



# THE COCHIN COLLEGE

Koovapadam, Kochi-2

Affiliated To Mahatma Gandhi University

Re-accredited by NAAC With B+ Grade



Fourth Cycle  
NAAC Accreditation 2024

## Criterion 1 Curricular Aspects

### 1.2 - Academic Flexibility

Metric No. 1.2.1

Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc.

Brochure and Syllabus- 2022-2023

Submitted to



National Assessment and Accreditation Council



# THE COCHIN COLLEGE

KOCHI - 682 002

(Affiliated to Mahatma Gandhi University and Accredited by NAAC)

Website: [www.thecochincollege.edu.in](http://www.thecochincollege.edu.in)

email: [email@thecochincollege.edu.in](mailto:email@thecochincollege.edu.in)



## THE COCHIN COLLEGE

KOOVAPADAM, KOCHI-2

AFFILIATED to MG UNIVESITY, RE-ACCREDITED WITH B+ GRADE

DEPARTMENT OF ECONOMICS

# VALUE ADDED COURSE

Offered in 2022-2023

 **DIGITAL BANKING**

 **CONTEMPORARY INDIAN ECONOMY**

**APPLY**

<https://forms.gle/zJ3ApbXmTTb37KYW9>





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## DEPARTMENT OF ECONOMICS ADD ON COURSE 2022-23

|                       |   |
|-----------------------|---|
| <b>Course Title</b>   | <b>DIGITAL BANKING (30 Hours)</b>   |
| <b>Course Summary</b> | This course is designed to provide students with an in-depth understanding of the digital banking landscape in India. The course covers the principles of digital banking, various digital banking services, technological advancements, regulatory environment, and the unique aspects of digital banking in the Indian context.   |
| <b>Course Outcome</b> | <ol style="list-style-type: none"> <li>1. understand the fundamentals and evolution of digital banking in India.</li> <li>2. learn about various digital banking services and products available in India.</li> <li>3. understand the regulatory and security aspects of digital banking in India.</li> <li>4. develop practical skills for utilizing digital banking tools and platforms.</li> </ol> |

| Module | Content  | Hrs |
|--------|--|-----|
| I      | <b>Module 1: Introduction to Digital Banking in India</b> <ul style="list-style-type: none"> <li>• Definition and Evolution of Digital Banking in India</li> <li>• Difference Between Traditional and Digital Banking</li> <li>• Benefits and Challenges of Digital Banking in India</li> <li>• Key Players in the Indian Digital Banking Space</li> </ul> | 5   |
| II     | <b>Module 2 : Digital Banking Services and Products in India</b> <ul style="list-style-type: none"> <li>• Online and Mobile Banking in India</li> <li>• Digital Payment Systems (e.g., NEFT, RTGS, IMPS, UPI)</li> <li>• Digital Wallets and Payment Apps (e.g., Paytm, PhonePe, Google Pay)</li> <li>• Digital Lending Platforms in India</li> </ul>      | 5   |





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|     |  |   |
|-----|--|---|
|     | <ul style="list-style-type: none"> <li>Virtual Banking Services in India</li> </ul>  |   |
| III | <b>Module 3: Technological Advancements in Indian Banking</b> <ul style="list-style-type: none"> <li>Core Banking Systems in India</li> <li>Blockchain and Cryptocurrency in Indian Banking</li> <li>Artificial Intelligence and Machine Learning in Indian Banking</li> <li>FinTech Innovations in India</li> <li>Internet of Things (IoT) and Banking in India</li> </ul>  | 5 |
| IV  | <b>Module 4: Regulatory and Security Aspects</b> <ul style="list-style-type: none"> <li>Regulatory Framework for Digital Banking in India</li> <li>Role of the Reserve Bank of India (RBI)</li> <li>Data Privacy and Protection Laws in India</li> <li>Cybersecurity in Digital Banking</li> <li>Fraud Detection and Prevention in Indian Banking</li> </ul>   | 5 |
| V   | <b>Module 5: Customer Experience in Digital Banking</b> <ul style="list-style-type: none"> <li>Enhancing Customer Experience through Digital Channels in India</li> <li>User Interface and User Experience (UI/UX) Design</li> <li>Customer Relationship Management (CRM) in Digital Banking</li> <li>Personalized Banking Services in India</li> <li>Case Studies on Successful Digital Banking Implementations in India</li> </ul> | 5 |
| VI  | <b>Module 6: Practical Applications and Case Studies</b> <ul style="list-style-type: none"> <li>Using Digital Banking Platforms in India: A Hands-on Guide</li> <li>Case Studies of Digital Banking Innovations in India</li> <li>Digital Transformation in Indian Banking: Success Stories</li> <li>Future Work in Digital Banking in India</li> </ul>  | 5 |





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|  |   |  |
|--|---|--|
|  | <p><b>ASSESSMENT</b></p> <p>Class Participation and Attendance (10%)</p> <p>Quizzes and Assignments (30%)</p> <p>Case Study Analysis and Presentations (30%)</p> <p>Final Examination (30%)</p> |  |
|--|---|--|

**DEPARTMENT OF ECONOMICS  
ADD ON COURSE 2022-23**

|                       |   |
|-----------------------|---|
| <b>Course Title</b>   | <b>CONTEMPORARY INDIAN ECONOMY (30 Hours)</b>   |
| <b>Course Summary</b> | This course is designed to provide students with an in-depth understanding of the current economic landscape of India. The course covers fundamental economic principles, key sectors of the Indian economy, recent economic reforms, and contemporary economic issues and policies.  |
| <b>Course outcome</b> | <ol style="list-style-type: none"> <li>1. understand the structure and functioning of the Indian economy.</li> <li>2. analyze the key sectors of the Indian economy.</li> <li>3. study recent economic reforms and policies in India.</li> <li>4. explore contemporary economic issues and challenges facing India.</li> <li>5. develop analytical skills for evaluating economic policies and their impact.</li> </ol> |

| Module | Content   | Hrs |
|--------|---|-----|
| I      | <p><b>Module 1: Introduction to the Indian economy</b></p> <ul style="list-style-type: none"> <li>• Overview of the Indian Economy</li> <li>• Historical Evolution and Economic Development</li> <li>• Key Economic Indicators: GDP, Inflation, Employment</li> </ul> | 5   |





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|     |  |   |
|-----|--|---|
|     | <ul style="list-style-type: none"> <li>Demographic Profile and Economic Implications</li> <li>India's Position in the Global Economy</li> </ul>  |   |
| II  | <b>Module 2 : Agriculture and Rural economy</b> <ul style="list-style-type: none"> <li>Structure and Importance of Agriculture in India</li> <li>Green Revolution and Agricultural Productivity</li> <li>Land Reforms and Agricultural Policies</li> <li>Rural Development and Poverty Alleviation Programs</li> <li>Challenges and Opportunities in the Agricultural Sector</li> </ul>    | 5 |
| III | <b>Module 3: Industrial sector in India</b> <ul style="list-style-type: none"> <li>Evolution of Industrial Policy in India</li> <li>Major Industries and Industrial Clusters</li> <li>Small and Medium Enterprises (SMEs)</li> <li>Make in India Initiative and Manufacturing Sector</li> <li>Industrial Growth and Employment Generation</li> </ul>                                       | 5 |
| IV  | <b>Module 4: Service sector in India</b> <ul style="list-style-type: none"> <li>Rise of the Services Sector in India</li> <li>Information Technology and IT-enabled Services</li> <li>Banking, Finance, and Insurance</li> <li>Tourism and Hospitality Industry</li> <li>Contribution of Services to GDP and Employment</li> </ul>   | 5 |
| V   | <b>Module 5: Economic Reforms and Policies</b> <ul style="list-style-type: none"> <li>Liberalization, Privatization, and Globalization (LPG) Reforms</li> <li>Fiscal Policy and Tax Reforms (GST)</li> <li>Monetary Policy and Financial Sector Reforms</li> <li>Foreign Direct Investment (FDI) and Trade Policy</li> <li>Impact of Economic Reforms on Growth and Development</li> </ul> | 5 |
| VI  | <b>Module 6: Contemporary Issues and challenges</b>  | 5 |







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|  |   |  |
|--|---|--|
|  | <ul style="list-style-type: none"> <li>• Economic Impact of COVID-19 Pandemic</li> <li>• Sustainable Development and Environmental Challenges</li> <li>• Income Inequality and Social Disparities</li> <li>• Digital Economy and Financial Inclusion</li> </ul> |  |
|  | <p><b>ASSESSMENT</b></p> <p>Class Participation and Attendance (10%)<br/>         Quizzes and Assignments (30%)<br/>         Case Study Analysis and Presentations (30%)<br/>         Final Examination (30%)</p>   |  |

## DEPARTMENT OF ECONOMICS ADD ON COURSE 2022-23

|                       |   |
|-----------------------|---|
| <b>Course Title</b>   | <b>CONTEMPORARY INDIAN ECONOMY (30 Hours)</b>   |
| <b>Course Summary</b> | This course is designed to provide students with an in-depth understanding of the current economic landscape of India. The course covers fundamental economic principles, key sectors of the Indian economy, recent economic reforms, and contemporary economic issues and policies.  |
| <b>Course outcome</b> | <ol style="list-style-type: none"> <li>1. understand the structure and functioning of the Indian economy.</li> <li>2. analyze the key sectors of the Indian economy.</li> <li>3. study recent economic reforms and policies in India.</li> <li>4. learn contemporary economic issues and challenges facing India.</li> <li>5. develop analytical skills for evaluating economic policies and their impact.</li> </ol> |

| Module | Content | Hrs |
|--------|---------|-----|
|--------|---------|-----|





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|     |   |   |
|-----|---|---|
| I   | <b>Module 1: Introduction to the Indian economy</b> <ul style="list-style-type: none"> <li>• Overview of the Indian Economy</li> <li>• Historical Evolution and Economic Development</li> <li>• Key Economic Indicators: GDP, Inflation, Employment</li> <li>• Demographic Profile and Economic Implications</li> <li>• India's Position in the Global Economy</li> </ul>                         | 5 |
| II  | <b>Module 2 : Agriculture and Rural economy</b> <ul style="list-style-type: none"> <li>• Structure and Importance of Agriculture in India</li> <li>• Green Revolution and Agricultural Productivity</li> <li>• Land Reforms and Agricultural Policies</li> <li>• Rural Development and Poverty Alleviation Programs</li> <li>• Challenges and Opportunities in the Agricultural Sector</li> </ul> | 5 |
| III | <b>Module 3: Industrial sector in India</b> <ul style="list-style-type: none"> <li>• Evolution of Industrial Policy in India</li> <li>• Major Industries and Industrial Clusters</li> <li>• Small and Medium Enterprises (SMEs)</li> <li>• Make in India Initiative and Manufacturing Sector</li> <li>• Industrial Growth and Employment Generation</li> </ul>                                    | 5 |
| IV  | <b>Module 4: Service sector in India</b> <ul style="list-style-type: none"> <li>• Rise of the Services Sector in India</li> <li>• Information Technology and IT-enabled Services</li> <li>• Banking, Finance, and Insurance</li> <li>• Tourism and Hospitality Industry</li> <li>• Contribution of Services to GDP and Employment</li> </ul>  | 5 |
| V   | <b>Module 5: Economic Reforms and Policies</b> <ul style="list-style-type: none"> <li>• Liberalization, Privatization, and Globalization (LPG) Reforms</li> <li>• Fiscal Policy and Tax Reforms (GST)</li> <li>• Monetary Policy and Financial Sector Reforms</li> <li>• Foreign Direct Investment (FDI) and Trade Policy</li> </ul>  | 5 |







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|    |   |   |
|----|---|---|
|    | <ul style="list-style-type: none"> <li>Impact of Economic Reforms on Growth and Development</li> </ul>  |   |
| VI | <b>Module 6: Contemporary Issues and challenges</b>   | 5 |
|    | <ul style="list-style-type: none"> <li>Economic Impact of COVID-19 Pandemic</li> <li>Sustainable Development and Environmental Challenges</li> <li>Income Inequality and Social Disparities</li> <li>Digital Economy and Financial Inclusion</li> </ul> |   |
|    | <b>ASSESSMENT</b><br>Class Participation and Attendance (10%)<br>Quizzes and Assignments (30%)<br>Case Study Analysis and Presentations (30%)<br>Final Examination (30%)  |   |

