



Shiksha Mandal's

G. S. College of Commerce, Wardha

(Autonomous)

B. Com. (Major in Computer Application) Semester V



Advanced Java Programming (BCCA 5.1)			
Teaching Hours: 60 (Theory + Practical)	Total Credits: 4	Total Marks: 40 + 30 + 30 = 100	Group: Major Core
Objectives: 1. To understand the core concepts of the Java and how to implement a Java application using Swing and JDBC. 2. To analyze the components of Java enterprise applications and apply this knowledge to deploy and manage a Java web application effectively. 3. To explore key concepts of Java web development including Servlets, JSP, and web design using HTML & Bootstrap. 4. To evaluate the principles and components of Spring IoC, MVC, and Hibernate.			
Learning Outcomes: After learning this course, students will be able to – 1. Understand the fundamentals the key concepts of Java which will be applied to implement Java applications using Swing and JDBC with appropriate Swing layouts. 2. Create Java enterprise application using JSP, Servlets, and Apache Tomcat, and apply best practices to deploy and manage the application effectively. 3. Apply the concepts of Java web technologies to build dynamic, interactive web applications. 4. Evaluate the effectiveness of Spring IoC, MVC, and Hibernate integration in developing scalable, maintainable web applications through hands-on project implementation.			
Unit	Content		
I	Introduction to Collection Framework, JDBC, Swing Controls, Implementing Java application with Swing & JDBC, Swing layouts.		
II	JAVA enterprise application, introduction to Eclipse, JSP and servlet, JSP lifecycle, Servlet Lifecycle, Introduction to Apache Tomcat container, Deploying a JAVA application.		
III	Servlet Request & Servlet Response, HTTP Session, Types of Servlet, JSP inbuilt objects, filter, listener, JSP tags & Inter-servlet communication, designing web pages using HTML & Bootstrap.		
IV	Introduction to Spring IOC & MVC, Spring core container and advanced container, Dependency Injection: Types of Dependency Injection, Depends on a dependency-check attribute, Secondary, Array and collection dependency injection, auto wiring, stereotype annotation, Introduction to Hibernate framework, Spring MVC CRUD operation using Hibernate. Real-world Mini Project (e.g., Employee Registration System)		
Books Recommended: 1. Java the complete reference Eighth Edition, Herbert Schildt, ORACLE Press 2. Head First Servlets and JSP , Bryan Basham, Kathy Sierra and Bert Bates, Oreilly 3. Black book second edition , Santosh Kumar K., Publication Dreamtech Press			



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Python (BCCA 5.2)			
Teaching Hours: 60 (Theory + Practical)	Total Credits: 4	Total Marks: 40 + 30 + 30 = 100	Group: Major Core
Objectives: 1. To understand the core concepts of Python programming to build and debug basic programs. 2. To analyze concepts of functions, modules and exception handling programs. 3. To explore string manipulation, file handling, and object-oriented programming concepts. 4. To evaluate the process of developing full-scale Python applications.			
Learning Outcomes: After learning this course, students will be able to – 1. Understand and recall key elements of programming to perform operations and making statements. 2. Analyze system utilities work in Python to write modular, efficient programs. 3. Apply object-oriented and string handling concepts of Python to develop organized and efficient code structures. 4. Evaluate integrated user interfaces, data visualization, and database connectivity.			
Unit	Content		
I	Introduction to Python: Introducing python, installing python on windows, Launching Python on your machine, Identifiers and Variables, writing your first program, obtaining user input, Correcting Errors. Performing operations - Doing arithmetic, assigning values, Comparing Values, Assessing logic. Examining Conditions, Setting precedence, Type Casting, Making statements - Writing lists, manipulating lists, restricting lists, associating list elements, control and looping statements.		
II	Defining Functions- Understanding scopes, supplying arguments, Returning Values, using callbacks, adding placeholders, producing generators, handling exceptions, Debugging assertions. Importing Modules - Storing functions, owning function names, Interrogating the system, performing mathematics, calculating decimals, Telling the time, Running a timer, Matching patterns.		
III	Managing strings - Manipulating strings, formatting strings, modifying strings, accessing files, Reading and writing files, updating file strings, Pickling data. Programming objects - Encapsulating data, creating instance objects, Addressing class attributes, Examining built-in attributes, Collecting garbage, Inheriting features, Overriding base methods, Harnessing polymorphism.		
IV	Building interfaces- Launching a window, Responding to buttons, Displaying messages, Gathering entries, Listing options, Polling radio buttons, Checking boxes, Adding images. Python plotting with matplotlib, Developing applications- Generating random numbers, Planning the problem, Designing the interface, Assigning static properties, Initializing dynamic properties, Adding runtime functionality, Python and Databases – ODBC and Python, Installing and Logging into MySQL, Working with MySQL, Accessing MySQL Data from Python, Testing the program, Freezing the program, Deploying the application.		
Books Recommended: 1. Python Training Guide, John V. Guttag, Publication: BPB Publication 2. Python Projects, Laura Cassell C Alan Gauld 3. Practical Programming – An Introduction to Computer Science using Python, Paul Greis, Jennifer Campbell, Jason Montojo, Shroff Publishers, New Delhi 4. Python in Easy Steps, Mike McGrath, McGraw-Hill, New Delhi. 5. Online Tools: https://www.geeksforgeeks.org/python-programming-language-tutorial, https://www.javatpoint.com/			



