

Ref.: SU/BOS/Voc./508

Date: 10-09-2024

To, The Principals, All Concerned Affiliated Colleges /Institutions. Shivaji University, Kolhapur.

Subject : Regarding syllabi of B. Voc. Part III Courses under the Faculty of Inter-Disciplinary Studies as per National Education Policy, 2020. (1.0)

Sir/Madam,

With reference to the subject, mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the syllabii of B.Voc. Part III Courses under the Faculty of Inter-Disciplinary Studies. as per National Education Policy, 2020. (1.0)

1	B.Voc. in Tourism and Service Industry
2	B.Voc. in Sustainable Agriculture Management
3	B.Voc. in Nutrition and Dietetics
4	B.Voc. in Nursing and Hospital Management
5	B.Voc. in Building Technology & Interior Design
6	B.Voc. in Agriculture
7	B.Voc. in Printing & Publishing
8	B.Voc. in Sustainable Agriculture
9	B.Voc. in Graphic Design
10	B.Voc. in Automobile

This syllabi shall be implemented from the academic year 2024-2025 onwards. A soft copy containing the syllabi is attached herewith and it is also available on university website www.unishivaji.ac.in. (NEP-2020@suk / Online Syllabus)

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours Faithfully S. M. Kubal) **Dy Registrar**

Copy to:

y 10:			
1	The Dean, Faculty of IDS	6	Affiliation T. 1 & T. 2 Section
2	Director, Board of Examination and Evaluation	7	P.G.Admission Section
3	The Chairman, Respective Board of Studies	8	Appointment A & B Section
4	All On Exam Section O'E' I Section	9	P.G.Seminar Section
5	Eligibility Section	10	Computer Centre /I.T.cell

E:\IDS\Syllabus Covering letter 2024-25 .docx

SHIVAJI UNIVERSITY, KOLHAPUR



NAAC accredited "B" (C.G.P.A. 2.48) 3rd Cycle UGC Recognized

Faculty of Interdisciplinary Studies Structure, Scheme and Syllabus for Bachelor of Vocation (B. Voc. Degree) Course Structure for (Level-7) with Multiple Entry and Multiple Exit option

Nutrition and Dietetics

Part III- Sem. V & VI

(Subject to the modifications that will be made from time to time) Syllabus to be implemented from 2024-2025 onwards.

National Education Policy(NEP-2020)

<u>Third Year Bachelor of Vocation (B. Voc.- Degree)Course Structure for (Level-7)</u> With Multiple Entry and Multiple Exit option (To be implemented from the Academic Year 2024-25)

	Semester V – Duration: 6 Months										
	Teaching Scheme						Evaluation Scheme				
Sr. No.	Course	No. of Lectures		Hours Credits (T + P)	Theory	Internal/ Practical	Total Marks	Min Marks (Separate	Exam Duration (Hrs.)		
		Т	Р					passing)	Т	Р	
1.	AECC-E	4	-	6	4	40	10	50	18	2	-
2.	GEC –E	4	2	6	4	40	10	50	18	2	-
3.	DSC –E-I	4	-	4	4	50	-	50	18	2	-
4.	DSC –E-II	4	-	4	4	50	-	50	18	2	-
5.	DSC –E- III	4	-	4	4	50	-	50	18	2	-
6.	SEC-E-I	-	4	4	2	-	50	50	18	-	3
7.	SEC-E-II	-	4	4	2	-	50	50	18	-	3
8.	SEC-E-III	-	4	4	2	-	50	50	18	-	3
9.	SEC-E-IV	-	-	2	2	-	50	50	18	-	-
	Total	20	14	36	28	230	220	450	-		

	Semester VI – Duration: 6 Months										
	Teaching Scheme						Evaluation Scheme				
Sr. No.	Course	No Lect	. of ures	Hours (T + P)	Credits	Theory	Internal/ Practical	Total Marks	Min Marks (Separate	Exa Dura (Hr	um tion s.)
		Т	Р						passing)	1	P
1.	AECC-F	4	-	6	4	40	10	50	18	2	-
2.	GEC –F	4	2	6	4	40	10	50	18	2	-
3.	DSC –F-I	4	-	4	4	50	-	50	18	2	-
4.	DSC –F-II	4	-	4	4	50	-	50	18	2	-
5.	DSC –F-III	4	-	4	4	50	-	50	18	2	-
6.	SEC-F-I	-	4	4	2	-	50	50	18	-	3
7.	SEC-F-II	-	4	4	2	-	50	50	18	-	3
8.	SEC-F-III	-	4	4	2	-	50	50	18	-	3
9.	SEC-F-IV	-	-	2	2	-	50	50	18	-	-
	Total	20	14	36	28	230	220	450	-		•

• Student Contact Hrs Per week: 36 hrs	• Total marks for B.Voc Degree: 900				
• Theory and Practical Lectures: 48 Minutes Each	• Total credits for B.Voc Degree: 56				
• AECC: Ability Enhancement Compulsory Course	e (Compulsory English)				
• Practical workload will for batch of 20 students					
• Practical Examination will be conducted Semester wise for 50 Marks per course (subject).					
• DSC: Discipline Specific Core Course - Candidate can opt three courses (Subjects) from DSC.					
• GEC: Generic Elective Compulsory Course - Candidate can opt any one course (Subject).					
• There shall be separate passing for theory and practical courses.					
• AECC & GEC Internal Evaluation should be done at college or respective departmental level					
SEC-E & SEC-F are two parts of Vocational Degree Course					

