

# SRI VENKATESWARA UNIVERSITY : TIRUPATI

**B. Voc. in Food Processing Technology**  
**Under CBCS W.E.F. 2020-21**

## **Course Structure** **Semester – I - NSQF Level -4**

Sl. No	Skill/ Gen. Edu	Courses	Title of the Paper/Course and code	Credits per course	Hours/ week	Total Hours/ Course	Marks		
							Internal	External	Total
1	General Education component Gen.Edu	Language	General English	3	3	45	25	75	100
2		Life skills	Human Values and Professional Ethics	2	2	30	-	50	50
3		Skill Dev. Course	Plant Nursery	2	2	30	-	50	50
4			Principles of Horticulture	2	2	30		50	50
5	Domain Skill component	Core-I	Basics of food Chemistry and Analysis	4	4	60	25	75	100
6		Practical-I	Basics of Food Chemistry and Analysis practicals.	2	2	30	-	50	50
7		Core-II	Principles of Food Preservation Technology	4	4	60	25	50	100
8		Practical-II	Principles of food Preservation and Technology practicals.	2	2	30	-	50	50
9		Core-III	Basics of Food Science and nutrition	4	4	60	25	75	100
		Practical III	Basics of Food Science and nutrition practicals	2	2	30	-	50	50
10		Industrial Internship	Industrial Training for 30 days and report & seminar presentation	3	36	144	-	50	50
Total Credits				30	Total Marks				750

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**SRI VENKATESWARA UNIVERSITY :: TIRUPATI**  
**B.A. / B.Com. / B.Sc. / B.Voc. DEGREE COURSES**

**GENERAL ENGLISH**  
**FIRST YEAR - FIRST SEMESTER**  
**Under CBCS W.E.F. 2020-21**

**COURSE - 1 : ENGLISH PRAXIS**  
**A COURSE IN COMMUNICATION AND SOFT SKILLS**

- I. UNIT: Listening Skills**
  - i. Importance of Listening
  - ii. Types of Listening
  - iii. Barriers to Listening
  - iv. Effective Listening
  
- II. UNIT: Speaking Skills**
  - a. Sounds of English: Vowels and Consonants
  - b. Word Accent
  - c. Intonation
  
- III. UNIT: Grammar**
  - a) Concord
  - b) Modals
  - c) Tenses (Present/Past/Future)
  - d) Articles
  - e) Prepositions
  - f) Question Tags
  - g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
  - h) Error Correction
  
- IV. UNIT: Writing**
  - i. Punctuation
  - ii. Spelling
  - iii. Paragraph Writing
  
- V. UNIT: Soft Skills**
  - a. SWOC
  - b. Attitude
  - c. Emotional Intelligence
  - d. Telephone Etiquette
  - e. Interpersonal Skills

Approved by BOS (PASS)  
w.e.f. 2020-2021

  
Chairperson 3/9/2020  
BOS in English  
(PASS)

**SRI VENKATESWARA UNIVERSITY B.A. / B.Com. /  
B.A. / B.Com. / B.Sc. / B.VOC. DEGREE COURSES  
GENERAL ENGLISH  
FIRST YEAR - FIRST SEMESTER  
Under CBCS W.E.F. 2020-21  
ENGLISH PRAXIS COURSE-1**

**A COURSE IN COMMUNICATION AND SOFT SKILLS  
MODEL QUESTION PAPER**

Time: 3 hours

Max Marks: 75

1. Answer any THREE of the following questions (3X5=15)
  - a) What is the importance of Listening?
  - b) Write a note on the types of Listening?
  - c) What are the barriers to listening?
  - d) Explain the strategies for effective listening.
  - e) Describe the traits of a good listener.
  
