks
1	**One class test (20 Marks)**	
	Match the Column/ Fill in the Blanks/ Multiple Choice Questions ***(½ Mark each)***	05 Marks
	Answer in One or Two Lines (Concept based Questions) ***(01 Mark each)***	05 Marks
	Answer in Brief (Attempt Any Two of the Three) ***(05 Marks each)***	10 Marks
2	Active participation in routine class instructional deliveries and overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic activities	05 Marks

B) Semester End Examination: 75 %

i) Duration: The examination shall be of 2 ½ Hours duration

ii) Theory question paper pattern

- There shall be five questions each of 15 marks.
- All questions shall be compulsory with internal choice within the questions.
- Question may be subdivided into sub-questions a, b, c… and the allocation of marks depends on the weightage of the topic.

  (Detail question paper pattern has been given separately)

❖ **Passing Standard**

The learners to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Internal Assessment and Semester End Examination. The learners shall obtain minimum of 40% marks (i.e. 10 out of 25) in the Internal Assessment and 40% marks in Semester End Examination (i.e. 30 Out of 75) separately, to pass the course and minimum of Grade E to pass a particular semester A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

Question Paper Pattern

(Practical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 1/2 Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A. Sub Questions to be asked 10 and to be answered any 08 B. Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2	Full Length Practical Question	15 Marks
	OR	
Q-2	Full Length Practical Question	15 Marks
Q-3	Full Length Practical Question	15 Marks
	OR	
Q-3	Full Length Practical Question	15 Marks
Q-4	Full Length Practical Question	15 Marks
	OR	
Q-4	Full Length Practical Question	15 Marks
Q-5	A) Theory questions	08 Marks
	B) Theory questions	07 Marks
	OR	
Q-5	Short Notes To be asked 05 To be answered 03	15 Marks

Note:

Practical question of 15 marks may be divided into two sub questions of 7/8 and 10/5Marks. If the topic demands, instead of practical questions, appropriate theory question may be asked.

Question Paper Pattern

(Theoretical Courses)

Maximum Marks: 75

Questions to be set: 05

Duration: 2 1/2 Hrs.

All Questions are Compulsory Carrying 15 Marks each.

Question No	Particular	Marks
Q-1	Objective Questions A) Sub Questions to be asked 10 and to be answered any 08 B) Sub Questions to be asked 10 and to be answered any 07 (*Multiple choice / True or False / Match the columns/Fill in the blanks)	15 Marks
Q-2 Q-2	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-3 Q-3	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-4 Q-4	Full Length Question ***OR*** Full Length Question	15 Marks 15 Marks
Q-5 Q-5	A) Theory questions B) Theory questions ***OR*** Short Notes To be asked 05 To be answered 03	08 Marks 07 Marks 15 Marks

Note:

Theory question of 15 marks may be divided into two sub questions of 7/8 and 10/5Marks.

2.5 Evaluation Process and Reforms

2.5.1 Mechanism of internal/ external assessment

Syllabus of all courses provided by the University

Department of Information Technology And Data Science

B.Sc. Information Technology

Annexure I

AC–_____
Item No. _ _____

UNIVERSITY OF MUMBAI

Syllabus for F.Y.B.Sc.
Programme: B.Sc.
Subject : Information Technology
Semester – I and II

(CBCS)
(Choice Based Credit System with effect from the academic year 2022-2023)
(To introduce with effect from the academic year 2022-2023)

2.5 Evaluation Process and Reforms

UNIVERSITY OF MUMBAI

Syllabus for Approval

Sr. No.	Heading	Particulars
1	Title of the Programme	**F.Y.B.Sc. Sem. I & II (Information Technology)**
2	Eligibility for Admission	Ordinance no. O.5051 Circular no. UG/284 of 2007 dated 16th June 2007
3	Passing Marks	40%
4	Ordinances / Regulations (if any)	As applicable for all B.Sc. Courses
5	No. of Years / Semesters	Three years – Six Semesters
6	Level	~~P.G.~~ / U.G./ ~~Diploma~~ / ~~Certificate~~ **(Strike out which is not applicable)**
7	Pattern	~~Yearly~~ / Semester **(Strike out which is not applicable)**
8	Status	Revised / ~~New~~ /~~Amended~~ **(Strike out which is not applicable)**
9	To be implemented from Academic Year	From Academic Year **2022-2023**

Signature
Chairman Name Dr. R. Srivaramangai
BOS Chairman in Information Technology

Dr. Anuradha Majumdar
Dean, Science and Technology

VSIT Vidyalankar School of Information Technology
RE-ACCREDITED : GRADE 'A' BY NAAC

2.5 Evaluation Process and Reforms

PREAMBLE

The B.Sc. Information Technology programme was started in 2001 with an aim to make the students employable and impart industry oriented training. The main objectives of the course are:

- To think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems.
- To apply their knowledge and skills to be employed and excel in IT professional careers and/or to continue their education in IT and/or related post graduate programmes.
- To be capable of managing complex IT projects with consideration of the human, financial and environmental factors.
- To work effectively as a part of a team to achieve a common stated goal.
- To adhere to the highest standards of ethics, including relevant industry and organizational codes of conduct.
- To communicate effectively with a range of audiences both technical and non-technical.
- To develop an aptitude to engage in continuing professional development.

The new syllabus is aimed to achieve the objectives. The syllabus spanning three years covers the industry relevant courses. The students will be ready for the jobs available in different fields like:

- Software Development (Programming)
- Website Development
- Mobile app development
- Internet of Things
- Software Testing
- Networking
- Database Administration
- System Administration
- Cyber Law Consultant
- GIS (Geographic Information Systems)
- IT Service Desk
- Security
- Technical communication skills
- Green IT

Name of Dean (Dean, Faculty of Science and Technology) : Dr. Anuradha Majumdar

Name of Associate Dean (Associate Dean, Faculty of Science and Technology) Prof. Shivram Garje

Name of Chairperson (BoS) : Dr. Mrs. R. Srivaramangai
Member(BoS) : Dr. Hiren Dand
Member(BoS) : Dr. Abhijeet Kale
Member(BoS) : Dr. Santosh Singh
Member(BoS) : Dr. Rajendra Patil
Member(BoS) : Dr. Mandar Bhave

2.5 Evaluation Process and Reforms

Semester 2			
Course Code	**Course Type**	**Course Title**	**Credits**
USIT201	Core Subject	Object Oriented Programming with C++	2
USIT202	Core Subject	Fundamentals of Micro Processor and Microcontrollers	2
USIT203	Core Subject	Web Applications Development	2
USIT204	Core Subject	Numerical Methods	2
USIT205	Ability Enhancement Skill Course	Green IT	2
USIT2P1	Core Subject Practical	Object Oriented Programming with C++ Practical	2
USIT2P2	Core Subject Practical	Fundamentals of Micro Processor and Microcontrollers Practical	2
USIT2P3	Core Subject Practical	Web Applications Development Practical	2
USIT2P4	Core Subject Practical	Numerical Methods Practical	2
USIT2P5	Ability Enhancement Skill Course Practical	PL/SQL Practical	2
		Total Credits	**20**

Semester 1			
Course Code	**Course Type**	**Course Title**	**Credits**
USIT101	Core Subject	Programming Principles with C	2
USIT102	Core Subject	Digital Logic and Applications	2
USIT103	Core Subject	Fundamentals of Database Management Systems	2
USIT104	Core Subject	Computational Logic and Discrete Structure	2
USIT105	Ability Enhancement Skill Course	Technical Communication Skills	2
USIT1P1	Core Subject Practical	Programming Principles with C Practical	2
USIT1P2	Core Subject Practical	Digital Logic and applications Practical	2
USIT1P3	Core Subject Practical	Fundamentals of Database Management Systems Practical	2
USIT1P4	Core Subject Practical	Computational Logic and Discrete structure Practical	2
USIT1P5	Ability Enhancement Skill Course Practical	Technical Communication Skills Practical	2
		Total Credits	**20**

2.5 Evaluation Process and Reforms

Annexure I

B. Sc (Information Technology)		Semester – I	
Course Name: Programming Principles with C		Course Code: USIT101	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2	75
	Internal	--	25

Course Objectives:
1. To develop the logical ability of the student.
2. Basic concepts to be cleared using suitable examples.
3. Different approach towards the problem.
4. To handle the errors and find suitable solution.
5. Debugging the code.

Unit	Details	Lectures
I	Introduction: Algorithms, History of C, Structure of C Program. Program Characteristics, Compiler, Linker and preprocessor, pseudo code statements and flowchart symbols, Desirable program characteristics. Program structure. Compilation and Execution of a Program, C Character Set, identifiers and keywords, data types and sizes , constants and its types, variables, Character and character strings, typedef, typecasting	12
II	Type of operators: Arithmetic operators, relational and logical operators, Increment and Decrement operators, assignment operators, the conditional operator, Assignment operators and expression, Precedence and order of Evaluation Block Structure, Initialization, C Preprocessor Control Flow: Statements and Blocks, If-Else, Else-If, Switch, Loops- While and For Loops- Do-while, Break and Continue, Goto and Labels	12
III	Functions and Program Structure: Basics of functions. User defined and Library functions, Function parameters, Return values, Recursion External variables, Scope Rules, Standard Input and Output, Formatted Output-printf() and Formatted Input- scanf(), Line Input and Output, Error Handling- StdErr and Exit, Header Files	12
IV	Pointer and Arrays Pointer and Addresses, Pointer and Function Arguments, Pointer and Arrays, Address Arithmetic, Character Pointers and Functions, Pointer Arrays: Pointers and Functions, Multidimensional Array, Command-line Arguments, Pointers to Functions, Dynamic memory allocation	12
V	Structures: Basics of structures, Structures and Functions, Arrays of Structures, Pointers to Structures, Unions, Bit-fields, File management in C: Defining and Opening file, Closing a file, Input / Output operations on file, Error handling in C, Random access to files, Command line arguments.	12

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Programming Language	Brian W. Kernighan and Denis M. Ritchie.	PHI	2nd	1988
2.	Mastering C	K R Venugopal	Tata McGraw-Hill	6th	2007
3.	Programming with C	Byron Gottfried	Tata McGRAW-Hill	2nd	1996
4.	Let us C	Yashwant P. Kanetkar	BPB publication		
5.	Programming in ANSI C	E.Balagurusamy	Tata McGraw-Hill	7th	1982

2.5 Evaluation Process and Reforms

Annexure I

Course Outcomes:

Learners will be able to,

1. **Learn the basic principles of programming.**
2. **Develop of logic using algorithm and flowchart.**
3. **Acquire the information about data types.**
4. **Understanding of input and output functions.**
5. **Enhance advanced concepts using program.**

B. Sc (Information Technology)		**Semester – I**	
Course Name: Programming Principles with C Practical		**Course Code: USIT1P1**	
Periods per week (1 Period is 50 minutes)		**3**	
Credits		**2**	
		Hours	**Marks**
Evaluation System	**Practical Examination**	**2½**	**50**
	Internal	**--**	**--**

Course Objectives:

1. **To develop the logic of the student.**
2. **Describe loops and decision making using programs.**
3. **Practical use of operators.**
4. **Illustration of the difficult concepts using programming examples.**
5. **Discussion of the relevant concepts using program.**

List of Practical:	
1.	a. Write an algorithm and draw flowchart for Area of circle. b. Write an algorithm and draw flowchart to print the given no. is even or odd. c. Write an algorithm and draw flowchart to print 1 to 10 numbers. d. Write an algorithm and draw flowchart for sum of 1 to 5 numbers. e. Write an algorithm and draw flowchart to compute the addition of digits of a given number.
2.	a. Write a program using while loop to reverse the digits of a number. b. Write a program to calculate the factorial of a given number. c. Write a program to find the roots of quadratic equation. d. Write a program to print the Fibonacci series.
3.	a. Write a program in C to check entered character vowel or consonant b. Write a program to C program to print day name of week using switch-case. c. Write a program to read three values from keyboard and print out the largest of them without using if statement.
4.	a. Write a program to print the pattern of asterisks as shown below : * * * * * * * * * * b. Write a program to print the pattern of asterisks as shown below : * * * * * * * * * * * * * * * **c. Write a program to print Floyd's Triangle.**
5.	a. Write a program to print area of square using function.

2.5 Evaluation Process and Reforms

Annexure I

	b. Write a program using recursive function. **c. Write a program to square root, abs() value using function.** **d. Write a program using goto statement.**
6.	a. Write a program to print rollno and names of 10 students using array. b. Write a program to read a matrix of size m*n. **c. Write a program to sort the elements of array** in ascending or descending order.
7.	a. Write a program to extract the portion of a character string and print the extracted part. b. Write a program to find the given string is palindrome or not. **c. Write a program to using strlen(), strcmp() function.**
8.	a. Write a program to display the values using different data types and its address using pointer. b. Write a program to perform addition and subtraction using pointer.
9.	a. Write a program to copy the contents of the file from one file into other. b. Write a program to print the structure using • Title • Author • Subject • Book ID Print the details of two students.
10.	a. Create a mini project on "Bank management system" . The program should be menu driven.