Eligibility for Admission	Advanced Diploma in Nutrition and Dietetics /Advanced Diploma in any related stream
	Students who have completed certificate course in nutrition and dietetics are eligible for the second year admission to the course of nutrition and dietetics
Eligibility for Faculty	Faculty- Staff qualification- 1.M.Sc Nutrition /M.A. Home Science 2. Diploma in Nutrition and Dietetics 3.M.B.B.S/B A.MS/B.H.M.Swith NET / SET/Ph.D. M. A (English) with NET/SET for Business Communication
Eligibility for Laboratory Assistant:	B.Sc. (nutrition and dietetics) Diploma in Nutrition and Dietetics
Staffing Pattern :	In 1 st Year of B. Voc1 Full Time and 1 Part Time Lecturer and 1 CHB Lecturer for Business Communication
Laboratory Assistant :	For 1 st Year of B. Voc 1 Part-time

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Generic and Hospital Management (GEC-E) Paper Title - NUTRITION EPIDEMIOLOGY

Paper No.	Credits : 04
Theory - 4 lectures/week	Total Marks : 50 (Theory 40 + Internal 10)
Practical : 2 lectures/week/batch	

Course Outcomes :-

- 1. To import knowledge and develop skills to epidemiologic concepts.
- 2. To study and examine nutritional aspects or health and disease in populations
- 3. To help students learn and critically evaluate nutritional assessment.
- 4. To study of epidemiological evidence for relationships or the diet to the selected diseases.

UNIT-1 DIET IN LIVER DISEASE AND COUNSELING

- Hepatitis
- Hepatic Coma
- Cirrhosis Of Liver
- Disease Of Gall Bladder
- Disease Of Pancrease

UNIT-2 DIET IN KIDNEY DISEASE AND COUNSELING

- Glomerulonephritis
- Nephritic syndrome
- Acute renal failure
- Chronic renal failure
- End stage renal disorder
- Urolithiasis

UNIT-3 NUTRITION IN EATING DISORDER AND COUNSELING

- Introduction
- Annorexia nervosa
- Bulima nervosa
- Binge eating Disorder

UNIT-4 NUTRITION AND NEUROLOGICAL DISORDER AND COUNCELLING

- Parkinson disease
- Alzheimer disease
- Epilepsy
- Migrate
- Multiple stenosis
- Neuro trauma
- Spine trauma
- Feeding problem of patient with neurological disorder

Reference:-

- Hunter, Dj, Spiegelman, D, Adami, H-O, Beeson, L, Van den Brandt, PA, Folsom, AR, et al. Cohort studies of fat intake and the risk of breast cancer – a pooled analysis. N. Engl. J. Med. 1996; 334: 356–61.<u>CrossRefGoogle</u> <u>ScholarPubMed</u>
- Fuchs, CS, Giovannucci, EL, Colditz, GA, Hunter, DJ, Stampfer, MJ, Rosner, B, et al. Dietary fiber and the riskof colorectal cancer and adenoma in women. N. Engl. J. Med. 1999; 340: 169–76.<u>CrossRefGoogle ScholarPubMed</u>
- Michels, KB, Giovannucci, E, Joshipura, KJ, Rosner, BA, Stampfer, MJ, Fuchs, CS, et al. Prospective study of fruit and vegetable consumption and incidence of colon and rectal cancers. J. Natl. Cancer Inst. 2000; 92: 1740– 52.<u>CrossRefGoogle ScholarPubMed</u>
- Beaton, GH, Milner, J, Corey, P, McGuire, V, Cousins, M, Stewart, E, et al. Sources of variance in 24-hour dietary recall data: implications for nutrition study design and interpretation. Am. J. Clin. Nutr. 1979; 32: 2546– 9.<u>CrossRefGoogle ScholarPubMed</u>
- Freudenheim, JL, Marshall, JR. The problem of profound mismeasurement and the power of epidemiological studies of diet and cancer. Nutr. Cancer. 1988; 11: 243–50.<u>CrossRefGoogle ScholarPubMed</u>
- Freedman, LS, Schatzkin, A, Wax, J. The impact of dietary measurement error on planning sample size required in a cohort study. Am. J. Epidemiol. 1990; 132: 1185–95.<u>CrossRefGoogle Scholar</u>

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics (AECC-ED)

Paper -I : Business Communication in English-III

Paper No.Credits : 04Theory - 4 lectures/weekTotal Marks : 50 (Theory 40 + Internal 10)Practical : 2 lectures/week/batch

Units Prescribed for Theory: 40 Marks.

Course Outcomes: The students will acquire knowledge of

- 1. To develop awareness of the complexity of the communication process
- 2. To develop effective listening skills in students so as to enable them to comprehend instructions and become a critical listener
- 3. To develop effective oral skills so as to enable students to speak confidently interpersonally as well as in large groups
- 4. To develop effective writing skills so as enable students to write in a clear, concise, persuasive and audience centered manner
- 5. To develop ability to communicate effectively with the help of electronic media

Content of syllabus:

Unit–I: Concept of Communication (15 Hrs.)

Meaning, Definition, Process, Need, Feedback, Emergence of Communication as a key concept in the Corporate and Global world

Unit – II Impact of technological advancements on Communication (15 Hrs.)

Types- Internet, Blogs, E-mails, Moodle, Social media (Facebook, Tweeter &WhatsApp) Advantages and Disadvantages

Unit – III Problems in Communication (15 Hrs.)

Physical/ Semantic/Language / Socio-Cultural / Psychological / Barriers Ways to Overcome these Barriers

Unit – IV Listening Skills (15 Hrs.)

Importance of Listening Skills, Obstacles to listening, cultivating good Listening Skills

Practical: Based on the theory units: Marks: 10

Books Recommended: (List of Minimum 5 Books)

- 1. Agarwal, Anju D (1989) A Practical Handbook for Consumers, IBH.
- 2. Alien, R.K. (1970) Organizational Management through Communication.
- 3. Ashley, A (1992) A Handbook of Commercial Correspondence, Oxford University Press.
- 4. Aswal thapa, K (1991) Organizational Behavior, Himalayan Publication, Mumbai.
- 5. Atreya N and Guha (1994) Effective Credit Management, MMC School of Management, Mumbai.

