



**B.Tech. FOOD TECHNOLOGY**  
Minimum Credits to be Earned 170.0

**First Semester**

| Code No.     | Course                           | Objectives & Outcomes |                         | L  | T | P  | C    |
|--------------|----------------------------------|-----------------------|-------------------------|----|---|----|------|
|              |                                  | PEOs                  | POs                     |    |   |    |      |
| 18FD101      | ENGINEERING MATHEMATICS I        | I,II,III              | a,b,c                   | 3  | 1 | 0  | 4    |
| 18FD102      | ENGINEERING PHYSICS I            | I,II,III              | a,b,i                   | 2  | 0 | 2  | 3    |
| 18FD103      | ENGINEERING CHEMISTRY I          | I,II,III              | a,b                     | 2  | 0 | 2  | 3    |
| 18FD104      | BASICS OF ELECTRICAL ENGINEERING | I,II,III              | a,b,d                   | 2  | 0 | 2  | 3    |
| 18HS101      | COMMUNICATIVE ENGLISH I          | I,II,III              | i,j                     | 1  | 0 | 2  | 2    |
| 18FD106      | ENGINEERING DRAWING              | I,II,III              | a,b,c,d,e,f,g,h,i,j,k,l | 1  | 0 | 4  | 3    |
| <b>Total</b> |                                  |                       |                         | 11 | 1 | 12 | 18.0 |

**Second Semester**

| Code No.     | Course                           | Objectives & Outcomes |                         | L  | T | P  | C    |
|--------------|----------------------------------|-----------------------|-------------------------|----|---|----|------|
|              |                                  | PEOs                  | POs                     |    |   |    |      |
| 18FD201      | ENGINEERING MATHEMATICS II       | I,II,III              | a,b                     | 3  | 1 | 0  | 4    |
| 18FD202      | ENGINEERING PHYSICS II           | I,II,III              | a,b,i                   | 2  | 0 | 2  | 3    |
| 18FD203      | ENGINEERING CHEMISTRY II         | I,II,III              | a,b,g                   | 2  | 0 | 2  | 3    |
| 18FD204      | COMPUTER PROGRAMMING             | I,II,III              | a,b,e                   | 1  | 0 | 4  | 3    |
|              | LANGUAGE ELECTIVE                | -                     | -                       | -  | - | -  | 2    |
| 18FD206      | FUNDAMENTALS OF MICROBIOLOGY     | I,II,III              | a,d,e,f,n               | 3  | 0 | 0  | 3    |
| 18FD207      | ENGINEERING PRACTICES LABORATORY | I,II,III              | a,b,c,d,e,f,g,h,i,j,k,l | 0  | 0 | 4  | 2    |
| <b>Total</b> |                                  |                       |                         | 11 | 1 | 12 | 20.0 |

**Third Semester**

| Code No.     | Course  | Objectives & Outcomes |                             | L  | T | P  | C    |
|--------------|---|-----------------------|-----------------------------|----|---|----|------|
|              |   | PEOs                  | POs                         |    |   |    |      |
| 18FD301      | ENGINEERING MATHEMATICS III                   | I,II,III              | a,b                         | 3  | 1 | 0  | 4    |
| 18FD302      | FOOD MICROBIOLOGY                             | I,II,III              | a,d,e,f                     | 3  | 0 | 0  | 3    |
| 18FD303      | FOOD CHEMISTRY                                | I,II,III              | a,b,c,d,e,f,i               | 3  | 0 | 2  | 4    |
| 18FD304      | UNIT OPERATIONS IN FOOD PROCESSING            | I,II,III              | a,c,e,f,g,m,n               | 3  | 0 | 0  | 3    |
| 18FD305      | DATA STRUCTURES                               | I,II,III              | a,b,c,d,e,f,g,h,i,j,k,l,m,n | 2  | 0 | 2  | 3    |
| 18FD306      | THERMODYNAMICS                                | I,II,III              | a,b,c,m                     | 2  | 1 | 0  | 3    |
| 18FD307      | FOOD MICROBIOLOGY LABORATORY                  | I,II,III              | a,c,e,f,g                   | 0  | 0 | 4  | 2    |
| 18FD308      | UNIT OPERATIONS IN FOOD PROCESSING LABORATORY | I,II,III              | a,c,e,m,n                   | 0  | 0 | 2  | 1    |
| 18GE301      | SOFT SKILLS - VERBAL ABILITY                  | -                     | -                           | 2  | 0 | 0  | 0    |
| <b>Total</b> |   |                       |                             | 18 | 2 | 10 | 23.0 |