2. Answer any TWO of the following questions (2X5=10)
  - a. Write about consonant sounds with examples.
  - b. Explain Word Accent
  - c. What are the different kinds of intonation?
  - d. Mark the stress of the following words.  
i) itself    ii) alone    iii) wonderful    iv) pronunciation    v) Electricity
  
3. Attempt the following questions: (2X1=2)
  - a. Concord  
(i) Each of the cars\_\_\_\_\_ very well designed by the company.  
(ii) The average worker's earnings\_\_\_\_\_ gone up dramatically
  - b. Fill in the blanks with suitable Modals: (2X1=2)  
(i) Do we\_\_\_\_\_ to take our certificates for the Interview?  
(ii) You\_\_\_\_\_ get an easy question paper this time.
  - c. Fill in the blanks with appropriate forms of the Verbs given in brackets. (5X1=5)  
(i) Satya\_\_\_\_\_ (come) to college regularly.  
(ii) When the police came, the thief\_\_\_\_\_ (escape)  
(iii) The President\_\_\_\_\_ (address) the public tomorrow  
(iv) I\_\_\_\_\_ (live) in a pent house for the last six months.  
(iv) Aishu\_\_\_\_\_ (go) to school now.
  - d. Fill in the blanks with suitable Articles: (2x1=2)  
(i) I met\_\_\_\_\_ European last month  
(ii) \_\_\_\_\_ poor need our support.
  - e. Fill in the blanks with suitable prepositions (2x1=2)  
(i) The patient is suffering\_\_\_\_\_ fever  
(ii) The sweets are distributed\_\_\_\_\_ children.
  - f. Add Question Tags to the following statements (2x1=2)  
(i) Sita is not writing\_\_\_\_\_?  
(ii) I am late, \_\_\_\_\_?
  - g. Transform the following sentences as directed. (5x1=5)

- (i) The officer ordered the soldiers to open fire(change it into Direct speech)
- (ii) Akbar is one of the greatest kings(change it into positive degree)
- (iii) Bhavanasays,"I write a novel"(change it into Indirect speech)
- (iv) Jim Corbett had killed many tigers(Change it into passive voice)
- (iv) Mary is as clever as Lily. (Change it into Comparative degree).

h. Correct the following sentences (5x1=5)

- (i) could you return back the library cards to me, please
- (ii) The painting is too beautiful.
- (iii) Ram camped besides the lake.
- (iv) I have read the book yesterday.
- (v) The news are very pathetic.

4. Answer any TWO of the following questions. (2x5=10)

i. Punctuate the following

The dog grinned sardonically down on him over the edge for a moment as if he thought it would be a good lark to drop the cartridge down on jim.

ii. Pick out the correct word:

- |                   |                |                |                 |
|-------------------|----------------|----------------|-----------------|
| a) A. company     | B. Compony     | C. Kompony     | D. Komphony     |
| b) A. Techanology | B. Technalogy  | C. Tachnology  | D. Technology   |
| c) A. achievement | B. acheivement | C. acheevement | D. achieevement |
| d) A. psychology  | B. Psychologi  | C. acheevement | D. achieevement |
| e) A. Occassion   | B. occasion    | C. Occaassion  | D. occasion     |

iii. Write a meaningful paragraph using the hints given below and suggest a suitable title

Reading hobby---good and bad books---of the hour and forever---books as best companions--- they entertain, educate and enlighten---make one forget one's loneliness.


iv) Expand any one of the following idea:

- a) A stitch in time saves nine
- b) Rome was not built in a day.

5. Answer any THREE of the following questions: (3x5=15)

- a. What are the benefits of 'SWOC' analysis?
- b. Explain the importance of positive attitude. How can we develop it?
- c. Describe the qualities needed to develop emotional intelligence
- d. What is Telephone Etiquette? Explain
- e. How do you demonstrate good interpersonal skills?

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(Dr M.SREELATHA),  
Chairman,  
BOS in English(PASS).