Note: (If any - such as

1. In theory examination, the weightage to numerical problems should not exceed 30%.

2. Students can use scientific calculators in theory examination.)

- Q.1 Do as directed questions items on unit 1 to be asked 10 (10 out of 12)
- Q.2 Write a letter of application 10

OR

Draft a CV / Resume for a particular post 10

- Q.3 Present a given information or a data using a table/ chart/pie diagram, etc. 10 (any one diagram to be drawn)
- Q.4 Fill in the blanks in the given interview 10

Practical Evaluation:

Oral and presentation based on units prescribed

10 Marks

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Discipline Specific Core Course (DSC-E-I) Paper Title - Sport Nutrition (Psychological & Counseling)

Paper No. Theory - 4 lectures/week Credits : 04 Total Marks : 50 (Theory)

Course Outcomes:

- To enable students to understand.
- Importance or holistic fitness for health.
- Role or exercise and nutrition in fitness nutritional needs and problems or sports personal.

UNIT-1 SPORT NUTRITION (3 Hours)

• Introduction

UNIT-2 Evaluation and growth of sport nutrition (4 Hours)

• Importance of carbohydrate loading

UNIT-3 Pregame and Post game Meals (3 Hours)

UNIT -4Approach to the management of illness and health (4 Hours)

• Nutrition, exercise, physical fitness and health their interrelationship.

References:

- Nutrition and Metabolism in Sports, Exercise and Health 2nd Editionby Jie Kang (Author)
- Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body Paperback March15, 2019by <u>Michael Matthews</u>
- The Plant-Based Boost: Nutrition Solutions for Athletes and Exercise Enthusiasts Paperback May27, 2019

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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Discipline Specific Core Course (DSC-E-II) Paper Title - Clinical Testing/Food Analysis

Paper No. Theory - 4 lectures/week

Credits : 04 Total Marks : 50 (Theory)

Course Outcomes:

- To develop the skills on the qualification technique of various components.
- Students will have a thorough understanding on the working principle and instrumentation of various instrument in clinical analysis.
- The students will know the importance of various methods to identify any malfunctions aspect of food.

Unit - I : Bioanalytical Chemistry & Enzymology (4 Hours)

- a) Standardization of acids and alkalies
- b) Preparation of buffers, indicators and use of pH meter
- c) Paper chromatography of amino acids and sugars
- d) Isolation, calculation of percent yield of amylase from sweet potato and study of optimum pH, Km
- e) Estimation of Acid Phosphatase

Unit- II : Isolation, Preparation & Extraction (3 Hours)

- a) Casein from milk
- b) Cholesterol from egg yolk
- c) Lycopene from tomatoes
- d) Albumin & globulin from egg whites

Unit - III : Clinical Analysis (from blood, serum) Estimation of: (4 Hours)

- a) Glucose by Folin- Wu Method, GOD/POD
- b) Lipid profile- Triglycerides & cholesterol
- c) Protein by Biuret, Fehn-Lowry
- d) Estimation of Iron
- e) Estimation of Calcium
- f) Estimation of phosphorus

Unit - IV : OIL Extraction In Milk And Food seeds. (3 Hours)

Types, Method etc,

References

- Bayens Dominiezak Medical biochemistry, Mosby Publishers, Harcourt, 1999 Brave Robert D – Introduction to Instrumental Analysis, McGraw HIII Book Co, New York Chatterjee and Rana Shinde Medical - Biochemistry Dandekar, S. P., Rane S. A. (2004).
- Practicals & Viva in Medical Biochemistry, New Delhi: Elsevier/Reed Elsevier Feitz – Clinical Chemistry Frelfelder D- Physical Biochemistry.
- Skoog Douglas A Principles of InstrumentalAnalysis Harcourt Brace publishers, London Gill CV Short cases in clinical biochemistry, Churchill Livingston, Edinburgh, 1984 Godkar, P. B. (2003).
- Textbook of Medical Laboratory Technology 2nd Ed. Mumbai. Bhalani Publishing House. Greenberg David M – Metabolic Pathways. Vols. 2 and 3, 3rd editions. Academic Press, New York Harvey David
- Modern Analytical Chemistry, International editi Henry Richard et al Clinical Chemistry, Principles and Techniques, 2nd edition, Harper and Row, New York Holme David J – Problem solving in analytical biochemistry, H & Longman Sc. And Tech, Essex India Pvt Ltd. Jayaram J., (1981)
- Laboratory Manual in Biochemistry, New Delhi: Wiley Eastern Ltd. John Bernard Henry, Clinical Diagnosis and Management by Laboratory Methods, Saunders publications, 20theition Kamal SH – Clinical Biochemistry for Medical Technologies, Churchill Livingston, London Methods in Enzymology
- Kaplan Murrary Robert Harper's biochemistry, 24th edition, Prentice Hall International UK LTD, 1990 Nelson DI, Cox MM – Lehninger Principles of Biochemistry Ninfa Alexander J and Ballou David P
- Fundamental Laboratory Approaches for Biochemistry and Biotechnology, Fitzgerald Science Press, Bethesda on, McGraw, Hlll, Boston Pearson, D. (1970). Chemical Analysis of Foods, (6th Ed), London:
- T.A. Churchill. Plummer, D. T. (1979). Introduction to Practical Biochemistry. Bombay: Tata McGraw Hill Pub. Co. Ltd. Practical Biochemistry by David Plummer RaoRanganathan – Text book of biochemistry 3rd edition, Prentice Hall, New Delhi Rodney.

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- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Discipline Specific Core Course (DSC-E-III) Paper Title - Food Quality Control

Paper No.

Credits : 04 Total Marks : 50 (Theory)

Theory - 4 lectures/week

/week Total Marks : 50 (Theory)

Course Outcomes:

- To students will acquire knowledge of definition of food quality.
- National and International food laws.
- Classification of safety aspects.
- Safety assessment and safety evaluation.