Course Outcomes:

Learners will be able to,

1. **Develop applications.**
2. **Work with textual information, characters and strings.**
3. **Understand of a functional hierarchical code organization**
4. **Debug the program**
5. **Understand the differences between syntax errors, runtime errors, and logic errors.**

2.5 Evaluation Process and Reforms

Annexure I

B. Sc (Information Technology)		Semester – II	
Course Name: Fundamentals of Micro Processor and Microcontrollers		Course Code: USIT202	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2	75
	Internal	--	25

Course Objectives: 1) To understand the basic concept of Micro Computer Systems
2) To develop background knowledge in 8085 Microprocessor
3) To write Assembly language Programs of 8085
4) To understand the peripheral devices and interfacing to 8051 Micro Controller and design aspects of Micro Controller

Unit	Details	Lectures
I	**Microprocessor, microcomputers, and Assembly Language:** Microprocessor,Microprocessor Instruction Set and Computer Languages, From Large Computers to Single-Chip Microcontrollers, Applications. **Microprocessor Architecture and Microcomputer System:** Microprocessor Architecture and its operation's, Memory, I/O Devices, Microcomputer System, Logic Devices and Interfacing, Microprocessor-Based System Application. **8085 Microprocessor Architecture and Memory Interface:** Introduction, 8085 Microprocessor unit, 8085-Based Microcomputer, Memory Interfacing,Interfacing the8085 Memory Segment.	12
II	**Interfacing of I/O Devices** Basic Interfacing concepts, Interfacing Output Displays, Interfacing Input Devices, Memory Mapped I/O, Testing and Troubleshooting I/O Interfacing Circuits. **Introduction to 8085 Assembly Language Programming:** The 8085 Programming Model, Instruction Classification, Instruction, Data and Storage, Writing assembling and Execution of a simple program, Overview of 8085 Instruction Set, Writing and Assembling Program. **Introduction to 8085 Instructions:** Data Transfer Operations, Arithmetic Operations, Logic Operation, Branch Operation, Writing Assembly Languages Programs, Debugging a Program.	12
III	**Programming Techniques With Additional Instructions:** ProgrammingTechniques: Looping, Counting and Indexing, Additional Data Transfer and 16-Bit Arithmetic Instructions, Arithmetic Instruction Related to Memory, Logic Operations: Rotate, Logics Operations: Compare, Dynamic Debugging. **Counters and Time Delays:** Counters and Time Delays, Illustrative Program: Hexadecimal Counter, Illustrative Program: zero-to-nine (Modulo Ten) Counter, Generating Pulse Waveforms, Debugging Counter and Time-Delay Programs. **Stacks and Sub-Routines:** Stack, Subroutine, Restart, Conditional Call, Return Instructions, Advanced Subroutine concepts. **Interrupts:** The 8085 Interrupt, 8085 Vectored and Non vectored Interrupts, Restart as S/W Instructions.	12

2.5 Evaluation Process and Reforms

Annexure I

IV	**Micro Controllers:** Embedded Systems and general purpose computer systems, history, classifications, applications and purpose of embedded systems. **Embedded Hardware:** Memory map, i/o map, interrupt map, processor family, external peripherals, memory – RAM , ROM, types of RAM and ROM, memory testing, CRC ,Flash memory. **Peripherals:** Control and Status Registers, Device Driver, Timer watch Timer **The 8051 Microcontrollers:** Microcontrollers and Embedded processors, Overview of 8051 family.8051 Microcontroller hardware, Input/output pins, Ports, and Circuits, External Memory. **8051 Programming in C:** Data Types and time delay in 8051 C, I/O Programming, Logic operations, Data conversion Programs.	**12**
V	**Designing Embedded System with 8051 Microcontroller:**Factors to be considered in selecting a controller, why 8051 Microcontroller, Designing with 8051. **Programming embedded systems:** structure of embedded program, infinite loop, compiling, linking and debugging. **Design and Development:** Embedded system, development Environment – IDE, types of file generated on cross compilation, Embedded Product Development cycle and Trends in embedded Industry	**12**

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Microprocessors Architecture, Programming and Applications with the 8085.	Ramesh Gaonkar	PENRAM	5th	2012
2.	8080A/8085 Assembly Language Programming	Lance A. Leventhel	Osborne		1978
3	Embedded Systems	Rajkamal	Tata Mcgraw-Hill		
4	Introduction to embedded systems	Shibu K V	Tata Mcgraw-Hill	1st	2012

Course Outcomes:

Learners will be able to,

1. **Understand the basic concepts of Micro Computer Systems**
2. **Understand the architecture and hardware aspects of 8085**
3. **Write assembly language programs in 8085**
4. **Design elementary aspects of Micro Controller based systems**
5. **Interfacing peripherals using Micro Controller**

2.5 Evaluation Process and Reforms

Department of Information Technology And Data Science

B.Sc. Data Science

USDS101: Descriptive Statistics

B. Sc. (Data Science)		Semester – I	
Course Name: Descriptive Statistics		Course Code: USDS101	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Course Objectives:

- To understand the use of data for tabulating and analyze statistical information given in descriptive form with attributes.
- To use graphical techniques as well as to compute various measures of central tendency.
- To compute various measures of dispersion, skewness and kurtosis and to calculate range of variables and the deviation of specific data point.
- To compute the correlation coefficient for bivariate data and Calculate the simple linear regression equation for a set of data.
- To Describe and verify mathematical considerations for analyzing time series.

Unit	Details	Lectures
I	**1. Introduction to Statistics and Use in Business:** a) Meaning of Statistics as a Science, Importance of Statistics, b) Scope of Statistics : In the field of Industry, Biological Sciences, Medical Sciences, Economics Sciences, Social, Sciences, Management Sciences, Agriculture, Insurance, Information Technology, Education and Psychology. c) Statistical organizations in India and their functions: CSO, ISI, NSS, IIPS (Devnar, Mumbai), Bureau of Economics and statistics. d) Case Study **2. Types of Data and Data Condensation:** a) Method of sampling: Concept of population and sample. Finite ,Infinite population ,Notion of SRS,SRSWOR and SRSWR b) Types of Characteristics, Different types of scales: nominal, ordinal, interval and ratio scale. Linear and circular scale. c) Types of Data: Primary data, Secondary data, Collection of data and concept of a questionnaire and a schedule, Cross-sectional data, time series data, failure data, industrial data, and directional data. d) Tabulation. e) Dichotomous classification- for two and three attributes, Verification for consistency. f) Association of attributes: Yule's coefficient of association Q. Yule's coefficient of Colligation, g) Notion of a statistical population: Finite population infinite population, homogeneous population and heterogeneous population. Notion of sample, random sample and non-random sample.	12

2.5 Evaluation Process and Reforms

	3. Presentation of Data a) Univariate frequency distribution of discrete and continuous variables. Cumulative frequency distribution and relative frequency distribution. b) Graphical representation of frequency distribution by Histogram, frequency polygon, Cumulative frequency curve. Stem and leaf diagram c) Check sheet, Parato diagram	
II	**4. Measures of central tendencies** a) Concept of central tendency of data. Requirements of good measure b) Locational averages: Median, Mode, and Partition Values: Quartiles, Deciles, and Percentiles, Box Plot, Percentile ranks c) Mathematical averages Arithmetic mean (Simple, weighted mean, combined mean), Geometric mean, Harmonic mean d) Empirical relation between mean, median and mode e) Merits and demerits of using different measures &their applicability f) Partition Values : Quartiles, Deciles and Percentiles, Box Plot, Percentile ranks **5. Measures of Dispersion, Skewness & Kurtosis** a) Concept of dispersion. Requirements of good measure. b) Absolute and Relative measures of dispersion: Range, Quartile Deviation, Mean absolute deviation, Standard deviation. c) Variance and Combined variance, raw moments and central moments and relations between them. Their properties d) Concept of Skewness and Kurtosis: Measures of Skewness: Karl Pearson's, Bowley's and Coefficient of skewness based on moments. Measure of Kurtosis	**12**
III	**6. Mean square deviation**: a) Definition, minimality property of mean square deviation (with proof), b) Variance and standard deviation: Definition, merits and demerits, effect of change of origin and scale, combined variance (derivation for 2 groups), combined standard deviation, generalization for n groups. c) Measures of dispersion for comparison: coefficient of range, coefficient of quartile deviation and coefficient of mean deviation, coefficient of variation (C.V.)	**12**
IV	**7. Correlation and regression analysis** a) Scatter Diagram, Product moment correlation coefficient and its properties. Spearman's Rank correlation. (With and without ties) b) Concept of linear regression. Principle of least squares. Fitting a straight line by method of least squares. c) Relation between regression coefficients and correlation coefficient. d) Fitting of curves reducible to linear form by transformation. Concept and use of coefficient of determination (R^2).	**12**

2.5 Evaluation Process and Reforms

	e) Fitting a quadratic curve by method of least squares. f) Case study	
V	**Time Series** a) Definition of time series .Its component. Models of time series. b) Estimation of trend by: **i)** method of Freehand curve **ii)** method of semi average **iii)** Method of Moving average iv) Method of least squares (linear trend only) c) Estimation of seasonal component by **i)** method of simple average **ii)** Ratio to moving average **iii)** Ratio to trend method d) Case Study	**12**

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Statistical Methods, An Introductory Text,	Medhi J.	New Age International Ltd.	Second Edition	
2.	Basic Statistics	Agarwal B.L.	New Age International Ltd.		
3.	Theory and Problems of Statistics,	Spiegel M.R.	Tata McGraw-Hill.		
4.	Fundamentals of Statistics, Volume II	Goon A.M., Gupta M.K., Dasgupta B.	The World Press Private Limited, Calcutta.		
5.	Complete Business statistics	Aczel Sounderpandian	Tata McGraw Hill		
6.	Excel Data Analysis Modeling and simulation	Hector Gurrero	Springer	Second Edition	
7.	Data Analysis and Decision Making	Albright,Wilston,Zappe	Thomson		

Course Outcomes:
After completion of the course, a student should be able to:

- To understand the use and importance of statistical data by tabulating and implementing sampling methods.
- Able to identify association between the variables as well as computing consistent and inconsistent data.
- Able to compute level of measures and apply as well as interpret data into graphs.
- Apply measure of central tendency to minimize the sum of squared deviation.
- Able to understand the basic assumption behind regression analysis and determine the model is significance as well as able to apply various techniques for the modelling.

2.5 Evaluation Process and Reforms

USDS2P2: Database Management Practical

B. Sc (Data Science)		Semester – II	
Course Name: Database Management Practical		Course Code: USDS2P2	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Course Objectives: Provides the hands on the SQL language for retrieving the data from the database in different scenarios. The primary focus is to understand relational database concepts and design by using SQL.

- Identify entities and its relationship with relational model structure.
- To understand relational database using SQL and constraints implementation using create table query
- To Understand DML operations and backing of database
- To understand how to retrieve data from database and learn how to retrieve single value after performing calculations on group of values
- To understand built-in functions to perform operations on data
- To understand how to fetch data from two or more tables, which is joined to appear as single set of data
- To understand nested and larger query as advanced fetching of data
- To understand concept of virtual table.
- To understand how to control user access in a database.

List of Practical: (Can be done in Oracle / SQL Server / MySQL)	
1.	**For given scenario** Draw E-R diagram and convert entities and relationships to table.
2.	**Write SQL query for given problem statement:**
a.	Viewing all databases
b.	Creating a Database
c.	Viewing all Tables in a Database
3.	**Perform the following Operations:**
a.	Creating Tables (With and Without Constraints)
b.	Inserting/Updating/Deleting Records in a Table
c.	Saving (Commit) and Undoing (rollback)
4.	**Perform the following Operations:**
a.	Altering a Table
b.	Dropping/Truncating/Renaming Tables
c.	Backing up / Restoring a Database
5.	**Perform following:**
a.	Simple Queries with Where Operators
b.	Where with Keywords and Logical Operators

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c.	Simple Queries with Aggregate functions
d.	Queries with Aggregate functions (group by and having clause)
6.	**Perform Queries involving:**
a.	Date Functions
b.	String Functions
c.	Math Functions
7.	**Retrieving Data from Multiple Table:**
a.	Joining Tables (InnerJoins, Outer-Joins)
b.	Aliases for Table Names
8.	**Subqueries:**
a.	With IN clause
b.	With EXISTS clause
c.	Handling NULL
9.	**Views:**
a.	Creating Views
b.	Dropping Views
c.	Selecting from view
10.	**DCL statements:**
a.	Granting and revoking permissions

Course Outcomes:
After completion of the course, a student should be able to:

- Students able to draw relationship diagram.
- Students able to perform various operations such as insert, update delete and retrieve data from database using SQL queries.
- Students able to perform alteration in tables and can restore and take backup of the database.
- Students able to perform operations using simple SQL Queries to fetch data and learns various aggregate functions to get single value.
- Students able to perform SQL Queries using JOIN keyword for joining two or more tables.
- Students able to perform nested queries using in, exists operators.
- Students able to create new table by joining one or more tables and learn how to hide attribute from end user.
- Students able to restrict the user from accessing data in database.

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Department of Information Technology:

BScIT

Continuous Evaluation process:

Continuous Evaluation

Marking Scheme for Internal and Practical component in Semester – 2 with online Teaching and Learning

Exam Type	Details	Marks	Scale to
Internal Marks	IA 1 (MCQ)	30	7.5
	IA 2 (MCQ)	30	7.5
	Attendance/Active participation/ Activities(Unit wise)	10	10
	Total	**50**	**25**
Practical Marks	Practical Lab Work-1 to 10 Submission	100	20
	Practical Assessment #1	10	10
	Final Practical Exam (Mini-Project presentation + Viva)	20	20
	Total	**130**	**50**

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Weekly assessment of Practicals:

Week-Wise Assessment

Week	Assessment	Weightage
1		
2		
3	Lab 1	10
4	Lab 2	10
5	Lab 3	10
6	**IA 1 (MCQ)**	**30**
7	Lab 4	10
8	Lab 5	10
9	**Practical Assessment #1**	**10**
10	Lab 6	10
11	Lab 7	10
12	**IA 2 (MCQ)**	**30**
13	Lab 8	10
14	Lab 9	10
15	Lab 10	10
16	**Final Practical Exam (Mini-Project Presentation + Viva)**	**20**
	Attendance/Active participation/Activities(Unit wise)	**10**

MScIT

Continuous Evaluation process:

Marking Scheme for Internal component in Semester – 2

Exam Type	Details	Marks	Minimum Marks	Scale to
Internal Marks	1. Midterm exam	30	12	12
	2. Research Paper Presentation	10	04	04
	3. Attendance/Active participation/quiz/Take home task	20	08	08
	4. Class Test (MCQs based)	10	04	04
	5. Spoken Tutorial exam	10	04	04
	6. NPTEL assignments	10	04	04
	7. Coursera/Udemy certification/any other– as pr the subject	10	04	04
	Total	**100**	**40**	**40**

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Beyond Syllabus Activities

Report of 'Hands-on Session on Fibre Optic Cabling'

Activity by Networking and Systems Cluster

'Hands-on Session on Fibre Optic Cabling' in the subject of Computer Networks

On 26th of July 2023, the students of Vidyalankar School of Information Technology, S.Y. B.Sc. I.T. class were given hands on experience about Networking devices which comes under the area of Computer networks. This was a one-day Workshop Conducted by Lab Development committee with Networking and Systems Cluster. The details of the activity are:

Topic	Introduction to Networking Devices and Fibre Optic Cabling
Date	26th July 2023
Conducted By	Mayur Panicker and Rajendra Patole
Audiences	SY BSc.IT Students

Computer networking refers to interconnected computing devices that can exchange data and share resources with each other. These networked devices use a system of rules, called communications protocols, to transmit information over physical or wireless technologies.

