Shri Shivaji Mahavidyalaya, Barshi

Department of Botany

B.Sc. III Botany (Semester V/VI)

Add On Course/Skill Development Course

Title of the Course: Mushroom Cultivation

Syllabus

(Lecture periods-80)

Unit 1: Introduction of edible mushrooms:

History, Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms. Types of edible mushrooms available in India -Volvariella volvacea, Pleurotus citrinopileatus, Agaricus bisporus.

(10 Lectures)

Unit 2: Prerequisite for Cultivation of Mushrooms:

Infrastructure: substrates (locally available) Polythene bags, vessels, Inoculation hook, inoculation loop, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray.

(10 Lectures)

Unit 3: Preparation of Pure culture:

Culture medium, sterilization, preparation of spawn, multiplication. Mushroom bed preparation -paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation -Low cost technology, Composting technology in mushroom production.

(10 Lectures)

Unit 4: Storage Techniques and Nutritional Values:

Short-term storage (Refrigeration -upto 24 hours) Long term Storage (canning, pickels, papads), drying, storage in salt solutions. Nutritional constituents: Proteins -amino acids, mineral elements nutrition -Carbohydrates, Crude fibre content -Vitamins.

(10 Lectures)

Unit 5: Food Preparation, Research and Marketing:

Types of foods prepared from mushroom. Research Centers -National level and Regional level. Cost benefit ratio -Marketing in India and abroad, Export Value.

(10 lectures)

Practicals: **(30 lectures)**

1) Identification of edible and poisonous mushroom

2) Media preparation for mushroom cultivation

3) Isolation techniques used in mushroom cultivation

4) Study of spawn preparation methods

5) Study of sterilization techniques in mushroom cultivation

6) Study of substrate preparation for mushroom cultivation

7) Study of environmental factors which affect growth of mushrooms

8) Study the effect of different types of compost on mushroom growth

9) Study of nutritional quality of mushroom

10) Estimation of protein content in mushroom

References:

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.

2. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore –560018

. 3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.

4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.

Shri Shivaji Mahavidyalaya, Barshi

Department of Botany

M.Sc. II Botany (Semester III/IV)

Add On Course/Skill Development Course

Title of the Course: Bioinstrumentation

SYLLABUS

(Lecture periods-80)

Module I: Introduction, principle, operation and applications of following instruments:
(15 Lectures)

1.1: Colorimeter

1.2: Spectrophotometer

1.3: Flame photometry

1.4: Unit test on module I

Module II: Introduction, principle, operation and applications of Chromatography
(15 Lectures)

2.1: Thin Layer Chromatography

2.2: HPLC

2.3: Ion Exchange

2.4: Unit test on module II

Module III: Introduction, principle, operation and applications of following techniques:
(15 Lectures)

3.1: Gel Electrophoresis

3.2: Polymerase Chain Reaction

3.3: Gel documentation

3.4: Unit test on module III

Module IV: Introduction, principle, operation and applications of following techniques
(15 Lectures)

4.1: X-ray diffraction

4.2: Southern blotting

4.3: Northern Blotting

4.4: Unit test on module IV

Practicals: (20 Lectures)

1) To study working principle of calorimeter and uses in biological analysis.
2) To study working principle of spectrophotometer and uses in biological analysis.
3) To study working principle of flame photometer and uses in biological analysis.
4) To study thin layer chromatography and separate amino acids from plant sample.
5) Demonstration of HPLC technique (Virtual mode)
6) Demonstration of Ion exchange chromatography (Virtual mode)
7) To study principle and demonstration of Gel Electrophoresis.
8) Demonstration of PCR technique (Virtual mode)
9) Demonstration of Gel documentation ((Virtual mode)
10) To study X-ray diffraction.
11) Demonstration of Southern blotting technique (Virtual mode)
12) Demonstration of Northern blotting technique.
13) Visit at laboratories.

PAH Solapur University Solapur

Department of Chemistry

(Add-On-Course)

Certificate course in Soil & Water Analysis.

COURSE DETAILS

Objective: To acquire skills for laboratory management in routine analysis of soil & water.

Duration: 12 months part time. Exams in June after University graduation exam.

Eligibility: H.S.C.(science) Pass or Fail, Diploma Agri, Diploma Engg., B.Sc., M,Sc.

Medium of teaching: Marathi, English.

Scope: The student after H.S.C. has one of the more exciting and rewarding turning time. Course is designed as a new non-conventional alternative for the future. The course can be completed either as a full time or as per part time along with the graduation. The certificate obtained will be for obtaining jobs in a various fields. the student can start his own business/ Laboratory or can associate with any kind of laboratory or associated jobs with confidence. There are opportunities in the field of analysis, analytical research, fundamental research, quality control appa, governmental and non-governmental organization etc. for technical laboratory personnel. In addition to this collage conducting this course can avail the service to general public and industries and raise funds for development.

Syllabus:

PAPER I: Laboratory Management & Soil Analysis

1) Basic fundamental in analysis

a. Analysis Chemistry: titrimetric, gravimetric, instrumental analysis.

b. Analysis Biology: microscopic & microbiological analysis

2) Instrumentation-Types, principles, meintaince, operation & working

PH meter, EC meter, Flame Photometer, Spectrophotometer, A.A.S.

3) Fundamental in sampling method preparation of reagent, culture media

4) Mathematical calculations in analysis-Concentration of solution, pmm, mol/l, mmhos/cm µmhos/cm, Kg/ha, normal, molar, µg/100gm calculations

5) Quality control, management in laboratory, standardization of reagents, Solution cross analysis

6) Report presentation and interpretation of results.

7) Soil development and Chemical composition-Formation or clay minerals. Soil forming process, composition of earth crusts, minerals in soil. Contents of chemical elements of soil. Physical Chemistry of soil.

8) Soil organic matter, formation, importance of Organic fertilizers

9) Soil microbiology and soil biochemistry. Microorganisms in soil, biochemical activities of microorganisms, enzymatic reactions, role of soil ecology in geochemical cycles

10) Acidic, Alkali, Saline and sadic soil, cause & prevention measures

11) Trace elements in soil – biological importance. Effects due to deficiency and excess quantity

12) Standard or soil quality requires for various crops.

13) soil pollution cause and remedies

14) Soil prone plant diseases and pests, their control, biopesticides

Practical

1. Collection and preservation of samples from general field, horticultural field and green house.

2. Study of instruments in analysis: PH meter EC meter, Flame Photometer, Spectrophotometer, Atomic Absorption Spectrophotometer, oven, bacteriological incubator, BOD incubator, centrifuge, Autoclave.

3. Determination of pH and electric Conductivity of soil

4. Determination of water holding capacity

5. Determination of Lime and Gypsum requirement

6) Determination of Nitrogen

7) Determination of Phosphorous

8) Determination of Organic Carbon

9) Determination of total and differential count of microorganisms

10) Microscopic identification of nematodes from soil

11) Determination of micro nutrients on AAS

13) Isolation of fungi from soil

PAPER II: Water and Waste Water Analysis

1. Chemistry of water development, hydrology, precipitation, rain, snowfall, water availability, requirement of water.
2. Quality of surface water, ground water
3. Impurities in water, standards of water quality for various requirements like potable, domestic use industrial purpose and agricultural purpose .
4. Water treatment technogies- Household water treatment, Municipal water treatment, Industrial water treatment, softening of water disinfections of water
5. Water Chemistry
6. Water microbiology-types & sources of contamination, prevention of water born diseases
7. Water management, water harvesting, water recycling
8. Characteristics of waste water from industries-Sugar factory, pulp & paper mills, distillery, Textile, Engineering, Food industry, Domestic waste
9. Water pollution causes and remedies.

Practicals:

1. Collection and preservation of samples from open well water, bore well water, river, water treatment plant, waste water treatment plants
2. Determination of pH of water
3. Determination of Electric conductivity of water
4. Determination of hardness (total, permanent, temporary)
5. Determination of calcium
6. Determination of magnesium
7. Determination of Chlorides
8. Determination of carbonates & bicarbonates
9. Determination of Chemical Oxygen Demand
10. Determination of Biological Oxygen Demand
11. Determination of MPN
12. Isolation of bacteria from water

Other

1 Visit to different laboratories in the analytical field
2 Project work
3 Visit to exhibition, conference, workshop (optional)

Course Evaluation

Theory	Paper I Soil analysis	100 Marks
	Paper II Water analysis	100 Marks
	Practical	50 Marks
	Visit report	25 Marks
	Assignment	25 Marks
	Total	300 Marks

Work load

Two theory periods per week

One practical per week

Syllabus of Certificate Course in Child Psychology

PAPER 1. DEVELOPMENTAL PSYCHOLOGY

UNIT-I Understanding Development

Understanding Development: Growth and Development; Concept and Principles of Development; Factors affecting Child Development.

UNIT-II Heredity in Development

Role of Heredity in Development; Role of Environment in Development, Relationship between Heredity and Environment.

UNIT-III Theories of Development

Theories of Development: Freud, Erickson and Bronfennbrenner.

UNIT-IV Methods in Development

Methods in Developmental Psychology and their Critical Evaluation; Observational, Co relational, Longitudinal, Cross-Sectional and, Cross Sequential designs.

REFERENCES:

1. Berk, L.E. (2003). Child Development. (6th Ed.), New Delhi: Pearson Education.

2. Hurlock, E.B. (1978). Child Growth and Development. (5th Ed.), New Delhi: Tata Mc-Graw Hill.

3. Schaffer,H.R. (2004). Introducing Child Psychology. New Delhi: Blackwell Publishing Company.

4. Bee, H. and Boyd, D. 2004. First Indian Reprint, Pearson Education, Inc.

PAPER 2: DOMAINS OF CHILD DEVELOPMENT

UNIT-I Physical and Motor Development

Physical and Motor Development: Patterns of growth; height and weight in childhood; Nutrition and food habits in childhood (2 to 12 years); Sequence of Motor Development; Gross and Fine Motor Development.

UNIT-II Perceptual Development

Perceptual Development: Hearing and Vision; Depth Perception; Contrast Sensitivity Model.

UNIT-III Cognitive Development

Cognitive Development: Piaget, Vygotsky Intelligence: Concept, types, Gardener's Theory of Intelligence.

UNIT-IV Language Development

Language Development: Skinner's and Chomsky's perspective, Language Development in Children.

REFERENCES

1. Berk, L.E. (2007). Developing Child Through the Life Span (7th Ed.) New Delhi: Pearson Education.

2. Mussen, P.H.; Conger, J.J. and Kangan, J. (1979). Child Development and Personality. (5th Ed.) New Delhi: Harper International.

3. Papalia, D.E.; Olds, S.W.; And Feldman, R.D. (2006). Human Development. (9 th Ed.) New Delhi: Tata Mc-Graw Hill.

4. Santrock, J.W. (2007). A Topical Approach to Life-Span Development. (3rd Ed.). New Delhi: Tata Mc-Graw Hill.

C/C

Solapur University, Solapur.

Shri Shivaji Mahavidyalaya, Barshi

Community College

(Recognized by, University Grants Commission, New Delhi.)

Credit distribution

Total credit=60 (Skill component=36 General education credit=24)

60:40 pattern

Total contact hours=960

Period= one year (NVEQF level=5)

[one credit/15 hours for Theory & Practical and one credit/30 hours for industry visit and internship]

Name of Course: Diploma in Agriculture Food Product and Processing

Sr.No.	Details	Credits	Hours
	(A)Skill component		
1	Regular Practical	15	225
2	Internship/industry visit	12	(360 converted to) 180
3	Practical Exam	9	135
	Total	36	540
	(B)General education		
4	Internal Exam / Tutorials, Theory etc.	16	240
5	Final exam	8	120
	Total	24	360
	Total of (A) and (B)	**60**	**960**

PRINCIPAL
Shri Shivaji Mahavidyalaya
Barsi. Dist.-Solapur.

Objective: To develop skills for preparation, processing and preservation of different food products

Examination pattern: Semester.

Eligibility: H.S.C. Pass

Duration: 12 months

Medium of teaching: Marathi, English.

Marks: 600 (Theory – 240 and practical -360) and apprentship/on job training

Scope: The student after H.S.C. has one of the more exciting and rewarding turning time. Course is designed as a new non-conventional alternative for the future. The course can be completed either as a full time or part time along with the graduation. The certificate obtained will be for obtaining jobs in a various fields. The student can start his own business or can associate with any kind of laboratory or associated jobs with confidence.

SYLLABUS

This course having four theory papers and practicals:

Paper- I	**Agricultural food products and food packaging**	**40 marks**
Paper- II	**Fruits And Vegetables Processing And Milk Products**	**40 marks**
Paper- III	**Food Microbiology**	**40 marks**
Paper- IV	**Food chemistry**	**40 marks**
Paper- V	**Food preservation and Food engineering**	**40 marks**
Paper- VI	**Communication skill and personality development**	**40 marks**
	Practicals	**360 marks**

PAPER I: AGRICULTURAL FOOD PRODUCTS AND FOOD PACKAGING

1 Varieties of grains, cereals and legumes grown and consumed in various countries. Post harvest handling and storage.

2 Processing operations such as milling, pearling, par boiling

3 Bakery technology

4 Wheat processing – flour mills, different fractions, modernizations and commercial aspects for Indian and global market. Chapati making, sheeting and other mechanization and preservation of chapatti

5 Malt and malt products

6 Extruded, puffed and fermented cereal based products, Indian traditional products

7 Packaging as a method for conservation and protection of foods. Different packaging materials and their properties, Glass, aluminium, tin, paper, boards, plastics, composites.

8. Evaluation of quality and safety of packaging materials – different testing procedures

Suggested reading:

1. The chemistry and technology of cereals as food and feed, Matz S.A.,
2. Cereal Science and technology, Hoseney R.C.
3. Cereal Processing and Technology, Gavin Owens
4. Wheat – Chemistry and Technology, Pomeranz
5. Packaging Media by Paine F.A. Publisher: Blackie and son Ltd., Bishop Briggs (1977)
6. Food Packaging and Preservation : theory and practice by Mathlouthi.,M. Publisher
7. Elsevier applied science publishers.London (1966)
8. Food and Packaging Interactions by Risch.S.H. Publisher American chemical society, Washington (1991).
9. Handbook of Food Packaging by F.A. Paine and H.Y. Paine Publisher: Blackie and son Ltd. London. (1983)
10. Food Packaging Technology (Vol.1 & 2) by G. Bureau and J.L.Multon, Publisher:VCH, New York (1996)
11. Packaging Materials and Containers by Paine, F.A.Publisher: Blackie and sons Ltd.., London, 1967.
12.

PAPER II: FRUITS AND VEGETABLES PROCESSING AND MILK PRODUCTS

1 Fruits and Vegetables: Post harvest handling, storage, control of ripening, etc. of Fruits

2 Post harvest handling, storage, control of ripening, etc. of vegetables

3 Fruits: Processing techniques, juices, concentrates, preserves and other traditional products.

4 Vegetables: Processing techniques, pickles, fermented pickles and other traditional products.

5 Dehydrated and speciality products and by-products of fruits and vegetables

6 Honey, Sugars and saccharine products. Soft drinks, fermented pickles.

7 Manufacture of condensed milk, milk powder, cheese, ice-cream, butter, ghee, malted products, evaporated and dried products, their evaluation and quality parameters, defects encountered during production, packaging and storage.

8 Traditional dairy products, milk confections such as *yoghurt, dahi, khoa, burfi, kalakand, gulabjamun, rosogolla, srikhand, chhana, paneer, ghee, lassi* etc. Probiotic milk products.

Suggested reading:

1. Post harvest biotechnology of vegetables, Salunkhe D.K.
2. Post harvest biotechnology of fruits, Salunkhe D.K.
3. Handbook of fruits science and tech. Salunkhe D.K. and Kadam S.S.
4. Handbook of vegetable science and tech. Salunkhe D.K. and Kadam S.S.
5. Processing vegetables: Sc. & Tech. Smith et al.
6. Aneja *et al.* 2002. Technology of Indian Milk Products. Dairy India Publ. De S.1980. Outlines of Dairy Technology. Oxford Univ. Press.
7. Rathore,NS et al. 2008.Fundamentals of Dairy Technology- Theory & Practices. Himanshu Publ
8. Walstra et al. 2006. Dairy Science and Technology. 2nd Ed. Taylor & Francis.
9. Web BH. et al. 1987. Fundamental of Dairy Chemistry. 3rd Ed. AVI Publ.

PAPER III: FOOD MICROBIOLOGY

1 **Food microbiology**: Food as substrate for micro-organisms, General principles underlying spoilage of foods, spoilage of braed, spoilage of pickles

2 **Microbial growth in food:** Microbisal food, food poisoning and infections investigation of foodborne outbreaks, prevention control.

3 **Food preservation:** General principles of food preservation, different methods of food preservation

4 **Fermented food products:** Types, production and defect in Jilebi, Punjabi Warri, Dhokla, pickles, cheese.

5 **Detection of food** and adulteration, Techniques to detect food adulterations, food laws and standards.

6. Foods microbiology and public health: food poisoning, types of food poisonings, important features etc; bacterial agents of food borne illness, food poisoning by *Clostridium, Salmonella, E. coli, bacillus, staphylococcus* etc.; non-bacterial agents of food borne illness: poisonous algae, and fungi - a brief account.

7. Food spoilage and microbes of milk, meats, fish and various plant products, spoilage of canned foods; Indicators microorganisms, methods of isolation and detection of microorganisms or their products in food; conventional methods;

REFFERENCES:

1. The Technology of Food Preservation: 4th Edi. Norman N. Potter (1987) CBS Publi.
2. Milk and Milk Products: 4th Edi. Clasence Hanry. TMH Publications.
3. Food Processing: Biotechnological Applications (2000). S.S.Marwaha and Arora. Asiatech publications, New Delhi.
4. Food Microbiology: Frazier.
5. Food Microbiology: James De and De.
6. Dairy Technology : Sukumar De.
7. Food Science: 5th Edi, Norman N. Potter (1996). CBS
8. Aurand, L.W. and Woods, A.E. 1973. Food Chemistry. AVI, Westport.
9. Birch, G.G., Cameron, A.G. and Spencer, M. 1986. Food Science, 3rd Ed. PergamonPress, New York.
10. Fennema, O.R. Ed. 1976. Principles of Food Science: Part-I Food Chemistry. Marcel Dekker, New York.

PAPER IV: FOOD CHEMISTRY

* Food chemistry- definition, scope and importance; water in food, water activity and shelf life of food

*Food quality and components: Composition and nutritive value of common foods, function of food constituents viz. water, carbohydrates, lipids, proteins, enzymes, vitamins, minerals, characteristics of food quality.

* Waste materials of food industries, Disposals and other applications

* Chemical changes during processing and storage of foods: Desirable, undesirable changes and its effects

*Food additives: definition, types, Applications and safety for food additives, Denaturation of food

*Solar conduction drier: Introduction and applications

* Adulteration of foods and its tests

* Organic manure: Introduction, Preparation, benefits

References:

1. Meyer, L.H. 1973. Food Chemistry. East-West Press Pvt. Ltd., New Delhi
2. Potter, N.N. 1978. Food Science. 3rd Ed. AVI, Westport.
3. Bamji MS, Rao NA & Reddy V. 2003. *Textbook of Human Nutrition*.Oxford & IBH.
4. Belitz HD.1999. *Food Chemistry*. Springer Verlag.
5. DeMan JM. 1976. *Principles of Food Chemistry*. AVI.
6. Fennema OR.1996. *Food Chemistry*. Marcel Dekker.
7. Meyer LH. 1987. *Food Chemistry*. CBS.
8. Swaminathan M. 1974. *Essentials of Foods and Nutrition*. Vol. II. Ganesh & Co.
9. Joslyn, M.A. Ed. 1970. Methods in Food Analysis. Academic Press, New York.

