SYLLABUS

FOR

B.Voc. (Three Year Degree Course)

Bachelor of Vocational Degree, Advance Diploma and Diploma in (FOOD PROCESSING AND QUALITY CONTROL)
Under

UGC’s National Skill Qualification Framework (NSQF)

At

ABMSP’S
Anantrao Pawar College of Architecture,
Pune (Maharashtra)

Affiliated

To

Savitribai Phule Pune University.

YEAR 2018-2019
## COURSE STRUCTURE

### Year I (Diploma)

<table>
<thead>
<tr>
<th>SEMESTER</th>
<th>CODE</th>
<th>SUBJECT NAME</th>
<th>CREDITS</th>
<th>COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMESTER - I</td>
<td>FPQC-11</td>
<td>Fundamentals in Food and Nutrition-PP</td>
<td>4</td>
<td>General Education Component (18 credits)</td>
</tr>
<tr>
<td></td>
<td>FPQC-12</td>
<td>Introduction to Food Science PP</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-13</td>
<td>Organic and Inorganic Chemistry P</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>FPQC-14</td>
<td>English Communication P</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-15</td>
<td>Physical and Analytical Chemistry P</td>
<td>2</td>
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<tr>
<td></td>
<td>FPQC-16</td>
<td>Lab Course- I -SV</td>
<td>4</td>
<td>Skill Component (12 credits)</td>
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<tr>
<td></td>
<td>FPQC-17</td>
<td>Lab Course- II -</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-18</td>
<td>Lab Course- III</td>
<td>4</td>
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<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td></td>
</tr>
<tr>
<td>SEMESTER - II</td>
<td>FPQC-21</td>
<td>Post-Harvest Technology</td>
<td>4</td>
<td>General Education Component (18 credits)</td>
</tr>
<tr>
<td></td>
<td>FPQC-22</td>
<td>Food Preservation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-23</td>
<td>Processing Technology of Dairy Products</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-24</td>
<td>Human Physiology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-25</td>
<td>Personality Development</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPQC-26</td>
<td>Lab Course- IV</td>
<td>4</td>
<td>Skill Component (12 credits)</td>
</tr>
<tr>
<td></td>
<td>FPQC-27</td>
<td>Lab Course- V</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>FPQC-28</td>
<td>Lab Course- VI</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td></td>
</tr>
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</table>

### Year II (Advanced Diploma)

| SEMESTER - III | FPQC-31 | Food Packaging, Labelling& Regulation             | 4       | General Education Component(14 credits) |
|               | FPQC-32 | Human Nutrition                                   | 4       |           |
|               | FPQC-33 | Food Chemistry                                    | 4       |           |
|               | FPQC-34 | Environmental Studies                             | 2       |           |
|               | FPQC-35 | Lab Course- VII                                   | 4       |           |
|               | FPQC-36 | Lab Course- VIII                                  | 4       | Skill Component (16 credits) |
|               | FPQC-37 | Lab Course- IX                                    | 4       |           |
|               | FPQC-38 | Culinary Science                                  | 4       |           |
|               |        | **Total**                                         | **30**  |           |

<p>| SEMESTER - IV  | FPQC-41 | Food Processing Technology and Equipments         | 4       | General Education Component(14 credits) |
|               | FPQC-42 | Nutritional Biochemistry                          | 4       |           |
|               | FPQC-43 | Techniques in Food Analysis                       | 4       |           |
|               | FPQC-44 | Introduction to Entrepreneurship                  | 2       |           |
|               | FPQC-45 | Lab Course- X                                     | 4       | Skill Component(16 credits) |
|               | FPQC-46 | Lab Course- XI                                    | 4       |           |
|               | FPQC-47 | Lab Course- XII                                   | 4       |           |
|               | FPQC-48 | Bakery and Confectionary                          | 4       |           |
|               |        | <strong>Total</strong>                                         | <strong>30</strong>  |           |</p>
<table>
<thead>
<tr>
<th>SEMESTER - V</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>FPQC- 51</td>
<td>Industrial / In-Plant Training INTERSHIP</td>
<td>30</td>
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<tr>
<td></td>
<td>Total</td>
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<td>30</td>
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</table>

**Year III (B.Voc Degree)**

<table>
<thead>
<tr>
<th>SEMESTER - VI</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FPQC- 61</td>
<td>Food Science &amp; Quality Control</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 62</td>
<td>Meat, Fish and Poultry Technology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 63</td>
<td>Food Microbiology, Sanitation &amp; Hygiene</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 64</td>
<td>Clinical Nutrition</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 65</td>
<td>Lab Course- XIII</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 66</td>
<td>Lab Course- XIV</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FPQC- 67</td>
<td>Food Product Development and Sensory evaluation – PRACTICAL SV</td>
<td>6 - 150</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Skill Component (30 credits) General Education Component (16 credits) Skill Component (14 credits)
GUIDELINES FOR INTRODUCTION OF BACHELOR OF VOCATION (B.VOC.) PROGRAMME IN UNIVERSITIES AND COLLEGES UNDER THE NATIONAL SKILLS QUALIFICATIONS FRAMEWORK (NSQF)

1. Introduction

It has been a long felt necessity to align higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum, in an innovative and flexible manner while developing a holistic and well groomed graduate.

