

# Value Added Courses

## SYLLABUS

2024-25



**KALINGA**  
**UNIVERSITY**

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RAIPUR | INDIA





**SYLLABUS**  
**2024-25**

# VALUE ADDED COURSES

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# FACULTY OF ARTS & HUMANITIES

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# DEVELOPMENT MANAGEMENT (VAC77)

**Total Duration: 40hrs**

**Subject Description:** This course throws light on Management of Non-Governmental Organizations(NGOs) and their Administration and proposal components in development.

**Goals:** To facilitate the students to understand about the structure of NGOs and their management aspects like project identification, evaluation and monitoring, and Project Personnel empowerment and fund raising.

**Objectives:** On successful completion of the course the students would enrich their knowledge about;

- The Structure, Development and Establishment of NGOs.
- Contents of project identification, budgeting, and funding.
- Project Personnel Empowerment and monitoring and evaluation.

**Teaching methodology:** Lecture classes, Power point presentation, Group Discussions, Visit to NGO's, Group activities, Assignments/Seminars, PRA in villages.

## **Contents:**

### **UNIT I - Non-Governmental Organizations**

Non-Governmental Organizations: Concept, Meaning, Need, Classification, Structure, Functions, Philosophies, Principles, Significance, Strategies, and Role of NGOs; Historical Development of NGOs in India; Community based organization: Concept and Development.

### **UNIT II - Establishment of NPOs**

Registration and Establishment of NPOs: Societies Act, Trust Act, Company's Act, Memorandum of Association and Articles of Association; Legal Status of NPO; Monitoring, Mechanism adopted by Governments - FCR Act; NGO-Administration; Policy Making: Aims and Objectives of the Executive Committee, Office Bearers and Governing Body and Rights, Power and Duties.

### **UNIT III - Project Identification and Budgeting**

Project Identification and Feasibility Studies: Base Line Surveys; Project Formulation; Planning and Policy-making; Strategy Formation and Preparation of Project Proposals and Project Implementation. Budgeting: Meaning, Steps and Important Items in Budget; Resource Mobilization: Central and State Government Assistance and other Assistance; Fund Raising: Meaning, Techniques and Income Generation Programmes (IGP); Financial Management; Financial Collaboration between Funding Organization and Non-Profit Organizations.

### **UNIT IV Funding of NGOs**

Sources of Funding: Government Grants, Foreign Aid, Donations, Membership fees and NGOs Contribution; Project Approach to Funding; Donor Consortium Approach; Funding Criteria and Conditionality; Managing Relationships with Donors; Working with Governments; Aspects of Financial Management relevant for NGOs and Networking Strategies.

### **UNIT V: Project Personnel Empowerment and Monitoring and Evaluation**

Training: Meaning, Need, Importance, Purpose, Significance and Training Needs; NGO functions in different Fields: Health, Rural Development, Child Health and Welfare, Women Welfare, Youth Welfare and Welfare of the elderly people; Role of NGOs in Administering the Social Welfare Programmes; Project Evaluation and Monitoring: Aims, Objectives, steps and Creating Management Information System; Project Appraisal: Meaning and Techniques; Logical Frame Analysis (LFA); Participatory Rural Appraisal (PRA): Principles, Methods of PRA and Network Analysis; Documentation and reporting; Public Relations.

**References:**

1. Clark, John, and 1991 Voluntary Organizations: Their Contribution to Development. London, EarthScan.
2. Dorothea, Hilhorbt, 2003 The real World of NGOs: Discourses, Diversity and Development. Zed Books Ltd.
3. Drucker, Peter, 1993 Managing the NGO: Principles and Practices, New Delhi: Macmillan Publication.
4. Ginberg, Leon, H., 2001 Social Work Evaluation: Principles and Methods. Singapore: Allyn and Bacon.
5. Julie Fisher, 2003 Governments, NGOs and the Political Development of the Third World, Jaipur:Rawat Publications.
6. Kandasamy, M., 1998 Governance and Financial Management in Non-Profit Organizations. New Delhi: Caritas India.
7. Kapoor, K. K., (Ed.), 1986 Directory of Funding Organizations. New Delhi: Information and News Network.
8. Kumar, A., 2003 Social Change through NGOs. New Delhi: Anmol Publishers.
9. Lawant, B.T., 1999 NGOs in Development. Jaipur: Rawat Publications.
10. Mukherjee, Amitara (Ed.), 1995 Participatory Rural Appraisal: Methods and Application in Rural Planning. New Delhi: Vikas Publishing Co.

# STRATEGIC CORPORATE COMMUNICATION (VAC78)

**Total Duration: 40hrs**

S. No.	Course Outcomes:	Level
Co1	Students will learn the definitions and evolution of corporate communication and types of the publics it caters.	Remember
Co2	Students will be able to understand the need, issues and significance related to corporate identity, image, reputation and process of corporate communication	Understand
Co3	Students will be able to use the tools and techniques of planning and implementing corporate communication campaign	Apply
Co4	Students will be able to evaluate the importance and need of the different tools and techniques of corporate communication	Analyse
Co5	Students will be able to produce corporate communication campaigns for different situations.	Skill & Create

## **Unit 1:**

Corporate communication: Definitions, concept and evolution

Evolution and present status of Corporate Communication

Public Relations vs. Corporate Communication: Differences and similarities

Corporate communication, public affairs, corporate affairs

Publics of Corporate Communication – Employee, Media, stakeholders, opinion leaders, government and elected representatives.

## **Unit2:**

Corporate identity and personality: Definition and concept

Integrating corporate identity in communication process

Corporate image & reputation: Meaning, definition and concept

Corporate brand management: Definition, importance & role

Role of communication in building corporate reputation, corporate identity, corporate image and corporate brands.

**Unit 3:**

Corporate communication Planning: Definition, concepts and elements. Strategic management perspective in corporate communications  
Types and importance of corporate communication activities  
Challenges and issues in communications strategy  
Importance of laws and ethics of corporate communication

**Unit 4:**

Lobbying  
Sponsorship  
Financial communication  
Digital Platforms  
Media

**Unit 5:**

Corporate Communication in Crisis Management  
Strategies and planning in Crisis Management  
Corporate communication management and social media  
Community Relations and Corporate management

**References:**

- Theaker, Alison, The Public Relations Handbook. Routledge, 2011.
- Black Sam & Melvin L, Practical Public Relations, Universal Book Stall, 1984.
- Balan. KR, Applied Public Relations and Communications, Sultan Chand and Sons, 2010.
- Dennis L. Wilcox et al. Public Relations: Strategies and Tactics, Pearson, 1998.
- Heath Robert L, Handbook of Public Relations, SAGE Publication, 2000. Jethwaney, Jaishri et al.
- Public Relations: Concept, Strategies, Tools, Sterling Publishers Private Limited, 2005.
- Joseph, Fernandez, Corporate Communications. New Delhi: Response Books, 2004.
- Scott M. Cutlip et al, Effective Public Relations, Pearson Education, 2006.
- J. V. Vilanilam, Public Relations in India, Sage Publications, 2011.
- Butterick, Kerith, Introducing Public Relations Theory and Practice, Sage, 2011.
- Parsons, J, Patricia, Ethics in Public Relations: A Guide to Best Practice. Kogan Page Limited, 2021.
- Rosenberg, Amy, A Modern Guide to Public Relations: Unveiling the Mystery of PR: Including: Content Marketing, SEO, social media & PR Best Practices, Veracity Marketing, 2021

# FACULTY OF COMMERCE & MANAGEMENT

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# INTRODUCTION TO R SOFTWARE (VAC79)

**Total Duration: 40hrs**

## **Course Objectives:**

- To understand basics of statistical computing and data analysis.
- To use R for analytical programming & to implement data structure in R.
- To Get familiar with R environment & Load important packages into R.
- To apply bibliometric, time series, correlation, & regression analysis.

## **Unit 1:**

Basic fundamentals, installation and use of software, data editing, use of R as a functions and assignments, finding your way around R.

## **Unit 2:**

Importing Data to R, Basic Commands & Packages in R.

## **Unit 3:**

Introduction to biblioshiny and how to do bibliometric analysis, Creating Time Series Analysis.

## **Unit 4:**

Introduction and calculation of correlation and regression analysis using R.

## **Books:**

- R for Data Science, Hadley Wickham and Garrett Gorlemund, 1st Edition, O'Reilly publishing house.

# FOREIGN EXCHANGE MARKET (VAC80)

**Total Duration: 40hrs**

## **Course Objective:**

- To understand the concepts that govern foreign exchange markets: interest rate parity, purchasing power parity, forex reserves, the balance of payments, central bank intervention, country risk/sovereign risk etc
- To describe the causes and consequences of foreign exchange risks, and the tools and techniques to manage those risks.

**Unit 1:** Foreign Exchange Markets: Structure and Trading: - Foreign Exchange Market: An Overview, Types of Transaction Traded in the Foreign Exchange Market, Exchange Rates: Importance and Quotation, Participants in the Foreign Exchange Markets, How and Why do Exchange Rates Fluctuate?

**Unit 2:** Theories Underlying Foreign Exchange Markets:- Nominal Vs. Real Exchange Rates, Interest Rate Parity, Foreign Exchange Reserves, Balance of Payments (BoP), Central Bank Intervention.

**Unit 3:** Foreign Exchange Risk: - Foreign Exchange Risk: An Introduction, Managing Foreign Exchange Risk.

**Unit 4:** Currency Derivatives: - Currency Derivatives Market: An Overview, Currency Options, Black Scholes Option Pricing Model, Currency Futures & Currency Swaps.

## **Books:**

1. Foreign Exchange Facilities for Individuals, Indian Institute of Banking and Finance, 2nd Edition.
2. Foreign Exchange & Risk Management, C Jeewanandam, Sultan Chand & Sons.

# FACULTY OF EDUCATION

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# EDUCATIONAL GUIDANCE (VAC81)

Total Duration: 40hrs

## Course Objective:

- To monitor the academic progress of the students.
- To acquaint the students with the prescribed curriculum.
- To identify the academically gifted, backward, creative and other category of special learners.
- To assist students in getting information about further education.
- To diagnose the learning difficulties of students and help them overcome the same.

## Course Outcome:

- To understand the concept of educational guidance.
- To help the student in the adjustment to the school environment, the peer group and the school curriculum.
- To prepare a plan for rendering guidance services according to the needs of students.
- To assist the pupils to understand their strengths and weaknesses.
- To help the students in developing good study habits.
- To help the children in selection of subjects in accordance with their need, aptitude and interest.
- To help the pupils in selecting the co-curricular activities.
- Student will be able to Organisation of guidance services.

## Unit-1:

- Basics and Principles of Educational Guidance
- Introduction to Guidance, Concept, meaning,
- Nature and importance of Guidance,
- Role of Teachers and Parents in Guiding Children.