## DEPARTMENT OF ECONOMICS ADD ON COURSE 2023-24

|                       |  |
|-----------------------|--|
| <b>Course Title</b>   | <b>SUSTAINABLE DEVELOPMENT (30 Hours)</b>  |
| <b>Course Summary</b> | This course is designed to provide students with a comprehensive understanding of the principles and practices of sustainable development. The course covers key concepts, global challenges, sustainability frameworks, and practical strategies for implementing sustainable development in various sectors. |
| <b>Course outcome</b> | <ol style="list-style-type: none"> <li>understand the principles and importance of sustainable development.</li> <li>learn about global challenges and their impact on</li> </ol>  |





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|  |  |
|--|--|
|  | <p>sustainability.</p> <p>3. learn about sustainability frameworks and tools.</p> <p>4. understand the role of various stakeholders in promoting sustainability.</p> |
|  |  |

| Module | Content   | Hrs |
|--------|---|-----|
| I      | <p><b>Module 1: Introduction to Sustainable Development</b></p> <ul style="list-style-type: none"> <li>• Definition and Concept of Sustainable Development</li> <li>• Historical Context and Evolution</li> <li>• Key Principles and Pillars of Sustainability (Economic, Social, Environmental)</li> <li>• Sustainable Development Goals (SDGs)</li> </ul> | 5   |
| II     | <p><b>Module 2 : Global Challenges and Sustainability</b></p> <ul style="list-style-type: none"> <li>• Climate Change and Environmental Degradation</li> <li>• Resource Depletion and Biodiversity Loss</li> <li>• Poverty and Inequality</li> <li>• Urbanization and Sustainable Cities</li> </ul>   | 5   |
| III    | <p><b>Module 3: Sustainability Framework and Tools</b></p> <ul style="list-style-type: none"> <li>• Life Cycle Assessment (LCA)</li> <li>• Circular Economy and Resource Efficiency</li> <li>• Environmental Impact Assessment (EIA)</li> <li>• Sustainability Reporting and Indicators</li> <li>• Green Building Standards and Certifications</li> </ul>   | 5   |
| IV     | <p><b>Module 4: Sustainable Development in Practice</b></p>   | 5   |





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|    |   |   |
|----|---|---|
|    | <ul style="list-style-type: none"> <li>• Sustainable Agriculture and Food Systems</li> <li>• Renewable Energy and Energy Efficiency</li> <li>• Water Management and Sanitation</li> <li>• Sustainable Transportation and Mobility</li> <li>• Waste Management and Recycling</li> </ul>  |   |
| V  | <p><b>Module 5: Policy and Governance for Sustainability</b></p> <ul style="list-style-type: none"> <li>• International Agreements and Protocols (Paris Agreement, Agenda 21)</li> <li>• National and Local Policies for Sustainable Development</li> <li>• Role of Governments and Institutions</li> <li>• Public-Private Partnerships for Sustainability</li> </ul>   | 5 |
| VI | <p><b>Module 6: Stakeholders and Sustainability</b></p> <ul style="list-style-type: none"> <li>• Role of Businesses and Corporate Social Responsibility (CSR)</li> <li>• Community Engagement and Participation</li> <li>• Non-Governmental Organizations (NGOs) and Civil Society</li> <li>• Education and Awareness for Sustainable Development</li> <li>• Future Directions and Innovations in Sustainability</li> </ul> | 5 |
|    | <p><b>ASSESSMENT</b></p> <p>Class Participation and Attendance (10%)</p> <p>Quizzes and Assignments (30%)</p> <p>Case Study Analysis and Presentations (30%)</p> <p>Final Examination (30%)</p>   |   |





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## DEPARTMENT OF ECONOMICS ADD ON COURSE 2023-24

|                       |  |
|-----------------------|--|
| <b>Course Title</b>   | <b>STARTUP ECOSYSTEM IN INDIA (30 Hours)</b>   |
| <b>Course Summary</b> | This course is designed to provide students with a comprehensive understanding of the start-up landscape in India. The course covers key concepts of entrepreneurship, the role of start-ups in the economy, the Indian start-up ecosystem, funding and support mechanisms, and the challenges and opportunities for start-ups in India.   |
| <b>Course outcome</b> | <ol style="list-style-type: none"> <li>1. Understand the fundamentals of entrepreneurship and the start-up ecosystem in India.</li> <li>2. Understand key players and resources in Indian startup ecosystem</li> <li>3. Access and leverage various funding and support mechanisms for start-ups.</li> <li>4. Address legal and regulatory requirements for start-ups in India.</li> <li>5. Develop practical skills for starting and managing a successful start-up.</li> </ol> |
|                       |  |

| Module | Content  | Hrs |
|--------|--|-----|
| 1      | <b>Module 1: Introduction to Entrepreneurship and Start-ups</b> <ul style="list-style-type: none"> <li>• Definition and Importance of Entrepreneurship</li> <li>• Types of Entrepreneurs and Start-ups</li> <li>• Characteristics of Successful Entrepreneurs</li> <li>• Role of Start-ups in Economic Development</li> <li>• Global and Indian Start-up Trends</li> </ul> | 5   |





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|     |  |   |
|-----|--|---|
| II  | <p><b>Module 2 : Indian Startup Ecosystem</b></p> <ul style="list-style-type: none"> <li>• Overview of the Start-up Ecosystem in India</li> <li>• Key Players: Entrepreneurs, Investors, Incubators, Accelerators, Government Agencies</li> <li>• Major Start-up Hubs in India (Bangalore, Mumbai, Delhi, Hyderabad, Chennai)</li> <li>• Key Sectors for Start-ups in India (Tech, Healthcare, FinTech, EdTech, Agritech)</li> <li>• Case Studies of Successful Indian Start-up</li> </ul> | 5 |
| III | <p><b>Module 3: Funding and Support System</b></p> <ul style="list-style-type: none"> <li>• Bootstrapping and Self-funding</li> <li>• Angel Investors and Venture Capital</li> <li>• Government Schemes and Policies (Startup India, Atal Innovation Mission)</li> <li>• Incubators and Accelerators</li> <li>• Crowdfunding and Alternative Funding Sources</li> </ul>  | 5 |
| IV  | <p><b>Module 4: Legal and Regulatory Framework</b></p> <ul style="list-style-type: none"> <li>• Legal Structures for Start-ups (Proprietorship, Partnership, Private Limited Company)</li> <li>• Intellectual Property Rights (IPR)</li> <li>• Compliance and Regulatory Requirements</li> <li>• Labor Laws and Employment Regulations</li> <li>• Taxation for Start-ups</li> </ul>  | 5 |
| V   | <p><b>Module 5: Challenges and Opportunities for Start-ups in India</b></p> <ul style="list-style-type: none"> <li>• Common Challenges Faced by Start-ups</li> <li>• Strategies for Overcoming Challenges</li> <li>• Opportunities in Emerging Sectors</li> <li>• Impact of Technology and Innovation</li> <li>• Future Trends and Predictions</li> </ul>  | 5 |





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|    |  |   |
|----|--|---|
| VI | <b>Module 6: Practical skills for startup success</b>  | 5 |
|    | <ul style="list-style-type: none"> <li>• Business Plan Development</li> <li>• Market Research and Customer Validation</li> <li>• Product Development and Prototyping</li> <li>• Marketing and Sales Strategies</li> <li>• Scaling and Growth Strategies</li> </ul> |   |
|    | <p><b>ASSESSMENT</b></p> <p>Class Participation and Attendance (10%)</p> <p>Quizzes and Assignments (30%)</p> <p>Case Study Analysis and Presentations (30%)</p> <p>Final Examination (30%)</p>  |   |





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## Brochure & Syllabus

Certificate/Value added courses offered during 2022-23

**THE COCHIN COLLEGE**  
KOOVAPADAM, KOCHI-2  
AFFILIATED TO MG UNIVERSITY, RE-ACCREDITED WITH B+ GRADE

Department of Computer Application (SF)

**CERTIFICATE COURSE**  
Offered in 2022-2023

- > AI AND ROBOTICS
- > CLOUD COMPUTING AND DEVOPS

APPLY

<https://forms.gle/zj3hcbXm1Tb37kYw9>







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## VALUE ADDED COURSE

Department of Computer Application, The Cochin College.

ADBCA2210 : AI AND ROBOTICS

Duration: 30 Hours

### Course Description:

This syllabus provides a balanced approach to introducing both AI and robotics, with theoretical knowledge and hands-on experience.

### Course Objectives: \_

- To provide students with a foundational understanding of Artificial Intelligence (AI) concepts, including machine learning, neural networks, and natural language processing.
- To explore the ethical considerations and implications of AI in various sectors.
- To introduce the basic principles of robotics, including kinematics, sensors, and actuators.
- To enable students to understand the integration of AI in robotic systems, enhancing autonomy and decision-making

### Course Outline:

#### Module 1: Introduction to AI and Robotics (6 Hours)

- Overview of AI and Robotics:
- Definition and key concepts
- History and evolution of AI and robotics
- Use cases in industries, healthcare, and everyday life
- Future trends and innovations

#### Module 2 (6 hours)

##### Fundamental Concepts of AI:

- Machine Learning, Deep Learning, and Neural Networks
- Supervised, Unsupervised, and Reinforcement Learning

##### AI Tools and Frameworks:

- Introduction to popular AI tools (e.g., TensorFlow, PyTorch)





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- Basic hands-on with AI tools

#### Module 3 (6 hours)

##### Fundamentals of Robotics:

- Components of a robot (sensors, actuators, controllers)
- Types of robots (industrial, service, autonomous)

##### Kinematics and Dynamics:

- Basics of robot motion and control
- Introduction to robot programming and simulation

#### Module 4 (6 hours)

##### AI Algorithms in Robotics:

- Path planning, computer vision, and object recognition
- Machine learning for autonomous robots

##### Practical Applications:

- Real-world examples of AI-driven robots
- Lab sessions with robot simulation software

#### Module 5 (6 hours)

##### Ethical and Social Implications of AI and Robotics:

- Job displacement, privacy concerns, and AI ethics
- The role of AI and robotics in society

##### Future Trends in AI and Robotics:

- Emerging technologies and their potential impact

##### Assessment of Outcomes:

- Quizzes and assignments (40%)
- Project development and implementation (30%)
- Final exam (30%)

##### Reference Books

Books, online tutorials, and research papers related to AI and Robotics.

Access to simulation tools or robotics kits (e.g., Raspberry Pi, Arduino, or similar). "CSS: The Missing Manual" by David Sawyer McFarland





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email: [email@thecochincollege.edu.in](mailto:email@thecochincollege.edu.in)

## VALUE ADDED COURSE

Department of Computer Application, The Cochin College.

ADBCA2211 : CLOUD COMPUTING AND DEVOPS

Duration: 30 Hours

### Course Description:

This syllabus provides a balanced mix of theoretical knowledge and hands-on experience, covering both Cloud Computing and DevOps comprehensively.

### Course Objectives:

- To provide students with an understanding of the basic concepts and architecture of cloud computing.
- To explore different cloud service models (IaaS, PaaS, SaaS) and deployment models (public, private, hybrid).
- To introduce the core principles and practices of DevOps, including continuous integration, continuous delivery, and infrastructure as code.
- To understand the cultural shift required for successful DevOps implementation.

### Course Outline:

#### Module 1 (6 hours)

##### 1.1 Overview of Cloud Computing

- Definition and characteristics of cloud computing
- Service models: IaaS, PaaS, SaaS
- Deployment models: Public, Private, Hybrid, Community

##### 1.2 Cloud Computing Architecture

- Components of cloud architecture
- Virtualization in cloud computing
- Cloud storage and databases

#### Module 2 (6 hours)





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- **2.1 Setting up Cloud Infrastructure**
- Creating and managing virtual machines
- Networking in the cloud: VPCs, subnets, load balancers
- **2.2 Cloud Resource Management**
- Scaling: Horizontal vs. Vertical
- Monitoring and logging in cloud environments
- Cloud security fundamentals

#### Module 3 (6 hours)

##### 3.1 DevOps Principles and Practices

- Understanding DevOps culture and lifecycle
- Continuous Integration (CI) and Continuous Deployment (CD)
- Key DevOps tools: Jenkins, Docker, Kubernetes

##### 3.2 Infrastructure as Code (IaC)

- Introduction to IaC concepts
- Using tools like Terraform and Ansible

#### Module 4 (6 hours)

##### 4.1 Deploying Applications in the Cloud

- Setting up CI/CD pipelines for cloud deployment
- Using Jenkins for automated builds and deployments
- Dockerizing applications for consistent environments

#### Module 5 (6 hours)

##### 5.1 Real-world Cloud Computing Case Studies

- Analysis of cloud adoption in different industries
- Lessons learned and best practices

##### 5.2 DevOps Success Stories

- Understanding DevOps transformation in companies

#### Assessment of Outcome





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- Quizzes and assignments (40%)
- Group project and presentation (30%)
- Final exam (30%)

#### Reference

"Cloud Computing: Concepts, Technology & Architecture" by Thomas Erl, Ricardo Puttini, and Zaigham Mahmood.