As networking has become a crucial need in this modern era, this session was provided to the students to make them understand about a few networking devices, which included their components, functioning and its use.

The session began with an overview of networking devices, in which they explained about that Hardware devices that are used to connect computers, printers, fax machines and other electronic devices to a network are called network devices. These devices transfer data in a fast, secure and correct way over same or different networks. Network devices may be inter-network or intra-network.

After the overview of network devices, a detailed explanation about the network devices were given by Mr. Rajendra Patole. The network devices that were explained in this session were as follows: first were a set of wires which included 48 core fibre wire, 12 core fibre wire, 2 core fibre wire, a fibre optic cable, cat 5 and tray box, then also the hardware machines like ONU, ONU+Router, Splicing machine and a fibre optic tester.

Information about Networking Device:

The set of wires where the most important ones as the wires are very sensitive and can easily break and end the network. A 48 Core Fibre Optical Cable is Armoured Double Jacket Waterproof Gel Filled loose tube direct burial is used for direct buried underground, it suits for long distance and LAN fibre communications.

These wires are used by the provider to provide network to small network providers. These are armoured and waterproof to save the optical wires inside the 48-core wire from any damage. Then a 12-core wire is used to provide network to one's house from these small network providers.

Then the 2-core wire is used to connect to the router or ONU as per ones use. These wires are protected using a tray box. It is a plastic box that protects wires from outside damage, one must have seen it at the terrace of their building.

2.5: Evaluation Process and Reforms

Then comes the hardware part, the hardware machine used to get network is called ONU there are two types of ONU : first is a normal ONU, and the second one is ONU+Router. The Passive Optical Network Unit is a user-side device of the GEPON (Gigabit Passive Optical Network) system and is used to terminate the traffic transmitted from the OLT (Optical Line Terminal) through EPON (Passive Optical Network).

The network is provided using a fibre optic cable connected to the ONU, which makes ONU very important device. The ONU is connected to the router, to avoid this ONU+Router(router and ONU in a same device) is used.

Now that the network part was clear the damage repair in Network devices was made aware to the students. The splicing machine and the fibre optic tester were the major devices that shared damage repair part. Splice Machine has a unique Dual Engine architecture that it uses to provide outstanding performance for concurrent transactional (OLTP) and analytical (OLAP) workloads. It is used to joint or combine optical fibre wires together as there are very sensitive. Not only that but the splicing machine is also used to laminate the optical fibre cable with a shield of plastic and a steel road.

The splicing machine was brought in college to specially for this session. Then the fibre optic tester was introduced to students, which was their favourite part. The fibre optic tester is used to check if there is any damage in the optical fibre cable.

The light from the tester passes from one part of the cable to the finishing end which was very fascinating for students to see. All this detailed info was given to the students in this session by Mr. Rajendra Patole, Mr. Mayur Panicker and Mr. Satvik.

All the network devices mentioned were brought in the college specially for this session. How to use the splicing machine was also shown to student and they were given a hands-on experience of these devices. All the students showed a lot of enthusiasm, and they were all like the session. The session was well appreciated by the Cluster mentor of Networking and Systems Cluster, Ms. Pushpa Mahapatro.

After this session we all visit to the principal's office we explain them about session and the students' response. Our Principal, Dr. (Mrs.) Rohini Kelkar madam and Vice Principal, Mr. Asif Rampurawala sir appreciated the session and our effort which made us happy.

Glimpse of the Session:

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Report of 'Visit to IIPS Library'

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Activity by Networking and Systems Cluster

Visit to IIPS Library in the subject of Research Methods and Ethics

Networking and Systems Cluster of Department of Information Technology of Vidyalankar School of Information Technology had organized a "A Journey Towards Research World through A Visit to IIPS Library" for SY BSc Data Science Students. It was very well planned visit & all the students actively participated in this visit. The event details were as follows:

Date:	Friday, 26th August 2023
Activity:	Visit to IIPS Library
Venue:	IIPS Library, Govandi, Mumbai
Time:	1:00 pm to 5:00 pm
Topic:	A Journey Towards Research World through A Visit to International Institute of Population Sciences (IIPS) Library

Takeaways:

Visit to Library at IIPS organized by Dr. Ujwala Sav, Vidyalnkar School of Information Technology on August 26, 2023. IIPS stands for 'International Institute for Population Sciences'. It is an autonomous organization of the Ministry of Health & Family Welfare, Government of India. It was established in Mumbai in July 1956 for training and research in Population Studies. It was started in 1956 under the joint sponsorship of Sir Dorabji Tata Trust, the Government of India and the United Nations. It is the very first institute established for Population Studies.

We reached the institute at 01:30 PM and were taken to see the library. On our arrival, the Library & Information Officer and HoD, Mr. Kambampati Kumar first introduced himself and his colleagues and then gave a brief on the history of how this library was established. He informed everyone that IIPS was formerly known as Demographic Training and Research Center and then was renamed in April 1971 to IIPS. He also shared insights on why research is important and how it can be helpful. He informed us that all the shelves in the library are fireproof and electric proof and are on the ground floor for accessibility. Everyone was very excited to see the library and it was as we all expected. The room was very quiet and many postgraduate students were studying.

Mr. Dashrath Vidhate, Assistant Library and Information Officer, gave us a tour of the library but before that he showed us the library profile which is an overview of the books, articles and journals which are preserved in the library and how we can access the library resources online. We started from the ground floor where he showed us various books on subjects like economics, statistics, social studies, etc. On the first floor, he showed us the records of subjects like family welfare, fertility, birth rate, Mathematics, Psychology, statistics and many more. He also showed us the reports of the researchers. Ujwala ma'am told us to take a close look at the format of the report as it will be helpful for our own research papers. The students had a few doubts which were answered by Vidhate sir.

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After the tour, one of the library staff showed the students how to check for plagiarism in the research paper, article or essay using the original software. Next, Mr. Kumar allowed students to see the oldest document they had of the census done in India in the year 1891 and the census of Bengal in the year 1881. It was well preserved and had been digitalized. Students were considered themselves very lucky to have seen a very rare document from 1881 and 1891. The visit to the library ended with a group photo to commemorate the occasion. Lastly, Dr. Ujwala Sav ma'am expressed her gratitude on behalf of everyone to all the library staff for welcoming us.

Next, one of the teaching faculty members of IIPS gave a PowerPoint presentation on various ICT tools they use for data collection. He also informed students about the datasets that they have at IIPS. He also told us how the researchers can access them.

It was a very informative and knowledgeable Institutional Visit. I am sure many students became more interested in research and it really inspired to do something in the field. Before going home, we talked to some of the students of IIPS college. It was very thoughtful of Ujwala ma'am to take students on such an and Visit which help them to understand the subject more practically, i.e., how the real research is done!!

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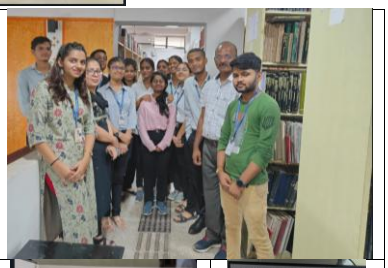
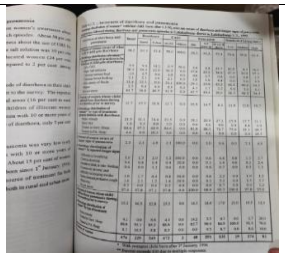
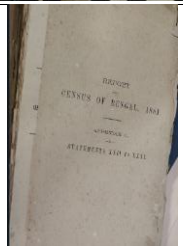
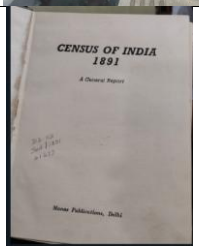
Photos:









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Feedback Summary:

Feedback form for Visit to IIPS library Activity

42	04: 25	Active
Responses	Average	Status

3. Do you find the visit to library informative

Yes	41
No	1

4. How would you rate your visit to a library?

Excellent	16
Very Good	21
Good	5
Average	0
Poor	0
	0

Report of 'Visit to Innovation Lab'

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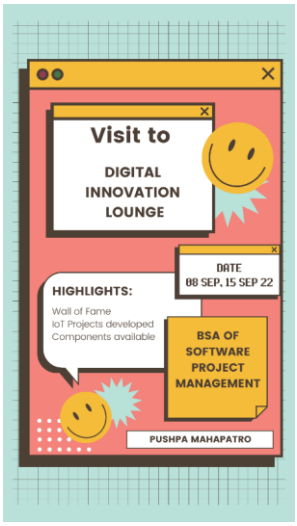
2.5: Evaluation Process and Reforms

Networking and Systems Cluster of Department of Information Technology of Vidyalankar School of Information Technology had organized a The workshop was held in the Innovation Center for TY BScIT Students. The main purpose of the visit is to aware the students and tell them the use of Innovation Center which will be really helpful for all the students for improving their project ideas, technical skills, self-development, hand-on experience to develop a project. It was very well planned visit & all the students actively participated in this visit. The event details were as follows:



Date:	8th September 2023
Guest:	Mr Pratik Mhatre
Venue:	Innovation Center
Time:	11:00 am to 02:30 pm
Topic:	Visited Innovation Center

Takeaways:

Firstly, Ms. Pushpa Mahapatro Ma'am introduced the Mr. Pratik Sir and Mr. Amol Sir. Both are the incharge of Innovation Center. Mr. Pratik Sir has a brief knowledge about Electronics and Embedded Projects. Amol Sir gave an informative speech on the importance of Innovation Center to students at the beginning of the visit. We were shown very different electronics and embedded projects that are created by students in Innovation Center. We were explained that how the Innovation center is helping students to think and develop the projects on the real life problems. How to find different ways of solutions for the same programming problem. Then sir explained about the purpose and need of embedded projects in industry.

The goal of the workshop was to take how the project works beyond IOT with our mindset. The workwasher began with the inauguration by Mrs. Puspha Mahapatro, where she introduced the agenda of the session and what participants could anticipate and welcomed our guest speaker Mr. Pratik Mhatre Sir, he told us about the project and the group that may work on the new project. They help students who want to build their new idea and they may work with NASA.

Just like the icebreaker, the guest speaker was a skilled and adroit personality, Mr.Pratik Mhatre; he is currently an associate professor at VIT engineering dept. He is also an experienced industrialist. Ex-professor of Pillai engineering college (Panvel, Mumbai), Sir, has also worked as an Intern for around six months with the ISRO organization (Ahmedabad)

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Pushpa Ma'am explained us how the Innovation Center works. We got to know that what kind of projects are made in industry. Pushpa Ma'am discussed with students about Co-founder and their Chief Executive Officer (CEO) of different companies. Ma'am also explained that how they come up with their business and project ideas of real life problems. How people came with their startup business ideas and became the more successful businessman. Also we understood that what kind of career opportunities & job roles are available in various industries. Pushpa Ma'am guided us about how to find interest & create high level skilled projects and set the favorite job profile domain in career. Also we were guided about which things should be kept in mind while working on project. What are the online & offline resources or platforms are available. During the visit, all the queries of the students were cleared by Pushpa Ma'am.

Here the Sir told us that there is a lot of software installed on this computer which we can do. This software is not on the rest of the computer, which may happen in our labs, but it is software here like Autocard .

AutoCAD is the original CAD software used by millions around the world. It can be used to create precise 2D and 3D drawings and models, as well as electrical diagrams, construction drawings, and more.

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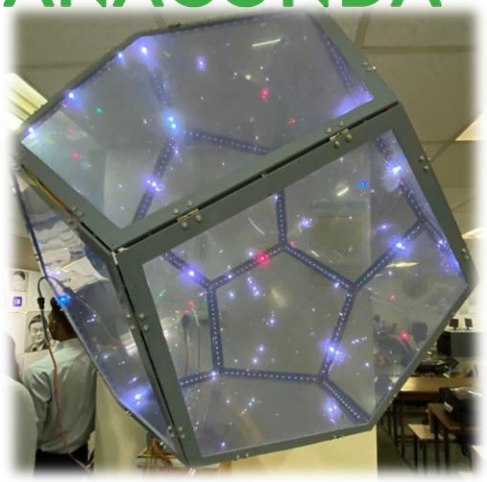
Dev-C++ is a free full-featured integrated development environment (IDE) distributed under the GNU General Public License for programming in C and C++. It was originally developed by Colin Laplace and first released in 1998. It is written in Delphi.

It is bundled with, and uses, the MinGW or TDM-GCC 64bit port of the GCC as its compiler. Dev-C++ can also be used in combination with Cygwin or any other GCC-based compiler.

Anaconda is an open-source distribution for python and R. It is used for data science, machine learning, deep learning, etc. With the availability of more than 300 libraries for data science, it becomes fairly optimal for any programmer to work on anaconda for data science.



Later, Mr. Pratik demonstrated live one of his innovations (infinite dodecahedra) to the audience which he and his student's group built. explaining the overall physics and geometric structure behind the project, he also defined the constraints they came across while building and developing the project. The students were really stunned, living open-mouthed, witnessing such an amazing thing.

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There were many photos of entrepreneurs on the wall, he told about them who became very successful after so much hard work never given up easily had some goals in their life which they had achieve.

Sachin Teke, Founder -CEO of M-Indicator, side his company made profits of Rs 28 lakhs last year and is debtfree with just 10 employees.

M-indicator has helped people a lot, due to which a lot of information is easily available from the train and time is also saved.

m-Indicator

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Snapchat was created by Evan Spiegel, Bobby Murphy, and Reggie Brown, former students at Stanford University. It has become known for representing a new, mobile-first direction for social media, and places significant emphasis on users interacting with virtual stickers and augmented reality objects. As of July 2021, Snapchat had 293 million daily active users, a 23% growth over a year.

