Punyashlok Ahilyadevi Holkar Solapur University, Solapur

NAAC Accredited-2022

'B++'Grade (CGPA2.96)

Name of the Faculty: Science &Technology

NEP 2020

Syllabus: Entrepreneurship

Name of the Course: B.Sc. II (Sem. III & IV)

(Syllabus to be implemented from June 2025)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Faculty of Science & Technology
Nep 2020 Compliant Curriculum
BSc (Entrepreneurship)
Program Preamble

The Bachelor of Science (BSc) in Entrepreneurship is a comprehensive and dynamic program designed to provide students with a deep understanding of the fundamental principles of Entrepreneurship, along with the practical skills required to apply this knowledge in various scientific and technological contexts. Aligned with the vision of the National Education Policy (NEP) 2020, the program offers a flexible, multidisciplinary, and learner-centric curriculum that encourages critical thinking, innovation, and holistic development. The BSc Entrepreneurship program spans four years, with each year offering a progressively advanced curriculum designed to build a strong foundation in Entrepreneurship while allowing for specialization and interdisciplinary learning. The curriculum is structured around several key components:

1. **Major Courses:** These core courses form the backbone of the program, providing in-depth knowledge and understanding of essential Entrepreneurship concepts, theories, and methodologies. Students will engage with topics from Chemistry, Microbiology, Botany, Zoology, Economics, Commerce and Management etc. ensuring a robust and comprehensive education in the multidisciplinary approach.
2. **Minor Courses:** Students have the opportunity to choose minor courses from related or distinct disciplines, promoting an interdisciplinary approach to learning. This flexibility allows students to complement their Entrepreneurship education with insights from fields such as chemistry, microbiology, zoology, Botany, Biotechnology, Business management for enhancing their versatility and broadening their career prospects.
3. **Open Electives/General Electives:** The program encourages intellectual exploration beyond the core discipline by offering a wide range of elective courses. These electives enable students to pursue their interests in diverse subjects, fostering creativity, critical thinking, and a well-rounded educational experience.
4. **Vocational and Skill Enhancement Courses:** Practical skills and technical proficiency are integral to the program, with vocational and skill enhancement courses providing hands-on experience in areas such as Water and soil analysis, Fertilizer and food analysis. These courses are designed to prepare students for immediate employment and equip them with the tools necessary for career advancement in various scientific and technological fields.
5. **Ability Enhancement Courses (AEC), Indian Knowledge System (IKS), and Value Education Courses (VEC):** In alignment with NEP 2020, the program integrates courses that emphasize the Indian Knowledge System, ethical values, and life skills. These courses foster a deep appreciation for India's rich cultural heritage, while also developing essential communication and ethical decision-making skills that are vital for personal and professional growth.
6. **Field Projects/Internships/Apprenticeships/Community Engagement Projects/On-Job Training:** To bridge the gap between theoretical knowledge and real-world applications, the program includes opportunities for field projects, internships, apprenticeships, and community engagement. These experiences provide students with practical insights, problem-solving abilities, and exposure to professional environments, enhancing their readiness for careers in Chemistry and related fields.
7. **Research Methodology and Research Projects:** Research is a critical component of the BSc Entrepreneurship program, with students acquiring skills in research methodology, data collection, analysis, and scientific inquiry. By engaging in independent research projects, students are encouraged to develop innovative solutions to complex scientific problems, preparing them for advanced studies and research-oriented careers.

Multiple Entry and Multiple Exit Options

In accordance with the NEP 2020, the BSc Entrepreneurship program incorporates a Multiple Entry and Multiple Exit framework, offering students the flexibility to enter or exit the program at various stages. This approach ensures that students can tailor their educational journey according to their personal and professional goals, with options to earn certificates, diplomas, or degrees based on the duration of study completed.

- **Year1:**
  Upon completion of the first year, students may exit with a **Certificate in Entrepreneurship**.
- **Year2:**
  After two years, students may choose to exit with a **Diploma in Entrepreneurship**.
- **Year3:**
  Completion of the third year qualifies students for a **BSc Degree in Entrepreneurship**.
- **Year4:**
  The fourth year offers an advanced curriculum with a focus on research, allowing students to graduate with an **Honors Degree in Entrepreneurship**.

Eligibility for B.Sc. Entrepreneurship:
The candidate passing the B.Sc. Part I course. OR having ATKT
Repeater student will be allowed to take fresh admission

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।। विद्यया संपन्नता ।।
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Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Faculty of Science & Technology
Nep 2020 Compliant Curriculum
BSc (Entrepreneurship)
Program Outcomes (PO)

Students graduating from the Bachelor of Science in Entrepreneurship program will be able to:

Major Courses:
- **PO1**: Demonstrate in-depth knowledge and understanding of core concepts, theories, and methodologies in the chosen major discipline.
- **PO2**: Apply disciplinary knowledge to solve complex problems, analyze data, and make informed decisions in professional and research contexts.

Minor Courses:
- **PO3**: Acquire complementary knowledge and skills from a related or distinct discipline, enhancing interdisciplinary understanding and versatility.

Open Electives/General Electives:
- **PO4**: Explore diverse subjects beyond the core discipline, fostering a broad-based education and cultivating critical thinking and creativity.

Vocational and Skill Enhancement Courses:
- **PO5**: Gain hands-on experience and technical proficiency in specific vocational areas, preparing for immediate career opportunities.

Ability Enhancement Courses (AEC), Indian Knowledge System (IKS), and Value Education Courses (VEC):
- **PO6**: Understand and appreciate the rich heritage of the Indian Knowledge System, integrating traditional wisdom with modern education.
- **PO7**: Develop ability enhancement skills like communication and life skills along with ethical values, social responsibility, and a strong sense of citizenship, contributing positively to society.

Field Projects/Internship/Apprenticeship/Community Engagement Projects/ On Job Training/ Internship/Apprenticeship:

- **PO8**: Apply theoretical knowledge to real-world situations through field projects, internships, community engagement and On job Training for gaining practical experience and problem-solving skills.

Research Methodology and Research Project:

- **PO9**: Acquire research skills, including data collection, analysis, and interpretation, fostering a scientific approach to problem-solving to develop independent research projects handling capabilities.

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Students graduating from BSc(Entrepreneurship)will able to:

PSO1: Apply the basic knowledge of chemistry, microbiology and biotechnology to perform various tasks assigned at the workplace.

PSO2: Use subject knowledge and ICT skills to be an effective team member in his/her field.

PSO3: Understand and contribute to solve basic societal issues based on principles of scientific knowledge he/she has gained.

PSO4: Exhibit professional work ethics and norms of scientific development.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Three Majors in First Year structure as per NEP-2020 Approved in For AC Meeting on 18/04/2024

4- Year Multidisciplinary UG Program with DSC as a Major (4 -Year Bachelor of Science (Honors)/(Honors with Research)

Level/ Difficulty	Sem.	Faculty			Generic/ Open Elective GE/ OE	Vocational and Skill Enhancement Courses (SEC/VSC)	Ability Enhancement Course (AEC), IKS, VEC	Field Project/ RP/CC/Internship/Apprenticeship/ Community Engagement & Services	Credits	Cumulative Credits
		Major		Minor						
		DSC	DSE							
4.5 100-200	I	DSC1-1 (2+2)#	--		GE1/ OE1(2)	SEC1 (2)	L1-1(2) IKS (2) VEC1(2) (Indian Constitution And Democracy)	--	22	**44 UG Certificate (44)**
		DSC2-1 (2+2)#	--							
		DSC3-1 (2+2)#	--							
	II	DSC1-2 (2+2)#	--		GE2/ OE2(2)	SEC 2 (2)	L1-2(2) VEC2(2) (Environmental Studies)	CC1 (2)	22	
		DSC2-2 (2+2)#	--							
		DSC3-2 (2+2)#	--							
Exit option: Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor										
5.0/200	III	DSC1-3 (2+1)	---	DSC2-3 (2+1)	GE3 / OE3(2)	VSC1 (2) (DSC1) VSC2(2) (DSC2)	L2-1 (2)	CC2 (2)	22	**44 UG Diploma (88)**
		DSC1-4 (2+1)	---	DSC-2-4 (2+1)						
	IV	DSC1-5 (2+1)	---	DSC2-5 (2+1)	GE4/ OE4 (2)	VSC3 (2) (DSC1) VSC4(2) (DSC2)	L2 -2(2)	FP1/CEP1(2)	22	
		DSC1-6 (2+1)	--	DSC2-6 (2+1)						
Exit option: Award of UG Diploma in Major with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major										
5.5/300	V	DSC1-7 (3+2)	DSE1-1 (2+1) or DSE1-2 (2+1)	----	----	VSC3 (2) (Hands on Training related to DSE)	IKS 2 (2) (related to major subject)	--	22	**44 UG degree (132)**
		DSC1-8 (3+2)								
		DSC1-9 (3+2)								
	VI	DSC1-10 (3+2)	DSE1-3 (2+1) or DSE1-4 (2+1)	----	---	VSC4 (2) (Hands on Training related to DSE)		FP2/CEP2/OJT1 (2)	22	
		DSC1-11 (3+2)								
		DSC1-12 (3+2)								
	Total Credits 3 Yrs	**66-8#**	**6**	**12 +8# 20**	**08**	**16**	**16**	**08**	**132**	
Exit option: Award of UG degree in Major with 132 Credits OR Continue with Major										
6.0/400	VII	DSC1-13 (4+2)	DSE1-5 (4+2)	Research Methodology (4)	-------	----	----	---	22	**44 UG Honours Degree in Main faculty (176)**
		DSC1-14 (4+2)								
	VIII	DSC1-15 (4+2)	DSE1-6 (4+2)		----	-----	----	OJT/In-house Project/ Internship/ Apprenticeship (4)	22	
		DSC1-16 (4+2)								
	Total 4 Yrs	**90-8#**	**18**	**16+8#**	**08**	**16**	**16**	**12**	**176**	
Award of Bachelor of Science Honors., (B.Sc. Honors.) degree with Major and Minor (176 credits)										