PAPER IV: FOOD PRESERVATION AND FOOD ENGINEERING

1 Thermal processing: Canning of food products - Canning of food products: Classifications of cans, Structure of cans, corrosion, Lacquering, Spoilage in canned foods. Thermal process time for canned foods

2 Water activity for food and its significance in food preservation. Psychometric charts; Dehydration and drying of foods; Different types of dryers, IMF foods. Osmotic dehydration

3 Freezing and cold storage including cryogenic freezing. Properties of frozen foods

4 Controlled and modified atmospheric storage. Chemical preservatives, biopreservatives , antimicrobials; hurdle technology.

5 Process design aspects for liquid foods such as milk and juices. Concentration with thermal and membranes processes

6 Process and equipment design for food processing such as dehydration, cold and hot extrusion, retort.

Suggested reading:

1. Engineering Properties of Foods, Rao MA and Rizvi SSH, 1986, Marcel Dekker Inc.
2. Fundamentals of Food Process Engineering, Toledo RT, 2000, Chapman and Hall.
3. Elements of Food Engineering, Watson EL and Harper JC, 1989, The Avi Publishing Co.
4. Food Process Engineering, Heldman DR and Singh RP, 1984, Chapman and Hall.
5. Food Engg. Fundamentals, J. Clair Batty, 1983, John Wiley & Sons.

Food Processing Industries:

I) Cereal Industry: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

II) Tamarind Industry: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

III) Turmeric powder Industry: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

IV) Maize powder Industry: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

V) Milk and Mineral water Industry: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

VI) Food products from Wheat, rice, potato,Tomato etc.: Introduction, Types, characteristics, Raw Materials, Processing, Products, byproducts, Applications

Suggested reading:

1. The Technology of Food Preservation, Desrosier NW, 1977, The AVI Publishing Co. Inc.
2. Food Processing Technology: Principles and Practice, Fellows PJ, 2005, CBS Publishers.
3. Principles of Food Science, Fennema O.R.
4. The Fundamentals of Food Engineering, Charm SE, 1963, The Avi Publishing Co.

PAPER VI: COMMUNICATION SKILLS AND PERSONALITY DEVELOPMENT

UNIT-I:

Communication: Meaning, Nature, Importance and Purpose of Communication, Types of Communication, Verbal and Non verbal communication.

UNIT-II:

: Oral communication: communication in a variety of functional settings, using formulaic and spontaneous speech patterns, including, but not limited to the following:

- _ introducing oneself
- _ greeting and saying goodbye
- _ asking for and giving information
- _ asking for, giving, and confirming an opinion
- _ asking for and giving directions
- _ making a request
- _ agreeing and disagreeing
- _ accepting and refusing an invitation
- _ ordering in a restaurant
- _ expressing feelings
- _ making a suggestion
- _ making a reservation
- _ apologizing and accepting an apology
- _ giving compliments

UNIT-III:

Narration and Description: Narrating events and Describing people, place, and things

UNIT-IV:

Written Communication: Writing of CV, Drafting an E-mail, Correspondence: Personal, Official and Business, Report Writing

UNIT-V: Functional Grammar:

1. Tense and their uses
2. Framing questions
3. Articles
4. Parts of Speech
5. Phrasal verbs

Personality Development

Unit VI: Self Exploration: Introduction to Human Development and Resource development – course objective and expected outcome-self discovery – self acceptance – self esteem – self confidence – physical and cultural aspects of personality – Indian cultural sensitivity leading to self identity.

Unit VII: Character building: Ethics, morality and values: an understanding – Need for values – Kinds of Values – Value conflicts – Value clarification and Value acceptance.

Unit VIII: Interpersonal relationship: Importance of Interpersonal relationships in the present context – kinds of relationships – overcoming prejudices – basic principle of building and sustaining relationships – personal vs. professional conflict – submissive, assertive and aggressive relationships.

Unit IX: Time and Stress Management: Importance of time – Managing time – the art of prioritizing and scheduling – stress and source of stress – recongnizing emotions and value of regulating emotions.

Unit X: Vision and goal setting: Personal goal – career goal clarification understanding organizational goals – congruence of goals – Positioning oneself in the context of organization / society – expectation management – critical nature of reaching targets.

Suggested reading:

1.Lesikar, Raymond V., John D Pettit, and Mary E FlatlyLesikar's, Basic Business Communication, 10th ed. Tata McGraw-Hill, New Delhi, 2007.

2.Gerson, Sharan J., and Steven M Gerson, Technical Writing: Process and Product. Pearson Education, New Delhi, 2008.

3.Murphy, Herta, Herbert W Hildebrandt, and Jane P Thomas, Effective Business Communication. 7th ed. Tata McGraw-Hill, New Delhi.

4. Bovee, Courtland and John V Thill, Business Communication Today,. 8th ed. Pearson Education, New Delhi, 2008.

5) McGrath, E. H., S.J,Basic Managerial Skills for All, 8th ed. Prentice-Hall of India, New Delhi, 2008.

6. Raman, Meenakhshi, and Prakash Singh, Business Communication. O U P, New Delhi, 2008.

7. Stuart Bonne E., Marilyn S Sarow and Laurence Stuart, Integrated Business Communication in a Global Market Place.3rd ed. John Wiley India, New Delhi, 2007.

8. Guffey, Mary Ellen., Business Communication: Process and Product. 3rd ed. Thomson and South-western, 2004.

PRACTICAL: I

1 Identification and study of Cereales, grains and legumes
2 Preparation of malt products
3 Study of Packaging methods
4 Study of different types of dehydration techniques
5 Spray drying for milk powder production
6 Study of drum drying for potato powder production
7 Study of different types of freezers
8 Preparation of popcorns
9 Packaging of bottle.

PRACTICAL :II

1 Preparation of mango products (minimum three types)
2 Preparation of apple products (minimum three types)
3 Preparation of pineapple products (minimum three types)
4 Preparation of guava products (minimum three types)
5 Preparation of lime products (minimum three types)
6 Preparation of tomato products (minimum three types)
7 Preparation of coconut products (minimum three types)
8 Preparation of salad dressing, mayonnaise and peanut butter
9 Preparation of fried products
10 Preparation of Milk products (Minimum five products)

PRACTICAL: III

1 Isolation of Microbes From Food Samples
2 Detection of afla toxin in food and feed
3 Effect of physicochemical factors on growth of microorganisms
4 Nutritional requirements of microorganisms
5 Isolation and characterization of microbes based on morphological and physiological characteristics
6 Evaluation of microbial quality of food and water sample

PRACTICAL: IV(chemistry)

1. Estimation of sodium benzoate
2. Estimation of carbohydrate
3. Estimation of sweeteners
4. Identification of hydrocolloids
5. Estimation of other food additives
6. Quantitative estimation of protein
7. Iodine estimation
8. Quantitative estimation of anti-nutritional factors
9. Chemical analysis of foods-pH,benzoate, sorbates and colour.
10. Estimation of contaminants
11. Food adulteration
12. Sensory analysis of food samples
13. Hardness of Water
    Estimation of Vitamin C
    Vinegar sample analysis
    Acidity of milk/lassi

PRACTICAL: IV

1. Preparation of bread
2. Preparation of cakes
3. Preparation of biscuits
4. Preparation of rice products
5. Preparation of milk products
6. Preparation of fermented food products
7. Preparation of fish and chicken products
8. Study of canning of fruits and vegetables
9. Study of different types of dehydration techniques and dryers for drying fruits and vegetables
10. Study of spray drying for milk powder production
11. Study of drum drying for potato powder production
12. Study of freezing and different types of freezers (plate freezer and for freezing fruits, vegetables.

o/c

Solapur University, Solapur.

Shri Shivaji Mahavidyalaya, Barshi

Community College

(Recognized by, University Grants Commission, New Delhi.)

Credit distribution

Total credit=60 (Skill component=36 General education credit=24)

60:40 pattern

Total contact hours=960

Period= one year (NVEQF level=5)

[one credit/15 hours for Theory and Practical and one credit/30 hours for industry visit and internship]

Name of Course: **Diploma in Medical Laboratory Assistant**

Sr.No.	Details	Credits	Hours
	(A)Skill component		
1	Regular Practical	15	225
2	Internship/industry visit	12	(360 converted to) 180
3	Practical Exam	9	135
	Total	36	540
	(B)General education		
4	Internal Exam / Tutorials, Theory etc.	16	240
5	Final exam	8	120
	Total	24	360
	Total of (A) and (B)	**60**	**960**

PRINCIPAL
Shri Shivaji Mahavidyalaya
Barsi. Dist.-Solapur.

Objective: To develop skills for medical laboratory practices and management.

Examination pattern: semester.

Eligibility: H.S.C. Pass,

Duration: 12 months

Medium of teaching: Marathi, English.

Marks: 600 (Theory – 240 and practical -360) and apprentship

Scope: The student after H.S.C. has one of the more exciting and rewarding turning time. Course is designed as a new non-conventional alternative for the future. The course can be completed either as a full time or part time along with the graduation. The certificate obtained will be for obtaining jobs in a various fields. The student can start his own business/ Laboratory or can associate with any kind of laboratory or associated jobs with confidence.

SYLLABUS

Paper I: ANATOMY & PHYSIOLOGY

Theory:

1) Circulatory System
2) Respiratory System
3) Endocrine System
4) Excretory System
5) Arterial System
6) Venous System
7) Blood Morphology, Chemistry & Function.

Practical:

Draw Diagram & Label

1) Circulatory System
2) Respiratory System
3) Endocrine System
4) Excretory System
5) Arterial System
6) Venous System
7) Preparation of Solutions.

Percent Solution, Saturated Solution, Buffer Solution

REFERENCE BOOKS

1) William Davis (P) understanding Human anatomy & Physiology MC Graw Hill.
2) Chaursia – A Textbook of Anatomy T.S. Ranganathan – A textbook of Human Anatomy.
3) Fattana, Human Anatomy, Saunder's & C P Prism Publishers, Bangalore-1991.
4) ESTer M.Grisschcimer Physiology & Anatomy with Practical. Considerations, J.P. Lippin Cott.Philadelphia.
5) Guyton Textbook of Physiology Latest Ed. Prism Publishers.

Paper II: HISTOPATHOLOGY & CYTOLOGY

Theory:-

1) Cell
2) Tissue
3) Fixation
4) Types of Fixatives
   a) Bouins Fluid
   b) 10% Formaline
   c) Zenker's Fluid
5) Decalcification
6) Tissue Processing

Practical:-

1) Fixation
2) Tissue Processing
3) Embedding
4) Section cutting
5) Staining
   a) H & E Staining
   b) Pap Staining

REFERENCE BOOKS:-

1) Hand book of Histopathological & Histochemical Technique C.F. A Culling IIIrd Edition 1974.

2) Histopathological Stains & their diagnostic uses John D. Bancott & Alan Steven Churchill Livingstone.

3) Practice of Section cutting & staining E.C. clader Churchill Livingstone, Edinburgh.

PAPER III: BIOCHEMISTRY

Theory:-

1) Quality Control, Management
2) Maintenance of Record
3) Laboratory Ethics
4) Cleaning of glasswares
5) Laboratory harzards
6) Introduction of Laboratory apparatus.
7) Urine Examination
   a) Physical
   b) Chemical
   c) Microscopy
8) Normal range
9) Collection & Recording of Biological Specimen
10) Carbonhydrates & Metabolism, Protein, Fats Nucleic Acid & Enrymes

Practical:-

1) Urine analysis for Physical & Chemical Constituents i.e. Sugar, Protein, BS,BP,Ketone bodies, Benridine test.
2) Units of Measurement Volumetric apparatus, Pipettes,Flasks, Cylinder, Calibration.
3) Blood- glucose, Urea, Cholesterol, Bilirubin, Creatine, Calcium,Protein Enryme.
4) CSF Examination.
   a) Physical
   b) Chemical
   c) Cytological

Reference Books:-

1) Clinical Biochemistry, Principles & Procedures 4th Edition – Annino J.S. & R.N.
2) Enzyme Diagnosis in disease of the Heart, Liver, Pancreas, Adolph & Lorenz Hanhum, S.Kargeer A.G. P.O. Box Ch. 4009 Basel Switzerland
3) Laboratory Practical for beginners, P. Veskresensky, Mir Publishers, Pevy Rirhsky Perulek, MOSCOW, USSR.

PAPER IV: MICROBIOLOGY

Theory:-

1) Microscope – Tyes, Uses & Care.
2) Identification of bacteria
3) Sterilization & disinfection
4) Preparation & Uses of Culture media
5) Growth & Nutrition of Microorganism
6) Collection transportation & Processing of clinical samples for microbiology Investigation
7) Safety measures in Microbiology
8) General Characters & Classification of bacteria & Fungi.
9) Antigen Antibody reactions.
10) Principle of Staining methods & Preparation of reagents.
11) Stool Examination.

Practicals :-

1) Demonstration of Staining
   a) Grams Staining
   b) C-N Staining
   c) Leishman's Staining
2) Preparation of reagents & serological tests
   a) Widal test b) VDRL Test c) RA test.
3) Preparation of media
   Nutrient agar, Maconkey's agar
4) Antibiotic sensitivity test
5) Sterilization
6) Stool Examination
   a) Microscopy b) Occult blood test

Reference books:-

1) Vallum R.L. Yesmisen cummiu C.S. Fair brothers – Text book bacteriology 10th Edition Amold Heinemann (India) Pvt.Ltd. ABIg Safdargang Enclave, New Delhi 15.
2) John strokes E-miles A.A. Clinical bacteriology 4th Edition, Edward Arnold (Publishers) Ltd, 25 Hill street London.
3) Stewart P.S.Biggos bacteriology & Immunology for students of medicine 9th Edition ELBS, London.
4) Sydney M.Fine gold willem J.Mart Bailey & Scott Diagnostic Microbiology 6th Edition, (V.Mosby company London).
5) Medical Parasitology – Ajit Damle.

Paper V: HAEMOTOLOGY & BLOOD BANK

Theory:-

1) Introduction of Haematology.
2) Various anticoagulants & uses.
   a) EDTA
   b) 3.8% Citric acid
   c) Sodium Fluoride
3) ESR – Erythrocyte Sedimentation Rate.
4) Examination of Semen
5) Haemoglobinometry – Standardization of instruments for apparatus for Hb Estimation.
6) Physiological variation in Hb, PCV, TLC & Platlets.
7) Collection & Preservation of Blood for various haematological investigations.
8) History & discovery of Blood groups
9) Bleeding disorder.

Practicals:-

1) Blood cells & Identification.
2) CBC- TLC, DLC, Platlet, RBC count, Eosinophil Count.
3) Semen Examination
4) ESR
5) ABO Blood grouping
6) Compatibility test
7) Collection & Preservation of Blood
8) Haemoglobin Estimation.

Reference Books:-

1) Arthur Simmons, Technical Haematology 1968, Pitman Medical Publishing co.Ltd. London.
2) Barbara A Brown, Haematology Principles & Procedures 3rd Edition, Lea & Pebiger Philadephia.
3) Blood bank Technology Larzar Schwartz 1971, Williams & Williams.

PAPER VI: COMMUNICATION SKILLS AND PERSONALITY DEVELOPMENT

UNIT-I:

Communication: Meaning, Nature, Importance and Purpose of Communication, Types of Communication, Verbal and Non verbal communication.

UNIT-II:

: Oral communication: communication in a variety of functional settings, using formulaic and spontaneous speech patterns, including, but not limited to the following:

_ introducing oneself
_ greeting and saying goodbye
_ asking for and giving information
_ asking for, giving, and confirming an opinion
_ asking for and giving directions
_ making a request
_ agreeing and disagreeing
_ accepting and refusing an invitation
_ ordering in a restaurant
_ expressing feelings
_ making a suggestion
_ making a reservation
_ apologizing and accepting an apology
_ giving compliments

UNIT-III:

Narration and Description: Narrating events and Describing people, place, and things

UNIT-IV:

Written Communication: Writing of CV, Drafting an E-mail, Correspondence: Personal, Official and Business, Report Writing

UNIT-V: Functional Grammar:

1. Tense and their uses
2. Framing questions
3. Articles
4. Parts of Speech
5. Phrasal verbs

Personality Development

Unit VI: Self Exploration: Introduction to Human Development and Resource development – course objective and expected outcome-self discovery – self acceptance – self esteem – self confidence – physical and cultural aspects of personality – Indian cultural sensitivity leading to self identity.

Unit VII: Character building: Ethics, morality and values: an understanding – Need for values – Kinds of Values – Value conflicts – Value clarification and Value acceptance.

Unit VIII: Interpersonal relationship: Importance of Interpersonal relationships in the present context – kinds of relationships – overcoming prejudices – basic principle of building and sustaining relationships – personal vs. professional conflict – submissive, assertive and aggressive relationships.

Unit IX: Time and Stress Management: Importance of time – Managing time – the art of prioritizing and scheduling – stress and source of stress – recongnizing emotions and value of regulating emotions.

Unit X: Vision and goal setting: Personal goal – career goal clarification understanding organizational goals – congruence of goals – Positioning oneself in the context of organization / society – expectation management – critical nature of reaching targets.

Suggested reading:

1)Lesikar, Raymond V., John D Pettit, and Mary E FlatlyLesikar's, Basic Business Communication, 10th ed. Tata McGraw-Hill, New Delhi, 2007.
2)Gerson, Sharan J., and Steven M Gerson, Technical Writing: Process and Product. Pearson Education, New Delhi, 2008.
3)Murphy, Herta, Herbert W Hildebrandt, and Jane P Thomas, Effective Business Communication. 7th ed. Tata McGraw-Hill, New Delhi.
4)Bovee, Courtland and John V Thill, Business Communication Today, 8th ed. Pearson Education, New Delhi, 2008.
5) McGrath, E. H., S.J,Basic Managerial Skills for All, 8th ed. Prentice-Hall of India, New Delhi, 2008.
6) Raman, Meenakhshi, and Prakash Singh, Business Communication. O U P, New Delhi, 2008.
7) Stuart Bonne E., Marilyn S Sarow and Laurence Stuart, Integrated Business Communication in a Global Market Place.3rd ed. John Wiley India, New Delhi, 2007.
8) Guffey, Mary Ellen., Business Communication: Process and Product. 3rd ed. Thomson and South-western, 2004.

Course Evaluation

Theory	Paper I	40 Marks
	Paper II	40 Marks
	Paper III	40 Marks
	Paper IV	40 Mark
	Paper V	40 Marks
	Paper VI	40 Marks
	Practical	360 Marks
	Total	600 Marks

PRINCIPAL
Shri Shivaji Mahavidyalaya
Barsi. Dist.-Solapur.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
B.Sc.-III (Electronics)
CBCS Pattern Semester -V

Self learning: Add-on Course / Skill Based Course

Designing and development of printed circuit board

Total Marks: 100 Credits: 04
(60 Periods)

Unit I: Introduction to PCB and Design Rules

Introduction to PCB: Fundamentals of electronic components and their categories, basic electronic circuits, Basics of printed circuit board designing: Layout planning, general rules and parameters, ground conductor considerations, thermal issues, check and inspection of artwork.