**Fourth Semester**

| Code No.     | Course  | Objectives & Outcomes |                       | L  | T | P  | C    |
|--------------|---|-----------------------|-----------------------|----|---|----|------|
|              |   | PEOs                  | POs                   |    |   |    |      |
| 18FD401      | HEAT AND MASS TRANSFER                                    | I,II,III              | a,b,c                 | 3  | 0 | 2  | 4    |
| 18FD402      | PRINCIPLES OF FOOD PROCESSING AND PRESERVATION            | I,II,III              | a,b,c,d,i,m,n         | 3  | 0 | 0  | 3    |
| 18FD403      | REFRIGERATION AND COLD CHAIN MANAGEMENT                   | I,II,III              | a,b,c,d,e,f,g,h,i,m,n | 3  | 0 | 0  | 3    |
| 18FD404      | FOOD ANALYSIS   | I,II,III              | b,c,e,h,i,m,n         | 3  | 0 | 0  | 3    |
| 18FD405      | JAVA PROGRAMMING  | I,II,III              | a,b,c,d,e,k           | 2  | 0 | 2  | 3    |
| 18FD406      | FLUID MECHANICS   | I,II,III              | a,b,d                 | 3  | 1 | 0  | 4    |
| 18FD407      | PRINCIPLES OF FOOD PROCESSING AND PRESERVATION LABORATORY | I,II,III              | a,b,c,d,m,n           | 0  | 0 | 2  | 1    |
| 18FD408      | FOOD ANALYSIS LABORATORY                                  | I,II,III              | b,c,d,e,i,m,n         | 0  | 0 | 4  | 2    |
| 18HS001      | ENVIRONMENTAL SCIENCE                                     | I,II,III              | a,b                   | 2  | 0 | 0  | 0    |
| 18GE401      | SOFT SKILLS-REASONING                                     | -                     | -                     | 2  | 0 | 0  | 0    |
| <b>Total</b> |   |                       |                       | 21 | 1 | 10 | 23.0 |

**Fifth Semester**

| Code No. | Course                              | Objectives & Outcomes |                         | L | T | P | C |
|----------|-------------------------------------|-----------------------|-------------------------|---|---|---|---|
|          |                                     | PEOs                  | POs                     |   |   |   |   |
| 18FD501  | BAKING AND CONFECTIONERY TECHNOLOGY | I,II,III              | a,b,c,d,e,j,k,m,n       | 3 | 0 | 0 | 3 |
| 18FD502  | FOOD SAFETY AND QUALITY REGULATIONS | I,II,III              | a,b,c,e,f,g,h,i,j,l,m,n | 3 | 0 | 0 | 3 |
| 18FD503  | FOOD ADDITIVES                      | I,II,III              | a                       | 3 | 0 | 0 | 3 |
| 18FD504  | DAIRY TECHNOLOGY                    | I,II,III              | a,b,d,e,f,g,h,m,n       | 3 | 0 | 0 | 3 |
|          | PROFESSIONAL ELECTIVE I             | -                     | -                       | - | - | - | 3 |
|          | PROFESSIONAL ELECTIVE II            | -                     | -                       | - | - | - | 3 |

|              |  |          |                   |    |   |    |      |
|--------------|--|----------|-------------------|----|---|----|------|
| 18FD507      | BAKING AND CONFECTIONERY TECHNOLOGY LABORATORY | I,II,III | a,b,e,f,m,n       | 0  | 0 | 4  | 2    |
| 18FD508      | DAIRY TECHNOLOGY LABORATORY                    | I,II,III | a,b,c,e,f,g,h,m,n | 0  | 0 | 4  | 2    |
| 18GE501      | SOFT SKILLS - APTITUDE I                       | -        | -                 | 0  | 0 | 2  | 0    |
| <b>Total</b> |  |          |                   | 12 | 0 | 10 | 22.0 |