S. No	Торіс	Domain
UNIT 1	Concept meaning and exposure, estimation, toxicological requirements and risk assessment Food quality, food safety, food adulteration, food hazards. Natural toxins.	Must Know Definition of food quality, foodsafety Functions of food Desirable to know Concept of food safety Responsibility for food quality andsafety Types of adulteration Nice to know Scope of food safety and quality
UNIT 2	Food laws and regulations National and international food laws Governing bodies.	Must Know Introduction to food laws National and International foodlaws Governing bodies Desirable to know Importance of food laws Laws related to food safety
UNIT 3	Safety aspects Water and beverages such as soft drinks, tea, coffee, cocoa.	Must Know Introduction to safety aspects Classification of safety aspectsSafety aspects for water and beverages
UNIT 4	Safety assessment and Safety evaluation Food contaminants and pesticide residues. heat treatments and related processingtechniques	Must Know Introduction to safety assessmentand safety evaluation Definition of safety assessment Definition of safety evaluation Introduction to food contaminants Types of food contaminants
		Desirable to know Methods of preventing food contaminants Laws & regulations

Reference Books:-

- Hubbard, M.R., Statistical Quality Control for the Food Industry, Kluwer Academic/Plenum Publishers, New York, 2003.Ong, K.G., Puckett, L.G., Sharma, B.V., Loiselle, M., Grimes, C.A., Bachas, L.G., Wireless, Passive, Resonant-Circuit Sensors for Monitoring Food Quality, Proceedings of SPIE, Vol. 4575, 2002, pp. 150–159.
- 2. Thorner, M.E., Manning, P.B., *Quality Control in Food Service*, The AVIPublishing Company, Westport, Connecticut, 1976.
- 3. Vasconcellos, J.A., *Quality Assurance for the Food Industry*, CRC Press, BocaRaton, Florida, 2004
- 4. Mears, P., *Quality Improvement Tools and Techniques*, McGraw Hill BookCompany, New York, 1995.
- 5. Kanji, G.K., Asher, M., 100 Methods for Total Quality Management, SagePublications Ltd., London, 1996.
- 6. Dhillon, B.S., Advanced Design Concepts for Engineers, Technomic PublishingCompany, Lancaster, Pennsylvania, 1998.
- 7. Dhillon, B.S., *Reliability, Quality, and Safety for Engineers*, CRC Press, BocaRaton, Florida, 2005.
- 8. Pyzdek, T., *The Six Sigma Handbook*, McGraw Hill Book Company, NewYork, 2003.
- 9. Mizuno, S., Editor, *Management of Quality Improvement: The Seven New QCTools*, Productivity Press, Cambridge, Massachusetts, 1988.

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- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V **Nutrition and Dietetics**

Skill Enhancement Course (SEC-E-I)

Paper Title - Lab Work - Sport Nutrition (Psychological & Counseling)

Paper No. **Theory - 4 lectures/week**

Credits : 02 **Total Marks : 50 (Practical)**

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Course Outcomes:

The students will acquire knowledge of

- Gym diet plan. •
- Counseling and exercise assignments.
- Losing body fat.
- Eating strategies.
- Gym visit.

Each one 2 practical's

- 1. Visit to Gym
- 2. Five types of gym diet plan
- 3. Case studies of gymnastic persons
- 4. Counselling and exercise assignments.
- 5. Losing body fat.
- 6. Sprints, Jumps throws and multi-events.
- 7. Eating strategies for the distance runner of walker.
- 8. Exercise in hot climate.
- 9. Exercise in cold climates.

Scheme of Practical Evaluation

Internal Practical Evaluation

1)	Prepare any one practical from the above	20 Marks
2)	Practical record book	20 Marks
3)	Viva - Voce	10 Marks

References:

- Nutrition and Metabolism in Sports, Exercise and Health 2nd Editionby Jie Kang (Author)
- Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body Paperback – March15, 2019by Michael Matthews
- The Plant-Based Boost: Nutrition Solutions for Athletes and Exercise Enthusiasts Paperback – May27, 2019

Note : (If any such as)

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
- 2. Students can use scientific calculators in theory examination.

50 Marks

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Skill Enhancement Course (SEC-E-II) Paper Title - Lab Work - Clinical Testing/Food Analysis

Paper No. Theory - 4 lectures/week Credits : 02 Total Marks : 50 (Practical)

Course Outcomes:

The students will acquire knowledge of

- Blood Sugar
- Urine analysis
- Blood Pressure

Each one 2 practical's

- 1. Estimation of Specific Gravity of Milk
- 2 Estimation Of Gluten in Wheat flour.
- 3. Estimation of Blood Sugar
- 4. Estimation of Blood Presures.
- 5. Saponification value of fats.
- 6. Estimation of blood Glucose.
- 7. Urine analysis.
- 8. Estimation of Glucose in urine.
- 9. Identification or carbohydrates.
- 10. Estimation or serum cholesterol.

Scheme of Practical Evaluation

50 Marks

Internal Practical Evaluation					
1)	Prepare any one practical from the above	20 Marks			
2)	Practical record book	20 Marks			
3)	Viva - Voce	10 Marks			

References:___

- Bayens Dominiezak Medical biochemistry, Mosby Publishers, Harcourt, 1999 Brave Robert D – Introduction to Instrumental Analysis, McGraw HIII Book Co, New York Chatterjee and Rana Shinde Medical - Biochemistry Dandekar, S. P., Rane S. A. (2004).
- Practicals & Viva in Medical Biochemistry, New Delhi: Elsevier/Reed Elsevier Feitz – Clinical Chemistry Frelfelder D- Physical Biochemistry.