OR

6.0/400	VII	DSC1-13 (4)	DSE1-5 (4)	Research Methodology (4)	-------	----	----	Research Project (6)	22	**44 UG Honours with research Degree in Main faculty (176)**
		DSC1-14 (4)								
	VIII	DSC1-15 (4+2)	DSE1-6 (4)		----	-----	----	Research Project (6)	22	
		DSC1-16 (4+2)								
	Total 4 Yrs	**86-8#**	**14**	**16+8#**	**08**	**16**	**16**	**20**	**176**	

#Out of the three major courses in the first year, one major (comprising 4 credits for the 1st semester and 4 credits for the 2nd semester) will transition into a minor starting from the second year. Consequently, 8 credits will be reallocated from the major course credit count and added to the minor credit count, thereby meeting the requisite credit criteria for the minor as stipulated in the guidelines.

Structure as per NEP-2020

B.Sc. II (Entrepreneurship)

Level	Sem	Major		Minor		VSC/ SEC	OE/GE	AEC	CC	Total Credits	Cumulative Credits
		T	P	T	P						
5.0	III	2	1	2	1	OE-1 /GE-1 (2)	VSC1(2) (DSC1) VSC2(2) (DSC2)	L2-1(2)	CC2-2	22	44
		2	1	2	1						
	IV	2	1	2	1	OE-2 /GE-2 (2)	VSC 3 (DSC1) VSC4 (DSC2)	L2-2 (2)	FP1/ CEP1	22	
		2	1	2	1						

S.No.	CourseTypewithcourse code	PaperTitle	Credit
	Semester-III		
1.	MajorDSC1-3	Corporate Law	2
2.	PracticalbasedonDSC1-3P	Practicalbased on Corporate Law	1
3.	MajorDSC1-4	Buisness Finance	2
4.	Practicalbased onDSC1-4P	PracticalBased on Buisness Finance	1
5	MinorDSC2-3	Industrial Chemistry-III	2
6.	Practicalbased onDSC2-3P	PracticalBased on Industrial Chemistry –III	1
7	MinorDSC2-4	Fundamentals of Microbiology	2
8	Practicalbased onDSC2-4P	PracticalBased on Fundamentals of Microbiology	1
9	GE-3/OE-3	Cell Biology	2
10	VSC1	VSCbased on DSC 1-3 and DSC 1-4 (Major)	2
11	VSC2	VSCbased on DSC 2-3 and DSC 2-4 (Minor)	2
12	AEC- I L2-1		2
13	CC2(2)	CC2	2
		Total	**22**
	Semester-IV		
14	MajorDSC1-5	Advertising Management	2
15	Practicalbased on DSC1-5P	PracticalLab based on Advertising Management	1
16	MajorDSC1-6	Investment analysis and portfolio Management	2
17	Practicalbased onDSC1-6P	PracticalLab based on Investment analysis and portfolio Management	1
18	MinorDSC2-5	Industrial Chemistry-IV	2
19	Practicalbased onDSC2-5P	PracticalLab based on Industrial Chemistry IV	1
20	MinorDSC2-6	Molecular Genetics	2
21	Practicalbased onDSC2-6P	PracticalLab based on Molecular Genetics	1
22	GE-4/OE-4	Retail Management	2
23	VSC3	VSCbased on DSC 1-5 and DSC 1-6major	2
24	VSC4	VSCbased on DSC 2-5 and DSC 2-6minor	2
25	AEC-II L2-2		2
26	FP1/CEP1	FP1/CEP1	2
		Total	**22**
		GrandTotal	**44**

Abbreviations:

Ability Enhancement Courses: AEC	On Job Training:OJT
Co-curricular Courses: CC	Research Methodology: RM
Community Engagement & Service: CEP	Research Project: RP
Field projects: FP	Skill Enhancement Courses: SEC
Generic/ Open Electives: OE	Value Education Courses: VEC
Indian Knowledge System: IKS	Vocational Skill and Skill Enhancement Courses: VSEC
	Vocational Skill Courses: VSC

Semester - III

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-III

Vertical: MajorDSC1-3

Course Code:

Course Name: Corporate Law

*Teaching Scheme	*Examination Scheme
Lectures:02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble: Legal rules controlling company governance, contractual agreements, and business transactions are based on business law. The goal of this course is to give students a foundational understanding of legal concepts that are necessary for conducting business. It highlights the importance of the Companies Act of 2013 and the Indian Contract Act of 1872, offering guidance on corporate compliance, company establishment, and contract formulation. This course equips students to assess legal challenges, interpret business regulations, and apply ethical decision-making in corporate contexts by fusing theoretical concepts with real-world applications. It cultivates a legal mindset that ensures compliance and corporate responsibility while assisting aspiring business professionals in navigating the complexities of legal systems.

	Course Objectives:
●	To provide fundamental knowledge of legal principles governing business transactions.
●	To equip students with an understanding of laws related to contracts and companies.
●	To enable students to apply legal concepts in business decision-making.
	Course Outcomes:
CO1:	Understand the fundamental concepts of business law and legal framework.
CO2:	Explain the key provisions of contract law and company law.
CO3:	Analyze and apply business law principles in real-world scenarios.
CO4:	Evaluate the legal challenges faced by businesses and recommend solutions.
Unit 1:	**Indian Contract Act, 1872**
A	**Introduction to Business Law** **(06)**
1.1	Meaning, Nature, and Scope of Business Law
1.2	Sources of Business Law
B	**Law of Contracts** **(09)**
2.1	Essentials of a Valid Contract
2.2	Offer and Acceptance
2.3	Consideration and Capacity to Contract

2.4	Free Consent and Legality of Object
2.5	Performance, Discharge, and Breach of Contract
Unit 2:	**Company Law**
A	**Introduction to Company Law(07)**
3.1	Definition and Characteristics of a Company
3.2	Types of Companies
3.2	Incorporation of a Company
B	**Corporate Governance and Compliance (08)**
4.1	Memorandum of Association & Articles of Association
4.2	Directors, Shareholders, and Meetings
4.3	Corporate Social Responsibility (CSR)
4.4	Winding up of Companies
Reference Books	
1. **Kapoor, N.D.** – *Elements of Mercantile Law*, Sultan Chand & Sons.	
2. Avtar Singh – *Business Law*, Eastern Book Company	
3. Kuchhal, M.C. & Vivek Kuchhal – *Business Legislation for Management*, Vikas Publishing	
4. **Gulshan, S.S.** – *Business Law Including Company Law*, New Age International Publishers.	
5. **Taxmann Publications** – *Bare Act of Indian Contract Act, 1872 and Companies Act, 2013.*	

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-III

Vertical: DSC1-3P

Course Code:

Course Name: Practical Based on Corporate Law

*Teaching Scheme	*Examination Scheme
Practical: 02Hours/week, 01Credit	**UA: 15 Marks** **CA: 10 Marks**

Course Preamble: Since it regulates transactions, company operations, and regulatory compliance, business law is an essential part of every commercial activity. By involving students in actual legal tasks, this handbook seeks to close the gap between legal theory and business application. This manual's practical's will assist students in drafting business papers, evaluating corporate governance structures, interpreting legal provisions, and analyzing case laws. Students will gain fundamental legal knowledge by the end of these exercises, which will help them make wise business decisions while maintaining legal compliance.

	COURSE OBJECTIVES:
●	Understand the fundamental principles of business law and its application in business.
●	Analyze legal frameworks related to contract law and company law.
●	Develop the ability to interpret and apply legal provisions in business transactions.
●	Draft basic legal documents, such as contracts and corporate agreements.
●	Evaluate corporate governance and compliance mechanisms.
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	Explain the fundamental concepts, sources, and significance of business law.
●	Interpret key provisions of the Indian Contract Act and apply them to business agreements.
●	Analyze different types of contracts and company structures with legal reasoning.
●	Evaluate corporate compliance, governance mechanisms, and legal responsibilities of companies.
	LIST OF PRACTICALS
1.	Drafting a Simple Business Contract
2.	Incorporation of a Company (Mock Activity)
3.	Case Study on Breach of Contract & Remedies
4.	Shareholder Agreement and Company Dissolution
5.	Business Law Quiz & Legal Debate

	REFERENCE BOOKS:
	•**Kapoor, N.D.** – *Elements of Mercantile Law*, Sultan Chand & Sons.
	•**Avtar Singh** – *Business Law*, Eastern Book Company.
	•**Kuchhal, M.C. & Vivek Kuchhal** – *Business Legislation for Management*, Vikas Publishing.
	•**Gulshan, S.S.** – *Business Law Including Company Law*, New Age International Publishers.
	•**Taxmann Publications** – *Bare Act of Indian Contract Act, 1872 and Companies Act, 2013.*

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-III

Vertical: MajorDSC1-4

Course Code:

Course Name: Business Finance

*Teaching Scheme	*Examination Scheme
Lectures:02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble: A key component of running a company is business finance, which includes risk management, investment choices, and financial planning. An overview of basic financial principles is given in this course, empowering students to make well-informed business decisions. To give students the fundamentals of financial management, it covers working capital management, capital budgeting, financial statements, and financing techniques.