#### Sixth Semester

| Code No.     | Course  | Objectives & Outcomes |                     | L  | T | P  | C    |
|--------------|---|-----------------------|---------------------|----|---|----|------|
|              |   | PEOs                  | POs                 |    |   |    |      |
| 18HS002      | PROFESSIONAL ETHICS IN ENGINEERING                      | -                     | -                   | 2  | 0 | 0  | 2    |
| 18FD602      | FOOD EQUIPMENT DESIGN                                   | I,II,III              | a,c,d,f,g,i,k,m,n   | 3  | 1 | 0  | 4    |
| 18FD603      | MEAT, POULTRY AND FISH PROCESSING TECHNOLOGY            | I,II,III              | a,e,f,m,n           | 3  | 0 | 0  | 3    |
| 18FD604      | FRUITS AND VEGETABLE PROCESSING TECHNOLOGY              | I,II,III              | a,b,c,d,e,f,n       | 3  | 0 | 0  | 3    |
|              | PROFESSIONAL ELECTIVE III                               | -                     | -                   | -  | - | -  | 3    |
|              | PROFESSIONAL ELECTIVE IV                                | -                     | -                   | -  | - | -  | 3    |
| 18FD607      | MEAT, POULTRY AND FISH PROCESSING TECHNOLOGY LABORATORY | I,II,III              | a,b,c,d,e,f,g,i,j,l | 0  | 0 | 4  | 2    |
| 18FD608      | FRUITS AND VEGETABLE PROCESSING TECHNOLOGY LABORATORY   | I,II,III              | a,c,d,e,f,g,h,n     | 0  | 0 | 4  | 2    |
| 18GE601      | SOFT SKILLS-APTITUDE II                                 | -                     | -                   | 0  | 0 | 2  | 0    |
| <b>Total</b> |   |                       |                     | 11 | 1 | 10 | 22.0 |

#### Seventh Semester

| Code No.     | Course   | Objectives & Outcomes |                         | L  | T | P  | C    |
|--------------|--|-----------------------|-------------------------|----|---|----|------|
|              |  | PEOs                  | POs                     |    |   |    |      |
| 18HS003      | PRINCIPLES OF MANAGEMENT                       | -                     | -                       | 2  | 0 | 0  | 2    |
| 18FD702      | FOOD PACKAGING TECHNOLOGY                      | I,II,III              | a,c,d,e,f,m,n           | 3  | 0 | 0  | 3    |
| 18FD703      | FOOD PROCESSING PLANT DESIGN AND LAYOUT        | I,II,III              | a,b,c,d,e,f,g,h,i,j,k,l | 3  | 1 | 0  | 4    |
| 18FD704      | WASTE MANAGEMENT IN FOOD INDUSTRIES            | I,II,III              | a,c,e,f,g,h,j,k,l       | 3  | 0 | 0  | 3    |
|              | PROFESSIONAL ELECTIVE V                        | -                     | -                       | -  | - | -  | 3    |
|              | PROFESSIONAL ELECTIVE VI                       | -                     | -                       | -  | - | -  | 3    |
| 18FD707      | WASTE MANAGEMENT IN FOOD INDUSTRIES LABORATORY | I,II,III              | a,b,d                   | 0  | 0 | 2  | 1    |
| 18FD708      | FOOD PACKAGING TECHNOLOGY LABORATORY           | I,II,III              | a,b,d,f,m,n             | 0  | 0 | 4  | 2    |
| 18FD709      | PROJECT WORK I                                 | I,II,III              | a,b,c,d,f               | 0  | 0 | 6  | 3    |
| <b>Total</b> |  |                       |                         | 11 | 1 | 12 | 24.0 |

#### Eight Semester

| Code No.     | Course                     | Objectives & Outcomes |           | L | T | P  | C    |
|--------------|----------------------------|-----------------------|-----------|---|---|----|------|
|              |                            | PEOs                  | POs       |   |   |    |      |
|              | PROFESSIONAL ELECTIVE VII  | -                     | -         | - | - | -  | 3    |
|              | PROFESSIONAL ELECTIVE VIII | -                     | -         | - | - | -  | 3    |
|              | PROFESSIONAL ELECTIVE IX   | -                     | -         | - | - | -  | 3    |
| 18FD804      | PROJECT WORK II            | I,II,III              | a,b,c,d,f | 0 | 0 | 18 | 9    |
| <b>Total</b> |                            |                       |           | 0 | 0 | 18 | 18.0 |

#### Electives

| Code No. | Course | Objectives & Outcomes |     | L | T | P | C |
|----------|--------|-----------------------|-----|---|---|---|---|
|          |        | PEOs                  | POs |   |   |   |   |

#### LANGUAGE ELECTIVES

|         |          |          |   |   |   |   |   |
|---------|----------|----------|---|---|---|---|---|
| 18HSC01 | CHINESE  | -        | - | 1 | 0 | 2 | 2 |
| 18HSF01 | FRENCH   | I,II,III | j | 1 | 0 | 2 | 2 |
| 18HSG01 | GERMAN   | -        | - | 1 | 0 | 2 | 2 |
| 18HSH01 | HINDI    | -        | - | 1 | 0 | 2 | 2 |
| 18HSJ01 | JAPANESE | -        | - | 1 | 0 | 2 | 2 |

#### DISCIPLINE ELECTIVES

|         |   |          |                 |   |   |   |   |
|---------|---|----------|-----------------|---|---|---|---|
| 18FD001 | INSTRUMENTATION AND PROCESS CONTROL IN FOOD INDUSTRY            | I,II,III | a,b,c,d,e,f,m,n | 3 | 0 | 0 | 3 |
| 18FD002 | FAT AND OIL TECHNOLOGY  | I,II,III | b,c,d,h,l,m,n   | 3 | 0 | 0 | 3 |
| 18FD003 | CROP PROCESS ENGINEERING  | I,II,III | a,d,e,f,n       | 3 | 0 | 0 | 3 |
| 18FD004 | MILLING TECHNOLOGY  | I,II,III | a,b,d,e,f,m,n   | 3 | 0 | 0 | 3 |
| 18FD005 | DOWNSTREAM PROCESSING   | I,II,III | a,b,c,d,e,j,l   | 3 | 0 | 0 | 3 |
| 18FD006 | EXTRUSION TECHNOLOGY  | I,II,III | a,b,c,d,e,f,l   | 3 | 0 | 0 | 3 |
| 18FD007 | APPLICATION OF NANOTECHNOLOGY AND CRYOGENICS IN FOOD PROCESSING | I,II,III | a,b,d,f,m,n     | 3 | 0 | 0 | 3 |
| 18FD008 | RADIATION PRESERVATION AND PROCESSING OF FOOD PRODUCTS          | I,II,III | a,b,c,d,f,m,n   | 3 | 0 | 0 | 3 |
| 18FD009 | FOOD COLORS AND FLAVOR TECHNOLOGY                               | I,II,III | a,b,c,d,e,f,g   | 3 | 0 | 0 | 3 |
| 18FD010 | BEVERAGE PROCESSING   | I,II,III | a,c,d,e,f,m,n   | 3 | 0 | 0 | 3 |
| 18FD011 | SUGAR TECHNOLOGY  | I,II,III | a,b,d,e,f,m     | 3 | 0 | 0 | 3 |
| 18FD012 | CEREAL, PULSES AND OILSEED TECHNOLOGY                           | I,II,III | a,b,d,f,n       | 3 | 0 | 0 | 3 |

