MATHEMATICAL MODELING WITH EXCEL

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Mathematical Modeling with Excel	2	0	0	2	Class XII pass with Mathematics	NIL

Learning Objectives: The objective of this course is to introduce:

- The importance and significance of assumptions behind a mathematical model.
- The long–term behavior of discrete dynamical systems numerically and graphically.
- Monte Carlo simulations with real-life examples.
- Linear programming, transportation, assignment and traveling salesman problems.

Learning Outcomes: After completion of the course the learner will be able to:

- Understand the purpose and process of mathematical modeling.
- Model different scenarios with linear discrete dynamical systems.
- Formulate and solve LP, transportation and assignment problems using Excel Solver.

UNIT-I: Modeling with Proportionality and Geometric Similarity (20 hours)

Definition, purpose, process, assumptions, and examples of mathematical modeling; Charts in excel using given data, Modeling with proportionality: Population growth, Radioactive decay, and Free-falling object; Fitting straight lines analytically, Geometric similarity, and Linearizable models.

UNIT-II: Discrete-time Models (16 hours)

Discrete dynamical system concepts and examples; Long-term behavior and equilibria, Discrete logistic equation, Linear predator-prey model, SIR model of epidemics, SIS model.

UNIT-III: Simulations and Linear Optimization (24 hours)

Monte Carlo simulation: Flipping a coin, Area under a curve, Car dealership contest, and the birthday problem; Formulation of linear programming, transportation and assignment problems and their solutions using Excel Solver tool; Traveling salesman problem.

Essential Reading

1. Albright, Brian, & Fox, William P. (2020). Mathematical Modeling with Excel (2nd ed.). CRC Press, Taylor & Francis Group.

Suggested Reading

- Giordano, Frank R., Fox, William P., & Horton, Steven B. (2014). A First Course in Mathematical Modeling (5th ed.). CENGAGE Learning India.

Practical Exercises: Practical work to be performed using Excel spreadsheets for the modeling of the following type of problems:

- The data given below measures shoe length (to the nearest quarter of an inch) and height (to the nearest half inch) of ten persons, to determine if there is a relationship between shoe length and height of a person. Graph Height vs. Shoe Length and fit a straight line to the data. How well does this model fit the data?

Shoe Length	9	10	10.5	11	11.5	11.75	12	12.5	12.75	13
Height	62	64	64.5	69	70	73	72	75	74	77

- The table below contains the total length and weight of 10 black bears. Graph weight vs. length, fit different linearizable models to the data, and select the one that best fits the data. Explain.

Length	139	138	139	120.5	149	141	150	166	180	129.5
Weight	110	60	90	60	85	95	85	155	220	105

- The table below contains data on the population of foxes in a forest over a period of several years. Fit a discrete logistic equation to the data. How well does the model fit the data?

n	0	1	2	3	4	5	6	7	8	9	10
a_n	50	85	110	130	175	200	215	221	228	232	234

- Consider a disease such as the common cold where a person is *not* immune once they are 'healed.' Once healed, a person becomes susceptible again. Such a disease could be modeled with an SIS model. Implement your model in an Excel worksheet to describe the spread of the common cold through a population of 1,000 where initially 4 people have the cold and assuming that the cold lasts an average of 2 weeks (use α = 0.00167). What do you observe?
- Random number generation in Excel and then use it to simulate area under a given curve.
- An automobile repair company performs paint-less dent removal from hail damaged cars and trucks. Each vehicle must be processed in both the body assembly shop and the finishing shop. In the body shop it takes 0.5 man-hours to repair a car and 0.5 man-hours to repair a truck. There are 25 body shop man-hours available per day. In the finishing shop it takes 0.4 man-hours to finish a car and 0.6 man-hours to finish a truck. There are 24 finishing man hours available per day. Each car contributes Rs. 20000 to overall profit, and each truck contributes Rs. 22500 to overall profit. Find number of cars & trucks the company can service a day to maximize overall profit, using Solver.

Teaching Plan (SEC Paper: Mathematical Modeling with Excel)

Week 1: Definition, purpose, process, assumptions, and examples of mathematical modeling; **[1]**:Chapter 1.

Week 2: Charts in excel using given data. **[1]**: Chapter 2 (Sections 2.1, and 2.2).

Week 3: Modeling with proportionality: Population growth, Radioactive decay, and Free-falling object. [1]: Chapter 2 (Section 2.3).

Weeks 4 and 5: Fitting straight lines analytically, Geometric similarity, and Linearizable models. [1]: Chapter 2 (Sections 2.4 to 2.6).

Weeks 6, and 7: Discrete dynamical system concepts and examples; Long-term behavior and equilibria, Discrete logistic equation. [1]: Chapter 4 (Sections 4.1 to 4.3).

Weeks 8, and 9: Linear predator-prey model, SIR model of epidemics, and SIS model. [1]: Chapter 4 (Sections 4.4, and 4.6).

Weeks 10, and 11: Monte Carlo simulation: Flipping a coin, Area under a curve, Car dealership contest, and the birthday problem. [1]: Chapter 6 (Section 6.2), and Section 6.3 (Example 6.3.2 and Exercise 6.3.4 only).

Weeks 12 to 14: Formulation of linear programming, transportation and assignment problems and their solutions using Excel Solver tool. [1]: Chapter 7 (Sections 7.2 to 7.4).

Week 15: Traveling salesman problem. [1]: Chapter 8 (Section 8.8).

Basic IT Tools

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Basic IT Tools	**2**	**0**	**0**	**2**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To enable students develop IT skills that are a pre-requisite in today's work environment.
- To equip them with basic computing skills that will enhance their employability in general.
- To enable the student to analyse and present information in a meaningful manner.

Learning outcomes

The Learning Outcomes of this course are as follows:

- By studying this course, students will be able to use word-processor to generate documents with appropriate formatting, layout, review and referencing.
- By studying this course, students will be able to manage data in worksheets and workbooks and analyze it using spreadsheet functions and inbuilt formulas.
- By studying this course, students will be able to draw analysis on data using spreadsheets to make decisions.
- By studying this course, students will be able to make meaningful representations of data in the form of charts and pivot tables.
- By studying this course, students will be able to manage data in database tables and use the same for generating queries, forms and reports.

