

**A.VEERIYA VANDAYAR MEMORIAL SRI PUSHPAM COLLEGE  
(AUTONOMOUS),  
POONDI, THANJAVUR DIST.**

**Question Pattern for UG Skill Based Elective & Non Major Elective Theory  
Papers for students to be admitted during 2017 – 2018 and afterwards.**

**Total Marks: 75**

**QUESTION PATTERN**

**Answer any FIVE Questions by Choosing at least 2 Questions from  
section A & from section B.**

**SECTION – A  
(Question 1 to 4)**

**5 x 15= 75 Marks**

1. 4 Questions from Unit 1 of the Syllabus
2. Each question carries 15 marks.
3. Each question may contain short answer, paragraph type and essay type question.

**SECTION – B  
(Question 5 to 8)**

1. 4 Questions from Unit II of the Syllabus
2. Each question carries 15 marks
3. Each question may contain short answer, paragraph type and essay type question.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>I &amp; II</b>	<b>14U2HYS1</b>	<b>SKILL BASED ELECTIVE - I General knowledge– India- NS</b>	<b>1 +1</b>	<b>2</b>

### **Unit I**

**Hrs 8**

Land of India – Geographical Location, Natural and Political Boundaries, Physical features, Geological Structure.

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### **Unit II**

**Hrs 7**

Major Mountain Ranges – River Systems – Himalayan Rivers, Deccan Rivers, Coastal Rivers and Rivers of the Inland- Vegetation – Flora and Fauna

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### **References**

1. India, A Reference Annual, Latest Edition, Publication Division, Govt. of India.
2. Manorama Year Book, Latest Edition
3. Chronicle year Book, Latest Edition
4. Atlas, India, Oxford University Publication.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4HYS2</b>	<b>SKILL BASED ELECTIVE - II Introduction to Tourism –NS</b>	<b>1 +1</b>	<b>2</b>

### **Unit I**

**Hrs 8**

Definition of the term Tourism - Growing Importance of Tourism - Meaning of a Tourist - Types of tourism – Reasons for the growth of Tourism in Recent times

### **Unit II**

**Hrs 7**

Incredible India – Land of Pluralism –Music and Dance – Art and Architecture – World Heritage Sites in India. Growth of Tourism in India – Sargeant Committee – ITDC, TTDC – Popular Tourist Centres –Tourist organisation: national and international

### **References**

1. A.K. Bhatia : Tourism in India.
2. Ram Acharya : Tourism in India
3. P.N. Sethi : Successful Tourism Planning and Management
4. Krishnalal and Gupta : Tourism, Museums and Monuments in India
5. M. Rajasekara Thangamani :Suttrulaviyal (Tamil)

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>V</b>	<b>14U5HYNME</b>	<b>Non Major Elective Freedom movement in India from 1885 to 1947 C.E.</b>	<b>2</b>	<b>2</b>

### **Unit I**

Growth of Orgin and Indian National Congress - Rise of Nationalism partition of Bengal – - Surat split- moderates – Extremists – Home Rule movement and Khilafat movement.

### **Unit II**

Non – Co-operation movement –Swaraja party-Civil Disobedience-Salt March – Quit India Movement- Indian Independence Act- partition of India – Role of Tamilnadu in Freedom struggle.

### **References:-**

1. Bipan Chandra, Amales Tripathi & Barun De - Freedom Struggle.
2. Venkatesan.G - History of Freedom Struggle
3. Grover .R.L. & Grover - A New Look at Modern Indian History.
4. Grover & Grover - Constitutional Development of National Movement.

Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>I &amp; II</b>	<b>14U2ECS1</b>	<b>SKILL BASED ELECTIVE–I Entrepreneurial Development-I (NS)</b>	<b>1 + 1</b>	<b>2</b>

**Objectives:**

- To motivate the students to acquire skill to become small entrepreneurs.
- To make the students to become self employed.

**UNIT-I**

Entrepreneur-Definition, Scope and Importance of Entrepreneur, Intrarepreneur-functions of entrepreneur- types of entrepreneur- Entrepreneurship-Meaning, characteristics- factors influencing entrepreneurship- small business entrepreneurship- difference between entrepreneurs and entrepreneurship- problems of entrepreneurship.

**UNIT-I I**

Business Idea Generation- sources –Methods- elements of good idea generation process-creativity and innovations- identification of business opportunity- concepts of project- characteristics –objectives-functions-parameters of project-factors affecting project-classification of projects.

**References.**

1. Supriya Singah and Akshana Singh (2012), **Entrepreneurial Development**, Thakur Publications, Chennai.
2. Gupta C.B and N.P Srinivasan (1993), **Entrepreneurial Development**, Sultan Chand, New Delhi.
3. Chandra, Shanta Kohli (1991), **Development of Women Entrepreneurship in India**, Mittal Publications, New Delhi.

**Text:**

1. Jayashree Suresh (2012), **Entrepreneurial Development**, Margham Publications, chennai

**Note:**

**Non semester paper-same syllabus for 14U2ECS2 (II semester)**

Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>III &amp; IV</b>	<b>14U4ECS2</b>	<b>SKILL BASED ELECTIVE – II Entrepreneurial Development-II (NS)</b>	<b>1+1</b>	<b>2</b>

### **Objectives:**

- To motivate the students to generate business ideas for starting small business.
- To make the students to prepare project proposal.

