

Savitribai Phule Pune University, Pune

Maharashtra, India



National Education Policy (NEP)-2020 Compliant Curriculum

Second Year Engineering

Open Electives for Semester III and Semester IV

(With effect from Academic Year 2025-26)



Savitribai Phule Pune University, Pune



Maharashtra, India

Semester - III

Open Elective - I	
Offering Faculty	Course Name
Commerce & Management	Digital Marketing
Commerce & Management	Digital Business Technology
Commerce & Management	Personal Financial Management
Commerce & Management	Supply Chain Management
Commerce & Management	Digital Manufacturing

With effect from Academic Year 2025-26
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Savitribai Phule Pune University		
Digital Marketing		
Teaching Scheme	Credits	Examination Scheme
Theory : 02 Hours/Week	02	CCE : 15 Marks End-Semester: 35 Marks

Companion Course : Information and Cyber Security Laboratory

Course Objectives: The course aims to:

1. To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies.
2. To know the importance of Social Media Platforms importance in Digital Marketing
3. To understand the technological importance of Search Engine Optimization (SEO)

Course Outcomes: Upon successful completion of this course, students will be able to:

- CO1: **Understand** the basic Concepts of Digital marketing
- CO2: **Apply** digital marketing tools for suitable applications
- CO3: **Examine** the various social media and design Advertising campaigns
- CO4: **Learn** search engine optimization (SEO) techniques and **apply** it for suitable application to increase page views.
- CO5 : **Analyse** social media advertising platforms

Course Contents

Unit I - Introduction to Digital Marketing (07 Hours)

Fundamentals of Digital marketing & Its Significance, Traditional marketing Vs Digital Marketing, Evolution of Digital Marketing, Digital Marketing Landscape, Key Drivers, The Digital users in India, Digital marketing Strategy- Consumer Decision journey Digital advertising Market in India, Skills in Digital Marketing, Digital marketing Plan.

Unit II - Digital Marketing Terminology (07 Hours)

Terminology used in Digital Marketing, PPC and online marketing through social media, Social Media Marketing, Google web-master and analytics overview, Email Marketing, Mobile Marketing Display advertng, Buying Models, different type of ad tools, Display advertising terminology, types of display ads, different ad formats

Unit III - Social Media Marketing (08 Hours)

Fundamentals of Social Media Marketing& its significance, Necessity of Social media Marketing Facebook Marketing: Facebook for Business, Facebook Insight, Different types of Ad formats, setting up Facebook Advertising Account, Facebook audience & types, Designing Facebook Advertising campaigns, Facebook Avatar, Apps, Live, Hashtags

Unit IV - Search Engine Optimization (SEO) (08 Hours)

Introduction to SEO, How Search engine works, SEO Phases, History Of SEO, How SEO Works, Googlebot (Google Crawler), Types of SEO technique, Keyword Planner tools Social media Reach- Video Creation & Submission, Maintenance- SEO tactics, Google search Engine

Learning Resources

Text Books:

1. V. Ahuja, Digital Marketing, Oxford University Press
2. D. Ryan, C. Jones, "Understanding Digital Marketing Strategies for Engaging the Digital Generation", Koganpage Publication, (2nd Edition)
3. Chinmay Kamat, Nitin Kamat, "Digital Marketing", Himalaya Publishing House, (2nd Edition)

Reference Books:

1. H. Annmarie , A. Joanna, "Quick win Digital Marketing", Paperback edition, Oak Tree Press
2. Seema Gupta, "Digital Marketting", Mc Graw Hill (3d Edition)

Savitribai Phule Pune University		
Digital Business and Technology		
Teaching /scheme	Credits	Examination Scheme
Theory : 02 Hours/Week	02	CCE : 15 Marks End-Semester: 35 Marks

Course Objectives: The course aims to:

1. To UNDERSTAND digital transformation and its impact on business
2. To UNDERSTAND Digital Business Model Innovation, Learn Through Real-World Case Studies
3. To UNDERSTAND how automation supports to enhance Digital business.
4. To APPLY digital marketing strategies (SEO, social media), and emerging tech (AI, IoT)

Course Outcomes: Upon successful completion of this course, students will be able to:

- CO.1 **UNDERSTAND** the concept of Digitization, Impact of Digital Marketing, processes, and strategies.
- CO.2 **COMPARE** digital business models using case studies.
- CO.3 **IMPLEMENT** basic automation tools in business workflows.
- CO.4 **UNDERSTAND** the Role of Technology in Startups and **Evaluate** E-commerce Platforms.

Course Contents

Unit I -Introduction to Digital Business (07 Hours)

Introduction to digitization, impact of digitization on business. Social media marketing, digital business models, concept of digital marketing and its impact. Digital strategy and innovation.

Case Study: Sell products online via platforms like Amazon, Flipkart, and Shopify, reaching global customers 24/7

Unit II -Digital Business Model (07 Hours)

Introduction to digital business model innovation, key drivers of digital business model reinvention, types of digital business model, case study on anyone reinvented business organization..

Case study : Subscription-based streaming, original content production, personalized recommendations using AI

Unit III - Business Automation and Cyber Security- (08 Hours)

Introduction to Automation in Digital Business, Role of Automation, Automation Technologies, Automation Implementation and Integration, Impact of Automation on Digital Business. Introduction to Cyber security, Cyber security Measures and Best Practices.

Case study:

Unit IV - Emerging Tech and Entrepreneurship- (08 Hours)

Role of technology in modern startups, Digital marketing fundamentals: SEO, social media, email Marketing E-commerce platforms and tools (Shopify, Woo Commerce, etc.), Introduction to AI, IoT, and block chain in startups.

Case study: Automate tasks, analyze data, personalize user experiences, and develop smart products.

Learning Resources

Text Books:

1. Stephanie Diamond, "Digital Marketing All-In-One for Dummies".
2. Pradip Thomas, "Digital India: Understanding Information, Communication and Social Change".
3. George .Westerman, Didier Bonnet, and Andrew McAfee , "Leading Digital: Turning Technology into Business Transformation" , Harvard Business Press.
4. Amresh Bharati, "Digital Marketing" , Invincible Publication

Savitribai Phule Pune University		
Personal Financial Management		
Teaching /scheme	Credits	Examination Scheme
Theory : 02 Hours/Week	02	CCE : 15 Marks End-Semester: 35 Marks

Course Objectives: The course aims to:

1. Introduce students to essential concepts of personal finance, budgeting, and savings.
2. Equip students with knowledge of banking, credit, and responsible borrowing.
3. Enable students to understand and evaluate investment and insurance options.
4. Foster informed financial decision-making for future financial security.

Course Outcomes: Upon successful completion of this course, students will be able to:

- CO1. **Create** a personal budget and set realistic financial goals.
- CO2. **Use** and utilize banking services and credit facilities securely.
- CO3. **Identify** and evaluate appropriate saving and investment options.
- CO4. **Apply** basic tax planning and insurance knowledge for future financial stability.

Course Contents

Unit I -Introduction to Personal Finance and Budgeting (07 Hours)

- a) Importance and scope of personal financial management
- b) Financial goal setting: short-term, medium-term, and long-term goals
- c) Personal income and expenditure planning
- d) Budgeting techniques and tracking tools (manual and digital)
- e) Emergency fund planning
- f) Understanding financial discipline and behavioral aspects of money

Unit II -Banking, Credit, and Digital Finance (07 Hours)

- a) Basics of banking: types of accounts, bank statements, interest
- b) Digital banking tools: UPI, NEFT, RTGS, mobile banking, e-wallets
- c) Credit and debit cards: responsible use and differences
- d) Loans: student, personal, and vehicle loans
- e) Credit score: concept, importance, and factors
- f) Digital security: phishing, fraud prevention, and cyber hygiene

Unit III - Saving and Investment Options -(08 Hours)

- a) Importance of saving and types of saving schemes (FD, RD, PPF, etc.)
- b) Introduction to investment: risk vs. return
- c) Overview of mutual funds and SIPs
- d) Concept of compounding and time value of money
- e) Investment avenues: gold, real estate, stock market (basic concepts only)
- f) Introduction to financial planning apps/tools

Unit IV- Insurance, Tax Basics, and Retirement Planning - (08 Hours)

- a) Concept and types of insurance: life, health, and general
- b) Nomination and claims: processes and importance

- c) Basics of income tax: slabs, PAN, and tax-saving instruments
- d) Retirement planning: EPF, NPS, and pension schemes
- e) Common financial frauds and safety tips
- f) Ethical financial behavior and long-term wealth planning

Learning Resources

Text Books:

1. Introduction to Personal Finance – C. Satyadevi (Himalaya Publishing House)
2. Financial Planning – B.S. Raman (United Publishers)
3. Personal Finance in India – N. Sreeram, Cengage Learning

Reference Books:

1. Personal Finance by Jack R. Kapoor, Les R. Dlabay and Robert J. Hughes, Tat McGraw-Hill Publishing Company Ltd. New Delhi.
2. Financial Education by Reserve Bank of India – rbi.org.
3. Personal Finance columns in The Economic Times, The Business Line and Financial Express Daily News Papers.
4. Information Broachers of Post Offices, Banks, Mutual Funds, Insurance Companies

Web tools : -

1. Investopedia, Money control
2. SIP calculator, credit score checker (CIBIL demo)
3. UPI demo app (Google Pay / PhonePe for practice)
4. Internet Sources- BSE, NSE, SEBI, RBI, IRDA, AMFI etc.

MOOC/SWAYAM/NPTEL Courses:

1. Behavioral And Personal Finance - Course

Savitribai Phule Pune University		
Supply Chain Management		
Teaching /scheme	Credits	Examination Scheme
Theory : 02 Hours/Week	02	CCE : 15 Marks End-Semester: 35 Marks

Course Objectives: The course aims to:

1. Gain an understanding of how supply chain structure work for smooth transition.
2. Become familiar with flow of supply chain and its management.
3. Study the supply chain management building blocks.
4. Study the customer requirements and expected services.

Course Outcomes: Upon successful completion of this course, students will be able to:

- CO1: **Describe** the structure of Supply Chain Management
- CO2: **Identify** the various flows in real world supply chains
- CO3: **Understand** the key Operational Aspects in Supply Chain Management
- CO4: **Evaluate** the relationship between Customer Value and Supply Chain Management

Course Contents

Unit I -Supply Chain Structure & Flow (07 Hours)

Shift from enterprise to network, Structure of a SC, Push based SC, Pull based SC, Tradeoff between Push & Pull, Identifying appropriate Push & Pull Strategy for SC, Commodity & cost centric SC, Agile, Forward & Reverse SC, Product, Services, Information, Funds, Demand, Forecast flows in Up- stream & Downstream direction

Unit II -Total Supply Chain management (07 Hours)

business landscape – driving forces: Shift from Operations to Services, Impact of globalization & technological revolution, shift from linear SC to collaborative networks, power shifts in the SC- demands for flexibility of partnerships, core competencies, growth in outsourcing.

Unit III - Supply Chain management Building Blocks (08 Hours)

Overview of customer focus & demand, resources & capacity management, procurement & supplier focus, inventory management, operations management, distribution management in SCM

Unit IV -Customer Value (08 Hours)

Empowered consumer, Customer focused Marketing & SC service outputs, customer service – availability, operational performance, reliability. Customer satisfaction – customer expectations, enhancing customer satisfactions, limitations of customer satisfaction. Customer success – achieving customer success, value added services, customer value requirement mapping

Learning Resources

Text Books:

1. Supply Chain & Logistics Management, Bowersox, Closs & Cooper, Tata McGraw Hill
2. Designing & Managing the SC – Concepts, Strategies & Case studies, Levi, Kaminsky et. al., Tata McGraw Hill

3. Supply Chain Management: Strategy Planning & Operations, Sunil Chopra, Peter Meindl, Pearson

Reference Books:

1. Supply Chain Management Process, System & Practice, Chandrasekaran, Oxford
2. Total Supply Chain Management, Basu & Wright, Elsevier
3. Logistics Management & Strategy, Harrison and van Hoek, Prentice Hall
4. Supply Chain Management, Mentzer, Response Books.
5. Logistics Management: The Supply Chain Imperative, Vindo Sople, Pearson Education

Savitribai Phule Pune University		
Digital Manufacturing		
Teaching /scheme	Credits	Examination Scheme
Theory : 02 Hours/Week	02	CCE : 15 Marks End-Semester: 35 Marks

Course Objectives: The course aims to:

1. Understand the basic concepts modern digital factories and their design.
2. Understand digital twin technology and its applications.
3. Understand engineering knowledge management and its applications.
4. Analyse the supply chain strategies and modern security for digital manufacturing.

Course Outcomes: Upon successful completion of this course, students will be able to:

- CO1: **Understand** the fundamentals of digital manufacturing, concept design of 3D digital factory.
- CO2: **Perception** on digital twin, its implementation and cyber-physical integration.
- CO3: **Develop** concept of engineering knowledge management along with case studies.
- CO4: **Conceptualize** business models and supply chain strategies, different security systems.

Course Contents

Unit I - 3D Digital Factories (07 Hours)

The promise of 3D Digital Factories, Embracing digital design and new workflows, 3D additive printing, An integration of operational and information technologies, Conceptual design of a 3D digital factory.

Unit II - Digital Twin Technology (07 Hours)

Production planning and scheduling in a smart factory, Concept of digital twin, Cyber-physical integration, Implementing digital twin, Industrial case studies, Smart production resource allocation.

Unit III - Engineering Knowledge Management -(08 Hours)

Knowledge discovery and extraction, Knowledge representation and reasoning, Construction of the industrial knowledge graph, Knowledge graph-enabled knowledge evolution, Industrial case studies.

Unit IV - Business Models, Supply Chain Strategy and Security Aspects (08 Hours)

Business models for the new enterprise, Supply chain strategies, Additive manufacturing and supply chain resiliency, Design customization and optimization, Risks and threats in distributed digitized manufacturing, Modern security for digital manufacturing.

Learning Resources

Text Books:

1. Chandrakant D. Patel (Editor), Chun-Hsien Chen (Editor), "Digital Manufacturing: Key Elements of a Digital Factory, Elsevier - Health Sciences Division, 2023.
2. Zhuming Bi, "Practical Guide to Digital Manufacturing", Springer Nature Link, 2021.

3. Zude Zhou, Shane (Shengquan) Xie, Dejun Chen, “Fundamentals of Digital Manufacturing Science”, Springer-Verlag London Limited 2012.
4. Rene Wolf (Editor), Raffaello Lepratti (Editor), “Smart Digital Manufacturing: A Guide for Digital Transformation with Real Case Studies Across Industries”, Wiley-VCH; 1st Edition, Germany, 2020.

Reference Books:

1. Kaushik Kumar (Ed.), Divya Zindani (Ed.), J. Paulo Davim (Ed.), “Digital Manufacturing and Assembly Systems in Industry 4.0 (Science, Technology, and Management)”, CRC Press; 1st Edition, CRC Press, 2019
2. Sita Rani, Pankaj Bhambri, Sachin Kumar, Piyush Kumar Pareekh, “AI-Driven Digital Twin and Industry 4.0”, 1st Edition, CRC Press, 2004
3. James W. Cortada, “The Digital Hand: How Computers Changed The Work of American Manufacturing, Transportation, And Retail Industries”, Oxford University Press, 1st Edition, 2003

E books Links: -

1. <https://maxbyte.co/e-book-inspiration-to-implementation-of-digital-manufacturing/>
2. <https://www.scientific.net/book/digital-manufacturing-automation-iii/978-3-03813-876-1>
3. <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119865216.ch7>
4. <https://www.mdpi.com/books/reprint/6232-smart-manufacturing>
5. <https://onlinelibrary.wiley.com/doi/book/10.1002/9781394195336>

MOOC/SWAYAM/NPTEL Courses:

1. <https://www.coursera.org/specializations/digital-manufacturing-design-technology>
2. <https://talentsprint.com/course/digital-manufacturing-smart-factories-iisc-bangalore>
3. https://onlinecourses.nptel.ac.in/noc21_mg83/preview
4. <https://professionalprograms.mit.edu/online-program-smart-manufacturing/>
5. <https://www.buffalo.edu/tcie/professional-education/course-list/digital-manufacturing-and-design-dmd7.html>