**ANDHRA UNIVERSITY :: A.U.COLLEGE OF ENGINEERING(A)**

 **SCHEME OF INSTRUCTION & EXAMINATION**

 **I/IV B.TECH (FOUR YEAR COURSE)**

**&**

**I/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| ENG 1101 | English | 2 |  |  | 30 | 70 | 100 | 2 |
| ENG 1102 | Maths -I | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1103 | Maths-2 | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1104 | Chemistry | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1106 | Computer Programming & Numerical Methods | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1108 | Chemistry Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1110 | CPNM Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1112 | History of Science & Technology | 2 |  |  |  |  |  | 0 |
| **Total** | **16** | **1** | **10** |  |  | **700** | **19** |

**I/IV B.TECH (FOUR YEAR COURSE)**

**&**

**I/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

 **SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| ENG 1201 | Maths-3 | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1202 | Physics | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1205 | Engineering Graphics | 2 |  | 4 | 30 | 70 | 100 | 4 |
| ENG 1206 | Introduction to Chemical Engineering and Biotechnology | 3 | 1 |  | 30 | 70 | 100 | 3 |
| ENG 1208 | Physics Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1210 | Workshop |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1212 | English Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1214 | Professional Ethics & Moral Values | 2 |  |  |  |  |  | 0 |
| **Total** | **13** | **3** | **17** |  |  | **700** | **21** |

**ANDHRA UNIVERSITY :: A.U.COLLEGE OF ENGINEERING(A)**

 **SCHEME OF INSTRUCTION & EXAMINATION**

 **II/IV B.TECH (FOUR YEAR COURSE)**

**&**

**II/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1301 | Solid Mechanics  | 3 | 1 | 0 | 30 | 70 | 100 | 2 |
| CHE1302 | Mechanical Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 2 |
| CHE1303 |  Organic Chemistry | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1304 |  Material Science & Engineering  | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1305 | Biology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1306 |  Basic Electrical Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1308 |  General Engineering Lab (Electrical Engineering. & Mechanical Engineering.) | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1310 |  Organic Chemistry Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total**  | **18** | **6** | **6** |  |  | **800** | **20** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A)**

**ANDHRA UNIVERSITY**

 **SCHEME OF INSTRUCTION & EXAMINATION**

**II/IV B.TECH (FOUR YEAR COURSE)**

**&**

**II/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1401 | Particle & Fluid Particle Processing | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1402 | Fluid Mechanics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1403 | Thermodynamics-I | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1404 | Material & Energy Balance  | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1405 | Managerial Economics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1406 | Numerical Methods in Chemical Engineering | 2 | 0 | 3 | 30 | 70 | 100 | 2 |
| CHE1407 | Environmental Science | 3 | - | - | 100 | -- | 100 | 0 |
| CHE1410 | Particle & Fluid Particle ProcessingLab | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1412 | Fluid Mechanics Laboratory | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total**  | **20** | **05** | **09** |  |  | **900** | **21** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A) , ANDHRA UNIVERSITY**

**SCHEME OF INSTRUCTION & EXAMINATION**

**III/IV B.TECH (FOUR YEAR COURSE)**

**&**

**III/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1501 | General Chemical Technology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1502 |  Mass Transfer -I | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1503 | Core Elective-I | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1504 | Thermodynamics-II | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1505 | Open Elective-I | 3 | 0 | 0 | 30 | 70 | 100 | 3 |
| CHE1506 | Heat Transfer | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1508 |  Heat Transfer Lab | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1510\* | General Chemical Technology Lab/ Petroleum Engineering., Lab.,/Ceramic Technology Lab. | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1512 | Slot for MC (Constitution of India/Essence of Indian Traditional Knowledge) | 3 | 0 | 0 |  |  |  | 0 |
| **Total** | **24** | **05** | **6** |  |  | **900** | **22** |

**\*** General Chemical Technology Lab for B.Tech., (Chemical Engg.) & B.Tech+ M.Tech. (Chemical Engg.)/ Petroleum Engg., Lab., for B.Tech., (Chemical Engg. with Petroleum Engg. as elective) /Ceramic Technology Lab for B.Tech., (Chemical Engg. with Ceramic Technology as elective)

**Core Elective-I:**

**For Chemical Engineering ;**

 A.Paper technology, B. Fertilizer technology, C. Petroleum Refinery Engg. D. Ceramic raw materials.