|                                     |  |          |                           |   |   |   |   |
|-------------------------------------|--|----------|---------------------------|---|---|---|---|
| 18FD013                             | READY TO EAT FOODS                                       | I,II,III | a,b,c,d,f,m,n             | 3 | 0 | 0 | 3 |
| 18FD015                             | FOOD BIOTECHNOLOGY                                       | I,II,III | a,b,d,e,f                 | 3 | 0 | 0 | 3 |
| 18FD016                             | FOOD ALLERGY AND TOXICOLOGY                              | I,II,III | a,b,c,d,e,f               | 3 | 0 | 0 | 3 |
| 18FD017                             | MUSHROOM PROCESSING TECHNOLOGY                           | I,II,III | a,b,d,e,f,g,n             | 3 | 0 | 0 | 3 |
| 18FD018                             | PLANTATION AND SPICE PROCESSING                          | I,II,III | a,b,c,d,m                 | 3 | 0 | 0 | 3 |
| 18FD019                             | PROCESS ECONOMICS AND INDUSTRIAL MANAGEMENT              | I,II,III | a,b,c,d,e,f               | 3 | 0 | 0 | 3 |
| 18FD020                             | ENTREPRENEURSHIP DEVELOPMENT FOR FOOD TECHNOLOGISTS      | I,II,III | a,b,c,d,e                 | 3 | 0 | 0 | 3 |
| 18FD021                             | ENTERPRISE RESOURCE PLANNING                             | I,II,III | a,b,c,d,e,f               | 3 | 0 | 0 | 3 |
| 18FD022                             | SUPPLY CHAIN AND RETAIL MANAGEMENT                       | I,II,III | a,b,e,f,m,n               | 3 | 0 | 0 | 3 |
| 18FD023                             | TOTAL QUALITY MANAGEMENT                                 | I,II,III | a,b,c,d,e,f,m,n           | 3 | 0 | 0 | 3 |
| 18FD024                             | SENSORY EVALUATION OF FOODS                              | I,II,III | c,d,e,f,h,i,j,k,l         | 3 | 0 | 0 | 3 |
| 18FD025                             | EMERGING TECHNOLOGIES IN FOOD PROCESSING                 | I,II,III | a,b,c,d,f,m,n             | 3 | 0 | 0 | 3 |
| 18FD026                             | STORAGE ENGINEERING                                      | I,II,III | a,b,c,d,e,f,m,n           | 3 | 0 | 0 | 3 |
| 18FD027                             | CHEMICAL REACTION ENGINEERING                            | I,II,III | a,b,c,d,e,f,h,l           | 3 | 0 | 0 | 3 |
| 18FD028                             | BIOCHEMISTRY   | I,II,III | a,b,c,d,e,f,g,h,i,k,l,m,n | 3 | 0 | 0 | 3 |
| 18FD029                             | FOOD INFORMATICS   | I,II,III | a,b,c,d,f,m,n             | 3 | 0 | 0 | 3 |
| 18FD030                             | FOOD ADULTERATION  | I,II,III | a,b,d,f,g,h,i,l,m,n       | 3 | 0 | 0 | 3 |
| 18FD031                             | FOOD SENSORS   | I,II,III | a,b,c,d,f,m,n             | 3 | 0 | 0 | 3 |
| <b>ONE CREDIT COURSES</b>           |  |          |                           |   |   |   |   |
| 18FD0XD                             | FOOD SAFETY AND QUALITY MANAGEMENT SYSTEMS               | -        | -                         | 0 | 0 | 0 | 1 |
| 18FD0XE                             | HACCP CERTIFICATION                                      | -        | -                         | 0 | 0 | 0 | 1 |
| 18FD0XG                             | ISO-17025 FOR ACCREDITED LABORATORY                      | -        | -                         | 0 | 0 | 0 | 1 |
| <b>SPECIAL COURSES</b>              |  |          |                           |   |   |   |   |
| 18FDV01                             | ENTREPRENEURSHIP DEVELOPMENT FOR FOOD TECHNOLOGIST       | -        | -                         | 3 | 0 | 0 | 0 |
| 18FDV03                             | PLANT PHYSIOLOGY, METABOLISM AND BIOECONOMY              | -        | -                         | 3 | 0 | 0 | 0 |
| <b>OPEN ELECTIVES</b>               |  |          |                           |   |   |   |   |
| 18FD0YA                             | TRADITIONAL FOODS  | I,II,III | a,b,c,h                   | 3 | 0 | 0 | 3 |
| 18FD0YB                             | FOOD LAWS AND REGULATIONS                                | I,II,III | a,b,c,f,g,h               | 3 | 0 | 0 | 3 |
| 18FD0YC                             | POST HARVEST TECHNOLOGY OF FRUITS AND VEGETABLES         | I,II,III | a,b,c,d,g                 | 3 | 0 | 0 | 3 |
| 18GE0C1                             | CORROSION SCIENCE AND ENGINEERING                        | I,II,III | a,b,g                     | 3 | 0 | 0 | 3 |
| 18GE0C2                             | ENERGY STORING DEVICES                                   | I,II,III | a,b                       | 3 | 0 | 0 | 3 |
| 18GE0C3                             | POLYMER SCIENCE  | I,II,III | a,b,c                     | 3 | 0 | 0 | 3 |