Design rules for PCB: Design rules for Digital circuit PCBs, Analog circuit PCBs, high frequency and fast pulse applications, Power electronic applications, Microwave applications

Unit II: Electronic Design Automation (EDA) Tools

Brief Introduction of various simulators, ORCAD, PROTEUS, SPICE and PSPICE Environment, Selecting the Components Footprints as per design, Making New Footprints, Assigning Footprint to components, Net listing, PCB Layout Designing, Auto routing and manual routing.

Unit III: PCB Production Techniques

Photo printing, film- master production, reprographic camera, basic process for double sided PCBs photo resists, Screen printing process, plating, relative performance and quality control, Etching machines, Solders alloys, fluxes, soldering techniques, Mechanical operations.

Unit IV: PCB Technology Trends

Multilayer PCBs. Multiwire PCB, Flexible PCBs, Surface mount PCBs, Reflow soldering, Introduction to High-Density Interconnection (HDI) Technology.

Project work: Introduction to PCB design using Proteus tool Making the schematic of Academic and Industrial projects, PCB Designing of a circuit, Soldering and De-soldering of components as per circuit, Testing and Troubleshooting Methods.

Reference Books:

1. Printed circuit Board Design and technology, Walter C. Bosshart
2. Printed Circuits Handbook, Sixth Edition, by Clyde F. Coombs, Jr, Happy T. Holden, Publisher: McGraw-Hill Education Year: 2016
3. Complete PCB Design Using OrCAD Capture and PCB Editor,Kraig Mitzner Bob Doe Alexander Akulin Anton Suponin Dirk Müller, 2nd Edition 2009.
4. Introduction to System-on-Package, Rao R Tummala & Madhavan Swaminathan, MGH, 2008
5. Flexible Printed circuit board Design and manufacturing, By Robert torzwell
6. Printed circuit board design, fabrication assembly and testing By R. S. Khandpur, Tata

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

पुण्यश्लोक अहिल्यादेवी होळकर
सोलापूर विद्यापीठ
।। विद्यया संपन्नता ।।
NAAC Accredited - 2015
'B' Grade (CGPA - 2.62)

Name of the Faculty: Humanities

Name of the Course: B. A. (English) Part - III

Name of the Paper: Content Writing and Editing in English Language

With effect from June-2021-22, 2022-23 & 2023-24

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Name of the Course: **B. A. –III**

Name of the Paper: **Content Writing and Editing in English Language**

Preamble:

In this course, the students will study how to write and edit content in English. The course will examine different types of content writings.Consistent, engaging, and high-quality **content** impacts the audience more than any other technique. **Content writing** allows your brand to create cohesive pieces of information. Consistency, especially in brand messaging, is one of the significant factors to determine the growth and success of your business. An editor will find themselves planning, coordinating and editing material for publication at newspaper, magazine, publishing house or other organization This course offers the writing and editing skills to train "aspiring-content writers and editors.

Objectives of the Course:

1. The course aims to inculcate the content writing and content editing skills among the students.
2. This course can also be beneficial to the existing content writers in honing their skills.

Course Outcome:

1. Content writing is considered a highly skilled area and presents opportunity for a full time/part time career.
2. Students will able to write and edit the content.

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Name of the Course: **B. A. –III**

Name of the Paper: **Content Writing and Editing in English Language**

[Credits:04 Theory-(45), Practical-(15)]

Total Theory Lectures-(45) **Total Credits – (04)**

Unit No: 1 Introduction to Content Writing and Editing **(**Credit: 01) **(15)**

Unit No: 2 Structuring and Writing Quality Content (Credit: 01) **(15)**

Unit No: 3 Copy Writing, Sales, Advertising and Promotion. (Credit: 01) **(15)**

Unit No: 4 Digital Content Writing (Credit: 01) **(15)**

Course Structure:

Semester	Paper No.	Title of Paper	No. of Lectures	College Assessments (Marks)	University Assessments (Marks)	Total Marks	Credits
		CONTENT WRITING AND EDITING IN ENGLISH	60	20	80	100	04

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Name of the Course: **B. A. –III**

Name of the Paper: **Content Writing and Editing in English Language**

Unit: I Introduction to Content Writing and Editing

- Origin and need of content writing
- Career in content writing
- Types of content writings
- The Concept of Content Marketing
- Difference between Academic and Content Writing.

Unit: II Structuring and Writing Quality Content

- Brainstorming and Collection of Material
- Proof Reading Techniques
- How to Structure a Book and ensure content Quality?
- Documentation and Formatting

Unit: III Copy Writing, Sales, Advertising and Promotion.

- Writing Newsletters, Product Descriptions and Press Releases
- Importance of Page Layout and Text Outline
- Effective Writing Techniques
- Writing Articles
- Mistakes to Avoid

Unit: **IV** – **Digital Content Writing**

- Video scripts
- Email newsletters
- Keynote speeches
- Social media posts
- Podcast titles
- Web page copy
- YouTube video descriptions
- Blog

List of References:

1. A. Z. Gill, Content Writing: A helpful Guide,

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Name of the Faculty: Humanities

Name of the Course: M. A. (English) Part – II

Name of the Paper: Linguistic Competence for Advertising, Marketing and Public Relations

With effect from June-2021-22, 2022-23 & 2023-24

Punyashlok Ahilyadevi Holakar Solapur University, Solapur

Name of the Course: **M.A (English) Part–II**

Name of the Paper: **Linguistic Competence for Advertising, Marketing and Public Relations**

Objectives:

Objectives of the course are to:

7. Introduce importance linguistic Competence in communication industry.
8. Create awareness of the type of language used in advertising.
9. Explain linguistic skills required for marketing.
10. Inform linguistic skills required for public relations.

Course Outcomes:

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

1. Demonstrate knowledge of linguistic skills in communication industry.
2. Obtain linguistic skills required for advertising, marketing and public relations.
3. Draft advertise, practice marketing and establish public relations.
4. Enhance employability skills.

Punyashlok Ahilyadevi Holakar Solapur University, Solapur

Name of the Course: **M.A (English) Part–II**

Name of the Paper: **Linguistic Competence for Advertising, Marketing and Public Relations**

[Credits: 05 Theory-(45), Practical-(15)]

Total Theory Lectures-(45) **Total Credits – (05)**

Unit No: 1 Introduction to linguistic Competence and Communication Industry (Credit: 02)(30)

Unit No: 2 Linguistic Competence for Drafting Advertisement (Credit: 01)(15)

Unit No: 3 Linguistic Competence for Marketing (Credit: 01) (15)

Unit No. 4 Linguistic Competence for Public Relations (Credit: 01)(15)

Course Structure:

Semester	Paper No.	Title of Paper	No. of Lectures	College Assessments (Marks)	University Assessments (Marks)	Total Marks	Credits
		Linguistic Competence for Advertising, Marketing and Public Relations	60	20	80	100	05

Paper – Linguistic Competence for Advertising, Marketing and Public Relations

SEMESTER

Unit: I Introduction to Linguistic Competence and communication Industry

- The concept of linguistic skills in English
- Linguistic skills and employability: Interlinking
- Career communication industry
- Drivers and dynamics of the communications industry
- Developing employability through effective language skills
-

Unit: II Linguistic Competence for drafting advertisement

- Advertising as means of communication
- Writing advertising slogans: rhythm and rhyme
- Use of Extreme adjectives, superlative phrases, glowing idioms and vocabulary
- Use of parts of speeches in drafting advertisement

Unit: III Linguistic Competence for Marketing

- Importance of effective language for marketing
- Requirement of linguistic skills at marketing workplace: writing ad copy, sales collateral, blogs and newsletters
- Enhancing language proficiency
- Marketing and Public speaking skills
- Marketing and Non Verbal skills

Unit: **IV** – **Linguistic Competence for Public Relations**

- Writing for clients: press releases, reports, feature articles and opinion pieces
- Conducting media interactions including invites, pitches and interviews
- Engaging clients with reports, proposals or even simple emails
- Posting on social media channels with tweets, Instagram captions or LinkedIn articles
- Networking — face-to-face or over the phone — with the media, clients or partners

Reference book:

- Foreign Languages in Advertising: Linguistic and Marketing Perspectives by Jos Hornikx and Frank van Meurs

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PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Bachelor of Arts (B. A.)

B. A. Part - III

SEC 02

A CERTIFICATE COURSE TRAVEL AND TOURISM

Objectives:

i. To introduce the fundamental concept of Travel and Tourism.

ii. To familiarize with the significance and emerging trends in tourism.

Unit No	Topic	Subtopic	No. of Period
1	Introduction to Tourism	Meaning & definitions of tourism, traveler, excursionist, tourists - Objectives, nature & Classification of tourism & tourists. Tourism recreation & leisure inter-relationship. Growth and development of Tourism through the ages.	10
2	Economics of Tourism Industries	Emergence of Thomas Cook – Emergence of Travel Intermediaries- Definition - The travel Market: Business Travel - Corporate Travel - Commercial Group Travel - Institutional Travel - Leisure Travel - Family Travel - Single Resort Travel - Special Interest Travel. Types of travel agency and tour operations - Inter-relationship between Travel agency and tour operation. Indian travel agencies and tour operators - an overview.	10
3	Components and Forms of Tourism	Components of tourism Forms of Tourism: religious, Medical Tourism, historical, social, adventure, health, business, conferences, conventions, incentives, sports Agro and adventure tourism	10
4	Major tourist attractions in India	physical and political attractions of Indian subcontinents. Tourism attractions in different states and territories of India.	10
5	Tourism Marketing	Marketing for Hospitality and Tourism – Definition – Core Marketing Concepts – Marketing Philosophies – Selling Vs Marketing, Differences between Products and Services – Technology and Marketing – Specific features of Tourism Marketing.	10

		FIELD WORK CASE STUDIES Planning and Organization of tour on famous routs for 2 to 15 days.	40

Name of the Certificate Course	Credits	Lectures	Eligible students
Certificate Course in RS, GIS and GPS	04	60	Students of M.A. Second Year

1. Title of the Certificate Course:"Certificate Course in RS, GIS and GPS"

2. Introduction: Remote Sensing and Geographic Information System are powerful tools which have revolutionized our understanding and approach to the earth's resources and environment and their management. Remote sensing is the technique of acquiring information about the earth surface from a vantage position in space or air. Thematic maps, the main outputs of remote sensing, form the primary inputs in GIS. Global Positioning System (GPS) is a new technology for defining the geographical location of any data. Today, these three technologies, Remote sensing, GIS and GPS, constitute a powerful combination known as Geoinformation Technology or Geoinformatics.

3.Objectives:

1) To make students familiars with concept of RS, GIS and GPS.
2) To give detailed knowledge about its application in geographical studies.

4. Course Outcome: After completion of this course the students will

1.undertand the process of Remote Sensing.

2. be able to download data from Bhuvan Portal

3. learn to use of QGIS software and handle of GPS instrument

4.be ready for individual or group project on current issues.

5.Eligibility: The students doing MA second Year with special Geography subject may take this course.

6. Course Fee: Rs.500/- (Per Student)

7. Syllabus: The syllabus for the Course will be as follows: {60 Lectures}

Certificate Course in RS, GIS and GPS

Module	Contents	Number of Lectures	Credit
1	**Remote Sensing** ➢ Basic concept of Remote Sensing ➢ EMR and its interaction with atmosphere ➢ Platforms and Sensors in RS	06	01
2	**GIS** ➢ Introduction, Components and Function of GIS ➢ Sources of Data, Data Editing, Data Analysis ➢ Application of GIS	05	
3	**GPS** ➢ Introduction, Components of GPS ➢ GPS Satellites, Data Receivers and Control Point ➢ Application of GPS	04	
4	**GIS Software** ➢ Overview of QGIS and toolbar ➢ Creation of Point, Line and Polygon, linking Data table ➢ Georeferencing map and toposheet, mosaic and cropping toposheet ➢ Data collection using GPS instrument ➢ Data Analysis : Spatial and Non Spatial	15	01
5	**Satellite Data Analysis** ➢ Data download from Bhuvan and other source ➢ DEM and its application ➢ LISS–III data download, composite image, image Analysis- Supervised and Unsupervised ➢ Map Composition	15	01
6	Project	15	01
	Total	60	04

8. Evaluation - After completion of the syllabus, exams will be conducted in the following manner

1. Theory- 80 marks
2.Project - 20 marks

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Name of faculty : Humanities

CBCS Syllabus

Name of the Course B.A. Hindi Sem. VI

Certificate Course In Rojgarparak Hindi

रोजगारपरक हिंदी (प्रमाणपत्र कोर्स)

With effect form June 2021-22

पुण्यश्लोक अहिल्यादेवी होलकर सोलापुर विश्वविद्यालय,सोलापुर

तृतीय वर्ष कला, बी.ए. भाग तीन

रोजगारपरक हिंदी (प्रमाणपत्र कोर्स)

अध्यापन वर्ष : 2021–22, 2022–2023, 2023–2024

परिचय /Introduction

साहित्य एवं भाषा का अध्ययन करने के उपरान्त केवल ज्ञान की प्राप्ति नहीं बल्कि जीवनयापन करने के लिए एक अच्छे रोजगार की भी आवश्यकता होती है। इसी बात को मद्देनजर रखते हुए प्रस्तुत पाठ्यक्रम बनाया गया है। हिंदी में ऐसे कौनसे क्षेत्र हैं उसकी जानकारी तथा उससे जुड़ा हुआ पाठ्यक्रम इस प्रश्नपत्र में रखा गया है।

पाठ्यक्रम का उद्देश्य /Course objectve

1. हिंदी के प्रति छात्रों की रूझान बढ़ाना।
2. हिंदी में होनेवाले रोजगार के क्षेत्रों से अवगत कराना।
3. रोजगार प्राप्ति के लिए आवश्यक कौशल से अवगत कराना।
4. नौकरी हेतु आवश्यक पाठ्यक्रम का अध्ययन कराना।

CBCS Pattern B.A. Hindi Sem. VI

Certificate Course In Rojgarparak Hindi

प्रश्नपत्र का नाम : रोजगारपरक हिंदी (प्रमाणपत्र कोर्स)

(Credit Theory (04) Practical (00)

Total Theory Lecture (60) Credit 4

अध्ययनार्थ विषय

इकाई 1 हिंदी भाषा का सामान्य अध्ययन **Lecture-15, Credit-1**

- हिंदी का सामान्य अध्ययन
- हिंदी व्याकरण : विलोम, वाक्य एवं वर्तनी शुध्दि, अनेक शब्दों के लिए एक शब्द, तत्सम एवं तद्भव शब्द, पर्यायवाची शब्द
- अनुवाद का स्वरूप तथा द्विभाषिक ज्ञान : हिंदी–अंग्रेजी
- भाषिक सम्प्रेषण कौशल
- लेखन कौशल

इकाई 2 प्रयोजनमूलक हिंदी और रोजगार **Lecture-15, Credit-1**

हिंदी के द्वारा प्रशासकीय क्षेत्र में रोजगार

- राजभाषा अधिकारी
- हिंदी अधिकारी
- हिंदी अनुवादक

इकाई 3 हिंदी भाषा कौशल **Lecture-15, Credit-1**

हिंदी में वाक्चातुर्य के द्वारा रोजगार

- निवेदक
- रेडियो जॉकी
- समाचार वाचक
- पर्यटन मार्गदर्शक

इकाई 4 हिंदी लेखन और रोजगार **Lecture-15, Credit-1**

हिंदी में लेखन के द्वारा रोजगार

- पटकथा लेखन

- संवाद लेखन
- गीतकार
- संपादक
- समाचार लेखक
- प्रूफ शोधन

Equivalent Subject for Old Syllabus

Sr. No.	Name of the Old Paper	Name of the New Paper
1	–	रोजगारपरक हिंदी

संदर्भ ग्रंथ :

1. मीडियाकालीन हिंदी का स्वरूप एवं संभावनाएँ–डॉ. अर्जुन चव्हाण,राधाकृष्ण प्रकाशन,दिल्ली
2. संपादन पृष्ठसज्जा और मुद्रण–प्रो.रमेश जैन
3. व्यावसायिक हिंदी–प्रो.रहमतुल्ला, वाणी प्रकाशन,नई दिल्ली
4. इलेक्ट्रॉनिक मीडिया बदलते आयाम–डॉ.मिश्र,डॉ.अमरनाथ
5. लेखन संपादन और मुद्रण–ओम गुप्ता

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

पुण्यश्लोक अहिल्यादेवी होळकर सोलापुर विश्वविद्यालय, सोलापुर

Name of faculty : Humanities

मानव्यविद्या (मानविकी)शाखा

CBCS Syllabus

Name of the Course : M. A. II Sem. IV

पाठ्यक्रम का नाम : एम.ए. II सत्र IV

Certificate Course

प्रमाणपत्र पाठ्यक्रम

विज्ञापन

कौशल विकास प्रश्नपत्र

With effect from June - 2021-2022

जून 2020–21 से आरंभ

➢ परिचय / Introduction

वर्तमान युग को बाजारवाद का युग कहा जाता है। इसलिए अर्थशास्त्र के सिध्दांत की बात करें तो 'मांग और पूर्ती' के आधार पर किसी भी वस्तु का मूल्य तय होता है। इसलिए उस वस्तु के मूल्य में वृध्दि हेतु विज्ञापन बहुत बड़ा किरदार आदा करता है। इस कारण विश्वभर में विज्ञापन का बोलबाल है। जो कई सारे रोजगार के अवसर की ओर हमें इगत करता है। इस वजह से भाषा एवं साहित्य के छात्रों को इस क्षेत्र की ओर आकर्षित करना इस प्रमाणपत्र पाठ्यक्रम का मुख्य लक्ष्य है।

➢ पाठ्यक्रम के उद्देश्य / Course objective

1. विज्ञापन के स्वरूप से परिचित कराना।
2. विज्ञापन प्रक्रिया को समझाना।
3. विज्ञापन एवं उससे संबंधित क्षेत्रों के जनसंपर्क एवं कॉर्पोरेट संचार के क्षेत्रों की मूलभूत एवं उभरती हुई अवधारणाओं तथा सिद्धांतों की जानकारी देना।
4. विज्ञापन लेखन की क्षमता विकसित करना।
5. विज्ञापन के अनुवाद से अवगत कराना।
6. विज्ञापन की भाषा से अवगत कराना।
7 विज्ञापन के माध्यम से रोजगारपरक कौशल विकसित करना।

➢ पाठ्यक्रम सीखने के परिणाम / Course Learning Outcomes

1. छात्र विज्ञापन कला से परिचत हो जायेंगे।
2. विज्ञापन की प्रक्रिया को समझ पायेंगे।
3. विज्ञापन एवं उससे संबंधित क्षेत्रों के जनसंपर्क एवं कॉर्पोरेट संचार के क्षेत्रों की मूलभूत एवं उभरती हुई अवधारणाओं तथा सिद्धांतों से परिचित होंगे।
4. छात्रों में विज्ञापन लेखन की क्षमता विकसित होगी।
5. छात्र विज्ञापन के अनुवाद से परिचित होंगे।
6. छात्र विज्ञापन की भाषाई सामर्थ्य को समझ सकेंगे।
7. छात्रों में विज्ञापन के अध्ययन से रोजगारपरक कौशल विकसित होगा।