 E. Fuel cell technology, F. Polymer technology. G.Intellectual Property Rights

**For Chemical Engineering with petroleum Engineering as elective**:

C. Petroleum Refinery Engg.

**For Chemical Engineering with Ceramic Technology as elective**:

D. Ceramic raw materials

**Open Elective-I:**Corrosion Engineering

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A), ANDHRA UNIVERSITY**

 **SCHEME OF INSTRUCTION & EXAMINATION**

**III/IV B.TECH (FOUR YEAR COURSE)**

**&**

**III/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1601 | Chemical Reaction Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 4 |
| CHE1602 | Process Engineering & Economics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1603 | Core Elective-II | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1604 | Transport Phenomena | 3 | 1 | 0 | 30 | 70 | 100 | 4 |
| CHE1605 | Mass Transfer –II | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1606 | Open Elective-II | 3 | 0 | 0 | 30 | 70 | 100 | 3 |
| CHE1608 | Chemical Reaction Engineering., Lab. | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1610 | Mass Transfer Lab | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total** | **18** | **05** | **06** |  |  | **800** | **24** |

**Core Elective-II:**

**For Chemical Engineering ;**

1. Process modeling and simulation,
2. Petrochemicals
3. White ware and heavy clayware,
4. Computational fluid dynamics ,
5. Multi component separation processes
6. Chemical Engineering Mathematics

**For Chemical Engineering with petroleum Engineering as elective**:

B. Petrochemicals

**For Chemical Engineering with Ceramic Technology as elective**:

C. White ware and heavy clayware

**Open Elective-II**

**Nano Science & Technology**

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A) , ANDHRA UNIVERSITY**

 **SCHEME OF INSTRUCTION & EXAMINATION**

**IV/IV B.TECH (FOUR YEAR COURSE)**

**&**

**IV/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1701 | Process Instrumentation & Control  | 3 | 1 | 0 | 30 | 70 | 100 | 4 |
| CHE1702 | Chemical Process Equipment Design  | 3 | 1 | 0 | 30 | 70 | 100 | 4 |
| CHE1703 | Core Elective-III | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1704 | Industrial Management & Entrepreneurship | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1705 | Open Elective-III | 3 | 0 | 0 | 30 | 70 | 100 | 3 |
| CHE1708 | Process Instrumentation & Control Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| CHE1710 | Chemical Process Equipment Design Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total** | **15** | **4** | **6** |  |  | **700** | **21** |

**Core Elective-III**

**For Chemical Engineering ;**

1. Computer aided design
2. Industrial pollution control Engineering
3. Process optimization
4. Reservoir Engineering
5. Fuels , Refractories and furnaces
6. Biochemical Engineering

**For Chemical Engineering with petroleum Engineering as elective**:

D. Reservoir Engineering,

**For Chemical Engineering with Ceramic Technology as elective**:

E. Fuels , Refractories and furnaces

**Open Elective-III (CHE 1705)**

1. Industrial Safety and Management
2. Environmental Pollution Control Engineering

**DEPARTMENT OF CHEMICAL ENGINEERING**

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 **SCHEME OF INSTRUCTION & EXAMINATION**

**IV/IV B.TECH (FOUR YEAR COURSE)**

**&**

**IV/VI B.TECH & M.TECH (SIX YEAR DOUBLE DEGREE COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

 **BRANCH: CHEMICAL ENGINEERING**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| CHE1801 | Project Work | -- | -- | -- | 50 | 50 | 100 | 12 |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A)**

**ANDHRA UNIVERSITY**

 **SCHEME OF INSTRUCTION & EXAMINATION**

 **I/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| ENG 1101 | English | 2 |  |  | 30 | 70 | 100 | 2 |
| ENG 1102 | Maths -I | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1103 | Maths-2 | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1104 | Chemistry | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1106 | Computer Programming & Numerical Methods | 3 |  |  | 30 | 70 | 100 | 3 |
| ENG 1108 | Chemistry Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1110 | CPNM Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1112 | History of Science & Technology | 2 |  |  |  |  |  | 0 |
| **Total** | **16** | **1** | **10** |  |  | **700** | **19** |

 **I/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| ENG 1201 | Maths-3 | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1202 | Physics | 3 | 1 |  | 30 | 70 | 100 | 4 |
| ENG 1205 | Engineering Graphics | 2 |  | 4 | 30 | 70 | 100 | 4 |
| ENG 1206 | