


|  <b>KAZI NAZRUL UNIVERSITY</b>   |  |                              | FACULTY OF SCIENCE  |  | DEGREE PROGRAMME: 3 YEARS DEGREE WITH MICROBIOLOGY/ 4 YEARS DEGREE WITH MICROBIOLOGY HONOURS/ 4 YEARS DEGREE WITH MICROBIOLOGY HONOURS WITH RESEARCH |  |                | WITH EFFECT FROM THE ACADEMIC SESSION: 2023-24 |               |            |           |                      |           |             |                      |                      |  |  |  |
|--|--|------------------------------|---|--|--|--|----------------|--|---------------|------------|-----------|----------------------|-----------|-------------|----------------------|----------------------|--|--|--|
| Abbreviated Degree   | Discipline   | Abbreviated Degree Programme | Semester  | Course Name  | Course Type  | Course Code  | Course Details | L - T - P                                      | Course Credit | Sem Credit | CA Marks  |                      | ESE Marks |             | Total Marks          | Sem Marks            |  |  |  |
|  |  |                              |   |  |  |  |                |  |               |            | Practical | Theoretical          | Practical | Theoretical |                      |                      |  |  |  |
| BSCH   | MICROBIOLOGY   | BSCMCB                       | I   | Microbial World and Principles of Microbiology   | MAJOR  | BSCMCBMJ101  | MJC-1          | 3 - 0 - 4                                      | 5             | 20         | 30        | 15                   | 20        | 35          | 100                  | 250 + Marks of Minor |  |  |  |
|  |  |                              |   | MINOR COURSE- Choose from the Pool of Minor Courses offered in 1st Semester by the other Disciplines                                   | MINOR  | See Pool   | MNC-1          | See Pool                                       | 5             |            | See Pool  |                      |           |             |                      |                      |  |  |  |
|  |  |                              |   | Choose from the Pool of Multidisciplinary Courses offered in 1st Semester  | MD   | See Pool   | MDC-1          | 3 - 0 - 0                                      | 3             |            |           | 15                   |           | 35          | 50                   |                      |  |  |  |
|  |  |                              |   | English/MIL Communication  | AEC  | See Pool   | AEC-1          | 4 - 0 - 0                                      | 4             |            |           | 15                   |           | 35          | 50                   |                      |  |  |  |
|  |  |                              |   | Bacteriology and Laboratory Applications   | SEC  | BSCMCBSE101  | SEC-1          | 0 - 1 - 4                                      | 3             |            | 30        |                      | 20        |             | 50                   |                      |  |  |  |
|  |  |                              | II  | Biochemistry   | MAJOR  | BSCMCBMJ201  | MJC-2          | 3 - 0 - 4                                      | 5             | 30         | 15        | 20                   | 35        | 100         | 250 + Marks of Minor |                      |  |  |  |
|  |  |                              |   | MINOR COURSE- Minor Course opted for in the 1st semester should be continued in the 2nd semester with syllabus content of 2nd semester | MINOR  | Corresponding Course Code of Minor opted in 1st Semester | MNC-2          | See Pool                                       | 5             | See Pool   |           |                      |           |             |                      |                      |  |  |  |
|  |  |                              |   | Choose from the Pool of Multidisciplinary Courses offered in 2nd Semester  | MD   | See Pool   | MDC-2          | 3 - 0 - 0                                      | 3             |            | 15        |                      | 35        | 50          |                      |                      |  |  |  |
|  |  |                              |   | Environment Studies  | VAC  | VAC-201  | VAC-1          | 4 - 0 - 0                                      | 4             |            | 15        |                      | 35        | 50          |                      |                      |  |  |  |
|  |  |                              |   | Microbial Techniques and Instrumentation   | SEC  | BSCMCBSE201  | SEC-2          | 0 - 1 - 4                                      | 3             | 30         |           | 20                   |           | 50          |                      |                      |  |  |  |
|  |  |                              | Student exiting the programmes after securing 40 credits will be awarded UG Certificate in the relevant Discipline/Subject provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship. In addition to 6 credits from skill-based courses earned during first and second semester |  |  |  |                |  |               |            |           |                      |           |             |                      |                      |  |  |  |
|  |  |                              | III   | Cell Biology   | MAJOR  | BSCMCBMJ301  | MJC-3          | 3 - 0 - 4                                      | 5             | 30         | 15        | 20                   | 35        | 100         | 300 + Marks of Minor |                      |  |  |  |
