SOLAPUR UNIVERSITY, SOLAPUR
B.Sc. PART III (Entrepreneurship)
Revised Syllabus
w. e. f. June 2009

1. Eligibility for admission : students seeking admission to part IIIrd of B.Sc. (Entrepreneurship) must have been declared pass or A.T.K.T. by the university.
2. Course structure : The course of B.Sc. Part III shall comprise of FOUR theory papers of 100 marks each, and a paper on English as per B.Sc. III structure and Practical Course of 200 marks. Which included a project report on a topic chosen by him/her in consultation with the teacher or He has to work in an industry / trading business during summer vacation and submit the detailed project report at the end of IIIrd year. The project report shall be of 50 marks. Thus the course total shall be of 700 marks.
3. Work load : Each theory paper shall be covered in 4 lectures per week (48/50 min each). The practical will be covered in FIVE lecture periods per week per batch. There shall not be more than 12 students in each batch.
4. The Rules as per B.Sc.IIIrd course of Solapur University, Solapur.
5. The course structure will be as follows :-

Course Code	Title of the Course	Theory / Practical	Marks	Lecture / Practical Period
	Entrepreneurship Paper V - International Business & Business Finance	Theory	100	80
	Laboratory Course	Practical	50	
	Entrepreneurship Paper VI - Human Resource Management & Organization Behavior	Theory	100	80
	Laboratory Course	Practical	50	
	Entrepreneurship Paper VII - Ind. Micro Biology and Ind. Biotechnology	Theory	100	80
	Laboratory Course	Practical	50	
	Entrepreneurship Paper VII - Ind. Chemistry & Computer Science	Theory	100	80
	Laboratory Course/ Project Work	Practical	50	
	* English	Theory	100	
		Total	**700**	

* English syllabus which is recommended for B.Sc. III Course.

* Students have to work in industries / training business during vacation and prepare selected report & submit at the end of IInd term of B.Sc.III (Entrepreneuship)

Theory Examination

Nature of Questions & Distribution of marks for B.Sc.III

Section I

Q.1	Essay type Question	10
	OR	
Q.1	Essay type Question	
Q.2	Essay type Question	10
	OR	
Q.2	Essay type Question	
Q.3 A	Write short notes any two out of four	10
Q.3 B	Write short answers any four out of six	10
Q.4	Multiple Choice Question (each carry one mark)	10

Section II

Q.5	Essay type Question	10
	OR	
Q.5	Essay type Question	
Q.6	Essay type Question	10
	OR	
Q.6	Essay type Question	
Q.7 A	Write short notes any two out of four	10
Q.7 B	Write short answers any four out of six	10
Q.8	Multiple Choice Question (each carry one mark)	10

Practical Examination B.Sc. III

A) Every candidate must produce a certificate from the Head of Department in his/her college stating that he / she has completed in satisfactory manner a practical course on the lines laid down from time to time by the Academic Council on the recommendation of board of studies and that the laboratory journal has been properly maintained. Every candidate must have recorded his / her observation in the laboratory journal and written a report on each exercise performed. Every journal has to be signed periodically by the member of the teaching staff and certified by the Head of the Department at the end of the year. Candidate are to produce their journals at he practical examination and such journals will be taken into account by the examiners in assigning marks.

B) The practical examination of each course will be of 6 hour duration for each batch of 12 students.

* For Industrial Microbiology and Biotechnology course practical examination will be conducted on two successive days for B.Sc.III (each batch of 12 students.)

C) Examination staff for each batch

1. Two External examiner on inspection day & practical examination days.
2. One laboratory supervisor for inspection & practical examination days.
3. One laboratory expert, lab assistant for preparation and inspection day.
4. Two lab attendant, one peon, field collector for two preparation days, practical examination days and one washing day.

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Paper V

International Business & Business Finance

(Total 80 periods, 4 periods / week) 100 marks.

Section I 40 periods

International Business

1.	Definition Evaluation, Nature of International Business, International Business approaches, Theories of International Business, Problems of International Business	8 P
2.	International Economic Environment : International Trade Policy and Relations, Tariffs, Subsidies, Import Quota, Voluntary Export restraints, Administrative policies and International law and Business firms.	8 P
3.	Modes of entering in International Business : Modes of entry, Exporting, Licensing, Franchising, Contracts, Turnkey Projects, Mergers, Acquisitions and Joint Venture.	8 P
4.	World Trade Organization and Trade Blocks Economic Integrations, Free Trade Area, Custom unions common markets, Economic Unions, GATT, EEC, ASEAN, SAARC, SAFTA	8 P
5.	Concept of e-commerce : Modesl : B-B, B-C, C-C	8 P

Books for Reference :

1. Frame works International II edition - Rajer Benneet, Financial Times Management - Pitmen Publishing Landon
2. International Business : Test & Cases By P.Subba Rao - Himalaya Publishing House
3. Global Marketing : S.A. Sherlekar & V.S. Sherlekar.
4. E-business - Kittel Amer
5. E-commerce - David Whitely

Section II 40 periods

Business Finance

1.	Introduction to Business Finance : Concept, Nature, Scope, Objective and Importance	8 P
2.	Sources of Business Finance : Long term equity shares, Preference shares, Debentures, Bonds, Loan form banks, Public deposits, Sources of working capital finance.	10 P
3.	Marketing of Securities : Issue of securities, Public issue, Steps in public issue, Right issue and private placement Stock Exchange : Definition, Functions, Stock exchange in India, BSE and NSE and their working, Trading on stock exchange, On line trading.	10 P
4.	New Dimensions in Business Finance : Lease financing, Meaning, Importance, Types of lease financing, Lease V/s Buy decision, Problems and Prospects of leasing in India. Venture Capital : Concepts, Process of Investment and exit route, venture capital in India.	12 P

Books for Reference :

1. Essential of Business Finance - Dr.R.. Shrivastav
2. Business Finance - P.V. Kulkarni
3. Corporation Finance - S.C. Kuchal
4. Investment and securities market in India - V.A. Audhani
5. Corporate Finance Policy - Guthmann & Dougall.
6. Stock exchange and investment - Raghunathan.
7. Stock exchange in India - K.C. Gupta

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Paper V

Practical Work

(5 Periods / Week / Batch)

50 marks.
(5 marks / practical)

1. To study problems of International Business by visiting an global export unit.
2. To visit an experts unit and study export & imports rules & regulations.
3. To study any two franchising and Turnkey Projects.
4. To study recent Policies of GATT, ASEAN, SAARC, SAFTA.
5. To visit organization doing e-business & collect information.
6. To collect cuttings from news-papers relating to business finance.
7. To study sources of working capital finance.
8. To visit stock exchange and collect information.
9. To study problems and prospects of leasing in India by visiting organization.
10. To study venture capital.

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Paper VI

Human Resource Management & Organizational Behavior

(Total 80 periods, 4 periods / week) 100 marks.

Section I 40 periods

Human Resource Management

1. Nature and Scope of Human Resource Management : 7 P
   Meaning, Definitions, Objectives, Functions and Importance of Human Resource Management, Role of Human Resource Management.

2. Recruitment and Selection : 7 P
   Definition, Objectives, External & Internal sources of recruitment, Job Analysis, Job description, Job Specification, Essential of Selection procedure, Steps in selection procedure, Job satisfaction

3. Training & Development : 6 P
   Need & Objectives, Training Principles, Advantage of training, Training Method.

4. Motivation : 6 P
   Monetary and Non-monetary method of motivation, Positive and Negative Motivation.

5. Promotions : 6 P
   Meaning, Types, Basic Benefit & Problem of Promotion.

6. Employee Benefits : 6 P
   Provident Fund, Gratuity, E.S.I. Maintenance Allowance, Convenience Allowance, Employee Health and Safety, Accident prevention.

Books for Reference :

1. Personnel & HRM - P.Subha Rao
2. Managing Human Resources - Arun Monappa
3. Human Resource and Personnel Management - K. Ashwathappa
4. Management of Human Resource - R.S. Dwivedi
5. Human Resource Management - Biswajeet Patanayale
6. Human Resource Management - Ian Beardwen & Len Holden

Section II 40 periods

Organization Behavior

1. Introduction to Organization Behavior : 8 P
   Definition, Historical, Evolution of O.B., Nature & Scope, Learning Organization, Types of Learning Organization.

2. Individual & Organization Behavior : 8 P
   Individual Differences & their uses in industries, Individual process, thinking memory, leaving, emotion, intelligence and ability.

3. Personality & its development : 8 P
   Personality development, types, traits, perceptions and attitude.

4. Group and Organization Behavior : 8 P
   Individual and Inter Personal behavior, job satisfaction, time management & good setting. Inter group dynamics & teams, Inter group behavior & conflicts, frustration, stress, causes, effect, stress & job performance, copying with stress Dr.Hons Selye's GAS.

5. Micro prospective of Organization Behavior : 8 P
   Organization culture, organization change & development.

Books for Reference :

1. Organizational Behavior - Meshane, (Tata Mcgraw Hill)
2. Organizational Behavior - Luthan
3. Human Behavior at Work - Keith Devis
4. Organizational Behavior - Robins (Prentice Hall)
5. Organizational Behavior - Baron & Greenberg (Prentice Hall)
6. Organizational Behavior - Suja Nair (Himalaya Publisher)
7. Organizational Behavior - K. Ashwathappa (Himalaya Publisher)

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Paper VI

Practical Work

(5 Periods / Week / Batch)

50 marks
(5 marks / practical)

1. To study role of H.R. Manager, Interactions with two H.R. Mangers.

2. To study training methods for employees in an organization.

3. To study motivation and disciplinary policy of any organization.

4. To prepare questionnaires for testing job satisfaction and conduct interview of Employees of any two industries.

5. To study Health & Safety provisions for employees in any organization.

6. To study, How to learn Organization.

7. a) To study individual differences and their suitability for jobs in any organization.
   b) To study I.Q. its chart and collect information.

8. To study time management schedule of employees in any organization.

9. To study the stress and suggest remedies to the working people.

10. To study organization culture and its development in any organization.

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Paper VII

Industrial Biotechnology

(Total 80 periods, 4 periods / week)

Section I (Industrial Biotechnology) 50 marks (40 L)

Unit I 20 (L)

1.	Tissue Culture Techniques : Concept of cell theory, cellular totipotency, milestones in plant tissue culture.	2 L
2.	Culture Medium : Nutritional requirements of the explants, PGRs and their invittro.	2 L
3.	Callus Culture : Introduction, Principle, Protocol, Factors affecting, Morphology and Internal structures, Genetic variation, Application and limitations.	3 L
4.	Suspension Culture : Introduction, Principle, Protocol, Types, Growth and measurement, Synchronization, Applications and limitations.	3 L
5.	Organ Culture : Introduction, Principle, Protocol, Factors affecting applications & limitations with reference to root tip culture, Leaf Culture, Shoot tip and meristern culture, ovary and ovule culture.	4 L
6.	Anther and Pollen Culture : Introduction, Protocol, Factor affecting, Applications & limitations.	2 L
7.	Micro Propagation : Introduction, Stages of Micro propagation, Factors affecting, Applications & limitations.	2 L
8.	Production of Secondary Metabolites Introduction, Principle, Optimization of yield, Commercial aspects.	2 L

Section I
Unit II 20 (L)

1.	Genetic Engineering : History of Genetic Engineering, Concepts, Ethical issues.	2 L
2.	Vehicles : Cosmids, Plasmids, Bacteriophages phagemids, Shuttle vectore.	2 L
3.	Role of Emymes in Gene Cloning : Nucleases, Polymerases, Ligases, Topoisomerases	2 L
4.	Outline of Cloning Strategies : Construction of recombinant vectors, introduction of vector into suitable host, selection of recombinant clones, multiplication, expression and integration of DNA insert in host genome.	4 L
5.	Techniques used in r DNA Technology : Agarose, PAGE, Southern, Northern and Western blotting, construction of chimeric DNA, Preparation, Labeling & usage of proper construction and screening of genetics & C DNA libraries.	6 L
6.	Gene Amplification : PCR and its application.	2 L
7.	Transgenic Plants Molecular forming, herbicide resistance, insect resistance, virus resistance, flavor savor tomato	3 L

Section II (Industrial Microbiology) 50 marks (40 L)

Unit I

A Industrial Production of Enzymes : 10 L
Raw material, Organism, Fermentation, Product Recover,
Application (i) Amylase (ii) Protease (iii) Lipase

B Immobilized Enzymes : 2 L
Applicatiion of immobilized enzyme in industry.

Unit II

Industrial Production of Biofertilizers : 8 L
Raw material, Organism, Fermentation, Carrier material
application (i) Rhizobium (ii) Azotobactor (iii) Phosphate
Solubilizing bacteria.

Unit III

Production of Biofuel : 5 L
Raw material, Rote of micro organism, recovery,
application (i) Biogas (ii) Bioethanol

Unit IV

Industrial Production of Therapeutic Agents : 10 L
Raw material, Organism, Fermentation, Product Formation &
Recovery of Product,
Application - (i) Antibiotic - a) B-Lactome, b) Peptide antibiotics,
c) Quinolinones
(ii) - a) Ribotilavin & Vit - B12

Unit V

Intellectual Property Right (IPR) 5 L
i) Intellectual Property Rights (IPR)
ii) Importants of a) Patents b) Trademarks c) Copy rights.

Paper VII

Industrial Biotechnology

Practical

1.	Introduction to PTC Laboratory	1 P
2.	Aseptic Manipulation - Washing, Copping, Packing & sterilization, Laminar Operation & General Precautions.	1 P
3.	Stock solutions & media preparation.	1 P
4.	Aseptic seed germination	1 P
5.	Callus Culture - initiation	1 P
6.	Suspension Culture - initiation	1 P
7.	Micropropagation stage - I Initiation of culture / auxiliary bud culture techique.	1 P
8.	Micropropagation stage - II Subculture & multiplication.	1 P
9.	Micropropagation stage - III Rooting - invitro & ex-vitro	1 P
10.	Micropropagation stage - IV Acclamitazation & hardening.	1 P
11.	Calculation of molecular weight of digested DNA.	1 P
12.	Cloning of plasmid / plasmid vector	1 P
13.	Ligation of DNA	1 P
14.	Southern blotting technique	1 P
15.	DNA amplification by PCR	1 P

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16.	To determine the specific activity of amylase	1 P
17.	Effect of PH/Temp on amylase activity	2 P
18.	Isolation and production of Azotobacter	3 P
19.	Isolation and production of Rhizobium	3 P
20.	Isolation and production of phosphate solubilizing bacteria	2 P
21.	Bioassay of penicillin by plate assay method	1 P
22.	Bioassay of Vit B12 by plate assay method	1 P
23.	Production of Biogas	
24.	Project for 10 marks.	
25.	Every student must be given placement of 10 days under the guidance of teacher in a recognized Microbiological and Biotechnology industry and student should produce report / work experience report at the time of university practical examination. Thus report carries weight age of 5marks for each project report of microbiology & biotechnology in the university practical examination.	

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Paper VIII

Industrial Chemistry

(Total 80 periods, 4 periods / week) 100 marks

Section I (40 Periods**)**

1) Spectroscopic 10

1.1 Ultra - violet absorption :

Spectroscopy : Introduction, Beer - Lambert Law, Types of electronic transitions, Terms used in U V spectroscopy : Chromospheres, Auxochrome, Batho chromic, Hypsochromic, Hyperchramic and Hypochromic shifts, Effect of conjugatin on position of UV bands, Calculation of max by Woodard - Fieser rules of conjugated dienes and enones.

Applications of UV spectroscopy : Determination of structure and stereochemistry (cis and trans)

1.2 Infrared Spectroscopy :

Introduction, Principle of I spectroscopy, Fundamental modes of vibration, Types of vibration Hooke's law, conditions for absorption of radiation and selection rule, Fundamental group regions of I R spectrum, Functional group region, Finger print region, Characteristic absorption of various functional groups Applications of I R spectroscopy : Determination of structure, Identification of functional groups simple spectral problems based on I.R.

1.3 NMR Spectroscopy :

Introduction, proton magnetic resonance H spectroscopy principles of PMR spectroscopy, magnetic and non-magnetic nuclei, Theory of PMR - spectroscopy - spinning nuclei magnetic moment and magnetic field, processional motion of nuclei without mathematic model nuclear resonance, NMR instrument - schematic diagram shielding and dishelding, chemical shift, measurement of chemical shift by delta scale and tau scale, TMS as reference, Advantages of TMS, peak area (Integration) spin-spin splitting (ntl rule) definition of coupling constant J value of first order coupling.

PMR spectra of ethanol, acetaldehyde, 1,1,2 - tribromoethanem, ethyl compounds using PMR spectroscopic data (supporting I R & U V data to be given)

2) Chromatography : 5

Introduction, General principal, Classification, Paper Chromatography, Column chromatography, Thin Layer Chromatography, Gas Chromatography, High pressure liquid chromatography.

3) Oils, Fats, Soaps and Detergents : 5

3.1 Fats and oils, distinction, properties of fats and oil - hydrolysis, hydrogenation, rancidification.

3.2 Soap - Raw material, types of soaps, manufacture of soap - hot process, cleansing action of soap.

3.3 Detergents - Raw material, type of detergents - cationic, anionic, amphoteric, neutral detergents preparation of teepol and deriphat comparison between soaps and detergents.

4) Paints, Pigments, Varnishes : 5

Introduction, nature of paints, pigments and binders, organic pigments, chemical classification of organic pigments, Azo groups, Azo toners, phthalocyanin pigments, Vat pigments, Primers of metals iron and steel, Rust converters or stabilizers.

5) Electroplating : 5

Electrolysis, Faraday's law, cathode current efficiency, basic principles of electroplating cleaning of articles, electroplating of nickel and chromium, Anodizing.

6) Green Chemistry : 3

Introduction, Twelve principles of green chemistry zeolites - Friedel craft's alkylation and acylation, oxidation of benzene to phenol and benzoquione, Reduction of benzoquinone to hydroquinone, Biocatalytic reactions -------- hydroxylation and oxidation using enzymes microwave assisted reactions.

7) Instrumental methods of analysis : 6

7.1 Potentiometry - Detail study of Quinhydrone and glass electrodes and their use in determination of PH

7.2 Potentiometric titrations - Classical and analytical methods for locating end points.

7.3 Advantages of potentiometer titrations -
i) Acid - vase titrations ii) Redox titrations precipitation titrations.

7.4 Conductometry -
Introduction, conductance, specific resistance, specific conductance, equivalent conductance, molecular conductance.
Experimental determination of specific equivalent & molecular conductances.
Variation of specific & equivalent conductances with concentration, Equivalent Conductance at infinite dilution.

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

8) Fire Hazards **2**

Types of fires - class A, class B, class C & class D, fires Fire extinguishers Classification water and water base extinguishers.
i) Portable fire extinguishers
ii) Soda acid extinguishers
iii) Antifreeze extinguishers
iv) Foam

Dry Chemicals, CO_2, Halon - 1301

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Paper VIII

Computer - ERP Implementation : SAP and e-commerce

Section II (40 Periods**)**

1) Getting started on Basic SAP R/3 Elements : 8 H

The client or SAP customer, the clients representative, the SAP consultant, the SAP R/3 business application software architecture, financial accounting and controlling (FI/CO) modules, the sales and distribution (SD) module, the materials management (MM) modules, the plant maintenance (PM) and service management, the production planning (PP) module, the project system (PS) module, the human resources (HR) module, the SAP retail model, industry solutions (IS) modules, the ASAP roadmap.

2) Electronic commerce environment and opportunities : 8 H

Background, the electronic commerce environment, electronic market place technologies, conclusion.

3) Modes of Electronic commerce : 8 H

Overview, Electronic data interchange, Migration of open EDI, Electronic commerce with WWW / internet, Commerce Net Advocacy, Web commerce going forward.

4) Approaches to Safe Electronic Commerce : 8 H

Overview, Secure transport protocols, Secure transactions, secure electronic payment protocol (SEPP), Secure electronic Transaction (SET), Certificates for Authentication, security on web servers and enterprise Networks, conclusion.

5) Electronic cash and Electronic payment : 8 Hr.

Internet monetary payment and security requirements, payment and purchase order process, online electronic cash.

Reference Books :

1.Enterprise resource planning by Alexis Leon.
2.Web commerce Technology Handbook by Daniel Minoli & Emma Minoli.
3.Enterprise resource planning by Vinod Kumar Garg & N.K. Venkita Krishna

Practical (Related visits)

1.Study of an electronic environment for paying bills (through credit cards etc.)
2.Study of an online shopping environment
3.Using SAP for developing of computerized commercial environment.

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Paper VIII

Industrial Chemistry Lab - Course

1. To estimate the amount of sucrose in the given solution by using Fehling's solution.
2. To estimate the amount of nitro group form the given solution of m-nitro aniline (by snc12 reduction method)
3. To determine the amount of acid & ester in the given mixture of acid & ester.
4. To estimate the amount of acid and amide from the given mixture of acid and amide.
5. Preparation of benzene azo B-napthol from B-napthaol.
6. Preparation of a paint..... ?
7. To estimate Fe3+ ions by thicoyanate method using colorimeter.
8. To verity Lambert - Beer's law by using copper sulphate solution colorimetrically.
9. To determine the normality of strong acid by titrating it against given string alkali by potentiometric method.
10. To determine the dissociation constant of monobasic acid (acetic acid)
11. To determine the normality of the given weak acid by titrating it against the strong alkali conductiometrically.
12. Determination of titrable acidity in the given sample of milk or Lassi using supplied sodium hydroxide (standard oxalic acid solution to be prepared to standardize the given sodium hydroxide solution.)
13. Determination of percentage of magnesium in the given sample of talcum powder using given solution of EDTA.
14. Preparation of ferrous ammonium sulphate.
15. Determination of % purity of a sample containing ferrous ammonium soleplate using given solution of potassium dichromate.
16. Preparation of tetramine copper (II) Sulphate.
17. Determination of % purity of a simple containing tetramine copper (II) Sulphate by using given solution of sodium thiosulphate.

* Any twelve practical to be completed.

* Every student must be given placement of 10 days under the guidance of teacher in a recognized chemical industry and student should produce project report / work experience report at the time of university practical examination. This report carries weightage of 5 marks in the Uni. Practical Examination.

Reference Books :

1. Spectroscopy of Organic Compounds - P.S. Kalsi.
2. Elementary Organic Absorption Spectroscopy - Y.R. Sharma
3. Spectroscopy - V.M. Parikh.
4. Basic Concepts of Analytical Chemistry - S.M.Khopkar, Wiley Eastern Ltd. Mumbai
5. Advanced Organic Chemistry - B.S. Bahl and Arun Bahl, S.Chand Comp. Delhi.
6 .A Text book of Engineering Chemistry - Shashi Chawala.
7. A Text book of Engineering Chemistry - Jain & Jain.
8. Industrial Chemistry - B.K. Sharma
9. Engineering Chemistry - Paradkar
10. Physical Chemistry - G.M. Barrow, International Student Edition, Mc.Graw Hill.
11. University General Chemistry - C.N.R Rao. Macmillan.
12. Physical Chemistry - R.A. Albery, Wiley Eastern Ltd.
13. Principles of Physical Chemistry - S.H. Maron, C.H. Prutton 4^{th} Edition.
14. Instrumental of Molecular Spectroscopy - C.. Banwell - Tata McGraw Hill
15. Text Book of Physical Chemistry - S.Glasstone, Macmillan India Ltd.
16. Element of Physical Chemistry - D.Lewis and S.Glassure (Macmillan)
17. Essential of Physical Chemistry - Bahl and Tuli (S.Chand)