Paytm boss Vijay Shekhar Sharma has secured the approval of shareholders to continue to act as the Managing Director (MD) and CEO of Paytm (One 97 Communications) while drawing a salary worth Rs 4 crore per annum, despite facing resistance from institutional investors at the Annual General Meeting (AGM). Shareholders have also approved the appointment of Madhur Deora, as Whole-time Director, designated as Executive Director, President and Group Chief Financial Officer of the Company. The AGM had garnered interest after various proxy advisory firms had opposed the re-appointment and remuneration of Vijay Shekhar Sharma.

As the end of the visit was approaching, there was a sense of satisfaction on the faces of students. All the Students made visit interactive by being active during the visit. Then feedback was taken from all the students. Lastly, Ms. Pushpa Ma'am presented a vote of thanks to Amol Sir and Pratik Sir for giving their valuable time.

Glimpse of moment

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Feedback summary:

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Feedback on Visit to Digital Innovation Lounge

46	02:42	Active
Responses	Average time to complete	Status

View results | Open in Excel

1. Do you find the visit informative?

More Details

Yes	44
No	2

2. How would you rate the quality of speakers?

More Details | Insights

Excellent	23
Very Good	14
Good	7
Average	2
Poor	0

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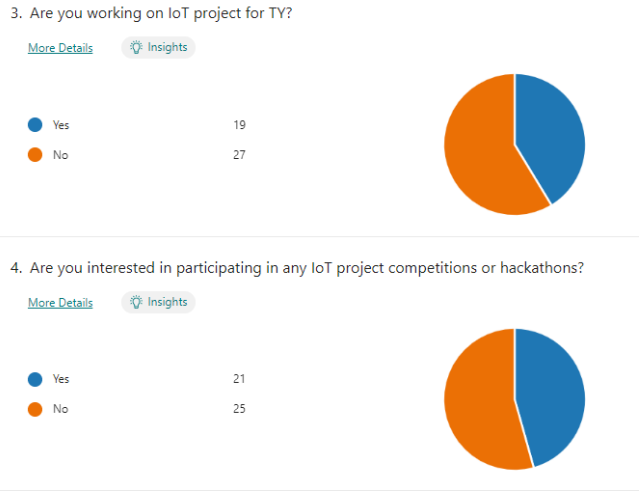
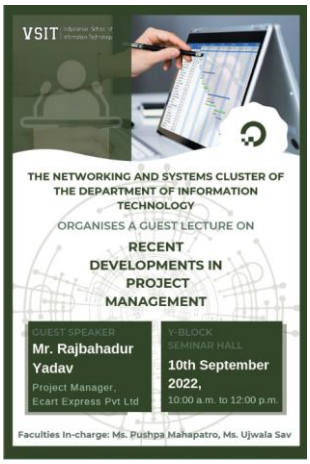


Report of 'Guest Lecture'

Activity by Networking and Systems Cluster

Guest Lecture in the subject of Software Project Management



Networking and Systems Cluster of Department of Information Technology of Vidyalankar School of Information Technology had organized a Guest Lecture for TY BScIT Students. It was very well planned visit & all the students actively participated in this visit. The event details were as follows:

Date:	Saturday, 10th September 2023
Activity:	Guest lecture
Venue:	Y-Block Seminar Hall
Time:	10:00 am to 12:00 noon
Topic:	Project management skills, tools and techniques used in IT Industry

Takeaways:

SPM Guest Lecture was organized by the Vidyalankar School of Information Technology on September 10, 2022, from 10:00 A.M to 12:00 P.M. The main purpose of the lecture is to aware the students and tell them about the practical knowledge of Project Management in Industry level which will be really helpful for all the students for

2.5: Evaluation Process and Reforms

implementing these techniques in their corporate life. It was a good lecture, and all the students actively participated.

In the beginning, Ms. Pushpa Mahapatro Ma'am introduced Mr. Rajbahadur Yadav Sir. He has 10+ years of experience in Project Management of Information Technology. He started with the process of discussion for a project which includes the CEO, CFO, BA, and Investors. After this process, the concept: Vendor Evaluation was explained by him which involves 'Quality Process'. Also, we were guided about a common difference between Agile/Scrum/Waterfall models i.e., Sprint Allocation. Later, the work of the Project Manager was introduced by him. He also explained that the work of a team should go hand in hand and that can only be possible with the help of kick-off/standup meetings. He later demonstrated the term known as the critical path, which in the industry is carried on the basis of cost.

He also enlightened us about the factors that are mentioned in the Cost of the Project. We later came to know that there is also a substitute for every employee, and it should be a junior substitute for cost benefits. He described that the Project will first run on a UAT server and after quality testing it with the help of testers, the testers will load balance the project on the UAT server. Finally, he informed us about how the Development Cost/Maintenance Cost is calculated after the successful execution of the Project. Before the end of the lecture, Sir asked about the future end goals of each and every student present in the lecture.

As the lecture ended, a sense of satisfaction was evident on the faces of the students. Many students were unsure of what the lesson had covered; however, almost all students stated that the lecture was interactive. The students then took the opportunity to talk with sir about how what they had personally learned and applied to their life. Lastly, Ms. Pushpa Ma'am gave a vote of thanks to Mr. Rajbahadur Yadav.

Photos:

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Feedback Summary:

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Feedback Form for SPM Guest Lecture

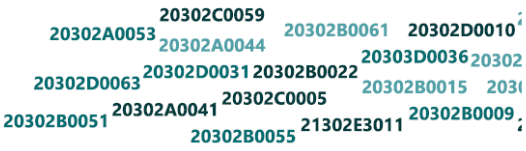
50	03:05	Active
Responses	Average time to complete	Status

1. Roll No.

50
Responses

Latest Responses
"20302B0011"
"20302B0056"
"20302A0011 "

1 respondents (**2**%) answered **20302B0022** for this question.



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2. Full Name

50
Responses

Latest Responses
"Harshal Sunil Wairkar "
"Shaqeeb shaikh "
"Jadyn Dias "

4 respondents (**8%**) answered **Yadav** for this question.

3. Do you find the guest lecture informative?

4. How would you rate the quality of Guest Lecture?

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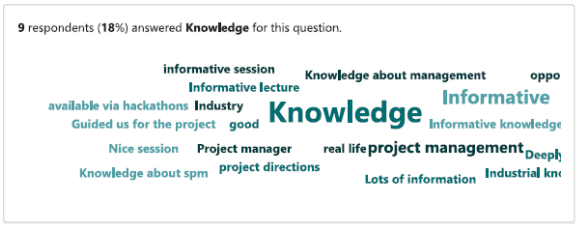
5. How well did the Guest Lecture meet your expectations?

6. How well the Guest speaker delivered the content?

7. What are your takeaways from the session?

50
Responses

Latest Responses
"Industrial knowledge about project management "
"Knowledge about management "
"-"



Report of 'Video Competition'

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2.5: Evaluation Process and Reforms

Activity by Networking and Systems Cluster

Video Competition

Networking and Systems Cluster of Department of Information Technology of Vidyalankar School of Information Technology had organized a Video Competition for the all BScIT Students. Activity in-charges are Ms. Pushpa Mahapatro, Ms. Spruha More, Mr. Rajendra Patole and Mr. Laxmikant Manchekar. The event details were as follows:

Date:	Saturday, 17th September 2023
Activity:	Video Competition
Venue:	Y-Block Reading Hall
Time:	10:00 am to 01:00 pm
Topic:	Video Competition on current trends in Information Technology

Details of the Competition

We are living in the era where every day we are finding something new in terms of technology. To increase the awareness among the most recent trends in technology we decided to engage students in productive activities, we have organized a video competition where they were to prepare a video where they can present few highlights on any recent technology of their choice

The basic objective of this Video Making Competition was to prepare the Students about the Basic usage of different Software's available for Short Movie Making / Video Making etc. and to provide a Platform where they can share their views and thoughts. Students were asked to prepare the video 5-8minutes on the topics given. Video topics were based on the latest technology. Judges appreciated their efforts and give their valuable suggestion.

Participants have done a great job, they worked very hard for this video competition. They have many things like audio, animation gif etc. They have given very useful suggestion after every presentation, very effectively both the judges assess the video and discuss on many point including way of presentation, color combination, effects and all etc.

Our team put all the efforts into conducting this event, with many meetings and coordination handled by our team so that the event can go on smoothly. Both the judges appreciated the efforts. They appreciated the talent of our students and their efforts.

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2.5: Evaluation Process and Reforms

Some Glimpse of the Competition:

Winner list

	Congratulation to all students
	FYIT
	1st Position: Rucha Pachpute
	1st Position: Spruha Pawaskar
	2nd Position: Inamdar Shahid Hanif
	3rd Position: Uzayr Dadan
	TYIT

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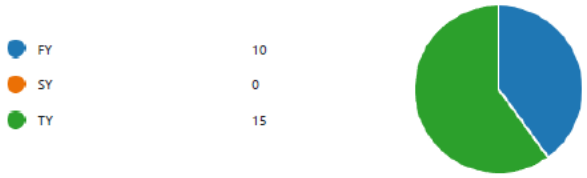
2.5: Evaluation Process and Reforms

☐	1st Position: Sarthak Manjarekar
☐	1st Position: Vishal Sahani
	2nd Position: Jadyn Dias and Soumya Pednekar
☐	3rd Position: Arya Salvi

Feedback Analysis

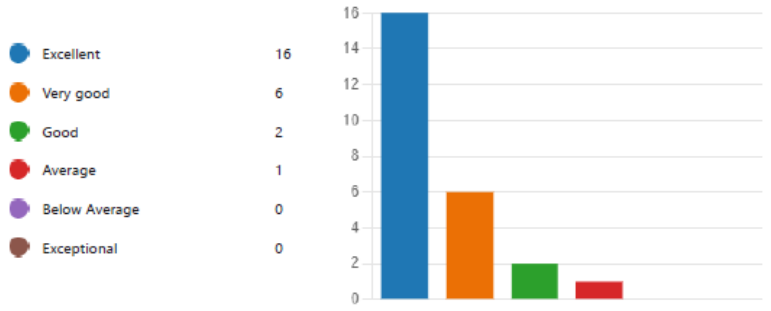
6. **Year**



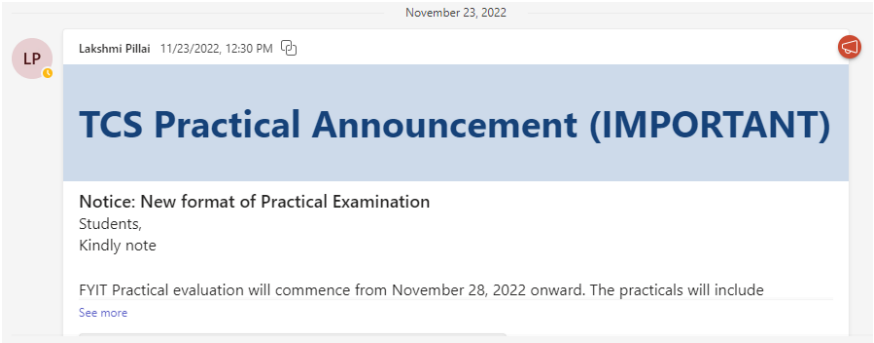
7. **Division**

2.5: Evaluation Process and Reforms

9. **Overall, how would you rate the Video Competition?**



Usage of Online Platform MS Teams



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2.5: Evaluation Process and Reforms

November 16, 2022

Seema Vishwakarma 11/16/2022, 11:59 AM

NOTICE

FYIT Students kindly note, the schedule of revision lectures (ONLINE) for the specific topic in PPC is given below. Students of all divisions may attend.

Date	Time	Topic	MS TEAMS Link
			https://bit.ly/PPCrevision

See more

Reply

February 2, 2023

AJ

Akshatha Jain 2/2, 3:25 PM

Mid Term Examination Notice, ATKT form filling Notice and Photocopy & revaluation notice.

Documents > General > Class Materials > **SEM I**

Name	Modified	Modified By
Computational Logic and Discrete Structure	August 17, 2022	Swati Pardale
Digital Logic and Applications	August 17, 2022	Swati Pardale
Fundamentals of Database Management Sy...	August 17, 2022	Swati Pardale
Programming Principles with C	August 17, 2022	Swati Pardale
Technical Communication Skills	August 17, 2022	Swati Pardale

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2.5: Evaluation Process and Reforms

Search students		NM Formula Sheet of All Units Apr 9th • 10 points	NM Remedial Sheet Solutions Apr 9th • 10 points	PLSQL Practical 8 Apr 7th • 10 points
Class average	59.8%	45.6%	45.6%	
E -, Essakkimuthu	71.9%	10	10	Turned ir
M -, Marvin	80.0%	10	10	Turned ir
M -, MukeshRaja	42.6%	0	10	Viewed
Ankam, Shravan	79.4%	10	10	Turned ir
RA Ansurkar, Ruchir	91.9%	10	10	Turned ir

VSIT
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Version 05/22-8

Consolidated Academic Administration Plan for the Course

USIT 604,6P4, Principles of Geographical Information Systems
Sem. VI – Program B.Sc. IT 2023-24 – Even Semester
Faculty - Ms. Pushpa Mahapatro, Ms. Kanchan Taksale

The academic resources available in VSIT –

VMIS (ERP)	V-Refer and V-Live	VSIT Library	VAC & MOOC Courses
Institute & Department Vision and Mission	Former IA question papers and solutions (prepared by faculty)	Former IA question papers solutions - hardcopy	Value Added Courses (VAC) are conducted throughout the semester & in the semester break - Enrol for the VACs
Program Educational Objectives (PEO)	MU end semester examination question papers and solutions (prepared by faculty)	MU end semester exam question paper & solutions - by faculty, hardcopy	
Program Specific Outcome (PSO)	Class notes and Digital Content for the subject (scanned / typed by faculty)	All text books, reference books, e -books mentioned in the syllabus & AAP	Online courses from NPTEL, Coursera etc. are pursued throughout the semester - Register for the course & get certified
Program Outcome (PO)	Comprehensive question bank, EQ, GQ, PPT, Class Test papers	Technical journals and magazines for reference	
Departmental Knowledge Map	Academic Administration Plan & Beyond Syllabus Activity report	VSIT library is member of IIT Bombay Library	Watch former lectures captured in LMS at VSIT

1.a Course Objectives (Write in detail – as per NBA guidelines)

Cognitive	What do you want students to know?	Students will gain knowledge about geographic information systems. Students will be able to understand the techniques and method used in implementing PGIS based Applications.
Affective	What do you want students to think / care about?	Students will be able to compare vector and raster data, the different types of Projection and Interpolation Techniques. Students will be able to identify the benefits and shortcomings of PGIS.
Behavioural	What do you want students to be able to do?	Students will be able to create GIS layers of maps from scratch. Students will be able to develop a strategy to implement an effective GIS.