"The DevOps Handbook: How to Create World-Class Agility, Reliability, & Security in Technology Organizations" by Gene Kim, Jez Humble, Patrick Debois, and John Willis. "Site Reliability

Engineering: How Google Runs Production Systems" by Niall Richard Murphy, Betsy Beyer, Chris Jones, and Jennifer Petoff.





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**VALUE ADDED COURSE**  
**TECHBYHEART**  
**CYBER SECURITY AND ETHICAL HACKING**  
**Duration: 30 Hours**

**Course Description:**

Apart from learning different tools and techniques in cyber security, a student will also get industrial experience through this add-on course.

**Course Objectives:**

- To introduce the fundamental concepts of cyber security, including threats, vulnerabilities, and risk management.
- To provide students with an understanding of various types of cyber attacks and the methodologies used by hackers.
- To explore the ethical and legal considerations in hacking.
- To introduce the basic concepts and techniques of ethical hacking, including penetration testing and vulnerability assessment.

**Course Outline:**

**Module 1 (6 hours)**

- Overview of Cyber Security
- Types of Cyber Threats and Attacks
- Understanding Cyber Security Frameworks and Standards
- Introduction to Risk Management and Mitigation Strategies
- Hands-on: Setting Up a Basic Security Environment

**Module 2 (6 hours)**

- Introduction to Firewalls, IDS/IPS, and VPNs
- Cryptography Basics: Encryption and Decryption
- Network Security: Securing Wi-Fi and LAN
- Malware Analysis and Mitigation Techniques





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#### Module 3 (6 hours)

- Introduction to Ethical Hacking and Its Importance
- Legal and Ethical Issues in Hacking
- Phases of Ethical Hacking: Reconnaissance, Scanning, Gaining Access, Maintaining Access, and Covering Tracks
- Overview of Penetration Testing Methodologies

#### Module 4 (6 hours)

##### 4.1 Deploying Applications in the Cloud

- Setting up CI/CD pipelines for cloud deployment
- Using Jenkins for automated builds and deployments
- Dockerizing applications for consistent environments

#### Module 5 (6 hours)

- Incident Response and Handling
- Cyber Security Policies and Compliance
- Introduction to Cyber Forensics
- Career Pathways in Cyber Security and Ethical Hacking

#### Assessment of Outcome

- Quizzes and assignments (40%)
- Group project and presentation (30%)
- Final exam (30%)

#### Reference

- "Cybersecurity for Beginners" by Raef Meeuwisse.
- "The Basics of Hacking and Penetration Testing" by Patrick Engebretson.
- "Ethical Hacking and Penetration Testing Guide" by Rafay Baloch.







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**Brochure and Syllabus of Value Added Offered During**  
**2022-23**





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## Department of Chemistry

(Value Added Course Syllabus for UG students)

2022-23

### Water Quality Analysis – II

#### Course Outcomes

1. Describe the principles and methods used for the analysis of physicochemical, chemical, and microbiological parameters in water.
2. Interpret water quality data and assess the health and environmental implications of different water quality parameters.
3. Apply national and international water quality standards and guidelines to assess and manage water quality.
4. Demonstrate proficiency in laboratory techniques used for water quality analysis, including sampling, preservation, and analytical methods.
5. Critically evaluate water quality issues and propose appropriate management strategies based on scientific evidence.

#### Course Outline

Instructional hours: 30 hrs

#### Module 1: Microbiological Parameters

**Microbiological Quality** Total coliforms, fecal coliforms, and E. coli, Membrane filtration and multiple-tube fermentation techniques **Pathogenic Microorganisms** Detection and enumeration (PCR, qPCR), Health risks and waterborne diseases.

#### Module 2: Emerging Contaminants

Pharmaceuticals, personal care products, microplastics Analytical methods and environmental impacts **Water Quality Index (WQI)**

#### Module 6: Water Quality Management and Data Interpretation

**Data Interpretation and Reporting** Statistical analysis of water quality data, Presentation and reporting of results. **Water Quality Management Strategies** Monitoring programs and quality assurance





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## Module 7: Practical and Laboratory Sessions

### Practical Sessions

Hands-on experience with water quality analysis techniques: Measurement of pH, Dissolved Oxygen, COD (chemical oxygen demand), Total Dissolved Solids, hardness.

### References

- "Standard Methods for the Examination of Water and Wastewater"
  - **Authors:** American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF)
  - **Publisher:** APHA Press
  - **Year:** 2017 (23rd Edition)
  - **ISBN:** 978-0875532875
  
- "Water Quality: An Introduction"
  - **Authors:** Claude E. Boyd
  - **Publisher:** Springer
  - **Year:** 2021 (3rd Edition)
  - **ISBN:** 978-3030627734
  
- "Environmental Chemistry"
  - **Authors:** Stanley E. Manahan
  - **Publisher:** CRC Press
  - **Year:** 2017 (10th Edition)
  - **ISBN:** 978-1498776949
  
- "Handbook of Water Analysis"
  - **Editor:** Leo M. L. Nollet
  - **Publisher:** CRC Press
  - **Year:** 2020 (3rd Edition)
  - **ISBN:** 978-1138503597





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## DEPARTMENT OF CHEMISTRY

2022-23

### Value Added Course on Sanitary and hygiene products

The Add on program in Sanitary and hygiene products teach the basics of advanced sanitary formulations and skills to ensure the development of safe and effective formulations along with essential quality checks

#### **Course Outcomes**

1. **Understanding Soap and Detergent Formulations:** Students will gain a foundational understanding of the history, types, and chemistry behind soaps and detergents.
2. **Skills in Fabric Stiffener and Hand Wash Formulations:** Students will acquire knowledge about the composition and formulation of fabric stiffeners, dish washes, and hand washes.
3. **Competence in Cleaning Product Formulation:** Students will become proficient in understanding the composition and formulation of toilet cleaners and floor cleaners. They will learn to differentiate between various types of floor cleaners, including chlorine-based, solvent-based, phenol-based, and pine oil-based formulations.
4. **Proficiency in Soap Characterization Techniques:** Students will be trained in the basic characterization of soaps, including understanding and calculating critical parameters like TFM (Total Fatty Matter) value, acid value, iodine value, and saponification value, which are essential for ensuring the quality of soap products.

#### Course Outline

##### **THEORY (20 HOURS)**

**Module 1:** Soaps and Detergents, History of Soap, Different types of soaps, cleansing action of soap, Detergents, Classification, Advantage of detergents over soaps. Environmental effects of detergents.

**Module 2: Fabric Stiffener.** Dish Washes and Hand Washes, Composition of fabric stiffener, Dish washes different types and its formulations,

**Module 3:** Toilet Cleaner, Floor Cleaner, Composition of toilet cleaner, Different types of floor cleaner, Chlorine based, Solvent based, Phenol based and Pine oil based floor cleaner





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Module 4: Basic characterization of Soaps, TFM Value, Acid value, Iodine value, Saponification Value

## PRACTICALS ((10 HOURS)

Hands on training for the preparation of the following formulations

- Different types of Soaps and Detergents
- **Fabric Stiffener**, Dish Washes And Hand Washes
- Toilet Cleaner, Floor Cleaner

### References

- "Surfactants in Consumer Products: Theory, Technology, and Applications"
  - **Author:** Jürgen Falbe
  - **Publisher:** Springer-Verlag
  - **Year:** 1987
  - **ISBN:** 978-3540171837
- "Handbook of Detergents, Part A: Properties"
  - **Editors:** Guy Broze
  - **Publisher:** CRC Press
  - **Year:** 1999
  - **ISBN:** 978-0824719130
- "Cosmetic and Toiletry Formulations"
  - **Editor:** Ernest W. Flick
  - **Publisher:** William Andrew Publishing
  - **Year:** 2002
  - **ISBN:** 978-0815514815
- "Detergents: A guide to the properties and applications of surfactants"
  - **Author:** Michael Showell
  - **Publisher:** Elsevier Science
  - **Year:** 2005
  - **ISBN:** 978-1405127055





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KOOVAPADAM, KOCHI-2  
AFFILIATED TO MG UNIVERSITY, RE-ACCREDITED WITH B+ GRADE

DEPARTMENT OF ENGLISH  
**VALUE ADDED COURSE**  
Offered in 2022-2023

- ◆ TRANSLATION OF ADVERTISEMENTS, FILMS AND NEWS
- ◆ URBAN STUDIES
- ◆ HUMAN RIGHTS STUDIES

**APPLY**  
<https://forms.gle/zJ3ApbXmTTb37KYW9>







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Syllabi for Add on course UG programme

2019 Admission

Course: Translation of Advertisements, Films and News

No of contact hours: 30

Aim of the Course

The course seeks to introduce students to the nuances of translation and enhance students' language skills, both in the source and target languages, to enable accurate translation of various types of content.

Course Outcomes

1. On completion of the course, the student should be able to discern the following:
2. Develop linguistic proficiency in both source and target languages.
3. Cultivate cultural sensitivity and awareness, particularly in the context of advertisements, films, and news media.
4. Provide practical experience in translating real-world content from diverse mediums.
5. Encourage critical analysis of translated content, considering factors such as tone, register, and target audience appropriateness.
6. Instill a strong sense of professional ethics in translation practice, emphasizing accuracy, fidelity to the source text, and respect for cultural differences.

Course Outline

Module 1: Introduction to Media Translation

- Overview of film, advertisement, and news translation
- Historical and theoretical perspectives
- Module 2: Translation of Films
- Characteristics of film translation: subtitling vs. dubbing
- Techniques and challenges in subtitling
- Hands-on subtitling exercises

Module 2: Translation of Advertisements





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- Unique features of advertising language
- Transcreation: maintaining creativity and impact
- Case studies and analysis of successful ad translations

#### Module 3: Translation of News Media

- Principles of news translation: accuracy, impartiality, timelines.
- Localization vs. global news translation
- Practice translating news articles from different genres and sources

#### Module 4: Translation of Films

- Characteristics of film translation: subtitling vs. dubbing
- Techniques and challenges in subtitling
- Hands-on subtitling exercises

#### Module 5: Cultural Considerations

- Cultural sensitivity in media translation
- Handling cultural references, idioms, and humor
- Ethical considerations in cross-cultural communication

#### Texts/Resources:

"Audio-visual Translation: Subtitling" by Jorge Díaz Cintas and Aline Remael

"Translating for Advertising" by Lynne Bowker and Massimiliano Morini

Various film excerpts, advertisements, and news articles for translation practice

Online resources, industry publications, and guest speaker presentations





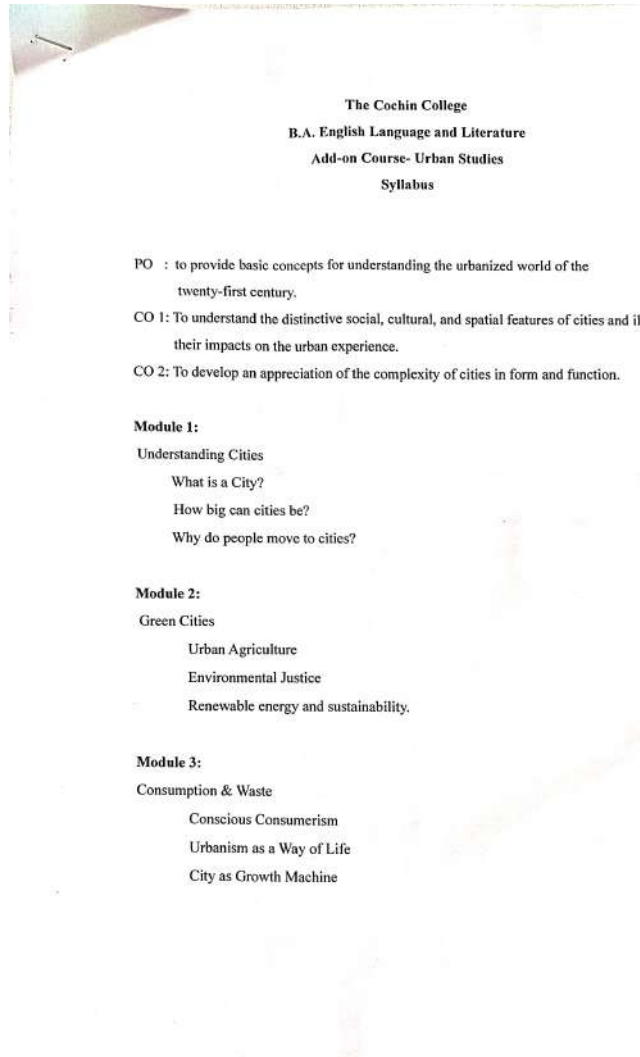
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The Cochin College

B.A. English Language and Literature

Add-on Course- Urban Studies

Syllabus

PO : to provide basic concepts for understanding the urbanized world of the twenty-first century.