➢ शिक्षण अधिगम प्रक्रिया / Teaching Learning Process

1. कक्षा व्याख्यान
2. सामूहिक चर्चा

CBCS PATTERN M. A. Hindi SEM. IV
[Credits: Theory-(04), Practical's-(00)]
प्रश्नपत्र का नामः विज्ञापन
Total Theory Lectures-(60), Credit 4

• **अध्ययनार्थ विषय :**

इकाई 1 (**Lectures 15, Credit 1**)

1 .विज्ञापनः अर्थ, परिभाषा एवं स्वरूप
2. विज्ञापन की अवधारणा एवं सामाजिक पक्ष
3 विज्ञापन के अंग
4. विज्ञापन का महत्त्व एवं उद्देश्य

इकाई 2 (**Lectures 15, Credit 1**)

1. विज्ञापन के तत्त्व
2. विज्ञापन के माध्यम
3. विज्ञापन की आचारसंहिता
4. विज्ञापन कला

इकाई 3 (**Lectures 15, Credit 1**)

1. विज्ञापन का भाषिक विवेचन
2. विज्ञापन की भाषा
3. विज्ञापन भाषा की विशेषताएँ
4. विज्ञापन भाषा के गुण और लक्षण

इकाई 4 (**Lectures 15, Credit 1**)

2. विज्ञापन लेखन कला
1. विविध विज्ञापनों का लेखन–मुद्रित और दृक–श्राव्य
3. विज्ञापन एजेंसी
4. विज्ञापन का अनुवाद

संदर्भ ग्रंथ :

1. बलदेवराज गुप्त, भारत में जनसंपर्क, विश्वविद्यालय प्रकाशन, वाराणसी
2. रामचंद्र तिवारीए विज्ञापनः व्यवसाय एवं कला, आलेख प्रकाशन, दिल्ली
3. डॉ. निशांत सिंह, विज्ञापन प्रबंधन, ओमेगा प्रकाशन, नई दिल्ली
4. डॉ. कृष्णकुमार रत्तू, विश्व मीडिया बाजार, नेशनल पब्लिशिंग हाउस, नई दिल्ली
5. डॉ. मधु धवन, विज्ञापन कला, वाणी प्रकाशन, नई दिल्ली
6. डॉ. प्रेमचंद पातंजलि, आधुनिक विज्ञापन
6. .www.rajbhasha.nic.in
7. hindi.indiawaterportel.org.vontent/vajanapana

▪

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

BA III History Sem. VI
Skill Based Course

Indian History for Competitive Examinations

Credits - Theory:3 Project/Report: 1 Total: 4 Total Periods: 60

Preamble:

Competitive examination has become an essential part of government, semi-government and private sector jobs. Many students study with the dream of achieving success in these various examinations but most of the students do not get proper guidance. Easy study techniques and the ability to give accurate answers are not mastered. The result is failure in competitive examinations. The study units of Indian history of many competitive examinations have been placed at different levels in compulsory and optional from. Students will be able to better prepare for the history study units for various competitive examinations if develop skills like examination scope, nature of questions, suitable study methods for correct answers, self-study techniques, availability of reference books and their use as per the scope of the examination. Since this paper is to be studied in the final semester of the final year of graduation, they will acquire important skills at the right time. This skill oriented subject will be used by the students to get appointments through various competitive examinations, to work in competitive exam. Centers as well as private guides and to give lectures and speeches using lecture series, ceremonies and social media.

Objectives:

1. To aware the students about various competitive examinations
2. To facilitate the students to take up the challenges of appearing for competitive examinations.
3. To get the information about the exams conducted for the entry into jobs
4. To explain the various important events in Indian history.
5. To develop self-study techniques of history subject useful for competitive examinations.

Learning Outcomes:

1. Understand various opportunities in competitive examinations.
2. Students will be aware of the competitive examinations
3. History knowledge Utilize for professional jobs.
4. Skills Will be develop for self-study of history units suitable for various competitive examinations.
5. Students knows History subject importance UPSC, MPSC, Staff selection Bank, Railway, Army, Police, Post office etc. Examination.

Chapter I. Introduction to Various Competitive Examinations. 10

1. UPSC Examinations.
2. MPSC Examinations
3. Staff selection, Bank, Railway, Army, Police, Post Office etc. Examinations.

Chapter II. Ancient Indian History for Various competitive exams. 10

1. UPSC Examinations. (Preliminary and mains)
2. MPSC Examinations. (Preliminary and mains)
3. Other Examinations.

Chapter III. Medieval Indian History for Various competitive exams 10

1. UPSC Examinations. (Preliminary and mains)
2. MPSC Examinations. (Preliminary and mains)
3. Other Examinations.

Chapter IV. Modern Indian History for Various competitive exams. 10

1. UPSC Examinations. (Preliminary and mains)
2. MPSC Examinations. (Preliminary and mains)
3. Other Examinations.

Project Report: 20

- Students should get information about reference books and periodicals on Indian history available in their nearest libraries. Among them, read the components of Indian history study which are useful for competitive examinations and submit a brief report of the work done to the concerned teacher.

OR

- Students should collect Indian history questionnaires from various competitive examinations previous question papers, sample question papers from libraries, competitive exam. Guidance centers as well as competitive examinations related websites and find out the answers to those questions and submit a brief report to concerned teacher.

Evaluation Method:

The University examination for this course will be of 40 marks. Nature of the question paper and criteria for passing will be the same as other subjects for B. A. III Sem. VI. Internal assessment is for 10 marks and a minimum of 04marks is required for passing. Students should submit a project report of at least five pages in writing to the concerned teacher for Internal Evaluation.

List of Reference:

1) www.upsc.gov.in Examination patterns and syllabus
2) www.mpsc.gov.in Examination patterns and syllabus
3) Other examination websites and direct recruitment patterns and syllabus
4) Bhide Gajananan, Pracheen Bharat (Marathi)
5) Chandra Bipan, Adhunik Bharat ka Itihas (Hindi)
6) Chandra Bipan, India After Independence 1947-2000
7) Chandra Satish, History of Medieval India
8) Dhavale, Bargal, Madhyayugin Bharat (Marathi)
9) Gathal S. S., Bharatiya Rashtriya Chalvalicha Itihas (Marathi)
10) Habib Irfan, Medieval India
11) Mujumdar R. C. Ancient India
12) Kathare Anil, Adhunik Maharashtracha Itihas (Marathi)
13) Pawar Jaishingrao, Bhartiya Swatantrya Chalvalicha Itihas
14) Pawar Jaishingrao, Marathi Samrajyacha Uday ani Asta (Marathi)
15) Sharma R. S., India's Ancient Past
16) Singhania Nitin, Indian Art and Culture
17) Saradesai, Nalawde, Adhunik Bhartacha Itihas (Marathi)
18) Thapar Romila, A History of India
19) Vaidya Suman, Kothekar, Aphonic Bhartacha Itihas (Marathi)

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ, सोलापूर

बी. ए . ३ सत्र ६ कौशल्य आधारित अभ्यासक्रम

स्पर्धा परीक्षांसाठी भारतीय इतिहास

क्रेडिट : ३+१ =४ एकुण तासिका :६०

प्रस्तावना:

स्पर्धा परीक्षा ही शासकीय, निमशासकीय व खासगी क्षेत्रातील नोकरीसाठी अत्यावश्यक बाब बनली आहे.या विविध परीक्षांमध्ये यश संपादन करण्याचे स्वप्न उराशी बाळगून अनेक विद्यार्थी अभ्यास करत असतात परंतु बहुतांशी विद्यार्थ्यांना योग्य मार्गदर्शन मिळत नाही. अभ्यासाची सहज सुलभ तंत्रे व अचूक उत्तरे देण्याचे कौशल्य आत्मसात होत नाही. परिणामी, स्पर्धा परीक्षांमध्ये अपयश पदरी पडते. अनेक स्पर्धा परीक्षांच्या अभ्यासक्रमात इतिहास विषयातील विविध अभ्यास घटक वेगवेगळ्या स्तरांवर आवश्यक व ऐश्चिक स्वरूपात ठेवण्यात आले आहेत. सदर घटकांची परीक्षेनुरूप व्याप्ती, प्रश्नांचे स्वरूप, अचूक उत्तरांसाठी सुयोग्य अभ्यास पध्दती, स्वयंअध्ययनाची तंत्रे, संदर्भ साधनांची उपलब्धता व परीक्षेच्या आवाक्याप्रमाणे त्यांचा वापर आदि कौशल्य विकसित झाल्यास विद्यार्थ्यांना विविध स्पर्धा परीक्षांसाठी इतिहास अभ्यास घटकांची उत्तम तयारी करता येईल. पदवीच्या अंतिम वर्षातील अंतिम सत्रात प्रस्तुत अभ्यासक्रम पूर्ण करावयाचा असल्याने विद्यार्थ्यांना योग्य वेळी महत्वपूर्ण कौशल्य आत्मसात होणार आहे. विविध स्पर्धा परीक्षांच्या माध्यमातून नियुक्ती मिळविण्यासाठी , स्पर्धा परीक्षा मार्गदर्शन केंद्रात तसेच खासगी मार्गदर्शक म्हणून कार्य करण्यासाठी आणि व्याख्यानमाला, सभा, समारंभ व समाज माध्यमांतून व्याख्याने, भाषणे देऊन उत्तम वक्ता म्हणून नावलौकिक मिळविण्यासाठी या कौशल्य अधारित अभ्यासक्रमाचा विद्यार्थ्यांना निश्चित उपयोग होईल.

उद्दिष्टे :

1) विद्यार्थ्यांना विविध स्पर्धा परीक्षांची माहिती देणे.
2) विद्यार्थ्यांना स्पर्धा परीक्षेतील आव्हाने पेलण्यासाठी समर्थ बनवणे.
3) नोकरीसाठी घेण्यात येणाऱ्या परीक्षांची माहिती मिळविणे.
4) भारतीय इतिहासातील महत्वपूर्ण घटना स्पष्ट करणे.
5) स्पर्धा परीक्षांसाठी इतिहास अभ्यास घटकांच्या स्वयंअध्ययनाचे तंत्र विकसित करणे.

शिक्षण परिणाम :

1) विविध स्पर्धा परीक्षांची माहिती होईल व स्पर्धा परीक्षांमधून मिळणाऱ्या संधी समजतील.
2) विद्यार्थ्यांमध्ये स्पर्धा परीक्षांबद्दल जानीव जागृती होईल.
3) इतिहासाचे ज्ञान व्यावसायिक हेतूने व नोकरीसाठी उपयोगात आणता येईल.
4) विविध स्पर्धा परीक्षांसाठी उपयुक्त अशा इतिहास अभ्यास घटकांचे स्वयंअध्ययन करण्याचे कौशल्य विकसित होईल.
5) विद्यार्थ्यांना केंद्रीय लोकसेवा आयोग, महाराष्ट्र लोकसेवा आयोग यांच्या मार्फत घेण्यात येणाऱ्या परीक्षा व इतर परीक्षांमधील इतिहासाचे महत्त्व समजेल.

प्रकरण पहिले- विविध स्पर्धा परीक्षांची माहिती **१०**

1) केंद्रीय लोकसेवा आयोग (युपीएससी) याद्वारे घेतल्या जाणाऱ्या परीक्षा
2) महाराष्ट्र लोकसेवा आयोग (एमपीएससी) याद्वारे घेतल्या जाणाऱ्या परीक्षा
3) स्टाफ सिलेक्शन, बँक, रेल्वे, आर्मी, पोलीस, पोस्ट व इतर भरतीसाठी घेण्यात येणाऱ्या परीक्षा

प्रकरण दुसरे- विविध स्पर्धा परीक्षांसाठी प्राचीन भारताचा इतिहास **१०**

1) केंद्रीय लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
2) महाराष्ट्र लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
3) इतर परीक्षा

प्रकरण तिसरे- विविध स्पर्धा परीक्षांसाठी मध्ययुगीन भारताचा इतिहास **१०**

1) केंद्रीय लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
2) महाराष्ट्र लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
3) इतर परीक्षा

प्रकरण चौथे- विविध स्पर्धा परीक्षांसाठी आधुनिक भारताचा इतिहास **१०**

1) केंद्रीय लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
2) महाराष्ट्र लोकसेवा आयोगाच्या परीक्षा (पूर्व परीक्षा व मुख्य परीक्षा)
3) इतर परीक्षा

प्रकल्प /अहवाल: **२०**

*विद्यार्थ्यांनी आपल्या नजीकच्या ग्रंथालयात भारतीय इतिहासासंबंधी उपलब्ध असलेल्या संदर्भ ग्रंथांची व नियतकालिकांची माहिती मिळवावी. त्यातून स्पर्धा परीक्षांच्या अनुषंगाने उपयुक्त अभ्यास घटकांचे वाचन करावे. केलेल्या कार्याचा संक्षिप्त अहवाल संबंधित शिक्षकाकडे लेखी स्वरुपात सादर करावा.

किंवा

*विद्यार्थ्यांनी विविध स्पर्धा परीक्षांच्या मागील प्रश्नपत्रिका ग्रंथालये, स्पर्धा परीक्षा मार्गदर्शन केंद्रे तसेच स्पर्धा परीक्षे संबंधित संकेतस्थळांवरून उपलब्ध करून त्यातील भारतीय इतिहास अभ्यास घटकांवर विचारण्यात आलेले प्रश्न संकलित करावेत. त्या प्रश्नांची उत्तरे शोधावित आणि केलेल्या कार्याचा संक्षिप्त अहवाल संबंधित शिक्षकाकडे लेखी स्वरूपात सादर करावा.

मूल्यमापन पद्धती:

सदर अभ्यासक्रमासाठी विद्यापीठ परीक्षा ४० गुणांची असेल. प्रश्नपत्रिकेचे स्वरूप व उत्तीर्णतेचा निकष बी. ए. भाग ३ सत्र ६ साठी असणाऱ्या अन्य विषयाप्रमाणे असेल. अंतर्गत मूल्यमापन १० गुणांसाठी असून उत्तीर्णतेसाठी किमान ०४ गुण मिळविणे आवश्यक आहेत. अंतर्गत मूल्यमापनासाठी विद्यार्थ्यांनी उपरोक्त सूचीत केल्याप्रमाणे किमान पाच पृष्ठांचा प्रकल्प अहवाल संबंधित शिक्षकाकडे सादर करावयाचा आहे.

PUNYASHLOK AHILYADEVI HOLKAR
SOLAPUR UNIVERSITY, SOLAPUR
M.A.II, Sem.-IV, History
Skill Oriented Subject
Historical Application in Tourism

Credit- Theory – 03 Project/Report-01,

Total – 04, Total periods – 80

Preamble :-

This course is planned to introduce students to the study of Historical Tourism and Museums as an auxiliary subject of History. To provide professional knowledge for the feild of History. To provide professional knowledge for the field of Historical tourism and museums. It gives theoretical and practical knowledge of historical monuments and sites. To motivated the students for conservation and preservation of Historical places, museums and historical sites.

Objectivc of the course :-

1) Students will develop an informed familiarity with multiple cultures.
2) Students will employ a fullrage of technigues and methods used to gain historical knowledge.
3) Students will develop an ability to convey verbally their historical knowledge.
4) To facilitate the students to take up the challenges of appearing for jobs.
5) To provide professional knowledge for the field of Tourism and Museum.
6) To explain the various important Historical places.

Outcomes of the course :-

1) Grasp about the importance of museums in understanding of historical legacy properly.
2) Understand about the historical tourism and it's importance in grasping historical facts.
3) History knowledge Utilize for professional jobs.
4) Skill will be develop for History tourism Guide.
5) The students will understand the concept of the tourism and learn the basic principles of Museum.

Historical Application in Tourism

Unit-I - Tourism

a) Definition and Nature of Tourism — 10 periode

b) Types of Tourism – Domestic, Regional, National and International

c) Motivation of Tourism – Pleasure, Education, Culture, Social, Religious, Health and History.

Unit-II - Economic Importance of Tourism

a) Guide — 10 periods

b) Traveling and Lodging

c) Catering and Marketing

Unit-III - Museum.

a) Definition and Importance of museum — 10 periods

b) Types of museum

c) Important museum – Chh Shivaji Maharaj Museum, Mumbai, Salarjang Museum, Hydrabad.

Unit- IV - Important Monuments, Religious Centers and History sites — 10 periods

a) Temple – Siddheshwar Temple (Solapur), Sun Temple (Konark) Stup Of sanchi, Golden Temple (Amrutsar)

b) Forts – Raigad, Redfort (Delhi)

c) Caves – Ajanta, Ellora.(Maharashtra)

d) Need of Conservation and Preservation in Historical monuments and sites.

Projectwork / Report writing :- 20 periods

Students should be visit any historical place and collect information and submit brief report of the work done to the concerned teacher.

Evaluation Method :-

The University examination for this course will be of 80 marks. Nature of question paper and criteria for passing will be the same as other subjects for M.A.II sem - IV. Internal assessment is for 20 marks and a minimum of 08 marks is required for passing students should submit a project report of at least fire pages in writing to the concerned teacher for Internal Eraluation.

List of Reference Books

1) Chris Cooper and Fletcher, Tourism : Principles and Practices.

2) S. Wahab, Tourism Marketing.

3) James W. Morrison, Travel Agent and Tourism.

4) John Bakewell, The Complete Traveler.

5) Edword D. Mill's, Design for Holiday's and Tourism.

6) A. K. Bhatia, Tourism :Principles.

7) Dougles Pierce, Tourism Today : a Geographical Analysis.

8) Mujumdar R. C. (Gen. Ed.) for Arts Architecture Culture, Bhrartiya Vidya Bhavan's All Volumes on Indian History, Mumbai,1988

Paper XIII:- Linux

Objectives:-

Students will try to learn:

1. To introduce Basic Linux general purpose Commands
2. To learn different editor
3. To learn shell script concepts.
4. To learn file management and permission advance commands.
5. To learn awk, grap, perl scripts.

Unit 1: Introduction of Linux:- (10)

History of Linux, Architecture of Linux system & features, Kernel, Shell & its type, Difference between Windows and Linux. Linux Distributions, Working environments: KDE, GNOME, Xface4, Hardware requirement, Installation procedure of Linux, Create partitions, Configuration of X system Users & Groups Management:- Create Users, Create groups, Special groups, Assigning permissions to users and Groups, File and Directory permissions- chmod, chown, chgrp.

Linux File System:-Hierarchy of File system, File System parts- Boot Block, Super Block, Inode Block, Data Block, File types, Devices and Drives in Linux, Mounting devices (CD/DVD, usb, hard drive partition), file system

Unit 2: Linux Command (15)

Linux commands File and directory Management Commands:-mkdir, rmdir, cd and pwd, file, ls, cat, more, less, File and Directory Operations: find, cp, mv, rm, ln etc, Printing the files - lpr, lpq, lprm etc.

Filter Commands & Editor:- Filters: head, tail , pr, cut, paste, sort, uniq, tr, grep, egrep, fgrep, sed.

Communication commands:- mesg, talk, write, wall, mail.

Text Editors- vi, vim, Archive and File compression commands

Shell Programming:- Shell Variables, Meta characters, Shell Scripts – Control and Loop structure, I/O and Redirection, Piping,

Unit 3: Linux System Management (10)

Process Management: Shell process, Parent and children, Process status, System process, Multiple jobs in background and foreground, Changing process priority with nice. Listing processes, ps, kill, premature termination of process.

Disk management and System Administration:-Disk Partitioning- RAID, LVM etc., disk related Management Tools- Fdisk, Parted etc. , Boot Loaders- GRUB, LILO, Custom Loaders

Unit 4:-Linux System and Network Administration (10)

System administration – Role of system administrator, identifying administrative tasks & files, Configuration and log files, Chkconfig, Security Enhanced Linux, Installing and removing packages with rpm command

Understanding various Servers:- DHCP, DNS, Squid, Apache, Telnet, FTP, Samba.

Outcomes:-

Students will be able to:

1. Identify the basic Linux general purpose commands.
2. Apply and change the ownership and file permissions using advance Linux commands.
3. Use the awk, grep, perl scripts.
4. Implement shell scripts.
5. Apply basic of administrative task.

Reference Books :

1. Official Red Hat Linux Users guide by Redhat, Wiley Dreamtech India
2. UNIX for programmers and users by Graham Glass & King Ables, Pearson Education
3. Beginning Linux Programming by Neil Mathew & Richard Stones, Wiley Dreamtech India
4. Red Hat Linux Bible by Cristopher Negus, Wiley Dreamtech India
5. UNIX Shell Programming by Yeswant Kanethkar, BPB

विषय : मराठी

बी.ए. भाग तीन सत्र सहा

(कौशल्यावर आधारित आवश्यक अभ्यासपत्रिका CBCS)

मराठी भाषा : संभाषण व लेखन कौशल्ये

गुण ४०

उद्दिष्ट्ये :

१. विद्यार्थ्याचे व्यक्तिमत्व भाषिकदृष्ट्या प्रगल्भ व विकसित करणे.

२. मराठीतील भाषिक कौशल्ये समजून घेणे.

३. विद्यार्थ्यांना संभाषण कौशल्य आत्मसात करण्यास प्रवृत्त करणे.

४. लेखन कौशल्याचे व्यावसायिक महत्त्व समजून घेणे.

५. मराठीतील भाषिक कौशल्यावर आधारित अर्थाजनाच्या संधी लक्षात घेणे.

अ.क्र.	घटक	तासिका	श्रेयांक	गुण
१.	**संभाषण कौशल्ये** अ) संभाषण (उच्चार, अनुस्वार, ऱ्हस्वदीर्घ, वर्णांचे उच्चार, स्वराघात) ब) औपचारिक संभाषण (महाविद्यालये व कार्यालयीन) क) अनौपचारिक संभाषण (वैयक्तिक व कौटुंबिक) ड) आधुनिक माध्यमांतील संभाषण (मोबाईल, झूम, गुगल मीट इ.)	१५	१	१०
२.	**वाचन कौशल्ये** अ) प्रगट वाचन (सस्वर, सुस्वर) ब) मुकवाचन (सखोलवाचन, संदर्भवाचन, विस्तृतवाचन, गतिवाचन) क) अभिवाचन (वाचनकृतीचे आकलन, उच्चारणसामर्थ्य) ड) वाचिक अभिनय (आवाज, आशयनुरूप संवाद)	१५	१	१०
३.	**भाषण कौशल्ये** अ) वक्तृत्व (पूर्वतयारी व प्रात्यक्षिक) ब) कथाकथन (संहिता व सादरीकरण)	१५	१	१०

	क) स्पर्धा परीक्षेतील मुलाखत (पूर्वतयारी व प्रात्यक्षिक) ड) प्रसारमाध्यमातील उद्घोषणा व निवेदन (माध्यमभान व तंत्रे)			
४.	**लेखन कौशल्ये** अ) हस्ताक्षर (अक्षर व सुलेखन) ब) पटकथा लेखन (प्रसंग व संवादलेखन) क) संगणकीय लेखन/भ्रमणध्वनीवरील लेखन (आज्ञावली - सॉफ्टवेयर व उपयोजन -ॲप) ड) प्रशासकीय लेखन (अर्ज व परिचयपत्र-बायोडेटा)	१५	१	१०
	एकूण	६०	०४	४०

संदर्भ ग्रंथ :

१. व्यावहारिक मराठी : ल.रा.नसिराबादकर, फडके प्रकाशन, कोल्हापूर.

२. मराठी भाषिक कौशल्य विकास : संपा. डॉ.पृथ्वीराज तौर, अथर्व पब्लिकेशन, जळगाव.

३. संभाषण चातुर्य : आशा परुळेकर, उन्मेष प्रकाशन, पुणे.

४. संभाषण चातुर्य : ह.अ.भावे, वरदा प्रकाशन,पुणे.

५. कला संभाषणाची : डॉ. नीलम ताटके, डायमंड पब्लिकेशन्स, पुणे.

६. वाचन : का व कसे ? : वा.शि.आपटे, वरदा प्रकाशन,पुणे.

७. वाचन कौशल्य : कृती,गती आणि प्रगती : मेघमाला राजगरू, उन्मेश प्रकाशन,पुणे.

८. वाचन विकास : अशोक इंगवले, इंद्रायणी साहित्य प्रकाशन,पुणे.

९. वाचन संस्कार : सतीश पोरे, पद्मगंधा प्रकाशन, पुणे.

१०.वाचनसंस्कृती : आक्षेप आणि अपेक्षा : नरेंद्र लांजेवार, विजय प्रकाशन, नागपूर.

११.लिहित्या लेखकाचं वाचन : विलास सारंग, शब्द पब्लिकेशन, मुंबई.

१२. वाचिक अभिनय : श्रीराम लागू, राजहंस प्रकाशन, पुणे.

१३. वक्तृत्व आणि संभाषण कौशल्य : श्रुतीश्री वडगबाळकर, सुविद्या प्रकाशन, सोलापूर.

१४. कथाकथनाची कथा : व.पु.काळे, मेहता पब्लिशिंग हाऊस, पुणे.

१५. कथा आणि कथाकथन : राजा मंगळवेढेकर, मंजुल प्रकाशन, पुणे.

१६. मुलाखंत : तंत्र व साधना : उद्धव हरिभाऊ कोळपे, संस्कृती प्रकाशन, लातूर.

१७. हस्ताक्षर विकास : द.दा.जोशी, नीलकंठ प्रकाशन, पुणे.
१८. मराठी चित्रपटाची पटकथा : अनिल सकपाळ, प्रतिमा प्रकाशन, पुणे.
१९. मराठी साहित्य आणि चित्र पटकथा (१९१३ ते २०१३) : प्रवीण नारायण महाजन, माय बुक पब्लिकेशन,नवी दिल्ली.
२०. सुंदर हस्ताक्षर कसे काढावे ? : सुभाष जमदाडे, मनोविकास प्रकाशन, पुणे.
२१. भाषिक सर्जन आणि उपयोजन - संपादक राजन गवस, अरुण शिंदे, गोमटेश्वर पाटील, दर्या प्रकाशन, पुणे.
२२. उपयोजित मराठी - शंकरानंद येडले, संस्कार प्रकाशन, लातूर.
२३. उपयोजित मराठी - डॉ. संजय लांडगे, दिलीपराज प्रकाशन, पुणे.
२४. स्पर्धा परीक्षा संपूर्ण मार्गदर्शक - डॉ. आनंद पाटील, स्टडी सर्कल पब्लिकेशन,पुणे.
२५. संगणकाचे अंतरंग : चंद्रसेन टिळेकर, दिलीपराज प्रकाशन, पुणे.

एम. ए. भाग दोन - सत्र चार

कौशल्यावर आधारित अभ्यासपत्रिका (Skill Based)

मुद्रितशोधन व ग्रंथ प्रकाशन कौशल्ये

उद्दिष्ट्ये

1.मुद्रितशोधन व ग्रंथ प्रकाशन ही कौशल्ये आत्मसात करणे.
2. लेखनविषयक नियम व मुद्रितशोधन यांची उपयुक्तता समजावून घेणे.
3. मुद्रितशोधन कौशल्य उपयोजनाची विविध क्षेत्रे अवगत करून घेणे.
4. ग्रंथनिर्मिती प्रक्रिया समजून घेणे.

अ. क्र.	घटक	तासिका	श्रेयांक	गुण
विभाग१. Module 1	**मुद्रितशोधन व लेखनविषयक नियम :** अ) प्रमाणलेखनाची आवश्यकता ब) प्रमाणलेखन विषयक नियम क) मराठी विरामचिन्हांचा परिचय	१५	१	२०
विभाग २. Module 2	**मुद्रितशोधन : स्वरूप व महत्त्व** अ) मुद्रितशोधनाचे स्वरूप व मुद्रितशोधनाच्या खुणा ब) मुद्रितशोधन : उपयोजनाची विविध क्षेत्रे क) प्रात्यक्षिक	१५	१	२०
विभाग ३. Module 3	**प्रकाशन व्यवहार** अ) ग्रंथप्रकाशनासाठीचे आवश्यक गुण ब) ग्रंथ प्रकाशन संस्था : स्वरूप व कार्यप्रणाली क) स्वामित्व हक्क कायदा(कॉपीराईट ॲक्ट)	१५	१	२०
विभाग ४. Module 4	**ग्रंथनिर्मिती प्रक्रिया** अ) ग्रंथनिर्मिती प्रक्रियेतील विविध टप्पे ब) संपादकीय संस्कार क) प्रात्यक्षिक	१५	१	२०
	एकूण	६०	०४	८०

संदर्भग्रंथ :

1. मराठी लेखन कोश - अरुण फडके, केशव भिकाजी ढवळे प्रकाशन, पुणे,२००१
2. मराठी लेखन मार्गदर्शिका - यास्मिन शेख, राज्य मराठी विकास संस्था, मुंबई. २०१७
3.मराठीच्या प्रमाण भाषेचे स्वरूप, कॉन्टिनेन्टल, पुणे, १९८३
4.मराठी व्याकरण - लीला गोविलकर,मेहतापब्लिकेशन,पुणे,१९९३
5.सुगम मराठी व्याकरण व लेखन - मो. रा. वाळिंबे, नितिन प्रकाशन,पुणे २०१७ (५३ वी आवृत्ती)
6.सुलभ मराठी व्याकरण व लेखन - पद्मिनी बिनिवाले, नवनीत, मुंबई,
7. शुद्धलेखन नियमावली- भाषा संचालनालय, महाराष्ट्र शासन, मुंबई,१९८७
8. मराठी शुद्धलेखन प्रदीप - मो.रा. वाळंबे, नितीन प्रकाशन, पुणे
9. व्यावहारिक मराठी - ल. रा. नसिराबादकर, फडके प्रकाशन, कोल्हापूर, २००८.
10. ग्रंथ व्यवहार - दशा आणि दिशा, अनिल कुलकर्णी,साहित्य चपराक, पुणे,२०१७.
11. प्रकाशन व्यवसाय परिचय, शरद गोगटे,अखिल भारतीय मराठी प्रकाशक संघ,पुणे
12. मराठी ग्रंथ प्रकाशनाची 200 वर्ष, शरद गोगटे, राजहंस प्रकाशन, पुणे, २००८.
13. ग्रंथव्यवहार, अ. ह. लिमये, व्हीनस प्रकाशन, पुणे, १९५२.
14.पॉप्युलर रीतिपुस्तक,रामदास भटकळ, मृदुला जोशी, पॉप्युलर प्रकाशन, पुणे.२०१५.
15. प्रकाशन व्यवहार आणि संपादन, उज्ज्वला भोर, प्रशांत पब्लिकेशन, जळगाव, २०२०.

PAH SOLAPUR UNIVERSITY, SOLAPUR

Skill Enhancement Course

Fermentation Technology

SYLLABUS

For B.Sc III

Skill Enhancement Course (SEC)

Introduction: -

Solapur district is known for the production of fruits like Grapes, Pomegranate and sugarcane. One of the emerging agro based industry is the Fermentation industry. Fermented food products are part and partial of our daily. Recently, farmers have realized this fact and Government has also taken initiatives by relaxing the taxation and certification rules for the Industries. In future large number of expertise is likely to be required in this area. In order to meet this requirement of skilled expertise the **Skill Enhancement Course** in Fermentation Technology is proposed to be started as a part of B Sc. Microbiology course.

Objective of the course

1.To provide the knowledge of basic principle of fermentation process, which help students to design, develop and operate industrial level fermentation process.

2.To develop skills of the students in the area of downstream processing

3.To impart basic knowledge of quality control and good manufacturing practices in industries

4. To equip the students to pursue higher studies.

5. To prepare the student for an eventual job in industry.

The **Skill Enhancement Course** in fermentation Technology provides platform for job opportunities in exciting fields of fermentation industry. This course has to be completed along with the degree course.

B.Sc. III-Microbiology (Semester-V)

w. e. f. June 2021

[Credits -4, Total Lectures-60(theory 30+practical 30)]

Title :SEC: **Fermentation Technology**

SEC	Fermentation Technology	Total30 lectures
UNIT I	Definition and Scope of Industrial Microbiology. Basic Concepts of Fermentations. a) Fermentations Introductions b) Fermenter design - parts & their functions c) Types of fermenter - batch, Continuous, Dual and Multiple d) Design of fermentation media- water, carbon and nitrogen source, Growth factors, precursors, aeration and antifoam agents. e) Factors affecting fermentation process.	05
UNIT II	Selection & Preservation of Industrial microorganisms a) Primary and Secondary Screening b) Strain Improvement c) Scale up of Fermentation d) Preservation of Industrially important microorganisms e) Microbiological assays	05
UNIT III	Specific Fermentations a.Penicillin b.Amylase c.Vinegar d.Vit B 12 Production of SCP,biogas,biofertilizers,biopesticides	11
UNIT IV	1. Recovery of Fermentation product, Criteria for method selection,Methods-Filteration, Centrifugation,Drying, Crystallization, Solvent extraction etc. 2.-Quality control of Health Care Products,Testing for Sterility,Toxicity, Pyrogenesity,Allergy,Catcinogenesity. 3-Good Manufacturing Practices-General requirements,GMP 10-Principles,GMP Categories.	09

SEC	PRACTICAL COURSE total 30 practical lectures
	1. Sterility testing of dry powder by direct inoculation on Soyabean casein digest medium
	2. Sterility testing of media
	3.Bioassay of Vitamin B12
	4.Bioassay of Penicillin
	5. Screening of antibiotic producers
	6. Estimation of alcohol by using K2Cr207
	7. Thin layer chromatography
	8. Demonstration of crude recovery of amylase enzyme
	9. Immobilization of enzyme by using Sodium alginate.
	10.Preservation of industrially important microorganisms

References:

1. Stanbury P.F., Whitaker A., Hall S.J.,(1997) Principles of fermentation technology. 2nd ED, Aditya books(P) Ltd, New Delhi.

2. El-mansi E.M.T., Bryce C.F.A., Demain A.L., Allman A.R., (2009) Fermentation microbiology and biotechnology, 2nd ED,CRC Press.

3. Crueger W. and Crueger A. (2003) Biotechnology: A textbook of industrial microbiology, 2nd ED, Panima publishing corporation, New delhi.

4. Bailey J. S. and Bhatia S.C. (2009) Biochemical engineering. Vol – 1&2. CBS publishers & distributors, India.

5. Reed, G.(1981) Prescott and Dunn's Industrial Microbiology. Chapman & Hall.

SKILL DEVELOPMENT COURSE

SYLLABUS

Course : Skill Development Course on Alcoholic Beverages Technology

Subject: - Microbiology

Class: - M.Sc. II

Department of Microbiology
D.B.F. Dayanand College of Arts and Science,
Solapur
Academic Year-2021-22

Skill Development Course

- **Title of the Course: Skill Development Course on Alcoholic Beverages Technology**
- **Class: - M.Sc. II**
- **Subject: - Microbiology**
- **Introduction:**

This course provides an overview of Alcoholic beverages and their production through the process of fermentation. The industrial alcoholic beverages field has experienced a burst of innovations encompassing applications of novel technologies for enhancing quality and shelf-life. The course structure is basic science-centric where students learn Fermentation Technology and are taught the necessary fundamental subject for that purpose.

- **Objectives of the course:**

The objectives of Skill Development Course of Alcoholic Beverages Technology for M.Sc. II Microbiology students are:

1) To impart knowledge concerning the subject and its practicable applicability.
2) To enhance understanding of basic and advanced concepts in industrial microbiology.
3) To develop an awareness of various emerging areas of Fermentation Technology.
4) To train the students for further studies helping in their bright career in the subject.
5) To expose the students to different processes used in industries and research fields.
6) To develop their ability to apply the knowledge of microbiology in day-to-day life.
7) To prepare the students to accept the challenges in life sciences.
8) To make students skillful to work in various industries.

- **Course outcome and Advantages:**

1) After completing the course students will be familiarized the with necessary beverages techniques and various tools used in Industrial microbiology .
2) Student will have expertise in fermentation technology and will be ready to

experiments in the R and D department of specific industry.

3) Student will be confident and having advantage and extra skills in there resume for the future career

4) Fermentation Technology has tremendous job potential, students will get various job opportunites for example in winery as Wine maker and quality control officer in pharmaceutical industry.

5) The successful students will be able well trained to get various microbiology related job.

6) Trained students can opt entraprenurship in alcohol beverages technology.

Syllabus in details
(Contact Hours: - 65 (Theory 45L + Practical 20L) (Total Marks-100)

Course Structure

Theory Papers I :- Contact Hours 45 L

Practical course I:- Contact hours 20L

Industrial Visit/Project

Examination Pattern- Total 100 Marks

1) **Theory -50 Marks**
2) **Practical -30 Marks**
3) **Visit/Project- 20 Marks**

Theory Course

	Subject: - Alcoholic Beverages Technology	45 L
UNIT I	**Introduction** • Introduction to Enology • Wine, definition, and terminologies. • Types of wine • Chemical composition of Wine • Introduction to Vine • Viticulture: Introduction to viticulture, definition, and terminologies. • Wine producing regions of the World and different practices of winemaking and viticulture.	10
UNIT II	**Wine Making** • Vinification classification and classification based on chemical constituents. • Biochemistry of Wine production • General Production of Red Wine and White Wine. • Production of Sparkling wine • Production of fortified wine • Flow charts of Production of Red wine and white wine	12
UNIT III	**Production of Various types of wine and Wine Defects** • Production of Sparkling wine • Production of Fortified wine • Production of Sherry • Introduction to Wine Defects • Post-fermentation spoilage of wines: Microbial and Non-microbial spoilage of wines	12
UNIT IV	**Beer Production** • Beer – Definition • Composition of beer • Types of Beer • General production of Beer • Production of Lager beer and Ales Beer. • Flowchart for the production of Lager beer and Ales Beer	11

Practical Course

Alcoholic Beverage Technology Practicals

Sr. No.	Alcoholic Beverage Technology Practicals	20 L
1	Screening of microorganisms involved in alcoholic beverage production.	
2	Vital staining of yeast cultures with Methylene blue.	
3	Preparation and sterilization of Inoculum medium.	
4	Preparation and sterilization of Fermentation medium.	
5	Production of wine using grapes/ fruits/ jaggery.	
6	Determination of total yeast count microscopically during fermentation using call counting chamber.	
7	Estimation of total sugar after fermentation by DNSA method.	
8	Estimation of alcohol from fermented broth using $K_2Cr_2O_7$ method.	
9	Alcohol determination by specific gravity.	
10	Determination of tannins in wine.	
11	Principle and working of UV- Vis Spectrophotometer.	