Advice to Students:

Attend every class!!! Missing even one class can have a substantial effect on your ability to understand the course. Be prepared to think and concentrate, in the class and outside. I will try to make the class very interactive. Participate in the class discussions. Ask questions when you don't understand something. Keep up with the class readings. Start assignments and homework early. Meet me in office hour to discuss ideas, solutions or to check if what you understand is correct.

v-Refer Link for this course is given below-(Link)

Collaboration Policy:

We encourage discussion between students regarding the course material. However, no discussion of any sort is allowed with anyone on the assignment and homework for the class. If you find solution to some problems in a book or on the internet, you may use their idea for the solution; provided you acknowledge the source (name and page in the book or the website, if the idea is found on the internet). Even though you are allowed

to use ideas from another source, you must write the solution in your own words. If you are unsure whether or not certain kinds of collaboration is possible, please ask the teacher.

1.b Course Outcome (CO) Statements and Module-Wise Mapping (follow NBA guideline)

CO No.	Statements	Related Module/s
CO1	To understand the Real world and its representation of it using GIS.	Unit 1
CO2	To understand and managing data and Processing Systems.	Unit 2
CO3	To analyze Spatial Referencing and Positioning	Unit 3
CO4	To analyze Spatial Data	Unit 4
CO5	To construct and analyzing maps of a particular area.	Unit 5

1.c Mapping of COs with POs (mark S: Strong, M: Moderate, W: Weak, Dash '–': not mapped)

(List of POs is available in V-refer)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	2	-	-	-	1	-	-	-	-	-	-	-
CO 2	3	-	-	3	3	-	-	-	-	-	-	-
CO 3	3	-	3	3	3	-	-	-	-	-	-	-
CO 4	3	-	3	3	3	-	-	-	-	-	-	-
CO 5	3	3	2	3	3	-	-	-	-	-	-	-

1.d Mapping of COs with PSOs (mark S: Strong, M: Moderate, W: Weak, Dash '–':not mapped)

	PSO 1	PSO 2	PSO 3	PSO 4
CO 1				
CO 2				
CO 3				
CO 4				
CO 5				

1.e Teaching and Examination Scheme (As specified by the University) for the Course

Categories	Humanities and Social Sciences	Basic Science	Engineering Science	Professional Core	General Education	Professional Elective	Project/ Internship	Open Elective

Tick suitable category		✓						

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW/Practical	Tutorial	Total
(For Theory Only)	USIT604	75	-	25	2	-	-	2
(For Lab Only)	USIT6P4	-	50	-	-	2	-	2

Subject Code	Subject Name	Examination Scheme							
		Theory Marks IA Test			End Sem. Exam Marks	TW	Practical	Oral	Total
		IA 1	IA 2	Average of IA1 and IA2					
USIT604	PGIS	20 (Scaled to 15)	-	15	75	10	-	-	100
USIT6P4	PGIS	-	-	-	-	-	50	-	50

1.f Faculty-Wise Distribution of all Lecture-Practical-Tutorial Hours for the Course

Divisions	Lecture (Hrs.)	Practical (Hrs.)				Tutorial (Hrs.)			
		Batch 1	Batch 2	Batch 3	Batch 4	Batch 1	Batch 2	Batch 3	Batch 4
Div A	4.00	2.00	2.00	NA	NA	N.A.	N.A.	N.A.	N.A.
Div B	4.00	2.00	2.00	NA	NA	N.A.	N.A.	N.A.	N.A.
Div C	4.00	2.00	2.00	NA	NA	N.A.	N.A.	N.A.	N.A.
Div D	4.00	2.00	2.00	NA	NA	N.A.	N.A.	N.A.	N.A.

1.g Office Hours (Faculty will be available in office in this duration for solving students' query)

Division	Day	Time (at least 1 Hr. / Division)	Venue (Office Room No.)
Div A	Thursday	3:00 pm to 4:00 pm	Discussion Room
Div B	Thursday	3:00 pm to 4:00 pm	Discussion Room
Div C	Thursday	3:00 pm to 4:00 pm	Discussion Room
Div D	Thursday	3:00 pm to 4:00 pm	Discussion Room

2.a Syllabus : Module Wise Teaching Hours and % Weightage in University Question Paper

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in University Question Papers
1	A Gentle Introduction to GIS, Geographic Information and Spatial Database	11	20
2	Data Management and Processing Systems	6	20
3	Spatial referencing and Positioning Data Entry and Preparation	15	20
4	Spatial Data Analysis	10	20
5	Data Visualization	8	20
* Insert rows for more modules in the Course	**Total**	**50 lectures X 60 Minutes**	**100**

2.b Prerequisite Courses

No.	Semester	Name of the Course	Topic/s
1	3	DBMS	Normalization, SQL queries
2	4	Computer Graphics and Animation	Raster data, Vector data
3	2	Object Oriented Programming	Basic concepts

2.c Relevance to Future Courses

No.	Semester	Name of the Course
1	B. Sc. IT Sem 6	Project Implementation
2	M. Sc. IT, Sem 4	PSIT403b - Remote Sensing, PSIT4P4 - Project Implementation

2.d Identify real life scenarios/examples which uses the knowledge of the subject (Discussion on how to prepare examples and case studies e.g. "Boeing Plane": C Programming Language – Intro to Computer Science – Harvard's CS50 (2018) – Bing video)

Real Life Scenario	Concept Used
Urban Planning and Development	Spatial Analysis
Natural Resource Management	Geospatial Data Collection
Retail and Marketing Analysis	Location-based Services
Agriculture and Farming	Precision Farming
Emergency Response and Disaster Management	Spatial Modeling

Transportation Planning	Network analysis
What 3 words	Mapping techniques for huge area to locate detailed locations.
Metaverse	Detect the location and send it to your home. (Blind People)
Security	What to share? What not? (Location)

3 Past Results – Division-Wise

Details	Target- Apr 2024	Apr 2023	Apr 2022	Apr 2021	Apr 2020
Course Passing % – Average of 4 Divisions	100	84.21	100	100	100
Marks Obtained by Course Topper (mark/100)	100	92	100	100	100

	Div A		Div B		Div C		Div D		Div E		Div F	
Year	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result
Apr 2023	PM	89.86	KT	86.27	PM	81.82	KT	80				
Apr 2022	PSM	100	UMS	100	PSM	100	UMS	100	PSM	100	-	-
Apr 2021	PSM, UMS	100 (Div 1)	PSM, UMS	100 (Div 2)	PSM, UMS	100 (Div 3)	-	-	-	-	-	-
Apr 2020	SM	100	PSM	100	UMS	100	PSM	100	SM	100	-	-

4 All the Learning Resources – Books and E-Resources

4.a List of Text Books (T – Symbol for Text Books) to be Referred by Students

Sr. No	Text Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Introduction to Geographic Information Systems	Chang Kang-tsung (Karl),	McGraw-Hill	4th Edition	1-5

4.b List of Reference Books (R – Symbol for Reference Books) to be Referred by Students

Sr. No	Reference Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Principles of Geographic Information Systems- An Introductory Text Book	Editors: Otto Huisman and Rolf A.	The International Institute of Geoinformation Science and Earth Observation	Fourth	1-5
2	Principles of Geographic Information Systems	P.A Burrough and R.A.McDonnell	Oxford University Press	Third	1-5
3	Fundamentals of Spatial Information Systems,	R.Laurini and D. Thompson,	Academic Press		3, 4
4	Fundamentals of Geographic Information Systems	Michael N.Demers	Wiley Publications	Fourth	1
6	GIS Fundamentals: A First Text on Geographic Information Systems	Paul Bolsatd	XanEdu Publishing Inc	5th Edition	1, 3

4.c List of E - Books (E – Symbol for E-Books) to be Referred by Students

Sr. No	E- Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Principles of Geographic Information Systems- An Introductory Text Book	Editors: Otto Huisman and Rolf A.	The International Institute of Geoinformation Science and Earth Observation	Fourth	1, 2, 3, 4, 5
2	Essays on Geography and GIS http://www.esri.com/~/media/Files/Pdfs/library/bestpractices/essays- on-geography-gis-vol7.pdf	-	ESRI	Vol. 7	1, 2
3	The GIS Primar : An introduction to Geographic Information System	David J	-	-	1, 3
4	Digital Content	Pushpa M, Ujwala S	live.vsit.edu.in	-	1 - 5

4.d Reading latest / top rated research papers (at least 5 papers)

Name of Paper	Name of Authors (Background)	Published in		Problem Statement
		Date	Journal	
Assessment of Geospatial Technologies for Natural Resource Management in Florida	Sowmya Selvarajan, Ahmed, Mohamed, Timothy L White, Natalie Boodram	July 2019	Journal of Forestry - Washington	Geospatial domain in planning, monitoring, and management of natural resources
Remote Sensing Applications in Drought Monitoring and Prediction	Ashutosh Sharma, Vijaykumar Bejagam, Manish Kumar Goyal	October 2022	Hydro-Meteorological Extremes and Disasters	Geospatial technology with the State Remote Sensing Application Centre (SRSAC)
Comparative assessment of remote sensing-based water dynamic in a dam lake using a combination of Sentinel-2 data and digital elevation model	Muhittin Karaman, Emre Ozelkan	February 2022	Environmental Monitoring and Assessment	Digital Elevation Model (DEM) generation, TIN generation
GIS Based Flood Modeling of Laghman River	Mirwais Sediqmal	May 2021	International Journal of Multidisciplinary Research Review	GIS based flood hazard
Quantifying the spatial differentiation mechanism of land use degree	Guangjie Wang, Wenfu Peng	Nov 2022	Heliyon	GIS model for Land Use and its Development

4.e Based on research paper an identify the current Problem statement

Problem Statement			Used in				
	Quiz	Assignment	Lab	Mini Project	Poster Presentation	Test	Any Other
Geospatial domain in planning, monitoring and management of natural resources		Yes				yes	
Geospatial technology with the State Remote Sensing Application Centre (SRSAC)					Yes		
Digital Elevation Model (DEM)			Yes				

generation, TIN generation							
GIS based flood hazard	Yes						
GIS model for Land Use and its Development				Yes			

4.f **Identify Companies / Industries which use the knowledge of the subject and thus may provide Internships and final Placements**

Name of the Company	To be / Contacted for		
	Student Internship	Student Final Placement	Faculty Internship
Heremaps	-	Yes	-
Seemaps	Yes	-	-

4.g **Identify suitable relevant TOP Guest Speakers from Industry**
(CS50 Lecture by Mark Zuckerberg - 7 December 2005 - YouTube)

Name of the Identified Guest Speaker	Designation	Name of the Company
Mr. Michael Hembrom https://www.linkedin.com/in/michael-hembrom-97669567/	District GIS Expert	Panchayat & Rural Development, Govt. of Assam
Ms Indrayani Nishane https://www.linkedin.com/in/indrayani-nishane-188a8a32/?originalSubdomain=in	Pursuing Ph.D., IIT Bombay	IIT Bombay
Pradip Prasad https://www.linkedin.com/in/pradipkraze/	Senior Consultant	PwC

4.h **Identify relevant Technical competitions to participate [Competitions -Paper Presentations, Projects, Hackathons, IVs etc..]**

Name of the Relevant Technical Competition Identified to participate	Organized by	Date of the Event
Mapping Contest https://www.giscolorado.org/mapping-contest/	GIS OLorado	Entries must be submitted by midnight on April 19, 2024.
Esri User Conference https://www.esri.com/en-us/about/events/uc/get-involved/call-for-presentations	ESRI	June 2024

4.i **Identify faculty in TOP schools / Universities who are teaching same / similar subject and develop rapport e.g. Exchange Lecture Material (Assignments / Tests / Project etc..), Joint Paper Publication**

University	Name of the Course	Name of Faculty	Type of Collaboration		
			Exchange of Lecture Material	Joint Publication/ Research	Other
University of California	Geographic Information Systems (GIS) Specialization	Nick Santos	-	-	Coursera Course
IIT	GIS	Prof. Arun Saraf	-	-	NPTEL Course

4.j **Module Best Available in - Title best resource [from *4.a* to *4.d* in this AAP] & give details**

Module No.	Title of the Module	Web Link	Mention the Tile			
			Journal	E-Journal	Magazine	Other Resource
1	A Gentle Introduction to GIS, Geographic Information and Spatial Database	https://nptel.ac.in/courses/105102015	-	-	-	GIS and Geo Information
2	Data Management and Processing Systems	Computers & Geosciences | Journal | ScienceDirect.com by Elsevier	-	Data Processing	-	-
3	Spatial referencing and Positioning Data Entry and Preparation	https://www.safe.com/what-is/spatial-data/	Spatial Data	-	-	-
4	Spatial Data Analysis	IJGI | Special Issue : Spatial Data Science (mdpi.com)	-	-	Spatial Data Science	-
5	Data Visualization	Journal of Geovisualization and Spatial Analysis | Home (springer.com)	GeoVisualization	-	-	-

4.k **Referred to any top-rated university in that subject for content**

University	Name of the Course	Name of Faculty	Date of Delivery of the Course	Remarks
University of California	Geographic Information Systems (GIS) Specialization	Nick Santos	Online registration	Paid course with certificate

4.l **Faculty received any certification related to this subject. List of Certifications Identified / Done**

Course	Certifying Agency	No. of Hours	Level of the Course		Certification		Remarks
			Introductory	Advance Skill Development	Done on	Proposed to be on	
GIS	Spoken Tutorials	1 week	Yes	-	1st April 2021	-	Certified
GIS	NPTEL	12 weeks	Yes	Yes	Jan-Apr 2021	-	Certified
GIS	ISRO	1 week	-	Yes	07-12-2020, Jun 2014	-	Certified

4.m **Completed subject wise/cluster wise training with cluster mentor. List of relevant Refresher Course Identified / Done**

Course	Certifying Agency (As suggested by DAB/Cluster Mentor/Industry/ University other than MU)	Certification		Remarks
		Done on	Proposed to be on	
Pedagogy	MHRD Orientation Programme	10th Dec 2020	-	Certified
PBL	ISRO	07th Dec 2020	-	Certified
Sub. Content Training	NPTEL	Jan-Apr 2021	-	Certified

4.n **Best Practices Identified and adopted**

No.	Item	Best Practices Identified		
		University of California, https://in.coursera.org/specializations/gis	Cranfield University https://www.cranfield.ac.uk/courses/taught/geographical-information-	University of Manchester https://www.manchester.ac.uk/study/masters/courses/list/

			management?gclid=Cj0KCQiA99ybBhD9ARIsALvZavU-lO1enUhuzmspsJj-X_R46ke-h1vBpGBUnD0Hnq_h-UpQGGo-BpgaAgK0EALw_wcB#Coursedetails	07053/msc-geographical-information-science/
1	Microsite	-	-	-
2	Video Lectures	Yes	Yes	Yes
3	Assignments	Yes	Yes	Yes
4	Mini Project	Yes	Yes	Yes
5	Assessment Metric	-	Yes	Yes
6	Quizzes	Yes	Yes	Yes
7	Labs/ Practical (PBL)	Yes	Yes	Yes
8	Tests	Yes	Yes	Yes
9	Peer Assessment	-	-	Yes
10	Any Other	-	-	-

4.o Web Links for Online Notes/YouTube/VSIT Digital Content/VSIT Lecture Capture/NPTEL Videos

Students can view lectures by VSIT professors, captured through LMS 'Lecture Capture' in VSIT campus for previous years.

No.	Websites / Links	Module Nos.
1	Introduction to GIS: https://www.youtube.com/watch?v=lSiBu_4i-8I&list=PL9P1J9q3_9fOP3VGEENdHltx-E0XNZugJ	Unit 1
2	Geographic Information: https://www.youtube.com/watch?v=jfD5fYtQ11k	Unit 1
3	Spatial Referencing and Positioning: https://www.youtube.com/watch?v=OQq0VG3Iars	Unit 3
4	Spatial Database: https://www.youtube.com/watch?v=6JAoYI-IfkQ&list=PL9P1J9q3_9fOP3VGEENdHltx-E0XNZugJ&index=7	Unit 1
5	Data Visualization: https://www.youtube.com/watch?v=LoOTAvwRpSo&list=PL9P1J9q3_9fOP3VGEENdHltx-E0XNZugJ&index=12	Unit 5
6	Data Management: https://www.youtube.com/watch?v=Pbe8CxVDoeQ	Unit 2
7	Data Management: https://www.youtube.com/watch?v=nYJo1d-SWas	Unit 2
8	Geographic Information Systems: http://www.ncgia.ucsb.edu/giscc/	Unit1,2,3,4,5

4.p Recommended MOOC Courses like Coursera / NPTEL / MIT-OCW / edX/VAC etc.

Sr. No.	MOOC Course Link	Course conducted by – Person / University / Institute / Industry	Course Duration	Certificate (Y / N)
1	Geographic Information Systems	Spoken Tutorials, IITB	1 week	Y
2	Geographic Information Systems	NPTEL	12 Weeks	Y

5 Consolidated Course Lesson Plan

	From (date/month/year)	From (date/month/year)	Total Number of Weeks
Semester Duration	18-12-2023	December 2023	15

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
1	1	1	A Gentle Introduction to GIS: The nature of GIS: Some fundamental observations, Defining GIS		1		Reference 1/1/25
	2	1	GISystems, GIScience and GIApplications, Spatial data and Geoinformation		1		Reference 1/1/43
	3	1	The real world and representations of it: Models and modelling		1		Reference 1/1/49
	4	1	Maps, Databases,		1		Reference 1/1/51
2	Self-study	1	Spatial databases and spatial analysis		1		Reference 1/1/55
	5	1	Geographic Information and Spatial Database Models and Representations of the real world, Geographic Phenomena: Defining geographic phenomena,		1		Reference 1/2/63
	6	1	Types of geographic phenomena, Geographic fields, types of geographic phenomena, Geographic fields,		1		Reference 1/2/69

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	7	1	Computer Representations of Geographic Information: Regular tessellations, irregular tessellations,		1		Reference 1/2/85
3	8	1	**Vector representations, Topology and Spatial relationships,** Scale and Resolution		1		Reference 1/2/91
	Self-study	1	Representation of Geographic fields, Representation of Geographic objects,		1		Reference 1/2/124
	9	1	Organizing and Managing Spatial Data, The Temporal Dimension		1		Reference 1/2/126
	10	1	Unit 1 End Assessment, Written, Viva		1		
4	11	1	Unit 1 End Assessment, Written, Viva		1		
	12	2	**Data Management and Processing Systems, Hardware and Software Trends, Geographic Information Systems:** GIS Software, GIS Architecture and functionality, Spatial Data Infrastructure (SDI)		2		Reference 1/3/142
	13	2	**Stages of Spatial Data handling:** Spatial data handling and preparation, Spatial Data Storage and maintenance, Spatial Query 2and Analysis, Spatial Data Presentation.		2		Reference 1/3/148
	Self-study	2	**Database management Systems:** Reasons for using a DBMS, Alternatives for data management,		2		Reference 1/3/158
5	Self-study	2	The relational data model,		2		Reference 1/3/179

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	14	2	Querying the relational database.		2		Reference 1/3/158
	15	2	**GIS and Spatial Databases:** Linking GIS and DBMS, Spatial database functionality.		2		Reference 1/3/179
	16	2	Unit 2 End Assessment, Pop Quiz, viva		2		
6	17	2	Unit 2 End Assessment, Pop Quiz, viva		2		
	18	3	**Spatial Referencing and Positioning, Spatial Referencing:** Reference surfaces for mapping, Coordinate Systems,		3		Reference ¼/192
	19	3	Map Projections, Coordinate Transformations,		3		Reference ¼/217
	Self-study	3	**Satellite-based Positioning:** Absolute positioning,		3		Reference ¼/236
7	20	3	Errors in absolute positioning,		3		Reference ¼/246
	21	3	Relative positioning, Network positioning		3		Reference ¼/254
	22	3	Code versus phase measurements, Positioning technology		3		Reference ¼/257
	23	3	**Data Entry and Preparation** **Spatial Data Input:** Direct spatial data capture,		3		Reference 1/5/272
8	24	3	Indirect spatial data capture, Obtaining spatial data elsewhere		3		Reference ¼/274

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	25	3	**Data Quality:** Accuracy and Positioning,		3		Reference ¼/285
	26	3	Positional accuracy, Attribute accuracy		3		Reference ¼/287
	27	3	Temporal accuracy, Lineage, Completeness, Logical consistency		3		Reference ¼/300
9	28	3	**Data Preparation:** Data checks and repairs,		3		Reference 1/5/305
	Self-study	3	Combining data from multiple sources		3		Reference 1/5/312
	29	3	**Point Data Transformation:** Interpolating discrete data,		3		Reference 1/5/320
	30	3	Interpolating continuous data		3		Reference 1/5/325
10	31	3	Unit 3 End Assessment, Written, Viva		3		
	32	3	Unit 3 End Assessment, Written, Viva		3		
	33	4	**Spatial Data Analysis, Classification of analytical GIS Capabilities** **Retrieval, classification and measurement:** Measurement, Spatial selection queries, Classification		4		Reference 1/6/342
	34	4	**Overlay functions:** Vector overlay operators, Raster overlay operators		4		Reference 1/6/377
11	35	4	**Neighbourhood functions:** Proximity computations, Computation of diffusion		4		Reference 1/6/395

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	36	4	Flow computation, Raster based surface analysis		4		Reference 1/6/403
	Self-study	4	**Analysis:** Network analysis, interpolation,		4		Reference 1/6/415
	37	4	terrain modelling		4		Reference 1/6/415
12	38	4	**GIS and Application models:** GPS, Open GIS Standards, GIS Applications and Advances		4		Reference 1/6/424
	Self-study	4	**Error Propagation in spatial data processing**		4		Reference 1/6/429
	39	4	How Errors propagate		4		Reference 1/6/429
	40	4	Quantifying error propagation		4		Reference 1/6/434
13	41	4	Unit 4 End Assessment, Poster Presentation, Viva		4		
	42	4	Unit 4 End Assessment, Poster Presentation, Viva		4		
	43	5	**Data Visualization, GIS and Maps, The Visualization Process, Visualization Strategies: Present or explore**		5		Reference 1/7/414
	44	5	**The cartographic toolbox:** What kind of data do I have? How can I map my data?		5		Reference 1/7/463
14	45	5	**How to map?** How to map qualitative data,		5		Reference 1/7/466

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	Self-study	5	How to map quantitative data,		5		Reference 1/7/470
	Self-study	5	How to map the terrain elevation,		5		Reference 1/7/477
	46	5	How to map time series		5		Reference 1/7/485
	47	5	**Map Cosmetics,**		5		Reference 1/7/485
	48	5	**Map Dissemination, Revision**		5		Reference 1/7/487
	49	5	Unit 5 End Assessment, MOOC, Viva		5		
	50	5	Unit 5 End Assessment, MOOC, Viva		5		

6 Rubric for Grading and Marking of Term Work (inform students at the beginning of semester)

Lecture + Practical (% of class participation) & Marks	Assign-ments	Tutorial	Lab / Practical Performance	Lab Journal Assessment	Class Tests (Other than IA)	Other (1) specify	Other (2) specify	Total
75% Attendance, Active Participation – 10 Marks		-	Practical Submission (100 Marks) Final Practical Exam – 40 Marks	05 + 05 (Viva)	IA 1 - 30 Marks, IA 2 – 30 Marks Scaled to 15 Marks	-	75	150

7 Assignments / Tutorials Details

Assignment/ Tutorial No.	Title of the Assignments / Tutorials	CO Map	Assignment/ Tutorials given to Students on	Week of Submission
1	Open Book Test	1	2nd week	3rd week
2	Quiz	2	3rd Week	4th Week
3	Mini Project	3	5th Week	6th Week
4	Certificate	4	8th Week	9th Week
5	Written Assignment	5	9th Week	10th Week

Analysis of Assignment / Tutorial Questions and Related Resources

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		R	PQ	OBT		Text Book	Reference Book	Other Learning Resource	MU EQ	Thought Provoking
1	3	√			1		√		2	2
2	10	√			3		√		2	2

* Tick (√) the Type of the Assignment: Regular (R); Pop Quiz (PQ) ; Open Book Test for TE/BE/ME (OBT)
# Write number for text book, reference book, other learning resource from this AAP – *from Points 4.a to 4.d*

8 Internal Assessment / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	IA Question Paper Pattern	Policy
1st IA Test	9th week	1, 2, 3	1, 2, 3	Q1 – 10 Marks Q2 – 10 Marks Q3 – 10 Marks	No IA Re-test IA is a Head of passing *
2nd IA Test	-	-	-		
Pop Quiz	5th Week	2	2	MS Teams	-
Open Book Test	-	-	-	-	-

Take Home Test	-	-	-	-	-
Class tests / prelims	-	-	-	-	-
Class tests / prelims					
Any other test/exams					

*** Failures of IA test (IA1+IA2) shall appear for IA test in the next semester. There is no provision for re-test in the same semester.**

9.a Practical Activities

Practical No.	Module No.	Title of the **Experiments**	Type of Experiment		Topics to be highlighted	CO Map
			PBL	Newly Added		
1	1	Familiarizing Quantum GIS: Installation of QGIS, datasets for both Vector and Raster data, Maps., Analysis	Yes	Yes	Installation of QGIS	CO1
2	1	Creating and Managing Vector Data: Adding vector layers, setting properties, formatting, calculating line lengths and statistics	Yes		Vector Data	CO1
3	3	Making a Map, Working with Attributes, Importing Spreadsheets or CSV files Using Plugins, Searching and Downloading OpenStreetMap Data	Yes		Making a Map with Attributes	CO3
4	4	Working with attributes, terrain Data	Yes		terrain Data	CO4
5	4	Working with Projections and WMS Data	Yes		WMS Data	CO4
6	3	Georeferencing Topo Sheets and Scanned Maps Georeferencing Aerial Imagery Digitizing Map Data,	Yes		Georeferencing Topo Sheets	CO3
7	3	Managing Data Tables and Spatial data Sets: Table joins, spatial joins, points in polygon analysis, performing spatial queries	Yes		Spatial data Sets	CO3
8	3	Advanced GIS Operations 1: Nearest Neighbour Analysis, Sampling Raster Data using Points or Polygons, Interpolating Point Data	Yes		Sampling Raster Data	C03
9	5	Advance GIS Operations 2: Batch Processing using Processing Framework Automating Complex Workflows using Processing Modeller Automating Map Creation with Print Composer Atlas	Yes		Batch Processing	CO5
10	5	Validating Map data	Yes		Validating Map	CO5
11	5	Making a Map of your Residential Area and calculating Basic Statistics		Yes	Vector Data	CO5

10 Beyond Syllabus Activities for Gap Mitigation

No.	Type of the Activity	Activities	Number of beneficiaries	Other Details – guest profile, feedback, mark sheet, report

1	**Experiential learning/Interaction with Outside World**	1- Guest Lectures by Industry Expert	Yes – 120	https://www.linkedin.com/in/michael-hembrom-97669567/
		2- Workshops	120	Pradip Prasad https://www.linkedin.com/in/pradipkraze/
		3- Mini Project	-	-
		4- Industrial Visit	100	India Meteorological Department
		5- Any other activity	MOOC – 300	https://spoken-tutorial.org/tutorial-search/?search_foss=QGIS&search_language=English
2	**Collaborative & Group Activity**	6- Poster Presentation	Yes – 300	Digital Poster Making Competition
		7- Minute Papers		-
		8- Students Seminars		-
		9- Students Debates		-
		10- Panel Discussion / Mock GD		-
		11- Mock Interview		-
		12- Any other activity		-
3	**Co-Curricular Activity**	13- Informative videos (NPTEL/Youtube /TEDx/ MIT OW/edX)	Yes	https://nptel.ac.in/courses/107105088
		14- Lecture Capture Usage	-	-
		15- Any other activity	-	-
4	**Tests & Assessments**	16- Class Tests/ Weekly Tests	-	-
		17- Pop Quiz	Yes	MS Teams

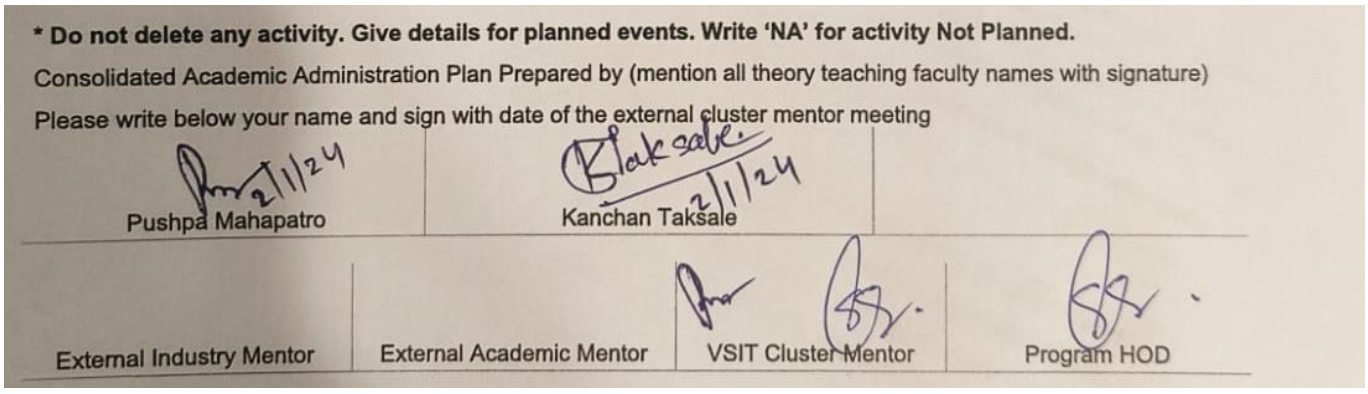
		18- Mobile App Based Quiz	-	-
		19- Open Book Test	150	Yes
		20- Take Home Test	-	-
		21- Any other activity	-	-

11.1 One-on-One Academic Mentoring Meetings done

No.	Name of Mentee	Date of One-On-One Meeting		
		Beginning of Sem.	After Mid Term Results	Before End Sem.
1				

11.2 Identify concerns and refer appropriately

No.	Name of Mentee	Action Taken		
		Individual Goals Identified	Any Financial Concern which needs to be referred to	Any Emotional Concern to be referred to
1				



VSIT
Vidyalankar School of Information Technology

Version 05/22-8

Consolidated Academic Administration Plan for the Course

USDS605b, Healthcare Analytics – Sem. VI
B.Sc. (Data Science) – 2023-2024 – Even Semester
Ms. Pushpa Mahapatro

The academic resources available in VSIT –

VMIS (ERP)	V-Refer and V-Live	VSIT Library	VAC & MOOC Courses
Institute & Department Vision and Mission	Former IA question papers and solutions (prepared by faculty)	Former IA question papers solutions - hardcopy	Value Added Courses (VAC) are conducted throughout the semester & in the semester break - Enrol for the VACs
Program Educational Objectives (PEO)	MU end semester examination question papers and solutions (prepared by faculty)	MU end semester exam question paper & solutions - by faculty, hardcopy	
Program Specific Outcome (PSO)	Class notes and Digital Content for the subject (scanned / typed by faculty)	All text books, reference books, e -books mentioned in the syllabus & AAP	Online courses from NPTEL, Coursera etc. are pursued throughout the semester - Register for the course & get certified
Program Outcome (PO)	Comprehensive question bank, EQ, GQ, PPT, Class Test papers	Technical journals and magazines for reference	
Departmental Knowledge Map	Academic Administration Plan & Beyond Syllabus Activity report	VSIT library is member of IIT Bombay Library	Watch former lectures captured in LMS at VSIT

1.a Course Objectives (Write in detail – as per NBA guidelines)

Cognitive	What do you want students to know?	To learn basics about Healthcare Analytics. To understand the attributes of Electronic Medical Record to learn about Computing Foundation.
Affective	What do you want students to think / care about?	To understand Measuring Techniques of Healthcare Quality. To learn about Making Predictive Models in Healthcare.
Behavioural	What do you want students to be able to do?	To know about Various Healthcare Predictive Models and learn about Healthcare and Emerging Technologies.

Advice to Students:

Attend every class!!! Missing even one class can have a substantial effect on your ability to understand the course. Be prepared to think and concentrate, in the class and outside. I will try to make the class very interactive. Participate in the class discussions. Ask questions when you don't understand something. Keep up with the class readings. Start assignments and homework early. Meet me in office hour to discuss ideas, solutions or to check if what you understand is correct.

v-Refer Link for this course is given below-

http://live.vsit.edu.in/vrefer

Collaboration Policy:

We encourage discussion between students regarding the course material. However, no discussion of any sort is allowed with anyone on the assignment and homework for the class. If you find solution to some problems in a book or on the internet, you may use their idea for the solution; provided you acknowledge the source (name and page in the book or the website, if the idea is found on the internet). Even though you are allowed to use ideas from another source, you must write the solution in your own words. If you are unsure whether or not certain kinds of collaboration is possible, please ask the teacher.

1.b Course Outcome (CO) Statements and Module-Wise Mapping (follow NBA guideline)

CO No.	Statements	Related Module/s
CO1	Remember and relate Healthcare Analytic basics.	Unit 1
CO2	Understand and Experiment with the attributes of Electronic Medical Record to learn about Computing Foundation.	Unit 2
CO3	Apply and Evaluate Measuring Techniques of Healthcare Quality.	Unit 3
CO4	Design and Build Predictive Models in Healthcare.	Unit 4
CO5	Discuss and Modify Various Healthcare Predictive Models and learn about Healthcare and Emerging Technologies.	Unit 5

1.c **Mapping of COs with POs (mark S: Strong, M: Moderate, W: Weak, Dash '–': not mapped)**
(List of POs is available in V-refer)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	2	3	3	2		3		2				
CO 2	2	2	3	2		2		2		1		
CO 3	3	2	3	2	2	2		2				
CO 4	2	2	3	2	2	3		2				
CO 5	1	2	3	2	3	3		2				

1.d **Mapping of COs with PSOs (mark S: Strong, M: Moderate, W: Weak, Dash '–':not mapped)**

	PSO 1	PSO 2	PSO 3	PSO 4
CO 1				
CO 2				
CO 3				
CO 4				
CO 5				

1.e Teaching and Examination Scheme (As specified by the University) for the Course

Categories	Humanities and Social Sciences	Basic Science	Engineering Science	Professional Core	General Education	Professional Elective	Project/ Internship	Open Elective
Tick suitable category		✓						

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW/Practical	Tutorial	Total
USDS605b	Healthcare Analytics	75	-	25	2	-	-	2

Subject Code	Subject Name	Examination Scheme							
		Theory Marks IA Test			End Sem. Exam Marks	TW	Practical	Oral	Total
		IA 1	IA 2	Average of IA1 and IA2					
USDS605b	Healthcare Analytics	20 (Scaled to 15)	-	-	75	10	-	-	100

1.f Faculty-Wise Distribution of all Lecture-Practical-Tutorial Hours for the Course

Divisions	Lecture (Hrs.)	Practical (Hrs.)				Tutorial (Hrs.)			
		Batch 1	Batch 2	Batch 3	Batch 4	Batch 1	Batch 2	Batch 3	Batch 4
Div A	NA	NA	NA	NA	NA	N.A.	N.A.	N.A.	N.A.

1.g Office Hours (Faculty will be available in office in this duration for solving students' query)

Division	Day	Time (at least 1 Hr. / Division)	Venue (Office Room No.)
Div A	Friday	2:30 pm to 3:30 pm	Discussion Room

2.a Syllabus : Module Wise Teaching Hours and % Weightage in University Question Paper

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in University Question Papers
1	Introduction to Healthcare Analytics	10 lectures x60min	20
2	Electronic Medical Record-2	10 lectures x60min	20
3	Measuring Healthcare Quality	10 lectures x60min	20
4	Making Predictive Models in Healthcare	10 lectures x60min	20

5	Healthcare Predictive Models	10 lectures x60min	20
* Insert rows for more modules in the Course	**Total**	**50 lectures X 60 Minutes**	**100**

2.b Prerequisite Courses

No.	Semester	Name of the Course	Topic/s
		-	

2.c Relevance to Future Courses

No.	Semester	Name of the Course
1	V, VI	Project For TY B. Sc. DS

2.d Identify real life scenarios/examples which uses the knowledge of the subject (Discussion on how to prepare examples and case studies e.g. "Boeing Plane": C Programming Language – Intro to Computer Science – Harvard's CS50 (2018) – Bing video)

Real Life Scenario	Concept Used
Reducing Hospital Bills	Predictive Analytics
Population Health Management	Identify trends
Supply Chain Optimization	Hospital system challenges
Patient Experience Improvement	Employ analytics to gather patient feedback, sentiments, and satisfaction scores
Operational Efficiency in Emergency Departments	emergency department is struggling with long wait times and overcrowding

3 Past Results – Division-Wise

Details	Target – Apr 2024	Apr 2023	Apr 2022	Apr 2021
Course Passing % – Average of 4 Divisions	90	NA	NA	NA
Marks Obtained by Course Topper (mark/100)	95	NA	NA	NA

	Div A		Div B		Div C		Div D		Div E		Div F	
Year	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result
Apr 2023	-	-	-	-	-	-	-	-	-	-	-	-

4 All the Learning Resources – Books and E-Resources

4.a List of Text Books (T – Symbol for Text Books) to be Referred by Students

Sr. No	Text Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Healthcare Analytics: Foundations and Frontiers	Ross M. Mullner Edward M. Rafalski	T&F / Routledge	1st	1 to 5

4.b List of Reference Books (R – Symbol for Reference Books) to be Referred by Students

Sr. No	Reference Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Healthcare Analytics Made Simple	Vikas Kumar	Packt Publishing	1st	1 to 5
2	Hands-On Healthcare Data	Andrew Nguyen	Shroff / O'Reilly	1st	3, 4
3	AI-First Healthcare: AI Applications	Kerrie L. Holley	Shroff / O'Reilly	1st	4, 5
4	Healthcare Data Analytics	Chandan K. Reddy, Charu C. Aggarwal	Chapman and Hall/CRC	1st	1 to 5

4.c List of E - Books (E – Symbol for E-Books) to be Referred by Students

Sr. No	E- Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Healthcare Analytics Made Simple	Vikas Kumar	Packt Publishing	1st	1 to 5
2	Hands-On Healthcare Data	Andrew Nguyen	Shroff / O'Reilly	1st	3, 4
3	AI-First Healthcare: AI Applications	Kerrie L. Holley	Shroff / O'Reilly	1st	4, 5
4	Healthcare Data Analytics	Chandan K. Reddy, Charu C. Aggarwal	Chapman and Hall/CRC	1st	1 to 5

4.d Reading latest / top rated research papers (at least 5 papers)

Name of Paper	Name of Authors (Background)	Published in		Problem Statement
		Date	Journal	
Healthcare analytics—A literature review and proposed research agenda https://www.frontiersin.org/articles/10.3389/fdata.2023.1277976/full	Rawan Elragal, Ahmed Elragal, Abdolrasoul Habibipour	2023	Yes	Introduction to Healthcare Analytics
Electronic Health Records (EHR), https://www.researchgate.net/publication/267226700_Electronic_Health_Records_EHR	Dr. Tom Joseph Seymour, Dean Frantsvog, Tod Graeber	2021	Yes	Electronic Medical Record-2
Measuring healthcare quality, https://www.ncbi.nlm.nih.gov/books/NBK549260/	Wilm Quentin, Veli-Matti Partanen, Ian Brownwood, and Niek Klazinga	2021	Yes	Measuring Healthcare Quality
Predictive Analytics for Predicting Customer Behavior, https://ieeexplore.ieee.org/document/8834571	Kridanto Surendro	2019	Yes	Making Predictive Models in Healthcare
Predictive Modeling in Medicine, https://www.mdpi.com/2673-8392/3/2/42	Milan Toma, Ong Chi Wei	2023	Yes	Healthcare Predictive Models

4.e Based on research paper an identify the current Problem statement

Problem Statement			Used in				
	Quiz	Assignment	Lab	Mini Project	Poster Presentation	Test	Any Other
Introduction to Healthcare Analytics		Yes					
Electronic Medical Record-2	Yes						
Measuring Healthcare Quality			Yes				
Making Predictive Models in Healthcare						Yes	
Healthcare Predictive Models					Yes		

4.f **Identify Companies / Industries which use the knowledge of the subject and thus may provide Internships and final Placements**

Name of the Company	To be / Contacted for		
	Student Internship	Student Final Placement	Faculty Internship
CitiusTech, Mumbai	-	Yes	-

4.g **Identify suitable relevant TOP Guest Speakers from Industry**
(CS50 Lecture by Mark Zuckerberg - 7 December 2005 - YouTube)

Name of the Identified Guest Speaker	Designation	Name of the Company
Sania Fageria, https://www.linkedin.com/in/saniafageria/	Healthcare Business Analyst - II	CitiusTech, Mumbai

4.h **Identify relevant Technical competitions to participate [Competitions -Paper Presentations, Projects, Hackathons, IVs etc..]**

Name of the Relevant Technical Competition Identified to participate	Organized by	Date of the Event

4.i **Identify faculty in TOP schools / Universities who are teaching same / similar subject and develop rapport e.g. Exchange Lecture Material (Assignments / Tests / Project etc..), Joint Paper Publication**

University	Name of the Course	Name of Faculty	Type of Collaboration		
			Exchange of Lecture Material	Joint Publication/ Research	Other
Coursera	AI in Healthcare Specialization	Matthew Lungren	-	-	https://www.coursera.org/specializations/ai-healthcare

4.j Module Best Available in - Title best resource [from *4.a* to *4.d* in this AAP] & give details