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Introduction to Artificial Intelligence & Machine Learning (BCCA 5.3.1)

Teaching Hours:
60 (Theory + Practical)

Total Credits: 4

Total Marks:
40 + 30 + 30 = 100

Group: Major Electives

Objectives:

1. To understand the concepts of Artificial Intelligence and its branches.
2. To analyze relationship between AI and ML.
3. To explore supervised, unsupervised learning algorithm C model evaluation.
4. To evaluate No-code/Low-code Tools C Data Visualization.

Learning Outcomes: After learning this course, students will be able to –

1. **Understand** and **recall** Applications of Artificial Intelligence in Commerce, Banking, Retail, and Education.
2. **Analyze** uses of various cases in Commerce.
3. **Apply** Machine Learning Applications in Commerce.
4. **Evaluate** different data visualization tools for clarity and accuracy.

Unit	Content
I	Foundations of Artificial Intelligence: Introduction to Artificial Intelligence: Definition and Scope, History and Evolution of AI, Branches of AI: Expert Systems, NLP, Computer Vision, Robotics, Types of AI: Reactive, Limited Memory, Theory of Mind, Self-aware, Applications of AI in Commerce, Banking, Retail, and Education, Ethical Considerations and Social Impacts of AI.
II	Basics of Machine Learning: Introduction to Machine Learning: Definition and Importance, Relationship between AI and ML, Types of ML: Supervised Learning, Unsupervised Learning C Reinforcement Learning, Key Concepts: Dataset, Features, Labels, Training, Testing, Accuracy, Use Cases in Commerce: Credit Scoring, Sales Forecasting, Market Segmentation.
III	ML Algorithms and Applications: Supervised Learning Algorithms: Linear Regression (Concept C Use), Decision Trees (Classification) C k-Nearest Neighbors, Unsupervised Learning Algorithms: k-Means Clustering C Association Rules (Market Basket Analysis), Introduction to Model Evaluation: Confusion Matrix, Accuracy, Precision, Recall, ML Applications in Commerce: Fraud Detection, Customer Segmentation, Recommendation Systems.
IV	Tools, Platforms s Mini Project: Introduction to No-code/Low-code Tools: Google Teachable Machine C KNIME / Orange, Basics of Python for ML (Optional Introduction for Interested Students), Simple Data Analysis using Excel/Power BI, Introduction to Data Visualization, Mini Project: Choose a dataset (e.g., sales, customer, product), Apply basic ML concepts C Submit report and present findings

Books Recommended:

1. Artificial Intelligence and Machine Learning by Vinod Chandra S.S., Anand Hareendran
2. Machine Learning for Beginners by Oliver Theobald
3. Artificial Intelligence: A Guide for Thinking Humans by Melanie Mitchell
4. Online Tools: Google Teachable Machine, KNIME Analytics Platform C Kaggle (Sample Datasets)



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B. Com. (Major in Computer Application) Semester V



Introduction to WordPress & Joomla (BCCA 5.3.2)

Teaching Hours:
60 (Theory + Practical)

Total Credits: 4

Total Marks:
40 + 30 + 30 = 100

Group: Major Electives

Objectives:

1. To **understand** the core concepts of Content Management Systems (CMS) and WordPress.
2. To **analyze** process of designing and customizing WordPress sites.
3. To **explore** the features of Joomla, including installation and understanding modules and components, in comparison to WordPress.
4. To **evaluate** Joomla site customization techniques to develop a comprehensive CMS-based website.

Learning Outcomes: After learning this course, students will be able to –

1. **Understand** how to effectively use WordPress for managing content, including posts, pages, media, categories, comments, and configuring basic settings.
2. **Analyze** user role handling for effective site management.
3. **Apply** the knowledge of Joomla's features to effectively build and manage websites.
4. **Evaluate** the effectiveness of Joomla site customization techniques, including template installation, extension management, and user handling, in building a fully functional CMS-based website.

Unit	Content
I	Fundamentals of CMS and Introduction to WordPress: Definition and purpose of CMS, Features and advantages C limitations of WordPress, Installation of WordPress (localhost using XAMPP / live hosting), WordPress Dashboard overview, Creating and managing Posts, Pages, Media, Categories, and Tags, Managing Comments and Discussion Settings
II	Designing and Customizing WordPress Sites: Installing and customizing Themes, Working with Widgets and Menus, Installing and configuring Plugins (Contact Form, Gallery, SEO, Security), Creating Custom Menus and Navigation, Managing User Roles and Permissions, Backup, Restore, and Updates in WordPress.
III	Introduction to Joomla: Introduction and comparison with WordPress, Installation of Joomla (localhost using XAMPP), Joomla Control Panel overview, Creating and managing Articles and Categories, Creating Menus and Menu Items, Understanding Modules and Components
IV	Joomla Site Customization and Mini Project: Installing and configuring Templates, Working with Joomla Extensions and Plugins, User management in Joomla, Backup and restore using Akeeba Backup, Mini Project: Build and present a complete CMS-based website using either WordPress or Joomla

Books Recommended:

1. **WordPress for Beginners** by Dr. Andy Williams
2. **Joomla! 3 Explained** by Stephen Burge
3. **WordPress.org documentation** – <https://wordpress.org/support/>
4. **Joomla official documentation** – <https://docs.joomla.org/>



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Indian Economy (BCCA 5.4.1)			
Teaching Hours: 60	Total Credits: 4	Total Marks: 70+30=100	Group: Minor
Objectives: - To broadly provide an understanding to the students about the core concepts in Indian Economy. - To enable the students to in comprehending the importance of digitalization towards agricultural growth along with providing knowledge of crucial agricultural concepts. - To provide an understanding to students with regard to the role of industry and the various challenges faced in the sector along with the importance of MSME's and pertinent problem of industrial sickness. - To provide an understanding about various challenges and opportunities in diverse service sector path along with the support mechanism provided by the government for start-up and entrepreneurship especially for gender empowerment.			
Learning outcome: - Students will be able to understand and evaluate the challenges faced in the country's development path due to regional imbalances. - Students will be able to analyze the crucial role of agricultural sector in the Indian economy along with the ability to apply there understanding towards a progressive path in the sector. - Students will be able to relate the theoretical concept with the real-life situation of Indian industry and the application of policies and government initiative in shaping the Future of Indian Industry. - Students will be able to generate ideas towards creation of self-employment opportunities with the knowledge of various government schemes for start-up and opportunities provided by different sub-sectors in service industry.			
Unit	Content		
I	Indian Economy: - Indian Economy:-Broad Features, It's current challenges - Overview of Indian Economic planning:-Achievements and Failures; NITI Aayog: Concept, role - Youth unemployment: Meaning of unemployment, types of unemployment, Concept of youth unemployment, factors contributing to youth unemployment. - Regional imbalance: Meaning, Importance of regional imbalances in context to development, case study of regional imbalance with reference to Vidharbha.		
II	Indian Agriculture: - Role of Agriculture in Indian Economy - Green Revolution: Impact and Constraints - NABARD: Introduction, Objectives, functions - Digital Agriculture: Meaning, benefits and current initiatives. - Low Agriculture Productivity in India: Causes, effects & suggestions towards the same. - Agricultural marketing: Meaning, Problems, Remedies		



