

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 - 2023-2024





National Assessment and Accreditation Council



KOCHI - 682 002

(Affiliated to Mahatma Gandhi University and Accredited by NAAC)

Website: www.thecochincollege.edu.in

email: email@thecochincollege.edu.in



Department of Economics Value Added Course Offered of 2023-2024

SUSTAINABLE DEVELOPMENT STARTUP ECOSYSTEM IN INDIA

https://forms.gle/zJ3ApbXmTTb37KYW9





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DEPARTMENT OF ECONOMICS ADD ON COURSE 2023-24

Course Title	STARTUP ECOSYSTEM IN INDIA (30 Hours)
Course Summar y	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.
Course outcome	 Understand the fundamentals of entrepreneurship and the start-up ecosystem in India. Understand key players and resources in Indian startup ecosystem Access and leverage various funding and support mechanisms for start-ups. Address legal and regulatory requirements for start-ups in India. Develop practical skills for starting and managing a successful start-up.

Module		Content	Hrs
Ι	M	odule 1: Introduction to Entrepreneurship and Start-ups	5
		Definition and Importance of EntrepreneurshipTypes of Entrepreneurs and Start-ups	



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	 Characteristics of Successful Entrepreneurs Role of Start-ups in Economic Development Global and Indian Start-up Trends 	
II	Module 2 : Indian Startup Ecosystem	5
	 Overview of the Start-up Ecosystem in India Key Players: Entrepreneurs, Investors, Incubators, Accelerators, Government Agencies Major Start-up Hubs in India (Bangalore, Mumbai, Delhi, Hyderabad, Chennai) Key Sectors for Start-ups in India (Tech, Healthcare, FinTech, EdTech, Agritech) Case Studies of Successful Indian Start-up 	
III	Module 3: Funding and Support System	5
	 Bootstrapping and Self-funding Angel Investors and Venture Capital Government Schemes and Policies (Startup India, Atal Innovation Mission) Incubators and Accelerators Crowdfunding and Alternative Funding Sources 	
IV	Module 4: Legal and Regulatory Framework	5
	 Legal Structures for Start-ups (Proprietorship, Partnership, Private Limited Company) Intellectual Property Rights (IPR) Compliance and Regulatory Requirements Labor Laws and Employment Regulations 	



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	Taxation for Start-ups			
V	Module 5: Challenges and Opportunities for Start-ups in India	5		
	 Common Challenges Faced by Start-ups Strategies for Overcoming Challenges Opportunities in Emerging Sectors Impact of Technology and Innovation Future Trends and Predictions 			
VI	Module 6: Practical skills for startup success	5		
	 Business Plan Development Market Research and Customer Validation Product Development and Prototyping Marketing and Sales Strategies Scaling and Growth Strategies 			
	ASSESSMENT			
	Class Participation and Attendance (10%)			
	Quizzes and Assignments (30%)			
	Case Study Analysis and Presentations (30%)			
	Final Examination (30%)			



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DEPARTMENT OF ECONOMICS ADD ON COURSE 2023-24

Course Title	SUSTAINABLE DEVELOPMENT (30 Hours)				
Course SummaryThis course is designed to provide students with a compre- understanding of the principles and practices of sus development. The course covers key concepts, global cha 					
Course outcome	 understand the principles and importance of sustainable development. learn about global challenges and their impact on sustainability. learn about sustainability frameworks and tools. understand the role of various stakeholders in promoting sustainability. 				

Module		Content	Hrs
I	Module 1: Introduction to Sustainable Development		
		 Definition and Concept of Sustainable Development Historical Context and Evolution Key Principles and Pillars of Sustainability (Economic, Social, Environmental) 	



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	Sustainable Development Goals (SDGs)	
II	Module 2 : Global Challenges and Sustainability	5
	 Climate Change and Environmental Degradation Resource Depletion and Biodiversity Loss Poverty and Inequality Urbanization and Sustainable Cities 	
III	Module 3: Sustainability Framework and Tools	5
	 Life Cycle Assessment (LCA) Circular Economy and Resource Efficiency Environmental Impact Assessment (EIA) Sustainability Reporting and Indicators Green Building Standards and Certifications 	
IV	Module 4: Sustainable Development in Practice	5
	 Sustainable Agriculture and Food Systems Renewable Energy and Energy Efficiency Water Management and Sanitation Sustainable Transportation and Mobility Waste Management and Recycling 	

V	Module 5: Policy and Governance for Sustainability	5
	 International Agreements and Protocols (Paris Agreement, Agenda 21) National and Local Policies for Sustainable Development Role of Governments and Institutions 	



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	Public-Private Partnerships for Sustainability	
VI	Module 6: Stakeholders and Sustainability	5
	 Role of Businesses and Corporate Social Responsibility (CSR) Community Engagement and Participation Non-Governmental Organizations (NGOs) and Civil Society Education and Awareness for Sustainable Development Future Directions and Innovations in Sustainability 	
	ASSESSMENT Class Participation and Attendance (10%) Quizzes and Assignments (30%) Case Study Analysis and Presentations (30%) Final Examination (30%)	



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PROGRAMME SCHEDULE VENUE: SEMINAR HALL (JULY 20, 2023; 11.00 AM) WELCOME : DR. PAULBERT THOMAS (ISRO-START COORDINATOR) **INAUGURATION & INAUGURAL ADDRESS: DR. M. GEETHA (PRINCIPAL)** FELICITATION: DR. SINDHU K. (IQAC COORDINATOR) (11.30 AM TO 12.30 PM) **TOPIC: "INDIA'S SPACE EXPLORATION ENDEAVOUR: CONTEXT OF ISRO'S** START PROGRAMME" **RESOURCE PERSON: DR. TIRTHA PRATIM DAS, DIRECTOR, SPO, ISRO HQ**



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Important Details

Home page of the Programmehttps://jigyasa.iirs.gov.in/START

No course fee

The classes will be online. The final computer based exam will be offline at The Cochin College.

Link for student's registrations https://elearning.iirs.gov.in/edusatregistration/student

Course guidelines for the students https://www.iirs.gov.in/iirs/sites/default/files/pdf/2024/cours e_guideline_student_START_nodal_center.pdf

Hop onboard the course WhatsApp group at: <u>Click here</u>







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Govt. of India Dept. of Space Indian Space Research Organization (ISRO)

Date: July 13, 2023

Space Science Technology & AwaReness Training (START) Programme - 2023 Tentative Schedule

Session No.	Date	Time	Speaker	Торіс
1	July 20, 2023, Thursday	11:30-12:30; Plus 20 minutes of interaction	Dr. Tirtha Pratim Das	"India's Space Exploration Endeavour: Context of ISRO's START programme
2	July 21, 2023, Friday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. Suresh Babu	Space observations of Geosphere - Biosphere – atmosphere interactions and climate
3		15:00 to 16:00 hours; Plus 20 minutes of interaction	Dr. P. K. Mohanty	Introduction to Cosmic Rays
4	July 24, 2023, Monday	11:00 to 13:00 hours; Plus 20 minutes of interaction	Dr. Tarun Kumar Pant	Earth's lonosphere, Magnetosphere, Sun- Earth interaction and Space Weather
5		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof Archana Bhattacharrya	Earth's magnetic field & Geospace
6	July 25, 2023, Tuesday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. R.P. Singh	Introduction to Remote Sensing of Earth and planetary bodies
7		15:00 to 16:00 hours; Plus 20 minutes of interaction	Mr. Sheeju Chandran	Rockets to access the Near-Earth Space: Sounding Rockets & Launch Vehicles



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Session No.	Date	Time	Speaker	Торіс
8	July 26, 2023, Wednesday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. S. A. Ilangovan	Chemistry in Space Technology
9		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof.Bhala Sivaraman	Chemistry in Space Science
10	July 27, 2023, Thursday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. K. Sankarasubramanian	The Sun
11		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof. Debabrata Banerjee	The Solar System: Formation, evolution and the present state
12	July 28, 2023, Friday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. Tirtha Pratim Das	Scientific Payload development for Solar System Exploration
13		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof. Varun Sheel	Planets in the Solar System
14	July 31, 2023, Monday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Prof. Ramananda Chakrabarti	Origin and Evolution of the Moon
15		15:00 to 16:00 hours; Plus 20 minutes of interaction	Dr. Kinsuk Acharya	Minor Bodies in the Solar System – Asteroids, Comets and Meteors
16	August 01, 2023, Tuesday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. Ritu Karidhal	Mission Design for Space Exploration



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Session No.	. Date	Time	Speaker	Торіс
17		15:00 to 16:00 hours;Plus 20 minutes of interaction	Dr. V. Girish	Observational Techniques for Space Science
18	August 02, 2023, Wednesday	11:00 to 13:00 hours; Plus 20 minutes of interaction	Dr. R. Niruj Mohan	Basics of Astronomy & Astrophysics
19	August 03, 2023, Thursday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. Aravind Singh Rajpurohit,	Exoplanets and Earth- like Exoplanets
20		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof. Sudha Rajamani	Introduction to Astrobiology and Search of Life Beyond Earth
21	August 04, 2023, Friday	11:00 to 12:00 hours; Plus 20 minutes of interaction	Dr. K. Praveen Kumar	Research Opportunities in Space Science and Technologies
22		15:00 to 16:00 hours; Plus 20 minutes of interaction	Prof. Tarun Sauradeep	Introduction to Cosmology
23	August 07,2023 Monday	14:00 to 15:00 hours;	Concluc	ling Session



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भारत सरकार / Government of India अंतररक्ष विभाग/Department of Space भारतीय अंतररक्ष अनुसंधान संगठन (इसरो)/ Indian Space Research Organisation (ISRO)

START-2024 Theme: Exploration of the Solar System

Meeting Testing Schedule

			weeting resting schedule	Testing Schedule	
				Date: May 02, 202	
Session No.	Date	Time	ТОРІС	Speaker	
	24/04/2024 Wednesday	3:00 - 3:30 PM	Inauguration		
1			Setting the Context		
1	24/04/2024 Wednesday	3:30 - 4:30 PM	Introduction to Exploration of the Solar System	Dr.T.P.Das, ISRO HQ, Bangalore	
		L	The Solar System		
2	25/04/2024 Thursday	3:30 - 4:15 PM	Introduction to the Solar System	Prof.Debabrata Banerjee, PRL, Ahmedabad	
3		4:30 - 5:15 PM	The Formation of the Solar System	Prof.Kuljeet Marhas, PRL	
4	26/04/2024 Friday	3:30 - 4:15 PM	The Sun: Our Star	Prof.Arnab Rai Chowdhury, IISc, Bangalore	
5		4:30 - 5:15 PM	Earth and Evolution of Earth	Dr.P.Senthil Kumar, NGRI, Hyderabad	
6	29/04/2024 Monday	3:30 - 4:15 PM	The Moon	Dr.Neeraj Srivastava, PRL	
7		4:30 - 5:15 PM	Terrestrial Planets: Mercury, Venus, Mars	Prof. Guneshwar Thangjam, NISER, Bhubaneswar	
8	30/04/2024 Tuesday	3:30 - 4:15 PM	Gas and Ice Giants: Jupiter and Saturn; Uranus and Neptune and beyond	Dr. Vrinda Mukundan, NCESS, Thiruvananthapuram	
9		4:30 - 5:15 PM	Moons of the Solar System planets	Dr. Rishitosh Sinha, PRL	
10	01/05/2024 Wednesday	3:30 - 4:15	Minor Bodies: Comets, Asteroids and Meteorites	Prof. Shashikiran Ganesh, PRL	
11		4:30 - 5:15 PM	Meteorites: Messengers from the Solar System	Dr.Dwijesh Ray, PRL	



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Session No.	Date	Time	TOPIC	Speaker
110.				
12	02/05/2024 Thursday	3:30 - 4:15 PM	Planetary Space Weather: Science and Impacts	Dr.Smitha Thampi, SPL- VSSC, Thiruvananthapuram
13		4:30 - 5:15 PM	Life in Solar System; Linkages to Exo Solar System	Dr. Yamini Jangir, IITKanpur
Indian m	issions to stud	ly the Sola	r System	
14	03/05/2024 Friday	3:30 - 4:15 PM	India's Lunar Exploration Programme	Dr.Vijayan, PRL
15		4:30 - 5:15 PM	India's Aditya-L1 Solar Observatory	Dr.K.Sankarasubramanian, URSC, Bangalore
16	06/05/2024 Monday	3:30 - 4:15 PM	India's mission to Mars	Dr.Rishitosh Sinha, PRL
Methods	to study the S	olar Syste	m	I
17	06/05/2024 Monday	4:30 - 5:15 PM	Laboratory Analysis to understand Solar System Conditions	Prof. Bhalamurgan, PRL
18	07/05/2024 Tuesday	3:30 - 4:15 PM	Platforms for Solar System Exploration	Dr. Shamrao, URSC
19		4:30 - 5:15 PM	Mission Operations for Solar System Exploration	Smt. Nandini Harinath, ISTRAC, Bangalore
20	08/05/2024 Wednesday	3:30 - 4:15 PM	Scientific Payloads for Solar System Exploration	Dr.Mehul Pandya, SAC, Ahmedabad
21		4:30 - 5:15 PM	Telescopes for Solar System Studies	Prof. Shashikiran Ganesh, PRL
22	09/05/2024 Thursday	3:30 - 4:15 PM	Theoretical studies to understand Planetary Processes	Prof.Varun Sheel, PRL
23		4:30 - 5:15 PM	Space Transportation System for Solar System Exploration	Dr.Biju Prasad, VSSC, Thiruvananthapuram
Enabler	for Future	1		1
24	10/05/2024 Friday	3:30 - 4:15 PM	In-Situ Resource Utilisation	Dr.P.Ganesh, IPRC, Mahendragiri
25		4:30 - 5:15 PM	Enabling Technologies for Solar System Exploration	Mr. Raghu, ISRO HQ
		5:15 - 6:00 PM	Concluding Session	1



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (120 HRS)

LOGISTICS

LOGISTICS INDIAN MARITME SECURTY GENERAL MARITME CLAIMS TOWAGE AND PILOTAGE SUPPLIES, REPAINS AND DOCK CHARGES BOTTOMYNADMIRALTY / MARITME LAW IMPORTANCE, SOFT AND SIGNIFICANCE IMPORTANCE, SOFT AND SIGNIFICANCE COMMERCIAL INVOICE CERTIFICATES PACKING LIST EXPORT/ IMPORT CUSTOMS DECLARATIONS BILLS OF LADING TRANSPORT DOCUMENT BILLS OF ENTRY BILLS OF ENTRY DOCUMENTS FOR EXPORT AND IMPORT LETTER OF CREDIT MARINE INSURANCE MARINE INSURANCE PRINCIPLES OF MARINE INSURANCE MARINE INSURANCE POLICIES IN INDIA SCOPE OF MARINE INSURANCE COASTAL SECURITY IN INDIA CASES, ANALYSIS AND STUDIES SUPPLY CHAIN MANAGEMENT PROCUREMENT PROCESS SUPPLIER RELATIONSHIP MANAGEMENT AND CUSTOMER RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT PLANNING MATERIAL REQUIREMENT PLANNING SUPPLY CHAIN PARTNERS OGISTICS MANAGEMENT (WAREHOUSING AND TRANSPORTATION) LOGISTICS MANAGEMENT INTRO-TERMS WAREHOUSING WAREHOUSE OPERATIONAL PRINCIPLES

LWAREHOUSE DESIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS PORT AND DOCKS CONTAINER TERMINAL OPERATION AND CARGO HANDLING CONTAINER TERMINAL OPERATION AND CARGO HA PORT MANAGEMENT VESSEL ENTRY AND CLEARANCE PROCEDURES PORT OPERATIONS FOR INCOMING VESSELS CONTAINER SHIP SAFE CARGOOPERATIONS DEPLOYMENT AND MONITORING OF MOORING INSTRUCTION FOR DECK WATCH KEEPING IN PORT TYPES OF SHIPPING CONTAINERS CONTAINERS TOWAGE ON CONTAINERS SHIP MANNING ROTOWAGE ON CONTAINERS SHIP HANDLING DANGEROUS CARGO, BREAK BULK, AND -OOG CARGO HANDLING OF REEFER CONTAINERS OPERATION OF OIL TANKERS ODE CARECO MAILUME DE LECTRE CONTAINERS OPERATION OF OU L'ANAIGO FREEFR CONTAINERS DEVINCENNO, TRANSSIMPARENT, CONTAINER CRANE, AND CSI 15. POPRT DISSUSSEMINT OPERATION TERMS AND ABBREVIATIONS GEOGRAPHY STRUCTURE OF SHIPS TYPES OF SHIPS TYPES OF CARCO CONTAINEETS OF CARCO CARCO CARCO CONTAINEETS OF CARCO CONTAINEETS OF CARCO CONTAINEETS OF CARCO CONTAINEETS OF CARCO CRM STRATEGIC SALES PLANNING FOR SMALL BUSINESS ENTERPRISE RESOURCE MANAGEMENT MANAGEMENT INFORMATION SYSTEM



We are the future of vour career

REVERSE LOGISTICS MATERIAL REQUIREMENT PLANNING THEORY OF CONSTRAINTS LOGISTICS MANAGEMENT WAREHOUSE OPERATION PRINCIPLES WAREHOUSE OSIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS SUPPLY CHAIN MANAGEMENT MANAGEMENT AND CUSTOMER RELATIONSHIP RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT FLANNING SUPPLY CHAIN PARTNERS

BENEFITS OF LEARNING LOGISTICS

- YOU CAN FIND STEADY WORK IN SEVERAL INDUSTRIES.
- INTERNATIONAL WORK OPPORTUNITIES
- ACCORDING TO THE <u>BUREAU OF LABOR STATISTICS</u> (BLS) THE JOB OUTLOOK FOR LOGISTICIANS IS POSITIVE
- THE MEDIAN ANNUAL WAGE FOR LOGISTICIANS IS <u>
 576,270</u>, ACCORDING TO RESEARCH PROVIDED BY THE BLS IN MAY 2020
- SEVERAL MANAGEMENT OPPORTUNITIES THROUGHOUT YOUR CAREER JOB OPPORTUNITIES



