

CERTIFICATE PROGRAM
IN
LIBRARY AND INFORMATION SCIENCE

Credit Structure for C.L.I.Sc. Programme

SI .No	Course code	Name of the Course	CIA Marks Max.	ESE Marks Max.	Total Marks Max.	Credits
1	21511	Fundamentals of Library and Information Science	25	75	100	2
2	21512	Information Sources and Services	25	75	100	2
3	21513	Information Processing Practice – (Classification& Cataloguing)	25	75	100	4
TOTAL			75	225	300	8

CIA: Continuous Internal Assessment ESE: End semester Examination

Detailed Syllabi

21511 - FUNDAMENTALS OF LIBRARY AND INFORMATION SCIENCE

Course objectives:

1. To enable students acquire knowledge regarding importance of Libraries in the context of social, economic, political, scientific and technological environment.
2. To enable the students to understand at different levels of information systems in the society and their functions.
3. To enable the students apply their knowledge in various library practice.

Course Outcome:

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

- Understand the historical development and role of libraries
- Appreciate the roles played by professional library associations
- Know the fundamentals of Library routine works.

Unit 1: Data, Information & Knowledge; Evolution of Information Science as a discipline, its scope and relation to Library Science Library: concept and definitions; Role of libraries in modern society - Library Movement in India

Unit 2: Types of Libraries: Academic libraries, Public libraries and Special Libraries. Evolution, growth and development of LIS schools in India. Current trends - Open Access to information; the inter-discipline nature of LIS.

Unit 3: Library concepts - Five laws of Library science and their implications - Library Legislation in India with special reference to Tamil Nadu Public Libraries Act of 1948 - Delivery of Books and Newspaper Act

Unit 4: Information Transfer Cycle; Ethics of librarianship. Information / Knowledge Society; information and knowledge as economic factors; economics of information; legal and ethical issues; the digital divide.

Unit 5: Various sections in a Library- Routine work in Acquisition, Technical, Circulation, Maintenance, Reference and Binding Sections - Library Rules & Regulations, Stock Verification, Annual Reports, Budget, Library building, furniture, and equipment.

Unit 6: Need and importance of library professional associations in India - Library Association and International Bodies: Library Association-ILA, IASLIC, ALA, IFLA and UNESCO - Library and information profession.

Recommended Books:

1. Library Administration: Theory & Practice by R.L. Mittal, ESS-ESS publication, New Delhi, 2007.
2. Learn Library Classification by Anil K. Dhiman, Yashoda Rani. ESS-ESS publication, New Delhi, 2005.
3. Theory of Classification, 4/e by Krishan Kumar; S.Chand Publication, New Delhi, 2000.
4. Library Administration by S.R. Ranganathan, ESS-ESS publication, New Delhi, 2006.
5. Reference Service, 5/ by Krishan Kumar, Vikas Publishing, New Delhi, 2010.
6. Library Manual, 4/e by Krishan Kumar, Vikas Publishing, New Delhi, 2008.
7. History of Libraries and in Librarianship in Modern India since 1850, by Jogesh Mistra, Alma Ramu& Sons: Delhi, 1979.
8. Fundamentals of Library organization, by J.K. Khanna: ESS-ESS publication, New Delhi, 1984.
9. Facets of Library and Information Science by A.A.N. Raju, ESS-ESS publication, New Delhi, 2012.
10. Ranganathan, SR. Library Administration, Bangalore, Sarada Ramanath Endowment for Library Science.

21512 - INFORMATION SOURCES AND SERVICES

Objectives:

1. To enable the students acquire knowledge regarding various Information sources and services
2. To enable the students understand handling traditional and digital information services
3. To enable the students apply their knowledge in Information Sources and Services

Course Outcome:

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

- understand the different types of information sources;
- understand the different types of information services;
- increase ability to critically examine information services

Unit 1: Data, Information, Knowledge: Definition, Need, Nature and Characteristics.

Information and its users - Information Transfer, Barrier to communication.

Unit 2: Sources of information – Documentary and Non Documentary sources, Types of Information sources- Primary, Secondary and Tertiary Sources.

Unit 3: Detailed study of reference books: Directories, Encyclopaedias, Year Books, Handbooks, Almanacs & Atlases, Geographical Sources, News summaries.

Unit 4: Information services- nature and variety of information services in libraries. Reference services: definition, need and purpose of Reference Service, Kinds of Reference Service Ready reference and long range reference services of information science.

Unit 5: Current Awareness and Selective Dissemination of Information services. Reprography- User Education: Information for rural people information guidance centres.

Unit 6: Computerization and Networking - Web Resources and their evaluation criteria - ICT applications in Libraries and Information Centres.

Recommended Books:

1. Reference Service, 5/e by Krishan Kumar, Vikas Publishing, New Delhi, 2009.
2. Reference Services and Sources of Information, J.S. Sharma & D.R. Grover, Ess Ess Publications, New Delhi, 1987.
3. Understanding Basics of Library and Information Science; Reference Services & Information Sources (Fifth Paper); by C. Lal & K. Kumar, Ess Ess Publications, New Delhi, 2005.
4. Reference Services and the Digital Sources of Information by Amjad Ali, Ess Ess Publication, New Delhi, 2004.
5. 10 Pillars of Library and Information Science (Pillar-4 Information Sources by Narendra Dodiya, Ess Ess Publications, New Delhi, 2015.

6. Advances in Library Computerisation by Dattatray N. Phadke, Ess Ess Publications, New Delhi, 2021.
7. Library Automation and Digitization by P. Balasubramanian & Sherin Yohannan, Ess Ess Publications, New Delhi, 2021.
8. Information Science, Information, Knowledge Communication and Libraries By C.A. Augustine, Ess Ess Publications, New Delhi, 2021.
9. Next Generation Libraries Emerging Technologies, Community Engagement & Future Librarianship by Bhojaraju Gunjal, Dibya Kishor Pradhan, Vinod Kumar Mishra , Pushpita Mishra & Kshirod Das, Ess Ess Publications, New Delhi, 2020.
10. Baruah, A, Library Database Management, Delhi, Kalpaz Publications

21513 - INFORMATION PROCESSING PRACTICE - (CLASSIFICATION AND CATALOGUING)

Objectives:

1. Be familiarized with the CC 6th Rev. Edition
2. Be familiarized with the DDC 19th Edition
3. Understand the cataloguing and bibliographic description formats;
- 4.

Course Outcome:

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

- Understand the classification systems;
- Understand the structure and layout of the classification systems.
- Understand the cataloguing and bibliographic description formats

Classification

Colon Classification CC 6th Ed (**PMEST**)

Dewey Decimal classification (DDC Ed. 20) (**Seven Tables**)

Cataloguing

(Simple Title, Single Author, Multiple Authors, Pseudonym, Series, Collaborators, Corporate Authors

Anglo American Cataloguing Rules (AACR - 2)

Recommended Books:

1. Understanding Basics of Library and Information Science Library Cataloguing (Fourth Paper (Part-A: Theory) & (Part -B : Prctice) by C. Lal & K. Kumar ESS-ESS publication, New Delhi, 2005.
2. An Introduction to Cataloguing Practice by Krishan Kumar, Vikas Publishing, New Delhi, 2004.
3. Comaromi, John P. [et all. (1982). Manual for Use of Dewey Decimal Classification, 19th ed. Albany, New York: Forest Press.
4. Satija, M.P. and Comaromi, John P. (1987). Introduction to the Practice of Decimal. Classification: New Delhi: Sterling Publishers.

CERTIFICATE COURSE
IN
OFFICE AUTOMATION

Course of Study and Scheme of Examinations

S.No	Course Code	Name of the Course	CIA Marks Max.	ESE Marks Max.	Total Marks Max.	Credits
1	22711	Computer Fundamentals	25	75	100	2
2	22712	Principles of Information Technology	25	75	100	2
3	22713	Office Automation	25	75	100	2
4	22714	Office Automation – LAB	25	75	100	2
TOTAL			100	300	400	8

CIA: Continuous Internal Assessment ESE: End semester Examination

Detailed Syllabi

11 COMPUTER FUNDAMENTALS

Course Objectives

This course will introduce you to the field of computer science and the fundamentals of computer programming. It is specifically designed for students with no prior programming experience, and touches upon a variety of fundamental topics. The goal of the computer science curriculum is to provide students with the knowledge and tools that will allow them to design and implement effective, economical, and creative solutions for the needs of individuals, society, and the high-tech economy.

