

UNIVERSITY OF DELHI

CNC-II/093/1(28)/2023-24/199

Dated: 22.09.2023

NOTIFICATION

Sub: Amendment to Ordinance V

[E.C Resolution No. 27-1-9/- dated 25.08.2023]

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

Following courses have been included in the Pool of Generic Electives offered by Delhi School for Skill Enhancement and Entrepreneurship Development (DSSEED) for Entrepreneurship and Delhi School of Analytics for Data Analytics :

Generic Elective (Entrepreneurship) offered by DSSEED	Generic Elective (Data Analytics) offered by Delhi School of Analytics
<ol style="list-style-type: none">1. Entrepreneurship Essentials – 12. Entrepreneurship Essentials – 23. Creativity and Innovation4. Fundraising and Management for Entrepreneurs5. Marketing and Sales for Entrepreneurs6. Startup Operations and Future-proofing7. Social Entrepreneurship and Social Innovation	<ol style="list-style-type: none">1. Python and data fundamentals2. Machine Learning and Applications3. Deep Learning and Application4. Natural Language Processing5. Financial Analytics6. Marketing Analytics7. Accounting Analytics8. Human Resource Analytics9. Social Media Analytics

**POOL OF GENERIC ELECTIVES (ENTREPRENEURSHIP)
OFFERED BY DELHI SCHOOL FOR SKILL ENHANCEMENT AND ENTREPRENEURSHIP
DEVELOPMENT (DSEED)**

GENERIC ELECTIVE (GE-1)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Entrepreneurship Essentials - 1	4	2		2	Class XII pass	Nil

Course Description:

This course provides an overview of the essential aspects of entrepreneurship, equipping students with the knowledge and skills required to identify opportunities, develop innovative business models, and launch successful ventures. The course combines theoretical lectures with practical Session, enabling students to gain hands-on experience in developing their entrepreneurial projects.

Learning Objectives

Students of this course should be able to:

- Understand fundamental concepts and principles of entrepreneurship, including opportunity recognition and value creation.
- Develop an entrepreneurial mindset and skills that will enable them to identify, evaluate, and pursue viable business opportunities with confidence.
- Formulate comprehensive business plans that address key elements such as market analysis, product/service development, marketing strategy, sales strategy, and financial planning.
- Enhance leadership and team management capabilities, empowering them to foster a positive and productive work environment within their ventures.
- Acquire knowledge and skills in marketing aspects of entrepreneurship, including branding, positioning, sales techniques, digital marketing, and networking.

Learning outcomes

At the end of this course, students should be able to:

- Understand the fundamental of entrepreneurship, importance of opportunity recognition and value creation in entrepreneurship.
- Interpret and analyze market research data and customer analysis to make informed business decisions.
- Apply entrepreneurial thinking and skills to identify and evaluate business opportunities.
- Evaluate financial data and projections to make informed financial decisions and manage cash flow effectively.

- Develop effective marketing and sales strategies by combining knowledge of customer analysis, branding, and positioning.

SYLLABUS

Unit 1: Introduction to Entrepreneurship and Opportunity Recognition (16 hours)

Classroom Sessions:

- 1.1.1 Understanding Entrepreneurship: Concepts and Importance
- 1.1.2 Why be an Entrepreneur?
- 1.1.3 Traits of Successful Entrepreneurs, Types of Entrepreneurs (entrepreneurs as leaders)
- 1.1.4 Entrepreneurial Ecosystem in India

Practical Sessions:

- 1.1.1 Guest Speaker Session
- 1.1.2 Entrepreneurial Mindset Assessment (GETT)
- 1.1.3 Entrepreneurial Traits Analysis and Role Play
- 1.1.4 A field trip to a local startup incubator

Essential Readings:

- 1.1.1 Baron, R. A., & Shane, S. A. (2008). Entrepreneurship: A process perspective. Cengage Learning. .
- 1.1.2 Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2019). Entrepreneurship (11th ed.). McGraw-Hill Education.

Suggested Readings:

- 1.1.1 Shane, S. A. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. Edward Elgar Publishing. .
- 1.1.2 Gupta, V. K., & Batra, S. (2019). Entrepreneurship: New Venture Creation (2nd ed.). Pearson.

Suggested Case Studies (Indian Context):

- 1.1.1 Online e-commerce websites like Flipkart etc. (Focus on Laying the foundations)
- 1.1.2 Online Fintech providers like Paytm etc. (Focus on Launching Digital Wallets in India)
- 1.1.3 Online hotel room aggregators like OYO etc. (Focus on Starting small in an unorganised sector)

Unit 2: Entrepreneurial Mindset (16 hours)

Classroom Sessions:

- 1.2.1 Introduction to Entrepreneurial Mindset
- 1.2.2 Key Dimensions of Entrepreneurial Mindset and its role in Entrepreneurial Success
- 1.2.3 Developing & Cultivating an Entrepreneurial Mindset
- 1.2.4 Ethical Considerations for Entrepreneurs

Practical Sessions:

- 1.2.1 Mindset Reflection Exercise (Gratitude Journal, SWOT analysis, Failures and Learnings)
- 1.2.2 Interaction with a successful entrepreneur
- 1.2.3 Personal Growth Plan
- 1.2.4 Case Study Analysis

Essential Readings:

- 1.2.1 Neck, H. M., Neck, C. P., & Murray, E. L. (2017). Entrepreneurship: The practice and mindset. SAGE Publications. .
- 1.2.2 Dweck, C. S. (2006). Mindset: The new psychology of success. Ballantine Books.

Suggested Readings:

- 1.2.1 Sarasvathy, S. D. (2009). Effectuation: Elements of entrepreneurial expertise. Edward Elgar Publishing. .
- 1.2.2 Morris, M. H., Kuratko, D. F., & Covin, J. G. (2020). Corporate entrepreneurship: Entrepreneurial development within organizations. Cengage Learning.

Suggested Case Studies (Indian Context):

- 1.2.1 Influential Indian entrepreneurs like Dhirubhai Ambani etc.
- 1.2.2 Industry leaders like Narayana Murthy etc. (Focus on building businesses from Scratch)
- 1.2.3 Important corporate scandals in India like the Satyam Scandal (Focus on Lessons in Corporate Ethics)

Unit 3: Business Opportunities Identification (12 hours)**Classroom Sessions:**

- 1.3.1 Identifying, Evaluating Business Opportunities and Generating Ideas
- 1.3.2 Concept of Empathy and Design Thinking
- 1.3.3 Identifying opportunities for social entrepreneurship
- 1.3.4 Feasibility & Viability Analysis

Practical Sessions:

- 1.3.1 Opportunity Scanning and Idea Generation Workshop
- 1.3.2 Design Thinking Challenge
- 1.3.3 Social Impact Assessment Workshop
- 1.3.4 Feasibility Study Simulation

Essential Readings:

- 1.3.1 Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business.
- 1.3.2 Bornstein, David. (2003). How to change the world : social entrepreneurs and the power of new ideas. Oxford ; New York : Oxford University Press.

Suggested Readings:

- 1.3.1 Baron, R. A. (2018). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. Academy of Management Perspectives, 32(3), 332-345.
- 1.3.2 Timmons, J. A., & Spinelli, S. (2019). New venture creation: Entrepreneurship for the 21st century. McGraw-Hill Education.

Suggested Case Studies (Indian Context):

- 1.3.1 Online Cab aggregators like Ola Cabs (Focus on Revolutionizing the Taxi Industry)
- 1.3.2 Social upliftment ventures like Project Chirag etc. (Focus on Empowering Rural India)
- 1.3.3. Online food delivery aggregators like Zomato (Focus on making the move from Start-up to Unicorn)

Unit 4: Market Analysis & Customer Research (16 hours)

Classroom Sessions:

- 1.4.1 Know your customers: Basics of Segmenting the customer and the market
- 1.4.2 Identifying Customer Segmentation and Conducting Market Research
- 1.4.3 Customer Value Proposition
- 1.4.4 Moving ahead with customer targeting

Practical Sessions:

- 1.4.1 Market Segmentation Activity
- 1.4.2 Designing a Market Research Plan
- 1.4.3 Crafting a Unique Value Proposition
- 1.4.4 Customer Targeting Simulation

Essential Readings:

- 1.4.1 Kotler, P., Keller, K.L., & Cunningham, P.H. (2018). Marketing Management. Pearson .
- McDonald, M., & Dunbar, I. (2012). Market segmentation: How to do it, how to profit from it. John Wiley & Sons.
- 1.4.2 Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). Value proposition design: How to create products and services customers want. John Wiley & Sons. .

Suggested Readings:

- 1.4.1 Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. Journal of Marketing, 52(3),
- 1.4.2 Dibb, S., Simkin, L., Pride, W. M., & Ferrell, O. C. (2019). Marketing concepts and strategies. Cengage Learning. .

Suggested Case Studies (Indian Context):

- 1.4.1 Dairy co-operatives in India like Amul etc. (Focus on Targeting Different Customer Segments)
- 1.4.2 Online e-commerce websites like Flipkart etc. (Focus on Crafting a Customer-Centric Value Proposition)
- 1.4.3 Online food delivery aggregators like Swiggy etc. (Focus on Revolutionizing Food Delivery through Targeted Marketing)

GENERIC ELECTIVE (GE-2)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Entrepreneurship Essentials - 2	4	2		2	Class XII pass	Entrepreneurship Essentials - 1

Course Description:

Course Description:

This course provides a comprehensive understanding of key concepts and strategies in entrepreneurship and innovation. It covers various aspects of starting and growing a business, including business models, funding and financial management, marketing, and scaling the venture. Through a combination of theoretical knowledge and practical applications, learners will develop the necessary skills to identify opportunities, create value propositions, and navigate the challenges of entrepreneurship.

Learning Objectives:

Students of this course should be able to:

- Understand the fundamentals of business models, lean startup methodology, competitive analysis, and go-to-market strategies.
- Explore different funding sources for startups and evaluate financing options available, including government and non-government schemes.
- Develop skills in financial planning, projection, and project evaluation to make informed financial decisions.
- Gain insights into branding, positioning, sales techniques, customer acquisition strategies, and the use of social media and digital marketing for entrepreneurial success.
- Learn how to build strategic partnerships and alliances, manage operations, and navigate legal and intellectual property considerations.
- Explore growth strategies, business expansion, and scaling techniques, while understanding exit strategies and preparing for potential exits.

Learning Outcomes:

At the end of this course, students will be able to:

- Analyze and create business models using the Business Model Canvas framework, incorporating lean startup principles and competitive analysis.
- Identify and evaluate different funding sources and financing options suitable for startups, and develop financial plans and projections.
- Apply marketing techniques to effectively brand, position, and promote products or services, utilizing social media and digital marketing channels.

- Employ sales techniques and customer acquisition strategies to drive business growth and profitability.
- Understand the importance of networking and collaboration for business growth, and build strategic partnerships and alliances.
- Demonstrate knowledge of operational management considerations, including organizing, staffing, and legal and intellectual property rights.
- Evaluate growth strategies, expansion opportunities, and scaling techniques to sustain and develop the venture.
- Identify exit strategies and effectively plan for an exit, considering various factors such as valuation and succession planning.
- Following Bloom's Taxonomy, the learning outcomes cover various cognitive levels, including understanding, applying, analyzing, evaluating, and creating.

SYLLABUS

Unit 1: Business Models & Go-to-Market (16 hours)

Classroom Sessions:

- 2.1.1 Introduction to Business Models and Business Model Canvas
- 2.1.2 Lean Business model and its key components
- 2.1.3 Competitive Analysis and Market Positioning
- 2.1.4 Go-to-Market and Pricing Strategies

Practical Sessions:

- 2.1.1 Business Model Canvas Workshop
- 2.1.2 Lean Business Model Simulation Game
- 2.1.3 Competitive Analysis and Positioning Exercise
- 2.1.4 Go-to-Market Strategy Simulation

Essential Readings:

- 2.1.1 Osterwalder, A., & Pigneur, Y. (2010). Business model generation: A handbook for visionaries, game changers, and challengers. Wiley.
- 2.1.2 Mullins, J.W., & Komisar, R. (2009). Getting to Plan B: Breaking Through to a Better Business Model. Harvard Business Press.
- 2.1.3. Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business.

Suggested Readings:

- 2.1.1. Amit, R., & Zott, C. (2012). Creating value through business model innovation. MIT Sloan Management Review, 53(3), 41-49.
- 2.1.2 McGrath, R. G. (2010). Business models: A discovery driven approach. Long Range Planning, 43(2-3), 247-261.

Suggested Case Studies (Indian Context):

- 2.1.1 Online e-commerce websites like Flipkart etc. (Focus on Business Models)
- 2.1.2 Focus on Indian FMCG companies like Patanjali Ayurved etc. (Focus on Disrupting the FMCG Sector in India)
- 2.1.3 Online hotel room aggregators like OYO (Focus on Revolutionizing the Hospitality Industry with a Lean Business Model)

Unit 2: Funding and Financial Management (16 hours)

Classroom Sessions:

- 2.2.1 Funding Sources for startups (Bootstrapping, Venture Capital, Angel Investors, Crowdfunding)
- 2.2.2 Funding Schemes and Financing Options for Startups (govt and non-govt)
- 2.2.3 Financial Planning and Projections
- 2.2.4 Project Evaluation and Break-even Analysis

Practical Sessions:

- 2.2.1 Developing investor pitch
- 2.2.2 Exploring Suitable Government and Non-Government Financing Programs for specific Business Model.
- 2.2.3 Developing Financial Projections for Your idea
- 2.2.4 Analysing Cash Flow and Break-even Scenarios

Essential Readings:

- 2.2.1 Hisrich, R. D., & Ramadani, V. (2017). Financing Entrepreneurship and Innovation in Emerging Markets. Springer.
- 2.2.2 Megginson, W. L., Byrd, J. W., & Megginson, L. C. (2015). Small Business Management: An Entrepreneur's Guidebook. McGraw-Hill Education.
- 2.2.3 Gompers, P. A., & Lerner, J. (2004). The Money of Invention: How Venture Capital Creates New Wealth. Harvard Business Press.

Suggested Readings:

- 2.2.1 John Wiley & Sons. Moyer, R.C., McGuigan, J.R., & Kretlow, W.J. (2018). Contemporary Financial Management. Cengage Learning.
- 2.2.2 Blank, S., & Dorf, B. (2012). The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company. K&S Ranch. .

Suggested Case Studies (Indian Context):

- 2.2.1 Online room aggregators like Treebo and OYO etc. (Focus on moving from Bootstrapping to Unicorn)
- 2.2.2 Govt. schemes like Startup India (Focus on Boosting Entrepreneurship in India)
- 2.2.3 Govt initiatives in Fintech sector like BHIM App (Focus on Government Initiative for Digital Payments and Startup Funding)

Unit 3: Marketing Aspects of Entrepreneurship (12 hours)

Classroom Sessions:

- 2.3.1 Branding and Positioning
- 2.3.2 Sales techniques and customer acquisition strategies
- 2.3.3 Social Media and Digital Marketing for Entrepreneurs
- 2.3.4 Networking and Collaborating for Business Growth

Practical Sessions:

- 2.3.1 Discuss a case study on brand building
- 2.3.2 Sales Role-Play Exercise
- 2.3.3 Social Media Campaign Development
- 2.3.4 Networking and Negotiations exercise

Essential Readings:

- 2.3.1 Keller, K. L. (2013). Strategic brand management: Building, measuring, and managing brand equity. Pearson.
- 2.3.2 Chaffey, D., & Ellis-Chadwick, F. (2019). Digital marketing: Strategy, implementation, and practice. Pearson.

Suggested Readings:

- 2.3.1 Qualman, E. (2019). Socialnomics: How social media transforms the way we live and do business. Wiley.
- 2.3.2 Zig Ziglar. (1984). Secrets of Closing the Sale. Revell.

Suggested Case Studies (Indian Context):

- 2.3.1 Dairy co-operatives like Amul etc. (Focus on Branding and Positioning)
- 2.3.2 Online e-commerce providers like Amazon India etc. (Focus on Revolutionizing E-commerce Sales in India)
- 2.3.3 Online food delivery aggregators like Zomato etc. (Focus on Leveraging Social Media for Growth)

Unit 4: Scaling the Venture and Growth Strategies (16 hours)**Classroom Sessions:**

- 2.4.1 Growth Strategies and Business Expansion
- 2.4.2 Building Strategic Partnerships and Alliances
- 2.4.3 Operational Management Considerations (Organizing, Staffing, Legal, IPR)
- 2.4.4 Exit Strategies and Preparing for an Exit

Practical Sessions:

- 2.4.1 Analysing Growth Strategies and Business Expansion Options
- 2.4.2 Designing the Operational Framework for a Startup
- 2.4.3 Identifying and Evaluating Potential Strategic Partnerships and Alliances
- 2.4.4 Exit Planning and Valuation Simulation

Essential Readings:

- 2.4.1 Christensen, C.M., & Raynor, M.E. (2013). The Innovator's Solution: Creating and Sustaining Successful Growth. Harvard Business Review Press.
- 2.4.2 Collis, D. J., & Montgomery, C. A. (2008). Competing on resources: Strategy in the 1990s. Harvard Business Review, 73(4), 118-128.

Suggested Readings:

- 2.4.1 Das, T. K., & Teng, B. (2001). Trust, control, and risk in strategic alliances: An integrated framework. Organization Studies, 22(2), 251-283.
- 2.4.2 Huse, M., & Ovesen, G. H. (2016). Preparing for exit: A qualitative study of business exit in SMEs. Journal of Small Business and Enterprise Development, 23(3), 706-724.

Suggested Case Studies (Indian Context):

- 2.4.1 Dairy co-operatives like Amul etc. (Focus on taking Indian dairy brand products Global)
- 2.4.2 Coffee chains like Tata Starbucks (Focus on Strategic Alliances for Market Penetration)
- 2.4.3 Online fintech service providers like Paytm etc. (Focus on Managing Operations)

GENERIC ELECTIVE (GE-3)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Creativity, and Innovation	4	2		2	Class XII pass	Nil

Course Description:

This engaging course combines creativity, innovation, and Lean Startup principles to equip entrepreneurs with the tools to turn ideas into successful businesses. Participants will learn to foster a creative mindset, implement innovative solutions, and use Lean Startup techniques such as MVPs and the build-measure-learn feedback loop. The blend of classroom sessions, practical activities, and case studies ensures that participants can apply these strategies to their own ventures in today's competitive business environment.

Learning Objectives:

Students of this course should be able to:

- Identify with a creative mindset that can help enhance creative problem-solving skills.
- Examine the importance of innovation in business success.
- Apply tools and techniques to foster creativity and innovation within their organizations.
- Evaluate the key principles of the Lean Startup methodology.
- Experiment to test Minimum Viable Products (MVPs) and validate business ideas.
- Formulate a Build-Measure-Learn feedback loop for continuous improvement.
- Assemble customer feedback and data-driven decisions to scale and pivot the business.

Learning Outcomes:

At the end of this course, students should be able to:

- Enhanced creative thinking and problem-solving skills to generate innovative ideas and solutions.
- Use their understanding of the role innovation plays in driving business success.
- Judge the application of suitable tools and techniques to foster creativity and innovation within their organizations.
- Set up the implementation of the Lean Startup methodology and its principles for efficient business development.
- Select specific measures to design, test, and validate Minimum Viable Products (MVPs) to assess business ideas.
- Interpret the learnings from the build-measure-learn feedback loop to facilitate continuous improvement and learning.

SYLLABUS

Unit 1: Foundations of Creativity and Innovation (16 hours)

Classroom Sessions:

- 3.1.1 Foundations of Creativity and Innovations
- 3.1.2 Creative thinking process, Developing a creative mindset, and Overcoming creative blocks
- 3.1.3 Types of Innovation: Incremental, Disruptive, and Radical, The Innovation Process: from idea to execution
- 3.1.4 Managing risk and uncertainty in innovation, measuring innovation success

Practical Sessions:

- 3.1.1 Creativity and Idea Generation Exercises like Brainstorming, SCAMPER, and Random word association etc.
- 3.1.2 Exploring Types of Innovation through Case Studies
- 3.1.3 Idea evaluation and selection exercises
- 3.1.4 Risk assessment and mitigation workshops

Essential Readings:

- 3.1.1 Csikszentmihalyi, M. (1996). Creativity: Flow and the Psychology of Discovery and Invention. HarperCollins.
- 3.1.2 Tidd, J., & Bessant, J. (2018). Managing Innovation: Integrating Technological, Market and Organizational Change. John Wiley & Sons.
- 3.1.3 Christensen, C.M. (2016). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Harvard Business Review Press.

Suggested Readings:

- 3.1.1 Dyer, J., Gregersen, H., & Christensen, C.M. (2011). The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators. Harvard Business Review Press.
- 3.1.2 Kelley, T., & Littman, J. (2001). The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm. Currency.

Suggested Case Studies (Indian Context):

- 3.1.1 Dairy co-operatives like Amul etc. (Focus on Growing through Cooperative Innovation)
- 3.1.2 Video-on-demand service providers like The Viral Fever (TVF) etc. (Focus on Redefining Indian Digital Entertainment)
- 3.1.3 Food start-ups like ID Fresh Food etc. (Focus on Disrupting the Indian Food Market)

Unit 2: Design Thinking and Prototyping (16 hours)

Classroom Sessions:

- 3.2.1 Introduction to Design Thinking: Principles and Process
- 3.2.2 Empathy and Understanding User Needs
- 3.2.3 Ideation, Concept Development, and Selection
- 3.2.4 Prototyping, Testing, and Iteration

Practical Sessions:

- 3.2.1 Design Thinking Workshop: Defining a Problem or Opportunity
- 3.2.2 Empathy Mapping and User Research
- 3.2.3 Ideation and Concept Development Exercises
- 3.2.4 Prototyping, Testing, and Iteration

Essential Readings:

- 3.2.1 Brown, T. (2009). Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation. Harper Business.
- 3.2.2 Liedtka, J., & Ogilvie, T. (2011). Designing for Growth: A Design Thinking Tool Kit for Managers. Columbia University Press.

Suggested Readings:

- 3.2.1 Norman, D. A. (2013). The Design of Everyday Things: Revised and Expanded Edition. Basic Books.
- 3.2.2 Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business.

Suggested Case Studies (Indian Context):

- 3.2.1 Online fintech providers like Razorpay etc. (Focus on Digital Payments for a large user base)
- 3.2.2 Online education providers like Unacademy etc. (Focus on Online Learning)
- 3.3.3 IT Start-ups like Khatabook etc. (Focus on Digitizing India's Small Businesses)
- 3.3.4 Online fintech providers like CRED etc. (Focus on Building Trust and growing the business)

Unit 3: Innovate and Iterate: The Power of Lean Startups (12 hours)**Classroom Sessions:**

- 3.3.1 Overview of the Lean Startup Methodology and its Principles
- 3.3.2 Understanding the concepts like Split Testing, Pivot, Business-Measure-Learn (BML) and Minimum Viable Product (MVP)
- 3.3.3 Designing market scenarios to test hypotheses
- 3.3.4 Analysing results and making data-driven decisions

Practical Sessions:

- 3.3.1 Identifying customer needs and problems to solve
- 3.3.2 Designing a Value Proposition and Defining Customer Segments
- 3.3.3 Developing an MVP for your business idea, conducting experiments and gathering customer feedback
- 3.3.4 Measuring the success of your MVP and experiments, Iterating and refining your business idea based on feedback

Essential Readings:

- 3.3.1 Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business.
- 3.3.2 Maurya, A. (2012). Running Lean: Iterate from Plan A to a Plan That Works. O'Reilly Media.

Suggested Readings:

- 3.3.1 Blank, S., & Dorf, B. (2012). The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company. K&S Ranch.
- 3.3.2 Osterwalder, A., Pigneur, Y., & Papadacos, T. (2014). Value Proposition Design: How to Create Products and Services Customers Want. John Wiley & Sons.

Suggested Case Studies (Indian Context):

- 3.3.1 Online hotel room aggregators like OYO etc. (Focus on Embracing Lean Startup Principles in the Indian Hospitality Industry)

- 3.3.2 Online food delivery aggregators like Zomato etc. (Focus on Scaling with Lean Startup Methodology)
- 3.3.3 Online grocery delivery providers like Grofers etc. (Focus on Adapting and Growing with a Lean Approach)
- 3.3.4 Online car rental providers like Zoomcar etc. (Focus on Navigating the Car Rental Industry with Lean Startup Principles)

Unit 4: Launching and Scaling Innovative Ventures (16 hours)

Classroom Sessions:

- 3.4.1 Innovating for Social Causes
- 3.4.2 New Product development and testing
- 3.4.3 Growth Strategies for Innovative Businesses
- 3.4.4 Managing Innovation and Building an Innovative Culture

Practical Sessions:

- 3.4.1 Identifying Funding and Financing Options for Your Venture
- 3.4.2 Identifying new product development processes and benchmarks and testing plans and parameters
- 3.4.3 Designing a Growth Strategy for Your Innovative Venture
- 3.4.4 Creating an Action Plan for Building an Innovative Culture

Essential Readings:

- 3.4.1 Kawasaki, G. (2015). The Art of the Start 2.0: The Time-Tested, Battle-Hardened Guide for Anyone Starting Anything. Portfolio.
- 3.4.2 Blank, S., & Dorf, B. (2012). The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company. K&S Ranch.

Suggested Readings:

- 3.4.1 Hoffman, R., & Casnocha, B. (2012). The Start-up of You: Adapt to the Future, Invest in Yourself, and Transform Your Career. Crown Business.
- 3.4.2 Thiel, P., & Masters, B. (2014). Zero to One: Notes on Startups, or How to Build the Future. Crown Business.

Suggested Case Studies (Indian Context):

- 3.4.1 EdTech service providers like Byju's etc. (Focus on Disrupting the EdTech Space with Personalized Learning)
- 3.4.2 Online hyperlocal delivery providers like Dunzo etc. (Focus on Transforming Hyperlocal Delivery through Technology)

GENERIC ELECTIVE (GE-4)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Fundraising and Management for Entrepreneurs	4	2		2	Class XII pass	Nil

Course Description:

This course explores various fundraising strategies and techniques for entrepreneurs while emphasizing effective management of acquired funds. Students will learn about different sources of funding, investor relations, financial planning, and budgeting. The course combines classroom lectures with hands-on Practical Session, providing students with practical experience in fundraising and financial management.

Learning Objectives:

Students of this course should be able to:

- Describe the key concepts, principles, and strategies related to fundraising and financial management for entrepreneurial ventures.
- Compare various funding sources, including angel investors, venture capitalists, grants, and crowdfunding platforms, and determine the most suitable options for their businesses.
- Devise and create compelling investor pitches, develop financial projections, and effectively manage their venture's financial resources.
- Assemble some real-world examples and case studies that will help them understand the practical aspects of fundraising and financial management in the context of entrepreneurship.
- Assess their critical thinking, problem-solving, and decision-making skills.

Learning Outcomes:

At the end of this course, students should be able to:

- Recognize various fundraising strategies and techniques, enabling students to choose the most appropriate funding sources for their entrepreneurial ventures.
- Sketch effective pitches and fundraising campaigns tailored to different types of investors and funding sources, ensuring successful capital-raising efforts.
- Manage strong investor relationships through effective communication and reporting, fostering trust and ongoing support.
- Prepare comprehensive financial plans and budgets for their businesses, supporting both short-term and long-term financial goals.
- Test to determine optimal cash flows and working capital management, that will help ensure the financial sustainability and growth of their ventures.

SYLLABUS

Unit 1: Fundraising Strategies and Sources (16 hours)

Classroom Sessions:

- 4.1.1 Introduction to Fundraising for Entrepreneurs
- 4.1.2 Bootstrapping and Self-Financing
- 4.1.3 Financial Planning and Budgeting for Entrepreneurs
- 4.1.4 Cash Flow Management and Working Capital Optimization

Practical Sessions:

- 4.1.1 Evaluating Different Fundraising Strategies
- 4.1.2 Developing a Self-Financing Plan
- 4.1.3 Crafting an Effective Pitch for Investors
- 4.1.4 Analysing Debt Financing Options

Essential Readings:

- 4.1.1 Gompers, P.A., & Lerner, J. (2004). The Venture Capital Cycle. MIT Press.
- 4.1.2 Bhidé, A. (2000). The Origin and Evolution of New Businesses. Oxford University Press.

Suggested Readings:

- 4.1.1 Bygrave, W.D., & Zacharakis, A. (2014). Entrepreneurship. Wiley.
- 4.1.2 Dorsey, D. (2003). Bootstrap Business. Adams Media.

Suggested Case Studies (Indian Context):

- 4.1.1 Online food delivery aggregators like Zomato etc. (Focus on Navigating the venture capital landscape)
- 4.1.2 Online cab aggregators like Ola Cabs etc. (Focus on Raising capital through multiple funding rounds)
- 4.1.3 Indian FMCG companies like Patanjali Ayurveda etc. (Focus on Bootstrapping and organic growth in the FMCG sector)

Unit 2: Crowdfunding and Alternative Financing (16 hours)

Classroom Sessions:

- 4.2.1 Crowdfunding: Types, Platforms, and Best Practices
- 4.2.2 Peer-to-Peer Lending, Microfinancing and Social Stock Exchange
- 4.2.3 Strategic Partnerships and Joint Ventures
- 4.2.4 Social Impact Investing and Corporate Social Responsibility

Practical Session:

- 4.2.1 Developing a Crowdfunding Campaign
- 4.2.2 Exploring Peer-to-Peer Lending and Microfinancing Platforms
- 4.2.3 Identifying Potential Strategic Partners and Joint Ventures
- 4.2.4 Assessing Social Impact Investment Opportunities

Essential Readings:

- 4.2.1 Macht, S.A. (2014). The Crowdfunding Revolution: Social Networking Meets Venture Financing. CreateSpace Independent Publishing Platform.
- 4.2.2 Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building Social Business: The New Kind of Capitalism that Serves Humanity's Most Pressing Needs. Public Affairs.

Suggested Readings:

- 4.2.1 Mollick, E. (2014). The Dynamics of Crowdfunding: An Exploratory Study. Journal of Business Venturing.
- 4.2.2 Morduch, J., & Haley, B. (2002). Analysis of the Effects of Microfinance on Poverty Reduction. NYU Wagner Working Paper.