PURCHASING MANAGER OPERATIONS MANAGEMENT PROCUREMENT SPECIALIST PRODUCTION PLANNER BUSSINESS ANALYST COMMODITIES MANAGER BUSSINESS ANALTSI COMMODITIS MANAGER INVENTORY SPECIALIST VENDOR MANAGER INVENTORY CONTROLLER WARHOUSE OPERATIONS KONAJER LOGISTICS CONSULTANT LOGISTICS CONSULTANT LOGISTICS MANAGER DIGISTICS MANAGER SUPPLY CHAIN MANAGER UGISTICS MANAGER DISTRIBUTION MANAGER MATERIALS MANAGER PROCUREMENT MANAGER MATERIALS MANAGER PROCUREMENT MANAGER CARGO MANAGER CUSTOMER SERVICE MANAGER PROCESS ASSOCIATE CONSULTANT LOGISTICS ENGINEER



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)

TALLY

IN ASSOCIATE WITH

EDUČAT

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+91 9400 192 564 veekshaeducation.com

BASIC ACCOUNTING - JOURNAL ENTRY FUNDAMENTALS OF TALLY. ACCOUNTING MASTERS IN TALLY. COMPANY CREATION ACCOUNTING AND INVENTORY MASTERS VOUCHER ENTRY IN TALLY. PURCHASE AND SALES MANAGEMENT ORDER PROCESSING INVENTORY MANAGEMENT WAREHOUSE MANAGEMENT BANKING MANUFACTURING PROCESS COST CENTERS STATUTORY TAXATION - BUDGET VARIANCE CHEQUE PRINTING BACK AND RESTORE SECURITY SYSTEM SPLIT COMPANY DATA REPORT PRINTING. GOODS AND SERVICES TAX (GST) BANK RECONCILIATION BACK UP & RESTORE EXPORT-IMPORT



SPLITTING OF COMPANY DATA JOB COSTING TAX DEDUCTED AT SOURCE POWER OF SIMPLICITY TAX COLLECTED AT SOURCE PAYROLL ACCOUNTING AND COMPLIANCE TECHNOLOGICAL ADVANTAGES OF TALLY APPLICATION MANAGEMENT AND CONTROLS GST

BENEFITS OF LEARNING TALLY

ONE OF THE FIRST TALLY COURSE BENEFITS IS THE ACCURACY OF INFORMATION. AFTER BEING ENTERED INTO TALLY PRIME, YOUR DATA IS UNLIKELY TO BE LOST FOR ANY ILLIMITABLE REASONS

THE SECOND ONE AMONG THE TALLY COURSE BENEFITS IS INFORMATION ASSURANCE. ONCE THE DATA IS STORED INSIDE THE SOFTWARE PACKAGE, THERE IS NOT EVEN THE TINIEST POSSIBILITY OF DATA ALTERING

HELPS TO MAINTAIN THE TRUST AND CONFIDENCE THAT ARE ESSENTIAL TO THE ACCOUNTING SECTOR

THE FOURTH TALLY COURSE BENEFITS ARE THE USER-FRIENDLY EXPERIENCE.

THE FIFTH TALLY COURSE BENEFITS ARE UNCOMPLICATED DATA MOVEMENT

PROVIDING FILING ASSISTANCE FOR GST

MAKING BUSINESS EASY WITH TALLY

JOB OPPORTUNITIES

Accountants Officer Executive Assistant Accounting Clerk Accounting Associate Accounts Assistant Accounts Executive Accounts Supervisor Accounts Executive Accounts Supervisor Tally Operator Tally Accounts Manager Tally Accounts Executive Service Coordinate with Tally Tally Junior Accountant Tax Accountant Bookkeeper Jinvestment Banker Financial Tally Analyst



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IELTS

LISTENING

PRACTISING ALL QUESTION TYPES. (MONOLOGUES, DIALOGUE, CONVERSATION) RECOGNISING INTONATION PATTERNS (QUESTIONS, SURPRISE ETC) VARIETIES OF SPOKEN ENGLISH, INCLUDING AUSTRALIAN, BRITISH, NORTH AMERICAN AND NEW ZEALAND LISTENING FOR SPECIFIC INFORMATION, KEYWORDS, GENERAL INFORMATION, NUMBERS, TRANSITION SIGNALS AND DISCOURSE MARKERS (FIRSTLY, SECONDLY, OBVIOUSLY, FURTHERMORE, INDEED].

L

PRACTISING 3 SECTION OF READING TESTS. SKIMMING (TO GET A GENERAL UNDERSTANDING) SCANNING (LOOKING FOR SPECIFIC INFORMATION) DEVELOPING VOCABULARY SUMMARISING

ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)

DETERMINING THE WRITER'S ATTITUDE AND OPINION.

PRACTISING ESSAY , GRAPH / DIAGRAM DESCRIPTION. ADJUSTING STYLE ACCORDING TO PURPOSE. WRITING PARAGRAPHS, INTRODUCTIONS AND CONCLUSIONS. USING CONJUNCTIONS AND REFERENTS. ORGANISING INFORMATION LOGICALLY WITHIN A TEXT. USING EXAMPLES AND EVIDENCE TO SUPPORT AN ARGUMENT.





PRACTISING ALL OUFSTION TYPES PRACTISING ALL QUESTION TYPES. PRACTISING PRONUNCIATION AND INTONATION. PRACTISING FLUENCY. USING AND UNDERSTANDING COMMON PHRASES. INTERACTING WITH OTHER SPEAKERS. SPEAKING FOR AN EXTENDED TIME ON A PARTICULAR TOPIC. PRACTICE HOW TO DEVELOP A CONTENT

BENEFITS OF LEARNING

TELTS BEING ABLE TO COMMUNICATE IN ENGLISH CONNECTS YOU TO A LANGER WORLD. CURRENTLY, ABOUT 20% OF THE WORLD'S POPULATION SPACE SNOLSKA, ALTHOUGH MOST AREN'T NATIVE SPEAKERS. EINGLISH IS ALSO THE WORLD'S MOST-STUDIEF ORGING LANGLAGE. WITH SO MANY PEOPLE STUDYING AND LEARNING ENGLISH, PROFICIENCY EXAMS LIKE IELTS HELP ADMISSIONS OFFICERS AND PROSPECTIVE EMPLOYERS TO GET AN ACCURATE PICTURE OF YOUR CURRENT ENGLISH LEVEL.

TAKING THE IELTS TEST CAN ENHANCE YOUR TAKING THE IELTS TEST CAN ENHANCE YOUR EMPLOYMENT PROSPECTS EXCELLENT COMMUNICATION SKILLS ARE ESSENTIAL THESE DAYS AS FIFTY-FIVE COUNTRIES HAVE ENGLISH AS THEIR FIRST LANGUAGE. DEMONSTRATING A GOOD COMMAND OF THE LANGUAGE COULD OPEN UP OPTIONS FOR YOU TO PURSUE A CAREER IN A FOREIGN COUNTRY

THE PROCESS OF PREPARING TO TAKE THE IELTS TEST WILL SIGNIFICANTLY IMPROVE YOUR ENGLISH SKILLS

IF YOU'RE TAKING IELTS ACADEMIC TO GET INTO YOUR DREAM UNIVERSITY, THE PROCESS OF STUDYING FOR THE EXAM WILL HELP YOU PREPARE FOR ACADEMIC LIFE

PROVING YOUR ENGLISH LANGUAGE SKILLS CAN HELF YOU GET A NEW JOB OR A PROMOTION IN YOUR HOME COUNTRY AND ABROAD, YOUR IELTS SCORE ON YOUR RESUME WILL SHOW FUTURE EMPLOYERS THAT YOU ARE A SERIOUS AND COMMITTEO CANDIDATE.

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ELEMENTS OF PROGRAMMING AND FUNCTION INTRODUCTION: BASIC ELEMENTS OF PROGRAMMING, CONSOLE I/O OPERATIONS, FUNCTION: FUNCTION PROTOTYPING, CALL AND RETURN BY REFERENCE, INLINE FUNCTION, DEFAULT AND CONST ARGUMENTS, FUNCTION OVERLOADING, ARRAYS, MANIPULATORS AND ENUMERATION.

CLASSES AND OBJECT OBJECT ORIENTED METHODOLOGY: BASIC CONCEPTS/CHARACTERISTICS OF OOP. ADVANTAGES AND APPLICATION OF OOPS, PROCEDURAL PROGRAMMING VS OOP. CLASSES AND OBJECTS: SPECIFYING A CLASS, CREATING OBJECTS, PRIVATE & PUBLIC DATA MEMBERS AND MEMBER FUNCTIONS, DEFINING INLINE MEMBER FUNCTIONS, STATIC DATA MEMBERS AND MEMBER FUNCTIONS. ARRAYS WITHIN CLASS, ARRAYS OF OBJECTS, OBJECTS AS FUNCTION ARGUMENTS, RETURNING OBJECTS.

CONSTRUCTORS, DESTRUCTORS, OPERATORS OVERLOADING AND INHERITANCE. CONSTRUCTORS AND DESTRUCTORS: INTRODUCTION, PARAMETERIZED CONSTRUCTORS, MULTIPLE CONSTRUCTORS IN A CLASS, CONSTRUCTORS WITH DEFAULT ARGUMENTS, DYNAMIC INITIALIZATION OF OBJECTS, COPY CONSTRUCTORS, DYNAMIC CONSTRUCTORS, CONST OBJECTS, DESTRUCTORS OPERATORS OVERLOADING: DEFINITION, UNARY AND BINARY OVERLOADING, RULES FOR OPERATOR OVERLOADING. INHERITANCE: DEFINING DERIVED CLASSES, TYPES OF INHERITANCE, CONSTRUCTORS AND DESTRUCTORS IN DERIVED CLASSES.

POINTERS VIRTUAL & FRIEND FUNCTIONS AND FILE HANDLING POINTERS: POINTER TO OBJECTS. THIS POINTER. "NEW" AND "DELETE" POINTERS VIRTUAL FUNCTION, FRIEND FUNCTIONS, OPENING, CLOSING A FILE, FILE MODES, FILE POINTERS AND THEIR MANIPULATION, SEQUENTIAL INPUT AND OUTPUT OPERATIONS: UPDATING A FILE, RANDOM ACCESS, AND ERROR HANDLING DURING FILE OPERATIONS, COMMAND LINE ARGUMENTS.

BENEFITS OF LEARNING C++

C++ (OR "C-PLUS-PLUS") IS A GENERAL-PURPOSE PROGRAMMING AND CODING LANGUAGE. C++ IS USED IN DEVELOPING BROWSERS, OPERATING SYSTEMS, AND APPLICATIONS, AS WELL AS IN-GAME PROGRAMMING, SOFTWARE ENGINEERING, DATA STRUCTURES, ETC. ALMOST ALL THE PROGRAM SAND SYSTEMS THAT YOU USE OR A PART OF THEIR CODEBASE IS WRITTEN <u>EITHER IN C OR C++</u>, BE IT WINDOWS, A WEB BROWSER, YOUR FAVORITE GAME, OR A VIDEO EDITING SOFTWARE, THE USES OF C++ CAN BE FOUND IN ALMOST ALL APPLICATIONS TODAY.





JOB OPPORTUNITIES

IT SOFTWARE DEVELOPER II SOF WARE DEVELOPER SOFTWARE TOSIGNEER ECHNICAL SALES ENGINEER C++ DEVELOPER C++ DEVELOPER C(C++ SYSTEM PROGRAMMING MANAGER COMPUTER VISION/IMAGE PROCESSING EXPERT -C(C++ C/C++ C++ LANGUAGE TRAINER JAVA DEVELOPER WITH C++ R & D DEVELOPERNENT ENGINEER (C++ DEVELOPER) SENIOR MTS - (C++ DEVELOPER, BUILD SYSTEMS (MARKE, SCONS, BAZEL) CROSS LANGUAGE DEVELOPER WORDPRESS DEVELOPER APP DEVELOPER ANDROID APPLICATION DEVELOPER WE B BROWSER



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ENERGY GENERATION FROM WASTE

INTRODUCTION TO BIOFUELS

HYDROGEN PRODUCTION THROUGH THERMOCHEMICAL CONVERSION OF DRY BIOMASS BIOFTHANOL PRODUCTION FROM BIOMASS AND BIOMASS WASTE

BIODIESEL PRODUCTION FROM BIOMASS WASTE AND VEGETABLE OIL

METHODS USED FOR THE ANALYSIS OF THE ORGANIC AND INORGANIC CARBON CONTENT IN WASTE AND WASTEWATER:

- BIOTECHNOLOGICAL PROCESS FUNDAMENTAL AND PRINCIPLES OF THE KINETICS OF BIOLOGICAL REACTIONS:
- **BIOTECHNOLOGICAL PROCESSES DESIGN OF BIOLOGICAL REACTORS:**
- ANAEROBIC DIGESTION (FOR BIOGAS GENERATION):
- THE COUPLING OF THERMOCHEMICAL SYSTEMS WITH ANAEROBIC DIGESTION AND PHYSICAL AND CHEMICAL REMOVAL
 - OF CO2 FROM BIOGAS TO PRODUCE RENEWABLE NATURAL GAS:
 - BIOGAS UPGRADING TO BIOMETHANE: POWER-TO-GAS WITH EX-SITU BIOMETHANATION:
 - MICROBIAL CHAIN ELONGATION AND SYNGAS FERMENTATION AFTER GASIFICATION OF BIOMASS:

BENEFITS OF LEARNING ENERGY GENERATION FROM WASTE

THE COURSE DEALS WITH THE GENERATION OF ENERGY FROM DIFFERENT TYPES OF WASTES THROUGH THERMAL, BIOLOGICAL AND CHEMICAL ROUTES. IT IS INTENDED TO HELP THE YOUNG SCIENTIFIC PROFESSIONALS TO KEEP THEIR KNOWLEDGE UPGRADED WITH THE CURRENT THOUGHTS AND NEWER TECHNOLOGY OPTIONS ALONG WITH THEIR ADVANCES IN THE FIELD OF THE UTILIZATION OF DIFFERENT TYPES OF WASTES FOR ENERGY PRODUCTION. DUE TO FAST URBANIZATION AT A FASTER RATE VARIOUS SMALL TOWN CONVERTED IN TO BIG TOWN AND POPULATION IS INCREASING DAY BY DAY. BY INCREASE OF POPULATION PER CAPITA WASTE GENERATION IS INCREASING DAY BY DAY AND REQUIRES LOTS OF ATTENTION FOR MANAGING THE WASTE. ENERGY FROM WASTE IS NOT ONLY REDUCING WASTE VOLUME BUT ALSO DEVELOPMENT CLEAN ENVIRONMENT.



JOB OPPORTUNITIES

ENGINEER- WASTE AND PRODUCTS MANAGEMENT DISTRICT COODINATOR FULLSTACK DEVELOPER SENIOR/LEAD ENGINEER - WASTE WATER MODELING CHEMICAL PROCESS ENGINEER ENVIRONMENTAL ENGINEER WASTE MANAGEMENT TRAINER COUSULTANCE

WASTE MANAGEMENT TRAINER CONSULTANT ANALYST SUSTAINABILITY MANAGER RESEARCH ANALYST BUSINESS DEVELOPMENT MANAGER (ENERGY) ASSOCIATE RESEARCH ADVISOR PROGRAMME ASSOCIATE JUNIOR PROPOSAL ENGINEER (WATER & WASTEWATER DESIGN) GOV.DEPARTMENT JOBS RELATED TO ENERGY



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)



ENVIRONMENTAL POLLUTION

- DEFINITION , CAUSES, EFFECTS AND CONTROL MEASURES OF : A. AIR POLLUTION
- B. WATER POLLUTION(THERMAL AND MARINE POLLUTION)
- C. LAND POLLUTION
- D. RADIATION POLLUTION AND NUCLEAR HAZARD. E. NOISE POLLUTION
- SOLID WASTE MANAGEMENT: CAUSES, EFFECTS AND CONTROL MEASURES.
- GLOBAL WARMING AND THE GREENHOUSE EFFECT
- POLLUTION CONTROL, MONITORING AND MANAGEMENT



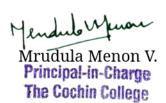
BENEFITS OF LEARNING ENVIRONMENTAL POLLUTION THE MSC IS IDEALLY SUITE FOR STUDENTS LOOKING TO GAIN A GRATER UNDERSTANDING OF ENVIRONMENTAL SCIENCE, SPECIFICALLY ISSUES RELATED TO POLLUTION AND REMEDIATION. STUDENTS WILL GAIN A WIDE APPRECIATION FOR THE IMPACT THAT DIFFERENT POLLUTANTS HAVE IN THE ENVIRONMENT, HOW THESE POLLUTANTS WOULD BE QUANTIFIED, AND STRATEGIES FOR THERE REMEDIATION. THIS PROGRAMME WILL SUIT STUDENTS LOOKING FOR CAREERS IN ENVIRONMENTAL CONSULTANCY, ENVIRONMENTAL ENGINEERING, THE ENVERONMENT SECULATORS. THE PROGRAMME IS ALSO SUITED FOR STUDENTS LOOKING TO UNDERTAKE A HIGHER DEGREE IN ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL POLLUTION ISSUES





JOB OPPORTUNITIES

JOB OPPORTUNITIES POLLUTION CONTROL OFFICER ASSISTANT MANAGER - ENVIRONMENT SENIOR PROJECT/RESEARCH ASSOCIATE (AIR QUALITY) PROGRAMME OFFICER FOR INDUSTRIAL POLLUTION PROGRAMME ENVIRONMENT ENGINEER SITE MONITORING ENGINEERS PROJECT EXECUTIVE ASSISTANT ENVIRONMENT ENGINEER AIR EMISSIONS EXPERT VEHICLE POLLUTION TESTER SALES MANAGER - AIR POLLUTION CONTROL HEAD - ENVIRONMENT MONITORING LABORATORY RESEARCH SCIENTIST DESIGN ENGINEER FOR AIR POLLUTION CONTROL AIR QUALITY DATA ANALYST







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• DISASTER MANAGEMENT

DEFINITION AND TYPES OF DISASTER HAZARDS AND DISASTERS, RISK AND VULNERABILITY IN DISASTERS, NATURAL AND MAN-MADE DISASTERS, EARTHQUAKES, FLOODS DROUGHT, LANDSIDE, LAND SUBSIDENCE, CYCLONES, VOLCANOES, TSUNAMI, AVALANCHES, GLOBAL CLIMATE EXTREMES. MAN-MADE DISASTERS: TERRORISM, GAS AND RADIATIONS LEAKS, TOXIC WASTE DISPOSAL, OIL SPILLS, FOREST FIRES.

STUDY OF IMPORTANT DISASTERS EARTHQUAKES AND ITS TYPES, MAGNITUDE AND INTENSITY, SEISMIC ZONES OF INDIA, MAJOR FAULT SYSTEMS OF INDIA PLATE, FLOOD TYPES AND ITS MANAGEMENT, DROUGHT TYPES AND ITS MANAGEMENT, LANDSIDE AND ITS MANAGEMENTS CASE STUDIES OF DISASTERS (E.G) EARTHQUAKES, LANDSIDE). SOCIAL ECONOMICS AND ENVIRONMENTAL IMPACT OF DISASTERS.

MITIGATION AND MANAGEMENT TECHNIQUES OF DISASTER BASIC PRINCIPLES OF DISASTERS MANAGEMENT, DISASTER MANAGEMENT CYCLE, DISASTER MANAGEMENT POLICY, NATIONAL AND STATE BODIES FOR DISASTER MANAGEMENT, EARLY WARMING SYSTEMS, BUILDING DESIGN AND CONSTRUCTION IN HIGHLY SEISMIC ZONES, RETROFITTING OF BUILDINGS.

BENEFITS OF LEARNING DISASTER MANAGEMENT

MILLIONS OF PEOPLE ARE AFFECTED BY DISASTERS EACH YEAR. EFFECTIVE DISASTER MANAGEMENT IS ESSENTIAL TO REDUCE SUFFERING AND SUPPORT THOSE AFFECTED.DISASTER MANAGEMENT CAN HELP TO ENHANCE THE ABILITY OF EMERGENCY RESPONDERS TO SAVE LIVES. WHEN APPROPRIATE INFRASTRUCTURE IS SET UP AND TRAINING IS COMPLETED TO INFROVE DISASTER RESPONSE, COMMUNITIES CAN SURVIVE THE STRESS AND DISTRESS CAUSED BY DISASTERS. DISASTERS AND EMERGENCIES HAVE BEEN INCREASING ALL OVER THE WORLD. TODAYS, WITH TECHNOLOGICAL ADVANCEMENT, ACQUIRING KNOWLEDGE AND IS SAPEICATION IN THE REALM OF ACTION IS REGARDED AS THE ONLY EFFECTIVE WAY FOR PREVENT DISASTERS OR REDUCING ITS EFFECTS.



JOB OPPORTUNITIES

METEOROLOGIST HAZARD ANALYST DISASTER RECOVERY MANAGER SENIOR PRODUCT MANAGER [BUSINESS CONTINUITY AND DISASTER RECOVERY, STORAGE] DISASTER RISK REDUCTION MANAGER FIRE & SAFETY MANAGER DISASTER SECURITY / PROTECION MANAGER SENIOR SPECIALISTS BACKUP ADMINISTRATOR ENTERPRISE RISK MANAGER INSTALLATION MANAGER DISASTER RECOVERY TSSTING PROFESSIONAL SAFETY EXECUTIVE FACILITY MANAGER DISASTER RECOVERY STAFF ENGINEER



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Brochure & Syllabus

Certificate/Value added courses offered during 2023-24





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VALUE ADDED COURSE

Department of Computer Application, The Cochin College.

ADBCA2312 : AI AND ROBOTICS

Duration: 30 Hours

Course Description:

This syllabus is designed to provide a well-rounded understanding of generative AI, combining theoretical knowledge with practical skills, while also addressing the ethical implications of working with such technologies.

Course Objectives:_

- To provide students with an understanding of the fundamental concepts of generative AI, including its principles, applications, and ethical considerations.
- To explore the different types of generative models, such as Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), and autoregressive models.
- To introduce the mathematical foundations underlying generative models, including probability theory, optimization techniques, and neural networks.
- To enable students to understand the key concepts of latent space, loss functions, and training dynamics in generative models.

Course Outline:

Module 1: Introduction to Generative AI (6 Hours)

- Overview of Generative AI and Its Applications
- Types of Generative Models: GANs, VAEs, Autoregressive Models
- Introduction to the Ethical Considerations in Generative AI
- Hands-on: Building a Simple Generative Model

Module 2: Mathematical Foundations (6 Hours)

- Probability Theory and Statistics for AI
- Optimization Techniques: Gradient Descent and Variants
- Neural Networks Basics: Feedforward, Convolutional, and Recurrent Networks



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Module 3: Deep Dive into Generative Adversarial Networks (GANs) (6 Hours)

- Understanding GAN Architecture: Generator and Discriminator
- Training GANs: Challenges and Solutions (Mode Collapse, Stability)
- Variants of GANs: DCGAN, WGAN, StyleGAN

Module 4: Advanced Generative Models (6 Hours)

- Variational Autoencoders (VAEs): Theory and Applications
- Autoregressive Models: Pixel, CNN, WaveNet
- Transformer Models for Generative Tasks: GPT, BERT for Text Generation

Module 5: Ethical Considerations and Cutting-edge Research (6 Hours)

- Bias and Fairness in Generative AI
- Deepfakes and Misinformation: Risks and Mitigation Strategies
- Exploring Cutting-edge Research: Diffusion Models, Reinforcement Learning

Assessment of Outcomes:

- Quizzes and assignments (40%)

- Project development and implementation (30%)
- Final exam (30%)

Reference Books

- "Generative Deep Learning: Teaching Machines to Paint, Write, Compose, and Play" by David Foster.
- "Deep Learning with Python" by François Chollet.

Tools and Platforms:

- Kali Linux



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VALUE ADDED COURSE

TECHBYHEART

CYBER FORENSIC AND DATA SECURITY

Duration: 30 Hours

Course Description:

This syllabus is designed to provide a robust understanding of both cyber forensic techniques and data security practices, preparing students for advanced roles in the industry.

Course Objectives:

- To provide an understanding of the principles and methodologies used in cyber forensics.
- To introduce the legal and ethical aspects of cyber forensics and digital evidence handling.
- To provide students with a comprehensive understanding of data security principles, including encryption, access control, and data integrity.
- To explore various types of data breaches and the methods used to secure data in transit and at rest.

Course Outline:

Module 1: Introduction to Cyber Forensics (6 Hours)

- Overview of Cyber Forensics
- Types of Cyber Crimes and Legal Framework
- Digital Evidence: Collection, Preservation, and Analysis
- Introduction to Forensic Tools and Software

Module 2: Digital Evidence and Forensic Tools (6 Hours)

- Digital Evidence Acquisition and Imaging Techniques
- File Systems and Data Recovery Methods
- Network Forensics: Analyzing Network Traffic and Logs
- Forensic Analysis of Mobile Devices



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Module 3: Fundamentals of Data Security (6 Hours)

- Introduction to Data Security: Concepts and Importance
- Cryptography and Encryption Techniques
- Access Control and Authentication Methods
- Data Integrity and Non-Repudiation

Module 4: Advanced Data Security Techniques (6 Hours)

- Securing Data at Rest and in Transit
- Database Security: Securing Structured and Unstructured Data
- Data Breach Detection and Prevention Techniques
- Incident Response and Handling Data Breaches

Module 5: Integration of Cyber Forensics and Data Security (6 Hours)

- Investigating Data Breaches Using Forensic Techniques
- Legal and Ethical Considerations in Cyber Forensics and Data Security
- Reporting and Presenting Forensic Findings

Assessment of Outcome

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

Reference

- "Computer Forensics: Cybercriminals, Laws, and Evidence" by Marie-Helen Maras.
- "Incident Response & Computer Forensics" by Jason T. Luttgens, Matthew Pepe, and Kevin Mandia.



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Syllabus for add on course in Canadian Literature 2022-23

Fiction:

- 1. Margaret Atwood: The Handmaid's Tale
- 2. Miriam Towes: A Complicated Kindness
- 3. Lucy Maud Montgomery: Anne of Green Gables
- 4. Joseph Boyden: The Orenda
- 5. Anne Michaels: Fugitive Pieces
- 6. Lawrence Hill: The Book of Negroes

Poetry:

- 1. Michael Ondaatje: " (Inner Tube)"
- 2. Charles G. D. Roberts: "The Solitary Woodsman"
- 3. James Reaney: "The Windyard"
- 4. George Eliott Clarke: "The Ballad of Othello Clemence"
- 5. Louise Bernice Halfe: "Finding Bone"
- 6. Rupi Kaur: " Emptying out of My Mother's Belly"

Plays:

- 1. George Luscombe: Ten Lost Years
- 2. Judith Thompson: The Crackwalker
- 3. Tomson Highway: Dry Lips Oughta Move to Kapuskasing
- 4. Lorea Gale: Angelique
- 5. Trey Anthony: Da Kink in My Hair
- 6. David Freeman: Creeps

Reading List:

- 1. The Cambridge History of Canadian Literature(2013). Coral Anne Howells
- 2. History of Canadian Literature. (2011) P.K. Sinha
- 3. The Routledge Concise History of Canadian Literature



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)



ENVIRONMENTAL POLLUTION

- DEFINITION , CAUSES, EFFECTS AND CONTROL MEASURES OF : A. AIR POLLUTION
- B. WATER POLLUTION(THERMAL AND MARINE POLLUTION)
- C. LAND POLLUTION
- D. RADIATION POLLUTION AND NUCLEAR HAZARD. E. NOISE POLLUTION
- SOLID WASTE MANAGEMENT: CAUSES, EFFECTS AND CONTROL MEASURES.
- GLOBAL WARMING AND THE GREENHOUSE EFFECT
- POLLUTION CONTROL, MONITORING AND MANAGEMENT



BENEFITS OF LEARNING ENVIRONMENTAL POLLUTION THE MSC IS IDEALLY SUITE FOR STUDENTS LOOKING TO GAIN A GRATER UNDERSTANDING OF ENVIRONMENTAL SCIENCE, SPECIFICALLY ISSUES RELATED TO POLLUTION AND REMEDIATION. STUDENTS WILL GAIN A WIDE APPRECIATION FOR THE IMPACT THAT DIFFERENT POLLUTANTS HAVE IN THE ENVIRONMENT, HOW THESE POLLUTANTS WOULD BE QUANTIFIED, AND STRATEGIES FOR THERE REMEDIATION. THIS PROGRAMME WILL SUIT STUDENTS LOOKING FOR CAREERS IN ENVIRONMENTAL CONSULTANCY, ENVIRONMENTAL ENGINEERING, THE ENVERONMENT SECULATORS. THE PROGRAMME IS ALSO SUITED FOR STUDENTS LOOKING TO UNDERTAKE A HIGHER DEGREE IN ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL POLLUTION ISSUES





JOB OPPORTUNITIES

JOB OPPORTUNITIES POLLUTION CONTROL OFFICER ASSISTANT MANAGER - ENVIRONMENT SENIOR PROJECT/RESEARCH ASSOCIATE (AIR QUALITY) PROGRAMME OFFICER FOR INDUSTRIAL POLLUTION PROGRAMME ENVIRONMENT ENGINEER SITE MONITORING ENGINEERS PROJECT EXECUTIVE ASSISTANT ENVIRONMENT ENGINEER AIR EMISSIONS EXPERT VEHICLE POLLUTION TESTER SALES MANAGER - AIR POLLUTION CONTROL HEAD - ENVIRONMENT MONITORING LABORATORY RESEARCH SCIENTIST DESIGN ENGINEER FOR AIR POLLUTION CONTROL AIR QUALITY DATA ANALYST



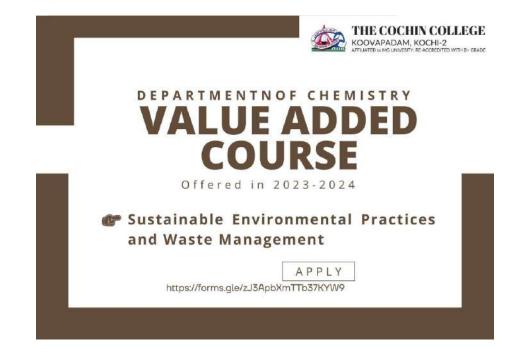




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DEPARTMENT OF CHEMISTRY

(Add on Course Syllabus for UG students)

Course Title: Sustainable Environmental Practices and Waste Management

Course Objective:

- 1. This course provides undergraduate graduate students with comprehensive insights into environmental sustainability and waste management.
- It emphasizes the role of individuals in protecting the environment and promoting sustainable practices. Students will explore various environmental issues, ecosystem balance, and the impact of human activities on the environment.
- 3. The course covers waste management concepts, the 3 R system (Reduce, Reuse, and Recycle), and the responsible handling of different types of waste

Course outcome

By the end of the course, students will have a comprehensive understanding of environmental issues, the significance of waste management, and practical strategies for promoting sustainability in their personal and professional lives.

Unit I: Understanding Environmental Sustainability

Introduction to environmental ecosystems and their significance, The importance of a balanced ecosystem for human well-being, Human activities and their effects on the environment, Promoting public awareness for environmental protection,

Unit II: Biodiversity Conservation and Restoration

Exploring the value of biodiversity in maintaining ecological balance, The impact of economic activities on ecology and biodiversity, Strategies for ecosystem restoration and biodiversity conservation.

Unit III: Waste Management and Environmental Pollution

Introduction to waste management and its relevance, Sources and types of environmental pollution. Managing liquid waste and its environmental implications, Safe handling of hazardous and toxic waste, Environmental considerations for biomedical, chemical, and nuclear waste, Environmental impact of ship breaking and pollution from industries.

Unit IV: The 3 R System and Waste Reduction

Understanding the principles of the 3 R system (Reduce, Reuse, Recycle

Practical sessions: Implementing the 3 R system at home and institution.



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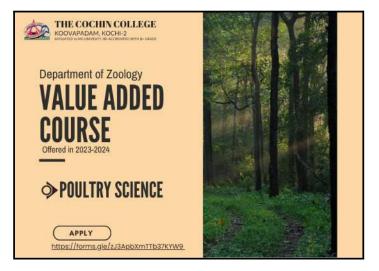
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Brochure and Syllabus 2023-24





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ADZOO2309 : Poultry Science

30 Hrs

Course Outcomes

CO1 Familiarise with poultry nutrition and physiology CO2 Acquaint with Poultry Health management

CO3 Choose poultry as an employment source

Unit -I: Poultry Nutrition and Physiology (10 hours)

1.1 Essential amino acids, proteins, fatty acids, vitamins and minerals in their

inter-relationships.

1.2 Functional regulation of digestion, absorption and metabolism of nutrients.

1.3 Feed formulation for different species and groups

1.4 Different systems of feeding wet mash, dry mash, crumble and pellet feeding. Feed Passage rate

in G.I. tract in relation to digestion and absorption efficiency;

1.5 Characteristics features of endocrine glands. Endocrine control and variable factors influencing

growth process

Unit II: Poultry Products technology (10 hours)

2.1 Structure, chemical composition and nutritive value of egg.

2.2 Various measures of egg quality. Shell, albumen and yolk quality assessment.

- 2.3 Factors influencing egg quality traits. Mechanism of deterioration of egg quality.
- 2.4 Different methods of preservation of table eggs and their relative merits and demerits.

2.5 Physical, chemicals, microbial and organoleptic evaluation of meat quality

Unit III: Poultry Health Management (10 hours)

3.1 Common diseases of poultry – bacterial, viral, fungal, protozoan, parasitic and other emerging

diseases of poultry, their prevention, control and treatment.

3.2 Metabolic and nutrient deficiency diseases and disorders.

3.3 Vaccination programmes and Deworming programmes.

- 3.4 Control of coccidiosis, worms, ectoparasites and flies. Medication procedures.
- 3.5 Cleaning and disinfection of poultry houses. Drinking water sanitation

References

1. Shukla G.S, & Updhyay V.B, Economic zoology ,Rastogi Publ. Meerut.

2. Pradip.V.Jabde , Text book of applied zoology, 2005

3. Applied Zoology, Study Material Zoological Society of Kerala , CMS college 4. Chauhan, H.V.S. Poultry, Disease, diagnosis and treatment, Wiley eastern

Ltd Delhi.