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III	Indian Industry: 1. Role of Industrialization in the Indian Economy 2. New Industrial Policy, 1991 3. Public Sector Industries, Private Sector Industries:- Meaning, problems, remedies 4. MSME:-Introduction, Features, Role, Government Initiatives for MSME 5. Industrial Sickness: Meaning, Causes, Effects and Remedies.
IV	Indian Service Sector & Government Schemes for Women Empowerment 1. Nature, Scope and Importance of Service Sector in Indian Economy 2. IT Sector-Importance, Challenges and Opportunities. 3. Banking and Insurance sector-Importance, Challenges and Opportunities 4. Travel & Tourism Sector-Importance, Challenges & Opportunities 5. Hospitality Sector -Importance, Challenges & Opportunities 6. Government Schemes for Start-ups in India for women:- Overview, benefits. 7.
Books Recommended:	
1. Indian Economy, Datt & Sundharam, S Chand, 6th Revised Edition, 2013. 2. The Indian Economy, Sanjiv Verma, For UPSC and State Civil Services Preliminary and Main Examinations, Unique Publications, 2nd Edition, 2013. 3. Economic Policy Reforms and the Indian Economy, Anne Krueger, University of Chicago Press, 2nd Edition 2002. 4. The Indian Economy : Problems and Prospects, D. R. Gadgil, Oxford University Press, 2011. 5. The Indian Challenge, Sage India, Ashoka Chandra & M.K. Khanijo, 1st Edition, 2009. 6. Globalization And Indian Economy, R. Chaddha, Sumit Enterprises, 2011. 7. Indian Economy Since Independence, Edited By Uma Kapila, Academic Foundation, 14th Edition 2002. 8. Indian Economy, M. B. Shukla, Taxmann Allied Services Pvt .Ltd., 2012. 9. Indian Economy, Ramesh Singh, Mc Graw Hill Education, 2020. 10. Indian Economy, V.K. Puri & S. K. Mishra, Himalaya Publishing House	



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Industrial Relations & Labour Law (BCCA 5.4.2)

Teaching Hours: 60

Total Credit: 04

Total Marks:
70+30=100

Group: Major Core

Objective: After completing this course students will be able to:

1. Understand and explain key concepts of industrial relations and labour legislations in India.
2. Interpret legal terminology and core concepts such as industrial dispute, lay-off, retrenchment, closure, strike, and lockout.
3. Describe the roles and functions of institutional mechanisms like Works Committees, Grievance Redressal Committees, Conciliation Officers, and Industrial Tribunals.
4. Discuss legal protections and benefits available to women employees under the Maternity Benefit Act and other provisions regarding equality and empowerment.

Learning Outcome: After successful completion of this course, students will be able to:

1. Define and appropriately use key legal terms related to industrial relations and labour law.
2. Evaluate the effectiveness of statutory mechanisms for dispute resolution and worker representation.
3. Identify rights and obligations under labour laws relating to working conditions, employee safety, and welfare measures.
4. Demonstrate understanding of gender-specific labour protections and assess the impact of laws aimed at the empowerment of women in the workplace.