### **UNIT-I**

Entrepreneurship Development Programmes- Need for Entrepreneurship Development Programmes (EDP) - objectives of EDP- phases- role- evaluation- EDP institutions In India-DIC, SISI, TCO, NSIC, TIIC, SIDCO, SIPCOT, industrial Estates- functions.

### **UNIT-II**

Project Appraisal-objectives –feasibility-reasons for project appraisal-steps-importance- types of project appraisal- financial, technical, social, marketing and economics feasibility- project report- characteristics- objectives- contents.

### **References**

1. Jayashree Suresh (2012), **Entrepreneurial Development**, Margham Publications, chennai.
2. Supriya Singh and Akshana Singh (2012), **Entrepreneurial Development**, Thakur Publications, Chennai.
3. Gupta C.B and N.P Srinivasan (1993), **Entrepreneurial Development**, Sultan Chand, New Delhi.
4. Chandra, Shanta Kohli (1991), **Development of Women Entrepreneurship in India**, Mittal Publications, New Delhi.

### **Note:**

**Syllabus for 14U4ECS3 (III semester) and 14U4ECCS4 (IV semester)**

Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>V</b>	<b>14U5ECNME</b>	<b>Non-Major Elective FUNDAMENTALS OF ECONOMICS</b>	<b>2</b>	<b>2</b>

**Objectives:**

- **To educate the Non- Economics students to understand the essential concepts of Economics.**

**Unit-I**

**Hrs15**

Definitions, Meaning and scope of Economics- Nature of Economic Laws. Consumer Behaviour wants - Utility - Demand Meaning - Law – Exceptions-Production-factors of production-laws of returns.

**Unit-II**

**Hrs15**

Economics Systems - Capitalism - Socialism and mixed Economy. Economic planning - Meaning - India's Five year plans. New Economic Policy - Liberalisation - Privatisation and Globalisation - Impact in India.

**References:**

1. Sankaran.S. : Micro Economics Margham Publications
2. Dewett K.K : Modern Economics Theory.
3. Rudar Datt & Sundaram : Indian Economy – S.Chand & Co.
4. I.C.Dhingra,(2010) : Indian Economy, Sultan Chand & Sons, New Delhi.

Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>I &amp; II</b>	<b>14U2TAS1</b>	$\begin{aligned} &>M\uparrow]\oplus[\sigma\heartsuit\wp\heartsuit\wp\zeta f\Delta \\ &\wp f\heartsuit\div\lceil\Re\rceil B\Delta - 1 \\ &( \mathbb{R} \leftrightarrow,  \sigma >\blacklozenge\lrcorner\mu>_ ) \end{aligned}$	<b>1</b>	<b>2</b>

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Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>I &amp; II</b>	<b>14U4TAS2</b>	$\begin{aligned} & >M\hat{\uparrow}] \oplus [ \sigma \heartsuit \wp \heartsuit \wp \zeta f \Delta \\ & \wp   f \heartsuit \div \lceil \Re \rceil B \Delta - 2 \\ & (   \textcircled{R}   \leftrightarrow,   \sigma   > \blacklozenge \lrcorner \mu > _ ) \end{aligned}$	<b>1</b>	<b>2</b>

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Semester	Subject code	Title of the paper	Hours of Teaching/ week	No. Of Credits
<b>V</b>	<b>14U5TANME</b>	$\div \oplus \mu   \oplus \heartsuit \sigma   \heartsuit \wp \heartsuit \wp \zeta f \Delta :$ $\sqrt{> \alpha B \vee}    \Gamma$	<b>2</b>	<b>2</b>

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Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
<b>I &amp; II</b>	<b>14U2ENS1</b>	<b>SKILL BASED ELECTIVE- I LISTENING &amp; SPEAKING SKILLS (NS)</b>	<b>1+1</b>	<b>2</b>

### **Unit – I**

Listening Skills; Why & How we listen, what people say – mean, How people speak, How People organize Speech, dictation, Beyond the classroom.

### **Unit – II**

Speaking Skills: A casual Conversation, Short Description.

Telephonic Skills: Types of calls, Appointments, Auditing Complaints – Agreeing or Disagreeing, Telephone Etiquette.

### **Prescribed Text**

G. Rajagopal ed. A Course in Listening & Speaking – II

Chennai Foundation Books Pvt. Ltd., 2006.

Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4ENS2</b>	<b>SKILL BASED ELECTIVE – II SELF – EDIT</b>	<b>1+1</b>	<b>2</b>

### **Unit – I**

Introduction – ways of editing – working with words – working with sentences – Improving a story, more ways to improve writing.

### **Unit – II**

Revised sentences – Editing exercises.

### **Prescribed Text:**

Dianne Bates. How to self edit: to improve writing skills,  
Chennai; Emerald Publishers, 2005.

Semester	Subject Code	Title Of The Paper	Hours Of Teaching/ Week	No. of Credits
<b>V</b>	<b>14U5ENNME</b>	<b>NON –MAJOR ELECTIVE GREAT STORIES OF WORLD</b>	<b>2</b>	<b>2</b>

### **Objective**

- To give the students at the under graduate level a taste of short stories dealing with different situations and themes to enrich their learning experience.

### **Unit – I**

1. Oscar Wilde - The selfish Giant
2. O.Henry - After Twenty Years
3. Stephen Leacock - The Conjuror's Revenge
4. Samersset Maugham - The Verger
5. Leo Tolstoy - God sees the truth but waits

### **Unit – II**

1. R.L.Stevenson - Rajah's Diamond
2. H.G.Wells - The Country of the Blind
3. D.H.Lawrence - The Rocking Horse winner
4. Bonne Chamberlain - The Face of Judas Iscariot
5. G.K.Chesterton - The Blue Cross

Semester	Subject Code	Title of the paper	Hours of Teaching/ Week	No. of Credits
<b>I &amp; II</b>	<b>14U2CMS1</b>	<b>Skill Based Elective: I STRESS MANAGEMENT</b>	<b>2+2</b>	<b>2</b>

#### **Unit I:**

Stress – Meaning – Definition – Causes – Managing stress – Work life balance – Approaches to stress – Good Vs Bad stress – Coping with stress – Stress and Superstition.

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#### **Unit II:**

Stress Management – Stress diary – Adopting a healthy life style – Right attitude – Thought awareness – Learning to relax – Correct breathing (breathing exercise) Value and goal planning.

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#### **Reference Books:**

1. Dr. Rakesh Chopra & Santhosh Sharma – The stress cyclone suffer
2. Dr. Jyotsna Codaty – Kick out your stress

Semester	Subject Code	Title of the paper	Hours of Teaching/ Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4CMS2</b>	<b>Skill Based Elective: II OPERATIONS MANAGEMENT</b>	<b>2</b>	<b>2</b>

#### **Unit I:**

Maintenance Management – Objectives – Classification – Process – Modern Maintenance Management – Information system for Maintenance Management – Equipment effectiveness.

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#### **Unit II:**

Supply Chain Management – Purchasing – JIT Purchasing – Logistics – Third Party logistics providers – Value analysis – Objectives – Procedure.

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#### **Reference Books:**

Operations Management – Jegandeep Sharma & Mandeep Mahendru

Semester	Subject Code	Title of the paper	Hours of Teaching/ Week	No. of Credits
<b>V</b>	<b>14U5CMNME</b>	<b>Non Major Elective: GENERAL COMMERCIAL KNOWLEDGE</b>	<b>2</b>	<b>2</b>

#### **Unit I:**

National Bank for agriculture and rural Development (NABARD) – Functions– Financial Resources – Creation of credit – Types of credit – RBI.

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#### **Unit II:**

Innovative Banking (Including E-Banking) - crossing of cheque – payment of crossed cheque – Banks as financial intermediaries – Modern functions of financial intermediaries.

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#### **Reference Books:**

1. Banking Theory Law & Practice – Varshney & Sundaram
2. Banking Theory Law & Practice – Varshney & SundarSanthanamam
3. Indian Financial System – Gorden & Natarajan



Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No of Credits
<b>I &amp; II</b>	<b>14U2BAS1</b>	<b>SKILL BASED ELECTIVE – I FUNDAMENTAL S OF BUSINESS ORGANIZATION - NS</b>	<b>1+1(2)</b>	<b>2</b>

#### **UNIT-I INTRODUCTION**

**15 hours**

Objectives of Business - Profession and Business - Role of Profit in Business- Essentials of a Successful Business - Types of Organization - Private and Public Sector.

#### **UNIT-II FORMS OF BUSINESS ORGANIZATION**

**15 hours**

Forms of Business Organization - Sole Proprietorship - Joint Hindu Family Business –Partnership - Co operatives - Joint Stock Companies – Formation - Functions.

#### **Reference**

- 1). M.C.Sukla - Essentials of Business Organization, S.Chand & co, New Delhi.
- 2). Dinkar Bagare - Essentials of Business Organization and Management, Sultan Chand, New Delhi.
- 3). C.B.Gupta – Business Organization and Management, Sultan Chand.

Semester	Subject code	Title of the paper	Hours of teaching/ week	No. Of credits
<b>III &amp; IV</b>	<b>14U4BAS2</b>	<b>SKILL BASED ELECTIVE - II INTERNET BANKING- NS</b>	<b>1+1(2)</b>	<b>2</b>

### **UNIT – I INTRODUCTION**

**15 Hours**

Recent Trends in Indian Banking- types of bank accounts- introduction to internet- automated teller machine (ATM)

### **UNIT – II RECENT TRENDS IN BANKING**

**15 Hours**

E-Cheque - national Electronic fund transfer (NEFT)- Demat accounts - online credit card - origin - technique -settlement of accounts.

### **Reference Books**

1. Banking Law and Practices - Gardon and Natarajan, Himalaya Publishing house, New Delhi
2. Banking Law and Practices – P. Vashney & S,N. Maheswari, Sultan and Chand Publishing house, New Delhi
3. Marketing of Gpistic Money - Divakar Panigraphy , Kanisha Publisher, New Delhi.
4. [WWW.Google.com/credit](http://WWW.Google.com/credit) cards

Semester	Subject code	Title of the paper	Hours of teaching /week	No of credits
<b>V</b>	<b>14U5BANME</b>	<b>NON – MAJOR ELECTIVE PERSONNEL MANAGEMENT</b>	<b>2</b>	<b>2</b>

### **UNIT – I INTRODUCTION TO PERSONNEL MANAGEMENT 15 Hours**

Introduction: Nature, Significance, Scope & Challenges of Personnel management – Organization of Personnel management & Its Functions - Personnel management – Environment in India – Place & Functions of Personnel Manager – Systems Approach to Personnel management.

### **UNIT – II PROCESS OF MANPOWER PLANNING 15 Hours**

Manpower Planning – Recruitment – Selection – Introduction – Career Planning – Training , Development Growth – Job Analysis – Job Evaluations – Job Design – Job Changes – Promotion , Demotion , Transfer Dismissal , Retrenchment, Suspension – Labour Turnover.