Suggested Case Studies (Indian Context):

- 4.2.1 Online donation services providers like Ketto etc. (Focus on Success and challenges of crowdfunding in India)
- 4.2.2 Online fintech services providers like Milaap etc. (Focus on the Impact of peer-to-peer lending and microfinancing in India)
- 4.2.3 Electricity generation and service providers like Tata Power etc. (Focus on Strategic partnerships and joint ventures in the renewable energy sector)

Unit 3: Investor Relations and Communications (12 hours)**Classroom Sessions:**

- 4.3.1 Building and Maintaining Investor Relationships
- 4.3.2 Effective Communication Strategies for Investors
- 4.3.3 Reporting Financial Performance and Progress
- 4.3.4 Navigating Difficult Conversations and Negotiations

Practical Session:

- 4.3.1 Role-Playing Investor Meetings
- 4.3.2 Creating an Investor Relations Communications Plan
- 4.3.3 Preparing Financial Reports for Investors
- 4.3.4 Practicing Difficult Conversations and Negotiations with Investors

Essential Readings:

- 4.3.1 Mahon, J.F., & Wartick, S.L. (2003). Dealing with Stakeholders: How Reputation, Credibility, and Framing Influence the Game. Corporate Reputation Review.
- 4.3.2 Goleman, D., Boyatzis, R., & McKee, A. (2013). Primal Leadership: Unleashing the Power of Emotional Intelligence. Harvard Business Review Press.

Suggested Readings:

- 4.3.1 Fisher, R., Ury, W., & Patton, B. (2011). Getting to Yes: Negotiating Agreement Without Giving In. Penguin Books.
- 4.3.2 Gallo, C. (2014). Talk Like TED: The 9 Public Speaking Secrets of the World's Top Minds. St. Martin's Press.

Suggested Case Studies (Indian Context):

- 4.3.1 Online e-commerce providers like Flipkart etc. (Focus on Investor relations)
- 4.3.2 Online fintech providers like Paytm etc. (Focus on Investor Communications)
- 4.3.3 Online hotel room aggregators like OYO Rooms etc. (Focus on Managing investor expectations amidst global expansion)

Unit 4: Financial Management and Budgeting (16 hours)**Classroom Sessions:**

- 4.4.1 Equity Financing: Seed Fund, Angel Investors and Venture Capital
- 4.4.2 Debt Financing: Loans, Grants, and Government Schemes
- 4.4.3 Monitoring and Controlling Expenditure
- 4.4.4 Financial Performance Analysis and Benchmarking

Practical Sessions:

- 4.4.1 Creating a Financial Plan and Budget for a Business
- 4.4.2 Analysing Cash Flow and Working Capital Management
- 4.4.3 Implementing Cost Control Measures
- 4.4.4 Conducting Financial Performance Analysis and Benchmarking

Essential Readings:

- 4.4.1 Brigham, E.F., & Ehrhardt, M.C. (2016). Financial Management: Theory & Practice. Cengage Learning.
- 4.4.2 Atrill, P., & McLaney, E. (2018). Accounting and Finance for Non-Specialists. Pearson.

Suggested Readings:

- 4.4.1 Horngren, C.T., Sundem, G.L., Schatzberg, J.O., & Burgstahler, D. (2017). Introduction to Management Accounting. Pearson.
- 4.4.2 Gitman, L.J., & Zutter, C.J. (2018). Principles of Managerial Finance. Pearson.

Suggested Case Studies (Indian Context):

- 4.4.1 Online FMCG and grocery delivery providers like BigBasket etc. (Focus on Financial management during rapid growth and increased competition)
- 4.4.2 Personal care service providers like Nykaa (Focus on Balancing growth and profitability in the Indian e-commerce space)
- 4.4.3 Online food delivery aggregators like Swiggy (Focus on Cash flow management and working capital optimization in the food delivery industry)

GENERIC ELECTIVE (GE-5)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Marketing and Sales for Entrepreneurs	4	2		2	Class XII pass	Nil

Course Description:

This Marketing and Sales for Entrepreneurs course focuses on marketing and sales fundamentals, tailored specifically for entrepreneurs. Students will learn about marketing strategies, customer acquisition, and sales techniques to effectively promote and sell their products or services. The course combines classroom lectures with hands-on Practical Session, providing students with practical experience in marketing and sales.

Learning Objectives:

Students of this course should be able to:

- Describe the key concepts, principles, and strategies related to marketing and sales for entrepreneurial ventures.
- Construct, develop and execute effective marketing campaigns, leveraging digital marketing tools and techniques.
- Discover the skills and knowledge needed to master the sales process, build lasting customer relationships, and achieve customer retention.
- Compare real-world examples and case studies to enable better understanding of the practical aspects of marketing and sales in the context of entrepreneurship.

Learning outcomes:

At the end of this course, students should be able to:

- Recall the fundamentals of marketing and sales in the entrepreneurial context.
- Use tailored marketing strategies, including segmentation, targeting, and positioning.
- Test and implement digital marketing techniques like social media, content marketing, and SEO.
- Set up and maintain strong customer relationships.
- Manage customer retention and business development strategies.

SYLLABUS

Unit 1: Marketing Basics and Strategy for Entrepreneurs (16 hours)

Classroom Sessions:

- 5.1.1 Marketing Fundamentals for Entrepreneurs
- 5.1.2 Market Segmentation, Targeting, and Positioning

- 5.1.3 Creating a Unique Selling Proposition (USP)
- 5.1.4 Developing a Marketing Strategy and Marketing Mix

Practical Sessions:

- 5.1.1 Identifying Target Markets and Customer Profiles
- 5.1.2 Developing a USP and Positioning Statement
- 5.1.3 Crafting a Marketing Strategy
- 5.1.4 Analysing the Marketing Mix (Product, Price, Place, Promotion)

Essential Readings:

- 5.1.1 Kotler, P., & Armstrong, G. (2020). Principles of Marketing. Pearson.
- 5.1.2 Godin, S. (2003). Purple Cow: Transform Your Business by Being Remarkable. Portfolio.

Suggested Readings:

Suggested Readings:

- 5.1.1 Ries, E. (2017). The Startup Way: How Modern Companies Use Entrepreneurial Management to Transform Culture and Drive Long-Term Growth. Currency.
- 5.1.2 McCarthy, J., & Perreault, W. (2008). Basic Marketing: A Global-Managerial Approach. McGraw-Hill.

Suggested Case Studies (Indian Context):

- 5.1.1 Dairy co-operatives like Amul etc. (Focus on Building a strong brand through cooperative marketing)
- 5.1.2 Food start-ups like Paper Boat etc. (Focus on Nostalgia-driven marketing in the Indian beverage industry)
- 5.1.3 Online food delivery aggregators like Zomato etc. (Focus on Harnessing digital marketing for growth in the food delivery space)

Unit 2: Digital Marketing for Entrepreneurs (16 hours)

Classroom Sessions:

- 5.2.1 Introduction to Digital Marketing
- 5.2.2 Social Media Marketing and Advertising
- 5.2.3 Search Engine Optimization (SEO) and Online Advertising.
- 5.2.4 Content and Email Marketing.

Practical Sessions:

- 5.2.1 Developing a Digital Marketing Strategy
- 5.2.2 Creating Social Media Marketing Campaigns
- 5.2.3 Implementing Content Marketing and SEO Techniques
- 5.2.4 Designing Email Marketing Campaigns and Online Advertising

Essential Readings:

- 5.2.1 Ryan, D. (2019). Digital Marketing: Strategy, Implementation, and Practice. Pearson.
- 5.2.2 Halligan, B., & Shah, D. (2014). Inbound Marketing: Attract, Engage, and Delight Customers Online. Wiley.

Suggested Readings:

- 5.2.1 Chaffey, D., & Ellis-Chadwick, F. (2019). Digital Marketing. Pearson.
- 5.2.2 Patel, N., & Hines, K. (2018). The Definitive Guide to Growth Hacking. Quick Sprout.

Suggested Case Studies (Indian Context):

- 5.2.1 Online e-commerce providers like Flipkart etc. (Focus on Pioneering e-commerce marketing in India)
- 5.2.2 Personal care services providers Nykaa (Leveraging social media and content marketing to build a beauty empire)
- 5.2.3 EdTech service providers like Byju's etc. (Focus on Scaling an ed-tech startup through online advertising and app marketing)

Unit 3: Sales and Business Development (12 hours)**Classroom Sessions:**

- 5.3.1 Sales Fundamentals for Entrepreneurs
- 5.3.2 The Sales Process and Sales Techniques
- 5.3.3 Negotiation Skills and Closing Deals
- 5.3.4 Business Development and Strategic Partnerships

Practical Sessions:

- 5.3.1 Creating a Sales Plan and Setting Sales Goals
- 5.3.2 Role-playing Sales Scenarios and Techniques
- 5.3.3 Practicing Negotiation Skills and Closing Techniques
- 5.3.4 Identifying Business Development Opportunities and Partnerships

Essential Readings:

- 5.3.1 Tracy, B. (2006). The Psychology of Selling: Increase Your Sales Faster and Easier Than You Ever Thought Possible. HarperCollins Leadership.
- 5.3.2 Gitomer, J. (2004). The Little Red Book of Selling: 12.5 Principles of Sales Greatness. Bard Press.

Suggested Readings:

- 5.3.1 Pink, D. H. (2012). To Sell Is Human: The Surprising Truth About Moving Others. Riverhead Books.
- 5.3.2 Rackham, N. (1988). SPIN Selling. McGraw-Hill.

Suggested Case Studies (Indian Context):

- 5.3.1 Online cab aggregators like Ola Cabs etc. (Focus on Sales and business development strategies in the Indian ride-hailing market)
- 5.3.2 Optical services provider start-ups like Lenskart etc. (Focus on Expanding through online and offline sales channels)
- 5.3.3 Software services providers like Zoho etc. (Focus on Global growth and business development in the software industry)

Unit 4: Customer Relationship Management (CRM) and Retention (16 hours)**Classroom Session:**

- 5.4.1 Introduction to Customer Relationship Management (CRM)
- 5.4.2 Building and Maintaining Customer Relationships
- 5.4.3 Customer Retention Strategies and Loyalty Programs
- 5.4.4 Measuring Customer Satisfaction, Customer Acquisition Cost (CAC) and Customer Lifetime Value (CLV)

Practical Session:

- 5.4.1 Exploring CRM Tools and Techniques
- 5.4.2 Designing Customer Engagement and Communication Plans

5.4.3 Developing Customer Retention Strategies and Loyalty Programs

5.4.4 Analysing Customer Satisfaction Metrics and CLV

Essential Readings:

5.4.1 Peppers, D., & Rogers, M. (2016). Managing Customer Experience and Relationships: A Strategic Framework. Wiley.

5.4.2 Reichheld, F.F. (2003). The Loyalty Effect: The Hidden Force Behind Growth, Profits, and Lasting Value. Harvard Business Review Press.