Course Outcome

At the end of this course, the student will be able to;

- Compare and contrast various types of computers
- Explain the purpose of CPU and how it works
- Describe how information is stored in memory
- Know about various types of software's and its applications

UNIT I

Introduction to Computers, History of computers, Types of computers, Characteristics of computers, Basic Anatomy of a computer, Applications of computer - Input and Output devices - Introduction – inputting text: keyboards, OCR, Bar codes and speech recognition - Inputting graphics- scanners – pointing devices - Output devices – types of screens- CRT- flat panel displays, Printers - Laser Printers, Ink-jet printers - other printers – color printers.

UNIT II

Memory and Types: Memory types – Main Memory - RAM, ROM, Types of ROMs- PROM, EPROM, EEPROM, Cache memory, virtual memory, buffers - Secondary storage - Diskettes - Hard Disks - Optical Disks - Magnetic Tapes – External Hard Disks, USB Flash Drive.

UNIT III

Number Systems: Binary, Octal, Decimal and Hexadecimal number Systems – Conversion from one base to another base – use of complements – binary arithmetic – Numeric and Character codes - Boolean Algebra and Combinational Circuits: Fundamental concepts of Boolean Algebra – DeMorgan's theorems.

UNIT IV

Program Language Translators: Assembler – Compiler – Interpreter – Utility Programs – Machine Language – Assembly Language – High Level Language – Flowchart - Algorithms

UNIT V

Operating Systems: Introduction – Types – Structure – Functions - Operating System Services – System Calls – System Programs – Operating System Design and Implementation - Windows Operating Systems: Desktop GUI: Introduction – Definition – Icons, Cursor/pointers - Dialog Boxes - Task Bar – Windows Desktop Functions – Logoff/Shutdown - Linux Operating System: Introduction – Commands – Utilities - Administration

UNIT VI

Introduction, Significance of Database, Database System Applications; Data Independence; Data Modelling for a Database; Entities and their Attributes, Entities, Attributes, Relationships and Relationships Types, Advantages and Disadvantages of Database Management System, DBMS Vs RDBMS - Form of Basic SQL Query - Examples of Basic SQL Queries, Introduction to Nested Queries, Correlated Nested Queries, Set - Comparison Operators, Aggregate Operators, NULL values - Comparison using Null values - Logical connectives - AND, OR and NOT - Impact on SQL Constructs, Outer Joins, Disallowing NULL values.

References:

3. Dennis P.Curtin, Kim dolwy, KunL AWN, Xrhleen morin, Information Technology, the breaking wave, TMH 2000.
4. Sanjay saxena, A First Course in Computers (Based on Windows Xp and Office Xp) Vikas Publishing House; Second edition (2010).

12FUNDAMENTALS OF INFORMATION TECHNOLOGY

Course Objectives

- To understand the revolution in computers and communications
- To know about various application software
- To understand the information systems and software development
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Course Outcome

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

- To know the latest trends in information technology
- To understand the fundamentals of computers

Unit I:

Information Technology: Introduction – Information systems – Definition of computer and system – Software and Data - IT in business and Industry – IT in the Home and at Play – It in Education and Training – IT in Entertainment and the Arts – IT in Science, Engineering, and Mathematics– Global Positioning System.

Unit II:

Computer Networks: Introduction – Definition Computer Networks - Types of Networks – Local Area Network – Metropolitan Area Network- Wide Area Network – Personal Area Network - internet – Intranet –firewalls - Network Topology – Bus – Ring – Hybrid – Star.

Unit III:

Basic Internet Concepts: – Analog and Digital Signals - modems and communication Software, ISDN lines, and Cable Modems - Definition of Internet - The World Wide Web - Connecting to the Internet – Browsing the web – Web browser – Uniform Resource Locator (URL) – E-mail communication - Internet address - Domain Name System – Locating information on the net – Internet Search Engines – Chatting and conferencing on the Internet Online Chatting –Messaging – Usenet Newsgroup.

Unit IV:

Communications: The practical uses of communications and connectivity - Telephone related communications services - Video/voice communication: Video conferencing and picture phones - online information services - The Internet - Shared resources: Workgroup computing, Electronic Data Interchange, and Intranets - Telecomputing and virtual offices -Electronic gadgets Other than the computers: Mobile Office devices – Tablet, Smart Phone – concept of mobilephone and Tablet and their uses – Working with Tablets and Smart Phones such asUC browser, WhatsApp, Maps, Skype.

Unit V:

Information Technology Act: Act 2000 – Background - Salient Features - Digital Signature - Electronic Governance - Regulation of Certifying Authorities - Cyber Laws - Penalties for Offences - Cyber Laws in India: Need for cyber-laws, nature and scope of cyber laws, approaches to cyber laws, cyber – crimes, piracy, Convergence bill, Information Technology Legislation

Unit VI:

E-governance: E-government, Need of E-Governance, E-assistance, E-Democracy, E-Administration, On-line Citizen Services - E-governance implementations: Software and Hardware required for E-

governance Implementation, E-governance in a Small Office, Web Portal for E-governance, E-governance for Public utilities, E-governance in a Medium Enterprise, E-governance & Finance.

References:

4. Dennis P.Curtin, Kim dolwy, KunL Awn, Xrhleen morin, Information Technology, the breaking wave, TMH 2000.
5. Stacey C Sawyer, Brain K Williams, Sarah E Hutchinson Using Information Technology – Brief Version A Practical Introduction to Computer and Communications Third Edition, McGraw Hill Companies 2011
6. James O'Brien – Introduction to Information systems. 16th edition, 2005.

13OFFICE AUTOMATION

Objective of the Course:

- To help the students to understand how to format, edit, and print text documents and prepare for desktop publishing.
- Students will be able to create various documents newsletters, brochures, making document using photographs, charts, presentation, documents, drawings and other graphic images.
- To work with the worksheet and presentation software.

Learning Outcomes:

After completion of the course, students would be able to;

- Know the basics of computers and prepare documents, spreadsheets, make small presentations with audio, video and graphs and would be acquainted with internet.
- create, edit, save and print documents with list tables, header, footer, graphic, spellchecker, mail merge and grammar checker
- Attain the knowledge about spreadsheet with formula, macros spell checker etc.
- go for higher studies such as diploma, bachelors or master's degree in related discipline.

Unit I:

MS-Word -Working with Files – Working with Text – Formatting, Moving, copying and pasting text Styles – Lists – Bulleted and numbered lists, Nested lists, Formatting lists. Table Manipulations. Graphics – Adding clip Art, add an image from a file, editing graphics, Spelling and Grammar, AutoCorrect - Page formatting - Header and footers, page numbers, Protect the Document, Mail Merge, Macros - Creating& Saving web pages, Hyperlinks.

Unit II

MS-Excel- Modifying a Worksheet – Moving through cells, adding worksheets, rows and columns Resizing rows and columns, selecting cells, Moving and copying cells, freezing panes - Macros – recording and running. Formatting cells – Formatting toolbar, Dates and times, Auto formatting. Formula and Functions. Linking worksheets - Sorting and Filling, Alternating text and numbers with Auto fill, Auto filling functions. Graphics – Adding clip art, add an image from a file, Charts – Using chart Wizard, Copy a chart to Microsoft Word.

Unit III:

MS-Power Point -Create a Presentation from a template- Working with Slides – Insert a new slide, applying a design template, changing slide layouts -Slides: Reordering slides, hide slides, Create a Custom slide show. Adding Content – Resizing a text box, Text box properties, delete a text box - Video and Audio effects, Color Schemes & Backgrounds Adding clip art, adding an image from a file, Save as a web page.