CO 1: To understand the distinctive social, cultural, and spatial features of cities and illustrate their impacts on the urban experience.

CO 2: To develop an appreciation of the complexity of cities in form and function.

**Module 1:**

Understanding Cities

What is a City?

How big can cities be?

Why do people move to cities?

**Module 2:**

Green Cities

Urban Agriculture

Environmental Justice

Renewable energy and sustainability.

**Module 3:**

Consumption & Waste

Conscious Consumerism

Urbanism as a Way of Life

City as Growth Machine





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**Module 4:**

The New Urban Sociology

City as a Medium for Social Relations

Urbanization in the Developing World

Urban inequality

**Module 5:**

Managing Urban Insecurity

Violence and the city

Changing patterns of social conflict

Importance of local governance

**Suggested Readings:**

Davis, D. E., (2005), "Cities in Global Context: A Brief Intellectual History", International Journal of Urban and Regional Research.

Harvey, D., (1989), *The Urban Experience*, Baltimore: John Hopkins University Press.

*Citizenship, Culture and Coexistence: Trends and Dynamics* by Clara Ines Pardo Martinez and Alexander Cotte Poveda, 2024.

*The Image of the City* by Kevin Lynch.





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The Cochin College

MA English

Add on Course 2022-23

Human Rights Studies

Syllabus

POC: The course was all about human rights which create equality among all citizens irrespective of the differences such as caste, religion, gender, race etc. These rights are fundamental to all citizens and are given under the constitution of India.

CO1: To impart knowledge and practical ability about the rights and directive principles that are provided to all citizens of India.

CO2: To encourage students to serve the society

Module I

Human Rights

Introduction

Relevance of the study of Human Rights in India

Human Rights and duties in India

Module II

Evolution of Human Rights and Duties

Inter civilization approach to human rights

Theoretical perspectives

Developmental perspectives

Human Rights movements

Module III

Human Rights: international Norms

Universal Declaration of Human Rights

Civil and political Rights

Economic, social and cultural rights

Rights against torture, discrimination and forced Labour

Rights of the child

Module IV

Deprivation of Human Rights

Good Governance

Democracy

Module V

Redressal Mechanisms against Human Rights Violations

Judiciary, Government systems for Redressal

National Human Rights Commission and other Statutory Commissions





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Media Advocacy  
Creation of Human Rights Literacy and Awareness

References

1. Kaul Jawahar L., "Human Rights: Issue and Perspective", Regency Publishers, New Delhi, 1995.
2. Kohli, A.S., "The concept of Human Rights", Human Right and Social Work: Issues, Challenge and Response, Kanishka, Publishers, New Delhi, 2004.





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Brochure & Syllabus  
-Certificate/Value added courses offered during 2022-23

**THE COCHIN COLLEGE**  
KOOVAPADAM, KOCHI-2  
AFFILIATED TO MAHATMA GANDHI UNIVERSITY, BE ACCREDITED WITH 'A' GRADE

DEPARTMENT OF ZOOLOGY

## Value Added Course

Offered in 2022-2023

- HUMAN HEALTH & SEX EDUCATION
- ANIMAL BEHAVIOUR & WELFARE

**APPLY**

<https://forms.gle/zJ3ApbXmTTb37KYW9>

**VALUE ADDED COURSE**  
Department of Zoology, The Cochin College.  
ADZOO2207: Human Health & Sex Education







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Total 30 Hours

#### Aim of the course

- To redress problem associated with health and sex thereby promoting fitness and well-being.

#### Objectives of the course

- To make the student understand the importance of good health
- To educate the student on clean sexual habits thereby warding off sexually transmitted Diseases.

#### Module 1 – 7 hours

Introduction to health, health as a state of wellbeing, health awareness, Immunity, immunization and vaccination, exercise and stress. Physical health, reproductive health, adolescence, senescence.

Mental health- mental illness and disabilities, symptoms and prevention of mental illness.

#### Module 2 – 10 hours

Human reproductive system: Male reproductive system- structural details of testis and accessory structures, functions of testis, semen, hormonal control. Female reproductive system- : structure of ovary, accessory structures. puberty, reproductive cycles and hormonal control, menstrual cycle.

gestation- period, hysterectomy and menopause. Events of human reproduction: Gametogenesis- spermatogenesis and oogenesis. ovulation, fertilization, embryonic -development pregnancy, morning sickness, parturition

#### Module 3 – 7 hours

Human intervention in reproduction: Contraception and birth control-barrier method. Hormonal methods. natural methods. sterilization, termination of pregnancy. Infertility male and female infertility, causes and treatment for infertility. Assisted Reproductive Techniques- IVF, GIFT, ZIFT. Donor Insemination (DI). Artificial Insemination by Donor (AID), Artificial Insemination by Husband or partner (AIH). Surrogacy, SUZ1 (sub-zonal insemination), MIST (micro insemination sperm transfer)

#### Module 4 – 6 hours

Sexually transmitted diseases (STD): Syphilis, genital warts, chlamydia, chancroid, gonorrhoea, genital herpes, AIDS

Sex Education - lesbian and gay-sex, bisexual, transgender youth

#### VALUE ADDED COURSE

Department of Zoology, The Cochin College.  
ADZOO2208: Animal Behaviour & Welfare  
Duration: 30 Hours





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## Course Outcomes

1. Understand Core Concepts in Animal Behaviour and Welfare
2. Apply Welfare Assessment Techniques and Improvement Strategies
3. Address Behavioural Issues and Promote Ethical Practices

### Module 1: Fundamentals of Animal Behaviour (6 hours)

- **Lecture 1:** Introduction to Animal Behaviour
  - Definition and scope
  - Historical perspectives and key figures
  - Importance of studying animal behaviour
- **Lecture 2:** Mechanisms of Behaviour
  - Genetic, neural, and hormonal influences on behaviour
  - Innate vs. learned behaviour
  - Behavioural development
- **Lecture 3:** Methods in Animal Behaviour Research
  - Observational and experimental techniques
  - Ethograms and behavioural sampling
  - Data analysis in behavioural studies

### Module 2: Behavioural Ecology and Adaptations (6 hours)

- **Lecture 1:** Foraging Behaviour
  - Optimal foraging theory
  - Predator-prey interactions
  - Strategies for finding and consuming food
- **Lecture 2:** Social Behaviour
  - Group living benefits and costs
  - Social hierarchies and dominance
  - Cooperation and altruism
- **Lecture 3:** Reproductive Behaviour
  - Mating systems and strategies
  - Parental care and investment
  - Sexual selection and mate choice

### Module 3: Animal Welfare Principles and Assessment (6 hours)

- **Lecture 1:** Introduction to Animal Welfare
  - Definitions and historical development
  - Importance of animal welfare
  - Ethical considerations
- **Lecture 2:** Welfare Indicators and Assessment
  - Physical, psychological, and behavioural indicators
  - Assessment tools and methods





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- Welfare audits and inspections
- **Lecture 3: Legislation and Standards**
  - Overview of animal welfare laws and regulations
  - International standards and guidelines
  - Enforcement and compliance

---

#### Module 4: Improving Animal Welfare (6 hours)

- **Lecture 1: Environmental Enrichment**
  - Principles of environmental enrichment
  - Techniques for different species
  - Benefits of enrichment on welfare
- **Lecture 2: Stress and Coping Mechanisms**
  - Sources of stress in animals
  - Physiological and behavioural responses to stress
  - Strategies to mitigate stress
- **Lecture 3: Human-Animal Interactions**
  - Impact of human handling and management
  - Positive and negative interactions
  - Training and behaviour modification

---

#### Module 5: Applied Animal Behaviour and Welfare (6 hours)

- **Lecture 1: Welfare in Domestic Animals**
  - Welfare issues in pets, farm animals, and zoo animals
  - Case studies and best practices
  - Improving welfare in different settings
- **Lecture 2: Behavioural Problems and Solutions**
  - Common behavioural problems in domestic animals
  - Diagnosis and treatment of behavioural issues
  - Role of veterinarians and behaviourists
- **Lecture 3: Conservation and Welfare**
  - Behaviour and welfare considerations in wildlife conservation
  - Reintroduction programs and captive breeding
  - Ethical issues in wildlife management

---

#### Assessment of Outcomes

- **Examinations:** Written tests to assess understanding of theoretical concepts and practical applications.
- **Practical Assessments:** Fieldwork and data collection to demonstrate proficiency in behaviour observation and welfare assessment.





# THE COCHIN COLLEGE

KOCHI - 682 002

(Affiliated to Mahatma Gandhi University and Accredited by NAAC)

Website: [www.thecochincollege.edu.in](http://www.thecochincollege.edu.in)

email: [email@thecochincollege.edu.in](mailto:email@thecochincollege.edu.in)

- **Case Studies:** Analysis and group discussions to develop problem-solving abilities and apply knowledge to real-world scenarios.
- **Assignments and Projects:** Research and presentations on relevant topics to encourage deeper learning and engagement.

#### Recommended Textbooks and Resources

- "Animal Behavior: An Evolutionary Approach" by John Alcock
- "An Introduction to Animal Behaviour" by Aubrey Manning and Marian Stamp Dawkins
- "Animal Welfare" by Michael C. Appleby, Joy A. Mench, and Barry O. Hughes
- Journals: "Animal Behaviour", "Applied Animal Behaviour Science", "Journal of Animal Welfare"

#### Additional Notes

- **Guest Lectures:** Invite experts in animal behaviour and welfare to provide insights on specialized topics.
- **Field Trips:** Organize visits to animal shelters, farms, zoos, and wildlife reserves for practical exposure.
- **Workshops:** Conduct workshops on specific skills such as welfare assessment, behavioural observation, and enrichment techniques.





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**THE COCHIN COLLEGE**  
KOOVAPADAM, KOCHI-2  
AFFILIATED TO MG UNIVERSITY, RE-ACCREDITED WITH B+ GRADE

DEPARTMENT OF COMMERCE  
**VALUE ADDED COURSE**  
Offered in 2022-2023

- ◆ Career Development and Academic Report Writing
- ◆ Understanding Mutual Funds
- ◆ Introduction to Fintech

**APPLY**  
<https://forms.gle/zj3ApbXmTtb37KYW9>





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## POST GRADUATE AND RESEARCH DEPARTMENT OF COMMERCE

(Add on Course Syllabus for Bcom Taxation First Year UG Students)

### Career Development and Academic Report Writing

Number of Credits: 6

Instructional Hours : 30

#### Course Objectives

1. To mould and polish the career of students,
2. To cultivate positive attitudes and perceptions among the learners.
3. To enhance the learner's communicative skills by giving adequate exposure in listening, speaking, reading and writing skills.
4. To help the students in project preparation.

#### Course Learning Outcomes

After the completion of the course, the learners will be able to:

1. To understand various stress creating factors and to develop an action plan for reducing stress.
2. To apply soft skills in personal and professional life.
3. To understand methods for project preparation.
4. To improve English language for listening, writing and reading.