Suggested Readings:

5.4.1 Blattberg, R.C., Malthouse, E.C., & Neslin, S.A. (2009). Customer Lifetime Value: Reshaping the Way We Manage to Maximize Profits. Wiley.

5.4.2 Gartner, A. (2014). Customer Success: How Innovative Companies Are Reducing Churn and Growing Recurring Revenue. Wiley.

Suggested Case Studies (Indian Context):

5.4.1 Online fintech services providers like Paytm etc. (Focus on Enhancing customer engagement and loyalty through innovative CRM strategies)

5.4.2 Online FMCG and grocery delivery providers like BigBasket etc. (Focus on Building customer retention in the competitive online grocery market)

5.4.3 Online food delivery aggregators like Swiggy etc. (Focus on Balancing customer satisfaction and operational efficiency in food delivery)

GENERIC ELECTIVE (GE-6)						
Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Startup Operations and Future-proofing	4	2		2	Class XII pass	Nil

Course Description:

This course focuses on the operational aspects of starting and running a successful startup venture. Students will learn how to protect their intellectual property, navigate legal channels, and future-proof their business. The course combines theoretical lectures with practical sessions, enabling students to gain hands-on experience in developing their startup operations.

Learning Objectives:

Students of this course should be able to:

- Describe the key operational aspects of starting and running a successful startup venture.
- Assess the importance of safeguarding innovation and intellectual property.
- Assemble knowledge of legal and regulatory requirements for startups, including compliance with relevant regulations.
- Devise ways to future-proof their business and adapt to changing market conditions.

Learning Outcomes:

At the end of this course, students should be able to:

- Recognize the key operational aspects of starting and running a successful startup venture.
- Sketch out an effective understanding of how to protect their innovation and intellectual property.
- Manage legal and regulatory requirements and compliances for startups.
- Prepare strategies to future-proof their business and adapt to changing market conditions.

SYLLABUS

Unit 1: Introduction to Startup Operations (16 hours)

Classroom Sessions:

- 6.1.1 Introduction to Startup Operations, Key Operational Challenges for Startups
- 6.1.2 Operations Strategy: Aligning operations with business goals
- 6.1.3 Key Operational Functions: Production, Supply Chain and Quality Management
- 6.1.4 Operational Resilience: Concept and Implementation

Practical Sessions:

- 6.1.1 Identifying Key Operational Challenges for Startups
- 6.1.2 Developing Operational Plans

6.1.3 Evaluating Operational Risks and Challenges

6.1.4 Building Operational Resilience, Mapping Start-up value streams and identifying improvement areas.

Essential Readings:

6.1.1 Blank, S. (2012). The Four Steps to the Epiphany. K&S Ranch.

6.1.2 Eisenmann, T. (2012). Entrepreneurship: Starting, Developing, and Managing a New Enterprise. Pearson.

6.1.3 Campbell, A., Gutierrez, M., & Lancelott, M. (2017). Operating Model Canvas: Aligning Operations and Organization with Strategy. Van Haren Publishing.

Suggested Readings:

6.1.1 Osterwalder, A. (2014). Value Proposition Design: How to Create Products and Services Customers Want. Wiley.

6.1.2 Maurya, A. (2012). Running Lean: Iterate from Plan A to a Plan That Works. O'Reilly Media.

Relevant Case Studies:

6.1.1 Online homestay aggregators like Airbnb etc. (Focus on Building Operational Resilience through Crisis Management)

6.1.1 Online cab aggregators like Uber etc. (Focus on Managing Rapid Growth and Operational Scale)

Unit 2: Safeguarding Innovation and IPR (12 hours)

Classroom Sessions:

6.2.1 Importance of Innovation and Intellectual Property

6.2.2 Types of Intellectual Property

6.2.3 Intellectual Property Protection Strategies

6.2.4 Intellectual Property Management

Practical Session:

6.2.1 Identifying Intellectual Property

6.2.2 Developing an Intellectual Property Strategy

6.2.3 Filing for Intellectual Property Protection

6.2.4 Intellectual Property Management

Essential Readings:

6.2.1 Chesbrough, H.W. (2010). Open Business Models: How to Thrive in the New Innovation Landscape. Harvard Business Press.

6.2.2 Furr, N., & Dyer, J.H. (2014). The Innovator's Method: Bringing the Lean Start-up into Your Organization. Harvard Business Review Press.

Suggested Readings:

6.2.1 Gassmann, O., Frankenberger, K., & Csik, M. (2014). The Business Model Navigator: 55 Models That Will Revolutionize Your Business. Pearson.

6.2.2 Harreld, J.B., O'Reilly III, C.A., & Tushman, M.L. (2018). Winning Now, Winning Later: How Companies Can Succeed in the Short Term While Investing for the Long Term. Crown Business.

Relevant Case Studies:

6.2.1 Start-up electric vehicle manufacturers like Tesla etc. (Focus on Protecting Innovation through Intellectual Property)

6.2.2 Beverage manufacturers like Coca-Cola etc. (Focus on Managing Trademark Protection and Brand Value)

Unit 3: Navigating Legal Channels (16 hours)

Classroom Sessions:

- 6.3.1 Introduction to Legal Channels for Startups
- 6.3.2 Legal Structures for Startups
- 6.3.3 Contracts and Agreements for Startups
- 6.3.4 Compliance and Regulations for Startups

Practical Session:

- 6.3.1 Choosing a Legal Structure for Your Startup
- 6.3.2 Drafting Contracts and Agreements
- 6.3.3 Understanding Compliance and Regulations
- 6.3.4 Legal Due Diligence and Risk Management

Essential Readings:

- 6.3.1 Bagley, C.E., & Dauchy, C.E. (2011). The Entrepreneur's Guide to Business Law. Cengage Learning.
- 6.3.2 Kohlhagen, R.W. (2018). Business Law: An Introduction. Cengage Learning.

Suggested Readings:

- 6.3.1 Bygrave, W.D., & Zacharakis, A. (2013). Entrepreneurship: A Process Perspective. Cengage Learning.
- 6.3.2 Macey, J.R. (2010). Macey on Corporation Laws. Aspen Publishers.

Relevant Case Studies:

- 6.3.1 Tech and IT Device manufacturers like Apple etc. (Navigating Legal Issues for a Tech Startup)
- 6.3.2 Search engine services like Google etc. (Legal Due Diligence for Acquisitions and Partnerships)

Unit 4: Future-Proofing the Business (16 hours)

Classroom Sessions:

- 6.4.1 Understanding Market Trends and Disruptions
- 6.4.2 Innovation and Adaptability for Startups
- 6.4.3 Building a Resilient Business Model
- 6.4.4 Strategies for Growth and Expansion

Practical Sessions:

- 6.4.1 Analysing Market Trends and Disruptions
- 6.4.2 Developing Innovation and Adaptability Strategies
- 6.4.3 Building a Resilient Business Model
- 6.4.4 Planning for Growth and Expansion

Essential Readings:

- 6.4.1 Christensen, C.M. (2016). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Harvard Business Review Press.
- 6.4.2 Moore, G.A. (2014). Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers. HarperCollins.

Suggested Readings:

- 6.4.1 Blank, S. (2012). The Four Steps to the Epiphany. K&S Ranch.

6.4.2 Furr, N., & Dyer, J.H. (2014). The Innovator's Method: Bringing the Lean Start-up into Your Organization. Harvard Business Review Press.

Relevant Case Studies:

6.4.1 Online e-commerce providers like Amazon etc. (Focus on Innovation and Adaptability in the E-Commerce Industry)

6.4.2 OTT entertainment providers like Netflix etc. (Focus on Building a Resilient Business Model through Disruptive Innovation)

GENERIC ELECTIVE (GE-7)

Credit distribution, Eligibility and Pre-requisites of the Course						
Course title	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Social Entrepreneurship and Social Innovation	4	2		2	Class XII pass	Nil

Course Description:

The course provides students with the knowledge and skills needed to create and manage ventures that address social, environmental, or cultural issues. Students will explore the principles of social entrepreneurship, learn how to develop innovative solutions to pressing social challenges and understand the unique business models, funding strategies, and impact measurement approaches used by social enterprises. Through case studies, interactive lectures, and practical exercises, students will gain the expertise required to turn their passion for social change into viable, sustainable, and impactful ventures.

Learning Objectives:

Students of this course should be able to:

- Identify the key concepts, principles, and strategies related to social entrepreneurship and social innovation.
- Discover how to identify social, environmental, or cultural issues and develop innovative solutions using entrepreneurial approaches.
- Classify the skills and knowledge needed to create, manage, and scale social enterprises, including unique business models, funding strategies, and impact measurement approaches.
- Examine real-world examples and case studies, helping them understand the practical aspects of social entrepreneurship and social innovation.
- Assemble tools that help the students develop critical thinking, problem-solving, and decision-making skills; thus, enabling them to better navigate the complex landscape of social entrepreneurship and create meaningful social impact.

Learning Outcomes:

At the end of this course, students will be able to:

- Match and apply the key concepts and principles of social entrepreneurship and social innovation in various contexts.
- Inspect social, environmental, or cultural issues and develop innovative solutions using entrepreneurial approaches.
- Manage, create and scale social enterprises
- Select the various critical thinking, problem-solving, and decision-making skills that they have absorbed to navigate the complex landscape of social entrepreneurship and create meaningful social impact

SYLLABUS

Unit 1: Introduction to Social Entrepreneurship and Social Innovation (16 hours)

Classroom Sessions:

- 7.1.1 Understanding Social Entrepreneurship and Social Innovation
- 7.1.2 The Social Entrepreneurial Mindset and Skills
- 7.1.3 Identifying Social Needs and Opportunities
- 7.1.4 Social Enterprise Models and Legal Structures

Practical Sessions:

- 7.1.1 Assessing Personal Social Entrepreneurial Mindsets
- 7.1.2 Identifying Social Needs and Opportunities
- 7.1.3 Evaluating Social Business Models
- 7.1.4 Selecting Social Enterprise Legal Structures

Essential Readings:

- 7.1.1 Bornstein, D., & Davis, S. (2010). Social Entrepreneurship: What Everyone Needs to Know. Oxford University Press.
- 7.1.2 Mair, J., & Marti, I. (2006). Social Entrepreneurship Research: A Source of Explanation, Prediction, and Delight. Journal of World Business.

Suggested Readings:

- 7.1.1 Dees, J. G., Emerson, J., & Economy, P. (2002). Enterprising Nonprofits: A Toolkit for Social Entrepreneurs. Wiley.
- 7.1.2 Nicholls, A. (2008). Social Entrepreneurship: New Models of Sustainable Social Change. Oxford University Press.