Ministry of HRD, Government of India had issued an Executive Order in September 2011 for National Vocational Education Qualification Framework (NVEQF). Subsequently, Ministry of Finance, in pursuance of the decision of Cabinet Committee on Skill Development in its meeting held on 19th December, 2013, has issued a notification for National Skills Qualifications Framework (NSQF) which supersedes NVEQF.

Under the National Skills Development Corporation, many Sector Skill Councils representing respective industries have/are being established. One of the mandates of Sector Skill Councils is to develop National Occupational Standards (NOSs) for various job roles in their respective industries. It is important to embed the competencies required for specific job roles in the higher education system for creating employable graduates.

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs along with broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India’s economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.
2. **Objectives**

2.1 To provide judicious mix of skills relating to a profession and appropriate content of General Education.

2.2 To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.

2.3 To provide flexibility to the students by means of pre-defined entry and multiple exit points.

2.4 To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.

2.5 To provide vertical mobility to students coming out of 10+2 with vocational subjects.

3. **Levels of Awards**

The certification levels will lead to Diploma/Advanced Diploma/B. Voc. Degree in one or more vocational areas and will be offered under the aegis of the University.

<table>
<thead>
<tr>
<th>Award</th>
<th>Duration</th>
<th>Corresponding NSQF level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>1 Year</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Diploma</td>
<td>2 Years</td>
<td>6</td>
</tr>
<tr>
<td>B.Voc. Degree</td>
<td>3 Years</td>
<td>7</td>
</tr>
</tbody>
</table>

4. **Marking Scheme:**

Min 40% passing for both session & theory examination.

<table>
<thead>
<tr>
<th>Marks Obtained</th>
<th>Grade</th>
<th>Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-100</td>
<td>O: Outstanding</td>
<td>10</td>
</tr>
<tr>
<td>70-79</td>
<td>A+: Excellent</td>
<td>9</td>
</tr>
<tr>
<td>60-69</td>
<td>A: Very Good</td>
<td>8</td>
</tr>
<tr>
<td>55-59</td>
<td>B+: Good</td>
<td>7</td>
</tr>
<tr>
<td>50-54</td>
<td>B: Above Average</td>
<td>6</td>
</tr>
<tr>
<td>45-49</td>
<td>C: Average</td>
<td>5</td>
</tr>
<tr>
<td>40-44</td>
<td>P: Pass</td>
<td>4</td>
</tr>
<tr>
<td>0-39</td>
<td>F: Fail</td>
<td>0</td>
</tr>
</tbody>
</table>
5. **Eligibility for admission in B.Voc.**

The eligibility condition for admission to B.Voc.programme shall be 10+2 or equivalent, in any stream. OR

10+3 Diploma any stream recognized by DTE OR

State level recognized (10+2) courses of various boards.

6. **Curriculum**

The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components. Curriculum details should be worked before introduction of the courses.

7. **Guidelines for credit calculations**

7.1 This section contains credit framework guidelines. The university/college should use these guidelines or adapt them.

7.2 The following formula should be used for conversion of time into credit hours.

   a) One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops/labs and tutorials;

   b) For internship/field work, the credit weight age for equivalent hours shall be 50% of that for lectures/workshops;

   c) For self-learning, based on e-content or otherwise, the credit weight age for equivalent hours of study should be 50% or less of that for lectures/workshops.
7.3 The suggested credits for each of the years are as follows:

<table>
<thead>
<tr>
<th>NSQF Level</th>
<th>Skill Component Credits</th>
<th>General Education Credits</th>
<th>Normal calendar duration</th>
<th>Exit Points / Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 3</td>
<td>36</td>
<td>24</td>
<td>Six Semesters</td>
<td>B.Voc.</td>
</tr>
<tr>
<td>Year 2</td>
<td>36</td>
<td>24</td>
<td>Four semesters</td>
<td>Advanced Diploma</td>
</tr>
<tr>
<td>Year 1</td>
<td>36</td>
<td>24</td>
<td>Two semesters</td>
<td>Diploma</td>
</tr>
<tr>
<td>TOTAL</td>
<td>108</td>
<td>72</td>
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</tr>
</tbody>
</table>
SYLLABUS
FOR
F. Y. B.VOC. (FOOD PROCESSING AND QUALITY CONTROL)
THREE YEAR DEGREE PROGRAM

SEMESTER I

FSQC 11: FUNDAMENTALS OF FOOD AND NUTRITION 04 credits – 60hrs (Each unit- 10 hrs)

COURSE OBJECTIVES:
• To provide students with the knowledge of basic terminology and several aspects of nutrition and the functions of food in healthy life sustenance
• To ensure that students are familiar with the food classification, nutrition during special conditions and role of special functional food
• To equip students with knowledge and understanding of modern aspects of nutritional science and novel food usage.

COURSE CONTENT:

UNIT I
Basic definition, function, classification and dietary sources of foods, nutrition and dietetics Concept of malnutrition, health, immunity by food and functions of food.

UNIT II

UNIT III
Macronutrients in the Diet: Protein, Carbohydrate, Fat/Lipids. Storage, Functioning, Intake, Synthesis and health problems related to excess intake.

UNIT IV
Micronutrients in the Diet: Water soluble vitamins, Fat soluble vitamins, water and electrolytes, Trace elements.

UNIT V

REFERENCES:
FSQC 12: INTRODUCTION TO FOOD SCIENCE 04 credits – 60hrs (Each unit- 10 hrs)

COURSE OBJECTIVES:
• To acquire an overall concept about food technology
• To enable students to apply scientific methods independently

COURSE CONTENT:

UNIT I
Introduction to food science, Concept of food, food science, Objectives of food science, Classification and Functions of food.

UNIT II
Structure, composition and Importance of cereal grains, Types of cereals used in cooking, Cereal cookery- Gelatinization, Dextrinization and Identity of grain, Processed cereals, millets and Ready-To-Eat cereals used in cooking.

UNIT III
Pulses and Legumes, Definition, composition and structure of pulses, Cooking of Legumes and Factors Affecting cooking time of pulses and legumes, Uses of legumes in cookery.

UNIT IV
Fruits and Vegetables Cookery, Classification of Fruits and vegetables, Colour pigments in Fruits and vegetables, Effect of heat, acids and alkali on Fruits and vegetables, Changes during cooking and storage.

UNIT V
Nuts and Oilseed, processing, Classification, composition, use of nuts in cookery, Fats & Oils, Spices and Condiments. Medicinal Uses.

REFERENCE:
FPQC 13: ORGANIC AND INORGANIC CHEMISTRY 04 credits – 60hrs (Each unit- 10 hrs)

UNIT I
Atomic and Molecular Structure:
Bohr atom, hydrogen spectrum, particle-wave duality, orbitals, wave function, quantisation, quantum numbers, spin, hydrogenic atoms, radial and angular functions: radial distribution function, angular shapes of s,p,d,f orbitals, Pauli exclusion principle, Aufbau principle, screening penetration and effective nuclear charge, Hund’s rule, trends in atomic size, ionisation energies, electron affinity, electronegativity, polarizability and polarizing powers.

UNIT II
Acids-Base strengths, acidity and basicity of solvents, acid-base reactions, gas phase, solvents and solvolysis, proton affinities, oxoacids, polybasic acids, statistical effect, electrostatic effect, buffers. Introduction to Thermodynamics: work, temperature, systems, 1st Law, heat, state and path functions. Type of colloidal system in food- sol, gel, emulsion, foam. Constituents of food, true solution, suspension, stability of colloidal system.

UNIT III
Food science concept- Basic SI unit of length, volume and weight, temperature, relative density, pH or potential hydrogen physico-chemical properties of food- boiling point, evaporation, melting point, smoke point, surface tension, osmosis, humidity, freezing point and specific gravity, electrolysis, redox reaction, oxidation and reduction potential. Solutions and colligative property. Types of solutions, Saturated, unsaturated and supersaturation of solution.

UNIT IV
Halogen derivatives of alkanes and arenes. Alcohols, phenols and ether.

UNIT V
Aldehydes, ketones and carboxylic acids. Chemicals in food- preservative, sweetener, antioxidants, cleansing agents- soaps, detergents and mechanism.

REFERENCES:
3. Organic chemistry by Robert Morrison and Robert Boyd (sixth edition)
4. Organic chemistry by Fieser and Fieser.