**SRI VENKATESWARA UNIVERSITY : : TIRUPATI**  
**B.A. / B.Com. / B.Sc. / B.Voc. DEGREE COURSE**  
**FIRST YEAR - FIRST SEMESTER**  
**Life Skill Course - HUMAN VALUES AND PROFESSIONAL ETHICS (HYPE)**  
**Under CBCS W.E.F. 2020-21**

**Learning Outcome:**

On completion of this course, the UG students will be able to

- ✓ Understand the significance of value inputs in a classroom and start applying them in their life and profession
- ✓ Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
- ✓ Understand the value of harmonious relationship based on trust and respect in their life and profession
- ✓ Understand the role of a human being in ensuring harmony in society and nature. .
- ✓ Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

**UNIT: 1 Introduction – Definition, Importance, Process & Classifications of Value Education**

- ❖ Understanding the need, basic guidelines, content and process for Value Education
- ❖ Understanding the thought provoking issues: need for Values in our daily life
- ❖ Choices making – Choosing, Cherishing & Acting
- ❖ Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values.

**UNIT: 2 Harmony in the Family – Understanding Values in Human Relationships**

- ✓ Understanding harmony in the Family- the basic unit of human interaction
- ✓ Understanding the set of proposals to verify the Harmony in the Family:
- ✓ Trust (*Vishwas*) and Respect (*Samman*) as the foundational values of relationship
- ✓ Present Scenario: Differentiation (Disrespect) in relationships on the basis of body, physical facilities, or beliefs.
- ✓ Understanding the Problems faced due to differentiation in Relationships
- ✓ Understanding the harmony in the society (society being an extension of family): *Samadhan*, *Samridhi*, *Abhaya*, *Sah-ashtya* as comprehensive Human Goals
- ✓ Visualizing a universal harmonious order in society- Undivided Society (*AkhindSamaj*), Universal Order (*SarvabhauMyazwasthu*)- from family to world family.

**UNIT: 3 Professional Ethics in Education**

- ✓ Understanding about Professional Integrity, Respect & Equality, Privacy, Building Trusting Relationships.
- ✓ Understanding the concepts: Positive co-operation, Respecting the competence of other professions.
- ✓ Understanding about Taking initiative and Promoting the culture of openness.
- ✓ Depicting Loyalty towards Goals and objectives.

Approved by  
G.O. Jyothi R.  
(Dr. G.O. Jyotheeswari Devi)



**Text Books:**

R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.

Bhatia, R. & Bhatia, A (2015) Role of Ethical Values in Indian Higher Education.

**References:**

- Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and Harper Collins, U
- E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
- Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
- Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Limits to Growth – Club of Rome's report, Universe Books.
- A Nagraj, 1998, Jeevan Vidya EkParichay, Divya Path Sansthan, Amarkantak.
- P L Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
- A N Tripathy, 2003, Human Values, New Age International Publishers.

**Mode of Evaluation:**

Assignment/ Seminar/Continuous Assessment Test/Semester End Exam.

**Co curricular Activities:**

1. Visit to an Old Age Home and spending with the inmates for a day.
2. Conduct of Group Discussions on the topics related to the syllabus.
3. Participation in community service activities.
4. Working with a NGO like Rotary Club or Lions International, etc.

**SRI VENKATESWARA UNIVERSITY :: TIRUPATI**  
**HUMAN VALUES AND PROFESSIONAL ETHICS**  
**MODEL QUESTION PAPER**

I SEMESTER - W.E.F. 2020-21

Time: 1½ Hour(90 Min.)

Max.Marks: 50

**SECTION-A**

I. Answer any **FOUR** Questions:

4x5=20

1. Illustrate the content of Value Education.
2. What are the basic guidelines for Value Education?
3. Explain Moral Values in Value Education?
4. Write on basic unit of the Human Interactions?
5. What do you mean by differentiation in relationship?
6. What can be the basis of undivided society for the word family?
7. Write about the need of Professional Integrity?
8. Explain the significance of positive cooperation in professions.

II. Answer any **THREE** Questions

3X10=30

9. Explain and justify the need of the Value Education in our daily life?
10. Brief about the classification of the Value Education.
11. Explain Set of proposals to verify Harmony in the Family?
12. Write the role of trust and respect as Foundation Value in Complete Human Relationship?
13. Write about role of loyalty in achieving the goals and objectives?
14. Write the need and significance of promoting the culture of openness?