|  |  |                              |   | Molecular Biology  | MAJOR  | BSCMCBMJ302  | MJC-4          | 3 - 0 - 4                                      | 5             | 30         | 15        | 20                   | 35        | 100         |                      |                      |  |  |  |
|  |  |                              |   | MINOR COURSE- Choose from the Pool of Minor Courses offered in 3rd Semester by the other Disciplines                                   | MINOR  | See Pool   | MNC-3          | See Pool                                       | 5             | See Pool   |           |                      |           |             |                      |                      |  |  |  |
|  |  |                              |   | Choose from the Pool of Multi-Disciplinary Courses offered in 3rd Semester   | MD   | See Pool   | MD-3           | 2 - 1 - 0                                      | 3             |            | 15        |                      | 35        | 50          |                      |                      |  |  |  |
|  |  |                              |   | English Communication  | AE   | See Pool   | AECC-2         | 4 - 0 - 0                                      | 4             |            | 15        |                      | 35        | 50          |                      |                      |  |  |  |
|  |  |                              | IV  | Microbial Diagnostics and Public Health  | MAJOR  | BSCMCBMJ401  | MJC-5          | 3 - 0 - 4                                      | 5             | 30         | 15        | 20                   | 35        | 100         | 300 + Marks of Minor |                      |  |  |  |
|  |  |                              |   | Industrial Microbiology  | MAJOR  | BSCMCBMJ402  | MJC-6          | 3 - 0 - 4                                      | 5             | 30         | 15        | 20                   | 35        | 100         |                      |                      |  |  |  |
|  |  |                              |   | MINOR COURSE- Choose from the Pool of Minor Courses offered in 4th Semester by the other Disciplines                                   | MINOR  | See Pool   | MNC-4          | See Pool                                       | 5             | See Pool   |           |                      |           |             |                      |                      |  |  |  |
|  |  |                              |   | Microbial Physiology and Metabolism  | SEC  | BSCMCBSE-401   | SEC-3          | 0 - 1 - 4                                      | 3             | 30         |           | 20                   |           | 50          |                      |                      |  |  |  |
| Health and Wellness  | (Any One)  | VAC                          |   | VAC-401  | VAC-2  | 4 - 0 - 0  | 4              |  | 15            |            | 35        | 50                   |           |             |                      |                      |  |  |  |
| Social Values and Ethics   |  |                              |   | VAC-402  |  | 4 - 0 - 0  |                |  | 15            | 35         |           |                      |           |             |                      |                      |  |  |  |
| Digital and Technological Solutions  |  |                              |   | VAC-403  |  | 4 - 0 - 0  |                |  | 15            | 35         |           |                      |           |             |                      |                      |  |  |  |
| Understanding India  |  |                              | VAC-404   | 4 - 0 - 0  |  |  |                | 15   | 35            |            |           |                      |           |             |                      |                      |  |  |  |
| Students exiting the programmes after securing 80 credits will be awarded UG Diploma in the relevant Discipline/Subject provided they secure additional 4 credits in skill based vocational courses offered during first year or second year summer term |  |                              |   |  |  |  |                |  |               |            |           |                      |           |             |                      |                      |  |  |  |
| V  | Environmental Microbiology and Microbial Ecology   | MAJOR                        | BSCMCBMJ501   | MJC-7  | 3 - 0 - 4  | 5  | 30             | 15   | 20            | 35         | 100       | 300 + Marks of Minor |           |             |                      |                      |  |  |  |
|  | Microbial Genetics   | MAJOR                        | BSCMCBMJ502   | MJC-8  | 3 - 0 - 4  | 5  | 30             | 15   | 20            | 35         | 100       |                      |           |             |                      |                      |  |  |  |
|  | Virology   | MAJOR                        | BSCMCBMJ503   | MJC-9  | 3 - 0 - 4  | 5  | 30             | 15   | 20            | 35         | 100       |                      |           |             |                      |                      |  |  |  |
|  | MINOR COURSE- Choose from the Pool of Minor Courses offered in 5th Semester by the other Disciplines | MINOR                        | See Pool  | MNC-5  | See Pool   | 5  | See Pool       |  |               |            |           |                      |           |             |                      |                      |  |  |  |