Unit	Content
I	Industrial relations -Introduction, objectives and importance of industrial relations, aspects of industrial relation, maintenance of industrial peace, industrial democracy, factors affecting industrial relations. Industrial relations code 2020- Key aspects, meaning of industry, industrial dispute Bi-partite committees (Works committee, Grievance Redressal Committee), standing orders, lay-off, retrenchment, Closure-basic rules. Strikes and lockouts- basic rules.
II	Laws relating to wages - Highlights of Code on Wages, 2019, definition of wages, concept of minimum wages, timely payment of wages, working hours, overtime, maintenance of registers and records, rules for authorized deductions and fines from wages, concept of bonus and rules for bonus, non-discrimination provisions and women empowerment, impact of wages code on workers, impact of wages code on employers, leave encashment provisions under the OSH & WC Code.
III	Laws relating to work conditions - Occupational, Safety, Health and Working Conditions Code 2020. Key aspects of the OSH code, registration of establishment, duties of employer, safety committees and safety officers, Provisions regarding workers health, safety and welfare, Notice of certain accident, dangerous occurrences, and certain diseases. Women Working at Night and Safety of Employment of Women in Dangerous Operations, Provisions for Contract Labour



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Semester V



IV	Social security measures- Code on Social Security, 2020- overview Meaning of gratuity, rules for payment of gratuity, meaning of occupational disease, accident arising in course of employment, permanent partial disablement, permanent total disablement, benefits to be provided for disablement key aspects of maternity benefits under social security code- Prohibition on employment of women during certain periods, right to payment of maternity benefit, Dismissal during pregnancy Social security schemes for gig workers. Employees compensation- Employer's liability for compensation to employee for injury.
Books Recommended:	
1. Industrial Relations & Labour laws for Managers, Parul Gupta; 2nd edition, Taxmann's 2. Business & Industrial Law, Prof P. Saravanel; Himalaya Publishing House 3. Industrial Relation & Labour Law, P.C. Tripathi, C.B Gupta & N. D. Kapoor, S. Chand & Sons. 4. Dynamics of Industrial Relations, C.B.Mamoria, Satish Mamoria, P.Subba Rao; Himalaya Publishing House	



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Logistics and Supply Chain Management (BCCA 5.4.3)

Teaching Hours: 60

Total Credits: 4

Total Marks: 70+30=100

Group: Minor

Objective:

1. Logistics and supply chain management equip individuals with the skills to understand and manage the complex systems involved in moving goods and services from origin to consumer.
2. To gain deeper insights into logistics and supply chain management.
3. To highlight the integrated nature of working in the logistics and supply chain industry.
4. This knowledge allows for improved efficiency, cost reduction, and enhanced customer satisfaction.

Learning Outcome: On successful completion of the course, students will be able to-

1. **Understand** the basic concepts of logistics and supply chain management.
2. **Understand** tools of Supply Chain Performance Measurement.
3. **Apply** Knowledge of IT in managing global issues & challenges in Logistics & Supply Chain Management.
4. **Prepare** students to work in logistics and allied industries.

Unit	Content
I	Introduction to Logistics Management - Meaning, Evolution, Basic Concepts of Logistics- Logistical Performance Cycle, Inbound Logistics, In-process Logistics, Outbound Logistics, Objectives of Logistics, Importance of Logistics, Scope of Logistics. Introduction to Supply Chain Management: - Meaning, Objectives, Functions, Participants of Supply Chain, Role of Logistics in Supply Chain.
II	Elements of Logistics Mix - Transportation, Warehousing & Packaging: - Introduction, Principles and Participants in Transportation, Factors Influencing Transportation Decisions, Modes of Transportation- Railways, Roadways, Airways, Waterways, Ropeways, Pipeline, Types of Warehouses, Warehousing Strategies, Objectives of Packaging, Functions/Benefits of Packaging.
III	Inventory Management, Logistics Costing & Performance Management - Meaning, Objectives, Functions, Importance, Techniques of Inventory Management. Logistics Costing: - Meaning, Total Cost Approach, Activity Based Costing, Mission Based Costing. Performance Measurement in Supply Chain: - Meaning, Objectives of Performance Measurement, Types of Performance Measurement, Dimensions of Performance Measurement.
IV	Information Technology in Logistics: - Introduction, Objectives, Role of Information Technology in Logistics and Supply Chain Management, Principles of Logistical Information System, Types of Logistical Information System. Emerging technologies in Logistics and Supply chain management. Logistics in the Global Environment: - Managing the Global Supply Chain, Impact of Globalisation on Logistics and Supply Chain Management, Global Issues and Challenges in Logistics and Supply Chain Management.