#### **Text Books**

1. Dr.P.C.Tripathi – Industrial Relations & Labour Laws.

#### **References**

1. Dr.C.B. Gupta - Industrial Relations, Industrial Relations & Labour Laws, Sultan Chand & Sons.
2. N.D. Kapoor - Industrial Relations, Industrial Relations & Labour Laws, Sultan Chand & Sons.
3. Dr.P.C. Tripathi – Personnel Management, Sultan Chand & Sons.

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
<b>I &amp; II</b>	<b>14U2MAS1</b>	<b>Skill Based Education-I (N. S) Non- Verbal Reasoning</b>	<b>1 + 1</b>	<b>2</b>

#### **Unit I**

**15 Hrs**

Classification and Analytical Reasoning, Mirror images, Figure Matrix and Paper folding.

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#### **Unit II**

**15 Hrs**

Paper cutting, Problems on cubes and dice, Dot situation, construction of squares and triangles.

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#### **Text Book:**

*"A modern approach to non verbal reasoning"- R.S. Aggarwal, S.Chand and Company Ltd., New Delhi- 55 (2007)*

Unit - I Chapters 3 (206-212) Cha 4(241-250), Cha5 267-270) Cha9 (313-318)  
Cha10(321-326)

Unit – II Chapter 11 – (327 – 337) Chapter 14 (351-361)  
Chapter 15 (395-400) Chapter 16 (404 – 412).

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No.of Credits
<b>III &amp; IV</b>	<b>14U4MAS2</b>	<b>Skill Based Education-II (NS) Arithmetic Ability</b>	<b>1+1</b>	<b>2</b>

### **Unit I**

**15 Hrs**

H.C.F and L.C.M of numbers, Simplifications

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### **Unit II**

**15 Hrs**

Average, Problems on Ages and Percentage

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### **Text Book:**

*Quantitative Aptitude - R.S. Aggarawal, S.Chand and company Ltd. New Delhi- 55*

Unit I : Chapter 2(Page 30-36) and Chapter 4 (Page 67 to 75)

Unit II : Chapters 6 (Page 139 to 155),  
Chapter 8 (Page 182 to 189), Chapters 10 (Page 208 to 217)

Semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No.of Credits
<b>V</b>	<b>14U5MANME</b>	<b>Non – Major Elective Mathematics for Finance</b>	<b>2</b>	<b>2</b>

**Objective:**

- To enable other department student to know some basic ideas on algebra and numerical interpolation.
- To give some commercial oriented mathematical ideas.

**Unit I**

**15 Hrs**

Arithmetic progression and geometric progression and Determinants- Cramer's rule.

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**Unit II**

**15 Hrs**

Simple interest- Compound interest and Depreciation- present value- Discounting- Annuity.

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**Text Book:**

*Business Mathematics and Statistics- P. Navaneetham, Jai Publication, June-2010*

Unit I : Chapter 1, 4 Part I and Chapter 3, 4 Part I

Unit II : Chapter 2 Part I and Chapter 2 Part II

**General Reference:**

*Business Mathematics: D.C. Sanchetic, V.K. Kapoor Sultan Chand & Sons, New Delhi.*

semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
<b>I &amp; II</b>	<b>14U2PHS1</b>	<b>Skill Based Elective - I BASIC ELECTRICAL WIRING&amp; FUNDAMENTALS (NS)</b>	<b>2</b>	<b>2</b>

## **Unit I**

### **Generation of Electricity**

Conventional methods of power generations – Thermal power plant – Atomic power station – Solar energy – wind mill energy.

### **Fundamentals of Electricity**

Electron theory – Flow of electrons and current – Resistance Electromotive force voltage – potential difference – voltage drop – alternating current – Direct current- ohm's law – Effects of electric current – Types of electrical circuits – work – power and energy.

### **Single phase and Polyphase AC circuits**

Alternating current - amplitude - time period – frequency – RMS value – polyphase – 2 phase – 3 phase – advantages of polyphase over single phase – star connection – delta connection.

## **Unit II**

### **Transformer**

Construction – Principle of operation – classification of transformers – types of core-Transformer losses - Efficiency - Alternator – Parts of an alternator – AC three phase motors – AC single phase motors.

### **House wiring**

Tree system - distribution system – system of wiring – testing of wiring installation – Necessity of earthing – Types of earthing – safety fuse

Fuses – circuit breaker-thermal fuses - Toggle switch - keyboard switches – wires and cables – connectors – PCB – types of PCB.

### **Book for Study:**

1. Electrical power – Dr. S. L. Uppal.
2. Basic Electrical Engineering – M. L. Anwani.

semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4PHS2</b>	<b>Skill Based Elective – II DOMESTIC ELECTRICAL APPLIANCES AND REPAIRING (NS)</b>	<b>2</b>	<b>2</b>

### **Unit I**

#### **Resistors**

Resistance – unit – Law of resistance - effect of temperature on resistance (Carbon, Metal film, thin film, wire wound) – variable resistors – colour code.

#### **Inductors**

Inductance – General information – types of inductors (ferrite and choking inductors).

#### **Capacitors**

Capacitors Principles – types of capacitors (Air, Paper, electrolyte and mica) – fixed and Variable capacitors – specifications.