- Skoog Douglas A Principles of InstrumentalAnalysis Harcourt Brace publishers, London Gill CV – Short cases in clinical biochemistry, Churchill Livingston, Edinburgh, 1984 Godkar, P. B. (2003).
- Textbook of Medical Laboratory Technology 2nd Ed. Mumbai. Bhalani Publishing House. Greenberg David M – Metabolic Pathways. Vols. 2 and 3, 3rd editions. Academic Press, New York Harvey David
- Modern Analytical Chemistry, International editi Henry Richard et al Clinical Chemistry, Principles and Techniques, 2nd edition, Harper and Row, New York Holme David J – Problem solving in analytical biochemistry, H & Longman Sc. And Tech, Essex India Pvt Ltd. Jayaram J., (1981)

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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Skill Enhancement Course (SEC-E-III) Paper Title - Lab Work - Food Quality Control

Paper No. Theory - 4 lectures/week

Credits : 02 Total Marks : 50 (Practical)

Course Outcomes:

The students will acquire knowledge of

- Sensory evaluation of foods.
- Industry visit
- Carbohydrates
- Hedonic scale.

Each one 2 practical's

- 1. Sensory Evaluation Of Foods
- 2. Shelf life of Food Products.
- 3. Industry Visit in Laboratory Testing.
- 4. Food Quality Standards
- 5. GMP
- 6. Crude fat
- 7. Crude protein
- 8. Crude fiber
- 9. Carbohydrates
- 10. Hedonic scale
- 11. Duo trio test

Scheme of Practical Evaluation

50 Marks

Internal Practical Evaluation

1)	Prepare any one practical from the above	20 Marks
2)	Practical record book	20 Marks
3)	Viva - Voce	10 Marks

Reference Books:-

- Hubbard, M.R., Statistical Quality Control for the Food Industry, Kluwer Academic/Plenum Publishers, New York, 2003.Ong, K.G., Puckett, L.G., Sharma, B.V., Loiselle, M., Grimes, C.A., Bachas, L.G., Wireless, Passive, Resonant-Circuit Sensors for Monitoring Food Quality, Proceedings of SPIE, Vol. 4575, 2002, pp. 150–159.
- 2. Thorner, M.E., Manning, P.B., *Quality Control in Food Service*, The AVIPublishing Company, Westport, Connecticut, 1976.
- 3. Vasconcellos, J.A., *Quality Assurance for the Food Industry*, CRC Press, BocaRaton, Florida, 2004
- 4. Mears, P., *Quality Improvement Tools and Techniques*, McGraw Hill BookCompany, New York, 1995.
- 5. Kanji, G.K., Asher, M., 100 Methods for Total Quality Management, SagePublications Ltd., London, 1996.
- 6. Dhillon, B.S., *Advanced Design Concepts for Engineers*, Technomic PublishingCompany, Lancaster, Pennsylvania, 1998.
- 7. Dhillon, B.S., *Reliability, Quality, and Safety for Engineers*, CRC Press, BocaRaton, Florida, 2005.

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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - V Nutrition and Dietetics Skill Enhancement Course (SEC-E-IV) Paper Title - Internship/Field Work/Industrial Visit/Study Tour/Health Survey Paper No. Theory - 2 lectures/week Credits : 50 (Internal)

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Course Outcomes:

The students will acquire knowledge of

- Administration process
- Management skills
- Clinical services
- Industrial services.

Important Note :-

Filed work/Hospital Visit/Industrial Visit Tour should be minimum five days in or out of Maharashtra.

Suggested Places:

- 1. In Maharashtra.
- 2. Out of Maharashtra

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Generic and Hospital Management (GEC-F) Paper Title - NUTRITION EPIDEMIOLOGY

Paper No. Theory - 4 lectures/week Practical : 2 lectures/week/batch

Credits : 04

Total Marks : 50 (Theory 40 + Internal 10)

Course Outcomes:

The students will acquire knowledge of

- Counseling of Disease
- Diet in Cancer
- Diet Counseling
- Diet of Heart Disease

UNIT-1 DISEASE OF METABOLIC DISORDER AND COUNSELING

- Diabetese Melitus
- Gout

UNIT-2 DIET IN CARDIOVASCULAR DISEASE AND COUNSELING

- Coronary Heart Disease
- Prevalence
- Risk factor
- Pathophysiology
- Dyslipidaemia
- Atherosclerosis
- Hypertention
- Hyoitension
- Angina pectoris
- Myocardial infection
- Congestinal cardiac failure

UNIT-3 DIET IN CANCER AND COUNSELING

- Risk factor
- Metabolic alteration and nutritional problem related cancer
- Nutritional requirements of cancer patient related to cancer therapy
- Cancer prevention

UNIT-4 DIET IN GASTROINTESTINAL AND COUNSELING

- Upper GI tract disorder
- Lower GI tract disorder
- Constipation diarrhoea, intestinal gas and flatulence
- Disease of small intestine
- Disease of large intestine

Practical:-

- 1. To plan a diet for IDDM.
- 2. To plan a diet for hypertension.
- 3. To plan a diet for cancer.
- 4. To plan a diet for GT tract
- 5. To plan a diet for gas and flatulence.