Suggested Case Studies (Indian Context):

- 7.1.1 Social start-ups like SELCO India etc. (Focus on Pioneering off-grid solar energy solutions)
- 7.1.2 Social healthcare providers like Aravind Eye Care System etc. (Accessible eye care for all)
- 7.1.3 Furnishings start-ups like Jaipur Rugs etc. (Empowering rural artisans through a sustainable supply chain)

Unit 2: Designing and Implementing Social Innovation (16 hours)**Classroom Sessions:**

- 7.2.1 The Social Innovation Process
- 7.2.2 Human-Centred Design for Social Impact
- 7.2.3 Prototyping and Testing Social Innovations
- 7.2.4 Measuring and Evaluating Social Impact

Practical Sessions:

- 7.2.1 Understanding the Social Innovation Process
- 7.2.2 Applying Human-Centred Design for Social Impact
- 7.2.3 Prototyping and Testing Social Innovations
- 7.2.4 Measuring and Evaluating Social Impact

Essential Readings:

- 7.2.1 Mulgan, G. (2018). The Process of Social Innovation. MIT Press.
- 7.2.2 Brown, T., & Wyatt, J. (2010). Design Thinking for Social Innovation. Stanford Social Innovation Review.

Suggested Readings:

- 7.2.1 Altringer, B. (2019). The Design Thinking Playbook. MIT Press.

7.2.2 Pol, E., & Ville, S. (2009). Social Innovation: Buzzword or Enduring Term? The Journal of Socio-Economics.

Suggested Case Studies (Indian Context):

- 7.2.1 Social start-ups like Pratham etc. (Focus on Innovative education models to address illiteracy in India)
- 7.2.2 Social start-ups like SEWA etc. (Focus on Empowering women through skill development and microfinance)
- 7.2.3 Social start-ups like Gram Vikas etc. (Focus on Sustainable and inclusive rural development)

Unit 3: Funding and Scaling Social Enterprises and Innovations (12 hours)

Classroom Sessions:

- 7.3.1 Funding Sources for Social Enterprises and Innovations
- 7.3.2 Impact Investing and Social Venture Capital
- 7.3.3 Grant Funding and Philanthropy
- 7.3.4 Scaling Strategies for Social Enterprises and Innovations

Practical Sessions:

- 7.3.1 Identifying Funding Sources for Social Enterprises and Innovations
- 7.3.2 Exploring Impact Investing and Social Venture Capital
- 7.3.3 Securing Grant Funding and Philanthropic Support
- 7.3.4 Developing a Scaling Strategy for Social Enterprises and Innovations

Essential Readings:

- 7.3.1 Bugg-Levine, A., & Emerson, J. (2011). Impact Investing: Transforming How We Make Money While Making a Difference. Wiley.
- 7.3.2 Epstein, M.J., & Yuthas, K. (2014). Measuring and Improving Social Impacts: A Guide for Nonprofits, Companies, and Impact Investors. Berrett-Koehler Publishers.

Suggested Readings:

- 7.3.1 Clark, C., Emerson, J., & Thornley, B. (2012). The Impact Investor: Lessons in Leadership and Strategy for Collaborative Capitalism. Jossey-Bass.
- 7.3.2 Reis, T., & Clohesy, S. (2001). Unleashing New Resources and Entrepreneurship for the Common Good: A Scan, Synthesis and Scenario for Action. W.K. Kellogg Foundation.

Suggested Case Studies (Indian Context):

- 7.3.1 Social start-ups like Pratham etc. (Focus on Scaling educational impact through partnerships)
- 7.3.2 Social start-ups like Waste Ventures India etc. (Focus on Tackling waste management through innovative business models)
- 7.3.3 Social start-ups like WaterHealth International etc. (Focus on Providing clean water to rural communities)

Unit 4: Collaborations and Partnerships for Social Impact (16 hours)

Classroom Sessions:

- 7.4.1 Public-Private Partnerships for Social Impact
- 7.4.2 Collaborating with NGOs and Nonprofits
- 7.4.3 Cross-sector Collaboration and Collective Impact
- 7.4.4 Networking and Building Partnerships for Social Enterprises and Innovations

Practical Sessions:

- 7.4.1 Analysing Public-Private Partnerships for Social Impact
- 7.4.2 Exploring Collaborations with NGOs and Nonprofits

7.4.3 Designing Cross-sector Collaboration and Collective Impact Initiatives

7.4.4 Practicing Networking and Partnership Building Skills

Essential Readings:

7.4.1 Austin, J.E., & Seitanidi, M.M. (2012). Collaborative Value Creation: A Review of Partnering Between Nonprofits and Businesses. *Nonprofit and Voluntary Sector Quarterly*.

7.4.2 Kania, J., & Kramer, M. (2011). Collective Impact. *Stanford Social Innovation Review*.

Suggested Readings:

7.4.1 Selsky, J.W., & Parker, B. (2005). Cross-sector Partnerships to Address Social Issues: Challenges to Theory and Practice. *Journal of Management*.

7.4.2 Waddell, S., Waddock, S., Cornell, S., Dentoni, D., McLachlan, M., & Meszoely, G. (2015). Large Systems Change: An Emerging Field of Transformation and Transitions. *Journal of Corporate Citizenship*.

Suggested Case Studies (Indian Context):

7.4.1 Social service providers like Akshaya Patra etc. (Focus on Public-private partnership for school meal programs)

7.4.2 Social education start-ups like Barefoot College etc. (Empowering rural communities through education and skill development)

7.4.3 Social NGOS' like Goonj etc. (Focus on Cross-sector collaboration for resource management and upcycling)

Pedagogy and Course Operations

1. **Course Credits:** Taking all 7 courses on offer under this GE will allow the student to earn 28 credits, thus conferring a Minor specialisation upon the student for their regular course.
2. **Interactive Classroom Sessions:** Classroom Sessions should incorporate real-life examples, case studies, and multimedia elements to facilitate learning.
3. **Group Discussions:** Students will participate in group discussions during class, sharing their insights, experiences, and ideas to enhance collective learning and promote critical thinking.
4. **In-class Exercises:** Students will engage in practical exercises and activities designed to reinforce the concepts and skills taught in the Classroom Sessions. These may include individual or group work, brainstorming sessions, or problem-solving exercises.
5. **Case Studies:** Suggested Case Studies will be integrated into the curriculum to help students analyse and understand real-world entrepreneurial challenges and opportunities. Students will be encouraged to dissect the cases, propose solutions, and learn from the experiences of other entrepreneurs.
6. **Practice Labs:** Students will participate in hands-on practical sessions; working on projects or assignments that apply entrepreneurship concepts learned in class. These sessions will allow students to develop and refine their entrepreneurial skills through practical experience.
7. **Student Presentations:** The students will be encouraged to present their ideas and projects in workshops and seminars.

8. **Reflection Activities:** Regular reflection activities will be incorporated into the course, encouraging students to assess their progress, identify areas for improvement, and develop a deeper understanding of their entrepreneurial journey.
9. **Mentorship and Feedback:** Instructors and/or industry mentors will provide ongoing guidance, support, and feedback to students, helping them navigate challenges and make informed decisions.
10. **Assessment and Evaluation:** A combination of assignments, quizzes, exams, and project work will be used to evaluate students' understanding of the course material and their ability to apply entrepreneurial principles and practices effectively.
11. **Course Improvements:** This is a new course thus regular evolution is needed. The course contents would need to thus modified. DSSEED would constitute a Course Improvement Committee which should be able to monitor and implement changes upto 20% of the course content without the need to seek approval from the statutory bodies of the University of Delhi.
12. **Teachers:** The course teaching will be supplemented by practitioners and industry experts to enhance the learning experience.

List of Additional Case Studies

(Indian and International Context)

1. Blue Tokai Coffee Roasters
2. Narayana Hrudalaya
3. GoJek
4. Rapido
5. BluSmart
6. Mamaearth
7. BharatPe
8. Housing.com
9. GoMechanic
10. Unacademy
11. WeWork
12. OceanGate
13. BYD
14. NIO
15. Country Delight
16. Zepto
17. Urban Company
18. Burger Singh
19. RedBus
20. Akasa Air
21. Okinawa Motors
22. Treebo
23. Uniqlo
24. The Baker's Dozen
25. Theranos

POOL OF GENERIC ELECTIVES (DATA ANALYTICS)

OFFERED BY DELHI SCHOOL OF ANALYTICS

GENERIC ELECTIVES (GE-1)

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
		Lecture	Tutorial	Practical/ Practice		
Python and data fundamentals	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

The Learning Objectives of this course are as follows:

1. Understand the context of machine learning.
2. Know how to use python/R for machine learning

Learning outcomes

The Learning Outcomes of this course are as follows:

1. Understand the data needs of generalised machine learning algorithms.
2. Have a working knowledge of machine learning algorithms.

SYLLABUS OF GE-1

Unit 1 (3 weeks)

Fundamentals of python for machine learning: Basic operations and functions, loops, assign variables, python data types, tuples, lists, dictionary, slicing, if statements, arrays, python libraries and their use- pandas, numpy, matplotlib, sci-kit learn, pyspark, reading and manipulating data -selecting rows/columns, merging data, OOPS in python

Unit 2 (3Weeks)

Machine Learning: Introduction, Definitions and types of machine learning

Foundation of Data Analytics: – Introduction, Evolution, Concept and Scopes, Data, Big Data, Metrics and Data classification, Data Reliability & Validity, Introduction to Descriptive Analytics, Predictive Analytics and Prescriptive Analytics.

Unit 3 (4 Weeks)

Data pre-processing and cleaning: data manipulation steps (sorting, filtering, duplicates, merging, appending, subsetting, derived variables, data type conversions, renaming,

formatting, etc.), normalizing data, sampling, missing value treatment, outliers, coding nominal and ordinal variables.

Unit 4 (4 weeks)

Exploratory data analysis: Data visualization using matplotlib, seaborn libraries, creating graphs (bar/line/pie/boxplot/histogram, etc.), summarizing data, descriptive statistics, univariate analysis (distribution of data), bivariate analysis (cross tabs, distributions and relationships, graphical analysis)

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

Essential/recommended readings

1. Machine Learning using Python, Manaranjan Pradhan, U Dinesh Kumar, ISBN: 9788126579907
2. Ethem Alpaydin, "Introduction to Machine Learning" 2nd Edition, The MIT Press, 2009.
3. Tom M. Mitchell, "Machine Learning", First Edition by Tata McGraw-Hill Education, 2013.
4. Christopher M. Bishop, "Pattern Recognition and Machine Learning" by Springer, 2007.
5. Mevin P. Murphy, "Machine Learning: A Probabilistic Perspective" by The MIT Press, 2012.

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

GENERIC ELECTIVES (GE-2)

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
		Lecture	Tutorial	Practical/ Practice		
Machine Learning and Applications	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

The Learning Objectives of this course are as follows:

1. Understand the various machine learning algorithms
2. Understand their applicability and context

Learning outcomes

The Learning Outcomes of this course are as follows:

1. Have a working knowledge of machine learning algorithms.
2. Understand how to evaluate performance of the algorithms

SYLLABUS OF GE-2

Unit 1 (5 Weeks)

Supervised Machine Learning: Linear Regression, Multiple Linear Regression, Logistic Regression, Application to multi-class classification, Overfitting and Regularization. Classification using K-Nearest Neighbourhood algorithm, Naive Bayes classifier, Decision Trees (CHAID Analytics), Support Vector Machines. Handling class imbalance in classification problems, Performance metrics for classification and regression problems-their meaning, understanding and application

Unit 2 (5 Weeks)

Unsupervised Machine Learning: Introduction, Clustering, K-Means algorithm, Affinity Propagation, Agglomerative Hierarchical, DBSCAN, Dimensionality Reduction using Principal Component Analysis. Detailed understanding of the performance metrics for these algorithms.

Unit 3 (4 Weeks)

Handling standard datasets available at machine learning repositories for classification and regression problems. Handling unsupervised problems in real datasets

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

Essential/recommended readings

1. Machine Learning using Python, Manaranjan Pradhan, U Dinesh Kumar, ISBN: 9788126579907
2. Ethem Alpaydin, "Introduction to Machine Learning" 2nd Edition, The MIT Press, 2009.
3. Tom M. Mitchell, "Machine Learning", First Edition by Tata McGraw-Hill Education, 2013.
4. Christopher M. Bishop, "Pattern Recognition and Machine Learning" by Springer, 2007.
5. Mevin P. Murphy, "Machine Learning: A Probabilistic Perspective" by The MIT Press, 2012.

Practical:

The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

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

GENERIC ELECTIVES (GE-3)

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
		Lecture	Tutorial	Practical/ Practice		
Deep Learning and Application	4	3	0	1	12 th Pass	Basic understanding of Statistics

Learning Objectives

This course focuses on the most recent advances in Deep Learning and Artificial Intelligence. In understandable steps, this course builds from a one node neural network to multiple features, multiple output neural networks.

Learning outcomes

- Understand the context of neural networks and deep learning.
- Know how to use a neural network.
- Understand the data needs of generalised deep learning algorithms.
- Have a working knowledge of neural networks and Reinforcement learning algorithms.
- Explore the parameters for neural networks.

SYLLABUS OF GE-3

Unit 1 (4 Weeks)

An introduction to Neural Networks: The basic architecture of neural network, single computational layer: the perceptron, objective function, choice of activation and loss function, choice of number of output nodes, some useful activation functions

Multilayer Neural Networks: Basics, computational graph, training a neural network with backpropagation, the problem of overfitting, difficulties in convergence

Common Neural Architectures: Radial Basis Function Network, Recurrent Neural Networks, Convolutional Neural Networks. (Theory Only) *Practical in Python on the following - Using SVM -Building a Perceptron , choosing loss functions*

Unit 2 Shallow Neural Networks (3 Weeks)

Neural Architecture for Binary Classification models: Least square regression (Widrow- Hoff Learning), Logistic Regression, SVM

Neural Architectures for Multiclass Models: Multiclass Perceptron, Weston- Watkins SVM, SoftMax Classifier, Hierarchical SoftMax for many classes, backpropagated Saliency for feature selection. *Practical in Python on the following: - Multiclass Perceptron- Hierarchical SoftMax for many classes*

Unit 3 Autoencoders (3 Weeks)

Principal Component Analysis and its interpretations, Singular Value Decomposition, Autoencoders with single hidden layer, sharing weights in encoder and decoder, Matrix factorization with Autoencoders, non-linear activation, application in outlier detection *Practical in Python on the following: -Matrix factorization with Autoencoders - Backpropagation*

Unit 4 (4 Weeks)

Generalised Deep Learning

Fundamentals: Bias- Variance Trade-Off, Penalty based regularisation: L1, L2 Regularisation, Lasso Regression, Ridge regression

Reinforcement Learning: basic framework of Reinforcement learning, challenges in reinforcement learning, Naïve Algorithm, epsilon- greedy algorithm, upper bounding methods

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

Essential/recommended readings

Neural Networks and Deep Learning: A Textbook by Charu C Aggarwal, Springer (ISBN 978-3-319-94462-3)

Suggestive readings

1. Deep Learning- Ian Goodfellow, Yoshua Benjio, Aaron Courville, The MIT Press
2. Pattern Classification- Richard O. Duda, Peter E. Hart, David G. Stork, John Wiley & Sons Inc.

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

GENERIC ELECTIVES (GE-4)

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
		Lecture	Tutorial	Practical/ Practice		
Natural Language Processing	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

Natural language processing deals with written text. Students will learn how to process written text from basic of fundamental knowledge starts with Finite automata, Regular expression and probabilistic model with n-grams. Recognizing Speech and parsing with grammar. We will focus on the computational properties of natural languages and of the algorithms used to process them, as well as the match between grammar formalisms and the linguistic data that needs to be covered.

Learning outcomes

- Explain the advantages and disadvantages of different NLP technologies and their applicability in different business situations.

- Use NLP technologies to explore and gain a broad understanding of text data.
- Use NLP methods to analyse sentiment of a text document.
- Learn both a linguistic and an algorithmic perspective

SYLLABUS OF GE-4

Unit 1 Introduction (3 Weeks)

Introduction: What is NLP, Origins, Challenges, Language and Grammar, NLP Applications, some successful early NLP systems, Information retrieval Language Modelling: Introduction, Grammar based language models, statistical language models

Unit 2 Word Analysis (3 Weeks)

Word Level Analysis : Regular Expressions, finite state automata, morphological parsing, spelling error detection and correction, words and word classes ,part of speech tagging
Syntactic and Semantic Analysis : Context- free grammar, parsing, probabilistic parsing, lexical semantics, ambiguity, word sense disambiguation

Unit 3 Information Retrieval (4 Weeks)

Information Retrieval: Design Features of Information Retrieval systems , information retrieval models, classical information retrieval models, natural language processing in IR, relational matching, knowledge-based approaches , conceptual graphs in IR.

Unit 4 Text Analysis- Practical Unit (4 Weeks)

Overview, Sentiment Classification (Loading, Exploring) Pre-processing of data: Bag-of-Words(BoW) Model, Creating Count Vectors, displaying document vectors, understanding and removing low-frequency words, understanding and removing stop words, creating count vectors, distribution of words across different sentiments Naive Bayes Model: Fundamentals of Naive Bayes, building the Naive Bayes model, making prediction on test case, model accuracy Using TF-IDF Vectorizer, n-grams, building model using n-grams.

Essential/recommended readings

1. Natural Language Processing and Information Retrieval, by Tanveer Siddiqui and U.S Tiwary , Oxford Higher Education
2. Machine Learning using Python by Manaranjan Pradhan and U Dinesh Kumar , Wiley Publishing

Suggestive readings

1. Natural Language Processing Crash Course for Beginners: Theory and Applications of NLP using TensorFlow 2.0 and Keras by AI Publishing
2. Practical Natural Language Processing: A Comprehensive Guide to Building Real-World NLP Systems (Greyscale Indian Edition

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

GENERIC ELECTIVES (GE-5)

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
		Lecture	Tutorial	Practical/ Practice		
Financial Analytics	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

Nearly every industry is generating a vast amount of data and nearly every business leader today understands the importance of making sense out of that data to drive business strategy. Companies need more from finance than just accurate financial statement analysis. They need predictive insights which can improve their real-time day to day decision making. Finance analytics enables to combine internal financial information with external information by using social media and big data to provide predictive insights. Whether it is with respect to stock market prediction or customer profitability, finance analytics enables to provide a direction in predicting all.

Learning outcomes

1. Understand Importance of analysing data in designing business strategy
2. Apply the knowledge to perform the required financial analytics using powerful tools like R and/or python

SYLLABUS OF GE-5

Unit – 1 (3 Weeks)

Introduction to R. Introduction to Finance. Accounting Data Analysis. Understanding data in finance, sources of data, cleaning and pre-processing data. Use of Machine Learning models in Finance.

Unit – 2 (4 Weeks)

Building Models Using Accounting Data, Modelling and forecasting of financial statements, Fraud Analytics, News Analytics, Sentiment Analysis.

Unit – 3 (4 Weeks)

Time Series Analysis in R/python, Understanding stock price behaviour, Introduction to Technical Analysis and Back-testing Trading Models.

Unit – 4 (3 Weeks)

Introduction to Algorithmic Trading and Building stock prices forecasting models using Machine Learning and Deep learning

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through R /python software.

Essential/recommended readings

1. Financial Analytics with R: Building a Laptop Laboratory for Data Science Book by Dirk L. Hugen and Mark Joseph
2. Python for Finance: Mastering Data-Driven Finance by Yves Hilpisch.
3. Basic R for Finance by Diethelm Wurtz, Longhow Lam, Andrew Ellis and Yohan Chalabi

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

GENERIC ELECTIVES (GE-6)

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
		Lecture	Tutorial	Practical/ Practice		
Marketing Analytics	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

Marketing and Retail analytics is the process of measuring, managing, and analyzing marketing performance to maximize effectiveness and optimize investment return. This supports the business to improve its operations and customer experience by providing a 360-degree view of the customer's needs. The course focuses on the application of Analytics from a business perspective. It focuses on the concepts and the understanding of applications. .