Approved by  
G. D. Jyothirani  
(Dr G. D. Jyotheeswari Devi)



**SRI VENKATESWARA UNIVERSITY :: TIRUPATI**  
**B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY**

**FIRST YEAR – FIRST SEMESTER**  
**Under CBCS W.E.F. 2020-21**

**GENERAL EDUCATION COMPONENT**  
**Skill Development Course-I: PLANT NURSERY**

Total 30 hrs (02h/wk),

02 Credits & Max Marks: 50

**Learning Outcomes :**

*On successful completion of this course students will be able to;*

- 1. Understand the importance of a plant nursery and basic infrastructure to establish it.*
- 2. Explain the basic material, tools and techniques required for nursery.*
- 3. Demonstrate expertise related to various practices in a nursery.*
- 4. Comprehend knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector.*

**Syllabus:**

**Unit-1 :Introduction to plant nursery**

**06 Hrs.**

1. Plant nursery: Definition, importance.
2. Different types of nurseries –on the basis of duration, plants produced, structure used.
3. Basic facilities for a nursery; layout and components of a good nursery.
4. Plant propagation structures in brief.
5. Bureau of Indian Standards (BIS-2008) related to nursery.

**Unit- 2 :Necessities for nursery**

**09 Hrs.**

1. Nursery beds – types and precautions to be taken during preparation.
2. Growing media, nursery tools and implements, and containers for plant nursery, in brief.
3. Seeds and other vegetative material used to raise nursery in brief.
4. Outlines of vegetative propagation techniques to produce planting material.
5. Sowing methods of seeds and planting material.

**Unit-3 :Management of nursery**

**09 Hrs.**

1. Seasonal activities and routine operations in a nursery.
2. Nursery management – watering, weeding and nutrients; pests and diseases.
3. Common possible errors in nursery activities.
4. Economics of nursery development, pricing and record maintenance.
5. Online nursery information and sales systems.



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**B.VOC. EXAMINATION IN FOOD PROCESSING TECHNOLOGY**

**FIRST YEAR – FIRST SEMESTER**

**Under CBCS W.E.F. 2020-21**

**GENERAL EDUCATION COMPONENT**

**Skill Development Course-I: PLANT NURSERY**

**MODEL QUESTION PAPER**

**Time: 1 ½ hours (90 Min.)**

**Marks: 50**

**PART – A**

Answer any **Four** of the following question. Each Question carries **5 Marks** (4X5=20M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

**PART – B**

Answer any **Three** of the following Questions. Each Question carries **10 Marks** (3X10= 30M)

9.	
10.	
11.	
12.	
13.	
14.	

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**GENERAL EDUCATION COMPONENT**  
**Skill Development Course-II: PRINCIPLES OF HORTICULTURE**

**Total credits: 02**

**Total hours: 30**

**Learning Outcomes:**

**By successful completion of the course, students will be able to;**

1. Understand the classification of horticultural crops, propagation methods and horticultural zones.
2. Familiarization with commercial varieties of fruits, Eco physiological requirements and cropping system.
3. To educate principles and components of organic farming, role of bio fertilizers.
4. Organic horticulture quality improvement.

**Syllabus:**

**Unit I: Basics of Horticulture**

**08 hours**

- Definition, classification of horticultural crops and fruits.
- Importance of horticulture in terms of economy and production
- Propagation methods – cutting, layering, grafting, tissue culture methods, merits and demerits.
- Horticultural zones of India, production, import and export of horticultural crops. Innovative horticultural practice.

**Unit II: Tropical and Dry Land Fruit Production**

**08 hours**

- Commercial varieties of regional. National importance fruit. Eco physiological requirements,
- Cropping systems, nutrient management, water management.
- Industrial and export potential. Agri Export Zones(AEZ) of following crops. Mango, Banana, Citrus, Papaya, Guava, Pine apple and Sapota.

**Unit III: Organic Fruit and Vegetable production**

**08 hours**

- Organic Horticulture: Definition, principles, merits and demerits. Components of organic farming, Different organic inputs and their role in organic horticulture.
- Role of Bio fertilizers, sustainable soil fertility management.
- Weed management practices in organic farming.
- Organic horticulture quality improvement.