|   |                                     |  |                     |             |                     |           |            |            |                    |            |                    |     |     |                              |                      |
|---|-------------------------------------|--|---------------------|-------------|---------------------|-----------|------------|------------|--------------------|------------|--------------------|-----|-----|------------------------------|----------------------|
| VI  | Medical and Veterinary Microbiology |  | MAJOR               | BSCMCBMJ601 | MJC-10              | 3 - 0 - 4 | 5          | 22         | 30                 | 15         | 20                 | 35  | 100 | 450                          |                      |
|   | Immunology                          |  | MAJOR               | BSCMCBMJ602 | MJC-11              | 3 - 0 - 4 | 5          |            | 30                 | 15         | 20                 | 35  | 100 |                              |                      |
|   | Food and Dairy Microbiology         |  | MAJOR               | BSCMCBMJ603 | MJC-12              | 3 - 0 - 4 | 5          |            | 30                 | 15         | 20                 | 35  | 100 |                              |                      |
|   | Heridity and Evolution              |  | MAJOR               | BSCMCBMJ603 | MJC-13              | 3 - 0 - 4 | 5          |            | 30                 | 15         | 20                 | 35  | 100 |                              |                      |
|   | Summer Internship                   |  | SI                  | BSCMCBSI601 | SI-1                | 0 - 0 - 4 | 2          |            | 15                 |            | 35                 |     | 50  |                              |                      |
| <b>Total Credit and Marks</b>   |                                     |  | <b>TOTAL CREDIT</b> |             |                     |           |            | <b>126</b> | <b>TOTAL MARKS</b> |            |                    |     |     | <b>1850 + Marks of Minor</b> |                      |
| <b>Students who want to undertake 3-year UG programme will be awarded UG Degree in Microbiology upon securing 126 credits</b> |                                     |  |                     |             |                     |           |            |            |                    |            |                    |     |     |                              |                      |
| 4 YEARS DEGREE WITH HONOURS   | VII                                 | Microbial Products in Agriculture  |                     | MAJOR       | BSCMCBMJ-701        | MJC-14    | 3 - 0 - 4  | 5          | 25                 | 30         | 15                 | 20  | 35  | 100                          | 400 + Marks of Minor |
|   |                                     | Biostatistics and Bioinformatics   |                     | MAJOR       | BSCMCBMJ-702        | MJC-15    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | Genetic Engineering and Applications   |                     | MAJOR       | BSCMCBMJ-703        | MJC-16    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | Advance Microbiology   |                     | MAJOR       | BSCMCBMJ-704        | MJC-17    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | MINOR COURSE- Choose from the Pool of Minor Courses offered in 7th Semester by the other Disciplines |                     | MINOR       | See Pool            | MNC-6     | See Pool   | 5          |                    | See Pool   |                    |     |     |                              |                      |
|   | VIII                                | Microbial Biotechnology  |                     | MAJOR       | BSCMCBMJ-801        | MJC-18    | 3 - 0 - 4  | 5          | 22                 | 30         | 15                 | 20  | 35  | 100                          | 400 + Marks of Minor |
|   |                                     | Pharmaceutical Microbiology  |                     | MAJOR       | BSCMCBMJ-802        | MJC-19    | 2 - 0 - 4  | 4          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | Research Methodology and Ethics  |                     | MAJOR       | BSCMCBMJ-803        | MJC-20    | 4 - 0 - 0  | 4          |                    | 30         |                    | 70  |     | 100                          |                      |
|   |                                     | Project Work on Microbiology of Societal Importance  |                     | MAJOR       | BSCMCBMJ-804        | MJC-21    | 0 - 0 - 8  | 4          |                    | 60         |                    | 40  |     | 100                          |                      |
|   |                                     | MINOR COURSE- Choose from the Pool of Minor Courses offered in 8th Semester by the other Disciplines |                     | MINOR       | See Pool            | MNC-7     | See Pool   | 5          |                    | See Pool   |                    |     |     |                              |                      |
| <b>Total Credit and Marks</b>   |                                     |  | <b>TOTAL CREDIT</b> |             |                     |           |            | <b>173</b> | <b>TOTAL MARKS</b> |            |                    |     |     | <b>2650 + Marks of Minor</b> |                      |
| <b>Students will be awarded UG Degree (Honours) in Microbiology provided they secure 173 credits</b>                          |                                     |  |                     |             |                     |           |            |            |                    |            |                    |     |     |                              |                      |
| 4 YEARS DEGREE WITH HONOURS WITH RESEARCH   | VII                                 | Microbial Products in Agriculture  |                     | MAJOR       | BSCMCBMJ-701        | MJC-14    | 3 - 0 - 4  | 5          | 25                 | 30         | 15                 | 20  | 35  | 100                          | 400 + Marks of Minor |
|   |                                     | Biostatistics and Bioinformatics   |                     | MAJOR       | BSCMCBMJ-702        | MJC-15    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | Genetic Engineering and Applications   |                     | MAJOR       | BSCMCBMJ-703        | MJC-16    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | Advance Microbiology   |                     | MAJOR       | BSCMCBMJ-704        | MJC-17    | 3 - 0 - 4  | 5          |                    | 30         | 15                 | 20  | 35  | 100                          |                      |
|   |                                     | MINOR COURSE- Choose from the Pool of Minor Courses offered in 7th Semester by the other Disciplines |                     | MINOR       | See Pool            | MNC-6     | See Pool   | 5          |                    | See Pool   |                    |     |     |                              |                      |
|   | VIII                                | Microbial Biotechnology  |                     | MAJOR       | BSCMCBMJ-801        | MJC-18    | 3 - 0 - 4  | 5          | 22                 | 30         | 15                 | 20  | 35  | 100                          | 400 + Marks of Minor |
|   |                                     | Research Methodology and Ethics  |                     | RP          | BSCMCBRP-801        | RP-1      | 4 - 0 - 0  | 4          |                    | 15         |                    | 35  |     | 50                           |                      |
|   |                                     | Research Project / Dissertation  |                     | RP          | BSCMCBRP-802        | RP-2      | 0 - 0 - 16 | 8          |                    | 150        |                    | 100 |     | 250                          |                      |
|   |                                     | MINOR COURSE- Choose from the Pool of Minor Courses offered in 8th Semester by the other Disciplines |                     | MINOR       | See Pool            | MNC-7     | See Pool   | 5          |                    | See Pool   |                    |     |     |                              |                      |
|   |                                     | <b>Total Credit and Marks</b>  |                     |             | <b>TOTAL CREDIT</b> |           |            |            |                    | <b>173</b> | <b>TOTAL MARKS</b> |     |     |                              |                      |
| <b>Students will be awarded UG Degree (Honours) with Research in Microbiology provided they secure 173 credits</b>            |                                     |  |                     |             |                     |           |            |            |                    |            |                    |     |     |                              |                      |