SYLLABUS

Course Contents:

Unit 1: Introduction to Spreadsheets **(4 Weeks)**

Spreadsheets: Concept of worksheets and workbooks, creating, opening, closing and saving workbooks, moving, copying, inserting, deleting and renaming worksheets, working with multiple worksheets and multiple workbooks, controlling worksheet views, naming cells using name box, name create and name define; Exchanging data using clipboard, object linking and

embedding; Printing and Protecting worksheets: Adjusting margins, creating headers and footers, setting page breaks, changing orientation, creating portable documents and printing data and formulae; Implementing file level security and protecting data within the worksheet; Understanding absolute, relative and mixed referencing in formulas, referencing cells in other worksheets and workbooks, correcting common formula errors, working with inbuilt function categories like mathematical, statistical, text, lookup, information, logical, database, date and time and basic financial functions.

Unit 2: Data Analysis in Spreadsheets **(4 Weeks)**

Consolidating worksheets and workbooks using formulae and data consolidate command; Choosing a chart type, understanding data points and data series, editing and formatting chart elements, and creating sparkline graphics, Analysing data using pivot tables: Creating, formatting and modifying a pivot table, sorting, filtering and grouping items, creating calculated field and calculated item, creating pivot table charts, producing a report with pivot tables. Introduction to recording and execution of macros.

Unit 3: Word Processing **(3 Weeks)**

Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders; Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders; Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa; Create newspaper columns, indexes and table of contents, Spell check your document using inbuilt and custom dictionaries, checking grammar and style , using thesaurus and finding and replacing text; Create bookmarks, captions and cross referencing, adding hyperlinks, adding sources and compiling and bibliography; Mail merge: Creating and editing your main document and data source, sorting and filtering merged documents and using merge instructions like ask, fill-in and if-then-else; Linking and embedding to keep things together.

Unit 4: Databases **(4 Weeks)**

Introduction to Database Development: Database Terminology, Objects, Creating Tables, working with fields, understanding Data types, Changing table design, Assigning Field Properties, Setting Primary Keys, using field validation and record validation rules, Indexing, working with multiple tables, Relationships & Integrity Rules, Join Properties, Record manipulation, Sorting & Filtering; Select data with queries: Creating Query by design & by wizard (Select, Make Table, Append, Delete, Cross Tab, Update, Parameterized Query, Find Duplicate and Find Unmatched), Creating multi table queries, creating & working with table joins. Using operators & expressions: Creating simple & advance criteria; Working with forms: Creating Basic forms, working with bound, unbound and calculated controls, understanding property sheet, Working with Data on Forms: Changing Layout, creating Sub Forms, creating list box, combo box and option groups; Working with Reports: Creating Basic Reports, Creating Header & Footer, Placing Controls on reports, sorting & grouping, Creating Sub reports.

Essential/recommended readings

- Swinford, E., Dodge, M., Couch, A., Melton, B. A. (2013). Microsoft Office Professional 2013. United States: O'Reilly Media.
- Wang, W. (2018). Office 2019 For Dummies. United States: Wiley. Microsoft Lambert, J. (2019). Microsoft Word 2019 Step by Step. United States: Pearson Education.

Suggestive readings

- Jelen, B. (2013). Excel 2013 Charts and Graphs. United Kingdom: Que.
- Alexander, M., Jelen, B. (2013). Excel 2013 Pivot Table Data Crunching. United Kingdom: Pearson Education.
- Alexander, M., Kusleika, R. (2018). Access 2019 Bible. United Kingdom: Wiley.

Examination scheme and mode:

Total Marks: 100

Internal Assessment: 25 Marks Practical

Exam (Internal): 25 Marks

End Semester University Exam: 50 Marks

The Internal Assessment for the course may include Class participation, Assignments, Classtests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Finance for Everyone

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Finance for Everyone	**2**	**1**	**0**	**1**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To offer an integrated approach to the understanding of concepts and applications of financial planning.
- To help the students in their financial planning.

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand the importance of financial literacy and the institutions providing financial services.
- After studying this course, students will be able to prepare a financial plan, budget and manage personal finances.
- After studying this course, students will be able to open, avail and manage services offered by banks.
- After studying this course, students will be able to open, avail and manage services offered by post offices.
- After studying this course, students will be able to plan for life insurance and property insurance.
- After studying this course, students will be able to choose instruments for investment in shares.

SYLLABUS

Unit 1: Introduction, Financial Planning and Budgeting **(3 weeks)**

Meaning, importance and scope of financial literacy; Prerequisites of financial literacy – level of education, numerical and communication ability; Various financial institutions – banks, insurance companies, post offices, mobile app based services. Need of availing of financial services from banks, insurance companies and postal services. Concept of economic wants and means for satisfying these needs; Balancing between economic wants and resources; Meaning, importance and need for financial planning; Personal budget, family budget, business budget and national budget; Procedure for financial planning and preparing a budget; Budget surplus and budget deficit, Avenues for savings from surplus, Sources for meeting the deficit.

Unit 2: Banking Services **(3 weeks)**

Types of banks; Banking products and services – Various services offered by banks; Types of bank deposit accounts – savings bank account, term deposit, current account, recurring deposit; pan card, address proof, KYC norm; Various types of loans – education loan, consumer durable loan, vehicle loan, housing loan, short term, medium term, long term, microfinance, bank overdraft, cash credit, mortgage, reverse mortgage, hypothecation, pledge, Agricultural and related interest rates offered by various nationalized banks; Cashless banking, e-banking, check counterfeit currency; CIBIL, ATM, net banking, RTGS, NEFT, IMPS, electronic clearance services (ECS), debit and credit card, app based payment system, bank draft and pay order; banking complaints and ombudsman.

Unit 3: Financial Services from India Post Office **(3 weeks)**

Post office savings schemes: savings bank, recurring deposit, term deposit, monthly income scheme, kisan vikas patra, NSC, PPF, senior citizen savings scheme , sukanya samriddhi yojana; india post payments bank. money transfer: money order, e-money order. instant money order, collaboration with the western union financial services; mo videsh, international money transfer service, money gram international money transfer, indian postal order.

Unit 4: Insurance Services **(3 weeks)**

Life insurance policies: life insurance, term life insurance, endowment policies, pension policies, ULIP, health insurance plans, comparison of policies offered by various life insurance companies, comparison of policies offered by various health insurance companies. Property insurance policies. Post office life insurance schemes: postal life insurance and rural postal life insurance.

Unit 5: Stock Markets – Some Basic Concepts **(3 weeks)**

Terms used in stock markets: SENSEX, NIFTY, primary markets, secondary markets, initial public offering(IPO), follow-on public offering (FPO), offer for sale (OFS), block deal, equity shares, preference shares, debentures, bonus shares, stock split, dividend, buyback, DEMAT

account, trading account, delivery instruction slip (DI Slips), blue chips, defensive stocks, face value, market value, market capitalisation, pre-opening session, trading session, opening price, closing price, business days, bull, bear, bull market, bear market, risk, stop loss, derivatives, call option, put option, hedge, holding period; Tax on short term capital gains and long-term capital gains, Mutual Fund and its various schemes.

Practical Exercises: **(15 weeks)**

The learners are required to:

- Visit banks, post offices, and insurance companies to collect information and required documents related to the services offered by these institutions and to know the procedure for availing of these services.
- Carry out the comparative analysis of different types of life insurance policies.
- Carry out the comparative analysis of different types of health insurance policies.
- Prepare a personal and family budget for one/six/ twelve months on imaginaryfigures.

Suggested Readings:

- Avadhani, V. A. "Investment Management" Himalaya Publishing House Pvt. Ltd., Mumbai.
- Batra, J.K., Accounting and Finance for Non-finance Managers, Sage Textbook
- Chandra, P. "Investment Game: How to Win" Tata McGraw Hill Education, New Delhi.
- Kothari, R. "Financial Services in India-Concept and Application" Sage Publications India Pvt. Ltd., New Delhi.
- Milling, B. E. "The Basics of Finance: Financial Tools for Non-Financial Managers" Universe Company, Indiana,
- Mittra, S., Rai, S. K., Sahu, A. P., & Starn, H. J. "Financial Planning" Sage Publications India Pvt. Ltd., New Delhi.
- Zokaityte, A. "Financial Literacy Education" Palgrave Macmillan, London.

Note: Learners are advised to use the latest edition of readings.

Examination scheme and mode:

Total Marks: 100
Internal Assessment: 25 marks
Practical Exam (Internal): 25 marks
End Semester University Exam: 50 marks
The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Front End Web Design and Development

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Front End Web Design and Development	**2**	**0**	**0**	**2**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To introduce the basic concepts and techniques of client-side web programming.
- To enable the students to develop simple, interactive, and stylish websites using HTML, CSS and JavaScript.

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to build websites using the elementsof HTML.
- After studying this course, students will be able to build interactive and stylish websites using the client side programming techniques with CSS and Javascript.
- After studying this course, students will be able to learn to validate client-side data.
- After studying this course, students will be able to define the structure and contentsof the website using different features of CSS.

SYLLABUS

Unit 1 **(3 weeks)**

Introduction: Introduction to internet and web design. Basic concepts of web architecture.

Unit 2 **(4 weeks)**

HTML: Introduction to hypertext mark-up language (html), creating web pages, lists, hyperlinks, tables, web forms, inserting images, frames.

Unit 3 **(4 weeks)**

Cascading style sheet (CSS): Concept of CSS, creating style sheet, Importing style sheets, CSS properties, CSS styling (background, text format, controlling fonts), CSS rules, Style Types, CSS Selectors, CSS cascade, working with block elements and objects, working withlistsand tables, CSS id and class, box model (introduction, border properties, padding properties,
margin properties).

Unit 4 **(4 weeks)**

Basics of Javascript: Document object model, data types and variables, functions, methodsand events, controlling program flow, built-in objects and operators, validations.

Practical Exercises **(15 weeks)**

HTML

- Create an HTML document with following formatting – Bold, Italics, Underline, Colors, Headings, Title, Font and Font Width, Background, Paragraph, Line Brakes, Horizontal Line, Blinking text as well as marquee text.
- Create an HTML document with Ordered and Unordered lists, Inserting Images, Internal and External linking
- Create an HTML document for displaying the current semester's timetable.
- Create a website with horizontal and vertical frames. Top horizontal frame needs to show your college's name and logo. Bottom horizontal frame is to be split into two vertical frames. The left frame has hyperlinks to pages related to faculty, courses, student activities, etc. The right frame shows the corresponding webpage based on the link clicked on the left frame.
- Create a student registration form using HTML which has the following controls and make an interactive content presentation using CSS.:

  I. Text Box II. Dropdown box III. Option/radio buttons

  IV. Check boxes V. Reset and Submit button

- Create a webpage for your department with a drop-down navigation menu for faculty, courses, activities, etc.. Implement the webpage using styles, rules, selectors etc. learned in CSS
- Write event-driven programs in JavaScript for the following:
  - Enter a number and on click of a button print its multiplication table.
  - Print the largest of three numbers entered by the user.
  - Find the factorial of a number entered by the user.
  - Enter a list of positive numbers using the prompt terminated by a zero. Find thesum and average of these numbers.

- Create a student registration form using text, radio button, check box, drop down box, text field and all other required HTML elements. Customize the CSS and javascript to input and validate all data. Create functions to perform validation of each element, example:

  a. Roll number is a 7-digit numeric value
  b. Name should be an alphabetical value (String)
  c. Non-empty and valid fields like DOB

Essential/recommended readings

- Nixon, R., Learning PHP, MySQL & JavaScript with jQuery, CSS and HTML5,O'Reilly, 2018.
- Powell, T.A. HTML & CSS: The Complete Reference, 5th edition, TataMcGrawHill, 2017.
- Duckett, J., JavaScript and JQuery: Interactive Front-End Web Development,Wiley, 2014.

Suggested Readings

- Boehm, A., & Ruvalcaba, Z., Murach's HTML5 and CCS, 4th edition, Mike Murach & Associates, 2018.
- Ivan Bayross, Web Enabled Commercial Application Development Using Html, Dhtml, Javascript, Perl CGI, BPB Publications, 2010.

Examination scheme and mode:

Total Marks: 100
Internal Assessment: 25 marks
Practical Exam (Internal): 25 marks
End Semester University Exam: 50 marks
The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Negotiation and Leadership

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Negotiation and Leadership	**2**	**0**	**0**	**2**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To introduce the students to the importance of negotiation skills
- To expose the students to diverse contexts and situations that require negotiation skills
- To learn about the management of critical and crisis situations
- To evolve relationship building skills

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to apply negotiation skills to obtain desired results
- After studying this course, students will be able to understand the various aspects ofa crisis situation for appropriate management.
- After studying this course, students will be able to learn how to manage complex negotiation situations.
- After studying this course, students will be able to understand the process of relationship building.
- After studying this course, students will be able to test and judge the legitimacy of the terms of negotiation

SYLLABUS

Unit 1 **(3 weeks)**

Negotiation Fundamentals Key concepts and core vocabulary of negotiation process, deal-making and dispute resolution, Assumptions and biases that are barriers to effective negotiation, Collaborative approaches, risk & opportunities to achieve win-win outcomes

Negotiation Canvas Introduction of a framework for negotiation preparation and how to use it, Elements of negotiation canvas i.e. relationship, alternatives, legitimacy, options, interests among others, Difference between position and interests

Unit 2 **(4 weeks)**

Managing critical moments

Types of negotiation approaches used by negotiators Critical moments that can make or breakthe deal How to identify these critical moments, Strategies to manage critical moments in the negotiation

Effective Communication and Relationship Building

Role of communication and relationship in negotiation, Understanding the other party's psychology to understand their interests, build trust and improve the scope of the negotiation, Unconditionally constructive behaviours, Methods of building trust, and empathy, Overcoming communication barriers, difficult behaviours and information asymmetry

Unit 3 **(4 weeks)**

Discovering, creating and claiming value

Methods of value discovery during negotiation, How is value divided and claimed betweenthe negotiating parties?, What are the tradeoffs, mutual gains and contingencies?, Concept of distributive bargaining, equitable solutions, and ZOPA (zone of possible agreement),Biases and enemies of value creation

Complex Negotiations

Strategies for negotiations are not straightforward, involve several issues, include multiple stakeholders, and /or involve powerful parties, Hofstede's Culture dimensions, Dealing with people with difficult behaviours

Unit 4 **(4weeks)**

Managing Alternatives

Concept of BATNA (Best Alternative to Negotiated Agreement), Methods to evaluate alternative options/offers, Management of one's alternatives and other party's alternatives during negotiation.

Legitimacy and Building Commitment

When to say yes to agreed terms, and when to walk away, Criteria for decision-making on negotiated terms, Assessment of the legitimacy of negotiated terms, Leading all parties to commit to the negotiated agreement, Steps from plan to execution

Essential/Recommended Readings

- Getting to Yes: Negotiating Agreement Without Giving in by Roger Fisher, William L. Ury, and Bruce Patton. Penguin Books
- Difficult Conversations: How to Discuss What Matters Most by Douglas Stone, Bruce Patton, Sheila Heen. Penguin Books
- Value Negotiation: How to Finally Get the Win-Win Right by Horacio Falcão. Pearson Education

Articles

- The Seven Myths of Win-Win Negotiations, by Horacio Falcão
- Control the Negotiation before it begins by Deepak Malhotra

Examination scheme and mode:
Total Marks: 100
Internal Assessment: 25 marks
Practical Exam (Internal): 25 marks
End Semester University Exam: 50 marks
The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Personal Financial Planning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Personal Financial Planning	**2**	**1**	**0**	**1**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To familiarize students with different aspects of personal financial planning like savings, investment, taxation, insurance, and retirement planning
- To develop the necessary knowledge and skills for effective financial planning.

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand the meaning and appreciate the relevance of financial planning.
- After studying this course, students will be able to understand the concept of investment planning and its methods.
- After studying this course, students will be able to examine the scope and ways of personal tax planning.
- After studying this course, students will be able to analyse insurance planning andits relevance.
- After studying this course, students will be able to develop insight into retirement planning and its relevance.

SYLLABUS

Unit 1: Introduction to Financial Planning: **(3 weeks)**

Financial goals, steps in financial planning, budgeting incomes and payments, time value of money. Introduction to savings, benefits of savings, management of spending & financial discipline, Setting alerts and maintaining sufficient funds for fixed commitments.

Unit 2: Investment Planning: **(3 weeks)**

Process and objectives of investment, concept and measurement of return & risk for various asset classes, measurement of portfolio risk and return, diversification & portfolio formation. Gold bond; Real estate; Investment in greenfield and brownfield Projects; Investment in fixed income instruments, financial derivatives & commodity market in India. Mutual fund schemes; International investment avenues. Currency derivatives and digital currency.

Unit 3: Personal Tax Planning: **(3 weeks)**

Tax structure in India for personal taxation, Scope of personal tax planning, exemptions and deductions available to individuals under different heads of income and gross total income. Comparison of benefits - Special provision u/s 115 BAC vis-à-vis General provisions of the Income-tax Act, 1961, tax avoidance versus tax evasion.

Unit 4: Insurance Planning: **(3 weeks)**

Need for insurance. Life insurance, health insurance, property insurance, credit life insurance and professional liability insurance.

Unit 5: Retirement Benefits Planning: **(3 weeks)**

Retirement planning goals, process of retirement planning, Pension plans available in India, Reverse mortgage, Estate planning.

Practical Exercises: **(15 Weeks)**

The learners are required to:

- Perform electronic fund transfers through net banking and UPI.
- Identify certain recent Ponzi schemes in the market.
- Prepare tax planning for a hypothetical individual.

Suggested Readings:

- Halan, M. "Let's Talk Money: You've Worked Hard for It, Now Make It Work for You" Harper Collins Publishers, New York.
- Indian Institute of Banking & Finance. "Introduction to Financial Planning" Taxmann Publication, New Delhi.
- Keown A.J. "Personal Finance" Pearson, New York.
- Madura, J. "Personal Finance", Pearson
- Pandit, A. "The Only Financial Planning Book that You Will Ever Need" Network 18 Publications Ltd., Mumbai.
- Sinha, M. "Financial Planning: A Ready Reckoner" McGraw Hill Education, New York.
- Tripathi, V. "Fundamentals of Investment" Taxmann Publication, New Delhi.

Note: Learners are advised to use the latest edition of readings.

Examination scheme and mode:
Total Marks: 100
Internal Assessment: 25 marks
Practical Exam (Internal): 25 marks
End Semester University Exam: 50 marks
The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Programming using Python

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Programming with Python	**2**	**0**	**0**	**2**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To provide exposure to basic problem-solving techniques with computers
- To develop logical thinking abilities and to propose novel solutions for real world problems through programming language constructs.
- To deepen the empirical knowledge on applying programming on business domains.

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to interpret the basic representation of the data structures and sequential programming
- After studying this course, students will be able to gain knowledge of, and ability to use control framework terminologies.
- After studying this course, students will be able to work out using the core data structures as lists, dictionaries, tuples, and sets.
- After studying this course, students will be able to choose appropriate programming paradigms, interrupt and handle data using files to propose solutions through reusable modules.
- After studying this course, students will be able to propose possible error-handling constructs for unanticipated states/inputs .
- After studying this course, students will be able to implements exemplary applications on real-world problems.

SYLLABUS

Unit-1: Introduction **(3 weeks)**

Relationship between computers and programs, Basic principles of computers, File systems, Using the Python interpreter, Introduction to binary computation, Input / Output

Unit-2: Data types and control structures **(4 weeks)**

Operators (unary, arithmetic, etc.), Data types, variables, expressions, and statements,Assignment statements, Strings and string operations, Control Structures: loops and decision

Unit-3: Modularization and Classes **(4 weeks)**

Standard modules, Packages, Defining Classes, Defining functions, Functions and arguments(signature)

Unit-4: Data structures and Object-oriented design **(4 weeks)**

Data Structures (array, List, Dictionary), Error processing, Exception Raising and Handling Programming types, Object Oriented Programming, Object Oriented Design, Inheritance and Polymorphism

Practical Exercises **(15 weeks)**

- Running instructions in Interactive interpreter and a Python Script
- Write a program to purposefully raise Indentation Error and Correct it
- Write a program to compute distance between two points taking input from the user. (Pythagorean Theorem)
- Write a program add.py that takes 2 numbers as command line arguments and prints its sum.
- Write a Program for checking whether the given number is an even number or not.
- Using a for loop, write a program that prints out the decimal equivalents of 1/2, 1/3, 1/4, 1/10
- Write a program using a for loop that loops over a sequence. What is the sequence?
- Write a program using a while loop that asks the user for a number, and prints a countdown from that number to zero.
- Find the sum of all the primes below two million. Each new term in the Fibonacci sequence is generated by adding the previous two terms. By starting with 1 and 2, the first 10 terms will be: 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, ...
- By considering the terms in the Fibonacci sequence whose values do not exceed four million, find the sum of the even-valued terms.
- Write a program to count the numbers of characters in the string and store them in a dictionary data structure.
- Write a program to use split and join methods in the string and trace a birthday with a dictionary data structure.
- Write a program combining lists that combines these lists into a dictionary.
- Write a program to count the frequency of characters in a given file. Can you use

character frequency to tell whether the given file is a Python program file, C program file or a text file?

- Write a program to print each line of a file in reverse order.
- Write a program to compute the number of characters, words and lines in a file.
- Write a function ball collide that takes two balls as parameters and computes if they are colliding. Your function should return a Boolean representing whether or not the balls are colliding. Hint: Represent a ball on a plane as a tuple of (x, y, r), r being the radius. If (distance between two balls centers) <= (sum of their radii) then (they are colliding)
- Find mean, median, mode for the given set of numbers in a list.
- Write a function nearly equal to test whether two strings are nearly equal. Two strings a and b are nearly equal when a can be generated by a single mutation on b.
- Write a function dups to find all duplicates in the list.

Essential/recommended readings

- "Starting Out with Python plus My Programming Lab with Pearson eText --Access Card Package (3rd Edition) Tony Gaddis ISBN-13: 978-0133862256".
- Python Crash Course: A Hands-On, Project-Based Introduction to Programming (2nd Edition).
- Head-First Python: A Brain-Friendly Guide (2nd Edition) by Paul Barry.
- Learn Python the Hard Way: 3rd Edition by Zed A. Shaw.
- Python Programming: An Introduction to Computer Science (3rd Edition) by John M. Zelle.
- Python Cookbook: Recipes for Mastering Python 3 (3rd Edition) by Brian Jones and David Beazley.

Examination scheme and mode:

Total Marks: 100
Internal Assessment: 25 marks
Practical Exam (Internal): 25 marks
End Semester University Exam: 50 marks
The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

Practical Exercises: Practical work to be performed using Excel spreadsheets for the modeling of the following type of problems:

- The data given below measures shoe length (to the nearest quarter of an inch) and height (to the nearest half inch) of ten persons, to determine if there is a relationship between shoe length and height of a person. Graph Height vs. Shoe Length and fit a straight line to the data. How well does this model fit the data?

Shoe Length	9	10	10.5	11	11.5	11.75	12	12.5	12.75	13
Height	62	64	64.5	69	70	73	72	75	74	77

- The table below contains the total length and weight of 10 black bears. Graph weight vs. length, fit different linearizable models to the data, and select the one that best fits the data. Explain.

Length	139	138	139	120.5	149	141	150	166	180	129.5
Weight	110	60	90	60	85	95	85	155	220	105

- The table below contains data on the population of foxes in a forest over a period of several years. Fit a discrete logistic equation to the data. How well does the model fit the data?

n	0	1	2	3	4	5	6	7	8	9	10
a_n	50	85	110	130	175	200	215	221	228	232	234

- Consider a disease such as the common cold where a person is *not* immune once they are 'healed.' Once healed, a person becomes susceptible again. Such a disease could be modeled with an SIS model. Implement your model in an Excel worksheet to describe the spread of the common cold through a population of 1,000 where initially 4 people have the cold and assuming that the cold lasts an average of 2 weeks (use α = 0.00167). What do you observe?
- Random number generation in Excel and then use it to simulate area under a given curve.
- An automobile repair company performs paint-less dent removal from hail damaged cars and trucks. Each vehicle must be processed in both the body assembly shop and the finishing shop. In the body shop it takes 0.5 man-hours to repair a car and 0.5 man-hours to repair a truck. There are 25 body shop man-hours available per day. In the finishing shop it takes 0.4 man-hours to finish a car and 0.6 man-hours to finish a truck. There are 24 finishing man hours available per day. Each car contributes Rs. 20000 to overall profit, and each truck contributes Rs. 22500 to overall profit. Find number of cars & trucks the company can service a day to maximize overall profit, using Solver.

Teaching Plan (SEC Paper: Mathematical Modeling with Excel)

Week 1: Definition, purpose, process, assumptions, and examples of mathematical modeling; **[1]**:Chapter 1.

Week 2: Charts in excel using given data. **[1]**: Chapter 2 (Sections 2.1, and 2.2).

Week 3: Modeling with proportionality: Population growth, Radioactive decay, and Free-falling object. [1]: Chapter 2 (Section 2.3).

Weeks 4 and 5: Fitting straight lines analytically, Geometric similarity, and Linearizable models. [1]: Chapter 2 (Sections 2.4 to 2.6).

Weeks 6, and 7: Discrete dynamical system concepts and examples; Long-term behavior and equilibria, Discrete logistic equation. [1]: Chapter 4 (Sections 4.1 to 4.3).