FPQC 14: ENGLISH COMMUNICATION 02 credits – 30 hrs (Each unit- 6 hrs)

FSQC 15: PHYSICAL AND ANALYTICAL CHEMISTRY 02 credits – 30hrs (Each unit- 6 hrs)
COURSE CONTENT:

UNIT I
Gravimetric method, Common Ion effect, solubility, precipitation, complexion effects of acid, effect of temperature and solvent upon solubility of precipitate, super saturation and precipitate formation, re- precipitation.

UNIT II

UNIT III
Solvent extraction methods i.e. ion association, salvation, chelate formation and its application. Ion exchange chromatography, principle, technique, application.Principles of chromatography, types, (absorption, partition, column), principles, diameter of column, packing loading of sample, elution.

UNIT IV
Instrumental methods of chemical analysis- definition, instrumentation and application. Potentiometry, Conductometry, Refractometry, Calorimetry and Spectrophotometry.

UNIT V

REFERENCES:
1. Essentials of Food & Nutrition by Swaminathan, Vol. 1 & 2
2. Food Chemistry by L. H. Muyer
3. Hand Book of Analysis of fruits & vegetables by S. Ranganna
4. Food Chemistry by Linhinger
5. Chemical changes in food during processing by Richardson
6. Nutrition and Dietetics by Rose

FPQC 16: Lab Course I - 04 credits – 60hrs (12 P * 5 hrs)
1. Weighing and measuring of food items – flours, cereals, Pulses, F and VProducts, pulses and dal, sugar, oils and other liquid foods.
2. Preparation of using cereals and pulses.
3. Preparation of recipes using vegetables.
4. Preparation of recipes using fruits.
5. Preparation of recipes using fish, egg and meat.
6. Preparation of beverages.
8. Effect of solutes on boiling point and freezing point of water.
10. Vegetables, pulses and cereals.
11. Preparation of Sugar and Jaggery syrup
13. Study of induction and microwave cookers
14. Preparation of fermented foods

**FPQC 17: Lab Course II**

4 credits – 60hrs (12 P * 5 hrs)

1. Introduction to Chemistry lab, apparatus.
2. Preparation of standard solution.
3. Acid base titration to find out normality and molarity.
4. pH determination of various solutions.
5. Viscosity measurement by Ostwald’s Viscometer.
6. Study and care of microscope.
7. To study paper chromatography.
8. To study thin layer chromatography.
9. To study glass chromatography.
10. To study separation techniques.
11. Study of an enzymatic reaction.
12. Preparation of cell-free extract: Bacterial cell by sonication, Chicken liver by homogenization.

**FPQC 18: Lab Course III**

4 credits – 60hrs (12 P * 5 hrs)

1. Introduction to laboratory of nutrition.
2. Methods and medium of cooking.
3. Food guide and RDA.
5. Composition
6. Nutritional Classification
7. Sources and Functions
8. RDA requirement.
9. Deficiency
10. Effect of cooking.
SEMMESTER II

FPQC 21: POST-HARVEST TECHNOLOGY04 credits – 60hrs (Each unit- 10 hrs)

UNIT I
Introduction and importance of fruits and vegetables Fruit and vegetable processing - Post harvest technology- concept, importance and role. Present status of fruits and vegetables industry in India.Structural features.Cellular components cell wall, protoplast, components and function.

UNIT II
Harvesting and post harvest handling. Harvesting methods- Maturity- Maturity indices for fruit and vegetable, methods of measurement. Post harvest handling operations- Pre processing operations, precooling, curing, waxing. Respiration - physiology, biochemistry of respiration, EMP & TCA cycle, Respiration quotient, methods of measuring respiration

UNIT III
Harvesting and post harvest handling of Cereals and Legumes. Post harvest technology- concept, importance and role. Present status of Cereals and Legume industry in India. Storage of cereals, Infestation control; Drying of grains, Processing of rice and rice products. Milling of wheat and production of wheat products, including flour and semolina.

UNIT IV
Milling of corn, barley, oat, coarse grains including sorghum, ragi and millets; Processing of tea, coffee and cocoa. Types of tea, coffee. Defects in chocolates during storage.

UNIT V
Processing techniques for F & V, Cereals and Pulses. Dehydrated product technology- Semi-processed fruit products technology- Fruit sugar preserves technology- Fruit beverage technology- fresh cut fruit and vegetable technology- sensory evaluation methods.

REFERENCES:
FPQC 22: FOOD PRESERVATION 04 credits – 60hrs (Each unit- 10 hrs)

UNIT I
Blanching and canning of fruits and vegetables; preparation of fruit juice concentrates; preparation of intermediate moisture food; extrusion cooking; modified atmosphere packaging; Objectives and techniques of food preservation; Canning: classification of cans, can specification, structure of cans, lacquering, canning of food items, Thermal process time calculations for canned foods, spoilage in canned foods.