	Course Objectives:
●	To understand the fundamental concepts of business finance.
●	To analyze financial statements and evaluate business performance.
●	To comprehend capital budgeting techniques and their applications.
●	To explore working capital management and sources of finance.
●	To develop financial decision-making skills for business growth and sustainability.
	Course Outcomes:
CO1:	Explain the fundamental concepts and scope of business finance.
CO2:	Analyze financial statements for decision-making.
CO3:	Apply capital budgeting techniques to evaluate investment opportunities.
CO4:	Manage working capital efficiently in a business setup.
CO5:	Identify appropriate sources of finance for business needs.
Unit 1:	**Introduction to Business Finance** **(15)**
1.1	Meaning, Nature, and Scope of Business Finance
1.2	Objectives and Functions of Financial Management
1.3	Financial Planning and Importance of Finance in Business
1.4	Sources of Business Finance: Short-term and Long-term Sources
Unit 2:	**Capitalization** **(15)**
2.1	Capitalization: Meaning and Definition
2.2	Theories of Capitalization: Cost and Earning Theory
2.3	Over capitalization: Concept, Causes, Effects and Remedies

2.4	Under capitalization: Concept, Causes, Effects and Remedies

Reference Books

6. **Pandey, I. M.** (2020). *Financial Management*. Vikas Publishing House.
7. **Khan, M. Y., & Jain, P. K.** (2019). *Financial Management: Text, Problems and Cases*. McGraw-Hill.
8. **Chandra, P.** (2021). *Financial Management: Theory and Practice*. Tata McGraw-Hill.
9. **Ross, S. A., Westerfield, R. W., & Jaffe, J.** (2020). *Corporate Finance*. McGraw-Hill Education.
10. **Brealey, R. A., Myers, S. C., & Allen, F.** (2021). *Principles of Corporate Finance*. McGraw-Hill.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-III

Vertical: DSC1-4P

Course Code:

Course Name: Practical Based on Business Finance

*Teaching Scheme	*Examination Scheme
Practical: 02Hours/week, 01Credit	**UA: 15 Marks** **CA: 10 Marks**

Course Preamble: This practical component of the **Business Finance** course is designed to provide students with hands-on experience in financial decision-making, financial statement analysis, capital budgeting, and working capital management. These practical's will enable students to apply theoretical concepts in real-world business finance scenarios.

	COURSE OBJECTIVES:
●	To develop the ability to analyze and interpret financial statements.
●	To apply capital budgeting techniques for investment evaluation.
●	To understand working capital management and its applications.
●	To explore sources of business finance through case studies and industry examples.
●	To enhance financial decision-making skills for business applications.
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	**CO1:** Interpret and analyze business finance concepts through real-world applications.
●	**CO2:** Assess and evaluate financial statements for better decision-making.
●	**CO3:** Apply capital budgeting techniques to business investment decisions.
●	**CO4:** Understand working capital management and suggest financial solutions.
●	**CO5:** Identify and evaluate sources of finance for businesses.
	LIST OF PRACTICALS
1.	Case study on a company's financial reports.
2.	Prepare a financial budget for a small business.
3.	Research and present different financing options for a startup.
4.	Identify and analyze financial risks faced by businesses.
5.	Analyze real business examples of capitalization theories.
6.	Identify companies that have suffered due to undercapitalization.
	REFERENCE BOOKS:
1	**Pandey, I. M.** (2020). *Financial Management*. Vikas Publishing House.

2	**Khan, M. Y., & Jain, P. K.** (2019). *Financial Management: Text, Problems and Cases*. McGraw-Hill.
3	**Chandra, P.** (2021). *Financial Management: Theory and Practice*. Tata McGraw-Hill.
4	**Ross, S. A., Westerfield, R. W., & Jaffe, J.** (2020). *Corporate Finance*. McGraw-Hill Education.
5	**Brealey, R. A., Myers, S. C., & Allen, F.** (2021). *Principles of Corporate Finance*. McGraw-Hill.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-III

Vertical: MinorDSC2-3

Course Code:

Course Name: Industrial Chemistry-III

*Teaching Scheme	*Examination Scheme
Lectures: 02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble: Industrial Chemistry is one of the core course in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the industrial processes. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the industrial chemistry concepts.

	Course Objectives:
●	To learn about the basic principles and manufacturing process of heavy chemicals
●	To learn types and methods of Corrosion and Passivity
●	To study manufacturing process of sugar and alcohol industry.
●	To gain the knowledge of byproducts of sugar industry
●	To understand the classifications of fibres and various processes of textile industry.
	Course Outcomes:
CO1:	Able to learn about the basic principles and manufacturing process of heavy chemicals
CO2:	Able to learn types and methods of Corrosion and Passivity
CO3:	Able to study manufacturing process of sugar and alcohol industry.
CO4:	Able to gain the knowledge of byproducts of sugar industry
CO5:	To understand the classifications of fibres and various processes of textile industry.
Unit 1:	**Inorganic Chemistry**
A)	**Manufacture of Industrial Heavy Chemicals: 8 Hrs**
	1. Introduction definition of heavy chemicals
	2. Physicochemical Principles & manufacture of following: a. Ammonia by Haber process. b. Sulphuric acid by contact process.

	c. Sodium carbonate by Solvay process.
B)	**Corrosion and Passivity: 7 Hrs**
	1. Corrosion: a. Introduction, with types of corrosion. b. Electrochemical theory of corrosion. c. Factors affecting the corrosion: i) Position of metal in emf series. ii) Purity of metal iii) Effect of moisture. iv) Effect of oxygen. v) Hydrogen over voltage d.Methods of protection of metals from corrosion.
	2. Passivity: a. Definition b. Types of passivity c. Oxide film theory. d. Application of passivity.
Unit 2:	**Organic Chemistry**
A)	**Sugar and Alcohol Industry: 8 Hrs**
	1. Manufacture of raw cane sugar
	2. Refining of raw sugar
	3. White sugar
	4. By-products of sugar industry: a) Manufacture of ethyl alcohol from molasses b) Rectified spirit, denatured spirit absolute alcohol and power alcohol. c) By-products of alcohol industry.
B)	**Textile chemistry: 7 Hrs**
	1. Introduction, classification of Fibers
	2. Sizing: i) object of sizing, sizing ingredients and their functions. ii) General idea of properties of starch, softeners, synthetic adhesives.
	3. Bleaching: i) Brief study of the outline of the process of bleaching cotton and synthetic material. ii) General idea of processes like singeing, desizing, scouring.
	4. Dyeing: Study of dyeing of cellulosic material and synthetic fibers with dye like direct, vat, reactive and disperse dyes.
	Reference Books:
	1. Advanced Inorganic Chemistry by Satyaprakash, Tuli, Basu (S. Chand and Co.)

	2. Inorganic Chemistry by Puri and Sharma (S. Chand & Co.) 3. University General Chemistry by CNR Rao (McMillan) 4. Industrial Chemistry by B.K. Sharma. 5. Environmental Chemistry by S.M. Khopkar (Wiley Eastern Ltd.) 6. Inorganic Chemistry by D.E. Shriver, P.W. Atkins and C.H. Longford, Oxford. 7. Environmental chemistry by B.K. Sharma. 8. Text book of Quantitative Inorganic Analysis by A.I. Vogel. 9. Basic concepts of Analytical Chemistry by S.M. Khopkar. 10. Organic Chemistry - R. T. Morrison and R. N. Boyd Prentice Hall of India Private limited New Delhi. 6th Edition. 11. A text book of Organic Chemistry - Arun Bahl and B. S. Bahl S. Chand and Company Ltd. 6th Edition. 12. Basic Concepts of Analytical Chemistry - S. M. Khopkar, Wiley Eastern Ltd.Bombay. 13. Industrial Chemistry - R. K. Das, Asia Publishing, Mumbai. 14. Textile science - J. T. Marsh

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***Teaching Scheme** **Practical: 02 Hours/week, 01Credit**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

Course Preamble: Practicalbased on Industrial Chemistry –IIIis one of the core courses in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the qualitative analysis. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the practical concepts of Industrial chemistry

	Course Objectives:
●	To develop practical skills in basic and conceptual Industrial Chemistry.
●	To gain practical knowledge by applying the experimental methods to correlate with the theory.
●	Determine the functional groups of molecules by qualitative analysis.
●	Study the volumetric estimation of compound quantitatively
	Course Outcomes:
	On successful completion of this practical course student will be able to:
●	Understand practical skills.
●	Correlate theoretical concepts with experiments.
●	Quantify the organic/inorganic compounds using volumetric estimation.
●	Prepare the organic/inorganic compounds quantitatively
	List of Experiments
Sr. No.	**A) Volumetric Experiments:**
1.	Prepare 0.1N Standard solution of K2Cr2 O7. Standardize the given FAS solution using prepared Potassium dichromate solution.
2.	Determine the percentage of Nitrogen in the given sample of nitrogenous fertilizer (Urea or Ammonium Sulphate).
3.	Determine the COD of given water sample.
4.	Determine the BOD of the given water sample.
5.	Analysis of commercial vinegar.
6.	Estimation of rate of corrosion of aluminium in acidic and basic medium.

	B Preparations:
1.	Preparation of benzoic acid from benzamide.
2.	Preparation of methyl orange.
3.	Preparation of p-Bromo acetanilide from given acetanilide.
4.	Preparation of phthalimide from phthalic anhydride.
	Reference Books:
	1. Practical Chemistry by A.I. Vogel.
	2. Hand book of Organic qualitative analysis by H.T. Clarke.
	3. A laboratory Hand Book of Organic qualitative analysis and separation by V.S. Kulkarni. Dastane Ramchandra & Co.
	4. Practical Organic Chemistry by F.G. Mann and B.C. Saunders. Low – priced Text Book. ELBS. Longman.
	5. Experiments in General Chemistry by C.N.R. Rao. Affiliated East-West Press Pvt. Ltd. Delhi.
	6. Advanced Practical Organic Chemistry by N.K. Vishnoi. Vikas Publishing House Private Limited.
	7. Comprehensive Practical Organic Chemistry Qualitative Analysis by V.K. Ahluwalia, Sunita Dhingra. University Press. Distributor-Orient Longman Ltd.
	8. Practical Chemistry – Physical – Inorganic – Organic and Viva – voce by Balwant Rai Satija. Allied Publishers Private Limited.
	9. Experimental organic chemistry by J. R. Norris, published by Sarup and sons, Delhi
	10. Advanced practical chemistry by J. Singh, L. D. S. Yadav, R. K. P. singgh, I. R. Siddiqui et.al, Pragati prakashan.

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***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: Microbiology is the scientific study of microorganisms, which are too small to be seen with the naked eye. These organisms include bacteria, viruses, fungi, protozoa, and Archaea. This course aims to provide a solid foundation in the principles of microbiology. It will explore the diversity of microorganisms, their structure, metabolism, genetics, and their interactions with other organisms and the environment.

	Course Objectives:
●	To enable students to understand the History of Microbiology.
●	To help students to identify key figures and their contributions to the field and analyze the impact of technological innovations on microbiological research.
●	To provide knowledge regarding various microbiological research institutes in India
	Course Outcomes:
CO1:	Understand types of microorganisms in nature
CO2:	Gain a comprehensive understanding of the history, scope, and branches of microbiology, providing a solid foundation for further exploration and study in this fascinating field
CO3:	Understand the applied branches of microbiology and scope of microbiology
CO4:	Understand diversity amongst microorganisms including bacteria, fungi, protozoa & viruses
CO5:	Understand beneficial and harmful effects of microorganisms in different fields of Microbiology
Unit 1:	**History, Scope and Branches of Microbiology**
A	**Historical Background** **(08)**
1.1	Contribution of Robert Hooke, Antony Van Leuwenhoek, Ernst Ruska
1.2	Theory of spontaneous generation: Francisco Redii, John Needham, Friedrich Schroder and Van Dusch, Louis Pasteur (Swan necSk flask experiment) and John Tyndall.
1.3	Golden era of Microbiology (1857-1914) - i) Germ theory of fermentation

	ii) Germ theory of disease
1.4	Contribution of Martinus Beijerinck, Sergei Winogradsky, Joseph Lister and Dmitri Ivanovski, Edward Jenner, Eli Metchnikoff, Salman Waksman, Alexander Fleming. In development of applied microbiology. Beneficial & Harmful roles of bacteria
B	**Branches of Microbiology (07)**
2.1	(Water, Air, Agriculture, Food and Dairy, Environmental, Medical, Industrial, Geomicrobiology, Space Microbiology)
2.2	**National Institutes related to Microbiology in India**–NIV, NARI, NCCS, CCMB, Serum Institute of India, Vasantdada Sugar Institute, National Research center on Pomegranate (NRCP). IMTECH (Institute of Microbial Technology, Chandigarh), Agharkar Research Institute, Pune, NIN Hydrabad.
Unit 2:	**Microbial Diversity**
A	**Eubacteria (07)**
3.1	Structure & general characteristics of Eubacteria
3.2	General characteristics of Archaebacteria, Actinomycetes, Rickettsia, Chlamydia, Mycoplasma.
B	**Virology (04)**
4.1	Discovery of viruses
4.2	Structure & classification of viruses with examples (Plant virus, Animal virus, Bacterial virus)
4.3	General characteristics of Viroids & Prions with examples
C	**Mycology & Phycology (04)**
5.1	General characteristics, structure, reproduction, classification & economic importance of Algae
5.2	General characteristics, structure, reproduction, classification & economic importance of Fungi
	Reference Books:
1	Prescott, Harley, and Klein's Microbiology (9th edition) by Michael J. Pelczar, Jr., Eugene C. Klein, and Rodrick M. Krieg
2	Brock Biology of Microorganisms (15th edition) by Michael T. Madigan, John M. Martinko, Kelly S. Bender, Brock Chisholm, David P. Clark, Nicholas P. Gerard, and David H. Kahler
3	Microbiology: A Laboratory Manual (11th edition) by Michael J. Pelczar, Jr.,

	Eugene C. Klein, and Rodrick M. Krieg
4	Powar C.B. and Daginawala H.F. (1986). General Microbiology Vol. I & II (2ndEdition), Himalaya Publishing House, Mumbai.
5	Dubey, R.C and Maheswari, D.K. (2000) General Microbiology. S. Chand, New Delhi
6	K. R. Aneja, Pranay Jain, Raman Aneja (2008). A Textbook of Basic and Applied Microbiology, New Age International Publisher

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Second Year BSc(Entrepreneurship) Semester-III

Vertical: DSC2-4P

Course Code:

Course Name: Practicals based on Fundamentals of Microbiology

*Teaching Scheme	*Examination Scheme
Lectures:02 Hours/week, 01 Credits	UA:15 Marks CA: 10 Marks

Course Preamble: Microbiology is the scientific study of microorganisms, which are too small to be seen with the naked eye. These organisms include bacteria, viruses, fungi, protozoa, and Archaea. This course aims to provide a solid foundation in the principles of microbiology. It will explore the diversity of microorganisms, their structure, metabolism, genetics, and their interactions with other organisms and the environment.

	Course Objectives:
•	To implement appropriate safety measures needed in microbiology laboratory.
•	To gain practical experience in microbiology laboratory techniques
•	To learn staining techniques of microorganisms
	Course Outcomes:
•	Operate laboratory equipment, such as microscopes, autoclaves, and incubators, effectively and safely
•	Learn to observe microscopically & learn morphology of microorganisms.
	List of Experiments
1	Monochrome staining
2	Negative staining
3	Special staining procedures – Cell wall (Chance's method)
4	Special staining procedures – Capsule (Maneval's method)
5	Preparation of Saline & culture media a) Peptone water b)Nutrient Broth c) Nutrient Agar
6	Preparation of culture media a) Mac-Conkey's Agar b) Starch Agar c) Milk Agar d) Sabouraud's Agar
7	Study of inoculation techniques- Broth, Slant, Stab & Spot

8	Study of inoculation techniques- Streak plate technique
9	Study of inoculation techniques- Pour plate technique
10	Study of inoculation techniques- Spread plate technique
	Reference Books:
1	Laboratory Exercises in Microbiology (9th edition) by Kathleen A. Barker, Paul A. Engelkirk, and Donald W. Porter
2	Microbiology: A Laboratory Manual (11th edition) by Michael J. Pelczar, Jr., Eugene C. Klein, and Rodrick M. Krieg
3	Powar C.B. and Daginawala H.F. (1986). General Microbiology Vol. I & II (2ndEdition), Himalaya Publishing House, Mumbai.
4	Dubey, R.C and Maheswari, D.K. (2000) General Microbiology. S. Chand, New Delhi
5	K. R. Aneja, Pranay Jain, Raman Aneja (2008). A Textbook of Basic and Applied Microbiology, New Age International Publisher

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

First Year BSc(Entrepreneurship) Semester-III

Vertical: GE3/OE3

Course Code:

Course Name: Cell Biology

*Teaching Scheme	*Examination Scheme
Lectures:02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble: Cell biology course is for understanding life at its most fundamental level. This course will introduce students to the structure and function of cells, the building blocks of all living organisms. It will explore the key components of cells, including membranes, organelles, DNA, and the processes that allow cells to grow, divide, and communicate. Emphasizing both the molecular mechanisms and the dynamic interactions within cells, this course provides a comprehensive overview of cellular processes essential for life.