Reference:-

- Hunter, Dj, Spiegelman, D, Adami, H-O, Beeson, L, Van den Brandt, PA, Folsom, AR, et al. Cohort studies of fat intake and the risk of breast cancer – a pooled analysis. N. Engl. J. Med. 1996; 334: 356–61.<u>CrossRefGoogleScholarPubMed</u>
- Fuchs, CS, Giovannucci, EL, Colditz, GA, Hunter, DJ, Stampfer, MJ, Rosner, B, et al. Dietary fiber and the risk of colorectal cancer and adenoma in women. N. Engl. J. Med. 1999; 340: 169–76.<u>CrossRefGoogle ScholarPubMed</u>
- Michels, KB, Giovannucci, E, Joshipura, KJ, Rosner, BA, Stampfer, MJ, Fuchs, CS, et al. Prospective study of fruit and vegetable consumption and incidence of colon and rectal cancers. J. Natl. Cancer Inst. 2000; 92: 1740– 52.<u>CrossRefGoogle ScholarPubMed</u>
- Beaton, GH, Milner, J, Corey, P, McGuire, V, Cousins, M, Stewart, E, et al. Sources of variance in 24-hour dietary recall data: implications for nutrition study design and interpretation. Am. J. Clin. Nutr. 1979; 32: 2546– 9.<u>CrossRefGoogle</u> <u>ScholarPubMed</u>
- Freudenheim, JL, Marshall, JR. The problem of profound mismeasurement and the power of epidemiological studies of diet and cancer. Nutr. Cancer. 1988; 11: 243– 50.<u>CrossRefGoogle ScholarPubMed</u>
- Freedman, LS, Schatzkin, A, Wax, J. The impact of dietary measurement error on planning sample size required in a cohort study. Am. J. Epidemiol. 1990; 132: 1185– 95.<u>CrossRefGoogle Scholar</u>

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics (AECC-F)

Paper -I : Business Communication in English-III

Paper No.Credits : 04Theory - 4 lectures/weekTotal Marks : 50 (Theory 40 + Internal 10)Practical : 2 lectures/week/batch

Units Prescribed for Theory: 40 Marks.

Course Outcomes: The students will acquire knowledge of

- 1. To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.
- 2. To understand the importance of specifying audience and purpose and to select appropriate communication choices.
- 3. To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication.
- 4. To participate effectively in groups with emphasis on listening, reflective thinking, and responding.
- 5. To develop the ability to research and write a documented paper and/or to give an oral presentation.

Content of syllabus:

Unit-I: Theory of Business Letter Writing (15 Hrs.)

Parts, Structure, Layouts—Full Block, Modified Block, Semi - Block

Principles of Effective Letter Writing, Principles of effective Email Writing

Unit – II Personnel Correspondence (15 Hrs.)

Statement of Purpose

Job Application Letter and Resume, Letter of Acceptance of Job Offer, Letter of Resignation Unit – III Language and Writing Skills (15 Hrs.)

Paragraph Writing -Developing an idea, using appropriate linking devices, etc. Cohesion and Coherence, self-editing, etc. [Interpretation of technical data, Composition on a given situation, a short informal report etc.]

Unit – IV Interviews (15 Hrs.)

Preparing for an Interview

Types of Interviews - Selection, Appraisal, Grievance, Exit, Group Discussion

Practical: Based on the theory units: Marks: 10

Books Recommended: (List of Minimum 5 Books)

- 1. Bahl, J. C. and Nagamia, S.M. (1974) Modern Business Correspondence and Minute Writing.
- 2. Balan, K.R. and Rayudu C.S. (1996) Effective Communication, Beacon New Delhi.
- 3. Basu, C.R. (1998) Business Organisation and Management, T.M.H. New Delhi.
- 4. Banerjee, Bani P (2005) Foundation of Ethics in Management Excel Books
- 5. Businessworld Special Collector's Issue: Ethics and the Manager

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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Discipline Specific Core Course (DSC-F-I) Paper Title - Sport Nutrition (Psychological & Counseling)

Paper No. Theory - 4 lectures/week Credits : 04 Total Marks : 50 (Theory)

Course Outcomes:

The students will acquire knowledge of

- Sport Nutrition
- Importance of physical fitness
- Nutrition guideline for maintenance of health and fitness.
- Nutrition and requirement of exercise.

UNIT-1 SPORT NUTRITION

• Parameter of Fitness and Tests

UNIT-2 SIGNIFICANCE OF PHYSICAL FITNESS

• Nutrition in Prevention and management of weight control region.

UNIT-3 NUTRITION GUIDELINE FOR MAINTAINACE OF HEALTH AND FITNESS.

UNIT -4 NUTRITION AND REQUIREMENT OF EXERSICE

• Dietary Supplements & Ergogenic Aids.

References:___

- Nutrition and Metabolism in Sports, Exercise and Health 2nd Editionby Jie Kang (Author)
- Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body Paperback March15, 2019by <u>Michael Matthews</u>
- The Plant-Based Boost: Nutrition Solutions for Athletes and Exercise Enthusiasts Paperback May27, 2019

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Discipline Specific Core Course (DSC-F-II) Paper Title - Clinical Testing/Food Analysis

Paper No. Theory - 4 lectures/week Credits : 04 Total Marks : 50 (Theory)

Course Outcomes :-

To develop the skills on the quantification technique of various components, allergens present in food products. Learning Outcome: \Box Students will have a thorough understanding on the working principle and instrumentation of various instruments used in food analysis. \Box The students will know importance of various methods to identify any malfunction aspect of food. 6 P.G. DEPARTMENT OF FSTN.

UNIT-I Nature and Concept of Food analysis,

Basic instrumentation: Principle for pH meter, Dialysis, ultra filtration, Reverse osmosis. Centrifugation: Principle, Theory (RCF, Sedimentation coefficient) and types of Rotors, Ultracentrifugation, Calorimetry: Bomb calorimeter, Principle of Rheological Analysis- Rheological parameters, rheological methods, instruments and application, Texture profile analysis, Densimetry, Refractometry,

UNIT-II Spectroscopic analysis of food components,

Principle, instrumentation & application of Colorimetric (colorimeter, colourflex), UV-Vis spectrophotometer, Spetroflurometer, IR, Atomic Absorption Spectroscopy, Mass spectroscopy, NMR and ESR.

UNIT-III Chromatography: Theory & Principle,

chromatographic parameter (partition coefficient, capacity factor, retention & dead time, Resolution& their calculation), components of chromatography & types (paper, thin layer, partition) Advance chromatography: GC,HPLC,HPTLC(principle, instrumentation & application). Separation technique & analysis: Electrophoresis: Paper & gel electrophoresis, PAGE, iso-electric focusing, 2D electrophoresis, Immuno electrophoresis.