#### **Illumination**

Definition and units Light – luminous flux, Luminous intensity – illumination - units of illumination – types of light source of light sources – Carbon filament lamp – Metal filament vacuum lamp – Gas filled metal filament lamp – Carbon arc lamp or Electric arc lamp – Sodium vapour lamp – Neon Lamp - Mercury vapour lamp - Fluorescent lamp

### **Unit II**

#### **Electrical appliances**

Heat producing appliances: Electric iron – Soldering iron –Electric Kettle - Water heaters – Hot Plat - Electric Oven – Geysers - Electric mixer - working.

Bell and Buzzer – Electric fan and air supply unit – Emergency lamp – Fluorescent tube emergency light – Block diagram – Refrigerator - Water cooler.

#### **Repairing of households items**

Fan, Refrigerator, Electric heater – Electric Iron - Electric Mixer – Water Cooler.

#### **Book for Study:**

1. Home appliances GT Publications, Jaipur.
2. Electrical power – Dr. S. L. Uppal.



semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
<b>V</b>	<b>14U5PHNME</b>	<b>Non – Major Elective NON- CONVENTIONAL ENERGY SOURCES</b>	<b>2</b>	<b>2</b>

## **Unit – I**

### **Basics of Energy**

Definition of energy – energy routes – energy resources (conventional and non - conventional) – types of conventional and non - conventional energy sources – merits and demerits.

### **Solar Energy**

Solar energy – nature and solar radiation – components – solar heaters – crop dryers – solar cookers – photovoltaic generation – merits and demerits.

### **Biomass Energy**

Biomass energy – classification – photosynthesis – Biomass conversion process – Gobar gas plants – wood gasification – advantages and disadvantages.

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## **Unit – II**

### **Geothermal & Wind Energy**

Geothermal energy – its resources – power plants - types. Wind energy - nature and origin – wind energy conversion systems – merits & demerits - limitations – wind energy stations in India.

### **Ocean Energy**

Ocean energy resources – advantages & disadvantages - limitations – conversion technologies – principle of OTEC (ocean technology energy conversion) – merits and demerits – Tidal energy conversion – Tidal power.

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### **Books for Study**

1. Non Conventional energy sources – G. D. Rai.
2. Renewable energy sources and emerging technologies by D. P. Kothari, K. C. Singal & Rakesh Rajan, Prentice Hall of India pvt Ltd., New Delhi (2008).

### **Books for Reference**

1. Renewable Energy sources and their environmental impact, S. A. Abbasi and Nasema Abbasi PHI learning pvt ltd., New Delhi (2008).

Semester	Subject code	Title of the paper	Hours of Teaching /Week	No. of Credits
<b>I &amp; II</b>	<b>14U2CHS1</b>	<b>Skill Based Elective -I Theoretical Backgrounds of Textile Processing (Non –Semester)</b>	<b>1</b>	<b>2</b>

### Unit-I

**Textile fiber and pretreatment:** Classification of textile fibers – concept and techniques of Ginning, Sizing, Desizing, Scouring, Bleaching, and Mercerization - fiber identification tests (Flame test – microscopical & solubility test)

**Dye chemistry:** Colour and sensation - theories of colour and chemical constitution – Witt's theory - chromospheres - auxochrome – chromogen - classification of dye based on application.

### Unit-II

**Technical terms in dyeing:** M.L.ratio – % of shade – % of exhaustion – equilibrium absorption.

**Dye bath assistants:** Explanation and mechanism of exhausting agent, wetting agent, leveling agent, dispersing agent and carrier.

**Fastness properties** – Light, Washing Rubbings and sublimation fastness.

**Textile proofing** – Water proofs, moth proofing, mildew proofing & fire proofing.

**Dyeing machineries:** Padding mangle, Jigger, and Winch.

**Non textile uses of dyes:** Leather dyeing, paper dyeing, solvent dyes , food colours, hair colours and fluorescent brightening agents

### References:

1. Venkataraman . K. The chemistry of synthetic dyes Vol, I, II, III & IV-, Academic Press N.Y., 1949.
2. [http://en.wikipedia.org/wiki/Hair\\_coloring](http://en.wikipedia.org/wiki/Hair_coloring)
3. [http://www.pbm.com/~lindahl/articles/food\\_coloring\\_agents.html](http://www.pbm.com/~lindahl/articles/food_coloring_agents.html)
4. [http://en.wikipedia.org/wiki/Food\\_coloring](http://en.wikipedia.org/wiki/Food_coloring)
5. Shenai, V.A. ,Chemistry of Textile fibres, vol.I, Sevak publication , Mumbai
6. Shenai, V.A. ,Chemistry of Dyes and Principles of dyeing , vol.II, Sevak publication, Mumbai.

Semester	Subject code	Title of the paper	Hours of Teaching/ Week	No. of Credits
<b>III &amp; VI</b>	<b>11U4CHS2</b>	<b>Skill Base Elective - II Practical on Textile Processing (Non –Semester)</b>	<b>1</b>	<b>2</b>

### **I Pretreatment & Dyeing of cotton fabrics**

Desizing  
Scouring  
Bleaching  
Dyeing

### **II Combination and percentage of shade**

0.5 shade  
1 % shade  
2 % shade  
2 % Combination shade

**III Fibre identification tests :** For Cotton, Wool, Jute, Viscose, Silk and Polyester

**IV Preparation of Dye :** Methyl orange and phenol red

### **References:**

1. Chemistry of Dyes and principles of dyeing by Dr. V.A. Shenai.
2. Technology of textile fibre ,V.A. Shenai.

semester	Subject Code	Title of the Paper	Hours of Teaching/ Week	No. of Credits
<b>V</b>	<b>14U5CHNME</b>	<b>Non – Major Elective CHEMICAL ASPECTS IN AGRICULTURE</b>	<b>2</b>	<b>2</b>

### Unit I

**Soil :** Mechanical Components Constitution, Profile, Types – Functions of sand ,silt and Clay – Textural grouping of Soil – Soil Water : Hygroscopic, Capillary and Gravitational water – Soil Humus – Soil pH, Acidity and alkalinity –Formation of Acid Soil and its reclamation, formation of Alkaline soil, Saline soil ,Saline soil and its reclamation.