	Course Objectives:
•	Differentiate between prokaryotic and eukaryotic cells in terms of structure and function.
•	Analyze the structure and dynamic nature of the plasma membrane, including the Fluid Mosaic Model.
•	Develop critical thinking and analytical skills for understanding cell function and organization.
•	Describe the structure, function, and interconnectivity of cell organelles.
	Course Outcomes:
CO1:	Identify and describe the major cell organelles found in eukaryotic cells
CO2:	**Explain** the **structure** and **function** of each organelle, including their key components and how they contribute to cellular processes.
CO3:	**Understand** the **interrelationships** between different organelles and how they work together to maintain cellular homeostasis.
Unit 1:	**Cell: (15)**
	Discovery of Cell, Cell theory, Introduction and Classification of Organisms by Cell Structure, Cytosol, Ultrastructure of Eukaryotic cell, Structural Organization and Functions of Cell wall and Plasma Membrane. Cell Membrane and Permeability: Chemical components of biological membranes, Organization and Fluid Mosaic Model, Membrane as a dynamic entity, Cell recognition and Membrane transport.
Unit 2:	**Structure and function of Cell Organelles (15)**
3.1	Cytosol, Endoplasmic Reticulum, Golgi Complex, Mitochondria, Chloroplast, Ribosomes, Lysosomes, Peroxisomes, Nucleus, Nucleolus, Vacuole and Membrane

	Vacuolar system. Cytoskeleton and Cell motility cytoskeletal structures (microtubules, microfilaments and intermediate filaments).
	Reference Books:
1	**Molecular Biology of the Cell** by Bruce Alberts, David Bray, Karen Hopkin, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter:
2	**Essential Cell Biology** by Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter:
3	**The Cell: A Molecular Approach** by Geoffrey M. Cooper and Robert E. Hausman
4	**Cell and Molecular Biology: Concepts and Experiments** by Gerald Karp
5	**Lehninger Principles of Biochemistry** by David L. Nelson and Michael M. Cox
6	**Molecular Cell Biology** by Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Matthew P. Scott, Anthony Bretscher, H. Robert Lodish, Paul Matsudaira:
7	**Plant Cell Biology** by Chris Hawes and Brian E. Juniper
8	**Animal Cell Biology** by David M. Prescott

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***Teaching Scheme** **Practical: 04Hours/week, 02Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**
Course Preamble: An in-depth understanding of legal and financial topics that are essential to business operations is provided by this course. It gives students the skills they need to tackle legal and business issues in the real world by covering key facets of contract law, corporate governance, and financial analysis. Students will gain the analytical and decision-making abilities needed for business and entrepreneurial success through case studies, role plays, and financial calculations.	

	COURSE OBJECTIVES:
●	To understand the fundamentals of contract law, including essential elements and real-world applications.
●	To analyze corporate governance principles and their impact on business ethics and compliance.
●	To develop skills in drafting legal documents such as partnership deeds.
●	To explore consumer protection laws through case study analysis.
●	To perform financial ratio analysis and comparative analysis using sample company data.
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	Identify and apply the essentials of a valid contract in legal agreements.
●	Critically assess corporate governance practices in organizations.
●	Draft and interpret legal documents relevant to business operations.
●	Analyze consumer protection laws and their implications in business practices.
●	Compute and interpret key financial ratios to assess company performance.
	LIST OF PRACTICALS
1.	Case Study on Contract Law
2.	Essentials of a Valid Contract – Role Play
3.	Corporate Governance Report Analysis
4.	Drafting a Partnership Deed
5.	Consumer Protection Case Study

6.	Compute key financial ratios using sample company data
7.	Perform comparative and common-size analysis on financial data
8.	Conduct a**case study** on financial decision-making in a company.
9.	Identify capitalization trends in companies through financial reports.
10.	Case study on overcapitalization in failing businesses.
11.	Prepare and present a report on a company's financial health and investment decisions.
	REFERENCE BOOKS:
1	Avtar Singh, *Law of Contract & Specific Relief*, Eastern Book Company.
2	Robert A. Monks & Nell Minow, *Corporate Governance*, Wiley.
3	Kuchhal, M.C., & Kuchhal, Vivek, *Business Law*, Vikas Publishing House.
4	Goyal, V.K., *Financial Ratios for Business*, PHI Learning.
5	Ross, S.A., Westerfield, R.W., & Jaffe, J., *Corporate Finance*, McGraw-Hill.
6	Pandey, I.M., *Financial Management*, Vikas Publishing House.
7	Khan, M.Y., & Jain, P.K., *Financial Management: Text, Problems, and Cases*, McGraw-Hill.
8	Consumer Protection Act, 2019 – Government of India Publications.
9	Various case studies from Harvard Business Review and other academic sources.

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***Teaching Scheme** **Practical: 04 Hours/week, 02Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble:VSCis one of the core courses in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the skills of different laboratory experiments. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the practical concepts

	COURSE OBJECTIVES:
●	To develop practical skills in Chemistry.
●	To gain practical knowledge by applying the experimental methods to correlate with the theory.
●	To Study the volumetric estimation of compound quantitatively
●	To implement appropriate safety measures needed in microbiology laboratory.
●	To gain practical experience in microbiology laboratory techniques,
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	Understand practical skills.
●	Correlate theoretical concepts with experiments.
●	Quantify the organic/inorganic compounds using volumetric estimation.
●	Operate laboratory equipment, such as microscopes, autoclaves, and incubators, effectively and safely
●	Learn to observe microscopically & identify various types of microorganisms.
	LIST OF EXPERIMENTS
Sr. No.	**A) Volumetric Experiments:**
1.	To investigate the adsorption of oxalic acid or Acetic acid from aqueous solution by activated charcoal and examine the validity of Freundlich and Longmuir isotherms.
2.	Estimation of copper from brass by using standard sodium thiosulphate solution.
3.	Estimation of zinc in brass solution.

4.	Estimation of aspirin (acetyl salicylic acid)
5.	Estimation of ethyl benzoate.
6.	Estimation of sucrose.
	B) Microbiology Experiments:
7.	Good microbiology laboratory practices & Biosafety
8.	Principle, working and applications of Common laboratory instruments - a) Autoclave b) Hot Air Oven c) Incubator
9.	Principle, working and applications of Common laboratory instruments - a) Colony Counter b) Laminar Air flow c) Water Bath
10.	Handling and Care of compound Microscope
11.	Study of morphology of Algae (permanent slides) a) *Nostoc* (b) *Anabaena* (c) *Oscillatoria* (d) *Spirogyra*
12.	Study of morphology of fungi by Mounting method – (a) *Aspergillus* (b) *Rhizopus* (c) *Penicillium* (d) *Mucor*
	REFERENCE BOOKS:
	1.Practical Chemistry by A.I. Vogel.
	2.Advanced Practical Organic Chemistry by N.K. Vishnoi. Vikas Publishing House Private Limited.
	3.Comprehensive Practical Organic Chemistry Qualitative Analysis by V.K. Ahluwalia, Sunita Dhingra. University Press. Distributor-Orient Longman Ltd.
	4.Practical Chemistry – Physical – Inorganic – Organic and Viva – voce by Balwant Rai Satija. Allied Publishers Private Limited.
	5.Experimental organic chemistry by J. R. Norris, published by Sarup and sons, Delhi
	6.Advanced practical chemistry by J. Singh, L. D. S. Yadav, R. K. P. singgh, I. R. Siddiqui et.al, Pragati prakashan.
	7. Laboratory Exercises in Microbiology (9th edition) by Kathleen A. Barker, Paul A. Engelkirk, and Donald W. Porter
	8. Microbiology: A Laboratory Manual (11th edition) by Michael J. Pelczar, Jr., Eugene C. Klein, and Rodrick M. Krieg

	Punyashlok Ahilyadevi Holkar Solapur University, Solapur **Second Year B.Sc.(Entrepreneurship) Semester-III** **Vertical: AEC- I L2-1** **Course Code:** **Course Name:**
***Teaching Scheme** **Lectures: 02 Hours/week, 02 Credits**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

	Punyashlok Ahilyadevi Holkar Solapur University, Solapur **Second Year B.Sc.(Entrepreneurship) Semester-III** **Vertical: CC 2** **Course Code:** **Course Name:**
***Teaching Scheme** **Lectures: 02 Hours/week, 02 Credits**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Semester IV

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***Teaching Scheme** **Practical:02 Hours/week, 02Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble: Advertising management is the process through which a company plans, oversees, and controls various advertising activities aimed at influencing the buying decisions of target audiences. This involves a series of strategic decisions that encompass everything from market research to the execution and evaluation of advertising campaigns. The primary goal is to develop and place advertisements in the most effective channels to achieve desired outcomes

•	**Course Objectives:**
1	To introduce the basic elements of advertising/marketing communications.
2	To be able to strategically apply advertising and communication strategies.
3	To Design communications for print, social media.
•	**Course Outcomes:** After completion of course, the student can
1	Understand the basic concepts of advertising.
2	Apply advertising and communication strategies.
3	Design communications for print, social media
A)	**Advertising:**
1.1.	Meaning and importance of advertising
1.2	DAGMAR Model
1.3	Elements of advertising
1.4	Types of advertising
1.5	Advertising management tasks
1.6	Causes for advertisement failure
B)	**Advertising types of media**
2.1	Classification of advertisements
2.2	Types of Online Advertising
2.3	Elements of effective Online Advertising
2.4	Advertising evaluation
•	**Reference Books:**
	1. S. H.H. Kazmi, "Advertising and sales promotion", Excel Books, New Delhi

	2. Belch, G. E. & Belch, M. A., "Advertising and Promotion", Tata McGraw Hill 3. Chunawalla S.A., "Foundations of Advertising", Himalaya Publishing House, New Delhi 4. Ronald Lane, "Advertising Procedure", Pearson Education, New Delh 5. Shimp, "Advertising and Promotion", Cengage Learning, New Delhi, 6. Shah, Alan D. Souza, "Advertising and Promotion", TMH, New Delhi 7. Geroge Belch, Michael Belch, and KeyoorPurani, Advertising & Promotion – an Integrated Marketing Communications Perspective, Tata Mcgraw Hill, 8. Kruti Shah & Alan DSouza, Advertising and Promotions: An IMC Perspective, Tata Mcgraw Hill,

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Second Year BSc(Entrepreneurship) Semester-IV

Vertical: DSC1- 5P

Course Code:

Course Name: Practical Based on Advertising Management

*Teaching Scheme	*Examination Scheme
Practical: 02Hours/week, 01Credit	**UA: 15 Marks** **CA: 10 Marks**

Course Preamble: Advertising plays a crucial role in modern business by informing, persuading, and influencing consumer decisions. This course explores advertising concepts, types, and management while emphasizing online advertising strategies and evaluation techniques. Through theoretical knowledge and practical applications, students will develop a comprehensive understanding of advertising's impact on business success.

	COURSE OBJECTIVES:
●	To understand the meaning and significance of advertising in marketing.
●	To explore the DAGMAR model and its relevance in advertising.
●	To study various elements and types of advertising.
●	To examine advertising management tasks and reasons for advertisement failure.
●	To analyze the classification and types of online advertising.
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	Comprehend the fundamental principles of advertising and its importance.
●	Apply the DAGMAR model in advertising strategies.
●	Identify and evaluate the key elements and types of advertising.
●	Develop advertising management strategies and recognize potential failures.
●	Classify and differentiate various advertising media.
	LIST OF PRACTICALS
1.	Analyze a failed advertisement and identify reasons for failure.
2.	Compare different types of advertisements with real-world examples.
3.	Design a print advertisement incorporating key advertising elements.
4.	Evaluate different online advertising types and their effectiveness.
5.	Analyze an advertisement using AIDA (Attention, Interest, Desire, Action) model.
6.	Compare traditional vs. digital advertising effectiveness.
7.	Design a storyboard for a television advertisement.

	REFERENCE BOOKS:
1	Batra, R., Myers, J.G., & Aaker, D.A. (1996). *Advertising Management.* Pearson Education.
2	Belch, G.E., & Belch, M.A. (2017). *Advertising and Promotion: An Integrated Marketing Communications Perspective.* McGraw-Hill.
3	Kotler, P., & Keller, K.L. (2019). *Marketing Management.* Pearson Education.
4	Arens, W.F., Weigold, M.F., & Arens, C. (2017). *Contemporary Advertising.* McGraw-Hill.
5	Chaffey, D., & Ellis-Chadwick, F. (2020). *Digital Marketing: Strategy, Implementation, and Practice.* Pearson Education.

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Second Year B.Sc. (Entrepreneurship) Semester-IV

Vertical: Major DSC 1-6

Course Code:

Course Name: Investment Analysis and Portfolio Management

*Teaching Scheme	*Examination Scheme
Practical: 02 Hours/week, 02Credit	**UA: 30 Marks** **CA: 20 Marks**

Course Preamble: Security analysis provides a framework for evaluating individual securities' value while portfolio management focuses on constructing a cohesive investment strategy tailored to an investor's unique needs. Together, they form a comprehensive approach that enhances decision-making processes in investing.

•	**Course Objectives:**
1	To develop a thorough understanding of the features investments avenues.
2	To introduce investment environment for better decisions
3	To understand the benefits of Portfolio Management
•	**Course Outcomes:** After completion of course, the student can
1	Understand different investments avenues
2	Take better decision related to Investment.
3	Understand and implement Portfolio Management in practice
A)	**Investment analysis**
1.1	Concept of Investment
1.2	Investment vs speculation
1.3	Characteristics of Investment
1.4	Investment attributes
1.5	Features of different Investment Avenues
B)	**Portfolio Management**
2.1	Meaning and Benefits of Portfolio
2.2	Process of Portfolio Management
2.3	Specification of Investment Objectives and Constraints
2.4	Selection of Assets Mix
•	**Reference Books:**
	9. Investment Analysis and Portfolio Management –Prasanna Chandra

	10. Security Analysis and Portfolio Management Punithavathy 11. Pandian Investment Management - V. A. Avadhani 12. Investment Management – V. K.Bhalla Investment Management – Preeti Singh

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***Teaching Scheme**	***Examination Scheme**
Practical: 02Hours/week, 01Credit	**UA: 15 Marks** **CA: 10 Marks**

Course Preamble: Investment analysis and portfolio management are essential skills for individuals and institutions aiming to maximize returns while managing risks. This course provides an in-depth understanding of investment concepts, different investment avenues, and the process of portfolio management. It equips learners with theoretical knowledge and practical skills to make informed investment decisions, ensuring financial stability and wealth creation.

	COURSE OBJECTIVES:
●	To understand the fundamental concepts of investment and its significance.
●	To differentiate between investment and speculation.
●	To examine the characteristics and attributes of investment.
●	To explore various investment avenues and their features.
●	To comprehend the principles and benefits of portfolio management.
	COURSE OUTCOMES:
	On successful completion of this practical course student will be able to:
●	Explain the concept of investment and its role in financial planning.
●	Distinguish between investment and speculation based on risk, return, and strategy.
●	Identify and analyze the characteristics and attributes of different investment instruments.
●	Evaluate various investment avenues and their suitability for different investors.
●	Demonstrate an understanding of portfolio management and its benefits.
	LIST OF PRACTICALS
1	Case study-based workshop differentiating investment and speculative trading.
2	Training on analyzing bonds, debentures, and fixed deposits.
3	Real-time evaluation of mutual fund NAVs and returns.
4	Practical calculations and interpretation of Capital Asset Pricing Model.
5	Real-time trading simulations to develop investment strategies.
	REFERENCE BOOKS:

1	Bodie, Z., Kane, A., & Marcus, A. J. (2021). *Investments*. McGraw-Hill Education.
2	Reilly, F. K., & Brown, K. C. (2020). *Investment Analysis and Portfolio Management*. Cengage Learning.
3	Damodaran, A. (2017). *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*. Wiley.
4	Elton, E. J., Gruber, M. J., Brown, S. J., & Goetzmann, W. N. (2014). *Modern Portfolio Theory and Investment Analysis*. Wiley.
5	Markowitz, H. (1952). *Portfolio Selection*. The Journal of Finance, 7(1), 77-91.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-IV

Vertical: Minor DSC2-5

Course Code:

Course Name: Industrial Chemistry-IV

*Teaching Scheme	*Examination Scheme
Lectures: 02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble: Industrial Chemistry is one of the core course in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the industrial processes. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the industrial chemistry concepts.

Course Objectives:
To learn about the basic principles Potentiometry and Conductometry
To learn Conductometric acid-base titrations
To study the classifications and manufacturing process of fertilizers.
To understand the classifications of ceramics and various processes involved in ceramic industry
Course Outcomes:
Able to learn about the basic principles Potentiometry and Conductometry
Able to learn Conductometric acid-base titrations
Able to study the classifications and manufacturing process of fertilizers.
Able to understand the classifications of ceramics and various processes involved in ceramic industry
Physical Chemistry
Potentiometry: **(8)** 1. Introduction
2. Detail study of calomel, quinhydrone and glass electrodes and their use in determination of pH.
3. Potentiometric titrations: Classical and analytical methods for locating end points, Advantages of potentiometric titrations, i) Acid - Base titrations ii) Redox - titrations iii) Precipitation titrations
4. Basic circuit of direct reading potentiometer.

Conductometry: (7)
1. Measurement of conductance by Wheatstone bridge, Basic circuit of D.C. Wheatstone Bridge, use of alternating current, conductivity water, Different types of conductivity cells, cell constant and its determination. Experimental determination of specific, equivalent and molecular conductances.
2. Conductometric acid-base titrations: i. Strong acid against strong base ii. Strong acid against weak base iii. Weak acid against strong base. iv. Weak acid against weak base.
Applied Chemistry
Fertilizers: (8)
1. Classification of fertilizers
2. Qualities of an ideal fertilizer
3. Manufacture of Common fertilizers such as: a. Ammonium sulphate b. Urea c. Super phosphate and d. Triple super phosphate e. Potassium fertilizers
4. Pollution caused by fertilizers
Ceramic Materials: (7)
1. Introduction
2. Classification
3. Properties of ceramics
4. Cement: Types of cements and their applications
5. Manufacture of Portland cement by wet process.
Reference Books:
1. Text book of Quantitative Inorganic Analysis - By A. I. Vogel (ELBS and Longman 3rd Edition). 2. Instrumental methods of Chemical analysis by Willard, Merit and Dean. 3. Instrumental methods of Chemical analysis by Chatwal and Anand (Himalaya Publication). 4. Principles of electroplating and eletroforming by Blum and Hogaboom, Mac Graw - Hill Book Co. 3rd Edn. 5. Vogel's text book of Quantitative Inorganic Analysis by Basssett and Denny etc. ELBS and Longman 4th Edition. 6. Principles of Physical Chemistry by Puri, Sharma, Pathania, Shobhanlal Naginchand and Company, Jalandar. 7. Inorganic Chemistry by G.S. Manku Tata Mc. Graw Hill. 8. University General Chemistry by CNR Rao (McMillan). 9. Industrial Chemistry by B.K. Sharma. 10. Environmental Chemistry by S.M. Khopkar (Wiley Eastern Ltd.) 11. Industrial Chemistry: R K Das.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ।। विद्यया संपन्नता ।। NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Entrepreneurship) Semester-IV** **Vertical: DSC2-5P** **Course Code:** **Course Name: Practicalbased on Industrial Chemistry –IV**
***Teaching Scheme** **Practical: 02Hours/week, 01Credit**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

Course Preamble: Practicalbased on Industrial Chemistry –IIIis one of the core courses in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the qualitative analysis. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the practical concepts of Industrial chemistry.

	Course Objectives:
●	To develop practical skills in basic and conceptual Industrial Chemistry.
●	To gain practical knowledge by applying the experimental methods to correlate with the theory.
●	To know the use of potentiometer and conductometer in physical chemistry
●	Study the volumetric estimation of compound quantitatively
	Course Outcomes:
	On successful completion of this practical course student will be able to:
●	Understand practical skills.
●	Correlate theoretical concepts with experiments.
●	Quantify the organic/inorganic compounds using volumetric estimation.
●	Understand the use of potentiometer and conductometer in physical chemistry
	List of Experiments
Sr. No.	**A) Volumetric Experiments:**
1.	Verify the Ostwald's dilution law for weak acid conductometrically.
2.	Strong acid strong base Conductometric titration.
3.	Determination of pH of the buffer solutions potentiometrically.
4.	Determination of dissociation constant of weak acid pHmetrically.
5.	Verify the Beers - Lamberts law for copper solution and determine the concentration of given copper sample.
	B Preparations:

1.	Preparation of Ferrous ammonium sulphate from ferrous sulphate.
2.	Preparation of tetra amine copper (II) sulphate from copper sulphate.
	C. Estimations:
1.	Determine the amount of Fe as a Fe2O3 from the given solution of FAS and sulphuric acid, gravimetrically.
2.	Determine the amount of Ba as a BaSO4 from the given solution of barium chloride and free hydrochloric acid gravimetrically
	Reference Books:
	11. Practical Chemistry by A.I. Vogel.
	12. Experiments in General Chemistry by C.N.R. Rao. Affiliated East-West Press Pvt. Ltd. Delhi.
	13. Practical Chemistry – Physical – Inorganic – Organic and Viva – voce by Balwant Rai Satija. Allied Publishers Private Limited.
	14. Advanced practical chemistry by J. Singh, L. D. S. Yadav, R. K. P. singgh, I. R. Siddiqui et.al, Pragati prakashan.
	5. Text book of Quantitative Inorganic Analysis - By A. I. Vogel (ELBS and Longman 3rd Edition).
	6. Instrumental methods of Chemical analysis by Willard, Merit and Dean.
	7. Instrumental methods of Chemical analysis by Chatwal and Anand (Himalaya Publication).
	8. Vogel's text book of Quantitative Inorganic Analysis by Basssett and Denny etc. ELBS and Longman 4th Edition.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Second Year BSc(Entrepreneurship) Semester-IV

Vertical: Minor DSC2-6

Course Code:

Course Name: Molecular Genetics

*Teaching Scheme	*Examination Scheme
Lectures: 02 Hours/week, 02 Credits	UA:30 Marks CA: 20 Marks

Course Preamble

This course provides a comprehensive introduction to the fundamental principles of molecular biology and genetics, laying the groundwork for understanding the mechanisms of heredity and gene expression. We will explore the core concepts that underpin life at the molecular level, from the structure and function of DNA to the transmission of genetic information across generations.

Course Objectives:
Explain the Central Dogma of molecular biology
Understand the fundamental structure and function of DNA
Describe the process of DNA replication
Explain the process of transcription
Course Outcomes:
Students will be able to draw and label the structure of DNA and explain its key features.
Students will be able to explain the importance of post transcriptional modification
Students will be able to decode and interpret the genetic code.
Students will be able to describe the functions of the enzymes involved in DNA replication and transcription.

Central Dogma **(15)**

DNA structure; Salient features of double helix; Types of DNA, the Central Dogma, Genetic code – evidences and properties

DNA replication- Definition, Enzyme involved in Replication, DNA Polymerases Replication in Prokaryotic Cell & Eukaryotic Cell, Rolling Circle Model

Transcription- In Prokaryotic Cell & Eukaryotic Cell, RNA Polymerases, Post transcriptional modification

Genetics **(15)**

Mendelian genetic- Introduction, Mendel's experiment, Monohybrid and Dihybrid crosses, Genotypic and phenotypic ratio, Law of Dominance, Law of Independent assortment, Law of

Co-dominance and Incomplete dominance.
Chromosome - Structure of Chromosome and Types of chromosomes. Chromosomal aberration Translocations, inversions, deletions and duplications. Mutation- Definition, Mutagenic agent, Induced and Spontaneous mutation.
Reference Books:
1. Bergey's Manual of Determinative Bacteriology- Breed and Buchanan 2. General microbiology – Stanier 3. General microbiology – Pawar and Daginawala Vol I and II 4. Introduction of Biostatics. 5. Molecular Biology of Gene – J.D. Watson 6. Recombinant DNA – J.D. Watson 7. Microbiology – Davis 8. Advances in Biotechnology – S.W. Jogdand. 9. Textbook of Biotechnology – R.C. Dubey. 10.Biotechnology – B.D. Singh. 11.Gene VII; Benjamin Lewin; Pearson Education. 12. Molecular Biology; R. Weaver; 2nd Edition, McGraw Hill.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ॥ विद्यया संपन्नता ॥ NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Entrepreneurship) Semester-IV** **Vertical: DSC2-6P** **Course Code:** **Course Name: Practicalbased on Molecular Genetics**
***Teaching Scheme** **Practical: 02Hours/week, 01Credit**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

Course Preamble

This course module focuses on fundamental techniques in molecular biology and genetics, emphasizing the manipulation and analysis of DNA, the principles of Mendelian inheritance, and the study of chromosomes. Students will gain hands-on experience in bacterial DNA isolation, DNA quantification, gel electrophoresis, genetic simulation, karyotyping, and pedigree analysis, providing a solid foundation for further studies in life sciences.

	Course Objectives:
●	To master bacterial DNA isolation techniques.
●	To understand and apply Punnett squares for genetic simulations.
●	To develop skills in karyotype construction and interpretation.
●	To learn how to analyze genetic pedigrees and determine inheritance patterns.
	Course Outcomes:
	On successful completion of this practical course student will be able to:
●	Effectively isolate DNA from bacterial cultures.
●	Accurately quantify DNA using a spectrophotometer.
●	Prepare and run agarose gels for DNA separation.
●	Construct and interpret Punnett squares for monohybrid and dihybrid crosses.
	List of Experiments
1.	Isolation of DNA from bacteria
2.	Quantification of DNA using spectrophotometr
3.	Gel electrophoresis to visualize and assess the quality of extracted DNA.
4.	Simulating monohybrid and dihybrid crosses using Punnett squares.
5.	Creating a karyotype from provided images of chromosomes.
6.	Analyzing given genetic pedigrees to determine inheritance patterns of traits.
	Reference Books:

	1.Essential Techniques in Molecular Biology" by Keith F. Tipton.
	2.Cytogenetics" by David L. Comings.
	3.Human Molecular Genetics" by Tom Strachan and Andrew Read.
	4.Genetics: Analysis of Genes and Genomes" by Daniel L. Hartl and Elizabeth W. Jones.
	5. An Introduction to Genetic Analysis" by Anthony J.F. Griffiths et al.
	6.Genetics: A Conceptual Approach" by Benjamin A. Pierce.
	7. Current Protocols in Molecular Biology" by Frederick M. Ausubel et al.
	8. Molecular Cloning: A Laboratory Manual" by Joseph Sambrook and David W. Russell.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ॥ विद्यया संपन्नता ॥ NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year B.Sc. (Entrepreneurship) Semester-IV** **Vertical: GE/OE-4** **Course Code:** **Course Name: Retail Management**
***Teaching Scheme** **Practical:02 Hours/week, 02 Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble: The Job and entrepreneurial opportunities are available in this field such as departmental stores, supply chains, advertising agencies, supermarkets, etc. this field involves a direct communication with the customer & coordinating the business activities. Students who are specialists in retail management are known as Retail Managers.