Books Recommended:

1. **Logistics and Supply Chain Management**, MacMillan 2003, 1st Edition
2. **Supply Chain Management concepts and case**, Rahul V Altekhar, PHI, New Delhi.
3. **Supply Chain Management**, Robert B Handfield and Ernest L Nichols, PHI, New Delhi.
4. **Logistics and Supply Chain Management** - Cases and Concepts. G Raghuram & N Rangaraj, Mac Millan
5. **Supply Chain Management** – K. Shridhara Bhat, Himalaya Publishing House.
6. **Logistics & Supply Chain Management, Text & Cases** by Anurag Saxena & Lt.Col. Kaushik Sircar, Jaico Publishing House.



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Introduction to Photoshop (BCCA 5.5)

Teaching Hours: 45 (Theory + Practical)	Total Credits: 2	Total Marks: 35+5+10 = 50	Group: Vocational Skill Course
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Objectives:

1. To impart the basic knowledge of photoshop interface, tools and layers.
2. To explore Text and Typography, Shape and Drawing Tools in photoshop.

Learning Outcomes: After learning this course, students will be able to –

1. **Understand** and **recall** Basic Editing Tools Selection Tools and layers.
2. **Apply** the concepts of photoshop to create brochure and digital contents.

Unit	Content
I	Basics of Photoshop s Image Editing Tools Introduction to Adobe Photoshop: Overview and applications in commerce and design, Photoshop interface: Menu bar, Toolbar, Options bar, Panels, and Workspace, File formats (PSD, JPEG, PNG, TIFF, etc.), Creating and managing documents, Image resolution, size, and color modes (RGB, CMYK, Grayscale), Cropping and resizing images, Using rulers, guides, and grids, Selection Tools: Marquee tools (Rectangular, Elliptical), Lasso tools (Lasso, Polygonal, Magnetic), Quick Selection and Magic Wand tools, Modifying and refining selections, Basic Editing Tools: Move, Brush, Eraser, Gradient, Paint Bucket, Clone Stamp and Healing tools, Spot Healing Brush and Patch tool, Using Eyedropper and Zoom tools, Working with Layers: Layer basics: Create, delete, rename, group, lock, and link layers, Layer opacity and blending modes, Introduction to Layer Styles and Adjustment Layers, Layer Masks and Clipping Masks
II	Design, Text, Effects s Exporting Text and Typography: Adding and formatting text, Text effects (shadows, glow, stroke), Warping and transforming text, converting text to shape, Shape and Drawing Tools: Custom shapes, Pen tool, and Path selection, using vector shapes and combining paths, Aligning and distributing elements, Filters and Effects: Applying filters (Blur, Sharpen, Distort, etc.), Smart Filters and Filter Gallery, Basic retouching and photo enhancement techniques, Saving and Exporting: Saving for print and web, Export options and file optimization, Introduction to using Photoshop with other Adobe tools (like illustrator or InDesign)

Books Recommended:

1. **Adobe Photoshop** by [Bittu Kumar](#)
2. **Teach yourself photoshop** by [Niranjan Jha Showman](#)
3. **Mastering Photoshop** by [WebTech Sol](#)
4. **E-Book:** <https://ebooks.allfree-stuff.com/eBookShow/1555/37/Adobe-PhotoShop/Adobe-Photoshop-CS4-User-Guide/>