**Co-curricular activity**

**06 hours**

1. Visit to Food processing industries.
2. Organic field visit.
3. Visit of integrated farmers and innovative methods.

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**FIRST YEAR – FIRST SEMESTER**  
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**GENERAL EDUCATION COMPONENT**  
**Skill Development Course-II: PRINCIPLES OF HORTICULTURE**

**MODEL QUESTION PAPER**

**Time: 1 ½ hours (90 Min.)**

**Marks: 50**

**PART – A**

Answer any **Four** of the following question. Each Question carries **5 Marks** (4X5=20M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

**PART – B**

Answer any **Three** of the following Questions. Each Question carries **10 Marks** (3X10=30M)

9.	
10.	
11.	
12.	
13.	
14.	

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**FIRST YEAR – FIRST SEMESTER**  
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**SKILL COMPONENT**  
**Core Paper-I: BASICS OF FOOD CHEMISTRY&ANALYSIS**

**Total Credits: 04**

**Total hours: 60**

**Learning Outcomes**

- To name and describe the general chemical structures of the major components of foods (water, proteins, carbohydrates, and lipids) and selected minor components (vitamins and minerals).
- To know about the changes that occurs in foods during processing.
- To study the classification, structure and chemistry of the various food components.
- To understand the changes that occurs in the different constituents during storage and ways and means to prevent it.

**Syllabus:**

**Unit I - Introduction to Food chemistry**

**12 hours**

Introduction to Food chemistry, Colloids, Colloidal systems, Dispersion. Water activity and its relation with physical, chemical and microbial changes in foods.pH of Foods.

**Unit II - Carbohydrates and Lipids**

**12 hours**

Carbohydrates and Lipids- Structure, Classification, Composition and physical, chemical and functional properties

**Unit III - Protein and Amino acids**

**12 hours**

Protein and Amino Acids-Structure, Classification, Composition and physical, chemical and functional properties

**Unit IV - Pigments**

**12 hours**

Pigments – Anthocyanin & Carotenoids, chlorophylls, Classification, Composition and physical, chemical and functional properties

**Unit V - Food Analysis**

**12 hours**

Food Analysis – Methods of Food Analysis, Volumetric methods, Spectroscopic methods, Atomic absorption method, determination of moisture in food.



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**SKILL COMPONENT**  
**Practical Paper-I: BASICS OF FOOD CHEMISTRY&ANALYSIS**

**Credits: 02**

**Total hours: 30**

1. Estimation of moisture in food samples
2. Determination of PH and acidity of various food samples
3. Estimation of protein in food samples
4. Estimation of total fat in food samples
5. Estimation of fiber in food samples
6. Estimation of Ash in food samples
7. Estimation of total sugars, reducing and non-reducing sugars in various food samples.
8. Determination of minerals in food products: Calcium by Titration
9. Determination of minerals in food products: Phosphorus by Spectrophotometer
10. Determination of minerals in food products: Iron by Spectrophotometer

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**SKILL COMPONENT**

**Core Paper-II: PRINCIPLES OF FOOD PRESERVATION AND TECHNOLOGY**

**Total Credits: 04**

**Total hours: 60**

**Learning Outcomes**

- To study the different ways in which food spoilage occurs and the techniques to prevent it.
- To know the different spoilage agents and the ways in which they act on food.
- To understand the principles behind the various methods of food preservation.
- To know how to use these principles to preserve different types of foods.
- To study the method of action of different preservatives

**Syllabus:**

**Unit I - Introduction to Food Preservation Technology**

**12 hours**

Scope and benefit of industrial food preservation, perishable, non- perishable food, food spoilage – Principle, method, equipment, and effect on food quality

**Unit II - Thermal Processing**

**12 hours**

Thermal processing methods of preservation – Principle and equipment's: Canning, blanching, pasteurization, sterilization, evaporation, etc. Need and principle of concentration, methods of concentration – Thermal concentration, freeze concentration, Vacuum drying, membrane concentration, changes in food quality by concentration. Time and temperature studies. Thermal death time, D values, Z values.