UNIT-IV Isotopic & immune techniques:

Principle & theory of isotopic method, types, measurement & detection of radioactivity, Autoradigraphy, Immuno-techniques, Principle, antigen-antibody interaction, enzymatic immune assay- ELISA and its types. Different immuno techniques of antigen detection in food sample.

References:

- 1. Bioinstrumentation by .Veerakumari,
- 2. Biochemical & Molecular biology techniques. by Wilson & Walker,
- 3. Food Chemistry, Aurand, L.W. and Woods, A.E. 1973.AVI, Westport.
- 4. Principles of Food Science: Part-I Food Chemistry. Fennema, O.R. Ed. 1976 Marcel Dekker, New York.
- 5. Methods in Food Analysis. Joslyn, M.A. Ed. 1970.Academic Press, New York.
- Developments in Food Analysis Techniques-1. Applied Science King, R.D. Ed. 1978Publishers Ltd., London.
- 7. Separation Methods in Biochemistry 2nd Ed Morris, C.J. and Morris, P. 1976. PitmanPub., London.
- 8. An Introduction to Practical Biochemistry. Plummer, D.T. 1971Mc-Graw Hill Pub.Co., New York.
- 9. A Manualof Laboratory Techniques. Raghuramulu, N., Madhavan Nair, K., and Kalyanasundaram, S. Ed.1983.National Institute of Nutrition, ICMR, Hyderabad.

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Discipline Specific Core Course (DSC-F-III) Paper Title - Food Quality Control

Paper No. Theory - 4 lectures/week Credits : 04 Total Marks : 50 (Theory)

Course Outcomes - Learner will be able to -

- 1. Various issues related to food safety and quality.
- 2. Understands low food-borne illness occur.
- 3. Know about national and international food standards.
- 4. Understand the importance of the food safety management system.

S. No	Торіс	Domain
	Concept of quality attributes	Must Know
UNIT 1	 Physical, chemical, nutritional, microbial, and sensory. Concepts of quality management. Principles of quality control. 1. Quality management systems in India; Sampling procedures and plans. 2. Food Safety organizations dealing with inspection, traceability and Labeling issues, International food standards. 	Introduction to quality attributes Concepts of quality attributes Definition of quality managementPrinciples of quality control Food safety organization Desirable to know Quality management system in India Laws & regulations
UNIT 2	HACCP Define, PrinciplesUses How HACCP assists the food industry.	Must Know Introduction to HACCP Definition of HACCP Principles of HACCP Role of HACCP in food industry Desirable to know Use of HACCP Laws & regulations

	Quality assurance,	Must Know
	Total Quality Management	
		Introduction to quality assurance
	GMP/GHPGLP, GAP	Definition of quality assurance
	Sanitary and hygienic practices	Definition of total quality
JNIT 3	Quality manuals, documentation and	management
	audits	Role of HACCP in food industry
	Indian & International quality	Application of quality assurance
	systems and standards like ISO and	infood industry
	Food CodexExport import policy	
	and export documentation	
	Laboratory quality procedures and	
	assessment of laboratory	
	performance	
	Applications in different food	
	industries.	
	Quality control in food service	Must Know
	institutions	
UNIT		Introduction to food &
4	Introduction to the food and	beverage sectors
	beverage sector	Sectors of food service
	Sectors of the foodservice industry	industry Classification
	Food and beverage operations	Types of food & beverage
	Classifications of food service	services
	establishments	
		Desirable to know
	Types of food and beverage	
	services	Operation of food & beverage
		industry

References:-

- 1. Bauman, H.E., *The Hazard Analyses Critical Control Concept, in Food Protection Technology*, edited by C.W., Felix, Lewis Publishers, Chelsea, Michigan, 1987, pp.175–179.
- 2. Simonson, B., Bryan, F.L., Christian, J.H.B., Roberts, T.A., Tompkin, R.B., Silliker, J.H., *Prevention and Control of Food borne Salmonellosis Through Application of Hazard Analysis Critical Control Point (HACCP)*, International Journal of Food Microbiology, Vol. 4, 1987, pp. 227–247.
- 3. Shaw, S., Rose, S.A., *New Food Legislation and the Role of Quality Assurance*, Quality Forum, Vol. 17, No. 4, 1991, pp. 151–155.
- 4. The Quality Auditor's *HACCP Handbook*, ASQ Quality Press, Milwaukee, Wisconsin, 2002.

- 5. Pierson, M.D., Corlett, D.A., *HACCP Principles and Applications*, Van NostrandReinhold Company, New York, 1992.
- 6. Arthey, D., *Quality Control of Fruits and Vegetables and Their Products*, in Quality Control in the Food Industry edited by S.M. Herschdoerfer, Academic Press, London, 1986, pp. 217–260.
- 7. Improving the Safety and Quality of Fresh Fruits and Vegetables: A Training Manual for Trainers, published by the Joint Institute for Food Safety and Applied Nutrition (JIFSAN), University of Maryland, College Park, Maryland, USA, 2002.
- 8. Thorner, M.E., Manning, P.B., *Quality Control in Food Service*, The AVI PublishingCompany, Westport, Connecticut, 1976.
- 9. ANSI Z1.15, *Generic Guidelines for Quality Systems*, American National StandardsInstitute, New York, 1980.

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SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Skill Enhancement Course (SEC-E-I)

Paper Title - Lab Work - Sport Nutrition (Psychological & Counseling)Paper No.Credits : 02Theory - 4 lectures/weekTotal Marks : 50 (Practical)

Course Outcomes:

The students will acquire knowledge of

- Types of exercise
- Research fitness
- Gym Results
- Drawback of fitness.

Pre-requisites Note (if any - Such a knowledge of the topics in the theory papers.)