## Unit-2:

- Rationale, Bases, Objectives,
- Functional and Principles of Educational Guidance
- Rational and bases of educational guidance
- Purpose and Objectives of Educational Guidance

## Unit-3:

- Relation between Education and Guidance
- Role of Guidance in Education
- Education and Career Guidance
- Socioemotional Development and Diversity Considerations

## Unit-4:

- Organisation of School Educational Guidance
- Services Components and patterns of educational guidance
- Community resources and Prerequisites of an EG programme.

## Unit-5:

- Implementation Strategies
- Individualized Guidance
- Group Guidance Activities
- Collaboration and Evaluation

## Reference Books

1. Aggrawal JC (1991): Educational & Vocational Guidance & Counseling, 7th edition, Doaba House, N. Delhi.
2. Bhatagar RP: Guidance & Counseling in Education
3. Gibson Robert & Mitchell Marianne (2005): Introduction to Guidance & Counseling, 6th edition, Prentice Hall of India, N. Delhi.
4. Kochhar SK (1981) Guidance in Indian education, N. Delhi
5. Kochhar SK (1987): Educational & Vocational Guidance in Secondary Schools, Sterling Publishers, N. Delhi

# ENTREPRENEURSHIP IN TEACHER EDUCATION (VAC82)

Total Duration: 40hrs

## Course Objective:

- To understand entrepreneurial principles within teacher education.
- To learn, spot and evaluate entrepreneurial prospects in education.
- To create inventive teaching methods fostering entrepreneurial skills.
- To acquire practical business skills tailored to educational settings.
- To cultivate collaboration and leadership in educational entrepreneurship.

## Course Outcome:

- Deepen comprehension of entrepreneurial theories in education.
- Recognize and assess innovation opportunities in educational contexts.
- Implement creative teaching methods integrating entrepreneurial concepts.
- Construct tailored business plans for educational ventures.
- Master communication and networking for educational entrepreneurship.
- Demonstrate leadership and collaboration in educational innovation.
- Reflect critically and adapt strategies for educational entrepreneurship.

## Unit-1:

- Indian school education system in the context of NEP 2020
- Objectives of Entrepreneurship

## Unit-2:

Types of school models

- Ownership school
- Franchise model and its process.

## Unit-3:

Requirements for the setup of school- Junior School.

- Case Studies
- Connection and Collaboration with Stakeholders (Govt. & Private)
- Selection of Franchises
- School Structure Development

## Unit-4:

Requirements for the setup of school- Primary School.

- Case Studies
- Connection and Collaboration with Stakeholders (Govt. & Private)
- Selection of Franchises
- School Structure Development

## Unit-5:

Requirements for the setup of school- Secondary and Senior Secondary School.

- Case Studies
- Connection and Collaboration with Stakeholders (Govt. & Private)
- Selection of Franchises
- School Structure Development

## Reference Books

- [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)
- [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_Hindi\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_Hindi_0.pdf)
- <https://www.youtube.com/watch?v=BIJBveGlgo0>
- <https://www.youtube.com/watch?v=GVKxuAmelzo>
- <https://www.youtube.com/watch?v=vZs9rCSkmfM>
- <https://www.youtube.com/watch?v=ONOZBiINVtq>

# FACULTY OF TECHNOLOGY

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# MIX DESIGN OF NORMAL GRADE CONCRETE (VAC83)

Total Duration: 40hrs

**COURSE OBJECTIVE:** - The objective of proportioning concrete mixes is to arrive at the most economical and practical combinations of different ingredients to produce concrete that will satisfy the performance requirements under specified conditions of use.

The proportioning is carried out to achieve specified characteristics strength at specified age, workability of fresh concrete and durability requirements

## COURSE OUTCOME:-

- Identify the functional role of ingredients of concrete and apply this
- knowledge to mix design philosophy Acquire and apply fundamental knowledge in the fresh and hardened
- Properties of concrete
- Evaluate the effect of the environment on service life performance,
- Properties and failure modes of structural concrete and demonstrate
- Techniques of measuring the Non Destructive Testing of concrete structure
- Develop an awareness of the utilization of waste materials as novel
- Innovative materials for use in concrete
- Design a concrete mix which fulfills the required properties for fresh and
- Hardened concrete

## MODULE 1 - :Concrete Technology Course (CTC)

- Identify the key PPE requirements for working with concrete – at the concrete plant or on-site
- Understand what safety precautions are necessary when working with concrete
- Explain the key factors addressed in typical Environmental Protection Acts
- Identify precautions that can be taken at a concrete plant in each Area of environmental importance

## MODULE 2 - Cementitious Materials (Portland and Blended Cements)

- Describe the general use of 'cements' in ancient times.
- Describe the manufacturing processes involved in making
- Portland cement.
- Comment on the environmental issues associated with cement manufacture.
- Describe in general terms, the mineralogy and chemistry of Portland cement
- Define the types of cement and the important characteristics of each type.

## MODULE 3- Cementations Materials (Introduction to Supplementary Cementations Materials)

- Describe the typical SCM-types used in Australia.
- Explain how SCM's work in concrete.
- Describe the benefits of using SCM's in both the plastic and
- Hardened states of concrete.
- Explain the specific advantages to plastic and hardened state
- Concrete properties from using the various SCM's.