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (120 HRS)

LOGISTICS

LOGISTICS INDIAN MARITME SECURTY GENERAL MARITME CLAIMS TOWAGE AND PILOTAGE SUPPLIES, REPAINS AND DOCK CHARGES BOTTOMYIADMIRALTY / MARITME LAW IMPORTANCE, SOFT AND SIGNIFICANCE IMPORTANCE, SOFT AND SIGNIFICANCE COMMERCIAL INVOICE CERTIFICATES PACKING LIST EXPORT/ IMPORT CUSTOMS DECLARATIONS BILLS OF LADING TRANSPORT DOCUMENT BILLS OF TIRY BILLS OF ENTRY DOCUMENTS FOR EXPORT AND IMPORT LETTER OF CREDIT MARINE INSURANCE MARINE INSURANCE PRINCIPLES OF MARINE INSURANCE MARINE INSURANCE POLICIES IN INDIA SCOPE OF MARINE INSURANCE COASTAL SECURITY IN INDIA CASES, ANALYSIS AND STUDIES SUPPLY CHAIN MANAGEMENT PROCUREMENT PROCESS SUPPLIER RELATIONSHIP MANAGEMENT AND CUSTOMER RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT PLANNING MATERIAL REQUIREMENT PLANNING SUPPLY CHAIN PARTNERS OGISTICS MANAGEMENT (WAREHOUSING AND TRANSPORTATION) LOGISTICS MANAGEMENT INTRO-TERMS WAREHOUSING WAREHOUSE OPERATIONAL PRINCIPLES

LWAREHOUSE DESIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS PORT AND DOCKS CONTAINER TERMINAL OPERATION AND CARGO HANDLING CONTAINER TERMINAL OPERATION AND CARGO HA PORT MANAGEMENT VESSEL ENTRY AND CLEARANCE PROCEDURES PORT OPERATIONS FOR INCOMING VESSELS CONTAINER SHIP SAFE CARGOOPERATIONS DEPLOYMENT AND MONITORING OF MOORING INSTRUCTION FOR DECK WATCH KEEPING IN PORT TYPES OF SHIPPING CONTAINERS CONTAINERS TOWAGE ON CONTAINERS SHIP MANNING ROTOWAGE ON CONTAINERS SHIP HANDLING DANGEROUS CARGO, BREAK BULK, AND -OOG CARGO HANDLING OF REEFER CONTAINERS OPERATION OF OIL TANKERS ODE CAREO VIALUE CARLOS FREERE CONTAINERS OPERATION OF OU L'ANILO GE FREERE CONTAINERS DEVINCERING. TRANSSIMPARENT, CONTAINER CRANE, AND CSI 15. POPRT DISSUSSEMINT OPERATION TERMS AND ABBREVIATIONS GEOGRAPHY STRUCTURE OF SHIPS TYPES OF SHIPS TYPES OF CARCO CONTAINEET CARCOMMENTINE ORGANISATION CONTAINEET CARCOMMENT INTERNATIONAL SHIPPING MARKET MARINE SALVAGE CHARTENING CONTAINEET AND TRANS CONTAINEET MANACE BAR HIGH LINE SALVAGE CHARTENING CONTAINEET MANACEMENT COTA QUALITY MANACEMENT CRM CRM STRATEGIC SALES PLANNING FOR SMALL BUSINESS ENTERPRISE RESOURCE MANAGEMENT MANAGEMENT INFORMATION SYSTEM



REVERSE LOGISTICS MATERIAL REQUIREMENT PLANNING THEORY OF CONSTRAINTS LOGISTICS MANAGEMENT WAREHOUSE OPERATION PRINCIPLES WAREHOUSE OSIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS SUPPLY CHAIN MANAGEMENT MANAGEMENT AND CUSTOMER RELATIONSHIP RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT FLANNING SUPPLY CHAIN PARTNERS

BENEFITS OF LEARNING LOGISTICS

- YOU CAN FIND STEADY WORK IN SEVERAL INDUSTRIES.
- INTERNATIONAL WORK OPPORTUNITIES
- ACCORDING TO THE <u>BUREAU OF LABOR STATISTICS</u> (BLS) THE JOB OUTLOOK FOR LOGISTICIANS IS POSITIVE
- THE MEDIAN ANNUAL WAGE FOR LOGISTICIANS IS <u>
 576,270</u>, ACCORDING TO RESEARCH PROVIDED BY THE BLS IN MAY 2020
- SEVERAL MANAGEMENT OPPORTUNITIES THROUGHOUT YOUR CAREER
- JOB OPPORTUNITIES PURCHASING MANAGER OPERATIONS MANAGEMENT PROCUREMENT SPECIALIST PRODUCTION PLANNER BUSSINESS ANALYST COMMODITIES MANAGER BUSSINESS ANALTSI COMMODITIS MANAGER INVENTORY SPECIALIST VENDOR MANAGER INVENTORY CONTROLLER WARHOUSE OPERATIONS KONANAGER LOGISTICS CONSULTANT LOGISTICS CONSULTANT LOGISTICS MANAGER BUSSINESS LOGISTICS MANAGER SUPPLY CHAIN MANAGER DISTRIBUTION MANAGER MATERIALS MANAGER PROCUREMENT MANAGER MATERIALS MANAGER PROCUREMENT MANAGER CARGO MANAGER CUSTOMER SERVICE MANAGER PROCESS ASSOCIATE CONSULTANT LOGISTICS ENGINEER



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1000 We are the future of vour career



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ADD-ON COURSE

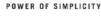
ADD-ON COURSE SYLLABUS (30 HRS)

TALLY

BASIC ACCOUNTING - JOURNAL ENTRY FUNDAMENTALS OF TALLY. ACCOUNTING MASTERS IN TALLY. COMPANY CREATION ACCOUNTING AND INVENTORY MASTERS VOUCHER ENTRY IN TALLY. PURCHASE AND SALES MANAGEMENT ORDER PROCESSING INVENTORY MANAGEMENT WAREHOUSE MANAGEMENT BANKING MANUFACTURING PROCESS COST CENTERS STATUTORY TAXATION - BUDGET VARIANCE CHEQUE PRINTING BACK AND RESTORE SECURITY SYSTEM SPLIT COMPANY DATA REPORT PRINTING. GOODS AND SERVICES TAX (GST) BANK RECONCILIATION BACK UP & RESTORE EXPORT-IMPORT



SPLITTING OF COMPANY DATA JOB COSTING TAX DEDUCTED AT SOURCE TAX COLLECTED AT SOURCE PAYROLL ACCOUNTING AND COMPLIANCE TECHNOLOGICAL ADVANTAGES OF TALLY APPLICATION MANAGEMENT AND CONTROLS GST



BENEFITS OF LEARNING TALLY

ONE OF THE FIRST TALLY COURSE BENEFITS IS THE ACCURACY OF INFORMATION. AFTER BEING ENTERED INTO TALLY PRIME, YOUR DATA IS UNLIKELY TO BE LOST FOR ANY ILLIMITABLE REASONS

THE SECOND ONE AMONG THE TALLY COURSE BENEFITS IS INFORMATION ASSURANCE. ONCE THE DATA IS STORED INSIDE THE SOFTWARE PACKAGE, THERE IS NOT EVEN THE TINIEST POSSIBILITY OF DATA ALTERING

HELPS TO MAINTAIN THE TRUST AND CONFIDENCE THAT ARE ESSENTIAL TO THE ACCOUNTING SECTOR

THE FOURTH TALLY COURSE BENEFITS ARE THE USER-FRIENDLY EXPERIENCE.

THE FIFTH TALLY COURSE BENEFITS ARE UNCOMPLICATED DATA MOVEMENT

PROVIDING FILING ASSISTANCE FOR GST MAKING BUSINESS EASY WITH TALLY

JOB OPPORTUNITIES

Accountants Officer Executive Assistant Accounting Clerk Accounting Associate Accounts Assistant Accounts Executive Accounts Supervisor Accounts Executive Accounts Supervisor Tally Operator Tally Accounts Manager Tally Accounts Executive Service Coordinate with Tally Tally Junior Accountant Tax Accountant Bookkeeper Jinvestment Banker Financial Tally Analyst







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IELTS

LISTENING

PRACTISING ALL QUESTION TYPES. (MONOLOGUES, DIALOGUE, CONVERSATION) RECOGNISING INTONATION PATTERNS (QUESTIONS, SURPRISE ETC) VARIETIES OF SPOKEN ENGLISH, INCLUDING AUSTRALIAN, BRITISH, NORTH AMERICAN AND NEW ZEALAND LISTENING FOR SPECIFIC INFORMATION, KEYWORDS, GENERAL INFORMATION, NUMBERS, TRANSITION SIGNALS AND DISCOURSE MARKERS (FIRSTLY, SECONDLY, OBVIOUSLY, FURTHERMORE, INDEED].

L

PRACTISING 3 SECTION OF READING TESTS. SKIMMING (TO GET A GENERAL UNDERSTANDING) SCANNING (LOOKING FOR SPECIFIC INFORMATION) DEVELOPING VOCABULARY SUMMARISING DETERMINING THE WRITER'S ATTITUDE AND OPINION.

ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)

PRACTISING ESSAY , GRAPH / DIAGRAM DESCRIPTION. ADJUSTING STYLE ACCORDING TO PURPOSE. WRITING PARAGRAPHS, INTRODUCTIONS AND CONCLUSIONS. USING CONJUNCTIONS AND REFERENTS. ORGANISING INFORMATION LOGICALLY WITHIN A TEXT. USING EXAMPLES AND EVIDENCE TO SUPPORT AN ARGUMENT.





PRACTISING ALL OUESTION TYPES PRACTISING ALL QUESTION TYPES. PRACTISING PRONUNCIATION AND INTONATION. PRACTISING FLUENCY. USING AND UNDERSTANDING COMMON PHRASES. INTERACTING WITH OTHER SPEAKERS. SPEAKING FOR AN EXTENDED TIME ON A PARTICULAR TOPIC. PRACTICE HOW TO DEVELOP A CONTENT

BENEFITS OF LEARNING

TELTS BEING ABLE TO COMMUNICATE IN ENGLISH CONNECTS YOU TO A LANGER WORLD. CURRENTLY, ABOUT 20% OF THE WORLD'S POPULATION SPACE SNOLSKA, ALTHOUGH MOST AREN'T NATIVE SPEAKERS. EINGLISH IS ALSO THE WORLD'S MOST-STUDIEF ORGING LANGLAGE. WITH SO MANY PEOPLE STUDYING AND LEARNING ENGLISH, PROFILENCY EXAMISE IKE IELTS HELP ADMISSIONS OFFICERS AND PROSPECTIVE EMPLOYERS TO GET AN ACCURATE PICTURE OF YOUR CURRENT ENGLISH LEVEL.

TAKING THE IELTS TEST CAN ENHANCE YOUR TAKING THE IELTS TEST CAN ENHANCE YOUR EMPLOYMENT PROSPECTS EXCELLENT COMMUNICATION SKILLS ARE ESSENTIAL THESE DAYS AS FIFTY-FIVE COUNTRIES HAVE ENGLISH AS THEIR FIRST LANGUAGE. DEMONSTRATING A GOOD COMMAND OF THE LANGUAGE COULD OPEN UP OPTIONS FOR YOU TO PURSUE A CAREER IN A FOREIGN COUNTRY

THE PROCESS OF PREPARING TO TAKE THE IELTS TEST WILL SIGNIFICANTLY IMPROVE YOUR ENGLISH SKILLS

IF YOU'RE TAKING IELTS ACADEMIC TO GET INTO YOUR DREAM UNIVERSITY, THE PROCESS OF STUDYING FOR THE EXAM WILL HELP YOU PREPARE FOR ACADEMIC LIFE

PROVING YOUR ENGLISH LANGUAGE SKILLS CAN HELF YOU GET A NEW JOB OR A PROMOTION IN YOUR HOME COUNTRY AND ABROAD, YOUR IELTS SCORE ON YOUR RESUME WILL SHOW FUTURE EMPLOYERS THAT YOU ARE A SERIOUS AND COMMITTEO CANDIDATE.

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ELEMENTS OF PROGRAMMING AND FUNCTION INTRODUCTION: BASIC ELEMENTS OF PROGRAMMING, CONSOLE I/O OPERATIONS, FUNCTION: FUNCTION PROTOTYPING, CALL AND RETURN BY REFERENCE, INLINE FUNCTION, DEFAULT AND CONST ARGUMENTS, FUNCTION OVERLOADING, ARRAYS, MANIPULATORS AND ENUMERATION.

CLASSES AND OBJECT OBJECT ORIENTED METHODOLOGY: BASIC CONCEPTS/CHARACTERISTICS OF OOP. ADVANTAGES AND APPLICATION OF OOPS, PROCEDURAL PROGRAMMING VS OOP. CLASSES AND OBJECTS:SPECIFYING A CLASS, CREATING OBJECTS, PRIVARE & PUBLIC DATA MEMBERS AND MEMBER FUNCTIONS, DEFINING INLINE MEMBER FUNCTIONS, STATIC DATA MEMBERS AND MEMBER FUNCTIONS. ARRAYS WITHIN CLASS, ARRAYS OF OBJECTS, OBJECTS AS FUNCTION ARGUMENTS, RETURNING OBJECTS.

CONSTRUCTORS, DESTRUCTORS, OPERATORS OVERLOADING AND INHERITANCE. CONSTRUCTORS AND DESTRUCTORS: INTRODUCTION, PARAMETERIZED CONSTRUCTORS, MULTIPLE CONSTRUCTORS IN A CLASS, CONSTRUCTORS WITH DEFAULT ARGUMENTS, DYNAMIC INITIALIZATION OF OBJECTS, COPY CONSTRUCTORS, DYNAMIC CONSTRUCTORS, CONST OBJECTS, DESTRUCTORS OPERATORS OVERLOADING: DEFINITION, UNARY AND BINARY OVERLOADING, RULES FOR OPERATOR OVERLOADING. INHERITANCE: DEFINING DERIVED CLASSES, TYPES OF INHERITANCE, CONSTRUCTORS AND DESTRUCTORS IN DERIVED CLASSES.

POINTERS VIRTUAL & FRIEND FUNCTIONS AND FILE HANDLING POINTERS: POINTER TO OBJECTS, THIS POINTER, "NEW" AND "DELETE" OPERATORS, VIRTUAL FUNCTION, REIEND FUNCTIONS. OPENING, CLOSING A FILE, FILE MODES, FILE POINTERS AND THEIR MANIPULATION, SEQUENTIAL INPUT AND OUTPUT OPERATIONS: UPDATING A FILE, RANDOM ACCESS, AND ERROR HANDLING DURING FILE OPERATIONS, COMMAND LINE ARGUMENTS.

BENEFITS OF LEARNING C++

C++ (OR "C-PLUS-PLUS") IS A GENERAL-PURPOSE PROGRAMMING AND CODING LANGUAGE. C++ IS USED IN DEVELOPING BROWSERS, OPERATING SYSTEMS, AND APPLICATIONS, AS WELL AS IN-GAME PROGRAMMING, SOFTWARE ENGINEERING, DATA STRUCTURES, ETC. ALMOST ALL THE PROGRAM SAND SYSTEMS THAT YOU USE OR A PART OF THEIR CODEBASE IS WRITTEN <u>EITHER IN C OR C++</u>, BE IT WINDOWS, A WEB BROWSER, YOUR FAVORITE GAME, OR A VIDEO EDITING SOFTWARE, THE USES OF C++ CAN BE FOUND IN ALMOST ALL APPLICATIONS TODAY.





JOB OPPORTUNITIES

IT SOFTWARE DEVELOPER SOFTWARE ENGINEER SOFTWARE TEST ENGINEER TECHNICAL SALES ENGINEER (-+ DEVELOPER TYPESCRIPT,CSS,C++ DEVELOPER (C++ SYSTEM PROGRAMMING MANAGER COMPUTER VISION/IMAGE PROCESSING EXPERT -C/C++ C++ LANGUAGE TRAINER JAVA DEVELOPER WITH (-+ R & D DEVELOPER WITH (-+ R & D DEVELOPER WITH (-+) SENIOR MTS - (-+) DEVELOPER, BUILD SYSTEMS (MAKE, SCONS, BAZEL) CROSS LANGUAGE DEVELOPER WORDPRESS DEVELOPER APD DEVELOPER ANDROID APPLICATION DEVELOPER WEB BROWSER



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ENERGY GENERATION FROM WASTE

INTRODUCTION TO BIOFUELS

HYDROGEN PRODUCTION THROUGH THERMOCHEMICAL CONVERSION OF DRY BIOMASS BIOFTHANOL PRODUCTION FROM BIOMASS AND BIOMASS WASTE

BIODIESEL PRODUCTION FROM BIOMASS WASTE AND VEGETABLE OIL

METHODS USED FOR THE ANALYSIS OF THE ORGANIC AND INORGANIC CARBON CONTENT IN WASTE AND WASTEWATER:

- BIOTECHNOLOGICAL PROCESS FUNDAMENTAL AND PRINCIPLES OF THE KINETICS OF BIOLOGICAL REACTIONS:
- **BIOTECHNOLOGICAL PROCESSES DESIGN OF BIOLOGICAL REACTORS:**
- ANAEROBIC DIGESTION (FOR BIOGAS GENERATION):
- THE COUPLING OF THERMOCHEMICAL SYSTEMS WITH ANAEROBIC DIGESTION AND PHYSICAL AND CHEMICAL REMOVAL
 - OF CO2 FROM BIOGAS TO PRODUCE RENEWABLE NATURAL GAS:
 - BIOGAS UPGRADING TO BIOMETHANE: POWER-TO-GAS WITH EX-SITU BIOMETHANATION:
 - MICROBIAL CHAIN ELONGATION AND SYNGAS FERMENTATION AFTER GASIFICATION OF BIOMASS:

BENEFITS OF LEARNING ENERGY GENERATION FROM WASTE

THE COURSE DEALS WITH THE GENERATION OF ENERGY FROM DIFFERENT TYPES OF WASTES THROUGH THERMAL, BIOLOGICAL AND CHEMICAL ROUTES. IT IS INTENDED TO HELP THE YOUNG SCIENTIFIC PROFESSIONALS TO KEEP THEIR KNOWLEDGE UPGRADED WITH THE CURRENT THOUGHTS AND NEWER TECHNOLOGY OPTIONS ALONG WITH THEIR ADVANCES IN THE FIELD OF THE UTILIZATION OF DIFFERENT TYPES OF WASTES FOR ENERGY PRODUCTION. DUE TO FAST URBANIZATION AT A FASTER RATE VARIOUS SMALL TOWN CONVERTED IN TO BIG TOWN AND POPULATION IS INCREASING DAY BY DAY. BY INCREASE OF POPULATION PER CAPITA WASTE GENERATION IS INCREASING DAY BY DAY AND REQUIRES LOTS OF ATTENTION FOR MANAGING THE WASTE. ENERGY FROM WASTE IS NOT ONLY REDUCING WASTE VOLUME BUT ALSO DEVELOPMENT CLEAN ENVIRONMENT.