**Fertilizers:** Plant nutrients –Requisites of good fertilizers Effect of Nitrogen on plant growth, deficiency symptoms - Nitrogenous fertilizers: Classification with examples - Effect of Phosphorous on plant growth, deficiency symptoms – Posphatic fertilizers - Classification with examples - Effect of Potassium on plant growth, deficiency symptoms - Potassium fertilizers: Classification with examples – Complex and Mixed fertilizers (mere explanation) – Functions of micro nutrients

### Unit II

**Mannures:** Farm yard manure–Compost making – Green manuring - Concentrated organic manures: Oil cakes ,Blood meal, Fish manure, Horn & Hoof meal, Protein – Difference between fertilizer and manure – Superiority of manure over fertilizer

**Bio fertilizers:** Rhizobium, Azospirillum, Azatobacter, Cyani bacteria, Phospho bacteria

**Pesticides:** Classification on the basis of mode of action, types of pests and Chemical nature with examples – safety measures while using pesticides - Organic insecticides: Nicotine, Pyrethrum, Rotenone, Petroleum oils, Summer oils , Dormant oils and spray oils – Uses of Inorganic pesticides (Arsenicals, Fluorides and Borates) – Actions of DDT, Methoxy Chlor, BHC, Chlordan, Endosulfan, Organic Phosphide compounds

Fungicide, Herbicides, Acaricides, Rodenticides, Attractants, Repellants, Fumigants, Defoliant (Definitions and Examples)

Act laws of insects and insecticides.

Chemical aspects in Agriculture

### Reference

1. N.C.Brady, the Nature and properties of soils Eurasia publishing house, (p) Ltd. 9<sup>th</sup> Ed. (1984).
2. Biswas, T.D. and Mukeherjee S.K. Text book of soil science (1987).
3. A.J.Daji A Text book of soil science –Asia publishing house, Madras (1970).
4. Donahue, R.L.Miller, R.W.and shickluna, J.C. Soil – An introduction to soil and plant Growth – Prentice Hall of India (P) Ltd., New Delhi(1987).
5. Colling, G.H. Commercial Fertilizers – McGraw Hill Publishing Co., New York(1955)
6. Tisdale, S.L.Nelson , W.L. and Beaton , J.D. Soil fertility and fertilizers. Macmillan publishing company, New York (1990).
7. Hesse, P.R..A text book of soil chemical analysis John Muray, New York (1971).
8. Jackson, M.L., soil chemical analysis. Prentic Hall of India, New Delhi (1958).
9. Buchell, K.H.. Chemical of pesticides – John wiley & Sons, NewYork (1983).
10. Mcinikov, N.N. Chemistry of pesticides Vol.36 of Residue Review-springer verlac, New York (1971).

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>I &amp; II</b>	<b>14U2BOS1</b>	<b>Skill Based Elective - I Culture of Microorganisms (Theory)</b>	<b>1</b>	<b>2</b>

**Objectives:**

- ❖ To know the different types of microbial culture medium
- ❖ To know the methods of sterilization
- ❖ To learn the methods of isolating pure culture

**Unit I**

Culture Medium – Types – Preparation (eg: PDA, NA). Composition of some important culture media sterilization: Heat sterilization – Chemical sterilization – Filtration – Radiation.

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**Unit II**

Isolation of Microorganisms from soil, manure pits, water, sewage and air.  
 Methods of isolating pure culture: Streak plate, pour plate, spread plate and micromanipulator method.  
 Preservation of microbial cultures: Culture tubes – Drying in gelatin discs – preservation in soil – Lyophilization.

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**Books for Study**

- |                     |   |                            |
|---------------------|---|----------------------------|
| 1. Joseph C. Daniel | - | Environmental Microbiology |
| 2. V.Kumaresan      | - | Biotechnology              |
| 3. P.S.Verma        | - | Earthworm                  |

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4BOS2</b>	<b>Skill Based Elective - II Compost Preparation</b>	<b>1</b>	<b>2</b>

**Objectives:**

- ❖ To know the techniques of compost
- ❖ To learn the methods of compost making
- ❖ To know the significance of Pachakavya and Dasakavya

**Unit I**

Composting – substrate – composting process – salvage – Grinding, pulping and homogenization – Biological degradation – curing and drying. Microbiology of composting - Advantages.

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**Unit II**

Compost making – Methods of compost making – Indoor method – Bangalore method – Vermicompost – Preparation – Requirements – Decomposition of natural waste – Preparation of worm pin – Bedding – Organic layer – Introduction of Earth worm – Harvesting – Collection of vermicompost – Panchakavya – Dasakavya – Advantages of vermicompost.