## MODULE 4 - Fly Ash

- Describe the way in which fly ash is formed
- Explain the benefits of using fly ash in concrete in both the plastic and hardened states
- Explain how fly ash reacts and how this leads to improved concrete performance
- List the concrete durability improvements derived from using fly ash

**Reference Books:**

1. Hardin, Brad (2009). Martin Viveros (ed.). BIM and Construction Management: Proven Tools, Methods and Workflows. Sybex. ISBN 978-0-470-40235-1.
2. Jernigan, Finith (2007). BIG BIM little bim. 4Site Press. ISBN 978-0-9795699-0-6.
3. Kensek, Karen (2014). Building Information Modeling, Routledge. ISBN 978-0-415-71774-8
4. Kensek, Karen and Noble, Douglas (2014). Building Information Modeling: BIM in Current and Future Practice, Wiley. ISBN 978-1-118-76630-9
5. Kiziltas, Semiha; Leite, Fernanda; Akinci, Burcu; Lipman, Robert R. (2009). "Interoperable Methodologies and Techniques in CAD". In Karimi, Hassan A.; Akinci, Burcu (eds.). CAD and GIS Integration. CRC. pp. 73–109. ISBN 978-1-4200-6806-1.
6. Krygiel, Eddy and Nies, Brad (2008). Green BIM: Successful Sustainable Design with Building Information Modeling, Sybex. ISBN 978-0-470-23960-5
7. Kymmell, Willem (2008). Building Information Modeling: Planning and Managing Construction Projects with 4D CAD and Simulations, McGraw-Hill Professional. ISBN 978-0-07-149453-3

# ADVANCED MATERIALS: PROCESSING AND CHARACTERIZATION (VAC84)

Total Duration: 40hrs

## Course Objective:

To impart knowledge on

- Theoretical and practical knowledge on processing methods, microstructure and mechanical characterization techniques used in metallurgical research.
- Opportunities for the students to work in metallurgical based research laboratories and industries after completing their degrees.
- Advances on materials for diversified applications.

## Unit - I

### ADVANCED MATERIALS

Advanced materials for automobile, space, defence etc. - Importance - case studies - in-situ composites - Functionally graded materials - SAP - ECAP process - ultrafine grained materials - composite preparation by stir casting - quality control.

## Unit - II

### POWDER METALLURGY RESEARCH

Selection and characterization of powders - compacting and sintering - porous and dense composite components: Metal, polymer and ceramic based composites - advantages - applications - powder preform forming - relative density - aspect ratio - correlation with mechanical property.

## Unit - III

### MODERN METALLIC MATERIALS

Dual phase steels - High strength low alloy steel - Transformation induced plasticity steel - maraging steel - nitrogen steel - intermetallics - Ni and Ti aluminides - smart materials - shape memory alloys - Metallic glass and nano crystalline materials.

## Unit - IV

### NANO MATERIALS

Synthesis - PVD - electro deposition - CNT - Fullerenes - nano composites - porous materials - nanosensors - nanomedicines.

## Unit - V

### CHARACTERIZATION

X-ray diffraction - scanning electron microscope - modes of operation - morphology and elemental composition analysis - Auger spectroscopy - SPM - Thermal analysis.

## Course Outcome:

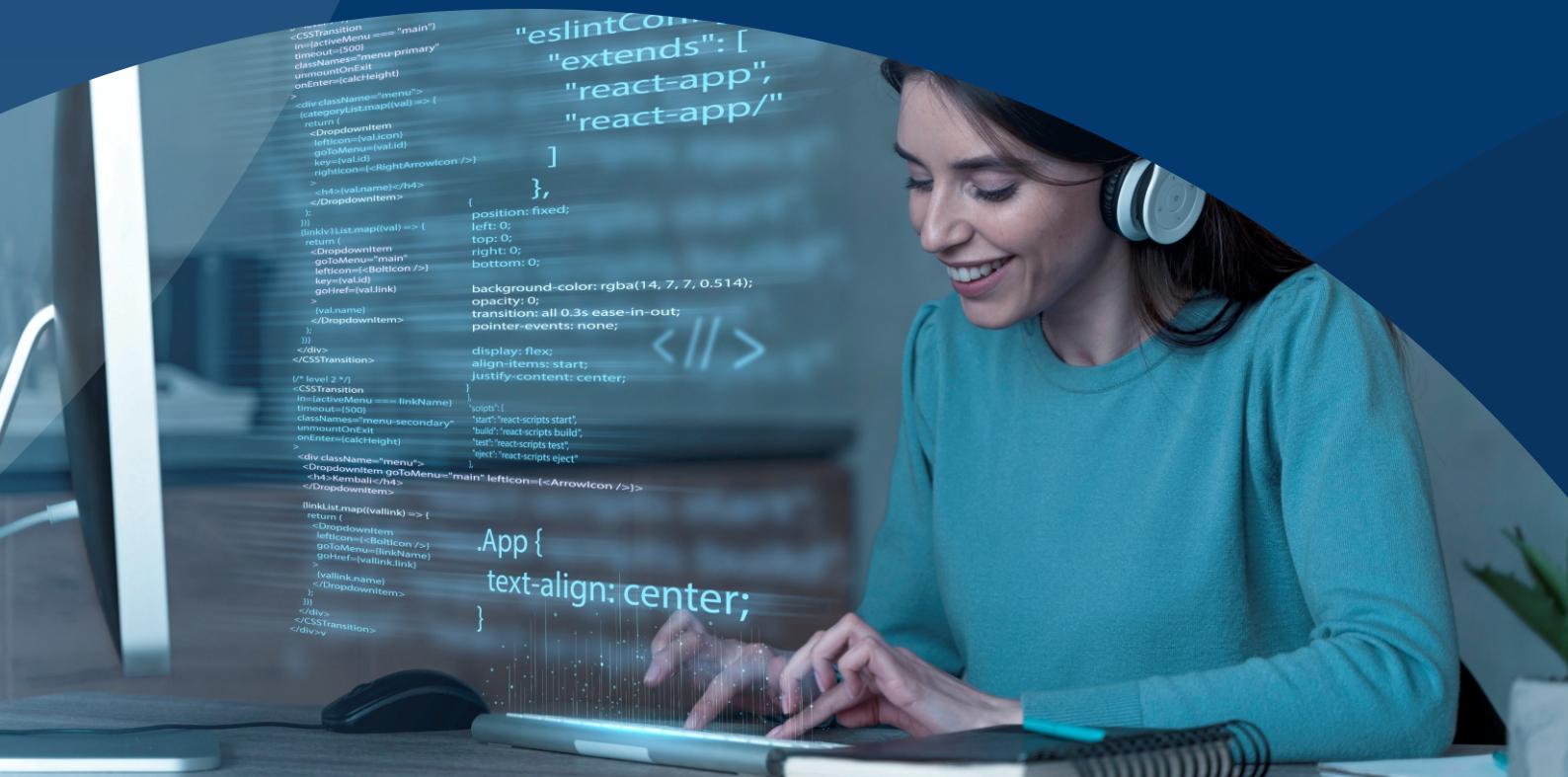
- At the end of the course, the students will be able to
- Able to fabricate the components by various manufacturing techniques.
- Do their research in the areas of materials science and metallurgical engineering.
- Have knowledge on various processing methods for preparing composites and alloys.

## Reference Books:

1. Kenneth G.Budinski and Michael K.Budinski "Engineering Materials" Prentice-Hall of India Private Limited, 4th Indian Reprint 2002.
2. Selvakumar N, "Engineering Metallurgy and Nanotechnology", Scitech publishers, 2016.
3. Charles P. Poole Jr, Frank J. Owens, "Introduction to nanotechnology", Wiley - India (P) Ltd., 2006.
4. William D Callister "Material Science and Engineering", John Wiley and Sons 2007.
5. Sydney H.Avner "Introduction to Physical Metallurgy" McGraw Hill Book Company, 2007

# FACULTY OF INFORMATION TECHNOLOGY

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# CLOUD INFRASTRUCTURE AND SERVICES (VAC85)

Total Duration: 40hrs

## Course Outcome:

After learning the course, the student will be able:

1. To explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, and the characteristics, advantages, and challenges brought about by the various models and services in cloud computing.
2. Apply the fundamental concepts in data centres to understand the power, efficiency, and cost tradeoffs using a Load balancing approach.
3. To discuss system virtualization and outline its role in enabling the cloud computing system model
4. To illustrate the fundamental concepts of cloud storage and demonstrate their use in storage systems such as Amazon S3 and HDFS.
5. To analyze various cloud programming models and apply them to solve problems on the cloud.
6. To understand various management and other distinguished services of AWS.
7. To analyze the billing of resources and another paradigm: how to deal with disasters.
8. Understand security and compliance for AWS, including auto-scaling, Elastic load balancing, Cataloging the marketplace, AMIs, and Selling on the market.

## UNIT I

**Introduction to Cloud Technologies** -Introduction to Cloud Computing—History of Cloud Computing Features of Cloud Computing—Cloud Service Models—Cloud Deployment Models—The concept of virtualization, Cloud Platforms—Comparison of Cloud Providers—Limitations.

## UNIT II

**Cloud Architecture- Layers and Models** -Layers in cloud architecture - Software as a Service (SaaS) features of SaaS and benefits - Platform as a Service (PaaS) - features of PaaS and benefits - Infrastructure as a Service ( IaaS ) - features of IaaS and benefits - Service providers - challenges and risks in cloud adoption. - Cloud deployment model:

## UNIT III

**Virtualization and Cloud Platforms** -Exploring virtualization, Load balancing, Hypervisors, Machine imaging, Cloud marketplace overview, and Comparison of Cloud providers. Introduction to AWS AWS history, AWS Infrastructure, AWS services, AWS ecosystem.

## UNIT IV

**Security Management in the Cloud** - Security Management Standards -Security Management in the Cloud - Availability Management: SaaS, PaaS, IaaS - Privacy Issues - Privacy Issues -Data Life Cycle - Key Privacy Concerns in the Cloud - Protecting Privacy - Changes to Privacy Risk Management and Compliance about Cloud Computing - Legal and Regulatory Implications - U.S. Laws and Regulations - International Laws and Regulations

## UNIT V

**Programming, management console, and storage on AWS** Basic Understanding APIs— AWS programming interfaces, Web services, AWS URL naming, Matching interfaces and services, Elastic block store—simple storage service, Glacier—content delivery platforms. AWS networking and databases Virtual private clouds, Cloud models, Private DNS servers (Route 53), Relational database service—DynamoDB, Elasticache, Redshift.