| 18GE0P1                             | NANOMATERIALS SCIENCE                                    | -        | -                         | 3 | 0 | 0 | 3 |
| 18GE0P2                             | SEMICONDUCTOR PHYSICS AND DEVICES                        | -        | -                         | 3 | 0 | 0 | 3 |
| 18GE0P3                             | APPLIED LASER SCIENCE                                    | -        | -                         | 3 | 0 | 0 | 3 |
| 18GE0P4                             | BIO-PHOTONICS  | -        | -                         | 3 | 0 | 0 | 3 |
| 18GE0P5                             | PHYSICS OF SOFT MATTER                                   | -        | -                         | 3 | 0 | 0 | 3 |
| <b>ADDITIONAL ONE CREDIT COURSE</b> |  |          |                           |   |   |   |   |
| 18GE0XA                             | ETYMOLOGY  | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XB                             | GENERAL PSYCHOLOGY                                       | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XC                             | NEURO BEHAVIORAL SCIENCE                                 | I,II,III | i                         | 1 | 0 | 0 | 1 |
| 18GE0XD                             | VISUAL MEDIA AND FILM MAKING                             | I,II,III | b,f                       | 1 | 0 | 0 | 1 |
| 18GE0XE                             | YOGA FOR HUMAN EXCELLENCE                                | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XF                             | VEDIC MATHEMATICS  | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XG                             | HEALTH AND FITNESS                                       | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XH                             | CONCEPT, METHODOLOGY AND APPLICATIONS OF VERMICOMPOSTING | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XI                             | BLOG WRITING   | I,II,III | f,g,j                     | 1 | 0 | 0 | 1 |
| 18GE0XJ                             | INTERPERSONAL SKILLS                                     | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XK                             | NEW AGE INNOVATION AND ENTREPRENEURSHIP                  | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XL                             | NATIONAL CADET CORPS                                     | I,II,III | g,i                       | 1 | 0 | 0 | 1 |
| 18GE0XM                             | COMMUNITY SERVICE AND LEADERSHIP DEVELOPMENT             | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XN                             | DISRUPTIVE INNOVATION BASED STARTUP ACTIVITIES           | -        | -                         | 1 | 0 | 0 | 1 |
| 18GE0XO                             | SOCIAL PSYCHOLOGY  | I,II,III | i                         | 1 | 0 | 0 | 1 |
| <b>DISCIPLINE ELECTIVES</b>         |  |          |                           |   |   |   |   |
| 18FD014                             | FOOD PRODUCT DESIGN AND DEVELOPMENT                      | I,II,III | a,b,c,d,f,m,n             | 3 | 0 | 0 | 3 |
| <b>ONE CREDIT COURSES</b>           |  |          |                           |   |   |   |   |
| 18FD0XA                             | HALAL COMPLIANCE IN FOOD AUDIT                           | I,II,III | c,e,f,g,h,i,n             | 0 | 0 | 0 | 1 |
| 18FD0XB                             | FOOD FERMENTATION TECHNOLOGY                             | I,II,III | c,e,f,g,h,n               | 0 | 0 | 0 | 1 |
| 18FD0XC                             | FABRICATION OF FOOD PROCESSING EQUIPMENT                 | -        | -                         | 0 | 0 | 0 | 1 |
| 18FD0XF                             | FSSAI-FOOD SAFETY TRAINING AND CERTIFICATION (FoSTaC)    | -        | -                         | 0 | 0 | 0 | 1 |
| <b>SPECIAL COURSES</b>              |  |          |                           |   |   |   |   |
| 18FDV02                             | SKILLED TECHNOLOGY UPGRADATION PROGRAMME                 | -        | -                         | 3 | 0 | 0 | 0 |
| <b>LANGUAGE ELECTIVES</b>           |  |          |                           |   |   |   |   |
| 18HS201                             | COMMUNICATIVE ENGLISH II                                 | I,II,III | i,j                       | 1 | 0 | 2 | 2 |
| <b>OPEN ELECTIVES</b>               |  |          |                           |   |   |   |   |
| 18AE0YA                             | NON-DESTRUCTIVE TESTING                                  | -        | -                         | 3 | 0 | 0 | 3 |