JOB OPPORTUNITIES

ENGINEER- WASTE AND PRODUCTS MANAGEMENT DISTRICT COODINATOR FULLSTACK DEVELOPER SENIOR/LEAD ENGINEER - WASTE WATER MODELING CHEMICAL PROCESS ENGINEER ENVIRONMENTAL ENGINEER WASTE MANAGEMENT TRAINER CONSULTANCE

WASTE MANAGEMENT TRAINER CONSULTANT ANALYST SUSTAINABILITY MANAGER RESEARCH ANALYST BUSINESS DEVELOPMENT MANAGER (ENERGY) ASSOCIATE RESEARCH ADVISOR PROGRAMME ASSOCIATE JUNIOR PROPOSAL ENGINEER (WATER & WASTEWATER DESIGN) GOV.DEPARTMENT JOBS RELATED TO ENERGY



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)



ENVIRONMENTAL POLLUTION

- DEFINITION , CAUSES, EFFECTS AND CONTROL MEASURES OF : A. AIR POLLUTION
- B. WATER POLLUTION(THERMAL AND MARINE POLLUTION)
- C. LAND POLLUTION
- D. RADIATION POLLUTION AND NUCLEAR HAZARD. E. NOISE POLLUTION
- SOLID WASTE MANAGEMENT: CAUSES, EFFECTS AND CONTROL MEASURES.
- GLOBAL WARMING AND THE GREENHOUSE EFFECT
- POLLUTION CONTROL, MONITORING AND MANAGEMENT



BENEFITS OF LEARNING ENVIRONMENTAL POLLUTION THE MSC IS IDEALLY SUITE FOR STUDENTS LOOKING TO GAIN A GRATER UNDERSTANDING OF ENVIRONMENTAL SCIENCE, SPECIFICALLY ISSUES RELATED TO POLLUTION AND REMEDIATION. STUDENTS WILL GAIN A WIDE APPRECIATION FOR THE IMPACT THAT DIFFERENT POLLUTANTS HAVE IN THE ENVIRONMENT, HOW THESE POLLUTANTS WOULD BE QUANTIFIED, AND STRATEGIES FOR THERE REMEDIATION. THIS PROGRAMME WILL SUIT STUDENTS LOOKING FOR CAREERS IN ENVIRONMENTAL CONSULTANCY, ENVIRONMENTAL ENGINEERING, THE ENVERONMENT SECULATORS. THE PROGRAMME IS ALSO SUITED FOR STUDENTS LOOKING TO UNDERTAKE A HIGHER DEGREE IN ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL POLLUTION ISSUES



Cochin



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JOB OPPORTUNITIES

JOB OPPORTUNITIES POLLUTION CONTROL OFFICER ASSISTANT MANAGER - ENVIRONMENT SENIOR PROJECT/RESEARCH ASSOCIATE (AIR QUALITY) PROGRAMME OFFICER FOR INDUSTRIAL POLLUTION PROGRAMME ENVIRONMENT ENGINEER SITE MONITORING ENGINEERS PROJECT EXECUTIVE ASSISTANT ENVIRONMENT ENGINEER AIR EMISSIONS EXPERT VEHICLE POLLUTION TESTER SALES MANAGER - AIR POLLUTION CONTROL HEAD - ENVIRONMENT MONITORING LABORATORY RESEARCH SCIENTIST DESIGN ENGINEER FOR AIR POLLUTION CONTROL AIR QUALITY DATA ANALYST



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• DISASTER MANAGEMENT

DEFINITION AND TYPES OF DISASTER HAZARDS AND DISASTERS, RISK AND VULNERABILITY IN DISASTERS, NATURAL AND MAN-MADE DISASTERS, EARTHQUAKES, FLOODS DROUGHT, LANDSIDE, LAND SUBSIDENCE, CYCLONES, VOLCANOES, TSUNAMI, AVALANCHES, GLOBAL CLIMATE EXTREMES. MAN-MADE DISASTERS: TERRORISM, GAS AND RADIATIONS LEAKS, TOXIC WASTE DISPOSAL, OIL SPILLS, FOREST FIRES.

STUDY OF IMPORTANT DISASTERS EARTHQUAKES AND ITS TYPES, MAGNITUDE AND INTENSITY, SEISMIC ZONES OF INDIA, MAJOR FAULT SYSTEMS OF INDIA PLATE, FLOOD TYPES AND ITS MANAGEMENT, DROUGHT TYPES AND ITS MANAGEMENT, LANDSIDE AND ITS MANAGEMENTS CASE STUDIES OF DISASTERS (E.G) EARTHQUAKES, LANDSIDE). SOCIAL ECONOMICS AND ENVIRONMENTAL IMPACT OF DISASTERS.

MITIGATION AND MANAGEMENT TECHNIQUES OF DISASTER BASIC PRINCIPLES OF DISASTERS MANAGEMENT, DISASTER MANAGEMENT CYCLE, DISASTER MANAGEMENT POLICY, NATIONAL AND STATE BODIES FOR DISASTER MANAGEMENT, EARLY WARMING SYSTEMS, BUILDING DESIGN AND CONSTRUCTION IN HIGHLY SEISMIC ZONES, RETROFITTING OF BUILDINGS.

BENEFITS OF LEARNING DISASTER MANAGEMENT

MILLIONS OF PEOPLE ARE AFFECTED BY DISASTERS EACH YEAR. EFFECTIVE DISASTER MANAGEMENT IS ESSENTIAL TO REDUCE SUFFERING AND SUPPORT THOSE AFFECTED.DISASTER MANAGEMENT CAN HELP TO ENHANCE THE ABILITY OF EMERGENCY RESPONDERS TO SAVE LIVES. WHEN APPROPRIATE INFRASTRUCTURE IS SET UP AND TRAINING IS COMPLETED TO INFROVE DISASTER RESPONSE, COMMUNITIES CAN SURVIVE THE STRESS AND DISTRESS CAUSED BY DISASTERS. DISASTERS AND EMERGENCIES HAVE BEEN INCREASING ALL OVER THE WORLD. TODAYS, WITH TECHNOLOGICAL ADVANCEMENT, ACQUIRING KNOWLEDGE AND IS SAPEICATION IN THE REALM OF ACTION IS REGARDED AS THE ONLY EFFECTIVE WAY FOR PREVENT DISASTERS OR REDUCING ITS EFFECTS.



JOB OPPORTUNITIES

METEOROLOGIST HAZARD ANALYST DISASTER RECOVERY MANAGER SENIOR PRODUCT MANAGER [BUSINESS CONTINUITY AND DISASTER RECOVERY, STORAGE] DISASTER RISK REDUCTION MANAGER FIRE & SAFETY MANAGER DISASTER SECURITY / PROTECION MANAGER SENIOR SPECIALISTS BACKUP ADMINISTATOR ENTERPRISE RISK MANAGER INSTALLATION MANAGER INSTALLATION MANAGER DISASTER RECOVERY TSSTING PROFESSIONAL SAFETY EXECUTIVE FACILITY MANAGER DISASTER RECOVERY STAFF ENGINEER





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ADD-ON COURSE SYLLABUS (30 HRS)

ADD-ON COURSE



IN ASSOCIATE WITH

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FALL T BASIC ACCOUNTING - JOURNAL ENTRY FUNDAMENTALS OF TALLY. ACCOUNTING MASTERS IN TALLY. COMPARY CREATION ACCOUNTING AND INVENTORY MASTERS YOUCHRE RITHY IN TALLY. FURCHASE AND SALES MANAGEMENT ORDER PROCESSING INVENTORY MANAGEMENT WAREHOUSE MANAGEMENT BANKING MANUFACTURING PROCESS COST CENTERS MARUFACTURING PROCESS COST CENTERS STATUTORY TAXATION - BUDGET VARIANCE CHIQUE PRINTING BACK AND RESTORE SECURITY SYSTEM SPORT PRINTING. BOODS AND SERVICES TAX (GST) BANK RECONCILIATION EANK RECONCILIATION BACK UP & RESTORE EXPORT-IMPORT





BENEFITS OF LEARNING TALLY

ONE OF THE FIRST TALLY COURSE BEINIFITS IS THE ACCURACY OF INFORMATION. AFTER BEING ENTERED INTO TALLY PRIME, YOUR DATA IS UNLIKELY TO BE LOST FOR ANY ILLIMITABLE REASONS

THE SECOND ONE AMONG THE TALLY COURSE BENEFITS IS INFORMATION ASSURANCE ONCE THE DATA IS STORED INSIDE THE SOFTWARE PACKAGE, THERE IS NOT EVEN THE THIRET FOSSIBLITY OF DATA ALTERING HELPS TO MAINTAIN THE TRUEY AND CONFIDENCE THAT ARE ESSENTIAL TO THE ACCOUNTING SECTOR

THE FOURTH TALLY COURSE BENEFITS ARE THE USER-FRIENDLY EXPER THE FIFTH TALLY COURSE BENEFITS ARE UNCOMPLICATED DATA MOVEN PROVIDING FILING ASSISTANCE FOR 65T 1855 BASY WITH TALLY



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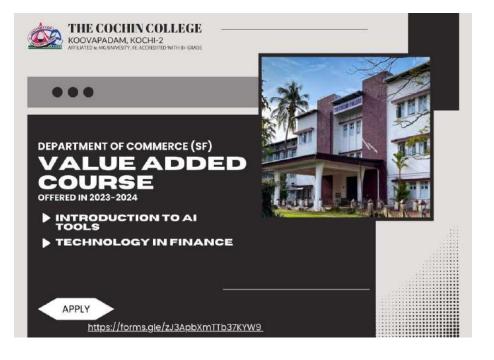
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INTRODUCTION TO AI TOOLS

HOURS: 30

COURSE OVERVIEW

This course introduces students to various AI tools available in India that can enhance learning, productivity, and creativity. The course is divided into three modules, focusing on AI basics, practical applications, and ethical considerations. By the end of the course, students will be able to effectively utilize AI tools to support their academic and personal goals.

Course Outcome

- 1. To introduce the basic concepts of AI and machine learning.
- 2. To explore the different types of AI tools available in India.
- 3. To equip students with hands-on experience in using AI tools
- 4. To demonstrate the practical benefits of AI in academic tasks.

Syllabus

Module 1

Definition and history of AI-Basic concepts: Machine learning, neural networks, deep learning-Overview of AI applications in everyday life - AI-powered learning platforms (e.g., Biju's, Topper)- Personalized learning and adaptive learning systems - AI tools for study assistance (e.g., chatbots, AI tutors)

Module 2

Healthcare: AI in diagnostics, virtual health assistants- Entertainment: AI in gaming, content recommendation - Industry: AI in automation and data analysis - AI note-taking tools (e.g., Google Keep, Notion)- AI for research and writing assistance (e.g., Grammarly, QuillBot)

Module 3

AI-based time management tools (e.g., Todoist, Trello) - AI for content creation (e.g., Canva, Lumen5)- AI in digital art and design (e.g., DeepArt, DALL-E)- Privacy concerns with AI tools. AI in higher education and career opportunities- Emerging AI technologies in India-The role of AI in solving global challenges



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Mode of Assessment

- 1. Quizzes: 20%
- Assignments and Projects: 40%
 Final Exam: 40%
- References:

Online Resources:

- Coursera, edX (AI-related courses)
- YouTube channels (e.g., AI For Everyone)



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TECHNOLOGY IN FINANCE

HOURS: 30

COURSE OVERVIEW

This course provides an introduction to the transformative role of technology in the finance sector, with a specific focus on India. It is structured into three modules, covering the fundamentals of fintech, emerging technologies, and regulatory frameworks. By the end of the course, students will have a solid understanding of how technology is shaping the financial landscape in India.

Course Outcome

- 1. To introduce students to the basics of financial technology (fintech).
- 2. To understand the various fintech services and their impact on traditional finance.
- 3. To introduce emerging technologies in the financial sector.
- 4. To provide an understanding of the regulatory environment governing fintech in India.

<u>Syllabus</u>

Module 1

Definition and history of fintech- Key drivers of fintech growth in India- Overview of the fintech ecosystem in India- Evolution of digital payments in India (e.g., UPI, mobile wallets)- Role of technology in promoting financial inclusion- Case studies: Paytm, PhonePe, and Google Pay- Peer-to-peer lending platforms- Digital credit and instant loan apps- Impact of fintech on the traditional banking sector

Module 2

Basics of blockchain technology- Overview of cryptocurrencies (e.g., Bitcoin, Ethereum)-Blockchain applications in finance: Smart contracts, remittances, and beyond- Role of big data in financial decision-making- Predictive analytics in finance- How Indian companies leverage big data for personalized financial services

Module 3

Introduction to regtech and its importance- Applications of regtech in compliance and reporting- Overview of financial regulations in India- Key regulators: RBI, SEBI, and IRDAI- Regulatory challenges in fintech: Compliance, data protection, and cybersecurity

Mode of Assessment

- 1. Quizzes: 20%
- 2. Assignments and Projects: 40%
- 3. Final Exam: 40%



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References:

Online Resources:

- Reserve Bank of India (RBI) publications
- □ Fintech industry reports (e.g., NASSCOM, PwC)
- $\hfill\square$ Online courses on Coursera, edX, etc.
 - Coursera, edX (AI-related courses)
 - YouTube channels (e.g., AI For Everyone)



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	Add on Course Syllabus for Academic Year 2023-2024
	POST GRADUATE AND RESEARCH DEPARTMENT OF COMMERCE
	PERSONALITY DEVELOPMENT
Durs	ation :30 Hours
	ectives of the Course :
	The course intends to develop talent, facilitate employability enabling the incumbent to
	excel and sustain in a highly competitive world of business. The programme aims to bring about personality development with regard to the different behavioural dimensions that have far reaching significance in the direction of
•	organisational effectiveness. To make students know about self-awareness, life skills, soft skills, need for personal development etc.
Cou	rse Overview :
•	self.
:	Think critically. Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment.
E	igibility : B.Com Taxation and B.Com Marketing
UNIT	1 Introduction to Personality Development
Signif - Hurd	oncept of personality - Dimensions of personality - Theories of Freud & Erickson- icance of personality development. The concept of success and failure: What is success? Iles in achieving success - Overcoming hurdles - Factors responsible for success - What re - Causes of failure. SWOT analysis.
UNIT	II Attitude & Motivation
-Negat	le - Concept - Significance - Factors affecting attitudes - Positive attitude - Advantages tive attitude- Disadvantages - Ways to develop positive attitude - Differences between alities having positive and negative attitude. Concept of motivation - Significance - I and external motives - Importance of self- motivation- Factors leading to de- tion
UNIT	III Self-esteem
- Low self est	elf-esteem - Symptoms - Advantages - Do's and Don'ts to develop positive self-esteem self- esteem - Symptoms - Personality having low self esteem - Positive and negative eem. Interpersonal Relationships – Defining the difference between aggressive, ive and assertive behaviours – Lateral thinking.
	State of the state





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	BB on	
A	ADD ON COURSE FOR ACADEMIC YEAR 2020 - 20	21
	POST GRADUATE AND RESEARCH DEPARTMENT OF	
	COMMERCE	
	Introduction to Alternative Investment Funds	
Nu	umber of Credits: 6 Instructional Hours : 3	0
Ot	bjectives	
	1. The course enables the students to understand and grasp prominent laws in India.	
	 This course will aid students to apply basics of Excel. 	
Eliş	gibility: M.Com/MCM	
Co	urse Overview	
	er the completion of the course, the learners will be able to:	
	Innovative Financial Instruments in the Indian Financial Market	
	 Working of private investments 	
	3. To grasp understanding of basics of AIFs	
Cor	urse Outline	
Mod	lule 1 - Overview of Alternative Investments: Alternative Investment Fund Avenues	
AIF	Antecedents and growth, Evolution of AIF, Types of AIFs (10 hours)	ŝ.
Mod	ule 2- Alternative Investment Funds in India	
Evolu	ution and Growth of AIFs in India, Trends Post 2008, Comparison of AIF Categories.	
Suital	bility and Enablers for AIF Products in India, Current AIF Market Status (5 hours)	,
Modu	ule 3 - Concepts in the AIF Industry	
The P	rivate Capital Ecosystem, Due Diligence, Sponsor Commitment, Capital Commitment,	
Capitz	al invested, Fees & Expenses, Returns & Additional returns, Private Placement	
Memo	orandum (PPM) (5 hours)	
	tle 4 – AIF Regulatory framework	Est. OF
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SEBI (AIF) Regulations 2012, General Provisions of the Foreign Exchange Management Act 1999 (FEMA), Foreign Investment in Category 1 and 11 AIF registered in IFSC (7 hours) Module 5 - Alternative Investment Fund Structuring Princciple of Pooling, General 'pooling' Consideration, Templates for AIF Structuring, Basics of Risk & Return, Nature of Equity Investments (3 hours) Suggested Readings 1. Study material from National Institute of Securities Market AIF (Catergory 1) 2. www.sebi.gov.in



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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (120 HRS)

