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**FYUGP  
PG VALUE-ADDED COURSES  
For Semester-I**

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FOR UNDERGRADUATE COURSES UNDER RANCHI UNIVERSITY



Implemented from Academic Session 2024-25 & Onwards



# **Value-Added Courses for the Postgraduate (PG) Programme**

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**HIGHLIGHTS OF REGULATIONS OF VALUE ADDED COURSES****CREDIT OF COURSES**

The term 'credit' refers to the weightage given to a course, usually in terms of the number of instructional hours per week assigned to it. The workload relating to a course is measured in terms of credit hours. It determines the number of hours of instruction required per week over a semester (minimum 15 weeks).

- a) One hour of teaching/ lecture or two hours of laboratory /practical work will be assigned per class/interaction.

**One credit for Theory** = 15 Hours of Teaching i.e., 15 Credit Hours

**One credit for Practicum** = 30 Hours of Practical work i.e., 30 Credit Hours

- b) For credit determination, instruction is divided into three major components:

**Hours (L)** – Classroom Hours of one-hour duration.

**Tutorials (T)** – Special, elaborate instructions on specific topics of one-hour duration

**Practical (P)** – Laboratory or field exercises in which the student has to do experiments or other practical work of two-hour duration.

**VALUE ADDED COURSES**

1. The Value added course will be of **2 credits** to be covered during the first semester.
2. There will be Objective type questions asked in the End Semester University Examination (ESUE).
3. There will be OMR based examination and the correct answer to be marked by black ball point pen only on the OMR sheet provided by the University.
4. For **50 Marks Examination** the student will be provided **Two hours** for marking their responses.
5. Students are not allowed to choose or repeat courses already undergone at the undergraduate level in the proposed major and minor stream.
6. The performance in this course will not influence the SGPA or CGPA of the PG Programme where the student is registered to obtain the Master's Degree. However, it will be mandatory to secure minimum pass marks in the course before exit from the PG Programme.
7. If the student fails to secure the minimum pass marks in the Value added course selected at the time of admission, he may appear in the examination of the said course with the following batch of next session.
8. The student may appear in the examination of the said course further subject to the date of validation of the Registration.

Regulation related with any concern not mentioned above shall be guided by the existing Regulations of the PG Curriculum of Ranchi University, Ranchi.

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## RANCHI UNIVERSITY RANCHI

### LIST OF VALUE-ADDED COURSES FOR P.G. CURRICULUM

These courses are being offered in addition to the regular structure of P.G. Syllabus. They may crown additional competencies in the career of the student. Any one course not taken/studied earlier may be selected from the list as follows in the First semester of P.G. Curriculum.

S.No.	Name	Credits	Code
1	E-filing of returns	2	PVA1
2	Goods & service Tax (GST)	2	PVA2
3	E-Commerce	2	PVA3
4	Digital Marketing	2	PVA4
5	Introduction to Stock Market	2	PVA5
6	Accounting and Tally	2	PVA6
7	Introduction to share market	2	PVA7
8	Functional Hindi	2	PVA8
9	Communicative English	2	PVA9
10	Creative Writing	2	PVA10
11	Soft Skills	2	PVA11
12	Business Communication	2	PVA12
13	Science Communication and Popularization	2	PVA13
14	Computer basics and multimedia	2	PVA14
15	Web Designing	2	PVA15
16	Fundamental of CAD	2	PVA16
17	Microsoft Excel - Beginner to Advanced	2	PVA17
18	Plant Tissue Culture	2	PVA18
19	Organic farming	2	PVA19
20	Mushroom Cultivation	2	PVA20
21	Sericulture	2	PVA21
22	Fisheries	2	PVA22
23	Apiculture	2	PVA23
24	Forestry and Wild Life	2	PVA24
25	Beauty and Wellness	2	PVA25
26	Dietetics & Nutrition	2	PVA26
27	Nutrition and Lifestyle	2	PVA27
28	Chemistry of food, nutrition & preservation	2	PVA28
29	Herbal Science & Technology	2	PVA29
30	Biofertilizer	2	PVA30
31	Understanding Human Rights	2	PVA31
32	Intellectual Property Rights	2	PVA32
33	Copyright & Patent Law	2	PVA33
34	Research Methodology and Quantitative Techniques	2	PVA34
35	Personality development	2	PVA35



## RANCHI UNIVERSITY RANCHI

36	Leadership & Emotional Intelligence	2	PVA36
37	Fundamental of Science Laboratory	2	PVA37
38	Instrumentation and Techniques in Biological Sciences	2	PVA38
39	Media Lekhan	2	PVA39
40	News Writing and Reporting	2	PVA40
41	Indian Tribal Folk Art Drawing & Painting	2	PVA41
42	History of Indian Science	2	PVA42
43	Good Laboratory Practices	2	PVA43
44	Renewable Energies (solar & biogas)	2	PVA44
45	Water remediation & conservation studies	2	PVA45
46	Travel & Tourism	2	PVA46
47	Travel Writing	2	PVA47
48	Disaster Management	2	PVA48
49	Gender Studies	2	PVA49
50	Gender Equality	2	PVA50
51	Women's Study	2	PVA51
52	Tribal Studies	2	PVA52
53	Cognitive Science	2	PVA53
54	Sustainable Developments Goal	2	PVA54
55	Environmental Sanitation	2	PVA55
56	Yoga & Wellness	2	PVA56
57	Sports and Fitness	2	PVA57
58	Non-Verbal Communications	2	PVA58
59	Colour Psychology	2	PVA59
60	कार्यालयी हिन्दी	2	PVA60

  
 Registrar

Ranchi University, Ranchi  
 Ranchi University, Ranchi

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## PVA 1: E-FILING OF RETURNS

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

### Course Objective:

On the completion of this course, the students will be able to;

1. To equip students with the practical skills required for filing of returns under Income Tax and GST laws.

### Course Learning Outcomes

After completing the course, the student shall be able to:

1. know the difference between e-filing and regular filing of Income tax returns and understand the circumstances when e-filing is mandatory.
2. understand the basic process of computing taxable income and tax liability, and know about various types of income tax return forms.
3. understand the concept of advance payment of tax and tax deduction at source and develop the ability of e-filing of TDS returns.
4. become aware of the basic framework and structure of GST, including the meaning of input tax credit and the process of its utilization.
5. know about various types of GST returns and their filing.

### Course Content:

#### **UNIT-I** Introduction of E-Filing:

1. Meaning of e filing
2. Difference between e filing and manual filing of returns
3. Benefits and limitations of e filing
4. Types of e-filing

#### **Unit-II** Introduction to Income Tax:

1. Basic terminology
2. Types of assesses
3. income taxable under different heads
4. Basics of computation of total income and tax liability
5. Deductions available from gross total income
6. Application for PAN card
7. Due date of filing of income tax return

#### **Unit-III** DS and E Filing of TDS Return:

1. introduction to TDS
2. provisions relating to advance payment of tax
3. schedule for deposit of TDS
4. schedule for submission of TDS returns
5. prescribed forms for filing TDS return

#### **Unit IV** Introduction to GST Concepts and Returns:

1. Output tax liability of CGST, SGST, UTGST, IGST, compensation cess
2. GST Network
3. Input tax credit and its utilization
4. Composition supplier
5. Schedule for payment of GST
6. GSTR 1,2,3 and 3B

**Suggested Readings**

1. Self-Preparation and Filing of Income Tax Returns by Individuals by Swatantra Sethi.
  2. How to File Salary Income Tax, AY 2019-2020 by CA Rahul Gupta.
  3. Fast Track Quick Revision Income Tax for AY 2019-2020 by AS K K Agarwal.
  4. Tax Saving & Investment guide: Income Tax of India by CA Shammi Prabhakar Singh.
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## PVA 2: GOODS & SERVICE TAX (GST)

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

### Course Objectives:

1. On the completion of this course, the students will be able to;
2. The programme's mission is to broaden the horizon of the learners with a deeper understanding of the GST law and its e-filing in the new digital environment and equip them with a new set of tools to help them digitally create and file GST returns.

### Course Learning Outcomes:

1. Develop a detailed understanding of the students of law and practice of Goods and Services Tax and the application of its provisions.
2. Develop a detailed understanding of documents, records, books of accounts and tax returns, and the requirements for paying Goods and Services Tax using computer hardware and software packages.

### Course Content:

#### **UNIT – I**

1. Review of various provisions regarding Goods and Service Tax (GST).
2. Provisions relating to Tax invoice proforma and Procedure for Preparing it (Practical Problems).
3. Provisions regarding Debit and Credit Notes.

#### **UNIT – II**

1. Accounts and Records in GST. Payment of Tax.
2. Provisions relating to interest and Refund.

#### **UNIT– III**

1. Returns — Furnishing details of outward supplies and Inward supplies.
2. Furnishing of Returns.
3. Types of various returns and related forms — Monthly Return, Quarterly Return (Composition), Annual Return.

#### **UNIT– IV**

1. General study of Integrated Goods and Service Tax Act. (IGST)
2. Special provisions relating to Job Work. Process for Reverse charge mechanism.

#### **UNIT – V**

1. Procedure and types of Assessment.
2. GST administration — appointment and powers of officers.
3. Provisions of Inspection, Search, Seizure and arrests.
4. Offences and penalties Appeal and Revision.

### **Suggested Readings**

1. Ahuja, Girish and Gupta, Ravi. Systematic Approach to GST. Wolters Kluwer
2. Sekhon, Shailinder. GST: Unlocking the complexities of Indirect taxes. Published by Sumirat Publication and Bookman, New Delhi.
3. Bansal, K. M., GST & Customs Law, Taxman Publication.
4. Mehrotra H.C. and Agarwal, V.P. Goods and Services Tax and Customs. Sahitya Bhawan Publications.
5. Saha, R.G. Shah, Divyesh and Devi, Usha. Goods and Service Tax. HPH

6. Datey, V. S. All about GST, A Complete Guide to Model GST Law. Taxman Publications
  7. Babbar, Sonal, Kaur, Rasleen and Khurana, Kritika. Goods and Service Tax (GST) and Customs Law. Scholar Tech Press.
  8. Chheda, Rajesh. Learn Tally. ERP 9 with GST and E-way Bill: Ane's Student Education
  9. Gupta, Vineet and Gupta, N. K. Fundamentals of Goods and Services Tax. Bharat Law House Pvt. Ltd.
  10. Gupta, S.S. Taxman's GST New Returns How to Meet Your Obligations -A Practical Guide for Filing of New GST Returns. Taxman Publication.
  11. Gupta, S.S. GST- How to Meet your Obligations. Taxman Publications
  12. Murthy, K. Ch. A. V. S. N. Lavanya, K. V. N. and Lakshmi, V. D. M. V. Theory and Practice of Goods and Services Tax, Telugu Academy, Hyderabad.
  13. Singhanian, Aditya. Taxman's GST New Returns with e-Invoicing- A Comprehensive Guide to New GST Returns. Taxman Publication.
  14. Singhanian V. K. GST & Customs Lax, Taxman Publication
  15. Sisodia Pushpendra, GST Law. Bharat Law House.
  16. GST Laws - The Central Goods and Services Tax, 2017; The Constitution (One hundred and First Amendment) Act, 2016;
  17. The Goods and Services Tax (Compensation to States) Act, 2017;
  18. The Integrated Goods and Services Tax, 2017;
  19. The Union Territory Goods and Services Tax, 2017
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## PVA 3: E-COMMERCE

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

On the completion of this course, the students will be able to;

1. The course imparts an understanding of the concepts and various application issues of e-business.
2. It grows an understanding of the various online strategies for e-business, Internet infrastructure, and security over the internet, and payment systems.

### Course Content:

#### **Unit I: Introduction to E-Business**

1. Electronic Business
2. Electronic Commerce
3. Electronic Commerce Models
4. Types of Electronic Commerce
5. Value Chains in Electronic Commerce
6. Internet
7. World Wide Web
8. Intranet
9. Business Applications on Intranet
10. Extranets
11. Electronic Data Interchange

#### **Unit II: Security Threats to E-business**

1. Security Overview
2. Electronic Commerce Threats
3. Encryption
4. Cryptography
5. Public Key and Private Key Cryptography
6. Digital Signatures
7. Digital Certificates
8. Security Protocols over Public Networks: SSL, Firewall as Security Control, Security

#### **Unit III: Electronic Payment System**

1. Electronic Payment System
2. Type of Electronic Payment Systems
3. Smart Cards and Electronic Payment Systems
4. Electronic Funds Transfer

#### **Unit IV: e-Business Applications & Strategies**

1. Emerg Trends in e-Business
2. Mobile Commerce
3. Internet-based Business Models

### **Suggested Readings**

1. Whitley David: E-Commerce Strategy, Technologies and Applications, Tata McGraw Hill, 2000
2. Schneider Gary P and Perry James T: Electronic Commerce, Thomson Learning, 1<sup>st</sup> Edition, 2000
3. Bajaj Kamlesh K and Nag Ebjani: E-Commerce: The Cutting Edge of Business, Tata McGraw Hill, Publishing Company New Delhi, 1999.

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## PVA 4: DIGITAL MARKETING

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits****Course Learning Objectives:**

1. To acquaint the students with knowledge of the growing integration between traditional and digital marketing concepts and practices in the digital era.
2. To familiarize the students with the tools and techniques used by digital marketers in making decisions that lead to attaining marketing objectives.

**Course Learning Outcomes:**

After studying this course, students will be able to:

1. understand the concept of digital marketing and its integration with traditional marketing.
2. understand the customer value journey in the digital context and the behaviour of online consumers.
3. understand email, content, and social media marketing and apply the same to create digital media campaigns.
4. examine various tactics for enhancing a website's position and ranking with search engines.
5. leverage digital strategies to gain a competitive advantage for business and careers.

**Course Content:****Unit 1: Marketing in the Digital World**

Digital marketing: Concept, Features, Difference between traditional and digital marketing, moving from traditional to digital Marketing; c Digital Marketing Channels: Intent-Based- SEO, Search Advertising; Brand Based- Display Advertising; Community-Based - Social Media Marketing; Others- Affiliate, Email, Content, Mobile. Customer Value Journey: 5As Framework; The Ozone O3 Concept Key; Traits of Online Consumer

**Unit 2: Content and Email Marketing**

Content Marketing: Step-by-step Content Marketing Developing a content marketing strategy Email Marketing: Types of Emails in email marketing, Email Marketing best practices

**Unit 3: Social Media Marketing and Display Marketing**

Social Media Marketing: Building Successful Social Media Strategy; Social Media Marketing Channels; Facebook, LinkedIn, YouTube (Concepts and strategies) Display Advertising: Working of Display Advertising; Benefits and Challenges; Overview of Display ad Process.; Define- Customer, Publisher, Objectives; Format-Budget, Media, Ad Formats, Ad Copy.

**Unit 4 Search Engine Marketing**

**Introduction of SEM:** Working of Search Engine; SERP Positioning; online search behaviour, DMI's 5P Customer Search Insights Model. Search Engine Optimization: Overview of SEO Process; Goal Setting-Types. On-Page Optimization: Keyword Research, SEO Process -Site Structure, Content, Technical Mechanics, Headings, Image & Alt text, Social Sharing, Sitemaps, Technical Aspects- Compatibility, Structured Data Markup. Off Page

**Optimisation:** Link Formats, Link Building, Content Marketing, Social Sharing; Black and White Hat Techniques Search Advertising: Overview of PPC Process; Benefits of Paid Search; Basis of Ranking; Goal Setting-Objectives; Account Setting-Creation of Google Ads, Campaign architecture, Campaign setup, Targeting, Bid Strategy, Delivery, Ad Scheduling, Ad Rotation, Keyword Selection; Ad Copy composition, Ad Extension

**Suggested Readings**

1. Dodson, I. (2016). The art of digital marketing: the definitive guide to creating strategic, targeted, and measurable online campaigns. John Wiley & Sons.
  2. Kartajaya, H., Kotler, P., & Setiawan, I. (2016). Marketing 4.0: moving from traditional to digital. John Wiley & Sons.
  3. Ryan, Damien: Understanding Digital Marketing - Marketing Strategies for Engaging the Digital Generation. Kogan Page Limited. 2 of 73 Suggested Readings
  4. Moutusy Maity: Internet Marketing: A Practical Approach in the Indian Context: Oxford Publishing
  5. Seema Gupta: Digital Marketing: McGraw Hill
  6. Ultimate guide to digital Marketing by Digital Marketer
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## PVA 5: INTRODUCTION TO STOCK MARKET

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

On the completion of this course, the students will be able to;

1. Learn how the Indian stock market works, including NSE, BSE, demat accounts, trading accounts, and capital markets.
2. Understand important stock market terms, trends, and SEBI's role in regulating markets.
3. Learn how to trade smartly, manage risks, and follow money management rules to avoid losses.
4. Understand currency markets (exchange rates, RBI policies) and commodity markets (metals, energy, and demand-supply factors).
5. Build skills to analyse markets and make informed decisions in trading and investing.

### Course Content:

#### UNIT I: Basics of Stock Market and Key Terminologies

Stock Market: Structure of the Indian stock market, Stock exchange- NSE, BSE, De-mat account, Trading account, difference between trading and investment, Brokerage and Taxation, Share settlement in delivery and intraday trading, large-cap, mid-cap, and small-cap stocks,

Stock Market Important Terminologies: Bonus share, stock split, Dividend, Market Trends, Correction, Crash, Types of Trading, Factors affecting the stock market

#### UNIT II: SEBI and Capital Markets

SEBI- Powers and functions, recent development introduced by SEBI, Capital Market: Primary Market, Secondary Market, Stock exchanges in India,

Types of Indexes – Nifty, Sensex, Leverage and exposures on shares and cash difference between long buying and short selling, Upper Circuit, Lower Circuit

#### UNIT III: Trading in the Stock Market

Trading in Stock Market - Trading and its types, Reward, Risk, Target and Stop loss, Reward to risk ratio, Rules of money management, Lot Sizes, minimize Loss and maximize profits.

#### UNIT IV: Currency and Commodity Markets

Currency Markets and Commodity Market: Introduction to currency markets, Currency exchange rate, Base currency quote currency, Fundamental analysis of currency, Currency news and analysis, GDP, Inflation, Interest rates, RBI policy effects. Introduction to commodity markets, Demand and Supply factors, precious metals, Base metals & Energy materials.

### Suggested Readings

1. Khan, MY; Indian Financial System, Tata McGraw Hill, New Delhi.
  2. ICAI, Financial Services, The Institute of Chartered Accountants of India, New Delhi.
  3. Bhole, LM; Financial Markets and Institutions; Tata McGraw Hill, New Delhi.
  4. Gupta Suraj B.; Monetary Economics, Institutions, Theory and Policy, S. Chand, and Company. New Delhi.
  5. Varsheny P.N. and Mittal, DK; Indian Financial System, Sultan Chand & Sons, New Delhi.
  6. Bharati V Pathak; Indian Financial System, Pearson India Education Services Pvt Ltd. Noida, UP, India.
  7. Singh J.K. & Singh A.K.; Investing in Stock Markets. A.K. Publications, Delhi.
  8. Tripathi V. & Pawar N.; Investing in Stock Markets. Taxman Publications.
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## PVA 6: ACCOUNTING AND TALLY

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

**Course Learning Outcomes:**

This course is designed to impart knowledge regarding concepts of Financial Accounting Tally is an accounting package that is used for learning to maintain accounts.

**Course Content:**

**UNIT – I**

Introduction to Accounting, Accounting as an Information System, Accounting concepts and conventions. Computerized Accounting: Meaning, Features, Advantages and Limitations. Manual Accounting versus Computerized Accounting Systems.

**UNIT – II**

Introduction to Tally ERP 9: Origin, Features, Accounting Features, Inventory Features. Starting with Tally. Components of gateway of tally, creating a company, selecting and shutting a company, altering company details, features and configurations.

**UNIT-III**

Ledgers and Groups: Creating a chart of accounts, ledger and group creation. Inventory Masters: Creating inventory masters, displaying and altering inventory.

**UNIT-IV**

Voucher entry and Invoicing: Creating a new voucher type, entering inventory details in accounting vouchers, creating an account invoice Security Control- Meaning, Need, Creation, Display, Tally Audit, Features, Conduct.

**Suggested Readings**

1. Implementing Tally ERP 9, Nadhani K.K BPB Publications, New Delhi
  2. Computerized Accounting and Business Systems, Sharma Neeraj Kalyani Publishers, Ludhiana.
  3. E-Accounting: Theory and Practice Sharma Neeraj Regal Books, Publications, New Delhi.
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## PVA 7: INTRODUCTION TO SHARE MARKET

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

On the completion of this course, the students will be able to;

1. Learn how the Indian stock market works, including NSE, BSE, demat accounts, trading accounts, and capital markets.
2. Understand important stock market terms, trends, and SEBI's role in regulating markets.
3. Learn how to trade smartly, manage risks, and follow money management rules to avoid losses.
4. Understand currency markets (exchange rates, RBI policies) and commodity markets (metals, energy, and demand-supply factors).
5. Build skills to analyze markets and make informed decisions in trading and investing.

### Course Content:

#### **UNIT I: Fundamental of Stock Markets -**

Introduction to Share Market and Stock Exchanges, Shares and their types, Bull, and Bear Market, how share market works, Movement of Share prices – High, Low, Open, Close. Intraday Trading- Introduction to Intraday Trading, Intraday risk, Entry, Exit and Stop loss levels, Intraday trading strategies, Screening tools, delivery Trading, Role of Brokers, Sub-Brokers, and Other Intermediaries, Mutual Fund- types & strategies.

#### **Unit II: Share Market Operations**

Online Trading Platforms and Demat Accounts Clearing, Settlement, and Depository Systems, Understanding Stock Quotes and Market Depth Margin Trading, Short Selling, and Circuit Breakers, Share Market Indices and Their Significance

#### **UNIT III: Technical Analysis and Trading Psychology**

Technical Analysis: Introduction to Technical analysis, Trend – Uptrend, Downtrend and Sideways trend, Trend-line application, Candlestick, Bar charts, Line charts. Trading Psychology: News websites to follow, Trading mindset building, Wealth creation through Trading, successful trader mindset. Dividend Policies and Their Impact on Share Prices, Portfolio Management: Diversification and Risk Mitigation, Behavioral Biases in Share Investment

#### **Unit IV: Regulations, Ethics, and Future Trends in the Share Market**

Regulations and Emerging Trends in Share Market, Role of SEBI in Regulating the Share Market, Insider Trading and Ethical Practices, Impact of Global Events on Share Markets, Emerging Trends: AI in Trading, ESG Investments, and Green Stocks, Outlook: Crypto Assets and Their Implications

### **Suggested Readings**

1. Dubey, R.C. (2005). A Textbook of Biotechnology S.Chand & Co, New Delhi.
  2. Khan, M.Y. "Indian Financial System", McGraw Hill Education, Gurgaon, Haryana, India
  3. Kevin, S"Security Analysis and Portfolio Management" Prentice Hall India, Delhi, India
  4. Chandra Prasanna "Investment Analysis and Portfolio Management", McGraw Hill Education, Gurgaon, Haryana, India
  5. Rao N. S. B. K. S. "Stock Market and Financial Derivatives" Himalaya Publishing House Mumbai, India
  6. Bhalla V.K. "Fundamentals of Investment Management" S. Chand & Co., New Delhi, India
  7. Garg M. D. "Financial Markets and Services" Kalyani Publishers, New Delhi, India
  8. Brealey Richard A., Stewart C. Myers, Franklin Allen (Indian Edition) "Principles of Corporate Finance", McGraw Hill Education, Gurgaon, Haryana, India
  9. Khan M.Y. "Financial Markets and Institutions" McGraw Hill Education, Gurgaon, Haryana, India
  10. Sreevatsan H. R. K. "Investment and Security Analysis" Oxford University Press, New Delhi, India
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**PVA 8: FUNCTIONAL HINDI**

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**Marks: 50 (ESE: 2 Hrs) = 50****Pass Marks: Th (ESE) = 20****Theory: 30 Lectures, 2 Credits****Course Content:**

क) राजभाषा नीति: हिन्दी के प्रयोग का संवैधानिक प्राविधान (धारा -343) राजभाषा अधिनियम 1963 ई. और 1976 ई. के बाद निर्धारित नियम, 1960 ई. के राजभाषा आदेश का प्रस्ताव, 1968 ई. हिन्दी प्रशिक्षण तथा प्रोत्साहन पुरस्कार राज नवनिर्णीत |

ख) हिन्दी के कार्यालयी पत्राचार: पत्राचार का उद्देश्य और महत्व, पत्र व्यवहार के प्रकार जैसे - मूलपत्र, पत्रोत्तर, पावती, स्मरण पत्र, अर्द्धशासकीय पत्र, ज्ञापन परिपत्र, आदेश पृष्ठांकन, अंतर्बिभागीय टिप्पणी, मानक मसौदे (ड्राफ्ट), निविदा पत्र, सूचनाएँ, रिक्तियों के लिए विज्ञापन, प्रेस विज्ञप्ति और रिपोर्ट |

ग) लेखन:

1. ड्राफ्टिंग क्या है, अच्छे ड्राफ्टिंग के सामान्य नियम।
  2. आधिकारिक पत्रों का प्रारूपण: विभिन्न प्रकार के प्रारूपण, साधारण कार्यालय पत्र, परिपत्र पत्र, कार्यालय
  3. ज्ञापन, संकल्प, कार्यालय आदेश, अनुस्मारक, अर्द्ध-सरकारी पत्र, पृष्ठांकन, प्रेस नोट, विज्ञापन,
  4. निविदा, प्रारूपण के लिए भाषा।
  5. नोटिंग का महत्व, सामान्य नियम और नोटिंग के लिए निर्देश।
  6. सटीक लेखन - महत्व और उपयोगिता, एक के लिए अनिवार्य आदर्श सटीक लेखन।
  7. सेमी-ड्राफ्टिंग, नोटिंग और . सटीक लेखन.
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## PVA 9: COMMUNICATIVE ENGLISH

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

1. The course aims to provide the students a comprehensive idea of different aspects of communication.
2. How an effective communication skill ensures success in today's life across cultures will be justified through inculcation of proper understanding among the students.

### Course Learning Outcomes:

1. Students will know about the various aspects of communication and how to use these in developing communication skills.
2. The awareness about role of communication in a highly globalized set-up will be generated.

### Course Content:

#### **Unit I**

1. Listening and Speaking Duration:
  - a. Listening and responding to complaints (formal situations)
  - b. Listening to problems and offering solutions (informal)
2. Reading and writing a. Reading aloud (brief motivational anecdotes)
  - c. Writing a paragraph on a proverbial expression/motivational idea.
4. Word Power/Vocabulary a. Synonyms & Antonyms
5. Grammar in Context a. Adverbs b. Prepositions

#### **Unit II**

1. Listening and Speaking a. Listening to famous speeches and poems
  - a. b. Making short speeches- Formal: welcome speech and vote of thanks. Informal occasions- Farewell party, graduation speech
2. Reading and Writing
  - a. Writing opinion pieces (could be on travel, food, film/book reviews or on any contemporary topic)
  - b. Reading poetry
    - i. Reading aloud: (Intonation and Voice Modulation)
    - ii. Identifying and using figures of speech - simile, metaphor, personification etc.
3. Word Power
  - a. Idioms & Phrases
4. Grammar in Context
  - a. Conjunctions and Interjections

#### **Unit III**

1. Listening and Speaking
  - b. Listening to Ted talks
  - c. Making short presentations – Formal presentation with PPT, analytical presentation of graphs and reports of multiple kinds c. Interactions during and after the presentations
2. Reading and writing
  - a. Writing emails of complaint
  - b. Reading aloud famous speeches
3. Word Power
  - a. One Word Substitution
4. Grammar in Context
  - a. Sentence Patterns

#### **Unit IV**

1. Listening and Speaking
  - a. Participating in a meeting: face to face and online

- b. Listening with courtesy and adding ideas and giving opinions during the meeting and making concluding remarks.
2. Reading and Writing
  - a. Reading visual texts – advertisements
  - b. Preparing first drafts of short assignments
3. Word Power
  - a. Denotation and Connotation
4. Grammar in Context:
  - a. Sentence Types

**Unit V**

1. Listening and Speaking
  - a. Informal interview for feature writing
  - b. Listening and responding to questions at a formal interview
2. Reading and Writing
  - a. Writing letters of application
  - b. Readers' Theatre (Script Reading)
  - c. Dramatizing everyday situations/social issues through skits. (writing scripts and performing)
3. Word Power
  - a. Collocation
4. Grammar in Context
  - a. Working with Clauses

**Reference Books**

1. V. C. Mahto & Sushmita Chakraborty, Basics of Communication: Opportunities and Challenges, Rudra Publishers and Distributors, New Delhi
  2. R. K. Sharma & Nidhi Singh, Essential English for Better Communication, Cambridge University Press
  3. Reader's Digest- How to Write and Speak Better
  4. Gangal & Dere- Developing Writing Skills in English
  5. N. Lal- New Style English Grammar and Composition
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## PVA 10: CREATIVE WRITING

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits**

**Course Objectives:**

The course will seek to achieve the following objectives:

1. to make students grasp the difference between academic/non creative and creative writing
2. to make students grasp various figures of speech, language codes and language registers so that they can both, identify as well as use these for creative writing
3. to make students understand various genres such as fiction, poetry, drama and newspaper writing
4. to make students edit and proofread writing such that it is ready to get into print
5. to make students grasp the process of translation
6. to make students grasp the skills of effective translation
7. to make students undertake and complete practical translation assignments
8. to make students work on translated works to compare and evaluate finished translation

**Course Learning Outcome:**

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

1. recognize creativity in writing and discern the difference between academic/non-creative and creative writing
2. develop a thorough knowledge of different aspects of language such as figures of speech, language codes and language registers so that they can both, identify as well as use these; in other words, they must learn that creative writing is as much a craft as an art
3. develop a comprehensive understanding of some specific genres such as fiction, poetry, drama, and newspaper writing distinguish between these as well as look at the sub-divisions within each genre (such as in poetry, different forms like sonnets, ballads, haiku, ghazal, etc.)
4. process their writing for publication and so must have the ability to edit and proofread writing such that it is ready to get into print.
5. critically appreciate the process of translation
6. engage with various theoretical positions on Translation think about the politics of translation
7. assess, compare, and review translations translate literary and non-literary texts

**Course Content:**

**UNIT- I**

1. Introduction to Creative Writing: What is creative writing? Types of writing and their functions, Writing process, Challenges to writing, Importance of reading, identifying your readers, Tips on writing.
2. Elements of writing: content, form, structure and style.
3. Preparing for Publication: Plagiarism and Intellectual Property rights, Proofreading and editing, Different platforms and media for publishing, submitting your manuscript for publication.
4. Writing a Poem/Short Story (Practical).

**UNIT- II**

1. Writing for Different Media Platforms: Introduction to media; types and features, writing for print media; writing for the radio; writing screenplays for film and television; writing advertisements; writing for new media (social media platforms, blogs, websites, etc.)
2. Writing the script of a Short film/Dialogue of a situation (Practical).

**UNIT- III**

1. Basic concepts of Translation: Source and Target Language, Source and target text, Adaptation and Abridgment, Transcreation, Interpreting, Significance of Translation, Process of Translation.
2. Process of Translation: Equivalence in translation, Semantic and Literal Translation
3. Types of Translation: Literary Translation, Functional Translation, Technical and Official translation,

- Audio-visual Translation (subtitling, dubbing, voice-overs). Challenges and problems in translation.
4. Translation of a published short story, folk tale, long poem, prose piece, critical essay etc. from any Indian language into English (Practical).