**Reference Books:**

1. Cloud Computing Bible. Barrie Sosinsky. John Wiley & Sons. ISBN-13: 978-0470903568.
2. Amazon Web Services For Dummies. Bernard Golden. For Dummies. ISBN-13: 978-1118571835
3. Rajkumar Buyya, Cloud Computing: Principles and Paradigms, John Wiley & Sons, First Edition
4. Amazon Security overview whitepaper- <https://aws.amazon.com/whitepapers/IAMGettingStartedGuide>
5. Amazon.com Mashups by Francis Shanahan, Wrox, Wiley Publishing Inc., ISBN-13: 978-0470097779, ISBN-10: 0470097779
6. Cloud Computing Design Patterns by Thomas Erl, Prentice Hall, ISBN-10: 0133858561, ISBN-13: 978-0133858563

# FULL STACK DEVELOPMENT (VAC86)

**Total Duration: 40hrs**

## **COURSE OBJECTIVES:**

1. To become knowledgeable about the latest web development technologies.
2. Idea for creating two-tier and three-tier architectural web applications.
3. Design and analyze real-time web applications.
4. Constructing suitable client and server-side applications.
5. To learn the core concepts of both front-end and back-end programming.

## **COURSE OUTCOMES:**

1. Develop and deploy a fully functioning website on a webserver.
2. Gain Knowledge about the front-end and back-end Tools!
3. Find and use code packages based on their documentation to produce working results in a project.
4. Create web pages that function using external data.
5. Implementation of web application employing efficient data base access.

## **UNIT-I**

Web Development Basics: -HTML & Webservers Shell-UNIX CLI Version Control-Git- & GitHub HTML, CSS. All-In-One HTML/HTML5 And CSS/CSS3 Suite- Applying

Designs to Wireframes with HTML 5 and CSS3-Build Your HTML 5 Video

Player-Building Responsive Websites with HTML5 and CSS3 HTML 5 and CSS3 Site Design

## **UNIT-II**

JavaScript Development Suite -Fundamentals of JavaScript-JavaScript for Beginning Web Developers-JavaScript for Absolute Beginners Frontend Development: JavaScript basics OOPS Aspects of JavaScript Memory usage and Functions in JS AJAX for data exchange with server jQuery Framework jQuery events, UI components, etc. JSON data format.

## **UNIT-III**

Node.js Training-Introduction and Foundation-Node Projects-Working with shrink-wrap to lock the node modules versions-Working with asynchronous programming an HTTP Server with Node.js using HTTP APIs-File System-REACT JS: Introduction to React Router and Single Page Applications React Forms, Flow Architecture, and Introduction to Redux More Redux and Client-Server Communication

## **UNIT-IV**

React.js -Welcome to Starting with React-React Components -React State and Props React Event Handling-Java Web Development: JAVA PROGRAMMING BASICS, Model View Controller (MVC) Pattern MVC Architecture using Spring RESTful API using Spring Framework Building an application.

## **UNIT-V**

MongoDB Developer and Administrator-Course Introduction-Introduction to NoSQL databases-MongoDB A Database for the Modern Web-CRUD Operations in MongoDB. Databases & Deployment: Relational schemas and normalization Structured Query Language (SQL) Data persistence using Spring JDBC Agile development principles and deploying applications in the Cloud.

## **TEXTBOOKS:**

1. Web Design with HTML, CSS, Java Script and jQuery Set Book by Jon Duckett Professional JavaScript for Web Developers Book by Nicholas C. Zakas
2. Learning PHP, MySQL, JavaScript, CSS & HTML5: A Step-by-Step Guide to Creating Dynamic Websites by Robin Nixon
3. Full Stack JavaScript: Learn Backbone.js, Node.js and MongoDB. Copyright © 2015 BY AZAT MARDAN

## **REFERENCE BOOKS:**

1. Full-Stack Java Script Development by Eric Bush.
2. Mastering Full Stack React Web Development Paperback-April 28, 2017 by Tomasz Dylmil Przyborski, Maciej Czarnecki

# FACULTY OF **LAW**

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# DATA PROTECTION AND ITS ASPECTS (VAC87)

Total Duration: 40hrs

## **Module I - Introduction of the Data protection.**

- Introduction to the Data Protection.
- Overview of the Data Protection Laws: It's aim, scope, Objectives
- Indian Constitutional Obligation Vs Privacy Laws Vs Data Protection.

## **Module II- Data Protection Law in Context.**

- History of Data Protection Law: An Indian & Global perspective.
- Data Privacy Vs Informational privacy.
- Regulatory Logic of Data Protection Law.
- Enforcement of Data Protection Law.

## **Module III - Indian perspective on Data Protection.**

- Data protection Law in India: Legislative action & Judicial reaction.
- Processing of the personal data.
- Rights of the Individuals & Entities on processing of personal data.
- Remedies for unauthorized processing.

## **Module IV- Data Protection and Privacy.**

- Introduction to the Privacy laws
- Overview of the Privacy laws: It's aim, scope, Objectives
- Protection of Personal Information: It's importance.
- Data Privacy Vs Informational privacy.

## **Module V- Indian perspective on Privacy and data Protection.**

- Privacy Law in India: Legislative action.
- Inter-Legal aspects of Data Protection Law.
- Cyber security: It's challenges

## **REFERENCE MATERIAL**

- The Right to Privacy in India: Concept and Evolution by Ravinder Kumar & Gaurav Goyal.
- The European General Data Protection Regulation
- The American federal legislations.
- The Indian data protection bill, 2019.

# LAW OF RIGHT TO INFORMATION (VAC88)

**Total Duration: 40hrs**

The Right to Information Act 2005 in the light of following –

## **MODULE I**

### **Right to Information and obligations of public authorities.**

1. Right to information
2. Obligations of public authorities
3. Designation of public information officers
4. Request for obtaining information
5. Disposal of request
6. Exception from disclosure of information
7. Grounds for rejection to access in certain cases.