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**Books for Study**

- |                     |   |                            |
|---------------------|---|----------------------------|
| 4. Joseph C. Daniel | - | Environmental Microbiology |
| 5. V.Kumaresan      | - | Biotechnology              |
| 6. P.S.Verma        | - | Earthworm                  |

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>V</b>	<b>14U5BONME</b>	<b>Non-Major Elective Herbal Technology</b>	<b>2</b>	<b>2</b>

#### **Aims and Objectives**

- ❖ This study enriches the systematic botany which can be utilized for botanical gardens diagnosis of fragmentary crude drugs.
- ❖ This study will be useful in identifying medicinal taxa.
- ❖ This study also help in knowing the preliminary phytochemistry of plant organs.
- ❖ The present study aims at microscopic features of selected plants for understanding systematic anatomy.

#### **Unit I**

Importance of herbal drugs in Indian system of medicine – Siddha, Ayurveda, Unani and Homeopathy pharmacognosy and its branches – Phytochemicals of some locally available medicinal plants p medicinal gardening – House garden plants.

#### **Unit II**

Adulteration of crude drugs – methods and types of adulteration – Botanical description and active principles of crude drugs; Rhizome; wood and bark drugs (one example for each plant organs) – Taxonomic study of some selected herbs (*Eclipta*, *Adathoda*, *Solanum* and *Centella*).

#### **Books for Study**

1. Somasundaram, S., (1997). Medicinal Botany (Maruthvath Thavaraviyal) – (Tamil Medium Book).
2. Wallis, T.E., (1967). Text Books of Pharmacognosy.
3. Jain, S.K., Medicinal Plants.
4. Srivastava, A.K., (2006). Medicinal Plants. International Distributors, Dehradun.
5. Balus, S., Murugan, R. and Pandian, P., (2004). Herbal Technology.

#### **Books for Reference:**

6. Agarwal, O.P., (1985). Vol. II. Chemistry of organic – natural products.
7. Gamble, J.S. and Fisher, 1921, CEC, I, II, III Flora of the Presidency of Madras Volumes.
8. Mathew, K.M., (1988). Flora of the Tamilnadu and Carnatic.
9. Nair, N.C. and Henry, A.N., (1983). Flora of Tamil Nadu, India, Botanical Survey of India.
10. Chopra, R.N., Nagar, S.L. and Chopra, I.C., (1956). Glossary of Indian Medicinal Plants.
11. Chopra, R.N., Chopra, I.C., Handa, K.L. and Kapur, L.D., (1994). Indigenous drugs of India.
12. Chopra, R.N., Badhuvar, R.L. and Gosh, G., (1965). Poisonous plants of India.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>I &amp; II</b>	<b>14U2ZOS1</b>	<b>Skill Based Education –I Clinical analysis of Biological samples</b>	<b>1</b>	<b>2</b>

**Objectives:**

1. To study the Safety regulation and first aid.
2. To know the Clinical tests of Blood, Urine, Sputum, Stool, Semen.

Scope for study of clinical laboratory technology. Functional Components of Clinical Labs. Needs of Clinical Labs. Safety regulation and first aid

Blood cell counting - Erythrocyte sedimentation rate (ESR), Determination of packed cell volume. (PCV) Determination of Haemoglobin, Determination of Blood sugars (glucose), Cholesterol, Urea, Albumin, Hypoglycaemia and Hyperglycamia.

Analysis of Semen, Sputum, Stool

**Reference:**

1. Biological chemistry – Lehinger
  2. Human physiology by peark.
  3. Medical Laboratory Technology – A procedure manual for routine diagnostic Tests – Vol – I – III By Kanai L. Mukherjff.
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Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4ZOS2</b>	<b>Skill Based Education – II Techniques in Clinical Lab (Practical)</b>	<b>1</b>	<b>2</b>

**Objectives:**

1. The main objective of introducing this paper is to learn the basic techniques in Clinical Lab technology.

1. Sample collection and storage techniques.
2. Blood grouping
3. RBC counting
4. WBC counting
5. Sterilization techniques
6. Preparation of fungal and bacterial media
7. Urine analysis – Sugar, urea, creatinine
8. Diagnosing Equipments – ECG, EEG, Sphygmomanometer, Haemocytometer.

**Reference**

1. Medical Laboratory Technology – K.M. Samuel.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>V</b>	<b>14U5ZONME</b>	<b>Non-Major Elective Aquaculture</b>	<b>2</b>	<b>2</b>

**Objectives:**

1. To study the water quality management
2. To study the culture Techniques of Important Fresh water fishes.
3. To study the culture Techniques of Ornamental fish culture
4. To study the disease management during aquaculture.

**Unit I**

**Hrs 15**

Water quality management for aquaculture – Water Culture for Aqua farms.

Brackish water Prawn Culture : Pond design and construction, water quality management – Culture technology of *Penaeus monodon* and *Penaeus indicus*. Feedings – Harvesting and Marketing.

**Unit II**

**Hrs15**

Ornamental fish culture: Aquarium maintenance, feedings, breeding, marketing and sales of ornamental fishes. Indigenous ornamental Fishes.

Disease management – Parasitic pathogenic diseases and its control measures.

**Reference**

1. T.V.R. Pillay (1994) Aquaculture – Principles, Practices, Fishing News Book, Blackwell – London.
2. V.C. Jhingron and Gopalakrishana Rajm Pand chosh, methodology for survey of brackish water area in India, for coastal – aquaculture indopacific fish council, 14<sup>th</sup> session.
3. C.M.C.R.I, Coastal Aquaculture – Marine Prawn Culture.
4. Jhingran, V.G(1998), Fish and Fisheries of Indian Hindustan Publishing corporation, New Delhi.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
<b>I &amp; II</b>	<b>14U2CSS1</b>	<b>Skill Based Education – I New media – 1</b>	<b>1+1</b>	<b>2</b>

### Objectives

- To acquire technical skills of desktop publishing – Office Automation.