Weeks 8, and 9: Linear predator-prey model, SIR model of epidemics, and SIS model. [1]: Chapter 4 (Sections 4.4, and 4.6).

Weeks 10, and 11: Monte Carlo simulation: Flipping a coin, Area under a curve, Car dealership contest, and the birthday problem. [1]: Chapter 6 (Section 6.2), and Section 6.3 (Example 6.3.2 and Exercise 6.3.4 only).

Weeks 12 to 14: Formulation of linear programming, transportation and assignment problems and their solutions using Excel Solver tool. [1]: Chapter 7 (Sections 7.2 to 7.4).

Week 15: Traveling salesman problem. [1]: Chapter 8 (Section 8.8).

IT Skills and Data Analysis - I

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
IT Skills and Data Analysis - I	**2**	0	0	**2**	Class XII	NIL

Learning Objectives

The primary objectives of the course will be to:

- Familiarise the student with the quantitative skills required for representing and interpreting data for the purpose of decision making.
- Equip the student with some fundamental concepts, which play a critical role in understanding and visualizing real world data.
- Enable the student to analyze data and problem situations using relevant IT tools.

Learning Outcomes

By the end of the course students will be able to

- Represent and interpret data in tabular and graphical forms
- Understand and interpret the measures of central tendency and dispersion.
- Use IT tools such as spreadsheets to visualise and analyse data.

PEDAGOGY

Relevant concepts and theory will be introduced which will be supplemented by hands-on activities enabled by the use of spreadsheets. This is a two credit course and will comprise two lecture periods per week. As this is essentially an activity-based course, it will involve two consecutive lecture periods, once in a week.

SYLLABUS
Practical

Unit I : What is Statistics ? (24 hours)

This unit provides an introduction to the fundamentals of datasets, sources of data, frequency distributions and graphical representations of data. The aim is to give students a hands-on experience of initiating data analysis through a spreadsheet.

- Concept of datasets (Variables, Observations)
  Reference 1, Chapter 2
- Different types of variables (Quantitative and Qualitative)
  Reference 1, Chapter 2
- Distinction between primary and secondary sources of data
  Reference 1, Chapter 2
- Basic idea of using questionnaire to collect primary data for analysis
  Reference 2, Chapter 1 [Section 1.6]
- How to construct a questionnaire
  Reference 1, Chapter 1
- Concept of frequency distribution: cumulative and relative frequencies
  Reference 2, Chapter 2
- Introduction to spreadsheet
  Reference 2, Chapter 2
  - Tabular and graphical presentation of data: data tables, frequency curve, histogram,bar graphs, pie charts (through the use of spreadsheets)
    Reference 2, Chapter 2

Unit II: Measures of Central Tendency and Dispersion (36 hours)

The focus of this unit will be to familiarise the student with summary statistics to describe datasets. In particular, two important characteristics of data, viz., central tendency anddispersion, will be used to summarise datasets using a spreadsheet. The concept of the Normal distribution and its characteristics will be discussed to highlight its relevance in modelling real life phenomenon.

- Measures of central tendency: mean, median, mode
  Reference 2, Chapter 3
- Examples of situations where it is appropriate to use the mean, median and mode asa measure of central tendency
  Reference 2, Chapter 3
- Weighted mean
  Reference 2, Chapter 3
- Measures of dispersion: range, variance, standard deviation
  Reference 2, Chapter 3

- Quartiles, deciles and percentiles
  Reference 2, Chapter 3
- Visualize the measures of central tendency and dispersion through frequency curveand histogram
  Reference 2, Chapter 3
- Skewness and kurtosis
  Reference 2, Chapter 3
- Normal curve and its basic properties : visual representation of population characteristics (height, weight, IQ etc.)
  Reference 2, Chapter 5 [Section 5.6]

References (Readings and Resources)

1. Rowntree, D., Statistics without tears - A primer for non-mathematicians, Allyn and Bacon, 2018.
2. Levin, Rubin, Rastogi and Siddiqui, Statistics for Management, 7th Edn, 2014

Suggested Data Sources

The following data sets are suggested to carry out the activities

1. https://data.worldbank.org/
2. https://www.statista.com/
3. https://data.gov.in/
4. https://censusindia.gov.in/
5. https://www.kaggle.com/
6. http://data.un.org/

Weekly Plan

Weeks I and II: Students learn about the concept of datasets (Variables, Observations) ; Different type of Variables (Quantitative and Qualitative); Distinction between primary and secondary sources of data

Weeks III and IV: Basic idea of using questionnaire and how to construct a it; Concept of frequency distribution - cumulative and relative frequencies; Introduction to spreadsheet

Weeks V and VI: Tabular and graphical presentation of data: data tables, frequency curve, histogram, bar graphs, pie charts. Students to explore various representations on spreadsheet using datasets

Weeks VII and VIII: Introduction of Measures of Central Tendency: Mean, Median, Mode through appropriate examples explaining the use of each one of them in various situations. Understanding the concept of Weighted mean;

Weeks IX and X: Measures of dispersion: Range, Variance, Standard deviation; Visualizingthe measures of central tendency and dispersion through frequency curve and histogram. Understanding Quartiles, deciles and percentiles numerically.

Weeks XI and XII: Representation of population characteristics using the basic propertiesof a Normal Curve, skewness and kurtosis.

Weeks XIII and XIV: Assignments based on Units 1 and 2 using spreadsheets to consolidate the learning of concepts covered.

Examination scheme and mode:
Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.

Image Styling

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Image Styling	2	0	0	2	Class XII	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To strengthen the student's hands on experience in using different tools of improving the visual and non-visual appearance
- To train the students with technical and professional ways of understanding wardrobe needs and their development
- To develop skills in understanding fashion trends for planning personal shopping .

Learning Outcomes

After studying this course the student will be able to:

- Demonstrate the practical ways to strengthen physical image based on body type, face shape and personal style analysis.
- Understand the effect of elements and principles of design on visual appearance.
- Explain the fashion trends of apparel and accessories.
- Identify wardrobe elements and the processes of planning and organization.
- Plan personal shopping of apparel and accessories based on physical traits, personal style and budget.

SYLLABUS
Practical

Unit 1: Physical traits and analysis **16 hours**

Learning the first step in styling by developing skills to analyze individual characteristics such as body type, proportions, face shapes etc.