Project / Study Visit

CERTIFICATE COURSE IN OPERATION THEATRE ASSISTANT

1. Duration of course :- One year
2. Eligibility :- 12th Pass (Any Faculty)
3. Medium of course:- Marathi
4. Course fee:- 5,000/-
5. Teaching Staff Qualification: - Surgeon, Anesthesiologist, and Microbiologist.
6. Examination Pattern

1. Theory Paper-I	80 Marks
2. Theory Paper-II	80 Marks
3. Theory Paper-III	80 Marks
4. Theory Paper-IV	80 Marks

7. Practical:- 80 Marks

1. Journal	40 Marks
2. Seminar/Conference	20 Marks
3. Computer Practical	20 Marks
4. Oral	20 Marks

8. Project Reports 100 Marks
9. Institute Eligibility to conduct course: - Institute should have Minimum 30 bedded working Hospital with well-equipped major and Minor operation theatre.

Paper I
Applied Anatomy & physiology

I) Applied Anatomy

Introduction of terms used

1. Organization of Human Body
2. Skin
3. Skeletal System
4. pulmonary System
5. Nervous System
6. Alimentary System
7. Unary System
8. Genital System
9. Cardio-Vascular System
10. Special areas in Anatomy
    a. Abdominal Wall
    b. Inguinal region
    c. Scalp
    d. Perianal region
    e. Palm
    f. Neck

II) Applied Physiology

1. Wound healing
2. Respiratory System
3. Cardio Vascular System
4. Liver
5. Kidneys
6. Nervous System
7. Blood Clotting Mechanism
8. Blood Transfusion
9. pregnancy

Paper – II

Microbiology & Pharmacology, Radiology, Pathology

1. Types of Microbes
2. Classification
3. Pathogenic & Non-Pathogenic Organisms
4. Organisms Inside the Human Body
5. Environmental Organisms
6. Effect of Organisms
7. Modes of growth of organisms
8. Pathology of Infection
9. Nosocomial Infection
10. Bacteriostatic & Bacteriocidal Agents
11. Disinfectants
12. Sterilization
13. Cleaning Sterilization & care of Rubber goods, Enamel wares, Instruments, Glasswares S.S. goods, Linen, Furniture, etc.
14. Cap, Mask, Scrubbing, Washing, Wearing of gown, gloves etc.
15. Setting of Drums, Autoclaving
16. Antibiotics

Paper III

Surgery & Operation Theatre Technique

I) Introduction to operations

1. What is Health?
2. What is Disease? –modalities of treat of Disease
3. What is operation?
4. What is the need for operation?
5. Types of Operation
6. Procedure of Operation

II) Design & contents of O.T.

1. What is Operation Theatre?
2. General Design of O.T.
3. Special Design & contents of O.T.
4. Introduction to Instruments, Equipments, Materials Lamps, Linen etc. in an O.T.
5. Details, Uses & Functioning of Instruments, Equipments etc. & Storage of them.

III) Sterilization

1. Technique
2. Equipments
3. Agents
4. Disinfection of O.T.

IV) Anesthesia

1. An Introduction
2. Types of anesthesia
3. Equipments, Materials, Drugs
4. Hazards

Paper – IV
Pre-operation Method

1. Preparation of Theater for Operation
2. Preparation of Patient for Operation
3. Preparation for Anesthesia
4. Duties of Nurses & Other Staff
5. Papers, Consent forms & Registers
6. Checking of drum, trolleys, Instruments before operation
7. Positions of the patient
8. Helping the Anesthetist for Induction
9. Setting & Trolley
10 Painting & Draping
11. Arranging the Instruments

I. The operation proper

1. Assisting the surgeon

II The Immediate Post-operation period

1. Post operation catheter, R.T, Tubes Fixations Dressing
2. Plastering
3. Helping the Anesthetist for bringing the patient out
4. Preservation of Specimens
5. Disposal of wastes
6. Special Instruments – special care
7. Preparation for next case.

III. Some special Cases

1. Management of Intra-Operative Emergencies
2. Preparation of some special trays e.g. – Venessection, Suturing I & D, Tracheostomy, etc

Practical Training One Year in following deport

1) Eye & ENT
2) General sun
3) Gynaec
4) Pediatric
5) Dental
6) Orthopedic

PUNYASHLOK AHILLYADEVI HOLKAR SOLAPUR UNIVERSITY,SOLAPUR

SKILL ORIENTED COURSE FOR

B.A. PROGRAMME

TITLE OF THE COURSE

CERTIFICATE COURS OF CRICKET COACHING

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

Skill Oriented Course w. e. f. 2021 - 22

Title of the Course: CERTIFICATE COURS OF CRICKET COACHING

- Eligibility of the course : **B.A. Semester - V**
- Total credit of the course : **04 Credit**
- Total marks of the course : **100 Marks**
- Weightage to practical work (marks) : **80 Marks**
- Weightage to Theory work (marks) : **20 Marks**
- Duration of the course : **12 weeks (60 Hours)**

Aim of the course: To develop the skillful Cricket training.

Learning Outcomes: After successful completion of this course, the students will be able to:

1) To develop highly skilled scholars in the field of Cricket.
2) To be sensitive about emerging issues in Cricket.
3) To develop in the students an inquiring mind & ability to understand the true nature and to solve the innermost questions of Cricket.
4) To provide opportunity for creativity, self-expression & provide information oncontinued professional growth in Cricket.
5) To develop in the students an inquiring mind & ability to employ reasoning, rational thinking, critical thinking in the problems & issues relating to the Cricket.
6) To master the competencies and skills needed to become professional Cricket resource person.

- **Course Content:**
- **Module 01: History of Cricket**
  - History of Cricket.
  - Preparation of Cricket Ground.
  - Measurement of Cricket Ground.

Module 02: Cricket ground Measurement.

a) Warm up Exercise
b) Specific cricket Exercise.
c) Psychology Preparation of Cricket Player.
d) Basic skill of cricket.
e) Advance skill of cricket.
f) Top performers skill of cricket.

Module 03:

a) Training Program of Batsman.
b) Training Program of Bowling.
c) Training Program of Wicket keeper.
d) Training Program of Fielder.
e) Balance diet for cricket player.

Module 04: Officiating of Cricket

a) Low of Test, One day, Twenty- twenty Cricket Match.
b) Officiating of Cricket
c) Organization of State, District, Taluka, College, school and Club etc. Cricket Tournament..
d) First aid

List of the Practical Tests: Teacher educator for implementation of the skill-oriented course uses following Test.

Sr. No.	Verbal / Non verbal Tests	Performance Tests
01	Specific Cricket Exercises	Observation
02	Ground Marking	Observation
03	Rules	Question Answer
04	All Cricket Skills	Observation
05	Officiating	Observation

Teacher educator also may be uses different psychology tests as per availability. This list is just for reference.

Course Lay out

Week	Content	Place	Hours
Week 01	History of Cricket. Preparation of cricket Ground. Cricket ground measurement	Classroom	05
Week 02	War map Exercises Specific Cricket Exercises	Cricket Ground	05
Week 03	Batting Skill Grip, Stance ,Front Foot, Defense , Drives	Cricket Ground	05
Week 04	Bating Skill Back Foot, Defense , Drives ,Cut Shout	Cricket Ground	05
Week 05	Bowling Fast :- Grip , run up ,Jump, in swing , Out swing	Cricket Ground	05
Week 06	Bowling Spin: - off, leg. goggle	Cricket Ground	05
Week 07	Fielding :- Different all Position.	Cricket Ground	05
Week 08	Wicket keeping skill For Spin and Fast Bowling	Cricket Ground	05
Week 09	Officiating	Cricket Ground / Class room	05

Week 10	Low of Cricket A District , Tal uka, College,school and Club Tournament of Cricket.	Cricket Ground	05

Week 11	• Practice and revision of administration & assessment of tests under the supervision of educator. • Evaluation Process includes: 1. Practical Activity	Cricket Ground	05
Week 12	• Evaluation Process includes: 2. Practical Activity 3. Viva Voce	Cricket Ground	05
	• Theory Test or exam	Classroom	

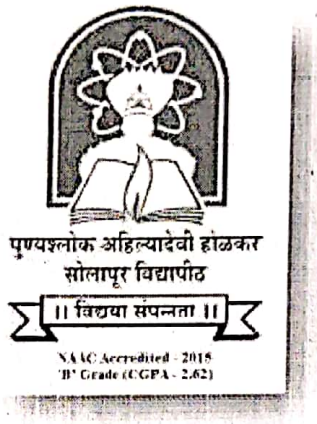
Evaluation system or process of the course:

Sr. No.	Course Nature	Particular	Marks
01	Theory course	MCQ test at the end of the course	20
02	Practical Activity evaluation	Verbal or Non-verbal Test Administration, Assessment (any Six test)	60
03	Practical Activity evaluation	Performance Test Administration, Assessment (any one test)	10
04	Viva Voce	Viva Voce related to Practical Activity	10
TOTAL MARKS			**100**

References:

- Hardayal singh (1984)Sport training general theory and methods Netaji subhs.Nat. inst. of Sports.
- Ferdinands, R. M. (2003). The effect of flexed elbow on the bowling speed in cricket . Journal of sports biomechanics , 65-71.
- Feros, S, A. (2015). The determinant and development of fast bowling performance in cricket . ballarat victoria: Federation University Australia .
- Khangure, B. C. (2002). Disk degeneration and fast bowling in cricket: An intervention study. Medicine & Science in Sports & Exercise , 1714-8
- Lee, A. (1980). Cricket. London: Hamlet Sports Special
- Max C Stuelcken "Successful cricket coaching the Aussie way" Australian Journal ofsports medicines. (2003)19-24
- Max C. Stuelcken "A Kinematic analysis of off side front foot drives in elite men cricket batting", Australian Journal of Sports Medicine(March 2001), p. 260 -270
- Tyagi, A. K. (2012). Cricket Skills & Rules. New Delhi: Khel Sahitya Kendra.
- Tyson, F. (1976). "Complete cricket coaching" in "the biomechanics of fast bowling in men's cricket: A review. Chicago

Head,
Department of Physical Education, BARSI.



PUNYASHLOK AHILLYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

SKILL ORIENTED COURSE FOR B.A. PROGRAMME

TITLE OF THE COURSE

CERTIFICATE COURS OF GYM INSTRUCTOR

Module 02: Nutrition and Biomechanics

a) Nutrition

b) Lever

c) Motion

d) Force

e) Flexibility

Module 03: Physical fitness factors

a) Cardio vascular endurance

b) Muscular Strength

c) Muscular endurance

d) Exercise & diet

e) Flexibility

Module 04: Training and training methods

a) Definition of training and its Principles Load and Adaptation

b) Scheduling (Short term & long term training.

c) Training Methods

d) Fitness testing

List of the Practical Tests: Following test are used by teacher educator for implementation of the skill oriented course.

Sr. No.	Verbal / Non verbal Tests	Performance Tests
01	Student choice war map Exercises	Technical and Wright positions
02	Examiner choice war map Exercises	
03	Student choice Upper Body	
04	Examiner choice Upper Body	
05	Student choice Lower body	
06	Examiner choice Lower body	
07	Student choice Specific Exarches	
08	Examiner choice Specific Exarches	

Teacher educator also may be uses different psychology tests as per availability. This list is just for reference.

Course Lay out

Week	Content	Place	Hours
Week 01	Muscular System ,Cardio respiratory systems ,Injuries and their management., First aid., Rehabilitation and Therapeutic Modalities	Classroom	05
Week 02	Nutrition , Lever ,Motion ,Force ,Flexibility	Classroom	05
Week 03	Warming up and cooling down: • General exercise • Stretching exercise • Specific exercises • Conditioning exercises	Gym Hall	05
Week 04	Exercises , Basic Concept,	Gym Hall	05
Week 05	Squat , Banch Press Incline Bench Press	Gym Hall	05
Week 06	Hammer Strength Machine , Various training methods for fitness	Gym Hall	05
Week 07	Training Programmer ,Dumbbells	Gym Hall	05
Week 08	Pull-up Bar Abdominal Bench / Sit –up ench Daily Analysis, Measurement and Record of athlete	Gym Hall	05
Week 09	Cardio vascular endurance, Muscular Strength, Muscular endurance, Exercise & diet , Flexibility	Classroom	05
Week 10	Definition of training and its Principles Load and Adaptation ,	Classroom	05

	Scheduling (Short term & long term training. Training Methods ,Fitness testing		
Week 11	• Practice and revision of administration & assessment of tests under the supervision of educator. • Evaluation Process includes: 1. Practical Activity	Classroom	05
Week 12	• Evaluation Process includes: 2. Practical Activity 3. Viva Voce	Educational Yoga Laboratory	05
	• Theory Test or exam	Classroom	

Evaluation system or process of the course:

Sr. No.	Course Nature	Particular	Marks
01	Theory course	MCQ test at the end of the course	20
02	Practical Activity evaluation	Verbal or Non-verbal Test Administration, Assessment (any Six test)	60
03	Practical Activity evaluation	Performance Test Administration, Assessment (any one test)	10
04	Viva Voce	Viva Voce related to Practical Activity	10
TOTAL MARKS			**100**

References:

- Basic Weight Training for Men and Women Thomas D. Fahey
- Concepts of Athletic Training Pfeiffier Mangus.
- Nutrition and Diet Therapy Lutz and Przytulshi
- Sport Training Principles Frank W. Dick .
- Strength Training and Conditioning R. A. Proctor

Shri Shivaji Mahavidyalaya, Barsi (Solapur) BARSI 413411

Head,
Department of Physical Education, BARSI.

Shri Shivaji Mahavidyalaya, Barshi

Department of Physics

Carrier oriented Program
On
Electrocardiogram
Marks: - 100

Syllabus	Periods (Total=40)
Chapter:1 Introduction to Electrocardiogram (ECG, EKG); History of Electrocardiogram; Cardiac Electrical Activity: ECG (Electrocardiogram); Anatomic orientation of heart; Cardiac cycle; Cardiac impulse formation & Conduction; Recording long axis cardiac electrical activity; Recording short axis cardiac electrical activity;	7
Chapter:2 Circuits and Units: Simple electron theory of conductions; Resistance; The Joule; The watt; Properties of electric charge; Capacitor; Electronic potential/potential difference (PD); Type of AC/DC; and Basics of AC Circuits	7
Chapter:3 Electro Magnetism: Magnetism/ Electro Magnetism/Electromagnetic Induction; Magnetic poles/ fields/ flux and influx density; Magnetic field due to a straight and circular coil wire; Relationship of the electrocardiogram to the electrical events of the heart; Relationship of the electrical events to the mechanical events of the cardiac cycle; Waveform components (P, Q, R, S, T and U); Definitions and normal ranges of PR interval and QRS duration; Measurement of QT interval and calculation of corrected QT interval (QTc) by Bazett's formula; Calculation of the heart rate from the electrocardiogram	10
Chapter:4 ECG Diagnosis: Complete heart block; Left bundle branch block; Right bundle branch block; Ventricular fibrillation; Atrial fibrillation;	6
Practical Laboratory	10

Head
Dept.of Physics (Sr.)
Shri Shivaji Mahavidyalaya,Barshi

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Political Science

M.A. Part II

Skill Enhancement Course

Political Process and Journalism

Class – 4 Hours / week **Credits – 4**

Course Objective / Outcome:

This course will introduce the students to the role of media in the context of Indian political process. Right to communication is now seen as a fundamental right. The main goal of this syllabus is to acquaint the students with media and help them acquire media skills.

Unit I Journalism: Definition, Nature & Scope

Unit II Journalists and their characteristics, Duties, Rights and Responsibility

Unit III Politics and election- Nature of political news, Sources of political news, election news etc.

Unit IV Right to information and Panchayat Raj

Reference Books:

1) पाधे प्रभाकर, (अुन. प्र.ना. परांजपे) , पत्रकारीतेची मुलतत्त्वे, १९९१

2) पवार सुधाकर, वृतपत्र व्यवसाय-काल आणि आज, १९८६

3) ताम्हाणे चंद्रकांत, वार्तासंकलन, पॉप्युलर प्रकाशन, मुंबई.

4) धारुरकर वि.ल., आजकालची पत्रकारीता, चैतन्य प्रकाशन, औरंगाबाद.

5) धारुरकर वि.ल., जनसंवाद सिद्धांत, चैतन्य प्रकाशन, औरंगाबाद.

6) डोळे जयदेव, समाचार-अर्थात प्रसारमाध्यमांची झाडाझडती, लोकवाड.मय गृह, मुंबई.

7) माळी सुनिल, बातमीदारी, राजहंस प्रकाशन, पुणे.

8) कदम प्रशांत, पंचायतराज, ग्रामीण व नागरी स्थानिक शासनसंस्था, टाटा मेघ्राहील, दिल्ली.

9) बिरमल नितिन व पवार वैशाली, महाराष्ट्रातील पंचायतरजा संस्था, डायमंड पब्लिकेशन, पुणे.

10) डॉ. रसाळ रविंद्र, वृतपत्र प्रसार: साक्षरता आणि ग्रामीण विकास, पुणे, १९९७, दास्ताने रामचंद्र अँड कंपणी.

11) K. M. Shrivastave, News Reporting and Editing, 1987, Sterling Publishers, New Delhi.

12) Right to information act, 2005

CBCS Pattern Syllabus: SEC 3
B.Sc. III (Statistics) Semester-V
MS-EXCEL

- ## Course outcomes

1. To enable student to understand importance of MS-Excel in day-to-day life.
2. To motivate student to judiciously use MS-Excel for facilitation for their own development and development of the society.
3. To help student to construct knowledge using MS-Excel and become a lifelong learner.
4. To empower student to become responsible citizens of the modern technology-based world.

Unit -1 Microsoft Excel: Introduction to MS-EXCEL. (5)

Unit-2 Data manipulation using EXCEL: sort and filter, find and replace,

text to columns. (06)

Unit-3 Charts and Diagrams (10)

Unit-4 Built-in mathematical and statistical functions for obtaining descriptive statistics, computing PMF/PDF, CDF and quantiles of the well-known distributions, rand function (10)

Unit-5 Logical functions: if, true, false, and, or, not etc (06)

Unit-6 Excel add-ins: analysis tool pack. Pivot tables and charts. (08)

- **References:**

1. Help manual of EXCEL.

Punyashlok Ahilyadevi Holkar Solapur Vidyapith, Solapur

B.A. III - Music - Semester VI

CERTIFICATE COURSE IN SUGAM SANGEET

Still Based Course/Add on Course

गुण 40 + 10 = 50

Theory				
अ.क्र	**घटक**	**तासिका**	**श्रेयांक**	**गुण**
1.	सांगीतिक परिभाषा स्वर, ताल, लय, आरोह, अवरोह, राग इ.	15	1	10
2.	अ) सुगम संगीत - वैशिष्ट्ये ताल, शब्द व स्वर, भावना इ. ब) गीतप्रकार – भावगीत, भक्तीगीत, अभंग क) खालील गीतकार, संगीतकार, गायक यांच्या योगदानाबाबत माहिती घेणे गीतकार - सुधीर मोघे, मंगेश पाडगावकर संगीतकार - सुधीर फडके, हृदयनाथ मंगेशकर गायक - लता मंगेशकर, सुरेश वाडकर	15	1	10
Practical				
3.	राग भूप, यमन - शास्त्रीय माहिती व सरगमगीत ताल - शास्त्रीय माहिती - दादरा, केरवा, भजनी, त्रिताल	15	1	10
4.	अ) सुगम संगीत - गीतप्रकार सादरीकरण (कोणतेही दोन) भक्तीगीत, भावगीत, अभंग, समूहगीत, प्रार्थना, स्फुर्तीगीत, बालगीत, चित्रपटगीत इ. ब) वाचिक व गेय कविता याबाबत माहिती उदाहरणासह क) सुगम संगीतातील वाद्ये Internal assignment	15	1	10 10

उद्दीष्ट्ये -

1) सुगम संगीतातील सादरीकरणाबाबत विविध गीतप्रकारांची ओळख होणे.

2) कविता व गीत यांचा अभ्यास करून पद, छंद याबाबत माहिती होणे.

3) साहित्य व संगीत अनुबंध, विविध कविता, छंदप्रकार याबाबत ओळख आवश्यक आहे.

4) सादरीकरणातील व्यावसायिक महत्त्व समजावून घेणे.

मुल्यमापन पद्धती -

सदर अभ्यासक्रमासाठी विद्यापीठ परीक्षा 40 गुणांची असेल. यामध्ये 20 गुण शास्त्र (Theory) किमान गुण 08 व 20 गुण क्रियात्मक (Practical) किमान गुण 08 आहेत. प्रश्नपत्रिकेचे स्वरूप व उत्तिर्णतेचा निकष बी. ए. भाग 3 सत्र 6 साठी असणाऱ्या अन्य

विषयांप्रमाणे असेल. शास्त्र व क्रियात्मक परीक्षा (20 गुण) उत्तिर्णतेसाठी किमान 08 गुण मिळविणे आवश्यक आहे. अंतर्गत मूल्यमापन 10 गुणांसाठी असून उत्तिर्णतेसाठी किमान 4 गुण मिळविणे आवश्यक आहे.

परीक्षापद्धती -

क्रियात्मक परीक्षा - 20 गुण

सदर परीक्षेसाठी अंतर्गत परीक्षक व बहिस्थ परीक्षक विद्यापीठा तर्फे नेमणे आवश्यक आहे. प्रत्येक विद्यार्थ्यासाठी परीक्षा कालावधी किमान 10 मिनीटे असावा.

Add On Course

Name of the add on course

Skill Based Course

SURVEY AND PUBLIC OPINION

Lecture 45-Project/Report work-15 **Credits – 4**

Course Objective / Outcome:

This course will introduce the students to the principles and practices of public opinion in the context of Indian democracy. It will familiarize the students with how to conceptualize and measure public opinion using quantitative methods. It will develop basic skills relating to the data collection, data analysis and data utilization.

Unit I

Public Opinion: Meaning and Features. Public Opinion and Democracy

Unit II

Representation and Sampling a) Sample- Meaning and Use, Types of Samples

Unit III

Understanding Interview techniques and Questionnaire

Unit IV

Quantitative Data: Meaning, Analysis and Interpretation

Reference Books:

1) Gallup G., (1948) A Guide to Public Opinion Polls, Princeton: Princeton University Press Kalton, (1983) Introduction to Survey Sampling Beverly Hills, Sage Publication.
2) Lokniti Team, (2004) 'National Election Study 2004', Economic and Political Weekly, Vol. XXXIX (51).
3) Karandikar R., C. Pyne and Y Yadav, (2002) 'Predicting the1998 Indian Parliamentary Elections', Electoral Studies, Vol. 21
4) Erikson R. and K.Tedin, (2011), American Public Opinion, 8th edition, New York, Pearson Longman Publishers.

श्री शिवाजी महाविद्यालय बार्शी

हिंदी विभाग

एवं

अहिल्यादेवी होलकर सोलापुर विश्वविद्यालय, सोलापुर

हिंदी अनुवाद प्रमाणपत्र पाठ्यक्रम

तासिका समय-सारणी 2020-21

समय	गुरुवार	शुक्रवार	शनिवार
04.00 से 05.00	प्रश्न पत्रक्र.1 वैद्य एस एच	प्रश्न पत्रक्र. 2 कांबले ए एस	प्रश्नपत्र क्र. 3 प्रोजेक्ट वैद्य एस एच
05.00 से 06.00	प्रश्न पत्र क्र.1 वैद्य एस एच	प्रश्न पत्र क्र.2 कांबले ए एस	प्रश्न पत्रक्र.3 प्रोजेक्ट वैद्य एस एच

सह-संयोजक
डॉ.श्रीराम वैद्य

संयोजक
डॉ.अर्चना कांबले
हिंदी विभागाध्यक्ष
श्री शिवाजी महाविद्यालय बार्शी

पुण्यश्लोक अहिल्यादेवी होळकर सोलापुर विश्वविद्यालय सोलापुर

एवं

श्री शिवाजी महाविद्यालय बार्शी

हिंदी विभाग

द्वारा संचालित

हिंदी अनुवाद प्रमाण-पत्रपाठ्यक्रम 2020-21

प्रश्नपत्रक्र.१

अनुवाद: सिद्धांत और प्रविधि

(Translation: Theory and Methodology)

अंक १००

प्रस्तावना / Introduction:-

विश्व के विचारों को एक धागे में पिरोने का कार्य अनुवाद ने किया है। दुनिया के एक कोने का ज्ञान दूसरे कोने तक पहुँचाने का कार्य अनुवाद के कारण हुआ है। इसलिए अनुवाद का महत्त्व बढ़ता जा रहा है। विश्व में कोई भी विचार, तकनिकी आवश्यकता निर्माण हो जाती है तो वह व्यक्ति उसको अन्य भाषिकों तक अनुवाद के माध्यम से पहुंचाता है। इसलिए अनुवाद के क्षेत्र विस्तार को देखते हुए उसमें रोजगार की संभावनाएँ कई गुना बढ़ गई है। इसलिए अनुवाद के विषय में छात्रों को जानना आवश्यक हो गया है। इसे केंद्र में रखते हुए यह पाठ्यक्रम रखा है।

पाठ्यक्रम के उद्देश्य / Course objective:-

1. छात्रों को अनुवाद के सैध्दांतिक पक्ष से परिचित कराना।
2. छात्रों को विभिन्न क्षेत्रों में कियेजानेवाले अनुवाद की जानकारी प्राप्त कराना।
3. छात्रों को अनुवाद की सामाजिक उपादेयता की जानकारी देना ।
4. छात्रों को अनुवाद के क्षेत्र में रोजगार से परिचित कराना।

पाठ्यक्रम सीखने के परिणाम / Course Learning Outcomes:-

1. छात्र अनुवाद के सैध्दांतिक पक्ष से परिचित होंगे।
2. छात्र विभिन्न क्षेत्रों में कियेजानेवाले अनुवाद से अवगत होंगे।
3. छात्र अनुवाद की सामाजिक उपादेयता से अवगत होंगे।
4. छात्र अनुवाद के क्षेत्र में रोजगार की संभावनाओं से अवगत होंगे।

शिक्षण अधिगम प्रक्रिया / Teaching Learning Process:-

1. कक्षा व्याख्यान
2. सामूहिक चर्चा

Head, Dept. Of Hindi
Shri Shivaji Mahavidyalaya, Barshi

पाठ्यक्रम

हिंदी अनुवाद प्रमाण-पत्र पाठ्यक्रम 2020-21

प्रश्नपत्र क्र. १

अनुवाद: सिद्धांत और प्रविधि

(Translation: Theory and Methodology)

इकाई I : अनुवाद स्वरूप। 15

I. अनुवाद का स्वरूप
II. अनुवाद: अर्थ, उत्पत्ति
III. अनुवाद: परिभाषा भारतीय एवं पाश्चात्य
IV. अनुवाद: विज्ञान, कला, कौशल्य।

इकाई: II अनुवाद प्रक्रिया। 15

I. स्रोत भाषा, लक्ष्य भाषा विवेचन।
II. अनुवाद प्रक्रिया के विविध सोपान।
III. अनुवाद प्रक्रिया विविध मत

इकाई III अनुवाद प्रकार। 15

I. प्रक्रिया के आधार पर
II. गद्य पद्य के आधार पर
III. विधा के आधार पर

इकाई:IV 15

I. अनुवाद के सहायक साधन कंप्यूटर
II. हिंदी की प्रयोजनीयता में अनुवाद की भूमिका
III. अनुवाद का महत्व

प्रश्न पत्र का स्वरूप एवं अंक विभाजन

प्रश्न-१ बहुविकल्पी २० प्रश्न (पूरे पाठ्यक्रम पर)।	२०
प्रश्न -२ लघुत्तरी प्रश्न (६ में से ४)	२०
प्रश्न-३ लघुत्तरी प्रश्न (४ में से २)।	२०
प्रश्न-४ दिर्घोत्तरी प्रश्न।	२०
प्रश्न-५ अनुवाद कार्य (मराठी से हिंदी)	२०

संदर्भ ग्रंथ-

1. अनुवाद विज्ञान- भोलानाथ तिवारी
2. अनुवाद प्रक्रिया- डॉ रीतारानी पालीवाल
3. अनुवाद सिद्धांत एवं प्रयोग- डॉ. जी गोपीनाथन।
4. अनुवाद सिद्धांत की रूपरेखा- डॉ. सुरेश कुमार
5. अनुवाद की नई परंपरा और आयाम- संपा. कृष्ण कुमार गोस्वामी।

Head, Dept.Of Hindi
Shri Shivaji Mahavidyalaya, Barshi

पुण्यश्लोक अहिल्यादेवी होळकर सोलापुर, विश्वविद्यालय, सोलापुर

एवं

श्री शिवाजी महाविद्यालय बार्शी

हिंदी विभाग

द्वारा संचालित

हिंदी अनुवाद प्रमाण-पत्र पाठ्यक्रम2020-21

प्रश्नपत्र क्र. २

व्यावहारिकअनुवाद: स्वरूप एवं समस्याएं।

अंक-१००

प्रस्तावना/ Introduction:-

अनुवाद विज्ञान भी है और कला भी। विश्व भर साहित्य आज अपनी भाषिक सीमा को तोड़कर दूसरी भाषा एवं प्रातों में बड़े चाव से पड़ा जा रहा है। इसमें अनुवाद की अहम भूमिका है। जिसके माध्यम से हम किसी भी भाषा में अभिव्यक्त विचारों को आसानी से पढ़ एवं समझ सकते हैं। ज्ञान-विज्ञान के क्षेत्र से लेकर आध्यात्मिक क्षेत्र में भी अनुवाद के माध्यम से भावनाओं का आदान-प्रदान आसानी से हो रहा है। इसका पूरा धेय अनुवाद को देना होगा। केवल मानवी अनुवाद ही नहीं बल्कि मशीनी अनुवाद में भी क्रांति हुई है। आप को जो भी जानकारी चाहिए वह एक क्लिक पर अनूदित रूप में मिल जाती है। किंतु इसकी भी अपनी सीमाएँ होती है। इस प्रश्नपत्र में छात्रों को अनुवाद के विभिन्न क्षेत्र की जानकारी के साथ-साथ वर्तमान परिस्थितियोंमें अनुवाद की स्थिति एवं गति का भी अध्ययन किया जाएगा।

पाठ्यक्रम के उद्देश्य/ Course objective

1. छात्रों को अनुवाद के विभिन्न आयामों की जानकारी देना।
2. छात्रों को साहित्यिक अनुवाद और साहित्येत्तर क्षेत्र के अनुवाद से अवगत कराना।
3. छात्रों को विज्ञान, प्रौद्योगिकी, कार्यालय तथा माध्यम क्षेत्र के अनुवाद के बारें में जानकारी देना।
4. छात्रों को मशीनी अनुवाद से अवगत कराना।
5. प्रत्यक्ष रूप में छात्रों से अनुवाद कराना।

पाठ्यक्रम सीखने के परिणाम / Course Learning Outcomes:-

१. अनुवाद के विभिन्न आयामों से छात्र परिचित होगें।

२. साहित्यिक और साहित्येत्तर क्षेत्र के अनुवाद से छात्र अवगत होंगे।

३. विज्ञान, प्रौद्योगिकी, कार्यालय तथा माध्यम क्षेत्र के अनुवाद के बारें छात्रों को जानकारी प्राप्त होंगी।

४. छात्रों को मशीनी अनुवाद की जानकारी प्राप्त होंगी।

५. छात्र साहित्यिक एवं साहित्येतर अनुवाद करने में सक्षम होंगे।

शिक्षण अधिगम प्रक्रिया / Teaching Learning Process:-

1. कक्षा व्याख्यान
2. सामूहिक चर्चा

Head, Dept. Of Hindi
Shri Shivaji Mahavidyalaya, Barshi

हिंदी अनुवाद प्रमाण-पत्र पाठ्यक्रम

प्रश्नपत्र क्र. २

व्यावहारिक अनुवाद: स्वरूप एवं समस्याएं।

इकाई १ अनुवाद के विविध क्षेत्र कार्यालयीन, तकनीकी, साहित्यिक, मानविकी, संचार माध्यम, विज्ञापन, वैज्ञानिक

I. अनुवाद के विविध क्षेत्र:- कार्यालयीन, तकनीकी, साहित्यिक,मानविकी, संचार माध्यम, विज्ञापन,वैज्ञानिक

II. अनुवादक के गुण

III. समतुल्यता सिद्धांत:- स्वरूप, परिभाषा, भेद (वाक्यस्तरीय, अर्थस्तरीय,संदर्भस्तरीय)

इकाई २

अनुवाद की समस्याएं

I. साहित्यिक अनुवाद की समस्याएं

II. कार्यालयीन अनुवाद की समस्याएं

III. विज्ञापन अनुवाद की समस्याएं

इकाई ३

अनुवाद समस्याएं

I. विधि साहित्य के अनुवाद की समस्याएं

II. वैज्ञानिक अनुवाद की समस्याएं

इकाई ४

अनुवाद के उपकरण

I. कोष

II. सूचियां

III. कंप्यूटर

IV. अन्य उपयोगी साधन .

V.

प्रश्न पत्र का स्वरूप एवं अंक विभाजन

प्रश्न-१ बहुविकल्पी 20 प्रश्न (पूरे पाठ्यक्रम पर)।	२०
प्रश्न -२ लघुत्तरी प्रश्न (६ में से ४)	२०
प्रश्न-३ लघुत्तरी प्रश्न ४ में से २)।	२०
प्रश्न-४ दिर्घोत्तरी प्रश्न।	२0
प्रश्न-५ अनुवाद कार्य	२०

संदर्भ ग्रंथ-

1. अनुवाद शिल्प समकालीन संदर्भ- डॉ. कुसुम अग्रवाल, साहित्य सहकार प्रकाशन नई दिल्ली
2. अनुवाद विज्ञान की भूमिका- डॉ कृष्ण कुमार गोस्वामी,राजकमल प्रकाशन नई दिल्ली
3. अनुवाद और उत्तर आधुनिक अवधारणाएं- डॉ.श्रीनारायण समीर,लोकभारती प्रकाशन नई दिल्ली
4. अनुवाद विज्ञान सिद्धांत एवं प्रविधि- भोलानाथ तिवारी,किताबघर प्रकाशन नई दिल्ली।
5. अनुवाद विविध आयाम कृष्ण कुमार गोस्वामी तथा चतुर्वेदीमा.गोकेंद्रीय हिंदी संस्थान आगरा।

Head, Dept.Of Hindi
Shri Shivaji Mahavidyalaya, Barshi

पुण्यश्लोक अहिल्यादेवी होळकर सोलापुर विश्वविद्यालय सोलापुर

एवं

श्री शिवाजी महाविद्यालय बार्शी

हिंदी विभाग

द्वारा संचालित

हिंदी अनुवाद प्रमाण-पत्र पाठ्यक्रम 2020-21

प्रश्नपत्र क्र. ३

अनुवाद परियोजना

(Translation Project)

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Head, Dept. Of Hindi
Shri Shivaji Mahavidyalaya, Barshi

Shri Shivaji Shikshan Prasarak Mandal, Barshi's

Shri Shivaji Mahavidyalaya, Barshi

Department of Physical Education And Sanskrit

Shri Shivaji Mahavidyalaya

Barshi And Shri Ambika Yoga

Kutir, Barshi.

Organics

Certificate course in Yoga

Syllabus

15th September to 15th October

Year- 2023-24

Certificate course in Yoga

Syllabus

Objectives

- **Student knows about yoga.**
- **Student Know the important of yoga in human life.**
- **Awareness of yoga for healthy life.**
- **Increased Flexibility**
- **Cardio and circulatory health.**

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2	**Yam and Niyam Introduction, Onkar and Surynamaskar** **Standing - Assan** Tadasana, Trikonasan, Garudasana, Ardha Chakrasana, Padahastasana Sury Tratak
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4	**Yam and Niyam Introduction, Onkar and Surynamaskar** **Back Position - Assan** Halasan, Matsyasana, Sarwangasan,Sethu bhadrasana, Shavasana,Bhrmmudra, Bindu (Point) Tratak

5	**Yam and Niyam Introduction, Onkar and Surynamaskar Pranayam** Kapalbhati,Anulom Vilom, BhrmariShitali ,Shitkari,Ujjayi pranayam , Singhamudra, Menbatti Tratak

Books Recommended

1 Asanas - Kavalayanada, Kaivalyadhama, Lonavala

2 Pranayama - Kuvalayananda, Kaivalyadhama, Lonavla.

3 योग अभ्यास म्.ल. घरोटे.

4.योगासन प्राणायाम करा निरोगी राहा. डॉ.पी.डी.शर्मा,गाला पब्लिकेशन

5.योगासने -राजा ऐनपुरे, आदर्श विध्यार्थी प्रकाशन पुणे.

Head,
Department of Physical
Education, BAMU.

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

SHRI SHIVAJI MAHAVIDYALYA BARSHI

DEPARTMENT OF ZOOLOGY

ADD ON COURSE SYLLABUS

B.Sc. III

w.e.f.2021-22

Vermicomposting Technology

Course Title: Vermicomposting Technology

Course Duration: 30 Hours (Lectures)

Course Description:

This course provides an in-depth understanding of vermicomposting technology, its principles, processes, benefits, and applications. Students will learn about the biology of earthworms, the design and management of vermicomposting systems, and the utilization of vermicompost in sustainable agriculture.

Course Objectives:

1. To understand the fundamentals of vermicomposting and its ecological significance.

2. To gain knowledge about the biology and ecology of composting earthworms.

3. To learn the methods and techniques of setting up and managing a vermicomposting system.

4. To explore the applications and benefits of vermicompost in agriculture and waste management.

**Course Outline: **

Module 1: Introduction to Vermicomposting (4 Hours)

Lecture 1: Overview of Vermicomposting Technology - Definition and history, importance and benefits, vermicomposting vs. traditional composting.

Lecture 2: Principles of Vermicomposting - Ecological principles, role in waste management, environmental impact.

Module 2: Biology of Earthworms (6 Hours)

Lecture 3: Earthworm Anatomy and Physiology - Structure and function, digestive, reproductive, and nervous systems.

Lecture 4: Types of Composting Earthworms - Common species used in vermicomposting, habitat and ecological preferences.

Lecture 5: Life Cycle and Reproduction of Earthworms - Reproduction process, life cycle stages, growth and development.

Module 3: Setting Up a Vermicomposting System (8 Hours)

Lecture 6: Designing a Vermicomposting Unit - Selection of site and container, bedding materials, ideal environmental conditions.