|         |  |   |   |   |   |   |   |
|---------|--|---|---|---|---|---|---|
| 18AE0YB | SMART MATERIALS  | - | - | 3 | 0 | 0 | 3 |
| 18AE0YC | FUNDAMENTALS OF AIRCRAFT ENGINEERING                                   | - | - | 3 | 0 | 0 | 3 |
| 18AG0YA | ENTREPRENEURSHIP DEVELOPMENT AND FOOD QUALITY MANAGEMENT FOOD INDUSTRY | - | - | 3 | 0 | 0 | 3 |
| 18AG0YB | HUMAN ENGINEERING AND SAFETY IN AGRICULTURE                            | - | - | 3 | 0 | 0 | 3 |
| 18AG0YC | ENERGY MANGEMENT IN AGRICULTURE  | - | - | 3 | 0 | 0 | 3 |
| 18AG0YD | FARM MECHANISATION   | - | - | 3 | 0 | 0 | 3 |
| 18AU0YA | AUTOMOTIVE ENGINEERING   | - | - | 3 | 0 | 0 | 3 |
| 18AU0YB | VEHICLE CONTROL SYSTEMS  | - | - | 3 | 0 | 0 | 3 |
| 18AU0YC | PUBLIC TRANSPORT MANAGEMENT  | - | - | 3 | 0 | 0 | 3 |
| 18AU0YD | TECHNOLOGIES FOR GREEN MOBILITY  | - | - | 3 | 0 | 0 | 3 |
| 18AU0YE | TROUBLE SHOOTING AND MAINTENANCE OF AUTOMOBILES                        | - | - | 3 | 0 | 0 | 3 |
| 18BT0YA | BIOFUELS   | - | - | 3 | 0 | 0 | 3 |
| 18BT0YB | MUSHROOM CULTIVATION AND VERMICOMPOSTING                               | - | - | 3 | 0 | 0 | 3 |
| 18BT0YC | FORENSIC TECHNOLOGY  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YA | GREEN BUILDINGS  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YB | DISASTER PREPAREDNESS AND PLANNING                                     | - | - | 3 | 0 | 0 | 3 |
| 18CE0YC | ENVIRONMENTAL IMPACT ASSESSMENT  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YD | BUILDING SERVICES  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YE | INDUSTRIAL WASTE MANAGEMENT  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YF | WEALTH FROM WASTE  | - | - | 3 | 0 | 0 | 3 |
| 18CE0YG | RISK AND SAFETY MANAGEMENT   | - | - | 3 | 0 | 0 | 3 |
| 18CE0YH | ENERGY SCIENCE AND ENGINEERING   | - | - | 3 | 0 | 0 | 3 |
| 18CE0YI | CONCEPTS OF REMOTE SENSING   | - | - | 3 | 0 | 0 | 3 |
| 18CS0YA | E-LEARNING TECHNIQUES  | - | - | 3 | 0 | 0 | 3 |
| 18CS0YB | SOFTWARE TESTING AND QUALITY ASSURANCE                                 | - | - | 3 | 0 | 0 | 3 |
| 18CS0YC | JAVA FUNDAMENTALS  | - | - | 3 | 0 | 0 | 3 |
| 18CS0YD | NETWORK ENGINEERING AND MANAGEMENT                                     | - | - | 3 | 0 | 0 | 3 |
| 18CS0YE | AGENT BASED INTELLIGENT SYSTEMS  | - | - | 3 | 0 | 0 | 3 |
| 18CS0YF | E-BUSINESS   | - | - | 3 | 0 | 0 | 3 |
| 18CS0YG | KNOWLEDGE DISCOVERY IN DATABASES                                       | - | - | 3 | 0 | 0 | 3 |
| 18CS0YH | SOCIAL NETWORK ANALYSIS CONCEPTS                                       | - | - | 3 | 0 | 0 | 3 |
| 18CS0YI | OPERATING SYSTEM CONCEPTS  | - | - | 3 | 0 | 0 | 3 |
| 18CS0YJ | OBJECT ORIENTED PROGRAMMING  | - | - | 3 | 0 | 0 | 3 |
| 18EC0YA | BASICS OF ANALOG AND DIGITAL ELECTRONICS                               | - | - | 3 | 0 | 0 | 3 |
| 18EC0YB | AUTOMOTIVE ELECTRONICS   | - | - | 3 | 0 | 0 | 3 |
| 18EC0YC | PCB DESIGN AND PROTOTYPING   | - | - | 3 | 0 | 0 | 3 |
| 18EC0YD | MICROCONTROLLER PROGRAMMING  | - | - | 3 | 0 | 0 | 3 |
| 18EC0YE | ENGINEERING COMPUTATION WITH MATLAB                                    | - | - | 3 | 0 | 0 | 3 |
| 18EC0YF | BASICS OF HARDWARE DESCRIPTION LANGUAGES                               | - | - | 3 | 0 | 0 | 3 |
| 18EC0YG | FUNDAMENTALS OF EMBEDDED SYSTEMS                                       | - | - | 3 | 0 | 0 | 3 |
| 18EC0YH | PRINCIPLES OF COMMUNICATION SYSTEMS                                    | - | - | 3 | 0 | 0 | 3 |
| 18EC0YI | ELECTRONIC PRODUCT DESIGN AND PACKAGING                                | - | - | 3 | 0 | 0 | 3 |
| 18EC0YJ | PRINCIPLES OF COMPUTER COMMUNICATION AND NETWORKS                      | - | - | 3 | 0 | 0 | 3 |
| 18EE0YA | ENERGY CONSERVATION AND MANAGEMENT                                     | - | - | 3 | 0 | 0 | 3 |
| 18EE0YB | ELECTRICAL SAFETY  | - | - | 3 | 0 | 0 | 3 |
| 18EE0YC | INDUSTRIAL DRIVES AND CONTROL  | - | - | 3 | 0 | 0 | 3 |
| 18EI0YA | PROGRAMMABLE LOGIC CONTROLLERS   | - | - | 3 | 0 | 0 | 3 |
| 18EI0YB | SENSOR TECHNOLOGY  | - | - | 3 | 0 | 0 | 3 |
| 18EI0YC | FUNDAMENTALS OF VIRTUAL INSTRUMENTATION                                | - | - | 3 | 0 | 0 | 3 |
| 18EI0YD | OPTOELECTRONICS AND LASER INSTRUMENTATION                              | - | - | 3 | 0 | 0 | 3 |
| 18FT0YA | FASHION CRAFTS   | - | - | 3 | 0 | 0 | 3 |
| 18FT0YB | FASHION ACCESSORIES  | - | - | 3 | 0 | 0 | 3 |
| 18FT0YC | FASHION VISUAL MERCHANDISING   | - | - | 3 | 0 | 0 | 3 |
| 18FT0YD | INTERIOR DESIGN  | - | - | 3 | 0 | 0 | 3 |
| 18FT0YE | SURFACE EMBELLISHMENT  | - | - | 3 | 0 | 0 | 3 |
| 18GE01  | BUSINESS ANALYTICS   | - | - | 3 | 0 | 0 | 3 |
| 18GE02  | INDUSTRIAL SAFETY  | - | - | 3 | 0 | 0 | 3 |
| 18GE03  | OPERATIONS RESEARCH  | - | - | 3 | 0 | 0 | 3 |
| 18GE04  | COST MANAGEMENT OF ENGINEERING PROJECTS                                | - | - | 3 | 0 | 0 | 3 |
| 18GE05  | COMPOSITE MATERIALS  | - | - | 3 | 0 | 0 | 3 |
| 18GE06  | WASTE TO ENERGY  | - | - | 3 | 0 | 0 | 3 |
| 18IT0YA | DATABASE MANAGEMENT SYSTEMS  | - | - | 3 | 0 | 0 | 3 |
| 18IT0YB | DATA STRUCTURES AND ALGORITHMS   | - | - | 3 | 0 | 0 | 3 |
| 18IT0YC | DATA SCIENCES AND ANALYTICS  | - | - | 3 | 0 | 0 | 3 |
| 18IT0YD | OBJECT ORIENTED PROGRAMMING  | - | - | 3 | 0 | 0 | 3 |
| 18IT0YE | ARTIFICIAL INTELLIGENCE  | - | - | 3 | 0 | 0 | 3 |
| 18ME0YA | INDUSTRIAL PROCESS ENGINEERING   | - | - | 3 | 0 | 0 | 3 |