Unit IV:

MS-Access - Using Access database wizard, pages and projects. Creating Tables – Create a Table in design view. Datasheet Records – Adding, Editing, deleting records, Adding and deleting columns Resizing rows and columns, finding data in a table & replacing, Print a datasheet. Queries - **MS-Access** Forms – Create a form using the wizard, Create a form in Design View. Form Controls. Sub forms-Create

a form and sub form at once, Sub form wizard, Drag and drop method. Reports – Using the wizard, Create in Design View, Printing reports. Importing, Exporting, Linking

Unit V:

Open Office Writer: Introduction to Writer application – Working with documents – Formatting documents – Creating and formatting tables – Mail merge - **Open Office Calc:** Introduction to Spreadsheet – Creating worksheet & workbook – Managing workbook - Insert functions and formulas – Creating and printing Charts – Pivot table.

Unit VI:

Open Office Impress: Introduction, Creating, Saving Presentation – Master Templates – Slide transition – Linking with MS Power point slides.

Open Office-Base – Introduction- Database Concepts – Creating a New Database, Creating Tables, Working with Forms, creating queries - OpenOffice-Base - Creating Reports, Types of Reports, Printing and Printing preview – Working with other databases i.e. MS Access etc.

REFERENCE BOOKS:

7. Sanjay Saxena, A First Course in Computers (Based on Windows 8 And MS Office 2013) Vikas Publishing 2015.
8. Jennifer fulton, Sherri Kinkoph, and Joe Kraynak, The Big Basics Book of Microsoft Office 1997, PHI, 1998.
9. Laura Acklen et al, Microsoft Office 97 Professional Essentials,EEE Que E&T, PHI (1998).
10. Andy Channelle, Beginning OpenOffice 3, APress 2009
11. R. Gabriel Gurley, A Conceptual Guide to OpenOffice.Org 2 for Windows and Linux

14OFFICE AUTOMATION - LAB

Objective of the Course:

- To help the students to understand how to format, edit, and print text documents and prepare for desktop publishing.
- Students will be able to create various documents newsletters, brochures, making document using photographs, charts, presentation, documents, drawings and other graphic images.
- To work with the worksheet and presentation software.

Learning Outcomes:

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

- Integrate both graphs and tables created in Microsoft Excel into a laboratory report in Microsoft Word.
- Generate equations, sample calculations, and basic diagrams in Microsoft Word.
- Input experimental data into Microsoft Excel.
- Perform calculations in Microsoft Excel using both manually inputting formulas and built-in Functions.
- Generate simple and effective tables and graphs to describe experimental data in Microsoft Excel.
- Properly format and organize a formal laboratory report in Microsoft Word.

Exercises based on MS-Word and Open Office Writer

- ❖ Working with Text, spell check and grammar
- ❖ Table manipulation
- ❖ Flow chart drawing
- ❖ Mail merge
- ❖ Create organization chart
- ❖ Real-time document preparation (Covering letter, greeting cards, invitation, brochure,etc)

Exercises based on MS-Excel and Open Office Calc

- ❖ Performing arithmetic calculations using worksheet
- ❖ Using functions
- ❖ Using Graphs and charts
- ❖ Sorting and filtering

Exercises based on MS-Power Point and Open Office Impress

- ❖ Designing slides for real time applications
- ❖ Using image, audio and video effects
- ❖ Using Animation and transition
- ❖ Using Wizard
- ❖ Using template

Exercises based on MS Access and Open Office Base

Table manipulation

- ❖ Creating, altering and drop tables
- ❖ Inserting values
- ❖ Selecting and calculating values from the table
- ❖ Real-time application development (employee database, student database etc.,)

REFERENCE BOOKS:

1. Sanjay Saxena, A First Course in Computers (Based on Windows 8 And MS Office 2013) Vikas Publishing 2015.
2. Jennifer fulton, Sherri Kinkoph, and Joe Kraynak, The Big Basics Book of Microsoft Office 1997, PHI, 1998.
3. Laura Acklen et al, Microsoft Office 97 Professional Essentials,EEE Que E&T, PHI (1998).
4. Andy Channelle, Beginning OpenOffice 3, APress 2009
5. R. Gabriel Gurley, A Conceptual Guide to OpenOffice.Org 2 for Windows and Linux

**CERTIFICATE PROGRAMME IN
FOOD PRODUCT DEVELOPMENT AND
ENTREPRENEURSHIP**

COURSE OF STUDY AND SCHEME OF EXAMINATION

S.No	Title of the Course	No. of Credits	T/P	Marks		Total
				Internal	External	
1	Food Processing Technology	2	T	25	75	100
2	Food Innovation and Quality Management	2	T	25	75	100
3	Fundamentals of Entrepreneurship Development	2	T	25	75	100
4	Lab. I : Food Processing & Product Development	4	P	25	75	100
	Total	10		100	300	400

T – Theory P – Practical

Title of the Course		FOOD PROCESSING TECHNOLOGY					
Paper Number		1					
Category	Core	Year	I	Credit	2	Course Code	22811
		Semester	I				
Objectives							
1.Understand the fundamental principles and methods of food processing and preservation.							
2. Explain the role of preservation techniques in enhancing shelf life and food safety.							
3. Analyze the impact of processing on nutritional and sensory quality of foods.							
4. Evaluate different food preservation technologies and packaging systems.							
5. Apply preservation techniques for value addition and development of safe food products.							
Course Outcomes The student will be able to:							Knowledge Levels
CO1: Recall the basic concepts, principles, and methods of food processing and preservation.							K1
CO2: Explain various preservation techniques and their effects on food quality and safety.							K2
CO3: Apply suitable processing and preservation methods for different food commodities.							K3
CO4: Analyze food quality parameters, safety standards, and packaging methods.							K4
CO5: Design and develop value-added preserved food products considering quality and shelf life.							K5
K1 - Remember		K2 - Understand		K3 - Apply		K4 - Analyze	
						K5 - Evaluate	
Block- I		Fundamentals of Food Processing and Preservation					
Unit- 1: Concept and scope of food processing and preservation; Importance in food security and nutrition;Primary, secondary and tertiary processing, historical perspective, traditional technologies used in food processing. Effects of processing on components, properties and nutritional value of foods.							
Unit- 2: Principles of food preservation. Concept of food spoilage, causes (microbial, enzymatic, chemical and physical) and their prevention; Role of preservation in enhancing shelf life, safety and quality of foods.							
Block- II		Methods of Food Preservation					
Unit-3: Traditional methods: drying, salting, sugaring, fermentation and pickling; Advantages and limitations.							
Unit-4: Modern methods: refrigeration, freezing, pasteurization, sterilization, canning and irradiation; Advantages and limitations.							
Block- III		Processing of Food Commodities -I					
Unit- 5: Cereals and pulses: Milling of wheat - extraction of flour, refined wheat flour and pasta products Milling of rice – parboiled rice, rice based instant food Processing of corn, barley and millets – pearling, flaking and puffing, corn starch products, Malting-Pulses – Red gram, Bengal gram, black gram, green gram, soy-based products, Decortication and milling,							
Unit- 6: Fruits and vegetables: Harvesting, physiological and biochemical changes during ripening, handling and storage, general methods of processing – extraction and pulping, raw material and product specifications and standards.							
Block- IV		Processing of Food Commodities -II					
Unit- 7: Milk and milk products: Standardization, pasteurization, homogenization, Processing of milk products- paneer, khoa, curd, yogurt, butter, cheese, ghee, flavoured milk, ice creams, Milk powder.							
Unit- 8: Meat, poultry, fish and egg: Ageing and tenderizing, curing, smoking and freezing meat, fresh storage of meat. Meat based products: sausages, salami, bacon. Fish: Dry fish - Tuna Fish Canning - Fish processing and storage, pickling. Egg: storage, frozen egg, dehydrated egg powder.							
Block- V		Food Packaging & Value Addition and Emerging Trends					
Unit-9: Concept,functions and types of food packaging; Packaging materials: glass, metal, plastic and paper. :Food quality attributes and standards; Food safety, hygiene and sanitation practices; Quality control systems and regulatory guidelines.							
Unit- 10: Principles of value addition in foods; Nutritional enhancement and food fortification; Functional foods and nutraceuticals. Emerging preservation technologies; Waste management and sustainable practices in food processing industries.							