**Suggested Reading:**

1. Dev, Anjana Neira, Anuradha Marwah and Swati Pal. Creative Writing: A Beginner's Manual. Longman Pearson, 2009
  2. Abrams, M. H. A Glossary of Literary Terms, New Delhi: Cengage Learning India Private Limited, 2005.
  3. Mills, Paul. The Routledge Creating Writing Coursework. Routledge, 2006.
  4. Kane, Thomas. The Oxford Essential Guide to Writing. OUP, 2006.
  5. Strunk Jr, William and E.B. White. The Elements of Style. Pearson, 1999.
  6. Halder Deb Dulal. Translation Studies: A Handbook. Book Age publications. New Delhi. 2019
  7. Mukherjee Sujit. Translation as Discovery: And Other Essays of Indian Literature in Translation. New Delhi: Allied 1981
  8. Ramkrishna, Shanta (2002) "Cultural Transmission through Translation: An Indian Perspective. Changing the Terms: Translating in the Postcolonial era. Sherry Simon and Paul St-Pierre, Eds. Hyderabad: Orient Longman
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**PVA 11: BUSINESS COMMUNICATION**

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**Marks: 50 (ESE: 2 Hrs) = 50****Pass Marks: Th (ESE) = 20****Theory: 30 Lectures, 2 Credits****Course Learning Objectives:**

1. To equip students effectively to acquire skills in reading, writing, comprehension and communication, as also to use electronic media for business communication.

**Contents:****Unit I: Introduction****6 Lectures**

Nature, Process and Importance of Communication, Types of Communication (verbal and Non Verbal), Different forms of Communication. Barriers to Communication

**Unit II: Business Correspondence****8 Lectures**

Letter Writing, presentation, living quotations, Sending quotations, Placing orders, inviting tenders, Sales Letters, claim & adjustment letters and social correspondence.

**Unit III: Report Writing****8 Lectures**

Identify the types of reports, define the basic format of a report, identify the steps of report writing, determine the process of writing a report, Apply citation rules in reports.

**Unit IV: Business language and presentation****4 Lectures**

Importance of business language, Common Errors in English, Oral Presentation Importance, Characteristics, Presentation Plan.

**Unit V: Technology and Business Communication****4 Lectures**

Role, effects and advantages of technology in Business Communication like email, text messaging, instant messaging and modern techniques like video conferencing, social networking, Strategic importance of e-communication.

**Suggested Readings:**

- Lesikar, R.V. & Flatley, M.E.; Basic Communication Skills for Empowering the Internet Generation, Tata McGraw Hill Publishing Company Ltd. New Delhi.
- Bovee, and Thrill, Business Communication Today, Pearson Education
- Shirley Taylor, Communication for Business, Pearson Education
- Locker and Kaczmarek, Business Communication: Building Critical Skills, TMH

**Note: Latest edition of text books may be used.**

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## PVA 12: SCIENCE COMMUNICATION AND POPULARIZATION

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits**

**Course Learning Outcomes:**

1. To understand the types and structure of scientific writing.
2. To understand the method of writing and practice writing.
3. To learn to write a paper or article incorporating all necessary components properly.

**Course Content:**

**Unit I: Science and Communication**

**6 Lectures**

Science and technology: definition - Science for a science communicator - Professional scientific communication - History of science and technology - History of science in India's wisdom starting from the Indus Valley civilization, and traditional wisdom the world over - Forms of scientific knowledge - Emergence of modern science - Eminent scientists: their life and achievements – Recent Nobel laureates on science - History of science journalism in India, Gender, Science and Technology

**Unit II: Role of Science Communication**

**6 Lectures**

Need for science communication - Importance and use of science communication - Public Understanding of Science (PUS) - Science popularization: programmes, organizations, individuals - Method of science - Scientific temper - Scientificity - Sources of scientific information – books, scientific reports, scientific journals, magazines, feature syndicates, leaflets, tabloids, wall magazines, speeches, seminars, press releases, databases, encyclopedias on science, etc - Comparative study of science sections and supplements carried in Indian / foreign newspapers and science magazines

**Unit III: Science and Technology Policy and Set-Up**

**6 Lectures**

Science and technology policy statements, Technology statements, Policy resolutions, Science and technology set-up in India - Science Policy Resolution, 1958, The Indian Patent Act, 1970, Intellectual property rights (IPR), Science Communication Organizations: NCSTC, NCSM, NISCAIR, Vigyan Prasad.

**Unit IV: Tools and Techniques of Science Communication**

**6 Lectures**

Communication: definition, Written, Verbal Communication, digital media, science journalism, Drama, Street play, Advertisements, writing research articles, reporting, using folk lores, traditional means of science communications, scientific tools.

Role of Science Communication in Agriculture, Health, Nutrition Science, Environmental Hazards, Weather forecast, Climate Change

**Unit V: Prospects, Awards and Training**

**6 Lectures**

Organizations promoting science - Employment opportunities – CSIR laboratories, other scientific institutions, media organizations, NGOs, Business Process Outsourcing, Knowledge Process Outsourcing - Awards and honours for excellence in science writing / popularization - Science communication education in India and abroad - Freelance science writers - Bhatnagar award – Profiles of Kalinga Award winners and their winning formulae.

**Suggested Readings**

1. Jane Gregory & Steve Miller, Science in Public: Communication, Culture, and Credibility, Plenum, N. York, 1998.
2. James G. Paradis and Muriel L. Zimmerman, The MIT Guide to Science and Engineering Communication. MIT Press, UK, 2002.
3. J.V. Vilanilam, Science Communication and Development in India, Sage, New Delhi, 1993.
4. Science Magazine. <http://www.sciencemag.org>

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**PVA 13: COMPUTER BASICS AND MULTIMEDIA**

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

On the completion of this course, the students will be able to;

4. Develop their understanding of the concept of bio-fertilizer

**Course Content:**

lectures

**Course Content:****Unit- I Introduction to Computer System**

Basic Computer Concept, Computer Organisation, Windows OS: Windows 10 vs Windows11

**Unit-II Microsoft Office 2019-I**

MS Word-Tools, menu Bar, Insert, Design, Layout, References, Mailing, Review, View

**Unit-III Microsoft Office 2019-II**

MS Excel, MS PowerPoint - Tools, menu Bar, Insert, Design, Layout, References, Mailing, Review, View

**Unit-IV Microsoft Office 2019-III**

PowerPoint Presentation including animations

**Unit-V Multi Media Fundamentals**

Multimedia, Multimedia Objects, Multimedia in business and work, Multimedia hardware, Memory & Storage devices, and Communication devices.