#### Course Outline

##### Module 1: Communicative English

*Unit 1* - Writing Skills:- Sentence Writing and Paragraph Writing- Business Letters and E-mail (writing and etiquette)- Descriptive writing (describing a person, product and process)

*Unit 2* - Job Skills:- Group discussions and debates- presentation skills-Kinesis- interview skills- interpersonal communication- verbal and non-verbal, etiquette- critical thinking- team work

##### Module 2: Stress Management

*Unit 1* - Meaning of Stress- Body's reaction to stress- challenging stressful thinking- problem solving and time management- psychological and spiritual relaxation methods

*Unit 2* - Physical methods of Stress Reduction- preparing for the future- college and occupational stress- care of the self- nutrition and other lifestyle issues- stress and conflict in relationships





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### Module 3: Soft Skill and Training for Career Development

*Unit 1* - Corporate communication skills- time management- critical decision making- effective presentation skills

*Unit 2* - Emotional Intelligence- creativity- innovation-conflict resolution-problem solving- critical thinking and risk management

### Module 4: Professional and Personality Development

*Unit 1* - Personality- perception- personality traits- motivation-self-esteem- mind mapping- attitude

*Unit 2* - Leadership and qualities of a successful leader- work place etiquette- body language- self confidence- positive attitude-confidence building- speaking habits- voice modulation- creative thinking- formal dressing

### Module 5: Introduction to MS Office and Report Writing

*Unit 1* - Importance of report writing in academics and research- research paper writing- scope of work- literature review- results and discussions- figures and tables preparation- conclusion- bibliography-appendices

*Unit 2* - Tools and techniques- MS Word- MS Excel- making effective presentations using power point

### Suggested Readings

1. Mitra, B. K. (2016). *Personality Development and Soft Skills*. Oxford University Press, 2nd Edition.
2. Shashi K Gupta, P. R. (2019). *Methodology for Social Science Research*. Kalyani Publishers.
3. Smith, J. C. (2002). *Stress Management: A Comprehensive Handbook of Techniques and Strategies*. Springer Publishing Co.Inc, Revised Edition.
4. Taylor, S. (2013). *Model Business Letters, Emails and Other Business Documents*. Pearson Education India, 7th Edition.
5. Vito, J. A. (2018). *The Interpersonal Communication Book*. Pearson, Fifteenth Edition.

### Practical Assignments

Assignments will be suggested to the students as per the syllabus. Students should submit assignments in spiral form (from 10 to 30 pages).





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**ADD ON COURSE FOR ACADEMIC YEAR 2022-2023**  
**POSTGRADUATE AND RESEARCH DEPARTMENT OF COMMERCE**

**Understanding Mutual Funds**

Number of Credits: 6

Instructional Hours: 30

**Objectives**

1. The course enables the students to understand in detail about mutual funds
2. This course will aid students to add to their knowledge on financial services

**Course Overview**

After the completion of the course, the learners will be able to:

1. Innovative Financial Instruments in the Indian Financial Market
2. To grasp understanding of basics of MF's

Eligibility: B.Com

**Course Outline**

Module 1 – Mutual funds – Types – Associated risks- ROI of mutual funds- Technical terms used- NAV –AUM-CAGR (8 hours)

Module 2- SIP – Power of compounding – Target based investments- SIP calculators (6 hours)

Module 3 – Structure of mutual funds in India – Role of trustee- Sponsor –Custodian (5 hours)

Module 4 – Taxes on mutual fund- tax saving mutual funds- tax on mutual fund schemes (5 hours)

Module 5 – Portfolio reviews- Importance- Rebalancing portfolio (6 hours)

**Suggested Readings**

Mutual Funds for Beginners: How to Invest in Mutual Funds for Safe Investing and Great Profits by Charles E. Reinhardt

Indian Mutual Funds Handbook 5th Edition: A Guide for Industry Professionals and Intelligent Investors







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**ADD ON COURSE FOR ACADEMIC YEAR 2022-2023**  
**POSTGRADUATE AND RESEARCH DEPARTMENT OF COMMERCE**  
**AN INTRODUCTION TO FINTECH**

Number of Credits: 6

Instructional Hours: 30

**Objectives**

- PO 1: Understand the various key concepts, sectors of FinTech, which are emerging areas in the Financial Services industry.
- PO 2: Acquire knowledge in FinTech, cryptocurrencies and blockchain, which is required in the digitalized finance services industry.
- PO 3: Understand financial innovation and global payment systems
- PO 4: Acquire knowledge on cryptocurrency, blockchain and digital banking
- PO 5: Explore AI in finance and understand fintech developments around the world.

**Course Overview**

After the completion of the course, the learners will be able to:

1. Understand FinTech and emerging areas
2. Acquire knowledge on various aspects of fintech

ELIGIBILITY: M.Com/MCM

**Course Outline**

Module I Introduction to FinTech- Fintech evolution - FinTech Vs traditional banking and finance- Sectors in FinTech (6 HOURS)

MODULE II Introduction to block chain - Digital financial services - Mobile money - RTGS - NEFT (6 HOURS)

MODULE III Brief history of financial innovation - Global payment systems -payment gateways- bill payments-mobile digital wallets-P2P lending (6 HOURS)

MODULE IV - Cryptocurrencies - Crowd funding - Open Digital banking (6 HOURS)

MODULE V - AI in finance-fintech and financial inclusion - Fintech developments around the world (6 HOURS)

**Textbook and Reference Books**

1. Agustin Rubini, "Fintech in a Flash: Financial Technology Made Easy", Zaccheus, 3rd Edition, 2018





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2. Susanne Chishti and Janos Barberis, "The FINTECH Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries", John Wiley, 1st Edition, 2016





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DEPARTMENT OF BUSINESS ADMINISTRATION (SF)  
**VALUE ADDED COURSE**  
OFFERED IN 2022-2023

**GST** <  
**BUSINESS ESSENTIALS** <  
**INTERNATIONAL BUSINESS** <

**APPLY**  
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## DEPARTMENT OF BUSINESS ADMINISTRATION VALUE ADDED COURSE

Name of the course:- Goods And Services Tax  
COURSE CODE: ADBBA2210  
Duration of the course :- 30 hours  
Academic year:- 2022 - 23 (1st year BBA)  
Coordinator : Rajitha P M

### Course Overview

A GST (Goods and Services Tax) course typically covers the fundamentals of GST, including its concept, applicability, registration process, compliance, filing returns, invoicing, and any recent updates or amendments to the tax law. It may also delve into practical aspects such as accounting implications, impact on businesses, and strategies for effective GST management.

### Course Objective

To gather understanding of legal provisions of GST laws about matters of compliance while conducting business operations  
To understand the GST calculation methods and various assessment procedures.  
To acquire knowledge of legal provisions enshrined in laws related to GST and appreciate their applicability in business operations.

### Course outcomes

The aim to equip learners with the necessary knowledge and skills to navigate the complexities of GST and contribute effectively in professional roles involving taxation and financial management

### Syllabus

#### 1. Basics about Goods And Service Tax ( 10 Hours)

Introduction to GST, Difference between indirect and direct tax, Concept of Indian GST, Benefits of implementing GST, Supply under GST, Place of supply, Time of supply, Value of supply, Levy and Collection of GST, Liability to pay tax, Reverse Charge Mechanism, eCommerce under GST regime, Composition scheme of levy, Value of Taxable supply, Inter-state and intra-state supply.

#### 2. Input Tax Credit(ITC) and Payment of tax (10 Hours)

Cascading effects of tax, benefits of ITC, manner of claiming ITC in different situations and computation, recovery of credits, reversal of credits, utilization of ITC, cases in which ITC is not available, tax invoice, Debit and credit notes, e way bill, Tax deductible at source and Tax collected at source, refund.

#### 3. Registration Returns and Assessment (10 Hours)

Registration, persons liable for registration, compulsory registration, voluntary registration, deemed registration, procedures for registration, GSTIN, amendment of registration, Cancellation of registration, revocation of registration, furnishing details of supplies, Returns, Accounts and records, Assessment, an overview of different types of assessment.

### Mode of Assessment

Exam: comprehensive exam covering all course topics.

### Reference Book

GST how to meet your obligations by S.S Gupta.





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Customs Law Manual by R K Jain  
GST - Ready Reckoner, V S Datey  
Indirect Tax laws(GST,customs,FTP) Dr.Vandhana Bangar,Yogendra Bangar





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## DEPARTMENT OF BUSINESS ADMINISTRATION

ADD ON COURSE: BUSINESS ESSENTIALS

COURSE CODE: ADBBA2211

Coordinator : Betna Rodrigues

2022-2023 FOURTH SEMESTER

DURATION OF THE COURSE: 30 HOURS

### COURSE OVERVIEW

A Business Essentials course covers foundational aspects of business administration and management. It encompasses key areas such as understanding the business environment, management principles, marketing fundamentals, accounting basics, operations and supply chain management, ethics and social responsibility, entrepreneurship, communication skills, strategic planning, global business, and legal considerations. Through this course, students gain a broad understanding of essential concepts necessary for success in various business endeavors, equipping them with the knowledge and skills needed to thrive in today's dynamic business landscape.

### OBJECTIVE OF THE COURSE

- Business Essentials introduces students to the world of business
- It helps prepare them for the economic roles of consumer, worker, and citizen in an ever-changing world through effective oral and written communication, agility and adaptability, collaboration and leading by influence.
- Business Essentials will promote curiosity and imagination, assisting students with consumer decision making, prepare them for future employment, and help them effectively perform their responsibilities as a citizen.

### COURSE OUTLINE

Unit 1 Business in the Global Economic Environment

Chapter 1 Economic Systems and decisions  
 Chapter 2 Economic Activity  
 Chapter 3 International Business Environment  
 Chapter 4 Business and government responsibility (10 HOURS)

Unit 2 Business in the global economic Environment

Chapter 1 Marketing  
 Chapter 2 Technology and Business  
 Chapter 3 Financial Management  
 Chapter 4 Manufacturing and commercial activities  
 Chapter 5 Managing risk (10 HOURS)

Unit 3 Personal financial Management

Chapter 1 Financial Planning and Money Management





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Chapter 2 Financial services and banking

Chapter 3 Consumer credit

Chapter 4 Investment and Saving plan

(10 HOURS)

#### MODE OF ASSESSMENT

Examinations: This includes multiple choice questions, short answer questions and essays

#### REFERENCE BOOKS

- Business Essentials by Ronald J. Ebert and Ricky W. Griffin (or another relevant textbook)
- "Business Studies" by C.B. Gupta
- "Essentials of Business Organisation and Management" by M.L. Madan
- "Indian Economic Development" by Ramesh Singh





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## INTERNATIONAL BUSINESS

Course code: ADBBA2212

Coordinator : Jeffy Thomas

### 3<sup>rd</sup> YEAR 2020-23 BATCH

#### Course Overview

This 30- hour certificate course in International Business provides a comprehensive understanding of the complex and dynamic global business environment. It equips students with the knowledge and skills required to succeed in international commerce, including trade regulations, cross-cultural communication, global market trends, and financial structures.

#### Course Objectives

1. To gain insights into the dynamics and complexities of global markets
2. To develop the ability to navigate and respect diverse cultural environments
3. To understand the risk associated with international business and how to mitigate them

#### Outcome of the course

- Making students well-equipped for diverse roles in MNCs
- Students are trained to think strategically and analytically about business decisions, considering the complexities of operating in a global environment
- Helps the students to make meaningful contribution to their organizations and society.

#### Course Outline

1. Introduction to international business (10 Hours)

International business- nature and scope- importance- approaches to international business- domestic business v/s international business- international marketing- nature- market entry strategies- international business challenges

2. Globalization ( 10 Hours)

Globalization- meaning- features- merits and demerits- motives for internationalization- stages of internationalization- MNC meaning- characteristics- merits and demerits

3. International Economic Institutions ( 10 Hours)

International Economic Institutions- IMF- History- objectives- membership- SDR- functions- World Bank- objectives- financial resources- role- ADB- objectives- resources- role- UNCTAD- objectives- functions- WTO- objectives- payments in international trade

#### Mode of Assessment

- Exam: Comprehensive exam covering all course topics

#### Reference books

1. The Culture Map: Breaking Through the Invisible Boundaries of Global Business - by Erin Meyer
2. Globalization and its Discontents - by Joseph E. Stiglitz
3. International Business Environment and management - by V K Bhalla and S Shiva







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Ramu

4. The International Business Environment - by Anant K Sundaram and J Stewart Black





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KOOVAPADAM, KOCHI

AFFILIATED to MG UNIVERSITY, RE-ACCREDITED WITH B+ G

DEPARTMENT OF COMMERCE (SF)

## VALUE ADDED COURSE

OFFERED IN 2022-2023

- E COMMERCE MANAGEMENT
- BUSINESS COMMUNICATION
- INTELLECTUAL PROPERTY RIGHTS

APPLY

<https://forms.gle/zJ3ApbXmTTb37KYW9>





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## E-COMMERCE MANAGEMENT

**Total Hours : 30**

### Course Overview

This course provides a comprehensive understanding of E-Commerce concepts, principles, and practices, enabling them to succeed in the rapidly evolving digital business landscape.