Text Book:

1. DeMan, J. M. (2023). *Principles of Food Chemistry*. Springer.
2. Fellows, P. J. (2022). *Food Processing Technology: Principles and Practice* (5th ed.). Woodhead Publishing.
3. Ranganna, S. (2021). *Handbook of Analysis and Quality Control for Fruit and Vegetable Products*. Tata McGraw-Hill.
4. Singh, R. P., & Heldman, D. R. (2022). *Introduction to Food Engineering* (6th ed.). Academic Press.
5. Srilakshmi, B. (2023). *Food Science* (8th ed.). New Age International.

Suggested Readings:

1. Barbosa-Cánovas, G. V., et al. (2022). *Water Activity in Foods*. Wiley-Blackwell.
2. Potter, N. N., & Hotchkiss, J. H. (2022). *Food Science*. Springer.
3. Rahman, M. S. (2023). *Handbook of Food Preservation*. CRC Press.
4. Rao, D. G. (2022). *Fundamentals of Food Engineering*. PHI Learning.
5. Robertson, G. L. (2022). *Food Packaging: Principles and Practice*. CRC Press.

E-Resources

1. <https://www.fao.org/>
2. <https://www.nin.res.in/>
3. <https://www.aoac.org/>
4. <https://swayam.gov.in/>
5. <https://vlab.co.in/>

Title of the Course		FOOD INNOVATION AND QUALITY MANAGEMENT					
Paper Number		2					
Category	Core	Year	I	Credit	2	Course Code	22812
		Semester	I				
Objectives							
1. Understand the principles and processes involved in new food product development.							
2. Apply consumer research and market evaluation techniques in food product innovation.							
3. Analyze innovative food processing technologies for the development of value-added food products.							
4. Evaluate preservation, packaging, and storage methods for enhancing food quality and shelf life.							
5. Develop competency in food safety, quality control, and regulatory compliance in the food industry.							
Course Outcomes						Knowledge Levels	
The student will be able to:							
CO1: Identify the concepts and importance of food product development.						K1	
CO2: Explain the role of ingredients, processing and preservation in food product development.						K2	
CO3: Use food processing and packaging techniques in developing new food products.						K3	
CO4: Examine the quality, safety and sensory characteristics of food products.						K4	
CO5: Assess innovative food products for nutritional value, consumer acceptance and market potential.						K5	
K1 – Remember		K2 – Understand		K3 – Apply		K4 – Analyze	
						K5 – Evaluate	
						K6 – Create	
Block- I		New Food Product Development					
Unit-1: Basic principles of food product development: Sensory properties of food and their role in product development. Evaluation of food- objective and subjective methods, selection and training of judges, development of score cards and analysis of data.							
Unit-2: Concept of new food product development – General classes of new food products, reasons for new food product, new food product life cycle.							
Block- II		Stages of New Product Development					
Unit-3: Stages-Consumer Surveys, Idea Generation, Sources, Screening, Translation of idea to product prototype, Product testing.							
Unit-4: Consumer research evaluation- development of schedule and data analysis. Market testing, Pre-Commercialization and Product launch.							
Block- III		Innovative Food Processing Technologies					
Unit- 5: Modern food processing methods- Extrusion, fermentation and encapsulation; Biotechnology in food development.							
Unit- 6: Non-thermal processing techniques; Smart and sustainable processing technologies; Use of functional foods and bioactive components in new food product development.							
Block- IV		Packaging and Storage Techniques					
Unit-7: Introduction to packaging; packaging technologies for food products (vacuum packaging, modified atmosphere packaging (MAP), active packaging, intelligent/smart packaging, aseptic packaging and retort packaging); packaging standards and regulations; quality evaluation of packaging materials; sustainable and eco-friendly packaging.							
Unit-8: Introduction to food storage and shelf life, Factors affecting storage- temperature, moisture, light and microorganisms; Dry storage methods, Refrigerated and frozen storage, Storage of processed and ready-to-eat foods; Quality changes during storage; Shelf-life evaluation of new food products.							
Block- V		Food safety and quality control					
Unit-9: Introduction to food safety and quality control; food contamination and foodborne hazards (physical, chemical and microbiological); Good Manufacturing Practices (GMP); Good Hygienic Practices (GHP); sanitation and hygiene in food processing; Hazard Analysis and Critical Control Point (HACCP)							

principles and implementation.

Unit-10: Food standards and regulations; national and international food safety standards; food adulteration and its detection; food labeling requirements; quality assurance and quality control in food industries; food quality management systems; traceability and documentation; recent trends in food safety and quality management.

Text Book:

1. Gopalan, C. (2019). Nutritive value of Indian foods (Revised ed.). National Institute of Nutrition (ICMR).
2. Manay, N. S., & Shadaksharaswamy, M. (2020). Foods: Facts and principles (3rd ed.). New Age International Publishers.
3. Ranganna, S. (2017). Handbook of analysis and quality control for fruit and vegetable products (2nd ed., Indian reprint). Tata McGraw-Hill Education.
4. Sivasankar, B. (2021). Food processing and preservation. PHI Learning Pvt. Ltd.
5. Srilakshmi, B. (2023). Food science (8th ed.). New Age International Publishers.

Suggested Readings:

1. Earle, M., Earle, R., & Anderson, A. (2024). *Food product development: Maximising success* (2nd ed.). Woodhead Publishing.
2. Fuller, G. W. (2023). *New food product development: From concept to marketplace* (4th ed.). CRC Press.
3. Gordon, W. V. (2023). *Principles and applications of food product development*. Springer.
4. Hui, Y. H. (2024). *Handbook of food products manufacturing* (2nd ed.). Wiley Publishers.
5. Man, D., & Jones, A. A. (2025). *Shelf life evaluation of foods* (3rd ed.). Springer.
6. Robertson, G. L. (2023). *Food packaging: Principles and practice* (4th ed.). CRC Press.
7. Sun, D. W. (2025). *Emerging technologies for food processing* (3rd ed.). Academic Press.

E- Resources:

1. <https://www.fao.org>
2. <https://www.fssai.gov.in>
3. <https://www.ift.org>
4. <https://www.who.int>
5. <https://www.ncbi.nlm.nih.gov>

Title of the Course		FUNDAMENTALS OF ENTREPRENEURSHIP DEVELOPMENT					
Paper Number		3					
Category	Core	Year	I	Credit	2	Course Code	22813
		Semester	I				
Objectives							
1. Understand the fundamentals of Entrepreneurship and its role in economic development. 2. Analyse institutional support systems and government initiatives for startup development in India. 3. Develop skills in business planning, legal procedures, and financial support mechanisms for new ventures. 4. Evaluate business opportunities and identify potential entrepreneurial ventures. 5. Apply entrepreneurial skills for starting and managing small-scale enterprises.							
Course Outcomes The student will be able to:						Knowledge Levels	
CO1: Define the concepts, types, and role of entrepreneurship in economic development.						K1	
CO2: Explain the role of entrepreneurship in economic development and factors affecting entrepreneurial growth.						K2	
CO3: Apply knowledge of entrepreneurship development programs, institutional support, and government schemes to real-world business scenarios.						K3	
CO4: Analyze startup initiatives in India and their impact on entrepreneurial growth.						K4	
CO5: Evaluate business plans, legal aspects, and incentives for establishing a venture.						K5	
<i>K1 – Remember</i>		<i>K2 – Understand</i>		<i>K3 – Apply</i>		<i>K4 – Analyze</i>	
						<i>K5 – Evaluate</i>	
Block- I		Introduction to Entrepreneurship					
Unit 1: Meaning, concept and importance of entrepreneurship; characteristics, functions and qualities of an entrepreneur; types of entrepreneurs; women and rural entrepreneurship; role of entrepreneurship in economic development; factors influencing entrepreneurial growth. Unit 2: Entrepreneurial competencies and skills; creativity and innovation; identification of business opportunities; entrepreneurial motivation; risk-taking, leadership and decision-making; ethics and social responsibility in entrepreneurship.							
Block- II		Entrepreneurship Development and Support Systems					
Unit 3: Entrepreneurship Development Programmes (EDPs); need, objectives, phases and evaluation; entrepreneurship education; business idea generation; business incubation and mentoring. Unit 4: Institutional support for entrepreneurs; District Industries Centre (DIC), National Small Industries Corporation (NSIC), Small Industries Development Organisation (SIDO), Khadi and Village Industries Commission (KVIC), State Industrial Development Corporation (SIDC), Industrial Estates, National Institute for Entrepreneurship and Small Business Development (NIESBUD), Small Industries Development Bank of India (SIDBI), Entrepreneurship Development Institute of India (EDII), angel investors, incubators, Science and Technology Entrepreneurs Park (STEP), and venture capital.							
Block- III		Government Initiatives for Startups					
Unit 5: Government initiatives for startups; SAMRIDH Scheme, MSME Market Development Assistance (MDA), National Initiative for Developing and Harnessing Innovations (NIDHI), Credit Linked Capital Subsidy Scheme (CLCSS), Digital India GENESIS, MSME Sustainable (ZED) Certification, Multiplier Grants Scheme (MGS), Startup Leadership Program (SLP), and ASPIRE Scheme. Unit 6: Startup India Initiative; Startup India Seed Fund Scheme; Pradhan Mantri Mudra Yojana; Atal Innovation Mission; Credit Guarantee Trust Fund; Venture Capital Assistance Scheme; Stand-Up India Scheme; Raw Material Assistance Scheme; Single Point Registration Scheme; role of startups in economic development.							
Block- IV		Business Planning and Enterprise Management					
Unit 7: Business opportunity identification; feasibility analysis; business model development; preparation of business plans; project formulation; financial planning; sources of finance; budgeting and cost estimation.							

Unit 8: Registration of business enterprises; legal forms of business organization; licensing and regulatory requirements; intellectual property rights (IPR); incentives and subsidies for entrepreneurs; taxation and compliance; basics of business management and digital entrepreneurship.	
Block- V	Business Plan and Legal Aspects
Unit 9: Marketing of entrepreneurial ventures; branding and promotion; digital marketing; customer relationship management; quality management; sustainable and social entrepreneurship.	
Unit 10: Growth and expansion of small enterprises; common challenges faced by startups and MSMEs; industrial sickness—causes, prevention and revival; innovation management; future trends and opportunities in entrepreneurship.	
Text Books: 1. Badi, R. V., & Badi, N. V. (2020). Entrepreneurship (2nd ed.). Vrinda Publications. 2. Charantimath, P. M. (2021). Entrepreneurship development and small business enterprises (3rd ed.). Pearson India. 3. Desai, V. (2020). Dynamics of entrepreneurial development and management (7th ed.). Himalaya Publishing House. 4. Gupta, C. B., & Srinivasan, N. P. (2021). Entrepreneurship development in India. Sultan Chand & Sons. 5. Khanka, S. S. (2022). Entrepreneurial development (3rd ed.). S. Chand Publishing. Suggested Readings 1. Barringer, B. R., & Ireland, R. D. (2021). Entrepreneurship: Successfully launching new ventures (6th ed.). Pearson. 2. Drucker, P. F. (2015). Innovation and entrepreneurship. Routledge. 3. Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2023). Entrepreneurship (12th ed.). McGraw-Hill Education. 4. Kuratko, D. F. (2022). Entrepreneurship: Theory, process, and practice (12th ed.). Cengage Learning. 5. Scarborough, N. M. (2021). Essentials of entrepreneurship and small business management (9th ed.). Pearson.	
E-Resources 1. https://www.startupindia.gov.in/content/sih/en/government-schemes.html 2. https://www.aim.gov.in 3. https://services.india.gov.in 4. https://nidhi.dst.gov.in 5. https://www.udyamregistration.gov.in 6. https://www.nimsme.gov.in 7. https://msme.gov.in	

Title of the Course		LAB. I: FOOD PROCESSING & PRODUCT DEVELOPMENT					
Paper Number		4					
Category	Core	Year	I	Credit	4	Course Code	22814
		Semester	I				
Objectives							
1. Impart practical knowledge of basic food processing and preservation techniques. 2. Develop skills in formulation and preparation of value-added food products. 3. Understand the role of processing in improving nutritional quality and shelf life. 4. Train students in sensory evaluation and quality assessment of food products. 5. Introduce basic concepts of packaging, labelling, and cost analysis for food products.							
Course Outcomes The student will be able to:							Knowledge Levels
CO1: Apply appropriate food processing methods for different food commodities.							K1
CO2: Develop and standardize simple value-added food products.							K2
CO3: Evaluate sensory and quality attributes of processed food products.							K3
CO4: Demonstrate knowledge of packaging, storage, and shelf-life of foods.							K4
CO5: Perform basic cost calculation and labelling for developed food products.							K5
K1 – Remember	K2 – Understand	K3 – Apply		K4 – Analyze	K5 – Evaluate	K6 – Create	
Block-I	Basic Food Processing Techniques						
Unit-1: Cleaning, washing, peeling and cutting of raw fruits and vegetables.							
Unit-2: Blanching and basic heat processing (boiling, steaming)							
Unit-3: Preparation of simple cereal and pulse-based products							
Block-II	Principles of Food Product Development						
Unit-4: Standardization of recipes (trial preparation)							
Unit-5: Cost calculation and portion size determination							
Unit-6: Basic food processing techniques (baking, cooking, extrusion – demo)							
Block-III	Development of Value-Added Products-I						
Unit-7: Development of products using: Cereals and millets; Pulses and legumes							
Unit-8: Development of products using: Fruits and vegetables							
Unit-9: Development of products using: Milk and milk products							
Block-IV	Development of Value-Added Products - II						
Unit-10: Formulation of Energy-rich foods							
Unit-11: Formulation of Protein-rich foods							
Unit-12: Formulation of:							
1. Fiber-enriched foods							
2. Vitamins and Minerals- enriched foods (Vitamin-A, Iron, Calcium)							
Block-V	Development of convenience products						
Unit-13: Development of ready-to-eat foods							
Unit-14: Development of ready-to-cook foods							
Unit-15: Development of Ready-to-Serve foods.							
Text Book:							
1. Aneja, K. R. (2022). Experiments in microbiology, plant pathology and biotechnology (5th ed.). New Age International Publishers.							
2. Manay, N. S., & Shadaksharaswamy, M. (2020). Foods: Facts and principles (3rd ed.). New Age International Publishers.							
3. Ranganna, S. (2017). Handbook of analysis and quality control for fruit and vegetable products (2nd ed., Indian reprint). Tata McGraw-Hill Education.							
4. Sivasankar, B. (2021). Food processing and preservation. PHI Learning Pvt. Ltd.							
5. Srilakshmi, B. (2023). Food science (8th ed.). New Age International Publishers.							
Suggested Readings							
1. Fellows, P. J. (2022). Food processing technology: Principles and practice (5th ed.). Woodhead							

Publishing.

2. Nielsen, S. S. (2017). Food analysis (5th ed.). Springer.
3. Potter, N. N., & Hotchkiss, J. H. (2012). Food science (5th ed.). Springer.
4. Rahman, M. S. (2020). Handbook of food preservation (3rd ed.). CRC Press.
5. Vaclavik, V. A., & Christian, E. W. (2019). Essentials of food science (5th ed.). Springer.

E-Resources

1. [Food Safety and Standards Authority of India \(FSSAI\)](#)
2. [Food and Agriculture Organization \(FAO\)](#)
3. [National Institute of Nutrition \(ICMR-NIN\)](#)
4. [Codex Alimentarius Commission](#)
5. [World Health Organization – Food Safety](#)

CERTIFICATE PROGRAMME IN YOGA

COURSE OF STUDY AND SCHEME OF EXAMINATION

S. No.	Title of the Course	Course Code	No. of Credits	T/P	Marks		Total
					Internal	External	
1	Historical Development and Evolution of Yoga	22911	2	T	25	75	100
2	Introduction to Human Anatomy, Physiology and Health	22912	2	T	25	75	100
3	Methods of Yogic Practices	22913	2	T	25	75	100
4	Yoga Practical	22914	4	P	25	75	100
	Total		10		100	300	400