## **MODULE II**

### **The Central Information Commission**

1. Constitution of Central Information Commission
2. Term of office and condition of service
3. Removal of Chief Information Commissioner or Commissioner

## **MODULE III**

### **The State Information Commission**

1. Constitution of State Information Commission
2. Term of office and condition of service
3. Removal of Chief Information Commissioner or Commissioner

## **MODULE IV**

### **Power and Functions of the Commission Appeal**

1. Power and Functions of Commission
2. Appeal
3. Penalties

## **MODULE V**

### **Right to Information (Regulation of fee and cost) Rules 2005**

#### **Books Recommended –**

1. Law Relating to Right to Information Act by Mitra & R.P. Kataria (Orient)
2. Information Technology Act, 2005

# FACULTY OF PHARMACY

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# ANIMAL HANDLING AND EXPERIMENTATION TECHNIQUES (VAC89)

**Total Duration: 40hrs**

## Course Overview

This course aims to provide students with comprehensive knowledge and practical skills in the handling and experimentation techniques involving laboratory animals. It covers ethical considerations, regulatory frameworks, proper handling and restraint methods, anesthesia and analgesia, and various experimental procedures.

## Course Outcomes

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

### 1. Ethical and Regulatory Compliance:

- Understand and apply ethical principles and regulatory frameworks in animal research, including the principles of the 3Rs (Replacement, Reduction, and Refinement).

### 2. Animal Handling and Welfare:

- Safely and effectively handle, restrain, and care for various laboratory animals, ensuring minimal stress and improved welfare during experimental procedures.

### 3. Anesthesia and Euthanasia:

- Administer appropriate anesthetic and analgesic agents, monitor anesthesia, and perform humane euthanasia in accordance with ethical guidelines and best practices.

### 4. Experimental Design and Execution:

- Design and conduct robust, ethically sound animal experiments, including proper data collection, analysis, and troubleshooting of common issues.

### 5. Communication and Continuous Learning:

- Present experimental findings clearly and effectively, stay updated with the latest advancements in animal experimentation techniques, and advocate for practices that promote animal welfare.

## Unit 1: Introduction to Animal Handling and Experimentation

- Course Overview and Objectives
- Importance of Animal Handling in Research
- Ethical Considerations in Animal Experimentation
- Introduction to the 3Rs: Replacement, Reduction, and Refinement
- Introduction to Animal Models in Biomedical Research
- Historical Perspective on Animal Experimentation
- Guidelines for Ethical Conduct in the Care and Use of Animals

### Assignment:

- Short essay on the significance of animal models in research.

### Discussion:

- Case studies on ethical dilemmas in animal research

## Unit 2: Regulatory Framework and Institutional Policies

- Overview of International and National Regulations
- Institutional Animal Care and Use Committees (IACUC)
- Protocol Submission and Review Process
- Record Keeping and Documentation Requirements
- Overview of Animal Welfare Act and other relevant regulations
- Sample IACUC Protocols and Review Process

### Assignment:

- Summary of key regulatory documents and their implications

**Workshop:**

- Preparing a sample IACUC protocol for a hypothetical study

**Unit 3: Animal Handling and Restraint Techniques**

- Species-Specific Handling Techniques: Rodents
- Proper Restraint Methods
- Species-Specific Handling Techniques: Rabbits, Dogs, and Cats
- Stress and Its Impact on Animal Welfare
- Techniques in Handling and Restraint of Laboratory Animals
- Stress Reduction Methods in Laboratory Animals

**Practical Session:**

- Hands-on training with rodent models
- Hands-on training with larger animal models

**Unit 4: Anesthesia, Analgesia, and Euthanasia**

- Principles of Anesthesia and Analgesia
- Commonly Used Anesthetic Agents and Their Administration
- Methods of Euthanasia: Ethical and Practical Considerations
- Post-procedure Care and Monitoring
- Guidelines for Anesthesia and Analgesia in Laboratory Animals
- AVMA Guidelines for the Euthanasia of Animals

**Practical Session:**

- Demonstration of anesthesia techniques in small animals
- Demonstration of humane euthanasia techniques

**Unit 5: Experimental Techniques and Data Collection**

- Designing Animal Experiments: Key Considerations
- Data Collection and Interpretation
- Best Practices in Animal Experimentation
- Advanced Experimental Techniques (e.g., imaging, behavioral assays)
- Troubleshooting Common Issues in Animal Research
- Recent Advances in Animal Experimentation Techniques

**Assignment:**

- Design an experimental study involving animal models
- Workshop:
  - Presentation and critique of student-designed experiments

**Assessment:****Midterm Exam:**

- Covers Units 1 and 2

**Final Exam:**

- Comprehensive assessment covering all units

**Practical Exam:**

- Hands-on demonstration of handling, restraint, anesthesia, and euthanasia techniques

**Project:**

- Design and presentation of an animal experiment, including ethical considerations and regulatory compliance

**Recommended Textbooks and Resources:**

1. "Laboratory Animal Medicine" by James G. Fox et al.
2. "The UFAW Handbook on the Care and Management of Laboratory and Other Research Animals" by Robert Hubrecht and James Kirkwood
3. "Guide for the Care and Use of Laboratory Animals" by National Research Council
4. Relevant scientific journals and online resources for updated guidelines and techniques.