|         |   |   |   |   |   |   |   |
|---------|---|---|---|---|---|---|---|
| 18ME0YB | SAFETY ENGINEERING                      | - | - | 3 | 0 | 0 | 3 |
| 18ME0YC | MAINTENANCE ENGINEERING                 | - | - | 3 | 0 | 0 | 3 |
| 18ME0YD | BASICS OF NON-DESTRUCTIVE TESTING       | - | - | 3 | 0 | 0 | 3 |
| 18ME0YE | DIGITAL MANUFACTURING                   | - | - | 3 | 0 | 0 | 3 |
| 18ME0YF | WORK STUDY AND ERGONOMICS               | - | - | 3 | 0 | 0 | 3 |
| 18ME0YG | METROLOGY IN INDUSTRY                   | - | - | 3 | 0 | 0 | 3 |
| 18ME0YH | PLANT LAYOUT AND MATERIAL HANDLING      | - | - | 3 | 0 | 0 | 3 |
| 18ME0YI | CONCEPTS OF ENGINEERING DESIGN          | - | - | 3 | 0 | 0 | 3 |
| 18ME0YJ | OIL HYDRAULICS AND PNEUMATICS           | - | - | 3 | 0 | 0 | 3 |
| 18ME0YK | ENERGY AUDITING AND MANAGEMENT          | - | - | 3 | 0 | 0 | 3 |
| 18ME0YL | LEAN SIX SIGMA                          | - | - | 3 | 0 | 0 | 3 |
| 18ME0YM | HEATING VENTILATION AND AIRCONDITIONING | - | - | 3 | 0 | 0 | 3 |
| 18TT0YA | YARN AND FABRIC MANUFACTURE             | - | - | 3 | 0 | 0 | 3 |
| 18TT0YB | COLOURATION OF TEXTILES                 | - | - | 3 | 0 | 0 | 3 |
| 18TT0YC | TEXTILES IN ENGINEERING APPLICATION     | - | - | 3 | 0 | 0 | 3 |
| 18TT0YD | GENERAL TEXTILE TECHNOLOGY              | - | - | 3 | 0 | 0 | 3 |