T-Theory P-Practical

Title of the Course		Historical Development and Evolution of Yoga					
Paper Number		1					
Category	Core	Year	I	Credit	2	Course Code	22911
		Semester	I				
Objectives							
- To Understand the concept, meaning, aims, and objectives of Yoga - It explains the historical development and philosophical foundations of Yoga, including major traditions and schools of yogic thought. - Acquire basic knowledge of classical yogic texts and principles, including the contributions of major yogic traditions - Recognize the contributions of eminent yogis and spiritual masters in preserving, developing, and popularizing Yoga in India and across the world. - Familiarize with the major yogic traditions, schools, and classical texts that have contributed to the growth and dissemination of Yoga.							
Course Outcomes							
The Student will be able to: - Explain the origin, meaning, and historical development of Yoga from the pre-Vedic period to the contemporary era. - Describe the evolution of Yoga through the Vedic, Upanishad, Epic, Classical, Medieval, and Modern periods, highlighting their distinctive contributions. - Identify the major yogic traditions, schools, and classical texts that have shaped the philosophy and practice of Yoga - Analyze the contributions of eminent Yoga masters and their role in the preservation, propagation, and global development of Yoga - Discuss the relevance of the historical evolution of Yoga in promoting holistic health, well-being, and its application in contemporary society.							
Block- I		INTRODUCTION TO YOGA HISTORY					
Unit- 1: History of Yoga: Definition of Yoga, Etymology of 'Yuj', Historical Timeline, Cultural Context, Oral Traditions – Indus Valley Civilization and Proto-Yoga: Pashupati Seal, Mohenjo-daro, Harappa, Archeological Evidence, Early Meditative Postures- Yoga in the Vedic Literature: RigVeda, YajurVeda, SamaVeda, AtharvaVeda, Ritualism to Internalization Unit- 2: Concept of Prana and the Mind in Vedas: Cosmic Energy, Mantras, Early Meditation, Sacrificial Rituals (Yajna) , Symbolism. Transition from Outer Rituals to Inner Peace: Aranyakas,Brahmanas, Tapas (Austerity), Shift in Consciousness, Mystic Seers.							
Block- II		THE PHILOSOPHICAL FOUNDATIONS (UPANISHADS THE EPICS)					
Unit-3: Principal Upanishads and Yoga : Katha Upanishad, Shvetashvatara Upanishad, Chariot Analogy, Atman, Brahman. The Core Teachings of the Bhagavad Gita : Krishna, Arjuna, Kurukshetra, Nishkama Karma (Selfless Action), Sthitaprajna (Stable Mind). The Three Major Paths of Gita Yoga: Karma Yoga, Jnana Yoga, Bhakti Yoga, Synthesis of Yoga, Divine Union Unit-4: Yoga in the Mahabharata and Ramayana: Epic Period, Moksha Dharma, Dharma, Moral Conduct, Spiritual Leadership. Heterodox Traditions(Buddhism & Jainism Influence): Gautama Buddha,							

Mahavira, Dhyana(Jnana), Mindfulness ,Ahimsa (Non-violence), Asceticism.	
Block- III	CLASSICAL YOGA (THE ERA OF PATANJALI)
Unit- 5: Introduction to Sage Patanjali and the Yoga Sutras: Classical Period, Codification, Six Darshana, Textual Structure, Samadhi Pada. Samkhya Philosophy: The Bedrock of Classical Yoga: Dualism, Purusha(Consciousness), Prakriti(Matter), Three Gunas, Evolution of Cosmos. Chitta vritti and the Psychology of Yoga: Chitta (Mindstuff), Vritti(Fluctuations),Nirodha(Cessation),Abhyasa (Practice),Vairagya(Dispassion). Unit- 6: Ashtanga Yoga: The Eight-Fold Path: Yama ,Niyama ,Asana, Pranayama, Pratyahara, Dharana, Dhyana, Samadhi – Kriya Yoga and Kaivalya: Tapas, Svadhyaya, Ishvara Pranidhana, Afflictions(Kleshas),Liberation (Kaivalya).	
Block- IV	POST-CLASSICAL AND HATHAYOGATRADITIONS
Unit- 7: Tantra Yoga and the Emergence of Hatha: Non-dual Tantra, Macrocosm and Microcosm, Energy Body, Sacred Geometry, Deification of Body- Natha Sampradaya and Matsyendranath: Gorakshanath ,Lineage, Ascetic Orders, Siddhas, Alchemy, Immortality- Hatha Yoga Pradipika: Textual Analysis: Yogi Swatmarama, Asana, Pranayama, Mudra, Bandha, Nadanusandhana (Sound Meditation). Unit- 8: Gheranda Samhita and Shiva Samhita: Ghatastha Yoga (BodyVessel), Shatkarmas(Purification), AsaptangaYoga (Sevenfold Path), Mudras. The Kundalini and Chakra System: Nadis (Ida,Pingala,Sushumna), Seven Chakras, Prana Vayus, Serpent Power, Spiritual Awakening.	
Block- V	Modern Renaissance and Global Evolution of Yoga
Unit-9: The Modern Revivalists(19th Century Early – 20th Century) – Swami Vivekananda, Parliament of Religions (1893), Raja Yoga Text, Sri Auro bindo, Integral Yoga. T.Krishnamacharya: The Father of Modern Yoga: Mysore Palace, Yoga Makaranda, Vinyasa Krama, Customization, Therapeutic Yoga. Global Pioneers and the Spread to the West: B.K.S.Iyengar(Alignment),K.PattabhiJois(AshtangaVinyasa),Swami Sivananda, Indra Devi. Unit- 10: Contemporary Styles and Secularization : Vinyasa Flow, Yin Yoga ,Power Yoga, Wellness Culture, Commercialization, Anatomical Safety. Scientific Research, Global Recognition, and International Day of Yoga: Evidence-based Benefits, Mental Health, Mindfulness-Based Stress Reduction (MBSR),International Day of Yoga.	
Text Books: 1. “History of Yoga” by Saurav Singh 2. “The Complete Book of Yoga” by Swami Vivekananda 3. “ Light on Yoga” by B.K.S Iyengar 4. “Asana Pranayama Mudra Bhandas” by Swami Satyananda Sarawathi 5. “Evolution of Yoga” by Dr.B.B.Sahi	
Suggested Readings: 1. The Bhagavad Gita and The Yoga Sutras of Patanjali	

2. Hatha Yoga Pradipika(by Yogi Swatmarama) Gheranda Samhita C Shiva Samhita
3. The Truth of Yoga: A Comprehensive Guide to Yoga's History, Texts, Philosophy, and Practices by Daniel Simpson
4. A History of Modern Yoga: Patanjali and Western Esotericism by Elizabeth De Michelis
5. Roots of Yoga by James Mallinson and Mark Singleton
6. The Yoga Body: The Origins of Modern Postural Practice by Mark Singleton.
7. The Yoga Sūtras of Patañjali: A new Edition, Translation and Commentary by Edwin F. Bryant
8. The Heart of Yoga: Developing a Personal Practice by T.K.V. Desikachar

E-Resources

1. <https://www.svyasa.edu.in/>
2. <https://www.ayush.gov.in/>
3. <https://www.yogamdniy.nic.in/>
4. <https://www.yogamdniy.nic.in/>
5. <https://www.yogajournal.com/>

Title of the Course		Introduction to Human Anatomy, Physiology and Health					
Paper Number		2					
Category	Core	Year	I	Credit	2	Course Code	22912
		Semester	I				
Objectives:							
- To understand the basic structure and functions of the human body - To understand the relationship between the body structure and functions - To identify the anatomical structures involved in yogic practices(Asanas) - To apply the anatomical and physiological knowledge to ensure safe and effective yoga instruction. - Develop an understanding of the principles of health, hygiene, nutrition, and healthy lifestyle practices for the promotion of physical and mental well-being.							
Course Outcomes							
The Student will be able to: - Describe the basic structure and functions of the major systems of the human body relevant to yoga practice. - Explain the anatomy and physiology of the musculoskeletal, respiratory, cardiovascular, and nervous systems in relation to yogic postures, breathing techniques, and relaxation practices. - Identify the physiological effects of yoga practices on various body systems and their role in maintaining health and preventing disease. - Apply knowledge of human anatomy and physiology to perform yoga practices safely, recognizing appropriate body alignment, movement, and individual limitations. - Correlate the principles of anatomy and physiology with traditional yogic concepts to promote holistic health, well-being, and therapeutic applications of yoga.							
Block- I		INTRODUCTION					
Unit- 1: Human Anatomy and Physiology introduction - Need and Scope of Anatomy and Physiology in Yoga							
Unit- 2: Cells, Tissues, Organs and Systems- Types of various systems in the Human Body.							
Block- II		RESPIRATORY AND MUSCULAR SYSTEM					
Unit-3: Respiration – Respiratory Track -Structure & Functions - Gas Exchange – Vital Capacity- Effect of Yogic Practices on Respiratory System.							
Unit-4: Muscular System – Types of Muscles and functions - Skeletal System – Bones, Joints.							
Block- III		NERVOUS SYSTEM AND CIRCULATORY SYSTEM					
Unit- 5: Neuron – Central Nervous System (CNS)- Peripheral Nervous System (PNS)- Autonomic Nervous System (ANS)							
Unit- 6: Heart: Structure & Functions –Cardiac Cycle, Cardiac Output.							
Block- IV		DIGESTIVE AND EXCRETORY SYSTEM					
Unit- 7: Digestive Track: Structure & Functions - Effect of Yogic Practices on Digestive System.							
Unit- 8: Liver, Pancreas – Functions - Excretory System – Structure and functions							
Block- V		ENDOCRINE SYSTEM					
Unit-9: Endocrine Glands – Functions of Endocrine Glands - Impacts of Yogic Practices on Endocrine Glands.							
Unit- 10: Effects of yoga on Circulatory system- Major Endocrine Glands- Endocrine Disorders							
Text Books							