**Unit III - Cold Preservation and Processing**

**12 hours**

Food preservation by use of low temperature – Principle, equipment's, and effect on quality  
Chilling, cold storage, freezing.

**Unit IV - Food Dehydration**

**12 hours**

Preservation by drying dehydration – Principle, Methods, equipment, and effect on quality: Difference, importance of drying and dehydration over other methods of drying and dehydration, equipment's and machineries, physical and chemical changes in food during drying and dehydration.

**Unit V - Radiation processing, chemical preservation, & other preservation techniques 12hours**

Preservation by radiation: Definition, methods of irradiation, direct and indirect effect, measurement of radiation dose, dose distribution, effect on microorganisms.

Preservation of foods by chemicals: antioxidants, mold inhibitors, antibodies, acidulants etc.

Preservation by fermentation- Definition, advantages, disadvantages, types, equipment's.

Recent methods in preservation: Pulsed electric field processing, High pressure processing, Natural preservation techniques.

## Reference

1. Fennema OR.1996. Food Chemistry. Marcel Dekker.
2. Meyer LH. 1987. Food Chemistry
3. Gould, G. W. (2012), “New Methods of food preservation”, Springer Science & Business Media.
4. Food Science by N.N. Potter, CBS publishing.
5. Manay, N.S. Shadaksharaswamy, M. (2004), “Foods- Facts and Principles”, New age international publishers, New Delhi. 3. Srilakshmi, B. (2003), “FoodScience”, New Age International Publishers, New Delhi.
6. Subalakshmi, G and Udipi, S.A. (2001), “Food processing and preservation”. New Age International Publishers, New Delhi.
7. Principles of Food Science, Vol. II- G. Borgstron, Mc. Millan Co. Ltd. London.
8. Food Science- Potter, CBS publishers.
9. Food Processing Operations Vol. III -M.A. Joslyn and J.J. Heild. 8. Preservation of Fruits and Vegetables- Giridhari Lal, G.S. Siddappa, andG.L. Tondon

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**FIRST YEAR – FIRST SEMESTER**  
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**SKILL COMPONENT**  
**Practical Paper-II: PRINCIPLES OF FOODPRESERVATION AND TECHNOLOGY**

**Credits: 02**

**Total hours: 30**

- 1 Demonstration of various perishable food items and degree of spoilage
- 2 Blanching of selected food items
- 3 Preservation of food by heat treatment- pasteurization and sterilization.
- 4 Preservation of food, concentration of sugar: Jam
- 5 Preservation of food by using salt: Pickle
- 6 Preservation of food by using acidulants i.e. pickling by acid, vinegar or acetic acid;
- 7 Preservation of food by using chemical preservatives
- 8 Drying of fruit slices pineapple slices, apple slices in cabinet drier; Drying of green leafy vegetables;
- 9 Demonstration of preserving foods under cold conditions –Freezer.
- 10 Visit to food processing industries



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**FIRST YEAR – FIRST SEMESTER**

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**SKILL COMPONENT**

**Core Paper-III: BASICS OF FOOD SCIENCE AND NUTRITION**

**Total Credits: 04**

**Total hours: 60**

**Learning Outcomes:**

- To know and understand the functions, importance of all nutrients present in foods
- To know about the various types of nutrients and their functions in the body.
- To familiarize with the recent advances in field of nutrition
- To understand the different types of newly developed food products.

**Syllabus:**

**Unit I - Introduction to food science**

**12 Hours**

**Food** -Definition, classification, based on origin, pH and nutritive value.

**Food groups**- Classification, Sources and Functions. New concepts of foods.

**Unit II - Basic concepts of nutrition**

**12 Hours**

Definition of nutrition and health, inter-relationship between nutrition and health. Classification of Nutrients. occurrence, sources and functions

Malnutrition- Definition and types. Recommended dietary allowances

**Unit III - Macro Nutrients**

**12 Hours**

**Carbohydrates, Protein and Fats** - Classification, structure, function, sources, bioavailability, enrichment, fortification, and restoration. Units of measurement. Deficiency and toxicity disorders.