Module No.	Title of the Module	Web Link	Mention the Tile			
			Journal	E-Journal	Magazine	Other Resource
1	Introduction to Healthcare Analytics	https://dmkd.cs.vt.edu/papers/HDA-intro.pdf	Yes			
2	Electronic Medical Record-2	https://digital.ahrq.gov/electronic-medical-record-systems	Yes	Yes		
3	Measuring Healthcare Quality	https://www.ncbi.nlm.nih.gov/books/NBK549260/			Yes	
4	Making Predictive Models in Healthcare	https://academic.oup.com/jamia/article/28/6/1149/6045012			Yes	
5	Healthcare Predictive Models	https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-020-01874-6	Yes	Yes		

4.k Referred to any top-rated university in that subject for content

University	Name of the Course	Name of Faculty	Date of Delivery of the Course	Remarks
Standford University	AI in Healthcare Specialization	Matthew Lungren	Online, Self-paced	

4.l Faculty received any certification related to this subject. List of Certifications Identified / Done

Course	Certifying Agency	No. of Hours	Level of the Course		Certification		Remarks
			Introductory	Advance Skill Development	Done on	Proposed to be on	
Python for Data Science	NPTEL	4 weeks		Y	Y		Certified

4.m Completed subject wise/cluster wise training with cluster mentor. List of relevant Refresher Course Identified / Done

Course	Certifying Agency (As suggested by DAB/Cluster Mentor/Industry/	Certification		Remarks
		Done on	Proposed to be on	

	University other than MU)			
Pedagogy	MHRD Orientation Programme	10th Dec 2020	-	Certified
PBL				
Sub. Content Training	Python for Data Science	Nov 2020		Certified

4.n Best Practices Identified and adopted

No.	Item	Best Practices Identified		
		Standford University	Upgrad	Greatlearning
1	Microsite	-	-	-
2	Video Lectures	Yes	Yes	Yes
3	Assignments	Yes	Yes	Yes
4	Mini Project	Yes	Yes	Yes
5	Assessment Metric	-	Yes	-
6	Quizzes	Yes	Yes	Yes
7	Labs/ Practical (PBL)	Yes	Yes	Yes
8	Tests	Yes	Yes	Yes
9	Peer Assessment	-	-	Yes
10	Any Other	-	-	-

4.o Web Links for Online Notes/YouTube/VSIT Digital Content/VSIT Lecture Capture/NPTEL Videos

Students can view lectures by VSIT professors, captured through LMS 'Lecture Capture' in VSIT campus for previous years.

No.	Websites/ Links	Module Nos.
1	Introduction to Healthcare Analytics	1
2	Electronic Medical Record-2	2
3	Measuring Healthcare Quality	3
4	Making Predictive Models in Healthcare	4
5	Healthcare Predictive Models	5

4.p Recommended MOOC Courses like Coursera / NPTEL / MIT-OCW / edX/VAC etc.

Sr. No.	MOOC Course Link	Course conducted by – Person / University / Institute / Industry	Course Duration	Certificate (Y / N)
1	AI in Healthcare https://www.coursera.org/specializations/ai-healthcare	Coursera	1 month	Y

5 Consolidated Course Lesson Plan

	From (date/month/year)	From (date/month/year)	Total Number of Weeks
Semester Duration	Jan 2024	Apr 2024	15

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
1	1	1	Subject Induction		1	1	
1	2		**Introduction to Healthcare Analytics:** What is healthcare analytics? Healthcare analytics uses advanced computing technology, Healthcare analytics acts on the healthcare industry,		1	2	1/1/1
1	3		Healthcare analytics improves medical care, Foundations of healthcare analytics, Healthcare, Mathematics, Computer science,		1	3	1/1/1
1	4		History of healthcare analytics, Examples of healthcare analytics, Using visualizations to elucidate patient care,		1	4	1/1/1
2	5		Predicting future diagnostic and treatment events, Measuring provider quality and performance, Patient-facing treatments for disease		1	5	1/1/1
2	6		**Healthcare Foundations**: Healthcare delivery, Healthcare industry basics, Healthcare financing, Healthcare policy		1	6	2/1/1
2	7		**Electronic Medical Record-1**: The history and physical, Metadata and chief complaint, History of the present illness, Past medical history,		1	7	3/1/1
2	8		Medications, Family history, Social history, Allergies, Review of systems, Physical examination, Additional objective data (lab tests, imaging, and other diagnostic tests), Assessment and plan		1	8	3/1/1
3	9		Assignment on Unit 1		1	9	1/1/1
3	10		Assignment on Unit 1		1	10	1/1/1
3	11	2	**Electronic Medical Record-2:** The progress (SOAP) clinical note, Standardized clinical codesets, International Classification of Disease (ICD),		1	11	5/1/1
3	12		Current Procedural Terminology (CPT), Logical Observation Identifiers Names		1	12	5/1/1

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
			and Codes (LOINC), National Drug Code (NDC),				
4	13		Systematized Nomenclature of Medicine Clinical Terms (SNOMED-CT), Breaking down healthcare analytics, Population,		1	13	5/1/1
4	14		Medical task, Data format, Disease Machine Learning Foundations : Model frameworks for medical decision making,		1	14	5/1/1
4	15		Tree-like reasoning, Probabilistic reasoning and Bayes theorem, Criterion tables and the weighted sum approach, Pattern association and neural networks,		2	15	5/1/1
4	16		Machine learning pipeline, Loading the data, Cleaning and preprocessing the data, Exploring and visualizing the data, Selecting features,		2	16	5/1/1
5	17		Training the model parameters, Evaluating model performance Computing Foundations : Introduction to databases, Data engineering with SQL,		2	17	5/1/1
5	18		Case details : Predicting mortality for a cardiology practice, Starting an SQLite session, Data engineering, one table at a time with SQL		2	18	5/1/1
5	19		Assignment 1 on Unit 2		2	19	5/1/1
5	20		Assignment 1 on Unit 2		2	20	5/1/1
6	21	3	**Measuring Healthcare Quality:** Introduction to healthcare measures, US Medicare value-based programs,		2	21	6/1/1
6	22		The Hospital Value-Based Purchasing (HVBP) program, Domains and measures, The clinical care domain,		2	22	6/1/1
6	23		The patient- and caregiver-centered experience of care domain, Safety domain, Efficiency and cost reduction domain, The Hospital Readmission Reduction (HRR) program,		2	23	6/1/1
6	24		The Hospital-Acquired Conditions (HAC) program, The healthcare-acquired infections domain, The patient safety domain, The End-Stage Renal Disease (ESRD) quality incentive program,		2	24	6/1/1
7	25		The Skilled Nursing Facility Value-Based Program (SNFVBP), The Home Health Value-Based Program (HHVBP), The Merit Based Incentive Payment System (MIPS), Quality,		3	25	6/1/1

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
7	26		Advancing care information, Improvement activities, Cost, Other value-based programs, The Healthcare Effectiveness Data and Information Set (HEDIS), State measures, Comparing dialysis facilities using Python,		3	26	6/1/1
7	27		Downloading the data, Importing the data into your Jupyter Notebook session, Exploring the data rows and columns,Exploring the data geographically, Displaying dialysis centers based on total performance,		3	27	6/1/1
7	28		Alternative analyses of dialysis centers, Comparing hospitals, Downloading the data, Importing the data into your Jupyter Notebook session, Exploring the tables, Merging the HVBP tables		3	28	6/1/1
8	29		Assignment on Unit 3		3	29	6/1/1
8	30		Assignment on Unit 3		3	30	6/1/1
8	31	4	**Making Predictive Models in Healthcare:** Introduction to predictive analytics in healthcare, Our modeling task predicting discharge statuses for ED patients, Obtaining the dataset,		3	31	7/1/1
8	32		The NHAMCS dataset at a glance, Downloading the NHAMCS data, Downloading the ED2013 file, Downloading the list of survey items, Downloading the documentation file, Starting a Jupyter session, Importing the dataset, Loading the metadata, Loading the ED dataset,		3	32	7/1/1
9	33		Making the response variable, Splitting the data into train and test sets, Preprocessing the predictor variables, Visit information, Month, Day of the week, Arrival time, Wait time, Other visit information, Demographic variables, Age, Sex, Ethnicity and race,		3	33	7/1/1
9	34		Other demographic information, Triage variables, Financial variables, Vital signs, Temperature, Pulse, Respiratory rate, Blood pressure, Oxygen saturation, Pain level, Reason-for-visit codes, Injury codes,		3	34	7/1/1
9	35		Diagnostic codes, Medical history, Tests, Procedures, Medication codes, Provider information,		4	35	7/1/1

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
9	36		Disposition information, Imputed columns, Identifying variables, Electronic medical record status columns, Detailed medication information, Miscellaneous information,		4	36	7/1/1
10	37		Final preprocessing steps, One-hot encoding, Numeric conversion, NumPy array conversion, Building the models		4	37	7/1/1
10	38		Logistic regression, Random forest, Neural network, Using the models to make predictions, Improving our models		4	38	7/1/1
10	39		Assignment on Unit 4		4	39	7/1/1
10	40		Assignment on Unit 4		4	40	7/1/1
11	41	5	**Healthcare Predictive Models:** Predictive healthcare analytics, Overall cardiovascular risk, The Framingham Risk Score,		4	41	8/1/1
11	42		Cardiovascular risk and machine learning, Congestive heart failure, Diagnosing CHF,		4	42	8/1/1
11	43		CHF detection with machine learning, Other applications of machine learning in CHF, Cancer,		5	43	8/1/1
11	44		What is cancer? ML applications for cancer, Important features of cancer, Routine clinical data, Cancer-specific clinical data, Imaging data, Genomic data, Proteomic data, breast cancer prediction,		5	44	8/1/1
12	45		Traditional screening of breast cancer, Breast cancer screening and machine learning, Readmission prediction, LACE and HOSPITAL scores, Readmission modelling, Other conditions and events		5	45	8/1/1
12	46		**Healthcare and Emerging Technologies:** Healthcare analytics and the internet, Healthcare and the Internet of Things,		5	46	8/1/1
12	47		Healthcare analytics and social media, Healthcare and deep learning, What is deep learning, briefly?		5	47	8/1/1
12	48		Deep learning in healthcare, Obstacles, ethical issues, and limitations, Obstacles, Ethical issues, Limitations		5	48	8/1/1
13	49		Assignment on Unit 5, MOOC		5	49	8/1/1
13	50		Assignment on Unit 5, MOOC		5	50	8/1/1

6 Rubric for Grading and Marking of Term Work (inform students at the beginning of semester)

Lecture + Practical (% of class participation) & Marks	Assign-ments	Tutorial	Lab / Practical Performance	Lab Journal Assessment	Class Tests (Other than IA)	Other (1) specify	Other (2) specify	Total
75% Attendance, Active Participation – 10 Marks		-	40 + 05	05	IA 1 - 20 Marks, Scaled to 15 Marks	-	-	100

7 Assignments / Tutorials Details

Assignment/ Tutorial No.	Title of the Assignments / Tutorials	CO Map	Assignment/ Tutorials given to Students on	Week of Submission
1	Introduction to Healthcare Analytics	1	4th Week	4th Week
2	Measuring Healthcare Quality	3	8th Week	8th Week

Analysis of Assignment / Tutorial Questions and Related Resources

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		R	PQ	OBT		Text Book	Reference Book	Other Learning Resource	MU EQ	Thought Provoking
1	4	√	-	-	1	1	1	-	4	4
3	8	-	-	-	3	1	1	-	-	4

* Tick (√) the Type of the Assignment: Regular (R); Pop Quiz (PQ) ; Open Book Test for TE/BE/ME (OBT)
# Write number for text book, reference book, other learning resource from this AAP – *from Points 4.a to 4.d*

8 Internal Assessment / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	IA Question Paper Pattern	Policy
1st IA Test	9th week	1, 2	1, 2	4 Questions – 20 Marks	No IA Re-test

2nd IA Test	-	-	-		IA is a Head of passing *
Pop Quiz	5th Week	2	2	MS Teams	-
Open Book Test	-	-	-	-	-
Take Home Test	-	-	-	-	-
Class tests / prelims	-	-	-	-	-
Class tests / prelims					
Any other test/exams					

*** Failures of IA test (IA1+IA2) shall appear for IA test in the next semester. There is no provision for re-test in the same semester.**

9.a Practical Activities

Practical No.	Module No.	Title of the **Experiments**	Type of Experiment		Topics to be highlighted	CO Map
			PBL	Newly Added		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

10 Beyond Syllabus Activities for Gap Mitigation

No.	Type of the Activity	Activities	Number of beneficiaries	Other Details – guest profile, feedback, mark sheet, report
1	**Experiential learning/Interaction with Outside World**	1- Guest Lectures by Industry Expert	Yes - 50	Sania Fageria, https://www.linkedin.com/in/saniafageria/
		2- Workshops	-	-
		3- Mini Project	-	-
		4- Industrial Visit		-
		5- Any other activity		-
2	**Collaborative & Group Activity**	6- Poster Presentation		-
		7- Minute Papers	Yes	Class Activity
		8- Students Seminars		-
		9- Students Debates		-
		10- Panel Discussion / Mock GD		-
		11- Mock Interview		-
		12- Any other activity		-
3	**Co-Curricular Activity**	13- Informative videos (NPTEL/Youtube /TEDx/ MIT OW/edX)	MOOC	Coursera
		14- Lecture Capture Usage	-	-
		15- Any other activity	-	-
4	**Tests & Assessments**	16- Class Tests/ Weekly Tests	-	Yes

		17- Pop Quiz	Yes	MS Teams
		18- Mobile App Based Quiz	-	-
		19- Open Book Test	-	-
		20- Take Home Test	-	-
		21- Any other activity	-	-

11.1 One-on-One Academic Mentoring Meetings done

No.	Name of Mentee	Date of One-On-One Meeting		
		Beginning of Sem.	After Mid Term Results	Before End Sem.
1				

11.2 Identify concerns and refer appropriately

No.	Name of Mentee	Action Taken		
		Individual Goals Identified	Any Financial Concern which needs to be referred to	Any Emotional Concern to be referred to
1				

*** Do not delete any activity. Give details for planned events. Write 'NA' for activity Not Planned.**

Consolidated Academic Administration Plan Prepared by (mention all theory teaching faculty names with signature)

Please write below your name and sign with date of the external cluster mentor meeting

Pushpa Mahapatro		

External Industry Mentor	External Academic Mentor	VSIT Cluster Mentor	Program HOD