**Abbreviations:** MJC= Major (Core); AE= Ability Enhancement; AECC= Ability Enhancement Compulsory Course; MNC= Minor (Core); SE= Skill Enhancement; SEC= Skill Enhancement Course; MD= Multidisciplinary Course; SI - Summer Internship; RP= Research Project; VAC= Value Added Course; CA= Continuous Assessment, ESE= End Semester Examination, L= Lecture Hour; T= Tutorial Hour and P= Practical Hour/ Field Work and NA= Not Applicable

**Note: Minor Courses (MNC) :** Student of a particular UG Course will choose from the Pool of Minor Courses offered by disciplines other than the major discipline opted by the student. The student is required to opt the same Minor Course (designed for 2nd semester) which he had opted in 1st semester ie. the student will continue studying the same minor course, opted in the 1st semester. Explanation: If a student of PHYSICS Major, opts for a Minor Course offered by Chemistry in 1st semester then that student is required to continue with the corresponding Minor Course offered by Chemistry for 2nd semester as Minor Course in the 2nd semester.

**Semesterwise Pool of Minor Courses offered by this Discipline for other Honours Disciplines**

| Discipline | Semester | Course Name                                    | Course Type | Course Code | Course Details | L - T - P | Course Credit | Sem Credit | Internal Marks |             | End Sem Marks |             | Total Marks | Sem Marks |
|------------|----------|--|-------------|-------------|----------------|-----------|---------------|------------|----------------|-------------|---------------|-------------|-------------|-----------|
|            |          |  |             |             |                |           |               |            | Practical      | Theoretical | Practical     | Theoretical |             |           |
|            | I        | Microbial World and Principles of Microbiology | Minor       | BSCMCBMN101 | MNC-1          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | II       | Biochemistry                                   |             | BSCMCBMN201 | MNC-2          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | III      | Molecular Biology                              |             | BSCMCBMN301 | MNC-3          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | IV       | Microbial Diagnostics and Public Health        |             | BSCMCBMN401 | MNC-4          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | V        | Virology                                       |             | BSCMCBMN501 | MNC-5          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | VII      | Genetic Engineering and Applications           |             | BSCMCBMN701 | MNC-6          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |
|            | VIII     | Pharmaceutical Microbiology                    |             | BSCMCBMN801 | MNC-7          | 3 - 0 - 4 | 5             |            | 30             | 15          | 20            | 35          | 100         |           |