Learning outcomes

- By the end of this course, participants will be able to:
 - Understand the “WHY”, “WHERE” and “HOW” of Analytics in Marketing and retail.
 - “Why” Analytics has now become imperative for businesses
 - “Where” you can apply Analytics
 - “How” you can apply Analytics
 - Learn how to plan and implement Analytics projects
 - Move beyond predictive analytics into prescriptive analytics
 - Choose the appropriate analytic technique to solve specific business problems

SYLLABUS OF GE-6

Unit 1 Digital Analytics (3 Weeks)

Introduction, Data collection, Key metrics, outcome analysis (conversion rate, average order value, multi-channel funnel), experience analysis, making web analytics actionable, dashboard creation Segmentation: fundamentals of PCA, Factor Analysis, choice modelling and classification, principal component analysis, cluster and conjoint analysis, K-means clustering, Hierarchical clustering, DBSCAN

Unit 2 Affiliates and Attribution Modelling (3 Weeks)

what is Affiliate marketing, how affiliates get paid Multi-channel attribution , last interaction attribution model, first interaction attribution model, time decay attribution mode, position based attribution model, multi-channel funnel report Marketing Mix: Introduction, Market Mix Modelling, Variables in Market Mix Modelling, Techniques of Market Mix Modelling *Practical- LTA model in R/Python-FTA model in R/Python*

Unit 3

Customer Analysis (4 Weeks)

Customer Journey: Introduction, Importance of Customer Journey, What is Customer Journey Mapping?, Customer Journey Mapping and Use of Analytics, How to Map a Customer’s Journey?, What Does Analytics with Customer Journeys Involve?, Customer Journey Use Case for a Beverage Brand, Journey of a Loyal Customer, Applying Principal Components to Brand Nurturing Customers: Introduction, Metrics for Tracking Customer Experience

Upgrading Customers: Use Case of Upselling, Logistic Regression Analysis, Use of Logistic Regression as a Classification Technique Customer Analytics: Introduction, Customer Lifetime Value, Churn Analytics

Unit 4 Learning KNIME tool (4 Weeks)

This unit is primarily practical

Installation and the KNIME Workspace, Virtual Tour Through KNIME Analytics Platform, Analytics Platform Welcome Page, Workbench, Node, Workflow, Workflows and Workflow Groups, The Node Repository, Importing and Exporting Workflows, Node Creation and Basic Commands, Data Table Structure, Annotations and Comments, Customizing KNIME Analytics Platform, Installing Extensions, Simple Metanodes and Wrapped Metanodes

Blending: Data Access with KNIME, The KNIME Protocol, The Excel Reader Node, The File Reader Node, The Table Reader Node, The Join Operation and Methods, The Joiner Node, What is Concatenation

Data Manipulation: Row Filtering Based on Pattern Matching, Row Filtering Based on Numerical Values, Row Filtering Based on Row ID, What is a Column Filter?, The Column Filter Node, Numbers, Strings, and Rules, What is Data Aggregation?, The Group By Node, Advanced Aggregation with the Group By Node, The Pivoting Node

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

Essential/recommended readings

1. Digital Marketing 2nd Edition by Seema Gupta, McGraw Hill
2. Marketing Analytics by Seema Gupta and Avadhoot Jathar, Wiley Analytics Series for Management
3. Learning Material :<https://www.knime.com/learning>

Suggestive readings

1. Marketing Analytics - For Strategic Decision-Making by Moutusy Maity and Pavankumar Gurazada, Oxford Publishing

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

GENERIC ELECTIVES (GE-7)

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
		Lecture	Tutorial	Practical/ Practice		
Accounting Analytics	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

This course provides the analytics knowledge, skills, and competencies to address earnings management issues in organisations. It introduces the central concepts of accounting analytics and via hands-on exercises, builds skills and competencies around the management, analysis and representation of data.

Learning outcomes

- Students are able to do a ratio analysis of a company to identify the sources of its competitive advantage (or red flags of potential trouble), and then use that information to forecast its future financial statements.
- How to spot earnings management and get a more accurate picture of earnings, so that students are able to catch some bad guys in finance reporting.
- Students will have a knowledge of a very strong tool kit that will help to detect financial statements that may have been manipulated by managers.
- How predictive analytics can be used to determine what you should be measuring, how to weigh very, very different performance measures when trying to analyse potential financial results, how to make trade-offs between short-term and long-term objectives, and how to set performance targets for optimal financial performance.

SYLLABUS OF GE- 7

Unit 1 - Ratios and Forecasting (3 Weeks)

Review financial statements and sources of financial statement information. The company's strategy and business model and Du-pont analysis. Ratio analysis – short term solvency ratios, long term solvency ratios, turnover ratios and profitability ratios (Historical ratio analysis of real company using Excel). How to use all the ratios, to forecast future financial statements. Accounting based valuation.

Unit 2 - Earnings Management (4 Weeks)

Overview of earnings management: Means, motive, opportunity, how managers actually make their earnings look better, their incentives for manipulating earnings, and how they get away with it. Revenue recognition red flags: revenue before cash collection. Revenue recognition red flags: revenue after cash collection. Expense recognition red flags: capitalizing vs. expensing. Expense recognition red flags: reserve Accounts and write-offs.

Unit 3 - Big Data and Prediction Models (4 Weeks)

Overview big data and prediction models. Discretionary accruals models: model the non-cash portion of earnings or accruals. Discretionary expenditure Models: model the cash portion of earnings. Fraud prediction models and Benford's law.

Unit – 4 Non-financial Metrics and Financial Performance (3 Weeks)

Introduction: Connecting numbers to non-financial performance measures. Linking non-financial metrics to financial performance: Overview and steps. Targets setting, incorporation of analysis results in financial models and how to use analytics to choose action plans.

Practical component (if any) - PYTHON/R

Essential/recommended readings

1. Introduction to Earnings Management by Malek El Diri
2. Data Analytics for Accounting by Vernon J. Richardson (Author), Ryan A. Teeter, Katie L. Terrell, Partha Sarathi Mohapatra.
3. Predictive Analytics for Business Strategy - Reasoning from Data to Actionable Knowledge by Jeffrey T. Prince, Amarnath Bose

Practical component (if any) - The entire syllabus is based on practical exercise or case studies i.e. learning through specified software's like Python, R and Stata

Essential/recommended readings:

1. Introduction to Earnings Management by Malek El Diri
2. Data Analytics for Accounting by Vernon J. Richardson (Author), Ryan A. Teeter, Katie L. Terrell, Partha Sarathi Mohapatra.
3. Predictive Analytics for Business Strategy - Reasoning from Data to Actionable Knowledge by Jeffrey T. Prince, Amarnath Bose

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

GENERIC ELECTIVES (GE-8)

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
		Lecture	Tutorial	Practical/ Practice		
Human Resource Analytics	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

This course provides the analytics knowledge, skills, and competencies to address human resource issues in organisations. It introduces the central concepts of people orientated analytics and via hands-on exercises, builds skills and Competencies around the management, analysis and representation of data.

Learning outcomes

- Understand and discuss the value of human capital analytics concepts
- Understand and discuss the value of methodological concepts relevant to analytics
- Demonstrate skills in implementing analytics to solve HR issues
- Persuasively communicate appropriate (i.e., theoretically sound and practical) recommendations

SYLLABUS OF GE-8

Unit 1

HR Analytics Using Basic Statistical Techniques (3 weeks)

Design Compensation and Benefit Plan Using Conjoint Analysis, Forecast HR Cost Using Time Series Modelling (ARIMA), Manpower Planning Using Monte Carlo Simulation and Markov Chain

Unit 2

HR Analytics Using Unsupervised Machine Learning (3 weeks)

Identify Association of Employee Job Satisfaction Using Association Rule, Determine Factors of Performance Appraisal System Using Dimension Reduction Algorithms, Assess Employee Absenteeism Using Clustering Techniques

Unit 3

HR Analytics Using Supervised Machine Learning (4 weeks)

Predict Employee Salary/Pay Rate Using Supervised Machine Learning Regression Techniques, Predict Employee Attrition Using Supervised Machine Learning Classification Techniques, Predict Employee Promotion Using Neural Network Model

HR Analytics: Practical Approach Using Python by Bharti Motwani, Wiley
Chapter 12, Chapter 13, Chapter 14

Unit 4

HR Analytics for Text Data (4 weeks)

Review Resume Using Text Mining, Evaluate Employee Reviews Using Sentiment Analysis, Automate HR Help Desk Using Chatbots, Employee Recruitment and Selection Using Recommendation System

Practical component (if any) - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

Essential/recommended readings

1. Motwani, B. (2021). HR Analytics: Practical Approach Using Python, Wiley. ISBN: 9789354240027
2. Ng, M.S. (2019) Predictive HR Analytics, Text Mining & Organizational Network Analysis: with Excel, Amazon Digital Services LLC .ISBN: 9781077226906

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

GENERIC ELECTIVES (GE-9)

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
		Lecture	Tutorial	Practical/ Practice		
Social Media Analytics	4	3	0	1	12 th Pass	Basic understanding of statistics

Learning Objectives

Web Analytics, Social Media Analytics, Network Analytics, Mobile Analytics, Influencer Marketing. This course tries to address questions on how organisations can use the wealth of

available data to devise a more result-oriented marketing strategy and leverage digital marketing to enjoy greater ROI.

Learning outcomes

- Understand the concept of digital marketing and its real-world iterations
- Articulate innovative insights of digital marketing enabling a competitive edge
- Understand how to create and run digital media based campaigns
- Identify and utilise various tools such as social media etc.

SYLLABUS OF GE- 9

Unit 1 Social Media Marketing (4 Weeks)

Social Media Marketing: Introduction, Process – Goals, Channels, Implementation, Analyze. Tools: Google and the Search Engine, Facebook, Twitter, YouTube and LinkedIn. Issues: Credibility, Fake News, Paid Influencers; social media and Hate/ Phobic campaigns. Analytics and linkage with social media. The Social Community.

Unit 2 Email Marketing (3 Weeks)

Introduction, email marketing process, design and content, delivery, discovery. Mobile Marketing: Introduction and concept, Process of mobile marketing: goals, setup, monitor, analyse

Unit 3 Mobile Marketing (4 Weeks)

Introduction and concept, Process of mobile marketing: goals, setup, monitor, analyze; Enhancing Digital Experiences with Mobile Apps. Pros and Cons; Targeted advertising. Issues: Data Collection, Privacy, Data Mining, Money and Apps, Security, Spam. Growth Areas.

Unit 4 Managing Digital Marketing (3 Weeks)

Content Production; Video based marketing; Credibility and Digital Marketing; IoT; User Experience; Future of Digital Marketing.

Practical component (if any) - NIL

Essential/recommended readings

1. Dodson, Ian: The Art of Digital Marketing. Wiley
2. Ryan, Damien: Understanding Digital Marketing. Kogan Page Limited

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


REGISTRAR