UNIT II
Processing by removal of heat: theory and equipments for chilling, controlled and modified–atmosphere storage, freezing, freeze drying and freeze concentration; Low temperature preservation: cold storage and freezing including cryogenic freezing.

UNIT III
Water activity of food and its significance in food preservation; dehydration and drying of food items; IMF; Processing at high temperatures: theory and equipments for blanching, pasteurization, heat sterilization, evaporation, distillation, extrusion, dehydration, baking, roasting.

UNIT IV
High Pressure Processing: Principles of high pressure processing, use of high pressure to improve food safety and stability. Effects of high pressure on food quality: Pressure effects on microorganisms, enzyme, texture and nutrients of food. Preservation by fermentation: curing and pickling; Hurdle technology. Use of preservative in foods: chemical preservative, biopreservative including antibiotics.

UNIT V
Pulsed electric fields processing, Osmotic dehydration, Ultrasound processing, Alternate thermal processing, Microwave heating: dielectric properties of foods, heat and mass transfer in microwave processing, application of microwave processing for foods, Radiofrequency processing: dielectric heating, material properties, radio-frequency heating and drying applications; Ohmic heating

REFERENCES:
1. Technology of Food Preservation by Desrosier
2. Food Science by Potter
3. Fruits and vegetable processing by Cruss
4. Preservation of Fruits & Vegetables by IRRI
FPQC 23: PROCESSING TECHNOLOGY OF DAIRY PRODUCTS 04 credits – 60hrs (Each unit- 10 hrs)

UNIT I

UNIT II

UNIT III
Centrifugation, bactofugation, Manufacture of milk products like evaporated milk, powder milk, condensed milk,. Reconstituted milk, flavored milk.

UNIT IV
Fermentation of milk and fermented milk products – Cheese, yogurt, etc including probiotic dairy products. Processing of cream, butter, cheese, yogurt, ice cream, ghee, baby food

UNIT V
Traditional Indian sweets; Dairy processing by-products – Fermented, condensed and dried products from whey, Production of lactose and protein from whey. Dairy products.

REFERENCES:
4. Developments in Dairy Chemistry – Vol 1 & 2; Fox PF; Applied Science Pub Ltd.

FPQC 24: HUMAN PHYSIOLOGY 04 credits – 60hrs (Each unit- 10 hrs)

UNIT I
UNIT II

UNIT III

UNIT IV

UNIT V

REFERENCES:
4. Chaterjee C. C. Human Physiology.
5. Gardeb W. and sears : Anatomy and physiology for Nurses.

FPQC 25: PERSONALITY DEVELOPMENT02 credits – 30hrs (Each unit- 6 hrs)

FPQC 26: LAB COURSE IV04 credits – 60hrs (12 P * 5 hrs)

1. Good microbiological practices.
2. Preparation and autoclaving of culture and media.
3. Observation of motility of bacterial by hanging drop method.
4. Observation of bacteria by simple monochrome staining method.
5. Gram staining of bacteria.
6. To observe common pathogenic bacteria.
7. To observe fungi on different food material and culture (PDA medium)
8. To observe common pathogenic protozoa.
10. Demonstration of peripheral smear of blood and pointing out various blood cells.
11. Methods of estimating pulse rate and blood pressure.
12. Urine examination and significance.

**FPQC 27: LAB COURSE V04 credits – 60hrs (12 P * 5 hrs)**

1. Preservation of food by using sterilization technique. (hot water and steam)
2. Preservation of food by using blanching and freezing of fruits and vegetables.
3. Preservation of food by using salt and oil like pickles.
4. Preservation of food by using sugar like osmotic dehydration.
5. Preservation of food by using sugar like jam, jelly and marmalade.
6. Preservation of food by using dehydration method. (mechanical and sun drying)
7. Preparation of tomato ketchup and bottling.
8. Preparation of Squash and bottling.
9. To study different stages of sugar cookery and find out strength of solution by refractometer,
11. To study browning reaction in fruits and vegetables and preventive methods.

**FPQC 28: LAB COURSE VI04 credits – 60hrs (12 P * 5 hrs)**

1. Milk testing- Estimation of acidity of milk.
2. Estimation of fat content of milk.
4. Preparation of Paneer by coagulation method.
5. Preparation of butter and ghee
7. Preparation of basundi.
8. Preparation of khoa and khoa based sweet.
10. Demonstration of microscopic structure of different types of milk.