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### Open Office Exercises:

1. Search, generate, manipulate data using Open Office
2. Business Letter and official letter creation
3. Working with Pictures and formatting pictures
4. Working with tables and formatting tables
5. Mail merge
6. Excel files - Worksheets, Inserting, Deleting and Renaming Worksheets. Center the worksheet horizontally and vertically on the page.
7. Headings - Rows, Columns, Row/Column , Inserting and Deleting Rows and Columns. Changing Column Width and Row Height. Merging Cells, Cell range.
8. Format Cells - Fonts, Alignment, Warp Text, Text Orientation, Border and Shading.
9. Data and picture representation
10. Visualization graphs - 2D, 3D chart creation in presentation.

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4CSS2</b>	<b>Skill Based Education- II New Media – 2</b>	<b>1+1</b>	<b>2</b>

### **Objectives**

To acquire technical skills of desktop publishing and *Multimedia*.

### **Multimedia Tools Exercises:**

1. Letterhead design
2. Newspaper Advertisement design
3. Invitation/Thank you card design
4. Brochure design
5. Newsletter design
6. Business Card and CD Cover design
7. 2D animation – Tweening (Motion & Shape)
8. Animation Button creation and events for the buttons
9. Video file editing , sub title addition
10. Audio dubbing and changing in a video

Semester	Subject code	Title of the course	Hours of Teaching/ Week	No.of Credits
<b>V</b>	<b>14U5CSNME</b>	<b>Non Major Elective INTERNET BASICS</b>	<b>2</b>	<b>2</b>

#### **Unit I:**

**Worldwideweb:** Working procedure of web pages, web browsers, Markup languages, Hypertext, URL, Image map, interactive forms, Web host servers, websites with databases, TELNET-FTP and downloading files-Searching the internet-Push technology.

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#### **Unit II:**

**Intranet and Internet shopping:** working of intranets and workgroup software-internet shopping. **Internet Safeguard:** working procedure of firewalls, viruses, cookies, web tracking-cryptography, privacy, digital certificates, parental controls.

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#### **Text Book:**

1. Preston Gralla, "How the Internet Works", Millinium Edition, Techmedia.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>I &amp; II</b>	<b>14U2PES1</b>	<b>Skill Based Elective – I FITNESS AND WELLNESS (NS)</b>	<b>1+1</b>	<b>2</b>

### **Unit – I Fitness**

What is fitness meaning – Definition – Need – Types of fitness (Physical, Physiological, health related, emotional, etc) – Componented Relationship between fitness and wellness, Equipments involved in assessing fitness,

### **Unit – II Health**

What is health – meaning – Definition need – Types of health, factors influencing health – WHO – and its function.

Semester	Subject Code	Title of the Paper	Hours of Teaching /Week	No. of Credits
<b>III &amp; IV</b>	<b>14U4PES2</b>	<b>Skill Based Elective – II FITNESS AND WELLNESS (NS)</b>	<b>1+1</b>	<b>2</b>

### **Unit – I      Weight management**

Proportion of Height, Weight in relation to age and sex – Energy in take and output – obesity, Mass Index.

### **Unit – II      Stress Management**

What is stress- types of stress – relaxation Technique (Physical activity, Breasting technique, Meditation, Yoga.

Semester	Subject Code	Title of the Paper	Hours of Teaching / Week	No. of Credits
<b>V</b>	<b>14U5PENME</b>	<b>Non – Major Elective Yoga</b>	<b>2</b>	<b>2</b>

### **Objective**

- To understand about – Yoga.

### **Unit I What is Yoga.**

History of yoga, Meaning of Yoga, Aim and objectives of Yoga,

#### **Reference:**

1. Chandrasekaran,K. (1999) "Sound Health Through Yoga".

### **Systems of Yoga**

Bhakti Yoga, Jana Yoga, Karma Yoga, Kundalini Yoga, Mantra Yoga, Hatha Yoga, Raja Yoga.

#### **Reference:**

1. Hewitt James (1993) "The Complete Yoga".

### **Pathenjali Yoga**

Eight limbs of Yoga, Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, Samathi.

#### **Reference:**

1. Iyengar BKS : (1991) "Light on Yoga".

### **Unit II Asanas**

Classification of Asanas, Difference between Physical Exercise and Yogic Asanas, Guideline for practicing Asanas.

#### **Reference:**

1. Iyengar BKS : (1991) "Light on Yoga".

### **Practical**

Padmasana, Vajrasana, Paschimottan Asana, Matsyabana, Vakrasana, Ardha Matsyendrasana, Sarvangasana, Halasana, Savasana, Makarasana, Bhujangasana, Dhanurasana, Salabhasana, Tadasana.

#### **Reference:**

1. Thirumalaisamy.R.(2003) நல்வாழ்வுக்கு யோகா.

#### **General Reference:**

1. Chandra Sekaran,K. (1999) "Sound Health Through Yoga". Madurai: Prem Kalyan Publisher.
2. Hewitt James, (1993), "The Complete Yoga", London: Rider, A Random Centruy Group Ltd.
3. Iyengar BKS (1991), "Light on Yoga", New Delhi: Harper Collins Publishers India Pvt. Ltd.,
4. Thirumalaisamy.R.(2003) நல்வாழ்வுக்கு யோகா, Karaikudi : Senthilkumar Publishers.