LOGISTICS

LOGISTICS INDIAN MARITME SECURTY GENERAL MARITME CLAIMS TOWAGE AND PILOTAGE SUPPLIES, REPAINS AND DOCK CHARGES BOTTOMYIADMIRALTY / MARITME LAW IMPORTANCE, SOFT AND SIGNIFICANCE IMPORTANCE, SOFT AND SIGNIFICANCE COMMERCIAL INVOICE CERTIFICATES PACKING LIST EXPORT/ IMPORT CUSTOMS DECLARATIONS BILLS OF LADING TRANSPORT DOCUMENT BILLS OF TIRY BILLS OF ENTRY DOCUMENTS FOR EXPORT AND IMPORT LETTER OF CREDIT MARINE INSURANCE MARINE INSURANCE PRINCIPLES OF MARINE INSURANCE MARINE INSURANCE POLICIES IN INDIA SCOPE OF MARINE INSURANCE COASTAL SECURITY IN INDIA CASES, ANALYSIS AND STUDIES SUPPLY CHAIN MANAGEMENT PROCUREMENT PROCESS SUPPLIER RELATIONSHIP MANAGEMENT AND CUSTOMER RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT PLANNING MATERIAL REQUIREMENT PLANNING SUPPLY CHAIN PARTNERS OGISTICS MANAGEMENT (WAREHOUSING AND TRANSPORTATION) LOGISTICS MANAGEMENT INTRO-TERMS WAREHOUSING WAREHOUSE OPERATIONAL PRINCIPLES

LWAREHOUSE DESIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS PORT AND DOCKS CONTAINER TERMINAL OPERATION AND CARGO HANDLING CONTAINER TERMINAL OPERATION AND CARGO HA PORT MANAGEMENT VESSEL ENTRY AND CLEARANCE PROCEDURES PORT OPERATIONS FOR INCOMING VESSELS CONTAINER SHIP SAFE CARGOOPERATIONS DEPLOYMENT AND MONITORING OF MOORING INSTRUCTION FOR DECK WATCH KEEPING IN PORT TYPES OF SHIPPING CONTAINERS CONTAINERS TOWAGE ON CONTAINERS SHIP MANNING ROTOWAGE ON CONTAINERS SHIP HANDLING DANGEROUS CARGO, BREAK BULK, AND -OOG CARGO HANDLING OF REEFER CONTAINERS OPERATION OF OIL TANKERS ODE CAREO VIALUE CARLOS FREERE CONTAINERS OPERATION OF OU L'ANILO GE FREERE CONTAINERS DEVINCERING. TRANSSIMPARENT, CONTAINER CRANE, AND CSI 15. POPRT DISSUSSEMINT OPERATION TERMS AND ABBREVIATIONS GEOGRAPHY STRUCTURE OF SHIPS TYPES OF SHIPS TYPES OF CARCO CONTAINEET CARCOMMENTINE ORGANISATION CONTAINEET CARCOMMENT INTERNATIONAL SHIPPING MARKET MARINE SALVAGE CHARTENING CONTAINEET AND TRANS CONTAINEET MANACE BAR HIGH LINE SALVAGE CHARTENING CONTAINEET MANACEMENT COTA QUALITY MANACEMENT CRM CRM STRATEGIC SALES PLANNING FOR SMALL BUSINESS ENTERPRISE RESOURCE MANAGEMENT MANAGEMENT INFORMATION SYSTEM



We are the future of

vour career

REVERSE LOGISTICS MATERIAL REQUIREMENT PLANNING THEORY OF CONSTRAINTS LOGISTICS MANAGEMENT WAREHOUSE OPERATION PRINCIPLES WAREHOUSE OSIGN AND PRINCIPLES INVENTORY MANAGEMENT TRANSPORTATION IN LOGISTICS SUPPLY CHAIN MANAGEMENT MANAGEMENT AND CUSTOMER RELATIONSHIP RELATIONSHIP MANAGEMENT MATERIAL REQUIREMENT FLANNING SUPPLY CHAIN PARTNERS

BENEFITS OF LEARNING LOGISTICS

- YOU CAN FIND STEADY WORK IN SEVERAL INDUSTRIES.
- INTERNATIONAL WORK OPPORTUNITIES
- ACCORDING TO THE <u>BUREAU OF LABOR STATISTICS</u> (BLS) THE JOB OUTLOOK FOR LOGISTICIANS IS POSITIVE
- THE MEDIAN ANNUAL WAGE FOR LOGISTICIANS IS <u>
 576,270</u>, ACCORDING TO RESEARCH PROVIDED BY THE BLS IN MAY 2020
- SEVERAL MANAGEMENT OPPORTUNITIES THROUGHOUT YOUR CAREER
- JOB OPPORTUNITIES PURCHASING MANAGER OPERATIONS MANAGEMENT PROCUREMENT SPECIALIST PRODUCTION PLANNER BUSSINESS ANALYST COMMODITIES MANAGER BUSSINESS ANALTSI COMMODITIS MANAGER INVENTORY SPECIALIST VENDOR MANAGER INVENTORY CONTROLLER WARHOUSE OPERATIONS KONANAGER LOGISTICS CONSULTANT LOGISTICS CONSULTANT LOGISTICS MANAGER BUSSINESS LOGISTICS MANAGER SUPPLY CHAIN MANAGER DISTRIBUTION MANAGER MATERIALS MANAGER PROCUREMENT MANAGER MATERIALS MANAGER PROCUREMENT MANAGER CARGO MANAGER CUSTOMER SERVICE MANAGER PROCESS ASSOCIATE CONSULTANT LOGISTICS ENGINEER









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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)

TALLY

IN ASSOCIATE WITH

BASIC ACCOUNTING - JOURNAL ENTRY FUNDAMENTALS OF TALLY. ACCOUNTING MASTERS IN TALLY. COMPANY CREATION ACCOUNTING AND INVENTORY MASTERS VOUCHER ENTRY IN TALLY. PURCHASE AND SALES MANAGEMENT ORDER PROCESSING INVENTORY MANAGEMENT WAREHOUSE MANAGEMENT BANKING MANUFACTURING PROCESS COST CENTERS STATUTORY TAXATION - BUDGET VARIANCE CHEQUE PRINTING BACK AND RESTORE SECURITY SYSTEM SPLIT COMPANY DATA REPORT PRINTING. GOODS AND SERVICES TAX (GST) BANK RECONCILIATION BACK UP & RESTORE EXPORT-IMPORT



SPLITTING OF COMPANY DATA JOB COSTING TAX DEDUCTED AT SOURCE POWER OF SIMPLICITY TAX COLLECTED AT SOURCE PAYROLL ACCOUNTING AND COMPLIANCE TECHNOLOGICAL ADVANTAGES OF TALLY APPLICATION MANAGEMENT AND CONTROLS GST

BENEFITS OF LEARNING TALLY

ONE OF THE FIRST TALLY COURSE BENEFITS IS THE ACCURACY OF INFORMATION. AFTER BEING ENTERED INTO TALLY PRIME, YOUR DATA IS UNLIKELY TO BE LOST FOR ANY ILLIMITABLE REASONS

THE SECOND ONE AMONG THE TALLY COURSE BENEFITS IS INFORMATION ASSURANCE. ONCE THE DATA IS STORED INSIDE THE SOFTWARE PACKAGE, THERE IS NOT EVEN THE TINIEST POSSIBILITY OF DATA ALTERING

HELPS TO MAINTAIN THE TRUST AND CONFIDENCE THAT ARE ESSENTIAL TO THE ACCOUNTING SECTOR

THE FOURTH TALLY COURSE BENEFITS ARE THE USER-FRIENDLY EXPERIENCE.

THE FIFTH TALLY COURSE BENEFITS ARE UNCOMPLICATED DATA MOVEMENT

PROVIDING FILING ASSISTANCE FOR GST MAKING BUSINESS EASY WITH TALLY

JOB OPPORTUNITIES

Accountants Officer Executive Assistant Accounting Clerk Accounting Associate Accounts Assistant Accounts Executive Accounts Supervisor Accounts Executive Accounts Supervisor Tally Operator Tally Accounts Manager Tally Accounts Executive Service Coordinate with Tally Tally Junior Accountant Tax Accountant Bookkeeper Jinvestment Banker Financial Tally Analyst





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IELTS

LISTENING

PRACTISING ALL QUESTION TYPES. (MONOLOGUES, DIALOGUE, CONVERSATION) RECOGNISING INTONATION PATTERNS (QUESTIONS, SURPRISE ETC) VARIETIES OF SPOKEN ENGLISH, INCLUDING AUSTRALIAN, BRITISH, NORTH AMERICAN AND NEW ZEALAND LISTENING FOR SPECIFIC INFORMATION, KEYWORDS, GENERAL INFORMATION, NUMBERS, TRANSITION SIGNALS AND DISCOURSE MARKERS (FIRSTLY, SECONDLY, OBVIOUSLY, FURTHERMORE, INDEED].

PRACTISING 3 SECTION OF READING TESTS. SKIMMING (TO GET A GENERAL UNDERSTANDING) SCANNING (LOOKING FOR SPECIFIC INFORMATION) DEVELOPING VOCABULARY SUMMARISING DETERMINING THE WRITER'S ATTITUDE AND OPINION.

ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)

PRACTISING ESSAY , GRAPH / DIAGRAM DESCRIPTION. ADJUSTING STYLE ACCORDING TO PURPOSE. WRITING PARAGRAPHS, INTRODUCTIONS AND CONCLUSIONS. USING CONJUNCTIONS AND REFERENTS. ORGANISING INFORMATION LOGICALLY WITHIN A TEXT. USING EXAMPLES AND EVIDENCE TO SUPPORT AN ARGUMENT.





PRACTISING ALL OUESTION TYPES PRACTISING ALL QUESTION TYPES. PRACTISING PRONUNCIATION AND INTONATION. PRACTISING FLUENCY. USING AND UNDERSTANDING COMMON PHRASES. INTERACTING WITH OTHER SPEAKERS. SPEAKING FOR AN EXTENDED TIME ON A PARTICULAR TOPIC. PRACTICE HOW TO DEVELOP A CONTENT

BENEFITS OF LEARNING

TELTS BEING ABLE TO COMMUNICATE IN ENGLISH CONNECTS YOU TO A LANGER WORLD. CURRENTLY, ABOUT 20% OF THE WORLD'S POPULATION SPACE SNOLSKA, ALTHOUGH MOST AREN'T NATIVE SPEAKERS. EINGLISH IS ALSO THE WORLD'S MOST-STUDIEF ORGING LANGLAGE. WITH SO MANY PEOPLE STUDYING AND LEARNING ENGLISH, PROFILENCY EXAMISE IKE IELTS HELP ADMISSIONS OFFICERS AND PROSPECTIVE EMPLOYERS TO GET AN ACCURATE PICTURE OF YOUR CURRENT ENGLISH LEVEL.

TAKING THE IELTS TEST CAN ENHANCE YOUR TAKING THE IELTS TEST CAN ENHANCE YOUR EMPLOYMENT PROSPECTS EXCELLENT COMMUNICATION SKILLS ARE ESSENTIAL THESE DAYS AS FIFTY-FIVE COUNTRIES HAVE ENGLISH AS THEIR FIRST LANGUAGE. DEMONSTRATING A GOOD COMMAND OF THE LANGUAGE COULD OPEN UP OPTIONS FOR YOU TO PURSUE A CAREER IN A FOREIGN COUNTRY

THE PROCESS OF PREPARING TO TAKE THE IELTS TEST WILL SIGNIFICANTLY IMPROVE YOUR ENGLISH SKILLS

IF YOU'RE TAKING IELTS ACADEMIC TO GET INTO YOUR DREAM UNIVERSITY, THE PROCESS OF STUDYING FOR THE EXAM WILL HELP YOU PREPARE FOR ACADEMIC LIFE

PROVING YOUR ENGLISH LANGUAGE SKILLS CAN HELF YOU GET A NEW JOB OR A PROMOTION IN YOUR HOME COUNTRY AND ABROAD, YOUR IELTS SCORE ON YOUR RESUME WILL SHOW FUTURE EMPLOYERS THAT YOU ARE A SERIOUS AND COMMITTEO CANDIDATE.

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ELEMENTS OF PROGRAMMING AND FUNCTION INTRODUCTION: BASIC ELEMENTS OF PROGRAMMING, CONSOLE I/O OPERATIONS, FUNCTION: FUNCTION PROTOTYPING, CALL AND RETURN BY REFERENCE, INLINE FUNCTION, DEFAULT AND CONST ARGUMENTS, FUNCTION OVERLOADING, ARRAYS, MANIPULATORS AND ENUMERATION.

CLASSES AND OBJECT OBJECT ORIENTED METHODOLOGY: BASIC CONCEPTS/CHARACTERISTICS OF OOP. ADVANTAGES AND APPLICATION OF OOPS, PROCEDURAL PROGRAMMING VS OOP. CLASSES AND OBJECTS:SPECIFYING A CLASS, CREATING OBJECTS, PRIVARE & PUBLIC DATA MEMBERS AND MEMBER FUNCTIONS, DEFINING INLINE MEMBER FUNCTIONS, STATIC DATA MEMBERS AND MEMBER FUNCTIONS. ARRAYS WITHIN CLASS, ARRAYS OF OBJECTS, OBJECTS AS FUNCTION ARGUMENTS, RETURNING OBJECTS.

CONSTRUCTORS, DESTRUCTORS, OPERATORS OVERLOADING AND INHERITANCE. CONSTRUCTORS AND DESTRUCTORS: INTRODUCTION, PARAMETERIZED CONSTRUCTORS, MULTIPLE CONSTRUCTORS IN A CLASS, CONSTRUCTORS WITH DEFAULT ARGUMENTS, DYNAMIC INITIALIZATION OF OBJECTS, COPY CONSTRUCTORS, DYNAMIC CONSTRUCTORS, CONST OBJECTS, DESTRUCTORS OPERATORS OVERLOADING: DEFINITION, UNARY AND BINARY OVERLOADING, RULES FOR OPERATOR OVERLOADING. INHERITANCE: DEFINING DERIVED CLASSES, TYPES OF INHERITANCE, CONSTRUCTORS AND DESTRUCTORS IN DERIVED CLASSES.

POINTERS VIRTUAL & FRIEND FUNCTIONS AND FILE HANDLING POINTERS: POINTER TO OBJECTS, THIS POINTER, "NEW" AND "DELETE" OPERATORS, VIRTUAL FUNCTION, REIEND FUNCTIONS. OPENING, CLOSING A FILE, FILE MODES, FILE POINTERS AND THEIR MANIPULATION, SEQUENTIAL INPUT AND OUTPUT OPERATIONS: UPDATING A FILE, RANDOM ACCESS, AND ERROR HANDLING DURING FILE OPERATIONS, COMMAND LINE ARGUMENTS.

BENEFITS OF LEARNING C++

C++ (OR "C-PLUS-PLUS") IS A GENERAL-PURPOSE PROGRAMMING AND CODING LANGUAGE. C++ IS USED IN DEVELOPING BROWSERS, OPERATING SYSTEMS, AND APPLICATIONS, AS WELL AS IN-GAME PROGRAMMING, SOFTWARE ENGINEERING, DATA STRUCTURES, ETC. ALMOST ALL THE PROGRAM SAND SYSTEMS THAT YOU USE OR A PART OF THEIR CODEBASE IS WRITTEN <u>EITHER IN C OR C++</u>, BE IT WINDOWS, A WEB BROWSER, YOUR FAVORITE GAME, OR A VIDEO EDITING SOFTWARE, THE USES OF C++ CAN BE FOUND IN ALMOST ALL APPLICATIONS TODAY.





JOB OPPORTUNITIES

IT SOFTWARE DEVELOPER SOFTWARE ENGINEER SOFTWARE TEST ENGINEER TECHNICAL SALES ENGINEER (-+ DEVELOPER TYPESCRIPT,CSS,C++ DEVELOPER (C++ SYSTEM PROGRAMMING MANAGER COMPUTER VISION/IMAGE PROCESSING EXPERT -C/C++ C++ LANGUAGE TRAINER JAVA DEVELOPER WITH (-+ R & D DEVELOPER WITH (-+ R & D DEVELOPER WITH (-+) SENIOR MTS - (-+) DEVELOPER, BUILD SYSTEMS (MAKE, SCONS, BAZEL) CROSS LANGUAGE DEVELOPER WORDPRESS DEVELOPER APD DEVELOPER ANDROID APPLICATION DEVELOPER WEB BROWSER







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ENERGY GENERATION FROM WASTE

INTRODUCTION TO BIOFUELS

HYDROGEN PRODUCTION THROUGH THERMOCHEMICAL CONVERSION OF DRY BIOMASS BIOFTHANOL PRODUCTION FROM BIOMASS AND BIOMASS WASTE

BIODIESEL PRODUCTION FROM BIOMASS WASTE AND VEGETABLE OIL

METHODS USED FOR THE ANALYSIS OF THE ORGANIC AND INORGANIC CARBON CONTENT IN WASTE AND WASTEWATER:

- BIOTECHNOLOGICAL PROCESS FUNDAMENTAL AND PRINCIPLES OF THE KINETICS OF BIOLOGICAL REACTIONS:
- **BIOTECHNOLOGICAL PROCESSES DESIGN OF BIOLOGICAL REACTORS:**
- ANAEROBIC DIGESTION (FOR BIOGAS GENERATION):
- THE COUPLING OF THERMOCHEMICAL SYSTEMS WITH ANAEROBIC DIGESTION AND PHYSICAL AND CHEMICAL REMOVAL
 - OF CO2 FROM BIOGAS TO PRODUCE RENEWABLE NATURAL GAS:
 - BIOGAS UPGRADING TO BIOMETHANE: POWER-TO-GAS WITH EX-SITU BIOMETHANATION:
 - MICROBIAL CHAIN ELONGATION AND SYNGAS FERMENTATION AFTER GASIFICATION OF BIOMASS:

BENEFITS OF LEARNING ENERGY GENERATION FROM WASTE

THE COURSE DEALS WITH THE GENERATION OF ENERGY FROM DIFFERENT TYPES OF WASTES THROUGH THERMAL, BIOLOGICAL AND CHEMICAL ROUTES. IT IS INTENDED TO HELP THE YOUNG SCIENTIFIC PROFESSIONALS TO KEEP THEIR KNOWLEDGE UPGRADED WITH THE CURRENT THOUGHTS AND NEWER TECHNOLOGY OPTIONS ALONG WITH THEIR ADVANCES IN THE FIELD OF THE UTILIZATION OF DIFFERENT TYPES OF WASTES FOR ENERGY PRODUCTION. DUE TO FAST URBANIZATION AT A FASTER RATE VARIOUS SMALL TOWN CONVERTED IN TO BIG TOWN AND POPULATION IS INCREASING DAY BY DAY. BY INCREASE OF POPULATION PER CAPITA WASTE GENERATION IS INCREASING DAY BY DAY AND REQUIRES LOTS OF ATTENTION FOR MANAGING THE WASTE. ENERGY FROM WASTE IS NOT ONLY REDUCING WASTE VOLUME BUT ALSO DEVELOPMENT CLEAN ENVIRONMENT.



JOB OPPORTUNITIES

ENGINEER- WASTE AND PRODUCTS MANAGEMENT DISTRICT COODINATOR FULLSTACK DEVELOPER SENIOR/LEAD ENGINEER - WASTE WATER MODELING CHEMICAL PROCESS ENGINEER ENVIRONMENTAL ENGINEER WASTE MANAGEMENT TRAINER COUSULTANCE

WASTE MANAGEMENT TRAINER CONSULTANT ANALYST SUSTAINABILITY MANAGER RESEARCH ANALYST BUSINESS DEVELOPMENT MANAGER (ENERGY) ASSOCIATE RESEARCH ADVISOR PROGRAMME ASSOCIATE JUNIOR PROPOSAL ENGINEER (WATER & WASTEWATER DESIGN) GOV.DEPARTMENT JOBS RELATED TO ENERGY







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ADD-ON COURSE

ADD-ON COURSE SYLLABUS (30 HRS)



ENVIRONMENTAL POLLUTION

- DEFINITION , CAUSES, EFFECTS AND CONTROL MEASURES OF : A. AIR POLLUTION
- B. WATER POLLUTION(THERMAL AND MARINE POLLUTION)
- C. LAND POLLUTION
- D. RADIATION POLLUTION AND NUCLEAR HAZARD. E. NOISE POLLUTION
- SOLID WASTE MANAGEMENT: CAUSES, EFFECTS AND CONTROL MEASURES.
- GLOBAL WARMING AND THE GREENHOUSE EFFECT
- POLLUTION CONTROL, MONITORING AND MANAGEMENT



BENEFITS OF LEARNING ENVIRONMENTAL POLLUTION THE MSC IS IDEALLY SUITE FOR STUDENTS LOOKING TO GAIN A GRATER UNDERSTANDING OF ENVIRONMENTAL SCIENCE, SPECIFICALLY ISSUES RELATED TO POLLUTION AND REMEDIATION. STUDENTS WILL GAIN A WIDE APPRECIATION FOR THE IMPACT THAT DIFFERENT POLLUTANTS HAVE IN THE ENVIRONMENT, HOW THESE POLLUTANTS WOULD BE QUANTIFIED, AND STRATEGIES FOR THERE REMEDIATION. THIS PROGRAMME WILL SUIT STUDENTS LOOKING FOR CAREERS IN ENVIRONMENTAL CONSULTANCY, ENVIRONMENTAL ENGINEERING, THE ENVERONMENT SECULATORS. THE PROGRAMME IS ALSO SUITED FOR STUDENTS LOOKING TO UNDERTAKE A HIGHER DEGREE IN ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL SCIENCE. THIS COURSE WILL GIVE YOU THE SKILLS TO DIAGNOSE AND MITIGATE ENVIRONMENTAL POLLUTION ISSUES





JOB OPPORTUNITIES

JOB OPPORTUNITIES POLLUTION CONTROL OFFICER ASSISTANT MANAGER - ENVIRONMENT SENIOR PROJECT/RESEARCH ASSOCIATE (AIR QUALITY) PROGRAMME OFFICER FOR INDUSTRIAL POLLUTION PROGRAMME ENVIRONMENT ENGINEER SITE MONITORING ENGINEERS PROJECT EXECUTIVE ASSISTANT ENVIRONMENT ENGINEER AIR EMISSIONS EXPERT VEHICLE POLLUTION TESTER SALES MANAGER - AIR POLLUTION CONTROL HEAD - ENVIRONMENT MONITORING LABORATORY RESEARCH SCIENTIST DESIGN ENGINEER FOR AIR POLLUTION CONTROL AIR QUALITY DATA ANALYST



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• DISASTER MANAGEMENT

DEFINITION AND TYPES OF DISASTER HAZARDS AND DISASTERS, RISK AND VULNERABILITY IN DISASTERS, NATURAL AND MAN-MADE DISASTERS, EARTHQUAKES, FLOODS DROUGHT, LANDSIDE, LAND SUBSIDENCE, CYCLONES, VOLCANOES, TSUNAMI, AVALANCHES, GLOBAL CLIMATE EXTREMES. MAN-MADE DISASTERS: TERRORISM, GAS AND RADIATIONS LEAKS, TOXIC WASTE DISPOSAL, OIL SPILLS, FOREST FIRES.

STUDY OF IMPORTANT DISASTERS EARTHQUAKES AND ITS TYPES, MAGNITUDE AND INTENSITY, SEISMIC ZONES OF INDIA, MAJOR FAULT SYSTEMS OF INDIA PLATE, FLOOD TYPES AND ITS MANAGEMENT, DROUGHT TYPES AND ITS MANAGEMENT, LANDSIDE AND ITS MANAGEMENTS CASE STUDIES OF DISASTERS (E.G) EARTHQUAKES, LANDSIDE). SOCIAL ECONOMICS AND ENVIRONMENTAL IMPACT OF DISASTERS.

MITIGATION AND MANAGEMENT TECHNIQUES OF DISASTER BASIC PRINCIPLES OF DISASTERS MANAGEMENT, DISASTER MANAGEMENT CYCLE, DISASTER MANAGEMENT POLICY, NATIONAL AND STATE BODIES FOR DISASTER MANAGEMENT, EARLY WARMING SYSTEMS, BUILDING DESIGN AND CONSTRUCTION IN HIGHLY SEISMIC ZONES, RETROFITTING OF BUILDINGS.

BENEFITS OF LEARNING DISASTER MANAGEMENT

MILLIONS OF PEOPLE ARE AFFECTED BY DISASTERS EACH YEAR. EFFECTIVE DISASTER MANAGEMENT IS ESSENTIAL TO REDUCE SUFFERING AND SUPPORT THOSE AFFECTED.DISASTER MANAGEMENT CAN HELP TO ENHANCE THE ABILITY OF EMERGENCY RESPONDERS TO SAVE LIVES. WHEN APPROPRIATE INFRASTRUCTURE IS SET UP AND TRAINING IS COMPLETED TO INFROVE DISASTER RESPONSE, COMMUNITIES CAN SURVIVE THE STRESS AND DISTRESS CAUSED BY DISASTERS. DISASTERS AND EMERGENCIES HAVE BEEN INCREASING ALL OVER THE WORLD. TODAYS, WITH TECHNOLOGICAL ADVANCEMENT, ACQUIRING KNOWLEDGE AND IS SAPEICATION IN THE REALM OF ACTION IS REGARDED AS THE ONLY EFFECTIVE WAY FOR PREVENT DISASTERS OR REDUCING ITS EFFECTS.



JOB OPPORTUNITIES

METEOROLOGIST HAZARD ANALYST DISASTER RECOVERY MANAGER SENIOR PRODUCT MANAGER [BUSINESS CONTINUITY AND DISASTER RECOVERY, STORAGE] DISASTER RISK REDUCTION MANAGER FIRE & SAFETY MANAGER DISASTER SECURITY / PROTECION MANAGER SENIOR SPECIALISTS BACKUP ADMINISTATOR ENTERPRISE RISK MANAGER INSTALLATION MANAGER INSTALLATION MANAGER DISASTER RECOVERY TSSTING PROFESSIONAL SAFETY EXECUTIVE FACILITY MANAGER DISASTER RECOVERY STAFF ENGINEER



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DEPARTMENT OF BUSINESS ADMINISTRATION VALUE ADDED COURSE

Name of the course : Organisational Development and Change COURSE CODE:ADBBA2313

Duration of the course : 30 hrs. Academic year:- 2023- 2024 (2nd year BBA) Coordinator : Rajitha P M

Course Overview

This course help to understand the concept of Managing change, types of change, factors contributing to change and how culture plays an important part in bringing change in organisations.

And to identifying the issues leading to change and finally explains after obtaining the feedback how they should be analysed to bring change in the organisations

Objective of the course

This course explains the importance of Organisational development and how change is a part of organisational dynamics. To scope with the changing business scenario

Course out come A course in Organizational Development and Change typically aims to achieve several key outcomes that equip students with the knowledge and skills necessary to understand, facilitate, and manage organizational change effectively.

Syllabus

Module 1:- CONCEPT OF MANAGING CHANGE (10 hours) Developing the Change Mindset -Categories of Business Change -Types of Change -Change: The Challenge of Transformation

Module 2 :- ORGANISATIONAL DEVELOPMENT (10 hours)

Definitions and meanings of organisation development - Stages of Organisation Development - Essentials for Success of Organisational Development - Organisational Diagnosis -Methods of Organisational Analysis - Practical Perspectives on Organisational Analysis - Questionaire as a diagnostic tool - Interview as a Diagnostic Tool - Workshops, Taskforces and Other Methods

Module 3:- FORMS OF ORGANISATIONAL CHANGE (10 hours)

Merger and Acquisition - Meaning -Types of Mergers - Purpose of Merger and Acquisition - Alternatives to Mergers and Acquisitions - Turnaround management - Meaning - Kinds of Turnaround Situation - Process-based Change - Meaning -methods Mode of Assessment Final examination :comprehensive exam covering all course topics Reference Book

Organization Development: The Process of Leading Organizational Change" by Donald R. Anderson

Organization Development: A Practitioner's Guide for OD and HR" by Mee-Yan Cheung-Judge and Linda Holbeche

Leading Change" by John P. Kotter:



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Career Counselling COURSE CODE: ADBBA2314 Coordinator : Betna Rodrigues

Course Overview

A career counselling course typically provides students with knowledge and skills to help individuals make informed decisions about their career. A career counselling course equips students with both theoretical knowledge and practical skills necessary to effectively guide individuals through their career development process.

Course Objective

- To educate students on ethical considerations in career counselling, including confidentiality, informed consent, and cultural sensitivity, ensuring they adhere to professional standards in their practice.
- To encourage students to engage in ongoing professional development and networking.
- To provide students with supervised practical experience.
- To foster students' own self-awareness and resilience in their career development.

Course Outcome

- To understand the Career Development Theories.
- Helps to create ethical and professional conduct among students.
- Encourage effective communication and relationship building in students.
- Facilitation of career exploration and decision-making.

Course Outline

- 1. Introduction to Career Counseling(10 Hours)
- Overview of career counselling: Definition, purpose, and importance.
- Historical perspectives and evolution of career counselling.
- Ethical considerations and professional standards in career counselling.
- Overview of major theories: Trait-factor theory, developmental theories (Super's theory, Holland's theory), social cognitive career theory, and others.
- Application of theories in career counselling practice.
- Types of career assessments: Interest inventories, skills assessments, personality
- assessments, values assessments, and others.
- Administering and interpreting assessment results.

2. Career Exploration and Decision-making (10 Hours)

- Career exploration process: Self-assessment, researching occupations, understanding labor market information.



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- Decision-making models and strategies in career counselling.

- Supporting clients in making informed career decisions aligned with their interests, values, and skills.
- Career counselling across the lifespan: Students, adults in career transition, retirees,
- individuals with disabilities, veterans, etc.
- Cultural considerations in career counselling: Addressing diversity and multicultural competencies
- Career counselling interventions: Career workshops, group counselling, career coaching.

- Technology in career counselling: Use of online tools, career websites, and virtual counselling

3. Career Transitions and Work Adjustment(10 Hours)

- Managing career transitions: Job loss, career change, promotion, relocation.
- Coping with workplace issues and stress management.
- Retirement planning and career after retirement
- Continuing education and professional growth opportunities.
- Networking and collaboration with other professionals.
- Ethical dilemmas and professional boundaries in career counselling practice.
- Supervised practicum or internship in career counselling.
- Application of knowledge and skills in a real-world counselling setting

Mode of Assessment

Exam: Comprehensive exam covering all course topics.

Reference

- 1. "Career Counselling: A Holistic Approach" by Vernon Zunker
- 2. "Career Development and Counseling: Putting Theory and Research to Work" by Steven D. Brown and Robert W. Lent
- 3. "Career Counselling: Foundations, Perspectives, and Applications" by David Capuzzi and Mark Stauffer
- 4. "Essentials of Career Counseling: Skills for a Multidisciplinary Approach" by Mark L. Savickas and Norman E. Amundson
- 5. "Career Counselling: Techniques that Work" edited by Robert E. Reardon, Janet G. Lenz, and James P. Sampson
- 6. The Career Counseling Casebook: A Resource for Practitioners, Students, and Counselor Educators" edited by Rebecca L. Toporek and Bradley T. Erford



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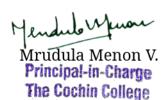
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Course Title : "Statistical Software and Programming"

Course Overview

This course is designed to provide an in-depth understanding of statistical analysis and data science using four key software/tools: R, SAS, SPSS, and Python. The course will cover the basics of each tool, data manipulation, statistical modeling, and visualization techniques. By the end of the course, students will be able to effectively use these tools for a wide range of data analysis tasks.

Weekly Hour Distribution

- Week 1-3: Introduction to R (9 hours)
- Week 4-5: Introduction to SAS (6 hours)
- Week 6: Introduction to SPSS (3 hours)
- Week 7-8: Introduction to Python (6 hours)
- Week 9-10: Comparative Analysis and Advanced Topics (6 hours)
- Week 1-3: Introduction to R (9 hours)
- Week 1: Getting Started with R (3 hours)
- Session 1 (1.5 hours):
- Introduction to R and RStudio
- Installation and setup
- Basic syntax and data types
- Prerequisites: Basic knowledge of statistics
- References: "R for Data Science" by Hadley Wickham & Garrett Grolemund
- Session 2 (1.5 hours):
- Data manipulation with dplyr
- Importing and exporting data
- Basic data visualization with ggplot2
- Week 2: Statistical Analysis in R (3 hours)
- Session 1 (1.5 hours):
- Descriptive statistics



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Session 2 (1.5 hours): Linear regression Logistic regression Week 3: Advanced Topics in R (3 hours) Session 1 (1.5 hours): Advanced data visualization with ggplot2 Time series analysis Session 2 (1.5 hours): Machine learning with caret Cross-validation techniques Week 4-5: Introduction to SAS (6 hours) Week 4: Getting Started with SAS (3 hours) Session 1 (1.5 hours): Introduction to SAS environment Basic syntax and data steps Importing and exporting data Prerequisites: Basic knowledge of statistics References: "The Little SAS Book: A Primer" by Lora D. Delwiche & Susan J. Slaughter Session 2 (1.5 hours): Data manipulation with SAS procedures Data visualization with PROC SGPLOT Week 5: Statistical Analysis in SAS (3 hours) Session 1 (1.5 hours): Descriptive statistics with PROC MEANS and PROC FREQ Inferential statistics with PROC TTEST and PROC FREQ Session 2 (1.5 hours):

Inferential statistics (t-tests, chi-square tests)





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Week 6: Getting Started with SPSS (3 hours) Session 1 (1.5 hours): Introduction to SPSS interface Data entry and file handling Descriptive statistics Prerequisites: Basic knowledge of statistics References: "IBM SPSS for Introductory Statistics" by George A. Morgan et al. Session 2 (1.5 hours): Data manipulation and transformation Basic inferential statistics (t-tests, chi-square tests) Data visualization with SPSS charts Week 7-8: Introduction to Python (6 hours) Week 7: Getting Started with Python for Data Science (3 hours) Session 1 (1.5 hours): Introduction to Python and Jupyter Notebooks Basic syntax and data types Data manipulation with pandas Prerequisites: Basic knowledge of statistics and programming References: "Python for Data Analysis" by Wes McKinney Session 2 (1.5 hours): Data visualization with matplotlib and seaborn Week 8: Statistical Analysis in Python (3 hours) Session 1 (1.5 hours): Descriptive and inferential statistics with scipy.stats Linear and logistic regression with statsmodels Session 2 (1.5 hours): Machine learning with scikit-learn

Week 6: Introduction to SPSS (3 hours)



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Cross-validation and model evaluation

Week 9-10: Comparative Analysis and Advanced Topics (6 hours)

Week 9: Comparative Analysis (3 hours)

Session 1 (1.5 hours):

Comparative study of R, SAS, SPSS, and Python

Strengths and weaknesses of each tool

Case studies and real-world applications

Session 2 (1.5 hours):

Integrating multiple tools in a workflow

Interoperability and data exchange

Week 10: Advanced Topics (3 hours)

Session 1 (1.5 hours):

Advanced machine learning techniques

Big data analytics and handling large datasets

Session 2 (1.5 hours):

Final project presentations

Review and Q&A

Prerequisites

Basic understanding of statistics and data analysis

Basic programming skills (especially for Python)

References and Study Materials

"R for Data Science" by Hadley Wickham & Garrett Grolemund

"The Little SAS Book: A Primer" by Lora D. Delwiche & Susan J. Slaughter

"IBM SPSS for Introductory Statistics" by George A. Morgan et al.