### Course Objectives

- To understand the fundamental concepts and principles of E-Commerce, including its types, models, and benefits.
- To analyze the role of E-Commerce in today's business environment and its impact on organizations and society.
- To design and develop an E-Commerce website and to familiarize with the electronic payment system

### Course Outcome

- Students will be able to identify and capitalize on E-Commerce opportunities and trends.
- Students will be able to develop a comprehensive E-Commerce strategy for a business or organization.
- Students can be Identify and comply with legal and regulatory frameworks governing E-Commerce.

**Module I** : Introduction to E-commerce: Meaning & Concept-E-commerce vs Traditional business, E-business & E-commerce- History of E-commerce-Features & Benefits- Impacts, challenges & Limitations-EDI and its importance- Business Models of E-Commerce: Business to Business-Business to Customers- Business to Government-Business to Employee-E-Commerce strategy-Influencing Factors of Successful E-Commerce

10 Hours

**Module II** : E-business Infrastructure-The Internet, Intranet & Extranet-World Wide Web-Voice Over IP (VOIP)-The Internet standards- The HTTP Protocols-Audio & Video standards-Web services and SOA-New Access Devices-Future of the Internet Infrastructure

10 Hours





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**Module III** : Marketing Strategies and E-Commerce: Website- Components of website-Concept & Designing website for E-commerce-Corporate website-Portal, Search engine- Internet Advertising-Models of Internet Advertising-Weakness of Internet Advertising-Mobile Commerce- Electronic payment system-Introduction-Online payment system - Legal and Ethical issues in E-Commerce

10 Hours

#### Mode of Assessment

Continuous Assessment : Regular assessments throughout the course, rather than a single final exam, which can include quizzes, assignments, and participation.

#### Reference

E-Commerce: Concepts, Models, Strategies" by C.S.V. Murthy

E-Commerce and Mobile Commerce Technologies" by Pandey U.S. and Shukla Saurabh

E-Commerce: An Indian Perspective" by P.T. Joseph





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## BUSINESS COMMUNICATION

Total Hours : 30

### Course Objectives

This course is designed to provide students a comprehensive view of business communication.

### Course Outcome

- To acquire required skill to manage business communication
- To develop business communication skills through the application and exercises.

**Module I** : Business Communication: meaning - definition - process -need and significance - methods: written, verbal, non-verbal, visual, telecommunications; types of business communications internal and external, upward and downward, lateral; barriers to communication - physical, psychological, linguistic, mechanical - Effective listening

10 Hours

**Module II** : Verbal Communication - Non-verbal communication: Body language - Kinesics, proxemics, para-language - Communication through letters - business letters - layout of letters- kinds of business letters - characteristics of a good letter - resume.

10 Hours

**Module III** : Self development and communication: development of positive personal attitudes SWOT analysis - Personality development - Business games, Group discussions; Mock interviews; Seminars - effective listening exercises - Public speaking - preparing and delivering effective public speeches - Physical exercises

10 Hours

### Mode of Assessment

Continuous Assessment : Regular assessments throughout the course, rather than a single final exam, which can include quizzes, assignments, and participation.

### Reference

Business Communication: Concepts, Cases, and Applications" by P. D. Chaturvedi and Mukesh Chaturvedi





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Essentials of Business Communication" by Rajendra Pal and J. S. Korlahalli

Business Communication" by C.S. Rayudu





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## Intellectual Property Rights (IPR)

### Course Overview

This course offers an in-depth exploration of Intellectual Property Rights (IPR), focusing on the legal mechanisms that protect creative and innovative works. Students will gain a thorough understanding of patents, trademarks, copyrights, and trade secrets, as well as insights into international IPR laws and recent developments in the field.

### Course Objectives

1. Understand the fundamentals of various types of intellectual property.
2. Apply IPR concepts to analyze legal issues related to innovation and creativity.
3. Evaluate the impact of IPR on businesses and individuals.
4. Communicate IPR-related concepts effectively through written and oral presentations.

### Module 1: Introduction to Intellectual Property

- Definition and Importance of Intellectual Property
- Types of Intellectual Property: Patents, Trademarks, Copyrights, and Trade Secrets
- Overview of IP Laws and Regulations

### Module 2: Patent and Trademark Law

- Patent Law: Types of Patents, Application Process, Patentability Criteria
- Trademark Law: Types of Trademarks, Registration Process, Trademark Infringement
- Case studies on notable patent and trademark disputes

### Module 3: Copyright and Trade Secrets

- Copyright Law: Scope of Protection, Fair Use Doctrine, Licensing and Enforcement
- Trade Secrets: Definition, Protection Strategies, Legal Remedies
- International IP Treaties and Agreements





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#### Mode of Assessment

- Participation: 10%
- Assignments/Quizzes: 30%
- Project: 30%
- Final Exam/Presentation: 30%

#### References

"Copyright Law: A Handbook of Contemporary Research" by D. Gervais  
[Edward Elgar Publishing, 2021]  
"Trade Secrets: Law and Practice" by R. A. Clarke  
[Wiley, 2019]







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Brochure & Syllabus  
Certificate/Value added courses offered during 2022 – 2023





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## VALUE ADDED COURSE

Department of Chemistry (SF), The Cochin College

ADCSF2204: Sustainable Energy Resources

Duration 30 Hours

### **\*\*Course Description:\*\***

This course provides an overview of sustainable energy resources and technologies, focusing on renewable energy sources, energy efficiency, and environmental impacts. Through lectures and discussions, students will explore the principles, applications, and practical aspects of sustainable energy systems.

### **\*\*Prerequisites:\*\***

Familiarity with different renewable energy sources like solar, wind, hydroelectric, geothermal, and biomass is essential. This includes understanding how they are harnessed and their potential for widespread adoption.

### **\*\*Week 1: Introduction to Sustainable Energy\*\* (6 hours)**

- Overview of sustainable energy: importance, challenges, and global energy trends.
- Renewable energy sources: solar, wind, hydro, biomass, and geothermal.

### **\*\*Week 2: Solar Energy\*\* (6 hours)**

- Principles of solar energy conversion: photovoltaic (PV) cells and solar thermal systems.
- Solar resource assessment and site selection for solar installations.

### **\*\*Week 3: Wind and Hydro Energy\*\* (6 hours)**

- Wind energy: turbine technology, wind farm design, and wind resource assessment.
- Hydroelectric power: types of hydro plants, dam design, and environmental considerations.

### **\*\*Week 4: Biomass and Geothermal Energy\*\* (6 hours)**

- Biomass energy: types of biomass, conversion technologies, and bioenergy systems.
- Geothermal energy: geothermal reservoirs, power generation methods, and direct-use applications.

### **\*\*Week 5: Energy Efficiency and Integration\*\* (6 hours)**





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- Energy efficiency measures: building design, energy audits, and energy management systems.
- Grid integration of renewable energy: smart grids, energy storage, and demand response.

**\*\*Assessment:\*\***

- Weekly quizzes and assignments (40%)
- Mid-term exam (30%)
- Final project (30%)

**\*\*Textbook:\*\***

"Sustainable Energy: Choosing Among Options" by Jefferson W. Tester, Elisabeth M. Drake, et al.

**\*\*References:\*\***

- "Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle, Bob Everett, et al.
- "Introduction to Renewable Energy" by Vaughn C. Nelson.





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**DEPARTMENT OF ZOOLOGY (SF)**  
*Value Added Course*  
Offered in 2022-2023

▶ Environmental Science

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The advertisement features a background of yellow flowers and a light yellow gradient. The text is centered and uses a mix of bold, serif, and cursive fonts.





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## ENVIRONMENTAL SCIENCE

### Course Overview

This 30-hour certificate course in environmental science provides an interdisciplinary exploration of key concepts, issues, and solutions related to the environment and sustainability. Designed for students, professionals, and anyone interested in environmental issues, the course covers topics such as ecology, conservation, pollution, climate change, and sustainable development.

### Course Objectives

1. Introduction to Environmental Science: Provide an overview of environmental science and its importance in addressing global environmental challenges.
2. Ecological Principles: Understand the principles of ecology, including ecosystems, biodiversity, and ecological interactions.
3. Environmental Pollution: Explore different types of pollution, their sources, impacts, and mitigation strategies.
4. Climate Change and Global Warming: Examine the science behind climate change, its causes, effects, and potential solutions.
5. Natural Resource Management: Learn about the sustainable management of natural resources, including water, energy, and forests.
6. Conservation Biology: Understand the principles of conservation biology and strategies for preserving biodiversity and ecosystems.
7. Sustainable Development: Explore the concept of sustainable development and its implications for balancing environmental, social, and economic goals.

### Course Outline

1. Introduction to Environmental Science (3 hours)





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- Definition and scope of environmental science
- Historical perspectives and milestones in environmentalism
- Interdisciplinary nature of environmental science
- 2. Ecological Principles (5 hours)
  - Ecosystem structure and function
  - Biodiversity and its importance
  - Ecological relationships: competition, predation, symbiosis
- 3. Environmental Pollution (5 hours)
  - Air pollution: sources, effects, and control measures
  - Water pollution: types, impacts, and remediation
  - Soil contamination: causes, consequences, and remediation techniques
- 4. Climate Change and Global Warming (4 hours)
  - Greenhouse effect and climate change mechanisms
  - Evidence of climate change: temperature rise, sea-level rise, extreme weather events
  - Mitigation and adaptation strategies for climate change
- 5. Natural Resource Management (4 hours)
  - Water resource management: conservation, pollution prevention, and sustainable use
  - Energy resources: renewable energy sources, energy efficiency, and transition to clean energy
  - Forest management: sustainable forestry practices, deforestation, and reforestation
- 6. Conservation Biology (4 hours)
  - Threats to biodiversity: habitat loss, invasive species, overexploitation
  - Conservation strategies: protected areas, species reintroduction, captive breeding
  - Restoration ecology: ecosystem restoration and rewilding initiatives
- 7. Sustainable Development (5 hours)





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- Definition and principles of sustainable development
- Sustainable agriculture: organic farming, agroecology, and food security
- Urban sustainability: green infrastructure, smart cities, and sustainable transportation

#### Mode of Assessment

- Quizzes: Weekly quizzes to assess understanding of the material (30% of the final grade).
- Assignments: Case studies, research papers, or projects on environmental topics (40% of the final grade).
- Final Project: Development of a sustainability action plan for a chosen area or organisation (30% of the final grade).

#### Reference Books

1. "Environmental Science: Earth as a Living Planet" by Daniel B. Botkin and Edward A. Keller
2. "Introduction to Environmental Science: Earth and Man" by William P. Cunningham and Mary Ann Cunningham
3. "Environmental Science for a Changing World" by Susan Karr, Jeneen Interlandi, and Anne Houtman
4. "Sustainability: A Comprehensive Foundation" edited by Tom Theis and Jonathan Tomkin
5. "Conservation Biology: Foundations, Concepts, Applications" by Fred Van Dyke






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Department of Mathematics (SF)

## VALUE ADDED COURSE

Offered in 2022-2023

- ↳ MATHEMATICS FOR COMPUTER SCIENCE AND AI
- ↳ MATHEMATICS IN CRYPTOGRAPHY
- ↳ INTRODUCTION TO FINANCIAL MATHEMATICS

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## \*Mathematics in Cryptography\*

\*(30-Hour Course)\*

\*Course Objective:\*

To introduce the basic mathematical principles behind modern cryptography.

\*Prerequisites:\*

Basic mathematical knowledge (no prior coding background required). Familiarity with number theory concepts such as primes and modular arithmetic is advantageous.

\*Course Outcomes:\*

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

1. Understand basic cryptography principles.
2. Apply simple symmetric and asymmetric encryption methods.
3. Use basic mathematical concepts in cryptography.
4. Understand key management basics.