**Semesterwise Pool of Multidisciplinary Courses offered by this Discipline for other Honours Disciplines**

| Discipline | Semester | Course Name   | Course Type | Course Code | Course Details | L - T - P | Course Credit | Sem Credit | CA Marks  |             | ESE Marks |             | Total Marks | Sem Marks |
|------------|----------|---|-------------|-------------|----------------|-----------|---------------|------------|-----------|-------------|-----------|-------------|-------------|-----------|
|            |          |   |             |             |                |           |               |            | Practical | Theoretical | Practical | Theoretical |             |           |
| MD         | I        | Physical science (Dept. of Physics/ Chemistry) IT WILL BE ENDORSED BY PHYSICS                     | (Any One)   |             | MD-1           | 3 - 0 - 0 | 3             |            |           | 15          |           | 35          | 50          |           |
|            |          | E-Commerce (Dept. of Commerce/ BBA) IT WILL BE ENDORSED BY COMMERCE                               |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Human Rights (Dept. of Pol Science)   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Disaster Management (Dept. of Geography/ Geology) IT WILL BE ENDORSED BY GEOGRAPHY                |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Film Appreciation (Department of English)   |             |             |                |           |               |            |           | 15          |           | 35          |             |           |
|            |          |   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            | II       | Business Environment (Dept of Commerce)   |             |             | MD-2           | 3 - 0 - 0 | 3             |            |           | 15          |           | 35          | 50          |           |
|            |          | Adhunik Bangla sahitya (Dept. of BENGALI)   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Adhunik Hindi sahitya (Dept. of Hindi)  |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Application of Bio-Science (Dept of Zoology/ Botany/ Microbiology) IT WILL BE ENDORSED BY ZOOLOGY |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Educational Philosophy (Dept, of Education)   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Sports and Fitness (Dept. of Physical Education)  |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            | III      | Mathematical Science (Dept. of Mathematics)   |             |             | MD-3           | 3 - 0 - 0 | 3             |            |           | 15          |           | 35          | 50          |           |
|            |          | Cultural History of Bengal (Dept. of History)   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Business Management (Dept. of BBA)  |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Nutrition and Public Health (Dept. of Nutrition)  |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          | Stress Management (Dept. of Psychology/ Philosophy/ Sociology) IT WILL BE ENDORSED BY PSYCHOLOGY  |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |
|            |          |   |             |             |                | 3 - 0 - 0 |               |            |           | 15          |           | 35          |             |           |

**Pool of Communication Courses offered as Ability Enhancement Compulsary Courses**

| Discipline                | Semester | Course Name           | Course Type | Course Code | Course Details | L - T - P | Course Credit | Sem Credit | CA Marks  |             | ESE Marks |             | Total Marks | Sem Marks |    |  |    |
|---------------------------|----------|-----------------------|-------------|-------------|----------------|-----------|---------------|------------|-----------|-------------|-----------|-------------|-------------|-----------|----|--|----|
|                           |          |                       |             |             |                |           |               |            | Practical | Theoretical | Practical | Theoretical |             |           |    |  |    |
| English/MIL Communication | I        | English Communication | (Any One)   | AE          | AECCE101       | AECC-2    | 4 - 0 - 0     | 4          | NA        |             | 15        |             | 35          | 50        | NA |  |    |
|                           |          | Bengali Communication |             |             |                |           |               |            |           | AECCE101    | 4 - 0 - 0 |             | 15          |           |    |  | 35 |
|                           |          | Hindi Communication   |             |             |                |           |               |            |           | AECCH101    | 4 - 0 - 0 |             | 15          |           |    |  | 35 |
|                           |          | Urdu Communication    |             |             |                |           |               |            |           | AECU101     | 4 - 0 - 0 |             | 15          |           |    |  | 35 |