1. Dr. Selvam “Anatomy and Physiology” Bodinayakanur.
2. Dr. N.M. MUTHAYYA “Physiology” J.J. Publications, Madurai.
3. SEELEY et. all Anatomy and Physiology Mc Graw Hill.
4. Anatomy & Physiology - Anne Waugh & Allison.
5. Human Anatomy and Physiology – Elaine N.Marieb and Katja Hoehn

Suggested Readings:

1. Human Anatomy –Dr.Chaurasia B.D.
2. Yogic Human Anatomy and Physiology- Dr.Hiralal Sharma
3. Human Anatomy and Physiology- Dr.N.Murugesh
4. Yoga Anatomy by leslie Kaminoff amy Mathews
5. Essentials of Human anatomy and Physiology by Elaine N.Marieb

E-Resources

1. www.innerbody.com
2. www.getbodysmart.com
3. www.teachmeanatomy.info
4. www.anatomyzone.com
5. www.kenhub.com
6. human.biodigital.com

Title of the Course		Methods of Yogic Practices					
Paper Number		3					
Category	Core	Year	I	Credit	2	Course Code	22913
		Semester	I				
Objectives							
- Understand the principles, techniques, and methodology of various yogic practices, including asanas, pranayama, mudras, bandhas, kriyas, relaxation, and meditation. - Develop the ability to perform yogic practices correctly, safely, and systematically, following established guidelines and precautions. - Explain the physiological, psychological, and therapeutic effects of different yogic practices on overall health and well-being. - Acquire practical skills to design and conduct basic yoga sessions for individuals and groups based on their needs and abilities. - Demonstrate awareness of contraindications, modifications, and safety measures associated with yogic practices.							
Course Outcomes							
The Student will be able to: - Demonstrate the correct techniques of basic yogic practices, including loosening exercises, Surya Namaskar, Asana, Pranayama, Mudras, Bhandhas and relaxation techniques. - Apply the principles, precautions, contraindications, and benefits of various yogic practices to ensure safe and effective practice. - Perform selected yogic practices with proper alignment, coordination of breath, concentration, and awareness. - Explain the physiological and psychological effects of different yogic practices and their role in promoting health and well-being. - Design and practice a simple yoga routine suitable for maintaining physical fitness, mental relaxation, and holistic health in daily life.							
Block-I	PRINCIPLES OF TEACHING AND LEARNING IN YOGA						
Unit- 1: Fundamentals of Yogic Pedagogy: Meaning ,scope, and unique characteristics of yoga teaching; historical methods of transmission(<i>Guru-Shishya Parampara</i>);role and ethics of a yoga instructor-Class Management and Environment Settings: Designing the ideal practice space(lightning ,ventilation ,hygiene);group dynamics, time management ,and managing students of varying skill levels- Communication and Demonstration skills: Principles of clear verbal instruction; use of vocal modulation; mirror demonstration vs. direct demonstration; effective use of body language. Unit-2: Observation and Correction Methods: Techniques for observing alignment errors from different angles; the art of gentle, safe verbal and physical adjustments; respecting boundaries. Lesson Planning and Structure: Essential components of a balanced yoga session; step-by-step drafting of a lesson plan (introduction, centering, warm-up, peak practice, cooling down, relaxation).							

Block- II	METHODOLOGIES OF CLEANSING AND WARM-UP PRACTICES (SHATKRIYAS & SUKSHMA VYAYAMA)
Unit-3: Introduction to Shat-karma (Cleansing Methods)- Classification, purpose, and precautions of the six traditional cleansing practices(<i>Shat Kriyas</i>)outlined in Hatha Yoga texts. Practicum of Air and Water Cleansing: Detailed method, indications, and contraindications of <i>Neti</i>(nasal cleansing)and <i>Dhauti</i> (gastric washing). Practicum of Core and Eye Cleansing: Methodologies for <i>Nauli</i> (abdominal churning),<i>Kapalabhati</i> (frontal brain cleansing), and <i>Trataka</i>(gazing/concentration practice). Unit-4: Yogic Sukshma Vyayama (Subtle Exercises): Sequential techniques for loosening minor joints; throat, neck, wrist, and ankle movements to release energy blocks. Sthula Vyayama and Dynamic Warm-ups: Gross body movements for cardiac endurance and major joint mobility; general preparatory exercises before jumping in to deep posture holds.	
Block- III	METHODOLOGY AND CLASSIFICATION OF ASANAS
Unit- 5: Core Mechanics of Asana Execution: The three stages of an Asana: <i>Sthira</i> (entry/stability), <i>Sukha</i> (retention/comfort), and <i>Prayatna Shaithilya</i> (effortless release). Standing and Sitting Postures: Techniques, alignment rules, and modifications for foundational postures (e.g., <i>Tadasana</i>, <i>Trikonasana</i>, <i>Paschimottanasana</i>, <i>Vajrasana</i>). Prone and Supine Postures: Methodology for back bends and core-strengthening poses done on the abdomen and back (e.g.,<i>Bhujangasana</i>, <i>Dhanurasana</i>, <i>Sarvangasana</i>, <i>Halasana</i>). Unit- 6: Surya Namaskar (Sun Salutation) Variations: Step-by-step execution of traditional 12-step patterns; breathing synchronization; mantra integration; adapting for beginners. Props and Modifications: introduce blocks, straps ,bolsters and chairs to make complex Asanas accessible to stiff ,injured, or elderly students.	
Block- IV	SCIENCE AND METHODS OF BREATH CONTROL (PRANAYAMA & BHANDAS)
Unit- 7: The Foundations of Yogic Breathing: Teaching the mechanics of diaphragmatic, thoracic, and Clavicular breathing; mastering the full three-part Yogic Breath. Preparatory Channel Purification: Methodology ,ratio variations, and mastery of <i>NadiShodhana</i>(alternate nostril breathing)with out retention. Cooling and Heating Pranayama: Instructional methods for vitalizing practices (<i>Bhastrika</i>, <i>Surya Bhedana</i>) and cooling practices(<i>Sitali</i>, <i>Sitkari</i>). Unit- 8: Harmonizing Pranayama: Techniques for <i>Bhramari</i> (humming bee breath) and <i>Ujjayi</i> (psychic breath); proper integration of ratios (<i>Puraka</i>, <i>Kumbhaka</i>, <i>Rechaka</i>).Integration of Bhandha(Locks): Methods for introducing <i>Jalandhara</i> (throat lock), <i>Uddiyana</i> (abdominal lock), and <i>Mula Bandha</i> (root lock) during retention phases.	
Block- V	METHODS OF RELAXATION, MEDITATION AND EVALUATION
Unit-9: Conscious Relaxation Techniques: Methodology for <i>Shavasana</i> (corpse pose) and <i>Makarasana</i> (crocodile pose); guiding progressive muscle relaxation(PMR). Yoga Nidra (Psychic Sleep): Structure of a classic <i>Yoga Nidra</i> script; steps of rotation of consciousness, breath awareness, and <i>Sankalpa</i> (resolve formation). Introduction to Meditation Practices: Sitting postures for	

meditation; methods of centering the mind using sound (*Om Chanting*), breath (*Anapanasati*), or visualization

Unit- 10: Sequencing Rules for Holistic Practice: Combining Kriyas, Asanas, Pranayama, and Meditation logically so they build upon each other without causing physical exhaustion or energy imbalances. **Student Evaluation and Feedback Loops:** Methods for assessing student progress safely; creating practical check lists; giving constructive, non-judgmental corrections.