\*Week 1: Introduction to Cryptography (6 hours)\*

\*Session 1 (3 hours): Basics of Cryptography\*

- History and importance
- Basic terminologies

\*Session 2 (3 hours): Symmetric Cryptography Basics\*

- Simple symmetric encryption methods

\*Assignments:\*

- Basic classical ciphers exercises
- Simple symmetric encryption problems

\*Week 2: Asymmetric Cryptography (6 hours)\*

\*Session 3 (3 hours): Public Key Cryptography Basics\*

- Concept of public and private keys





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\*Session 4 (3 hours): Simple RSA Algorithm\*

- Basics of RSA encryption

\*Assignments:\*

- RSA encryption and decryption problems

\*Week 3: Mathematical Foundations (6 hours)

\*Session 5 (3 hours): Number Theory Basics\*

- Prime numbers and modular arithmetic basics

\*Session 6 (3 hours): Algebraic Structures Basics\*

- Basic groups and fields concepts

\*Assignments:\*

- Number theory concepts exercises
- Basic algebraic structures problems

\*Week 4: Cryptographic Protocols (6 hours)\*

\*Session 7 (3 hours): Key Management Basics\*

- Key generation and distribution

\*Session 8 (3 hours): Simple Cryptographic Protocols\*

- Introduction to zero-knowledge proofs

\*Assignments:\*

- Basic key management problems
- Simple cryptographic protocols exercises

\*Week 5: Cryptography in Practice (6 hours)\*

\*Session 9 (3 hours): Internet Security Basics\*

- Introduction to SSL/TLS protocols

\*Session 10 (3 hours): Practical Cryptographic Applications\*





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- Simple applications in block chain

\*Assignments:\*

- Internet security protocols exercises
- Basic cryptographic applications problems

\*Evaluation:\*

1. Regular assignments and exercises (40%)
2. Mid-term quiz (20%)
3. Final project (40%)

\*Course Materials:\* Textbook:

1. "An Introduction to Mathematical Cryptography" by Jeffrey Hoffstein, Jill Pipher, and Joseph H. Silverman
2. "Cryptography and Network Security: Principles and Practice" by William Stallings.
3. "Introduction to Modern Cryptography: Principles and Protocols" by Jonathan Katz and Yehuda Lindell.
4. "Understanding Cryptography: A Textbook for Students and Practitioners" by Christof Paar and Jan Pelzl.





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## \*Introduction to Financial Mathematics\*

\*(30-Hour Course)\*

### \*Course Objective:\*

To provide students with a basic understanding of financial mathematics, focusing on time value of money and annuities.

### \*Prerequisites:\*

Basic mathematical knowledge (no prior coding background required). Understanding of arithmetic operations and percentages is helpful.

### \*Course Outcomes:\*

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

1. Understand the time value of money.
2. Calculate present and future values.
3. Analyze simple financial instruments.
4. Understand basic concepts of interest rates.

### \*Week 1: Fundamentals of Financial Mathematics (6 hours)\*

#### \*Session 1 (3 hours): Time Value of Money\*

- Concept and importance
- Present value and future value basics

#### \*Session 2 (3 hours): Interest Rates\*

- Simple and compound interest basics

### \*Assignments:\*





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- Present and future value calculations
- Simple interest rate problems

\*Week 2: Annuities and Cash Flows (6 hours)\*

\*Session 3 (3 hours): Annuities Basics\*

- Present and future value of annuities

\*Session 4 (3 hours): Cash Flows\*

- Basics of discounted cash flow

\*Assignments:\*

- Annuity calculations problems
- Simple cash flow analysis exercises

\*Week 3: Bonds and Stock Valuation (6 hours)\*

\*Session 5 (3 hours): Bond Basics\*

- Basic bond pricing concepts

\*Session 6 (3 hours): Stock Valuation Basics\*

- Simple stock valuation methods

\*Assignments:\*

- Basic bond pricing exercises
- Simple stock valuation problems

\*Week 4: Risk and Return (6 hours)\*





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\*Session 7 (3 hours): Risk and Return Concepts\*

- Basic risk and return definitions

\*Session 8 (3 hours): Portfolio Basics\*

- Introduction to diversification

\*Assignments:\*

- Basic risk measurement exercises

- Simple portfolio theory problems

\*Week 5: Financial Applications (6 hours)\*

\*Session 9 (3 hours): Financial Markets Overview\*

- Basic financial market concepts

\*Session 10 (3 hours): Real-World Applications\*

- Simple investment analysis case studies

\*Assignments:\*

- Basic financial market problems

- Simple case studies exercises

\*Evaluation:\*

1. Regular assignments and exercises (40%)

2. Mid-term quiz (20%)

3. Final project (40%)





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\*Course Materials:\*

Textbook:

1. "Introduction to Financial Mathematics" by Kevin J. Hastings
2. "An Introduction to the Mathematics of Financial Derivatives" by Salih N. Neftci.
3. "Options, Futures, and Other Derivatives" by John C. Hull.
4. "Financial Mathematics: A Comprehensive Treatment" by Giuseppe Campolieti and Roman N. Makarov.





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DEPARTMENT OF COMMERCE  
**VALUE ADDED COURSE**  
Offered in 2022-2023

- ◆ Career Development and Academic Report Writing
- ◆ Understanding Mutual Funds
- ◆ Introduction to Fintech

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## POST GRADUATE AND RESEARCH DEPARTMENT OF COMMERCE

(Add on Course Syllabus for Bcom Taxation First Year UG Students)

### Career Development and Academic Report Writing

Number of Credits: 6

Instructional Hours : 30

#### Course Objectives

1. To mould and polish the career of students,
2. To cultivate positive attitudes and perceptions among the learners.
3. To enhance the learner's communicative skills by giving adequate exposure in listening, speaking, reading and writing skills.
4. To help the students in project preparation.

#### Course Learning Outcomes

After the completion of the course, the learners will be able to:

1. To understand various stress creating factors and to develop an action plan for reducing stress.
2. To apply soft skills in personal and professional life.
3. To understand methods for project preparation.
4. To improve English language for listening, writing and reading.

#### Course Outline

##### Module 1: Communicative English

*Unit 1* - Writing Skills:- Sentence Writing and Paragraph Writing- Business Letters and E-mail (writing and etiquette)- Descriptive writing (describing a person, product and process)

*Unit 2* - Job Skills:- Group discussions and debates- presentation skills-Kinesis- interview skills- interpersonal communication- verbal and non-verbal, etiquette- critical thinking- team work

##### Module 2: Stress Management

*Unit 1* - Meaning of Stress- Body's reaction to stress- challenging stressful thinking- problem solving and time management- psychological and spiritual relaxation methods

*Unit 2* - Physical methods of Stress Reduction- preparing for the future- college and occupational stress- care of the self- nutrition and other lifestyle issues- stress and conflict in relationships





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### Module 3: Soft Skill and Training for Career Development

*Unit 1* - Corporate communication skills- time management- critical decision making- effective presentation skills

*Unit 2* - Emotional Intelligence- creativity- innovation-conflict resolution-problem solving- critical thinking and risk management

### Module 4: Professional and Personality Development

*Unit 1* - Personality- perception- personality traits- motivation-self-esteem- mind mapping- attitude

*Unit 2* - Leadership and qualities of a successful leader- work place etiquette- body language- self confidence- positive attitude-confidence building- speaking habits- voice modulation- creative thinking- formal dressing

### Module 5: Introduction to MS Office and Report Writing

*Unit 1* - Importance of report writing in academics and research- research paper writing- scope of work- literature review- results and discussions- figures and tables preparation- conclusion- bibliography-appendices

*Unit 2* - Tools and techniques- MS Word- MS Excel- making effective presentations using power point

### Suggested Readings

1. Mitra, B. K. (2016). *Personality Development and Soft Skills*. Oxford University Press, 2nd Edition.
2. Shashi K Gupta, P. R. (2019). *Methodology for Social Science Research*. Kalyani Publishers.
3. Smith, J. C. (2002). *Stress Management: A Comprehensive Handbook of Techniques and Strategies*. Springer Publishing Co.Inc, Revised Edition.
4. Taylor, S. (2013). *Model Business Letters, Emails and Other Business Documents*. Pearson Education India, 7th Edition.
5. Vito, J. A. (2018). *The Interpersonal Communication Book*. Pearson, Fifteenth Edition.

### Practical Assignments

Assignments will be suggested to the students as per the syllabus. Students should submit assignments in spiral form (from 10 to 30 pages).





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Brochure & Syllabus

Certificate/Value added courses offered during 2022-23

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**DEPARTMENT OF PHYSICS**  
**VALUE ADDED COURSE**  
**OFFERED IN 2022-2023**

- ◆ SOLAR THERMAL TECHNOLOGY
- ◆ LED LAMP MAKING
- ◆ TEMPERATURE CONTROL SYSTEMS

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## VALUE ADDED COURSE

Department of Physics, The Cochin College.

ADPHY2208: Solar Thermal Technology

Duration: 30 Hours

### Module 1 (4hrs)

Solar radiation: The sun as the source of radiation-Solar constant-Spectral distribution of Extra-terrestrial radiation and its variation-Basic Earth Sun angles-Diffuse radiation Availability of solar radiation-measurement of diffuse and direct radiation (qualitative only)

Reference

Solar Energy: Fundamentals and Applications; H. P. Garg & J. Prakash; 2000; Tata McGraw-Hill.

### Module 2 (8hrs)

Flat Plate Collectors: Liquid Flat Plate Collector- Materials for flat plate collector Efficiency of flat plate collectors-Flat plate air heating collectors-Types and novel designs solar ponds

Reference

Solar Energy: Fundamentals and Applications; H. P. Garg & J. Prakash; 2000; Tata McGraw-Hill.

### Module 3 (10 hrs)

Solar Concentrating Collectors: Parameters characterizing solar concentrators Classification of solar concentrators- Thermodynamic limits to concentration- Solar concentrator mountings-Performance analysis of cylindrical parabolic collector- Compound parabolic collector- Point focusing solar concentrators- Materials for solar concentrators

Reference

Solar Energy: Fundamentals and Applications; H. P. Garg & J. Prakash; 2000; Tata McGraw-Hill.

### Module 4 (8hrs)

Solar Thermal Applications: Solar water heater-Natural and forced circulation type- Solar cookers-Types-Solar Still- Solar drying of food-Basics- Types-Solar heating of buildings -active and passive-Solar cooling of buildings-refrigeration and air conditioning- Solar furnaces-Solar thermal energy storage

Reference

Solar Energy: Fundamentals and Applications; H. P. Garg & J. Prakash; 2000; Tata McGraw-Hill.





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## VALUE ADDED COURSE

Department of Physics, The Cochin College.

ADPHY2209: LED LAMP MAKING (Hands on training included)

Duration: 30 Hours

### Module 1

BASICS OF LEDs (7 hours)

Contents:

- 1.1 Basic concepts on semiconductors
- 1.2 Biasing
- 1.3 Special Purpose PN junctions
- 1.4 LED Principles
- 1.5 LED Characteristics

### Module 2

LED Structures (8 hours)

Contents:

- 2.1 Materials for LED
- 2.2 Device Structures
- 2.3 Applications of LEDs

### Module 3

HANDS-ON TRAINING (15 hours)

Contents:

- 3.1 Practical Session 1: LED Fundamentals
- 3.2 Practical Session 2: LED Bulb making
- 3.3 Practical Session 3: LED tube making





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## VALUE ADDED COURSE

Department of Physics, The Cochin College.

**ADPHY2210: TEMPERATURE CONTROL SYSTEMS (Hands on training included)**

Duration: 30 Hours

### Module 1

TEMPERATURE SENSORS (5 hours)

Contents:

- 1.1 Basic concepts
- 1.2 Temperature scale, standard temperature points
- 1.3 Thermistor sensors
- 1.4 Thermocouple Sensors
- 1.5 The pyrometer, radiation thermometer
- 1.6 The pressure thermometer liquid and gaseous
- 1.7 Temperature sensor applications

### Module 2

CONTROL SYSTEMS (10 hours)

Contents:

- 2.1 Basic elements of control system,
- 2.2 Various types of control systems
- 2.3 Control system design
- 2.4 Applications of control systems

### Module 3

HANDS-ON TRAINING (15 hours)

Contents:

- 3.1 Practical Session 1: Sensor Fundamentals
- 3.2 Practical Session 2: Controller Fundamentals
- 3.3 Practical Session 3: Hands on training on Temperature controller manufacturing





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## THE COCHIN COLLEGE

Add-on course 15 Academic Year – 2022 -2023

### Mathematics for Computer Science and AI

Course Code: MATCC5003 (30-Hour)

**Course objectives:**

Provide students with a robust foundation in discrete mathematics, linear algebra, probability, and statistics, and to demonstrate the application of these mathematical principles in computer science and artificial intelligence. Through a combination of theoretical understanding and practical problem-solving, students will develop the skills necessary to analyze algorithms, design efficient computational systems, and implement machine learning models.