"Python for Data Analysis" by Wes McKinney

Online resources, tutorials, and documentation from R, SAS, SPSS, and Python official websites

Evaluation Method



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Assignments (40%): Weekly assignments based on each tool (R, SAS, SPSS, Python)

Quizzes (20%): Short quizzes at the end of each week to test understanding

Final Project (30%): A comprehensive project that integrates multiple tools for data analysis

Class Participation (10%): Active participation in discussions and Q&A sessions



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Brochure & Syllabus

Certificate/Value added courses offered during 2023-24





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VALUE ADDED COURSE Department of Physics, The Cochin College. VEEKSHA: Energy from Waste Duration: 30 Hours

ENERGYGENERATIONFROMWASTE

INTRODUCTION TO BIOFUELS

HYDROGEN PRODUCTION THROUGH THERMOCHEMICAL CONVERSION OF DRY BIOMASS BIOETHANOL PRODUCTION FROM BIOMASS AND BIOMASS WASTE

BIODIESEL PRODUCTION FROM BIOMASS WASTE AND VEGETABLE OIL METHODS USED FOR THE ANALYSIS OF THE ORGANIC AND INORGANIC CARBON CONTENT IN WASTE AND WASTEWATER: BIOTECHNOLOGICAL PROCESS -FUNDAMENTAL AND PRINCIPLES OF THE KINETICS OF BIOLOGICAL REACTIONS: BIOTECHNOLOGICAL PROCESSES – DESIGN OF BIOLOGICAL REACTORS: ANAEROBIC DIGESTION (FOR BIOGAS GENERATION):

THE COUPLING OF THERMOCHEMICAL SYSTEMS WITH ANAEROBIC DIGESTION AND PHYSICAL AND CHEMICAL REMOVAL OF CO2 FROM BIOGAS TO PRODUCE RENEWABLE NATURAL GAS:

BIOGAS UPGRADING TO BIOMETHANE: POWER-TO-GAS WITH EX-SITU BIOMETHANATION: MICROBIAL CHAIN ELONGATION AND SYNGAS FERMENTATION AFTER GASIFICATION OF BIOMASS:

BENEFITSOFLEARNINGENERGYGENERATION FROMWASTE

THE COURSE DEALS WITH THE GENERATION OF ENERGY FROM DIFFERENT TYPES OF WASTES THROUGH THERMAL, BIOLOGICAL AND CHEMICAL ROUTES. IT IS INTENDED TO HELP THE YOUNG SCIENTIFIC PROFESSIONALS TO KEEP THEIR KNOWLEDGE UPGRADED WITH THE CURRENT THOUGHTS AND NEWER TECHNOLOGY OPTIONS ALONG WITH THEIR ADVANCES IN THE FIELD OF THE UTILIZATION OF DIFFERENT TYPES OF WASTES FOR ENERGY PRODUCTION. DUE TO FAST URBANIZATION AT A FASTER RATE VARIOUS SMALL TOWN CONVERTED IN TO BIG TOWN AND POPULATION IS INCREASING DAY BY DAY. BY INCREASE OF POPULATION PER CAPITA WASTE GENERATION IS INCREASING DAY BY DAY AND REQUIRES LOTS OF ATTENTION FOR MANAGING THE WASTE. ENERGY GENERATION FROM WASTE IS AN OPTION FOR MANAGING SOLID WASTE IN CITIES. BY GENERATING ENERGY FROM WASTE IS NOT ONLY REDUCING WASTE VOLUME BUT ALSO DEVELOPMENT CLEAN ENVIRONMENT.



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VALUE ADDED COURSE Department of Physics, The Cochin College. ADPHY2311: Introduction to Artificial Intelligence Duration: 30 Hours

Introduction

This add-on course provides a comprehensive overview of Artificial Intelligence (AI), focusing on foundational concepts, machine learning, deep learning, and practical applications. Through a blend of theoretical knowledge and hands-on experience, students will gain the skills necessary to understand and implement AI techniques across various domains.

Course Objectives/Outcomes

• Understand AI Fundamentals: Grasp the key concepts, history, and evolution of AI.

• Implement AI Solutions: Gain practical experience through projects and case studies, applying AI to real-world problems.

• Address Ethical Issues: Recognize and address ethical and societal implications of AI technologies.

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

• Comprehend AI Basics: Explain AI concepts, terminologies, and their realworld applications.

• Apply AI in Practice: Solve practical problems using AI techniques in domains such as healthcare, finance, and robotics.

Evaluate Ethical Considerations: Critically assess the ethical and societal impacts of AI implementations

Module 1: Fundamentals of Artificial Intelligence (7.5 Hours)

Introduction to AI (1.5 Hours)

Definition and Scope of AI

History and Evolution of AI

Key AI Concepts and Terminology

Real-World Applications of AI



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AI Techniques and Algorithms (2 Hours)

Overview of Machine Learning, Deep Learning, and Neural Networks

Supervised vs. Unsupervised Learning

Basics of Reinforcement Learning

AI Tools and Environments (1.5 Hours)

Introduction to Python for AI

Popular Libraries: TensorFlow, Keras, PyTorch, Scikit-learn

Setting Up the AI Development Environment

Ethics and Challenges in AI (2.5 Hours)

Ethical Considerations in AI

Bias and Fairness in AI

Privacyand Security Concerns

The Future of AI and Society

Module 2: Machine Learning (7.5 Hours)

Supervised Learning (2 Hours)

Linear Regression Logistic Regression Support Vector Machines

Decision Trees and Random Forests

Unsupervised Learning (2 Hours) Clustering

Algorithms (K-Means, Hierarchical)

Dimensionality Reduction (PCA, LDA)

Anomaly Detection

Model Evaluation and Optimization (1.5 Hours)

Training, Validation, and Testing

Cross-Validation Techniques

Hyperparameter Tuning



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Practical Implementation (2 Hours)

Hands-on Project: Building and Evaluating a Machine Learning Model Case Study: Real-World Machine Learning Application

Module 3: Deep Learning and Neural Networks (7.5 Hours)

Introduction to Neural Networks (2 Hours)

Basic Structure of a Neural Network

Activation Functions

Forward and Backward Propagation

Deep Learning Architectures (2.5 Hours)

Convolutional Neural Networks (CNNs)

Recurrent Neural Networks (RNNs) and LSTMs

Generative Adversarial Networks (GANs)

Training Deep Learning Models (1.5 Hours)

Optimization Techniques (SGD, Adam)

Regularization Methods (Dropout, Batch Normalization)

Handling Overfitting

Practical Implementation (1.5 Hours)

Hands-on Project: Building a Simple Neural Network Case Study: Image Classification using CNN

Module 4: AI in Practice and Advanced Topics (7.5 Hours)

Natural Language Processing (2 Hours)

Basics of NLP

Text Processing Techniques Introduction

to Transformers and BERT



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AI in Robotics and IoT (1.5 Hours)

Overview of Robotics in AI Integration

of AI with IoT

Real-World Examples and Applications

Al in Industry (2 Hours) AI in Healthcare

AI in Finance

AI in Autonomous Vehicles

Capstone Project (2 Hours) Define

Project Scope and Objectives Data Collection and Preprocessing Model Development and Evaluation

Presentation and Discussion of Results Assessment and Certification (1 Hour) Final Quiz/Exam covering all modules Evaluation of Capstone Project

Feedback and Certification Distribution



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Question Paper

Total Duration: 2 Hours

Total Marks: 50

Section A: Multiple Choice Questions (10 Marks)

Each question carries 2 marks.

- 1. Which of the following is not a type of machine learning?
- a) Supervised Learning
- b) Unsupervised Learning
- c) Reinforcement Learning
- d) Structured Learning

2. What is the primary purpose of a Convolutional Neural Network (CNN)?

- a) Text processing
- b) Image recognition
- c) Time series prediction
- d) Data clustering

3. Which activation function is most commonly used in hidden layers of a neural network?

- a) Sigmoid
- b) ReLU
- c) Tanh
- d) Softmax

4. In the context of AI, what does "overfitting" refer to?

a) A model that performs well on training data but poorly on new data



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- b) A model that performs poorly on both training and testing data
- c) A model that generalizes well to new data
- d) A model that fits the data perfectly

5. Which library is specifically designed for deep learning?

- a) Scikit-learn
- b) NumPy
- c) TensorFlow
- d) Pandas

Section B: Short Answer Questions (40 Marks)

Each question carries 8 marks.

- 6. Explain the difference between supervised and unsupervised learning with examples.
- 7. Describe the concept of backpropagation in neural networks.
- 8. What are the ethical considerations one must take into account when developing AI systems?
- 9. Briefly explain the steps involved in building a machine learning model.
- 10. Discuss the role of AI in healthcare with two specific examples.



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VALUE ADDED COURSE Department of Physics, The Cochin College. ADPHY2312: Fundamentals of Radiation Physics Duration: 30 Hours

Introduction

The Fundamentals of Radiation Physics course is designed to provide students with a thorough understanding of the principles of radiation physics, including the nature of radiation, its interaction with matter, and its applications. This course covers both ionizing and non-ionizing radiation and explores their uses in medical, industrial, and environmental contexts.

Course Objectives/Outcomes

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

- 1. Understand the fundamental concepts of radiation physics.
- 2. Describe the types and sources of radiation.
- 3. Explain the interaction of radiation with matter.
- 4. Evaluate the applications and safety measures related to radiation.
- 5. Assess the environmental and health impacts of radiation.

Course Syllabus

Course Duration: 30 Hours

Module 1: Introduction to Radiation (6 hours)

- Definition and Types of Radiation: Ionizing and Non-Ionizing
- Sources of Radiation: Natural and Artificial
- Units of Radiation Measurement
- Fundamental Properties of Radiation



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Module 2: Interaction of Radiation with Matter (6 hours)

- Mechanisms of Interaction: Photoelectric Effect, Compton Scattering, Pair Production
- Attenuation and Absorption
- Radiation Penetration and Shielding
- Radiation Dosimetry

Module 3: Detection and Measurement of Radiation (6 hours)

- Radiation Detectors: Geiger-Müller Counters, Scintillation Detectors, Semiconductor Detectors
- Measurement Techniques and Instrumentation
- Calibration and Maintenance of Radiation Detectors
- Data Analysis and Interpretation

Module 4: Applications of Radiation (6 hours)

- Medical Applications: Diagnostic Imaging, Radiotherapy, Nuclear Medicine
- Industrial Applications: Non-Destructive Testing, Radiography, Sterilization
- Environmental Applications: Radiation Monitoring, Environmental Impact Assessment
- Radiation in Research: Particle Physics, Astrophysics

Module 5: Radiation Safety and Protection (6 hours)

- Principles of Radiation Protection: Time, Distance, Shielding
- Radiation Safety Standards and Regulations
- Radiation Risk Assessment
- Emergency Procedures and Decontamination



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Question Paper

Total Duration: 2

HoursTotal Marks: 50

Section A: Short Answer Questions (10 x 1= 10 Marks)

- 1. Define ionizing and non-ionizing radiation.
- 2. What is the photoelectric effect?
- 3. Name two natural sources of radiation.
- 4. What unit is used to measure radiation dose?
- 5. Describe Compton scattering.
- 6. What is a Geiger-Müller counter?
- 7. Explain the concept of radiation shielding.
- 8. Give an example of radiation application in medicine.
- 9. What are the principles of radiation protection?
- 10. Mention one environmental application of radiation.

Section B: Descriptive Questions (5 x 4 = 20 Marks)

- 1. Describe the interaction of gamma rays with matter.
- 2. Explain the working principle of a scintillation detector.
- 3. Discuss the industrial applications of radiation.
- 4. Analyze the impact of radiation on human health and safety measures to mitigate risks.

Section C: Long Answer Questions (2 x 10 = 20 Marks)

1. With the help of diagrams, explain the mechanisms of radiation interaction with matter. Discuss the implications of these interactions in different applications.

2. Discuss the role of radiation in medical diagnostics and treatment. Highlight the technologiesused and the safety measures required to protect patients and healthcare workers.



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Basic Python Course Syllabus

Course Overview

This 30-hour course is designed to introduce students to the fundamentals of Python programming. Over the course of ten weeks, students will learn basic programming concepts, syntax, and problem-solving techniques using Python. By the end of the course, students will be equipped to write simple Python programs and understand core programming concepts.

Course Outcomes

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

- 1. Understand the basic syntax and structure of Python.
- 2. Write simple Python scripts for data manipulation and computation.
- 3. Implement control structures such as loops and conditionals.
- 4. Utilize functions for code modularity and reuse.
- 5. Handle exceptions and perform basic input/output operations.
- 6. Work with basic data structures such as lists, dictionaries, and sets.
- 7. Understand and use modules and libraries.
- 8. Read and write files using Python.

Weekly and Hourly Schedule

Week 1: Introduction to Python

- Hour 1: Course Introduction, Setting Up Python Environment
- Hour 2: Basic Syntax, Variables, and Data Types
- Hour 3: Simple Input/Output Operations

Week 2: Control Structures

- Hour 4: Conditional Statements (if, elif, else)
- Hour 5: Loops (for, while)
- Hour 6: Practical Exercises on Control Structures

Week 3: Functions



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- Hour 7: Defining Functions, Parameters, and Return Values
- Hour 8: Scope and Lifetime of Variables
- Hour 9: Lambda Functions and Map/Filter Functions

Week 4: Data Structures: Lists

- Hour 10: Introduction to Lists, Basic Operations
- Hour 11: List Methods and Functions
- Hour 12: List Comprehensions

Week 5: Data Structures: Tuples and Sets

- Hour 13: Introduction to Tuples, Basic Operations
- Hour 14: Introduction to Sets, Basic Operations
- Hour 15: Practical Exercises with Tuples and Sets

Week 6: Data Structures: Dictionaries

- Hour 16: Introduction to Dictionaries, Basic Operations
- Hour 17: Dictionary Methods and Functions
- Hour 18: Practical Exercises with Dictionaries

Week 7: Modules and Libraries

- Hour 19: Importing Modules and Standard Libraries
- Hour 20: Using External Libraries (e.g., NumPy, Pandas)
- Hour 21: Practical Exercises with Libraries

Week 8: File Handling

- Hour 22: Reading from and Writing to Files
- Hour 23: Working with CSV Files
- Hour 24: Practical Exercises on File Handling

Week 9: Error and Exception Handling

- Hour 25: Introduction to Exceptions, Try/Except Blocks
- Hour 26: Handling Multiple Exceptions
- Hour 27: Practical Exercises on Exception Handling



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	Hour 28: Project Planning and Requirements
:	Hour 29: Project Implementation
	Hour 30: Project Presentation and Course Review
fere	nces and Resources
4	
Ι.	Textbooks:
	"Automate the Boring Stuff with Python" by Al Sweigart
	"Python Crash Course" by Eric Matthes
	"Learning Python" by Mark Lutz
2	Online Resources:
۷.	Online Resources.
	<u>Python.org Documentation</u>
	W3Schools Python Tutorial
	<u>Real Python</u>
3.	Tools:
	Jupyter Notebook
	Anaconda Distribution
	<u>PyCharm IDE</u>
otes	
•	Assessment: Students will be assessed through weekly exercises,
	mid-term quiz, and a final project.
•	Office Hours: Available by appointment for additional help and clarification on course material.
/tho	yllabus provides a structured pathway to mastering the basics of n programming, offering hands-on experience and practical cations.
	ChatGPT can make mistakes. Check important info.

ChatGPT



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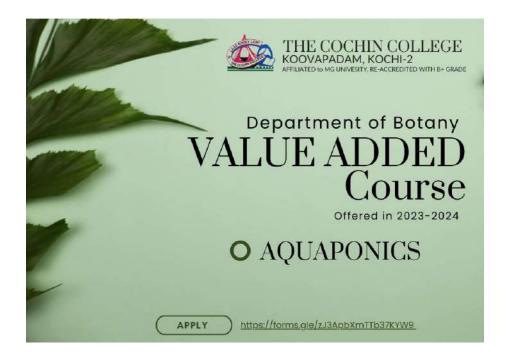


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Department of Botany

Add On Course 2023-2024

ADBOT2309-AQUAPONICS

SYLLABUS

Syllabus: Aquaponics (30 Hours)

Course Overview

This add-on course provides an in-depth understanding of aquaponics, a sustainable farming method that combines aquaculture (raising fish) and hydroponics (growing plants without soil). The course covers the principles, design, implementation, and management of aquaponics systems.

Course Objectives

- Understand the fundamentals of aquaponics and its benefits. •
- Learn the biological and ecological principles underlying aquaponics systems.
- Gain knowledge of system design, components, and construction.
- Explore techniques for maintaining water quality and system health.
- Develop skills for managing fish and plant growth in an integrated system.

Module 1: Introduction to Aquaponics (6 Hours)

- Definition and history of aquaponics
- Benefits of aquaponics over traditional farming methods Overview of aquaponics systems: media-based, nutrient film technique (NFT), and deep water culture (DWC)
- Key components of an aquaponics system: fish tanks, grow beds, pumps, and filters

Module 2: Biological and Ecological Principles (6 Hours)

- Nitrogen cycle and its role in aquaponics •
- Types of beneficial bacteria and their functions
- Fish and plant selection for aquaponics
- Symbiotic relationships between fish, plants, and bacteria

Module 3: System Design and Construction (6 Hours)

- Designing an aquaponics system: layout and space considerations •
- Selection and sizing of system components: tanks, grow beds, pumps, and filters
- Construction materials and techniques Plumbing and water flow management

•

Module 4: Water Quality Management (6 Hours)

• Importance of water quality in aquaponics



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- · Parameters to monitor: pH, temperature, ammonia, nitrite, nitrate, and dissolved
- oxygen
- Techniques for maintaining optimal water qualityTroubleshooting common water quality issues

Module 5: Fish and Plant Management (6 Hours)

- · Selecting and sourcing fish for aquaponics: species considerations
- · Fish health and disease management
- Plant selection and nutrient requirements
 Planting harvesting and crop rotation
- Planting, harvesting, and crop rotation



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Department of Botany Add On Course 2023-2024 VEEKSHA- DISASTER MANAGEMENT SYLLABUS





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