Lecture 7: Sourcing and Introducing Earthworms - Procurement and introduction, initial setup and monitoring.

Lecture 8: Feeding and Maintaining the System - Types of feedstock, feeding rates and schedules, maintenance and troubleshooting.

Lecture 9: Harvesting and Processing Vermicompost - Harvesting techniques, processing and curing, quality control and testing.

Module 4: Applications of Vermicompost (6 Hours)

Lecture 10: Vermicompost in Agriculture - Soil health and fertility, crop yield and quality.

Lecture 11: Vermicompost in Horticulture and Landscaping - Application methods, benefits to ornamental plants.

Lecture 12: Vermicompost in Waste Management - Organic waste reduction, integration with other waste management systems.

Module 5: Case Studies and Practical Applications (6 Hours)

Lecture 13: Successful Vermicomposting Projects - Case studies and success stories, lessons learned and best practices.

Lecture 14: Hands-on Demonstrations and Field Visits - Practical demonstrations, visits to vermicomposting sites.

Lecture 15: Project Work and Presentations - Student projects and presentations, discussion and feedback.

****Recommended Reading:****

1. "Vermiculture Technology: Earthworms, Organic Wastes, and Environmental Management" by Clive A. Edwards, Norman Q. Arancon, and Rhonda Sherman

2. "Earthworms in Waste and Environmental Management" by Clive A. Edwards and Edward F. Neuhauser

3. "The Worm Farmer's Handbook: Mid- to Large-Scale Vermicomposting for Farms, Businesses, Municipalities, Schools, and Institutions" by Rhonda Sherman

Practical Sessions: Vermicomposting Technology

Total Duration: 30 Hours

Practical 1: Introduction to Vermicomposting (2 Hours)

- **Objective:** Familiarize students with the basic concepts of vermicomposting.

- **Activities:**

  - Introduction to vermicomposting materials and equipment.

  - Demonstration of a small-scale vermicomposting unit.

  - Observation of different stages of the vermicomposting process.

Practical 2: Earthworm Identification and Handling (3 Hours)

- **Objective:** Learn to identify and handle different species of composting earthworms.

- **Activities:**

  - Identification of common species (e.g., Eisenia fetida, Lumbricus rubellus).

  - Handling and observing earthworm anatomy under a microscope.

  - Setting up and maintaining earthworm habitats.

Practical 3: Setting Up a Vermicomposting System (4 Hours)

- **Objective:** Learn to design and set up a vermicomposting system.

- **Activities:**

  - Selection of appropriate containers and bedding materials.

  - Setting up a vermicomposting bin.

  - Introduction of earthworms to the bin.

  - Initial monitoring of environmental conditions (temperature, moisture, pH).

Practical 4: Feeding and Maintenance (4 Hours)

- **Objective:** Understand the feeding habits and maintenance requirements of a vermicomposting system.

- **Activities:**

  - Preparation of different types of feedstock (kitchen waste, garden waste, paper).

  - Feeding earthworms and monitoring consumption rates.

  - Regular maintenance tasks (turning, moisture control, pH adjustment).

Practical 5: Monitoring and Troubleshooting (3 Hours)

- **Objective:** Develop skills in monitoring and troubleshooting vermicomposting systems.

- **Activities:**

  - Regular monitoring of bin conditions (moisture, temperature, odor).

  - Identifying and solving common problems (pests, odors, excess moisture).

  - Recording observations and data for analysis.

Practical 6: Harvesting Vermicompost (4 Hours)

- **Objective:** Learn the techniques for harvesting and processing vermicompost.

- **Activities:**

  - Techniques for separating earthworms from compost (light method, manual sorting).

  - Harvesting finished vermicompost.

  - Processing and curing vermicompost for use.

Practical 7: Quality Control and Testing (3 Hours)

- **Objective:** Conduct quality control tests on vermicompost.

- **Activities:**

  - Physical and chemical analysis of vermicompost (texture, color, pH, nutrient content).

  - Testing for contaminants and pathogens.

  - Comparing vermicompost quality with traditional compost.

Practical 8: Application of Vermicompost (4 Hours)

- **Objective:** Understand the practical applications of vermicompost in agriculture and horticulture.

- **Activities:**

  - Application of vermicompost in soil and potting mixes.

  - Evaluating plant growth responses to vermicompost.

  - Field visits to farms or gardens using vermicompost.

Head
Department of Zoology
Shri Shivaji Mahavidyalaya
Barsi Dist. Solapur

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

SHRI SHIVAJI MAHAVIDYALYA BARSHI

DEPARTMENT OF ZOOLOGY

ADD ON COURSE SYLLABUS

B.Sc. III

w.e.f.2021-22

SERICULTURE

Course Title: Sericulture Technology

Course Duration: 30 Hours (Lectures)

Course Description:

This course offers an in-depth study of sericulture technology, encompassing the biology of silkworms, the process of silk production, and the management of sericulture enterprises. Students will explore the scientific and practical aspects of sericulture, from silkworm breeding to silk processing.

Course Objectives:

1. To understand the biological and ecological aspects of silkworms.
2. To learn the techniques involved in silkworm rearing and silk production.
3. To gain knowledge of the management practices in sericulture.
4. To explore the economic and commercial aspects of the sericulture industry.

Course Outline:

Module 1: Introduction to Sericulture (4 Hours)

Lecture 1: Overview of Sericulture Technology - History and importance of sericulture, types of silk and silk-producing species.

Lecture 2: Principles of Sericulture - Ecological and economic significance, comparison with other textile fibers.

Module 2: Biology of Silkworms (6 Hours)

Lecture 3: Anatomy and Physiology of Silkworms - Structure and function, life cycle stages (egg, larva, pupa, adult).

Lecture 4: Silkworm Genetics and Breeding - Genetic principles, breeding techniques, hybrid vigor and its importance.

Lecture 5: Silkworm Diseases and Pest Management - Common diseases, pest control methods, integrated pest management strategies.

Module 3: Silkworm Rearing Techniques (8 Hours)

Lecture 6: Rearing House and Equipment - Design and construction of rearing houses, required equipment and materials.

Lecture 7: Rearing Practices - Rearing methods for different stages, environmental conditions, feeding and care.

Lecture 8: Harvesting and Processing Cocoons - Harvesting techniques, cocoon processing methods, quality control.

Lecture 9: Silk Reeling and Spinning - Reeling techniques, spinning methods, quality assessment of silk yarn.

Module 4: Sericulture Management (6 Hours)

Lecture 10: Mulberry Cultivation - Varieties of mulberry, cultivation practices, pest and disease management.

Lecture 11: Sericulture Economics - Cost analysis, marketing strategies, value addition in sericulture products.

Lecture 12: Government Schemes and Policies - Supportive schemes, policies for sericulture development, global scenario.

Module 5: Case Studies and Practical Applications (6 Hours)

Lecture 13: Successful Sericulture Projects - Case studies, best practices, innovative approaches.

Lecture 14: Hands-on Demonstrations and Field Visits - Practical demonstrations, visits to sericulture farms and research centers.

Lecture 15: Project Work and Presentations - Student projects and presentations, discussion and feedback.

****Recommended Reading:****

1. "Sericulture and Pest Management" by M. K. Dhawan and H. M. Bhardwaj

2. "Handbook of Practical Sericulture" by S. R. Ullal and M. N. Narasimhanna

3. "Silkworm Rearing: Procedures and Techniques" by M. Madan Mohan Rao

Practical Sessions: Sericulture Technology

Total Duration: 30 Hours

Practical 1: Introduction to Sericulture (2 Hours)

- **Objective:** Familiarize students with the basic concepts and equipment used in sericulture.
- **Activities:**
  - Overview of sericulture materials and equipment.
  - Demonstration of a small-scale sericulture setup.
  - Observation of the different stages of silk production.

Practical 2: Identification and Handling of Silkworms (3 Hours)

- **Objective:** Learn to identify and handle different species of silkworms.
- **Activities:**
  - Identification of common silkworm species (e.g., Bombyx mori).
  - Handling and observing silkworm anatomy under a microscope.
  - Maintaining silkworm habitats.

Practical 3: Silkworm Rearing Techniques (5 Hours)

- **Objective:** Learn the techniques involved in rearing silkworms.
- **Activities:**
  - Preparation of rearing houses and equipment.
  - Rearing practices for different life cycle stages (egg, larva, pupa, adult).
  - Feeding silkworms and monitoring their growth and development.
  - Environmental condition control (temperature, humidity).

Practical 4: Silkworm Breeding and Genetics (3 Hours)

- **Objective:** Understand the principles of silkworm breeding and genetics.
- **Activities:**
  - Silkworm breeding techniques.
  - Observation of genetic traits and hybrid vigor.
  - Recording breeding data and analyzing outcomes.

Practical 5: Disease and Pest Management (3 Hours)

- **Objective:** Learn to identify and manage common silkworm diseases and pests.
- **Activities:**

- Identification of common silkworm diseases and pests.
- Disease prevention and treatment methods.
- Pest control techniques and integrated pest management strategies.

Practical 6: Harvesting and Processing Cocoons (4 Hours)

- **Objective:** Learn the techniques for harvesting and processing cocoons.
- **Activities:**
  - Harvesting cocoons at the appropriate time.
  - Sorting and grading cocoons based on quality.
  - Processing cocoons to extract silk fibers.
  - Quality control and assessment of silk.

Practical 7: Silk Reeling and Spinning (4 Hours)

- **Objective:** Understand the processes involved in silk reeling and spinning.
- **Activities:**
  - Demonstration of silk reeling techniques.
  - Spinning silk fibers into threads.
  - Evaluating the quality of silk yarn.
  - Practical experience with reeling and spinning equipment.

Practical 8: Mulberry Cultivation (4 Hours)

- **Objective:** Learn the methods of mulberry cultivation and maintenance.
- **Activities:**
  - Identification of mulberry varieties suitable for sericulture.
  - Planting and cultivation techniques.
  - Pest and disease management in mulberry cultivation.
  - Harvesting mulberry leaves for silkworm feeding.

Head
Department of Zoology
Shri Shivaji Mahavidyalaya.
Barsi Dist. Solapur

- ✓ Review of Basic Concepts: Real Numbers, Order of Operations, Number Line, Absolute Value
- ✓ Review of Polynomials: Adding, Subtracting, Multiplying, Dividing, Synthetic Division, Factoring
- ✓ Review of Rational Expressions: Lowest Terms, Undefined, Addition, Subtraction, Multiplication, Division, Complex Fractions
- ✓ Review of Radical Expressions: Radical Notation, Simplifying a Radical, Operations with Radicals, Rationalizing Denominators
- ✓ Solving Linear Equations and Inequalities
- ✓ Solving Application of Linear Equations Problems (Word Problems)
- ✓ Solving Absolute Value Equations and Inequalities
- ✓ Working with Complex Numbers
- ✓ Solving Quadratic Equations and Inequalities

- ✓ Solving Applications of Quadratic Equations (Word Problems)
- ✓ Solving Rational Equations and Inequalities
- ✓ Solving Radical Equations and Inequalities
- ✓ The Rectangular Coordinate Plane
- ✓ The Complex Coordinate Plane
- ✓ Distance and Midpoint Formulas
- ✓ Relations and Functions
- ✓ Domain and Range
- ✓ Function Notation, Function Composition, Operations on Functions
- ✓ Graphing Linear Equations
- ✓ Linear Equations, Finding the Slope of a Line and Equations of Lines
- ✓ Graphing Circles
- ✓ Graphing Elementary Functions
- ✓ Graphing Transformations
- ✓ Solving Systems of Linear Equations in Two Variables

- ✓ Solving Systems of Linear Equations in Three Variables
- ✓ Solving Word Problems with Linear Systems
- ✓ Using Curve Fitting to Find an Equation Through Three Points
- ✓ Partial Fraction Decomposition
- ✓ Solving Linear Systems using Gaussian Elimination and Gauss-Jordan Elimination
- ✓ Matrix Algebra
- ✓ Adding and Subtracting Matrices
- ✓ Solving Matrix Equations
- ✓ Multiplying a Matrix by a Scalar
- ✓ Multiplying Matrices
- ✓ Finding the Inverse of a Matrix
- ✓ Solving Linear Systems using Matrix Inverses
- ✓ Determine if functions are one-to-one using the horizontal line test
- ✓ Determine if functions are one-to-one algebraically
- ✓ Find the Inverse of a One-to-One Function

- ✓ Determine if functions are one-to-one algebraically
- ✓ Find the Inverse of a One-to-One Function
- ✓ Find the Inverse of a Domain Restricted One-to-One Function
- ✓ Graphing the Inverse of a Function
- ✓ Graphing an Exponential Function
- ✓ Solving Exponential Equations with Like Bases
- ✓ Solving Compound Interest Word Problems
- ✓ Graphing Logarithmic Functions
- ✓ Properties of Logarithms | Condensing Logarithms | Expanding Logarithms
- ✓ Change of Base Rule for Logarithms
- ✓ Solving Exponential and Logarthimic Equations
- ✓ Solving Exponential and Logarithmic Inequalities
- ✓ Applications of Exponential and Logarithmic Functions

- ✓ Finding the Vertex Form of a Parabola
- ✓ How to Graph a Parabola
- ✓ Remainder Theorem
- ✓ Using the Remainder Theorem to Test Zeros for a Polynomial Function
- ✓ The Factor Theorem
- ✓ Using the Factor Theorem to Factor a Polynomial Function Given One Zero
- ✓ The Rational Zeros Theorem
- ✓ The Fundamental Theorem of Algebra
- ✓ The Number of Zeros Theorem
- ✓ Writing Polynomial Equations Given Zeros and a Point
- ✓ Conjugate Zeros Theorem
- ✓ Descartes' Rule of Signs
- ✓ Intermediate Value Theorem

- ✓ Boundedness Theorem
- ✓ Finding the upper and lower bounds for the real zeros of a polynomial function
- ✓ Solving NonLinear Systems of Equations
- ✓ Conic Sections: Parabolas - Focus and Directrix
- ✓ Conic Sections: Ellipses - Finding the Foci and Graphing
- ✓ Sequences
- ✓ Arithmetic Sequences
- ✓ Geometric Sequences
- ✓ Arithmetic Series
- ✓ Geometric Series
- ✓ Finding the Common Difference in an Arithmetic Sequence
- ✓ Evaluating an Arithmetic Series
- ✓ The Binomial Theorem
- ✓ Working with sets, roster method, subsets, Venn diagrams
- ✓ Combinations
- ✓ Permutations

- ✓ Counting Theory
- ✓ Probability
- ✓ Angles in Trigonometry
- ✓ Complementary Angles
- ✓ Supplementary Angles
- ✓ Determine if two angles are coterminal angles
- ✓ Finding Angle measures for similar triangles
- ✓ Finding side lengths for similar triangles
- ✓ Finding the Trigonometric Function Values of an Angle
- ✓ Finding Trigonometric Function Values Given One Value and the Quadrant
- ✓ Finding Trigonometric Function Values Based on Reciprocal Identities
- ✓ Finding Trigonometric Function Values Based on Pythagorean Identities
- ✓ Finding Trigonometric Function Values Based on Quotient Identities

- ✓ Finding Trigonometric Function Values of Acute Angles
- ✓ Writing a Trigonometric Function in terms of its Cofunction
- ✓ Solving Trigonometric Equations Using Cofunction Identities
- ✓ Finding Reference Angles
- ✓ Special Angles as Reference Angles
- ✓ Finding Angle Measures with Special Angles
- ✓ Finding Trigonometric Function Values of Non-Acute Angles
- ✓ Finding Trigonometric Function Values Using a Calculator
- ✓ Finding Unknown Angle Measures Using Inverse Trigonometric Functions: arcsin, arccos, arctan
- ✓ Solving Right Triangles
- ✓ Solving Word Problems that involve angles of elevation
- ✓ Solving Word Problems that involve angles of depression
- ✓ Radian Measure

- ✓ Converting Between Degrees and Radians
- ✓ How to Find the Arc Length on a Circle
- ✓ How to Find the Area of a Sector of a Circle
- ✓ Defining the Six Trigonometric Functions Using the Unit Circle
- ✓ Working with Circular Functions
- ✓ Solving Trigonometry Word Problems that Involve Linear Speed
- ✓ Solving Trigonometry Word Problems that Involve Angular Speed
- ✓ Graphing Sine and Cosine
- ✓ Function Transformations with Sine and Cosine
- ✓ Finding the Period, Amplitude, and Phase Shift
- ✓ Using the Fundamental Trigonometric Identities to Find Missing Trigonometric Ratios
- ✓ Using the Fundamental Trigonometric Identities to rewrite Trigonometric Expressions

- ✓ How to Verify Trigonometric Identities
- ✓ Sum and Difference Identities for Sine, Cosine, and Tangent
- ✓ Finding sin(A + B)
- ✓ Finding cos(A + B)
- ✓ Finding tan(A + B)
- ✓ Double-Angle Identities
- ✓ Product-to-Sum Identities
- ✓ Sum-to-Product Identities
- ✓ Half-Angle Identities
- ✓ Evaluating Inverse Trigonometric Functions
- ✓ Graphing the Inverse Trigonometric Functions
- ✓ Finding the Composition of the Inverse Trigonometric Functions
- ✓ Solving Trigonometric Equations Using Linear Methods
- ✓ Solving Trigonometric Equations by Factoring
- ✓ Solving Trigonometric Equations by Squaring/Square Roots

- ✓ Solving Trigonometric Equations Using Identities
- ✓ Solving Trigonometric Equations Using the Quadratic Formula
- ✓ Solving Trigonometric Equations with Half-Angles
- ✓ Solving Trigonometric Equations with Multiple Angles
- ✓ Solving Trigonometric Equations Involving Inverse Trigonometric Functions
- ✓ Law of Sines
- ✓ Law of Sines (Ambiguous Case)
- ✓ Area of a Triangle using Sine (SAS) and (ASA)
- ✓ Law of Cosines
- ✓ Area of a Triangle using Heron's Formula
- ✓ Finding the Component Form of a Vector
- ✓ Finding the Magnitude of a Vector
- ✓ Finding the Direction Angle of a Vector
- ✓ Finding the sum (resultant) of two

- ✓ Finding the sum (resultant) of two vectors
- ✓ Multiplying a vector by a scalar
- ✓ Finding the Unit Vector
- ✓ Writing a Linear Combination of Unit Vectors
- ✓ Find the Dot Product of Two Vectors
- ✓ Find the Angle Between Two Vectors
- ✓ Determine if Two Vectors are Orthogonal
- ✓ Adding Two Complex Numbers Graphically
- ✓ Finding the Trigonometric (Polar) Form of a Complex Number
- ✓ Converting a Complex Number between Rectangular and Polar Forms
- ✓ Multiplying Complex Numbers in Polar Form
- ✓ Dividing Complex Numbers in Polar Form
- ✓ Product and Quotient Theorems
- ✓ De Moivre's Theorem

- ✓ Powers of Complex Numbers in Polar Form
- ✓ Solving Equations Using Roots of Complex Numbers
- ✓ Plotting Points on the Polar Coordinate Grid
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- ✓ Writing Polar Coordinates in Alternative Forms
- ✓ Finding the Distance Between Two Polar Points
- ✓ Converting a Line Between Polar and Rectangular Forms
- ✓ Graphing a Line on the Polar Grid
- ✓ Finding the Inclination of a Line
- ✓ Finding the Angle Between Two Lines
- ✓ Finding the Shortest Distance Between a Line and a Point