**Prerequisites:**

Basic understanding of high school mathematics (algebra, geometry, and calculus).  
Introduction to programming (in any language).

**Course Learning Outcomes:**


1. By the end of this course, students should be able to:
2. Apply discrete mathematics concepts in computer science problems.
3. Utilize linear algebra in the context of machine learning and AI algorithms.
4. Implement probabilistic models and statistical inference techniques.
5. Analyse and solve problems using graph theory and combinatorial methods.
6. Understand and apply basic AI and machine learning models using mathematical foundations.

**Week 1: Foundations of Discrete Mathematics**

**Sessions (1 - 2): Introduction to Logic and Proof Techniques**  
Propositional logic, predicate logic, proof strategies (direct, contradiction, induction).  
**Activities:** Lectures, problem-solving exercises.

**Sessions (3 - 4): Sets, Functions, and Relations**  
Set operations, types of functions, equivalence relations, partial orderings.  
**Activities:** Lectures, interactive quizzes.

**Sessions (5 - 6): Algorithms and Complexity**



Postgraduate Department of Mathematics







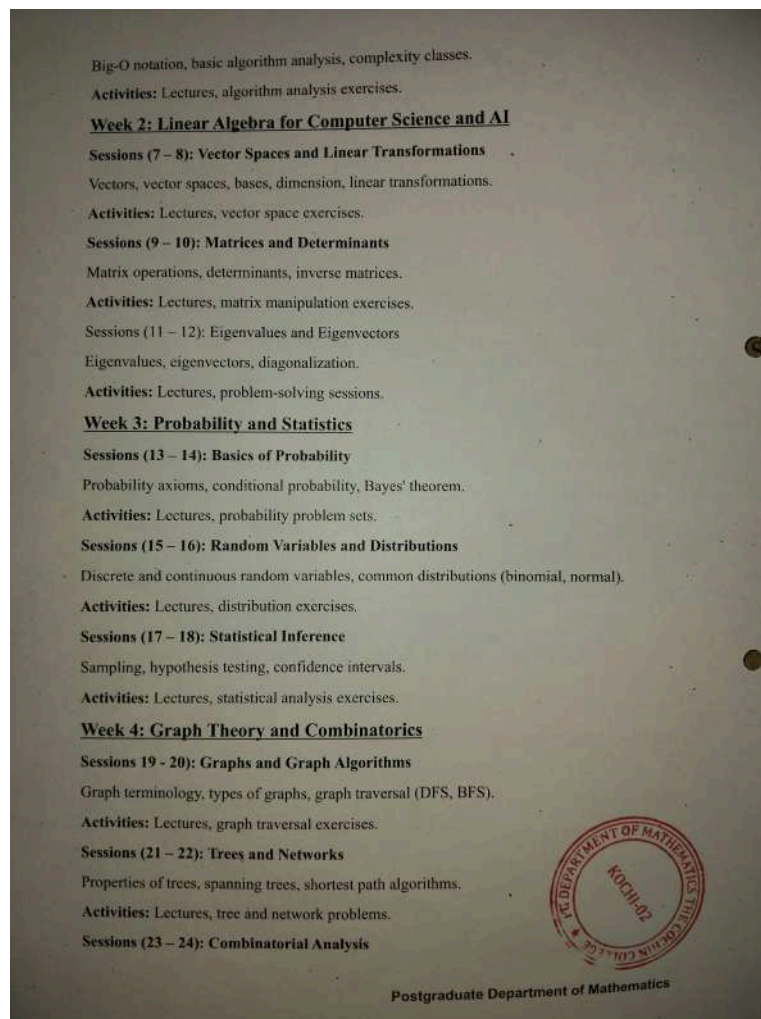
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Permutations, combinations, pigeonhole principle, inclusion-exclusion principle.

**Activities:** Lectures, combinatorial problem-solving.

### **Week 5: Applications in AI and Machine Learning**

#### **Sessions (25 – 26): Linear Regression and Classification**

Linear regression, logistic regression, loss functions.

**Activities:** Lectures, implementation exercises.

#### **Sessions (27 – 28): Neural Networks and Deep Learning**

Perceptron, backpropagation, introduction to deep learning.

**Activities:** Lectures, neural network exercises.

#### **Sessions (29 – 30): Probabilistic Models and Inference**

Topics: Bayesian networks, Markov chains, hidden Markov models.

**Activities:** Lectures, probabilistic model exercises.

#### **Evaluation Procedure:**

1. Weekly Quizzes (20%): Short quizzes at the end of each week to assess understanding of the week's material.
2. Homework Assignments (30%): Weekly problem sets and programming assignments.
3. Mid-term Exam (20%): A written exam covering the first half of the course.
4. Final Project (30%): A project applying mathematical concepts to a computer science or AI problem, including a written report and a presentation.

#### **Course Textbook:**

"Discrete Mathematics and Its Applications" by Kenneth H. Rosen.

#### **Reference Books:**

1. "Introduction to the Theory of Computation" by Michael Sipser.
2. "Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig.
3. "Mathematics for Machine Learning" by Marc Peter Deisenroth, A. Aldo Faisal, and Cheng Soon Ong.



Postgraduate Department of Mathematics





# THE COCHIN COLLEGE

KOCHI - 682 002

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email: [email@thecochincollege.edu.in](mailto:email@thecochincollege.edu.in)

 **THE COCHIN COLLEGE**  
KOOVAPADAM, KOCHI-2  
AFFILIATED TO MG UNIVERSITY, RE-ACCREDITED WITH B+ GRADE

Department of Botany  
**Value Added Course**  
offered in 2022-2023

- ✦ FLORISTRY AND FLOWER ARRANGEMENT
- ✦ HERBAL COSMETICS

**APPLY**  
<https://forms.gle/zJ3ApbXmTTb37KYW9>





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## Department of Botany

### Add On Course 2022-2023

ADBOT2208-HERBAL COSMETICS

#### SYLLABUS

#### Add-On Course Syllabus: Herbal Cosmetics (30 Hours)

##### Course Overview

This add-on course provides comprehensive knowledge about herbal cosmetics, focusing on the use of natural ingredients in beauty and personal care products. The course is designed to give students an understanding of the benefits, formulation, and regulatory aspects of herbal cosmetics.

##### Course Objectives

- Understand the basics of herbal cosmetics and their advantages over synthetic products.
- Learn about various natural ingredients used in herbal cosmetics.
- Gain knowledge about the formulation and preparation of herbal cosmetic products.
- Understand the regulatory aspects and quality control measures of herbal cosmetics.
- Explore the market trends and consumer preferences in herbal cosmetics.

##### Module 1: Introduction to Herbal Cosmetics (4 Hours)

- Definition and scope of herbal cosmetics
- History and evolution of herbal cosmetics
- Benefits of using herbal cosmetics over synthetic products
- Overview of commonly used herbs and their properties

##### Module 2: Natural Ingredients in Herbal Cosmetics (8 Hours)

- Detailed study of natural ingredients (herbs, essential oils, oleoresins, etc.)
- Properties and benefits of key herbs: Aloe Vera, Neem, Turmeric, Rose, Lavender, Tulsi, etc.
- Extraction methods of herbal ingredients
- Safety and efficacy of natural ingredients

##### Module 3: Formulation of Herbal Cosmetics (8 Hours)

- Basics of cosmetic formulation
- Formulation of different types of herbal cosmetics: hair oils, hair packs, shampoos, soaps, Kalol, lipsticks etc.
- Role of preservatives, emulsifiers, and other additives in herbal cosmetics





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**Module 4: Quality Control and Regulatory Aspects (6 Hours)**

- Quality control measures in herbal cosmetics
- Regulatory guidelines and certifications for herbal cosmetics
- Labeling and packaging requirements
- Stability testing and shelf-life determination

**Module 5: Future Prospects and Innovations (4 Hours)**

- Emerging trends and innovations in herbal cosmetics
- Sustainable practices in the herbal cosmetic industry





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## Department of Botany

Add On Course 2022-2023

### FLORISTRY AND FLOWER ARRANGEMENT

#### SYLLABUS

#### Module 1 (20 Hrs)

Essential Materials, Types of flowers and foliage, Fresh flowers, Dry and artificial flowers-  
preparation 8 hrs

Common flowers and foliage used in flower arrangement. 5 hrs

Flower arrangements – designs, styles, aftercare 4 hrs

Preparation of bouquets, wreaths, wedding arrangements 3 hrs

#### Module 2 (10 Hrs.)

Cultivation of cut flowers: Rose, Orchid, Anthurium, Gerbera, Aster, Gladiola, Lilly, Daisy,  
Hydrangea, Gypsophila ; post-harvest treatment and packaging and transport of cut flowers.

10 hrs





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## Guidelines for implementing the organic farming project, as part of MOOC course for Under Graduate students of Mahatma Gandhi University

### Objective

To enable the Under Graduate students of Mahatma Gandhi University to understand the know-how of organic farming activities and thereby acquiring the related skill sets.

### Implementation Team

Affiliated Colleges shall nominate one Faculty member as Coordinator for the purpose of conducting MOOC course. For each department/course in a college, one faculty member shall be the Mentor of the course. The committee comprising of Coordinator and Mentors shall be responsible for the conduct of MOOC course, including the Project work and the online examination to be conducted using the computer lab facility of the college. Mentors have the immediate responsibility to guide the students regarding the implementation of the project work as well assessing the performance of students, subject to the guidelines put forward by the University.

### Beneficiaries

All UG Students in the 240 plus affiliated colleges, from 2020 admission onwards.

### Location

The location of the project shall either be the colleges concerned or the homestead of the beneficiaries. A 20 square meter ( half a cent) land area with abundant sunshine and good drainage is to be selected for the project work.

### Crops

The students may select five crops from the following crop cafeteria:

Vegetable crops: Amaranthus, ladies finger, cowpea, brinjal and chillies

Annual spices: Ginger , turmeric.

Tuber crops: Amorphophallus, tapioca.

### Season

Crop season of February-March to July- August is desirable. Period during which farming to be done must be based on the prevailing climatic conditions. Rainfall and atmospheric temperature are to be considered while selecting the season. Cultivation in grow bags is possible irrespective of the season, if timely irrigation is assured.

### Agricultural implements

Spade, hand hoe, scythe, hand sprayers, baskets and knapsack sprayers are the implements required.







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## Manures

Organic manures : Compost, cattle manure, poultry manure, goat manure etc.

Concentrated manures: Ground nut cake, neem cake, bone meal, coconut oil cake

Green leaf manure: Glyricidia, tender weed shoots .

Fermented Bio slurries: Fish aminoacid, Egg aminoacid, Jeevamrutham, Panchagavyam etc.

Bio fertilizers

Azotobacter, Rhizobium, Azospirillum, Phospho bacteria, VAM etc.

## Biocontrol agents

Botanical pesticides: Neem oil, Neem garlic emulsion, Tobacco decoction.

Bio pesticides: Verticillium, Beuveria, Trichoderma, Bacillus thuringiensis, Pseudomonas.

## Seeds and planting materials

Seeds and seedlings of Amaranthus, ladies finger, cowpea, brinjal and chillies can be used as the planting materials. Rhizomes of Ginger and turmeric are used for planting. For tapioca, stem cuttings are used while tuber cut pieces are used as planting material of Amorphophallus . Seed materials are available with farms and research stations under the department of agriculture and Kerala Agricultural University. Seeds are also available with the vegetable and fruit promotion council (VFPC) and Krishibhavana.

## Crop management

Land preparation, liming, manuring, preparation of potting mixture, preparation of fermented Bio slurries, seeding/planting, pests and disease management, water management and harvest are the major management practices.

## Training programmes

University will provide training on the project work to the co-ordinators. Co-ordinators shall train the Mentors and they in turn shall impart training to the students.

## Observations and data collection

The students shall closely monitor the growth and development of the crops and collect the data regularly. The data generated are to be submitted to the Mentors. The observations and the data collected shall include the day to day activities of the project work from initial land preparation to the final harvest. Height of plants at 15 days interval, no. of branches, date of first flowering, date of fruiting, number of fruits, harvest details, yield etc. are to be recorded in detail. Photos of the crop at different growth stages and during harvest are to be included in the report. Pest and disease incidence and the control measures adopted are to be reported. The students may report their project experiences including the difficulties faced and the alleviation measures adopted.

## College level assessment

A seminar at the college level is to be organized in which the project work will be evaluated based on a power point presentation by the concerned student.