**Energy**-Units of energy, food as a source of energy, basal metabolic rate, factors effecting BMR, total energy Requirement

**Unit IV - Micro Nutrients**

**12 Hours**

**Vitamins- Water soluble and fat-soluble Vitamins**- Classification, structure, function, sources, bioavailability, enrichment, fortification, and restoration. Units of measurement. Deficiency and toxicity disorders.

**Minerals-Fe, Ca, Zn, Na, K and Selenium**- Classification, structure, function, sources, bioavailability, enrichment, fortification, and restoration. Units of measurement. Deficiency and toxicity disorders.

**Unit V - Water**

**12 Hours**

**Water**-Functions, daily requirements, Water and electrolyte balance.

## Reference Books

1. James L Groff and Sareen S Gropper, (2009) “Advanced Nutrition and Human Metabolism”, Fourth Edition, Wadsworth Publishing Company.
2. Food Science by B. Srilakshmi, publishing, New Age International (P) ltd. publications.
3. Maurice B Shils, Moshe Shike A, Catherine Ross, Benjamin Cabellero, Robert J Cousins, (2006), “Modern Nutrition in Health and Disease”, Lippincott Williams al Wilkins.
4. Michael J Gibney, Ian A Macdonald and Helen M Roche (2003) “Nutrition and Metabolism”, The Nutrition Society Textbook Series, Blackwell Publishing, First Edition.
5. Biochemistry of Foods: - N.A.M. Eskin, H.M. Henderson, R. J. Townsend.
6. Introduction to the Biochemistry of Foods: Z. Berk.
7. Food and Nutrition: - M. Swaminathan.

**SRI VENKATESWARA UNIVERSITY :: TIRUPATI**  
**B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY**

**FIRST YEAR – FIRST SEMESTER**  
**Under CBCS W.E.F. 2020-21**

**SKILL COMPONENT**  
**Practical Paper-III: BASICS OF FOOD SCIENCE AND NUTRITION**

**Credits: 02**

**Total hours: 30**

1. Market survey of local available foods.
2. Grouping of foods according to ICMR classification.
3. Find the percentage of edible portion of foods
4. Identification of nutritional problems in community.
5. Planning carbohydrate rich recipes.
6. Planning protein rich recipes
7. Planning vitamin rich recipes.
8. Planning mineral rich recipes
9. Market survey of products available for Malnutrition.
10. Visit to local Anganwadi.

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**FIRST YEAR – FIRST SEMESTER**  
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**INDUSTRIAL INTERNSHIP**

**Industrial Training for 30 days**

<b>Total Credits</b>	<b>Total hours / week</b>	<b>Total hour / semester</b>
<b>03</b>	<b>36</b>	<b>144</b>

**1. Industrial Training for 30 days**

30 days of internship to provide industrial exposure to the students through internship with various food processing industries to develop good practical knowledge beyond the classroom experience.

**2. Report writing.**

**3. Seminar presentation**



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**B.VOC. EXAMINATION IN FOOD PROCESSING TECHNOLOGY**

**FIRST YEAR – FIRST SEMESTER**

**Under CBCS W.E.F. 2020-21**

**CORE PAPERS - I, II & III**  
**MODEL QUESTION PAPER**

**Time: 3 hours**

**Marks: 75**

**SECTION – A**

Answer **ALL** of the following

**5X2=10Marks**

- 1.
- 2.
- 3.
- 4.
- 5.

**SECTION – B**

Answer any **THREE** of the following

**3X5=15Marks**

- 6.
- 7.
- 8.
- 9.
- 10.

**SECTION – C**

Answer **ALL** of the following

**5X10=50Marks**

11.     A  
         (or)  
          B
12.     A  
         (or)  
          B
13.     A  
         (or)  
          B
14.     A  
         (or)  
          B
15.     A  
         (or)  
          B