List of Practical's

- 1. Types of Exercise
- 2. Gym Results
- 3. Fitness researches
- 4. Drawback of fitness
- 5. Long Jump
- 6. Sukhasana
- 7. Vajrasana
- 8. Bhujangasana
- 9. Chakrasana
- 10. Chairstant Test

Scheme of Practical Evaluation

Internal Practical Evaluation

1)	Prepare any one practical from the above	20 Marks
2)	Practical record book	20 Marks
3)	Viva - Voce	10 Marks

References:___

- Nutrition and Metabolism in Sports, Exercise and Health 2nd Editionby Jie Kang (Author)
- Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body Paperback March 15, 2019by <u>Michael Matthews</u>
- The Plant-Based Boost: Nutrition Solutions for Athletes and Exercise Enthusiasts Paperback May27, 2019

Note : (If any such as)

- 1. In theory examination, the weightage to numerical problems should not exceed 30%
- 2. Students can use scientific calculators in theory examination.

50 Marks

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Skill Enhancement Course (SEC-E-II) Paper Title - Lab Work - Clinical Testing/Food Analysis

Paper No. Theory - 4 lectures/week Credits : 02 Total Marks : 50 (Practical)

Course Outcomes:

The students will acquire knowledge of

- Laboratory preparation.
- Visit to food industry
- Food product and their analysis.
- Visit to testing centers.

List of Practical's

- 1) Chromatography used to estimate food colour.
- 2) HPLC
- 3) Refractometer
- 4) Spectophotometer
- 5) Delection of basic tastes and their threshold values.
- 6) Consumer acceptability trail.
- 7) Laboratory preparation of food products and their sensory analysis.
- 8) Cut-out analysis of canned food.
- 9) Visits to the quality control laboratories of food industry.
- 10) Visits to the educational institutions and testing centers.

Scheme of Practical Evaluation

50 Marks

Internal Practical Evaluation

1)	Prepare any one practical from the above	20 Marks
2)	Practical record book	20 Marks
3)	Viva - Voce	10 Marks

References:__

- 1. Bioinstrumentation by .Veerakumari,
- 2. Biochemical & Molecular biology techniques. by Wilson & Walker,
- 3. Food Chemistry, Aurand, L.W. and Woods, A.E. 1973.AVI, Westport.

- 4. Principles of Food Science: Part-I Food Chemistry. Fennema, O.R. Ed. 1976 Marcel Dekker, New York.
- 5. Methods in Food Analysis. Joslyn, M.A. Ed. 1970.Academic Press, New York.
- Developments in Food Analysis Techniques-1. Applied Science King, R.D. Ed. 1978Publishers Ltd., London.
- 7. Separation Methods in Biochemistry 2nd Ed Morris, C.J. and Morris, P. 1976. PitmanPub., London.

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- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Skill Enhancement Course (SEC-E-III) Paper Title - Lab Work - Food Quality Control

Paper No. Theory - 4 lectures/week Credits : 02 Total Marks : 50 (Practical)

Course Outcomes:

The students will acquire knowledge of

- Evaluation of raw material.
- Adulteration in food products.
- Statistical analysis.
- Test of sensory evaluation.

Pre-requisites Note (if any - Such a knowledge of the topics in the theory papers.)

List of Practical's

- 1) HACCP in Food Industry
- 2) Estimation of Quality Measures in Food Industry.
- 3) Visit to Food Industry Production.
- 4) How to Measure food Quality in Foods.
- 5) Evaluation of raw material (milk)
- 6) Evaluation of heat treatment (pasteurization) process.
- 7) Detection of adulteration in food products.
- 8) Detection of non-permitted food additives in market food samples.
- 9) Test of sensory evaluation.
- 10) Statistical analysis of sensory data.

Scheme of Practical Evaluation

50 Marks

Internal Practical Evaluation

1)	Prepare any one practical from the above	20 Marks
2)	Practical record book	20 Marks
3)	Viva - Voce	10 Marks

Reference Books:-

- Bauman, H.E., *The Hazard Analyses Critical Control Concept, in Food Protection Technology*, edited by C.W., Felix, Lewis Publishers, Chelsea, Michigan, 1987, pp.175–179.
- Simonson, B., Bryan, F.L., Christian, J.H.B., Roberts, T.A., Tompkin, R.B., Silliker, J.H., *Prevention and Control of Food borne Salmonellosis Through Application of Hazard Analysis Critical Control Point (HACCP)*, International Journal of Food Microbiology, Vol. 4, 1987, pp. 227–247.
- 3. Shaw, S., Rose, S.A., *New Food Legislation and the Role of Quality Assurance*, Quality Forum, Vol. 17, No. 4, 1991, pp. 151–155.
- 4. The Quality Auditor's *HACCP Handbook*, ASQ Quality Press, Milwaukee, Wisconsin, 2002.
- 5. Pierson, M.D., Corlett, D.A., *HACCP Principles and Applications*, Van NostrandReinhold Company, New York, 1992.
- Arthey, D., *Quality Control of Fruits and Vegetables and Their Products*, in Quality Control in the Food Industry edited by S.M. Herschdoerfer, Academic Press, London, 1986, pp. 217–260.

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- 2. Students can use scientific calculators in theory examination.

SHIVAJI UNIVERSITY, KOLHAPUR Bachelor of Vocation (B. Voc.) Part – III, Semester - VI Nutrition and Dietetics Skill Enhancement Course (SEC-E-IV) Paper Title - Internship/Field Work/Industrial Visit/Study Tour/Health Survey Paper No. Theory - 2 lectures/week Credits : 50 (Internal)

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Course Outcomes:

The students will acquire knowledge of

- Administration process
- Management skills
- Clinical services
- Industrial services.

Important Note :-

Filed work/Hospital Visit/Industrial Visit Tour should be minimum five days in or out of Maharashtra.

Suggested Places:

- 1. In Maharashtra.
- 2. Out of Maharashtra