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## PVA 14: WEB DESIGNING

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

On the completion of this course, the students will be able to;

Do you want to create your own personal place on the Internet to start an online business or personal social site? In this Web Design course, students will use a variety of design software to organize, create, publish, and manage a web site.

Course content includes creating a variety of graphic elements including video, animations, rollover effects, backgrounds, and page images.

### Course Content:

#### **Unit I: Designing and Planning Web Pages**

Basic Site Creation/Evaluation, Color Theory, Web Standards, Planning a Website.

#### **Unit II: Creating Pages with HTML Time: approximately 5-8 hours Unit Essential Questions**

Pre-Coding, Basic HTML Markup, HTML Lists, Creating Links, Creating a Data Table, HTML Video

#### **Unit III: Formatting Web Pages with Style Sheets**

Introduction to Cascading Style Sheets, Color in CSS, Typography in CSS, The Box Model in CSS, The Role of ID and Class in CSS, Page Layout Techniques

#### **Unit IV: Graphics**

Introduction to Web Graphics, creating a Web Photo Album, creating a Button, Creating a Web Page Banner

#### **Unit V: Scripting**

Overview of Scripting on the Web, JavaScript

#### **Unit VI: Quality Control**

Validating Websites, Testing Usability

#### **Unit VII: Website Management and Authoring Tools**

Basic Features of Web Authoring Software, Publishing on the Web

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**PVA 15: FUNDAMENTAL OF CAD**

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**Marks: 50 (ESE: 2 Hrs) = 50****Pass Marks: Th (ESE) = 20****Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

Upon completion of this course, the student will:

1. Apply basic CAD commands to draw and edit 2D objects
2. Draw objects to various scales
3. Print CAD drawings to various scales
4. Place and manipulate CAD annotations and dimensions
5. Manipulate CAD symbols

**Course Content:****Unit I: An Introduction to AutoCAD**

1. Introduction to AutoCAD, introduces you to fundamental CAD concepts and the AutoCAD interface.
2. Quick Start Tutorial, allows you to hit the ground running so that you learn the basics necessary to start a new drawing, create and modify some objects, add annotation features, and print out your work. All topics are then explained in detail in the subsequent units.

**Unit 2: Drafting Skills: Drawing with AutoCAD**

1. Controlling the Drawing Display, shows you how to move around in a drawing by panning and zooming. It also introduces some different display performance settings.
2. Basic Drawing Commands, provides an overview of the basic drawing commands such as LINE and CIRCLE so you can create a simple drawing.
4. Drawing Tools and Drafting Settings, explains the different drawing tools and settings available to help you create and modify your work.
5. Managing Object Properties, shows how to set up and apply different layer systems and manage other object properties.

**Unit 3: Understanding Editing Techniques: Basics Through Advanced**

1. Basic Editing Techniques, explains how to select groups of AutoCAD objects that can be modified as a single unit. Grips are introduced to teach you how to modify objects directly by simply selecting them in your drawing.
2. Advanced Editing Techniques, introduces some of the more advanced modify commands that allow you to perform complex operations.

**Unit 4: Working with Complex Objects**

1. Drawing and Editing Complex Objects, looks at creating and editing complex polyline-based objects with multiple line segments.
2. Pattern Fills and Hatching, provides information about incorporating different predefined pattern fills and hatch patterns into your drawings to create filled areas.

**Unit 5: Annotating Drawings**

1. Adding Text, shows the different ways to manage and create text in a drawing.
2. Working with Tables, explains how to insert and modify different types of tables in a drawing, including those linked to Microsoft Excel spreadsheets and those extracted from object information in a drawing.
3. Dimensioning Drawings, outline the different dimensioning tools and shows how to manage their appearance using dimension styles.

**Unit 6: Outputting Your Work**

1. Managing Paper Space Layouts, shows you step by step how to set up paper space layouts for plotting using industry standard techniques, including multiple layouts and multiple scaled viewports.
2. Plotting and Publishing, provides an overview of the different plotting tools and settings, including how to batch plot a group of drawings using the PUBLISH command.

**Prerequisites:**

- Computer Programming and Problem Solving
- Math – Differential Equations

**Required Materials:**

- USB Storage Media (Pen Drive) 4 GB or larger

**Suggested Readings**

1. Introduction to AutoCAD 2013: A Modern Perspective; Paul F. Richard, Jim Fitzgerald, and Autodesk; Pearson 2013; ISBN-10: 0132954753 ISBN-13: 9780132954754
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**PVA 16: MICROSOFT EXCEL - BEGINNER TO ADVANCED**

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

On the completion of this course, the students will be able to;

1. Understand the Excel interface, entering and formatting data, and using essential formulas and functions
2. Create charts, such as bar charts and pie charts to present data
3. Analyze data using Pivot Tables
4. Use shortcut keys

**Course Content:**

**Excel basics:** Understanding the Excel interface, entering and formatting data, and using essential formulas and functions

**Data organization:** Sorting, organizing, and formatting data

**Data visualization:** Creating charts, such as bar charts and pie charts, to present data

**Pivot tables:** Analyzing data using PivotTables

**Spreadsheets:** Building practical spreadsheets

**Keyboard shortcuts:** Learning common, navigation, and selection keyboard shortcuts

**Functions:** Learning logical if, lookup, text, sum if, financial, statistical, subtotal, aggregate, and randomization functions

**VBA:** Learning the basics of VBA, including variables, data types, if and select cases, and more

**Protecting workbooks:** Learning how to protect worksheets and workbooks

**Importing data:** Learning how to import data into an Excel sheet

**Printing:** Learning about printing options in Excel

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**PVA 17: BEAUTY AND WELLNESS**

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**Marks: 50 (ESE: 2 Hrs) = 50****Pass Marks: Th (ESE) = 20****Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

1. As a Beauty Wellness Consultant it is important to have good understanding of Anatomy & Physiology, as many of our treatments aim to improve the particular functioning of systems of the body.
2. Upon completion of this course the student should be able to explain the gross morphology, structure and functions of various organs of the human body related to beauty sector.
3. The course enables the student to understand and appreciate the basic understanding of cosmetic products.
4. The students will be able to understand a comprehensive understanding of fundamentals of Beauty therapy and its management.
5. Know the various types of beauty treatments and their importance.