Subtopics:

- Body types
- Body proportion
- Face shapes
- Personal colour analysis

Unit 2: **Application of elements and principles of design for image styling** **16 hours**

Understanding the basics of design by learning about the various elements and principles of design, their role in the success of a design, and their importance in personal styling.
Subtopics:

- Effects of design elements and principles on clothing and visual appearance
- Effect of garment components on visual appearance

Unit 3: Wardrobe planning **12 hours**

Learning the skills of wardrobe planning, analysis and management as per apparel and accessory needs.
Subtopics:

- Wardrobe analysis
- Wardrobe essentials
- Organization and categorization of wardrobe
- Elements of a basic wardrobe
- Optimising wardrobe and budgeting

Unit 4: The business of styling **16 hours**

Understand the working of styling business. Developing the art of styling. Analyzing the present market trends.

Subtopics:

- Dress vs Style
- Analysis of trends of apparels and accessories
- Survey of apparel and accessory stores/ brands with respect to style, size and price.
- Types of stylists: Freelance stylists, Celebrity stylists, Editorial stylists
- Marketing your business
- Forms and Contracts

Essential Readings

- Constantine, S. & Woodall, T. *The Body Shape Bible: Forget Your Size Discover Your Shape Transform Yourself*, published by Weidenfeld & Nicolson (1877), ASIN: B01K14NWB8
- Funder, D.C. 2001, The Personality *Puzzle (2nd ed)*, New York: W.W. Norton
- Phares, J.E. 1991, *Introduction to Personality (3rd ed)*, New York: Harper Collins
- Rasband, J. *Wardrobe Strategies for Women*, published by Fairchild Books; Student edition (September 18, 2001), ISBN-10: 1563672596

Suggested Readings

- Baumgartner, J. *You are What You Wear*, Da Capo Press (2012)
- Mc Call, *Sewing in Color*, Hamlyn Publishing Group 11th edition (1975)
- Romano, C. *Plan your Wardrobe,* New Holland Publishers (1998)

  Vega, L. *The Image of Success,* American Management Association (2010)

Note: Learners are advised to use the latest edition of readings.

Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.

Innovation and Entrepreneurship

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THECOURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Innovation and Entrepreneurship	2	0	0	2	Class XII	NIL

Learning Objectives

The primary objectives of the course will be to:

- Encourage the process of creative thinking and innovation
- Build an entrepreneurial perspective to identify and tackle problems and explore new opportunities
- Gain insight into building business models and plans
- Identify tools and strategies that entrepreneurs may use for start-up, innovation and reinvention
- Understand how to go from an idea to product and scale it up for sustainability
- Develop skills to work in teams and build connections, collaborations and social networks .

Learning Outcomes

By the end of the course students should be able to:

- Identify and comprehend the concepts of creativity, innovation and invention in various contexts.
- Enrich their theoretical and conceptual foundations in entrepreneurship.
- Gain hands-on experience that shall empower them to identify business and social opportunities and venture in the entrepreneurial landscape.
- Prepare themselves to take informed decisions in establishing start-ups and ongoing innovation in organisations.

PEDAGOGY

While suitable concepts and theory will be utilized, the emphasis of the course will be on inquiry driven hands-on activities and experiential learning in a team setting. As this is essentially a group activity based course, the two lectures scheduled for each week shall be held together. The class to be split up ideally in groups of 5 – 7 students each, who will work

together for the rest of the semester on identifying a specific problem and by semester-end present a feasible innovative prototype capable of being funded as a start-up.

SYLLABUS

Unit I: Understanding Creativity

- Understanding the concept and process of creativity; students exploring within themselves the nature of the creative process; approaches to understanding creativity (Ref. B1)
- Differentiate between invention and innovation (Ref. OR1)
- Understanding entrepreneurial mindset and skills (creativity, decision making, risktaking behaviour, networking) and entrepreneurship in different contexts (eg. Social, Cooperative, Commercial, Public, Not for Profit organisations) (Ref. B1)
- Case studies of some successful innovations/start-ups – Different group can be given a different Case Study and the groups can have a discussion on same (Ref. Suggestive Case Studies A)

(15 practical hours)

Unit II: Ideation

- Identifying a specific problem through observation, contemplation, networking and research (Ref. B2)
- Generating ideas for problem solving using mind mapping, brainstorming, focus groups, idea generation tool kit (SCAMPER) (Ref. B1)
- Learning through failures of others – case studies of some ventures that could not sustain – Different group can be given a different Case Study and the groups can have a discussion on same (Ref. Suggestive Case Studies B)

(**15 practical hours)**

Unit III: Understanding the business

- Building a business plan using the lean canvas model (Ref. OR2)
- Understanding customers/stakeholders and evaluating the business plan through survey/questionnaire/interview/secondary research (Ref. B1 and B2)
- Designing, prototyping and iteration (Ref. B2)
- Networking and growth strategies (Ref. B3)
- Building and managing organisations (Ref. B3)
- Role of leadership and team based culture (Ref. B3 and OR4)

(**20 practical hours)**

Unit IV: Venturing Forth

- Financing the innovation: pitching and communicating the idea
- Sources of finance: crowdfunding, venture capital, equity funds, angel investing, borrowing (including government initiatives, bank and public funded schemes) (Ref. OR5 and OR6)
- Various forms of IPR (patent, copyright, trademark, geographical indication, industrial design) (Ref. OR7 and OR8)
- Setting and scaling up (Ref. B3)
- Entrepreneurial resilience and ongoing creativity (Ref. B1)

(**10 practical hours)**

Suggested Readings: Books

B1.The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators, Jeff Dyer, Hal Gregersen, C.M. Christensen, Harvard Business Review Press, 2011

B2. Design Thinking: Business Innovation, Maurício Vianna, Ysmar Vianna, Isabel K. Adler, Brenda Lucena, Beatriz Russo, MJV Press, 1st Electronic Edition, 2011
(also available at https://cdn2.hubspot.net/hubfs/1701231/Documents/Design_Thinking_-_The_Book/Design_Thinking_The_Book.pdf)

B3. Contemporary Strategy Analysis: Text and Cases, Robert M Grant, Wiley, 9th Edition,2016 (Chapter 6 and Chapter 9)

Online Resources

OR1. Discovery, Innovation and Invention
https://www.laits.utexas.edu/~anorman/long/DII.html

OR2. How to create your lean canvas
https://leancanvas_production.s3.amazonaws.com/cms/LeanCanvas.pdf

OR3. Organisational behaviour and human relations, Module 12, Creativity in decision making
https://courses.lumenlearning.com/wm-organizationalbehavior/