## Course Overview

This course provides an in-depth understanding of health and nutrition, emphasizing the role of diet in maintaining health and preventing disease. Students will learn about macronutrients, micronutrients, dietary guidelines, and the relationship between nutrition and chronic diseases. The course also covers topics such as food safety, eating behaviors, and global nutrition issues.

## Course Objectives

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

1. Understand the basic principles of nutrition and the role of different nutrients in the body.
2. Evaluate dietary patterns and their impact on health.
3. Apply knowledge of nutrition to develop healthy eating plans.
4. Understand the relationship between nutrition, physical activity, and health.
5. Discuss global nutrition issues and food security.
6. Analyze the role of nutrition in disease prevention and management.

## Course Structure

The course is divided into five units, each focusing on a specific aspect of health and nutrition. Each unit includes lectures, readings, discussions, and assignments.

### Unit 1: Fundamentals of Nutrition

#### Topics

- Overview of nutrition and health
- Macronutrients: Carbohydrates, proteins, and fats
- Micronutrients: Vitamins and minerals

### Unit 2: Digestion, Absorption, and Metabolism

#### Topics:

- Digestion and absorption processes
- Metabolism and energy balance

### Unit 3: Nutrition and Disease Prevention

#### Topics:

- Dietary guidelines and food labels
- Nutrition and chronic diseases (e.g., diabetes, cardiovascular disease, cancer)
- Weight management and eating disorders

### Unit 4: Special Topics in Nutrition

#### Topics:

- Physical activity and nutrition
- Food safety and technology
- Life cycle nutrition

## **Unit 5: Global Nutrition and Cultural Aspects**

### Topics:

- Global nutrition and food security
- Cultural and social aspects of nutrition
- Current trends and controversies in nutrition

### **Grading**

Participation and Attendance: 10%

Assignments and Projects: 40%

Quizzes: 20%

Final Project: 15%

Final Exam: 15%

### Required Textbooks

**1. Main Textbook:** "Nutrition: Concepts and Controversies" by Frances Sizer and Ellie Whitney

### **2. Supplementary Readings:**

- Advanced Nutrition and Human Metabolism" by Sareen S. Gropper and Jack L. Smith

This book delves into the biochemical and physiological aspects of human nutrition, providing a detailed understanding of how nutrients are metabolized and utilized in the body.

- "Nutrition and Physical Degeneration" by Weston A. Price.

A classic study on the impacts of modern diets on health, this book offers insights into the relationship between traditional diets and physical health.

- "Understanding Nutrition" by Eleanor Noss Whitney and Sharon Rady Rolfes.

Another excellent resource for foundational knowledge, this book covers the principles of nutrition and their application to a healthy lifestyle.

- "Public Health Nutrition: From Principles to Practice" by Mark Lawrence and Tony Worsley.

This book provides an overview of public health nutrition, discussing strategies and policies to improve nutritional health at the population level.

- "Essentials of Human Nutrition" by Jim Mann and A. Stewart Truswell.

A comprehensive guide to the essentials of nutrition, including detailed information on micronutrients, macronutrients, and nutritional needs throughout the life cycle.

- "Clinical Nutrition" by Marinos Elia, Olle Ljungqvist, Rebecca Stratton, and Dileep Lobo\*\*

This book focuses on the role of nutrition in clinical settings, discussing the nutritional management of various diseases and conditions.

### **Assignments:**

- Written assignment on the importance of balanced diet
- Group project on digestive health
- Food label analysis project
- Case study analysis on chronic diseases
- Weight management plan assignment
- Research paper on nutrition-related chronic diseases
- Final project submission
- Comprehensive final exam

# FACULTY OF SCIENCE

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# APICULTURE (DEPARTMENT OF ZOOLOGY) (VAC91)

**Total Duration: 40hrs**

## **Unit 1: Biology of Bees**

History, Classification and Biology of Honey Bees

Social Organization of Bee Colony

## **Unit 2: Rearing of Bees**

Artificial Bee rearing (Apiary), Beehives – Newton and Langstroth

Bee Pasturage

Selection of Bee Species for Apiculture

Bee Keeping Equipment

Methods of Extraction of Honey (Indigenous and Modern)

## **Unit 3: Diseases and Enemies**

Bee Diseases and Enemies

Control and Preventive measures

## **Unit 4: Bee Economy**

Products of Apiculture Industry and its Uses (Honey, Bees Wax, Propolis),

Pollen etc

## **Unit 5: Entrepreneurship in Apiculture**

Bee Keeping Industry – Recent Efforts, Modern Methods in employing artificial

Beehives for cross pollination in horticultural gardens

# ORNAMENTAL FISHES DEPARTMENT OF ZOOLOGY (VAC92)

**Total Duration: 40hrs**

## **Unit1: Introduction to Aquarium Fish Keeping**

The potential scope of Aquarium Fish Industry as a Cottage Industry, Exotic and Endemic species of Aquarium Fishes

## **Unit 2: Biology of Aquarium Fishes**

Common characters and sexual dimorphism of Fresh water and Marine Aquarium fishes such as Guppy, Molly, Sword tail, Gold fish, Angel fish, Blue morph, Anemone fish and Butterfly fish

## **Unit 3: Food and feeding of Aquarium fishes**

Use of live fish feed organisms. Preparation and composition of formulated fish feeds

## **Unit 4: Fish Transportation**

Live fish transport - Fish handling, packing and forwarding techniques.

## **Unit 5: Maintenance of Aquarium**

General Aquarium maintenance – budget for setting up an Aquarium Fish Farm as a Cottage Industry