**Course Content:****UNIT 1: Introduction to Human Body**

Anatomy and physiology related to Human body

- **Skin:** Understand the basic structure and function of the skin and characteristics, Skin types, effect of the natural ageing process on skin and muscle tone, Identify allergies, common skin problems, Root causes of skin problems, pH, Sun Protecting Factor.
- **Hair:** Hair Structure, function of hair, hair growth cycle, types of hair, common hair problems.
- **Nail:** Nail Structure, function, characteristics of nail and nail growth, nail diseases.

**UNIT 2: Cosmetics**

Definition of cosmetics as per Indian and EU regulations,

Principles of cosmetic evaluation, cosmetics for various body parts, provision of drugs and cosmetic act as applicable to cosmetic.

Pharmacopoeias: Introduction to IP, Dosage forms: Introduction to dosage forms, classification and their uses

**UNIT 3: Skincare and Products**

Principles of formulation and designing of various skin care products: skin colorants (lipsticks), skin creams, Skin lotions, Skin Serum, Skin Gels, sunscreen preparations, face pack, lip balm

Advanced Skincare: Chemical Peels and Exfoliation Treatments,

Anti-aging and Corrective Skincare, Advanced Skincare Devices and Technologies

**UNIT 4: Hair Cares and Products**

Formulation and designing of Hair shampoo, hair tonics, hair oils, hair gel, hair dyes.

**UNIT 5: Nail Cares and Products**

Formulation and designing of nail cream, nail polish, nail lacquers and removers.

**UNIT 6: Artistry in Makeup**

Specialized Makeup Techniques (e.g., Bridal, Editorial, Special Effects)

Color Theory and Customization, Makeup for Different Skin Tones and Ages

**UNIT 7: Creative Hairstyling**

Advanced Haircutting and Coloring Techniques, Updos, Braiding, and Editorial Hairstyling

Hair Extensions and Hairpiece Application

**Suggested Readings**

1. Anatomy and Physiology, "Human Anatomy" by Alice Roberts
  2. Essential of Anatomy and Physiology Paperback by Saladin
  3. N K Jain and S K Sharma, A Text Book of Pharmacy, latest edition
  4. Textbook of Cosmetics Paperback –2009 by Nema
  5. Cosmetic Science and Technology: Theoretical Principles and Applications Mar 2017 by Kazutami Sakamoto (Editor)
  6. Textbook of Cosmetics Paperback –2009 by Nema (Author)
  1. Cosmetology - Pivot Point Academy. [www.pivotpoint.edu/education/cosmetology](http://www.pivotpoint.edu/education/cosmetology)
  2. The Foundation Beauty Therapy Lorraine Nordmann Seventh Edition LEVEL 2
  3. Milady's Standard Text Book Cosmetology
  4. Shahnaz Husain- Beauty book
  5. The beauty book by Dr. Bharti Taneja
  6. Miladys hair removal techniques
  7. The world of skin care by Dr John Gray
  8. Start hairdressing by Pat Dixon
  9. NVQ2 Hair Dressing
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## PVA 18: BIOFERTILIZERS

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Marks: 50 (ESE: 2 Hrs) = 50

Pass Marks: Th (ESE) = 20

**Theory: 30 Lectures, 2 Credits**

### Course Learning Outcomes:

On the completion of this course, the students will be able to;

5. Develop their understanding of the concept of bio-fertilizer
6. Identify the different forms of biofertilizers and their uses
7. Compose the Green manuring and organic fertilizers
8. Develop integrated management for better crop production by using both nitrogenous and phosphate biofertilizers

### Course Content:

#### **Unit I**

**9 lectures**

A general account of the microbes used as biofertilizers – Rhizobium – isolation, identification, mass multiplication, carrier-based inoculants, Actinorrhizal symbiosis. Azospirillum: isolation and mass multiplication – carrier-based inoculant, associative effect of different microorganisms. Azotobacter: classification, characteristics – crop response to Azotobacter inoculum, maintenance, and mass multiplication.

#### **Unit II**

**7 lectures**

Cyanobacteria (blue-green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue-green algae and Azolla in rice cultivation.

#### **Unit III**

**7 lectures**

Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

#### **Unit IV**

**7 lectures**

Organic farming – Green manuring and organic fertilizers, Recycling of bio-degradable municipal, agricultural, and Industrial wastes – biocompost making methods, types, and methods of vermicomposting – field Application.

### **Suggested Readings**

5. Dubey, R.C. (2005). A Textbook of Biotechnology S.Chand & Co, New Delhi.
1. John Jothi Prakash, E. (2004). Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
2. Kumaresan, V. (2005). Biotechnology, Saras Publications, New Delhi.
3. NIIR Board. (2012). The Complete Technology Book on Biofertilizer and organic farming. 2nd Edition. NIIR Project Consultancy Services.
4. Sathe, T.V. (2004) Vermiculture and Organic Farming. Daya publishers.
5. Subba Rao N.S. (2017). Biofertilizers in Agriculture and Forestry. Fourth Edition. Medtech.
6. Vayas, S.C, Vayas, S. and Modi, H.A. (1998). Bio-fertilizers and organic Farming Akta Prakashan, Nadiad.

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**PVA 19: RENEWABLE ENERGIES (SOLAR & BIOGAS)**

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

On the completion of this course, the students will be able to;

9. Develop their understanding of the concept of bio-fertilizer

**Course Content:****Unit I****9 lectures**

A general account of the microbes used as biofertilizers – Rhizobium – isolation, identification, mass.

**Suggested Readings**

6. Dubey, R.C. (2005). A Textbook of Biotechnology S.Chand & Co, New Delhi.
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**PVA 20: COLOUR PSYCHOLOGY**

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Marks: 50 (ESE: 2 Hrs) = 50	Pass Marks: Th (ESE) = 20
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**Theory: 30 Lectures, 2 Credits****Course Learning Outcomes:**

On the completion of this course, the students will be able to;

**Course Content:****Unit-1: Foundation of Colour Psychology**

Introduction of psychology and colour psychology, definition, history and scope  
Basis of colour-colour wheel, hue and saturation  
Biological and psychological aspect of colour perception

**Unit-2: Colour emotion and personality**

Definition and nature of emotion and personality  
Emotional responses to colours and their causes  
Personality traits and colour preference

**Unit-3: Theories of colour**

Colour emotion theory, colour psychology theory, chroma therapy and colour symbolism theory

**unit-4: Colour in design and marketing**

Colour in branding, logo design, consumer behaviour and predicting colour trends

**unit-5: Colour psychology applications**

Chroma therapy, Art therapy, colour and neuroscience and ethics in colour psychology

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