•	**Course Objectives:**
1	To make students familiar with the fundamental concepts and how the retail industry works and their different types of formats.
2	To understand the importance of retail location
3	To understand the significance of store design.
•	**Course Outcomes:** After completion of course, the student can
1	Understand Indian Retail Industry and its different formats
2	Able select appropriate retail location for retail store.
3	Able design suitable store design.
A)	**Retailing and Retail Formats**
1.1	Meaning, Definition-Retailing
1.2	Retailing Management
1.3	Functions of Retailer
1.4	Retail Strategy
1.5	Process and its steps
1.6	Indian Retail Industry Scenario in Current Year
1.7	Types of Retailing-Store
B)	**Retail Store Location and Store Design**
2.1	Types of Retail Locations
2.2	Factors affecting Location Decisions
2.3	Steps involved in choosing retail location
2.4	Elements of Store Design- Interior and Exterior Store Design

2.5	Concept of Store Layout
	Reference Books:
	1. Retailing Management–by Swapna Pradhan (5thEdi.)–TMH 2. Retail Management– by Suja Nair–Himalaya Publication 3. Retail Management – Gibson G. Vedamani - (3rd Edition) JAICO Publication 4. Retail Management–Dr. Harjit Singh–S.Chand & Co.Ltd.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ॥ विद्यया संपन्नता ॥ NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Entrepreneurship) Semester-IV** **Vertical: VSC 3** **Course Code:** **Course Name: VSCbased on DSC 1-5 and DSC 1-6 Major**
***Teaching Scheme** **Practical: 04 Hours/week, 02 Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble: The goal of this course is to give students a thorough understanding of consumer psychology, advertising tactics, and financial market analysis. Through case studies, digital marketing tactics, and effectiveness measurement, the course combines the theoretical and practical facets of advertising. Simultaneously, it introduces students to financial markets, risk analysis, investment strategies, and key technical indicators. Students will have a comprehensive understanding of financial decision-making and advertising management by the end of the course.

	COURSE OBJECTIVES:
●	To develop a strong foundation in advertising principles, strategies, and campaign execution.
●	To analyze consumer perception and behavior through surveys and psychological insights.
●	To understand financial market dynamics, investment risks, and return optimization strategies.
●	To apply fundamental and technical analysis in stock market decision-making.
●	To equip students with practical skills in online advertising, social media marketing, and financial indicators for investment strategies.
	COURSE OUTCOMES:
	On successful completion of this practical course students will be able to:
●	Design and implement effective advertising campaigns based on the DAGMAR model.
●	Conduct market research to evaluate advertising effectiveness and consumer psychology.
●	Analyze risk, liquidity, and tax implications in financial decision-making.
●	Apply technical analysis tools like moving averages, RSI, and MACD in stock trading.
●	Develop integrated online and social media advertising strategies for brands.
	LIST OF PRACTICALS
1.	Conduct a case study on successful advertising campaigns.
2.	Develop an advertisement based on the DAGMAR model.
3.	Create an advertising management plan for a product/service.
4.	Develop an online advertising strategy for a brand.

5.	Conduct a survey to measure consumer perception of an advertisement.
6.	Develop a social media advertising campaign for a business.
7.	Conduct an advertisement content analysis based on consumer psychology.
8.	Measure advertising effectiveness using key performance indicators (KPIs).
9.	Practical exercises on risk, liquidity, marketability, and tax implications.
10.	Conducting fundamental and technical analysis of listed companies.
11.	Case studies on asset allocation and risk minimization.
12.	Hands-on use of indicators like moving averages, RSI, and MACD.
	REFERENCE BOOKS:
1	Kotler, P., Keller, K. L. (2021). Marketing Management (16th ed.). Pearson.
2	Belch, G. E., & Belch, M. A. (2020). Advertising and Promotion: An Integrated Marketing Communications Perspective (12th ed.). McGraw-Hill.
3	Rossiter, J. R., & Percy, L. (2017). Advertising and Promotion Management. Springer.
4	Murphy, J. E. (2019). Technical Analysis of the Financial Markets. New York Institute of Finance.
5	Bodie, Z., Kane, A., & Marcus, A. J. (2021). Investments (12th ed.). McGraw-Hill.
6	Chisnall, P. (2018). Consumer Behaviour: A Psychological Approach. McGraw-Hill.
7	Kotabe, M., & Helsen, K. (2020). Global Marketing Management. Wiley.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ॥ विद्यया संपन्नता ॥ NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Entrepreneurship) Semester-IV** **Vertical: VSC 4** **Course Code:** **Course Name: VSC 4 based on DSC 2-5 and DSC 2-6 Minor**
***Teaching Scheme** **Practical: 04 Hours/week, 02 Credit**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble:VSCis one of the core course in the Entrepreneurshipcurriculum. This course provides an in-depth understanding of the skills of different laboratory experiments. By combining theoretical knowledge with hands on practicals will helps students to develop practical skills in analyzing and optimizing the practical concepts.

	Course Objectives:
●	To develop practical skills in Chemistry.
●	To gain practical knowledge by applying the experimental methods to correlate with the theory.
●	Study the volumetric estimation of compound quantitatively
●	To develop proficiency in DNA and RNA isolation techniques.
●	To understand the principles and applications of restriction enzyme digestion
●	To gain practical skills in microscopy and chromosome analysis.
	Course Outcomes:
	On successful completion of this practical course student will be able to:
●	Understand practical skills.
●	Correlate theoretical concepts with experiments.
●	Quantify the organic/inorganic compounds using volumetric estimation.
●	Explain the principles behind the isolation procedures.
●	Interpret the results of gel electrophoresis following restriction digestion.
Sr. No.	**Name of Experiments**
1.	Estimation of ethyl benzoate
2.	Estimation of sucrose
3.	Determine the COD of given water sample.
4.	Determine the BOD of the given water sample
5.	Analysis of commercial vinegar

6.	Preparation of methyl orange
7.	Laboratory preparation of soap
8.	Isolation of DNA from plant
9.	Digesting DNA with restriction enzymes.
10.	Isolating RNA from biological samples.
11.	Observing and identifying chromosomes under a microscope.
12.	Observing and analyzing phenotypic traits in organisms (e.g., Drosophila, plants).
13	Determining genotypes based on observed phenotypes.
	Reference Books:
	1. Practical Chemistry by A.I. Vogel.
	2.Advanced Practical Organic Chemistry by N.K. Vishnoi. Vikas Publishing House Private Limited.
	3.Comprehensive Practical Organic Chemistry Qualitative Analysis by V.K. Ahluwalia, Sunita Dhingra. University Press. Distributor-Orient Longman Ltd.
	4.Practical Chemistry – Physical – Inorganic – Organic and Viva – voce by Balwant Rai Satija. Allied Publishers Private Limited.
	5.Experimental organic chemistry by J. R. Norris, published by Sarup and sons, Delhi
	6.Advanced practical chemistry by J. Singh, L. D. S. Yadav, R. K. P. singgh, I. R. Siddiqui et.al, Pragati prakashan.
	7. 25. Molecular Biology of the Gene" by James D. Watson et al. (A classic, comprehensive text)
	8.Principles of Gene Manipulation and Genomics" by Sandy B. Primrose and Richard M. Twyman.
	9."Molecular Cell Biology" by Harvey Lodish et al.
	10. Genetics: Analysis of Genes and Genomes" by Daniel L. Hartl and Elizabeth W. Jones

	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year B.Sc.(Entrepreneurship) Semester-IV** **Vertical: AEC-II L2-2** **Course Code:** **Course Name:**
***Teaching Scheme** **Lectures: 02 Hours/week, 02 Credits**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

	**Punyashlok Ahilyadevi Holkar Solapur University, Solapur** **Second Year B.Sc.(Entrepreneurship) Semester-IV** **Vertical: FP1/CEP1** **Course Code:** **Course Name:**
***Teaching Scheme** **Lectures: 02 Hours/week, 02 Credits**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

UA

Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Faculty of Science & Technology.

Nature of Question Paper for CBCS Pattern

B. Sc. (Part- II) w.e.f. AY 2025-26

Time: Total Marks: 30

Instructions

1) All Questions are compulsory

2) Figure to right indicate full marks.

Q.1 Choose correct alternative. (MCQ) 06 Marks

1)

a) b) c) d)

2)

a) b) c) d)

3)

a) b) c) d)

4)

a) b) c) d)

5)

a) b) c) d)

6)

a) b) c) d)

Q.2. Answer the following. (Any three) 6 (2+2+2)

A)

B)

C)

D)

E)

Q.3. Answer the following (Any two). 6 (3+3)

A)

B)

C)

Q.4. Answer the following (Any two). **6 (3+3)**

A)

B)

C)

Q.5. Answer the following (Any one). **6 Marks**

A)

B)

CA

Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Faculty of Science & Technology.

Nature of Question Paper for CBCS Pattern

B. Sc. (Part- II) w.e.f. AY 2024-25

Time: Total Marks: 20

- **Internal Evaluation System for 20 Marks (Theory)**
  - Choose any two of the following
  - Home Assignment / Unit Test / Tutorial /Seminar

- **Internal Evaluation System (Practical)**

  For 1 Credit = 10 Marks

  For 2 Credits = 20 Marks

- **Passing Criteria:**
  - Thoery Exam (UA) – 12 out of 30
  - Continuous Assessment (CA) – 08 out of 20
  - Continuous Assessment (CA) – 04 out of 10