Text Books:

1. Gharote, M.L. (2018). *Guidelines for Yoga Practices*. Lonavla: Medha Publications.
2. Saraswati, Swami Satyananda. (2013). *Asana Pranayama MudraBandha*. Munger: Bihar School of Yoga.
3. Iyengar, B.K.S. (2015). *Light on Yoga*. London: Thorsons.
4. Tiwari, O.P (2009). *Asanas: Why and How*. Lonavla: Kaivalyadhama.
5. Stephens, M. (2010). *Teaching Yoga: Essential Foundations and Techniques*. Berkeley, CA: North Atlantic Books.
6. Notes on Basic Principles and Methods of Teaching as Applied to Yogic Practices and a ready reckoner of yogic practices by Dr. Shrikrishna

Suggested Readings:

1. Basavaraddi, I.V. (Ed.). (2015). *A Guide to Yoga Services: Standard Operating Procedures*. New Delhi: Morarji Desai National Institute of Yoga (MDNIY).
2. Teaching Methods for Yogic Practices by Dr. M.L. Gharote and Dr. S.K. Ganguly
3. Fundamentals of Yogic Practices: A Complete Guide on Yoga by Mr. Rahul Kushwah, Mr. Shrikant and Mr. Yogendra Kushwah
4. Anatomy and Physiology of Yogic Practices by M.M. Gore
5. Yoga and Yogic Practices by Prof. B. Venugopal and Dr. Ranganayaki

E-Resources

1. <https://www.nccih.nih.gov/>
2. <https://www.iayt.org/>
3. <https://www.indianyogaassociation.com/>
4. <https://theyogainstitute.org/>

Title of the Course		Yoga Practical					
Paper Number		4					
Category	Core	Year	I	Credit	4	Course Code	22914
		Semester	I				
Objectives							
- To understand the principles and techniques of practical yoga practices and their role in promoting physical, mental and spiritual wellbeing. - Develop confidence and basic competency to demonstrate and guide yoga practices for individuals and groups. - Apply practical yoga techniques for improving physical fitness, stress management, and holistic health. - To promote awareness of proper body alignment, safety measures and contra indications while practicing yoga - To encourage the adoption of yoga as a healthy lifestyle practice for maintaining physical, mental, and emotional well-being.							
Course Outcomes							
The Student will be able to: - Demonstrate correct performance of basic yogic practices, including asanas, pranayama, mudras, relaxation techniques, and meditation. - Apply proper breathing, body alignment, and safety principles during yoga practice to prevent injuries and improve effectiveness. - Develop physical fitness, flexibility, strength, balance, and endurance through regular yoga practice. - Practice yogic techniques to improve concentration, emotional stability, stress management, and overall well-being. - Integrate yoga into daily life by planning and practicing a simple yoga routine for health promotion and disease prevention.							
Block- I	PREPARATORY PRACTICES AND YOGIC CLEANSING (SUKSHMA VYAYAMA SHAT KRIYAS)						
Unit- 1: Yogic Sukshma Vyayama (Part A-Upper Body): loosening exercises for the neck (<i>Griva Shakti Vikasaka</i>), shoulders, elbows, wrists, and fingers- Yogic Sukshma Vyayama (Part B- Lower Body): (<i>Kati Shakti Vikasaka</i>),hips, knees, ankles, and toes Sthula Vyayama (Gross Exercises)- Dynamic training of <i>Engine Daud</i> (locomotive exercise), HridGati (cardiac exercise).							
Unit- 2: Shat Karma Practical -I(Nasal Cleansing): Jala Neti (luke warm saline water rinse) ShatKarmaPractical – II (Gazing & Abdominal Breathing): Trataka, Kapalabhati(frontal brain cleansing)							
Block- II							
Unit-3: Surya Namaskar (Traditional 12step Sequence)- Foundational Standing Asana (Linear Re-alignment): Tadasana (Palm Tree Posture), Vrikshasana (Tree Pose), Padahastasana Backbend Asanas: Ushtrasana, Dhanurasana, Kapotasana, ekapada Rajakapotasana							
Unit-4: Lateral and Angular Standing Poses: Trikonasana(Triangle Pose), Parivritta Trikonasana(Revolved Triangle) and Ardha Chakrasana (Half-Wheel Pose). Warrior Configurations and Power Poses: Virabhadrasana I and II (Warrior poses) and Utkatasana (Chair Pose).							
Block- III	ASANAS IN DIFFERENT ORIENTATION						

Unit- 5: Meditative Asanas: Padamasana (Lotus Pose), Siddhasana (Accomplished Pose), ajrasana (Thunderbolt Pose), Siddhayoniasana, Swastikasana Twisting Sitting Postures: Ardha Matsyendrasana(Half Spinal Twist), Vakrasana, Parivritta Janusirasana Prone Lying Asanas: Practicing Spinal Extension in Bhujangasana(Cobra Pose), Salabasana (Locust Pose), Purna Bhujangasana	Unit- 6: Supine Core and Inversion Poses: Uttana Padasana(Raised Leg Pose), Sarvangasana (Shoulder stand), Matsyasana (Fish Pose), Halasana Forward bending Asanas: Janusirasana- Paschimotanasana- Upavishtakonasana- Koormasana, Marichyasana
Block- IV	
Unit- 7: Sectional and Full Yogic Breathing practicum: Abdominal, Thoracic and Clavicular Breathing zones. Channel Balancing and Heating Pranayama: NAdi shodana (alternative Nostril Breathing), Surya Bhedana (Right Nostril Dominant) Coolant and Vibration Pranayama: Sitali (tongue rolling cool breath), Sitkari (Hissing breath), Bhramari (resounding humming breath)	Unit- 8: Bhandas (Internal Energy locks) Integration: Jalandhara Bhandha (Throat lock), Uddhiyana Bhandha(Abdominal lock), Mula Bhandha (root lock) Kaya and Hasta Mudras(Gestures):Janan Mudra- chin mudra- Bhairava mudra- Vipareetha karani mudra
Block- V	
Unit-9: Guided Conscious Relaxation Methods: Shavasana (Corpse pose) and Makarasana(Crocodile pose), cyclic Relaxation and Yoga nidra-Practical	
Unit- 10: Meditation: Ajapa Meditation- Chakra meditation- Pranava Meditation	
Reference Books 1. Saraswati, Swami Satyananda. (2013). <i>Asana Pranayama Mudra Bandha</i>. Munger: Bihar School of Yoga. 2. Iyengar, B.K.S. (2015). <i>Light on Yoga</i>. London: Thorsons. 3. An Illustrated guide to Yoga practice by sehdev singh and Yogacharya A.Gopalkrishnan 4. Practical Guide to Yoga by Swami Chidananda 5. Practice of Yoga by Swami Sivanada	
Suggested Readings: 1. Tiwari, O.P. (2009). <i>Asanas: Why and How</i>. Lonavla: Kaivalyadhama. 2. Swami Kuvalayananda. (1993). <i>Pranayama</i>. Lonavla: Kaivalyadhama. 3. Gharote, M.L. (2018). <i>Guidelines for Yoga Practices</i>. Lonavla: Medha Publications. 4. Morarji Desai National Institute of Yoga (MDNIY). (2021). <i>Common Yoga Protocol (CYP)</i>. New Delhi: Ministry of AYUSH, Government of India. 5. Yoga its theory and practice by swami Abdedananda	
E-Resources 1. https://yogainternational.com/ 2. https://www.vogapublications.org/product/asana-pranayama-mudra-bandha/ 3. https://iyengaryoga.org/books/light-on-yoga/ 4. https://tamilbookspdf.com/books/learn-yogasanas-tamil-pdf-books/	