OR4. Organisational behaviour and human relations, Module 13, Leadership
https://courses.lumenlearning.com/wm-organizationalbehavior/

OR5. Sources of Funding Innovation and Entrepreneurship
https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020-chapter4.pdf

OR6. Government Schemes for Startups
https://www.startupindia.gov.in/content/sih/en/government-schemes.html

OR7. Intellectual Property Rights in India
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/627956/IP-Rights-in-India.pdf

OR8. What is Intellectual Property? WIPO 2020 doi:10.34667/tind.42176
https://www.wipo.int/publications/en/details.jsp?id=4528

Suggestive Case Studies A
1. Amul
2. Goonj
3. Aravind Eye care systems
4. Apple
5. Pixar
6. ISRO
7. Khan Academy
8. Nyka
9. Swiggy

10. Sulabh International
11. OYO
12. Mumbai's Dabbawalas
13. Lijjat Papad
14. Jaipur Rugs
15. WOW! Momo
16. Biryani by Kilo

Suggestive Case Studies B

1. Nokia
2. Cafe Coffee Day
3. HMT watches
4. Atlas Cycles
5. Jet Airways
6. Kodak
7. Stayzilla
8. SKS Microfinance IPO
9. Satyam Computers
10. Groupon Inc.

Weekly Plan:

Week I: Understanding the concept and process of creativity; Approaches to understanding creativity; differentiate between invention and innovation.

Week II: Activity week - Students exploring within themselves the nature of the creative process in groups (eg. exploring the surroundings for possible problems and challenges that may have innovative solutions).

Week III: Understanding entrepreneurial mindset and skills (creativity, decision making, risk taking behaviour, networking) in different contexts through discussion of a case study (may select one case study from Suggestive Case Studies A).

Weeks IV - IX: Activity Weeks - The class to be split up ideally in groups of 5 – 7 students each, who will work together for the rest of the semester on identifying a specific problem and by semester-end present a feasible innovative prototype capable of being funded as a start-up.

Week IV: To begin with, each group shall identify a problem through observation,contemplation, brainstorming, networking and research.

Week V: Each group to generate ideas for solving their identified problem using mind mapping, focus groups, idea generation tool kit (SCAMPER).

Week VI: Each group to critically assess the feasibility of the proposed ideas by learning through the failures of others – case studies of some ventures that could not sustain (may use a case study from Suggestive Case Studies B).

Week VII: Each group to build a business plan using the lean canvas model and survey/questionnaire/interview/secondary research.

Week VIII: Each group to design and prototype their proposed business solution/model/product.

Week IX: The groups evaluate their proposed business plan/model using feedback from networking. Submission of formal business plan (written) by each group.

Week X: Formulating growth/scaling up strategies*;* building and managing organisations*;* role of leadership and team based culture, *e*ntrepreneurial resilience and ongoing creativity.

Week XI: Financing the innovation: pitching and communicating the idea. Sources of finance: crowdfunding, venture capital, equity funds, angel investing, borrowing (including government initiatives, bank and public funded schemes)

Week XII: Various forms of IPR (patent, copyright, trademark, geographical indication, industrialdesign)

Week XIII, XIV and XV: Activity weeks - Submission of final project report (written) and presentation (oral) by each group, Viva.

Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.

WORKING WITH PEOPLE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
WORKING WITH PEOPLE	**2**	**1**	**0**	**1**	**Class XII**	**NIL**

Learning Objectives

The learning objectives of this course are as follows:

- To inculcate values in strengthening knowledge and skills in field work practice learning
- To develop aptitude and attitude to work in the field
- To enhance skills of self-awareness, self-development, goal setting and time management

Learning outcomes

At the end of the semester the students will be able to

- Develop a practical understanding of using different skills while working with individuals and groups
- Develop skills and competencies to work effectively in field settings
- Acquire understanding about self, goal setting, networking, and communication

SYLLABUS

Course Content

Unit I: Developing Personal and Professional Self **Unit Description:** This unit will provide a conceptual understanding of Self-awareness and sensitivity. The students will learn about goal setting, time management and ethics in social work practice.	**(No. of hours)** **3** **Weeks: I-III**
Subtopics: ● Understanding personal self and professional self.	

● Professional Ethics: Responsibility, accountability, loyalty, commitment, cultural sensitivity and competence. ● Goal setting and time management	
Unit II: Planning for Field Work Practice **Unit Description:** This unit will introduce the students to strategic learning plans required for field work, thematic modules for different target groups and importance of rapport building and communication while working in community.	**(No. of hours)** **4** **Weeks: IV-VII**
Subtopics: ● Preparation of Field work learning plans and strategies. ● Rapport building, initiating dialogues and sustaining communication. ● Thematic learning modules for targeted populations: Children, adolescent, youth and elderly.	
Unit III: Documentation in Field Work **Unit Description:** This unit will focus on documentation and maintaining records while working with individuals, groups and communities. The students will also learn to develop community profile.	**(No. of hours)** **4** **Weeks: VIII-XI**
Subtopics: ● Case records ● Group work records ● Community profile	
Unit IV: Application of Skills and Techniques **Unit Description:** This unit will introduce various skills and techniques required in understanding self and mobilising support.	**(No. of hours)** **4** **Weeks: XII-XV**
Subtopics: ● Understanding Self: Johari Window ● Strength and Weakness- SWOT Analysis ● Mobilising Community Support: Networking, Advocacy and Public Relation	

Practical component (if any) – Unit III & IV application based **(30 hours)**

Essential readings

- Datar,S. et al. (2010). Skill Training for Social Workers: A Manual. New Delhi: Sage Publications
- Kumar, S. (2002).Methods for Community Participation: A Complete Guide for Practitioners. London: ITDG Publishing.
- Nair,R., Juvya,S., & Nadkarni,V. (2020). Field Instructions in Social Work Education, The Indian Experience. Routledge India.
- Subhedar, I. S. (2001). Field Work Training in Social Work. New Delhi: Rawat Publications.

- Trevithik, P. (2000). Social Work Skills: A Practice Handbook. Buckingham, Philadelphia: Open University Press.
- Verma, R.B.S. & Singh, A.P. (2013).Standard Manual for Field Work Practicum in Social Work. Lucknow: New Royal Book Company.

Suggested readings

- NAPSWI. (2016). NAPSWI's Code of Ethics for Professional Social Workers in India. New Delhi: National Association of Professional Social Workers in India

Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.