

**Rayat Shikshan Sanstha's**  
**Karmaveer Bhaurao Patil College Vashi**  
(Autonomous)  
Faculty of Science  
As Per NEP-2020

**Proposed Structure and Credit Distribution for four year Multidisciplinary UG Program**

| Level     | Sem. | Faculty  |           | Any Faculty   | Vocational and Skill Enhancement Course (VSC) | Ability Enhancement Course (AEC)                 | Field Projects/Internship / Apprenticeship / Community Engagement and Services | Credits        | Cumulative Credit       |
|-----------|------|--|-----------|---|---|--|--|----------------|-------------------------|
|           |      | Subject-1  | Subject-2 |   |   |  |  |                |                         |
|           |      | Major DSC  | Minor DSE |   |   |  |  |                |                         |
| Level 4.5 | 1    | Mechanics and Thermodynamics (6 Credits)   |           | 1. Microprocessor - 8085 (3Credits)   | NA  | SDP-(2 Credits)<br>E/M-(2 Credits)               | NCC/NSS/DANCE/YOG A/MUSIC/CE (2 Credits)                                       | 6+6+3+4+2=21   | 42 Credits Certificates |
|           |      | Fundamentals of Microbiology (6 Credits)   |           | Dairy Microbiology & Dairy Technology (3 Credits)<br>OR Microbial World (3 Credits)                           |   |  |  |                |                         |
|           |      | Fundamentals of Chemistry (6 Credits)  |           | Chemistry in Everyday Life (3 Credits)  |   |  |  |                |                         |
|           |      | Algebra & Calculus - I   |           | Basics of Mathematics   |   |  |  |                |                         |
|           |      | Fundamentals of Biotechnology  |           | Evolution and Ecology/ Biomolecules/ Food Adulteration and Safety/ Plant and animal Physiology                |   |  |  |                |                         |
|           |      | Introduction to programming in C   |           | Python Programming (3 Credits)  |   |  |  |                |                         |
| Level 5.0 | 2    | Electricity, Magnetism and Electronics (6 Credits)   |           | 1. Microcontroller - 8051   | NA  | SDP-(2 Credits)<br>E/M-(2 Credits)               | NCC/NSS/DANCE/YOG A/MUSIC/CE (2 Credits)                                       | 6+6+3+4+2=21   |                         |
|           |      | Basic Techniques in Microbiology(6 credits)  |           | The Human Microbiome - (3Credits) / Environmental Microbiology - (3Credits)                                   |   |  |  |                |                         |
|           |      | BASIC CONCEPTS IN CHEMISTRY (6 Credits)  |           | ENVIRONMENTAL CHEMISTRY(3 Credits)  |   |  |  |                |                         |
|           |      | Algebra & Calculus - II (6 Credits)  |           | Fundamentals of Mathematics (3 Credits)   |   |  |  |                |                         |
|           |      | Basics of Genetics (6 Credits)   |           | Biochemistry/ Biosafety and Bioethics/ Entrepreneurship Development / Basics of Pharmacology( 3 Credits each) |   |  |  |                |                         |
|           |      | Fundamentals of Data Structure (6 Credits)   |           | Discrete Mathematics<br>Digital Marketing Fundamentals(3 Credits)   |   |  |  |                |                         |
| Level 5.5 | 3    | Optics and Acoustics(6 Credits)  |           | 1. Chemical Physics (4)   | NA  | EVS-(2 credits)                                  | NCC/NSS/DANCE/YOG A/MUSIC/CE (2 Credits)                                       | 6+4+3+4+2+2=21 | 84 Credits Diploma      |
|           |      | Introduction to Medical Microbiology & Immunology (6 Credits)  |           | Epidemiology & public Health awareness (4 Credits)  |   |  |  |                |                         |
|           |      | Physical & Inorganic Chemistry (6 Credits)   |           | INSTRUMENTAL METHODS IN CHEMICAL ANALYSIS (4 Credits)   |   |  |  |                |                         |
|           |      | Real Analysis-I (6 Credits)  |           | Plane and Solid Geometry/ Business Mathematics (3Credits)   |   |  |  |                |                         |
|           |      | Cell Biology (6 Credits)   |           | Evolution and Ecology/ Biomolecules/ Food Adulteration and Safety/ Plant and animal Physiology/ 3             |   |  |  |                |                         |
|           |      | Object Oriented Programming using Java   |           | Operating System Foundations & Linux  |   |  |  |                |                         |
| Level 6.0 | 4    | Modern Physics, Laser & Fibre Optics (6 Credits)   |           | 1. Environmental Physics (4)  | NA  | Indian Constitution and Human Rights (2 Credits) | NCC /NSS/DANCE/ YOGA/ MUSIC/CE (2 Credits)                                     | 6+4+3+4+2+2=21 |                         |
|           |      | Clinical Microbiology -(6 Credits)   |           | Analysis of air, soil & water - 4   |   |  |  |                |                         |
|           |      | ORGANIC AND ANALYTICAL CHEMISTRY   |           | 1. Waste Water Management -3, 2. Biomedical Waste DAIRY CHEMISTRY   |   |  |  |                |                         |
|           |      | Integral and Vector Calculus, Integral and Vector Calculus   |           | Discrete Mathematics  |   |  |  |                |                         |
|           |      | Immunology   |           | Biochemistry/ Biosafety and Bioethics/ Entrepreneurship Development / Basics of Pharmacology( 3 Credits each) |   |  |  |                |                         |
|           |      | Advanced Java Programming  |           | Computer Networking Fundamentals  |   |  |  |                |                         |
| Level 6.5 | 5    | 1. Class. & Quan. Mechanics (4)<br>2. Research Methodology<br>3. Solid State Devices   |           | 1. Energy Science / Computational Physics- II (3 Credits)   | NA  | NA   | Internship (4 Credits)   | 8+4+4+4=20     |                         |
|           |      | 1. Microbial Genetics I 2. Medical Microbiology and Immunology I 3. Microbial Biochemistry I   |           | Mobile Repairing (4)  |   |  |  |                |                         |
|           |      | 1. ADVANCED PHYSICAL CHEMISTRY 2. CONCISE INORGANIC CHEMISTRY 3. ADVANCED ORGANIC CHEMISTRY 4. SEPARATION TECHNIQUES IN ANALYTICAL CHEMISTRY |           | Basics techniques in Hematology - 4   |   |  |  |                |                         |
|           |      | 1. Linear Algebra-I 2. Topology of metric spaces and Fourier Series 3. Basic Complex Analysis / Basic Statistics and Probability             |           | CHEMISTRY OF COSMATICS  |   |  |  |                |                         |
| Level 6.5 | 5    | 1. Molecular Biology 2. Industrial Biotechnology 3. (Plant / Animal Biotech)   |           | Scilab, SAGE + Practical  |   |  |  |                |                         |
|           |      |  |           | Application based Python Programming  |   |  |  |                |                         |

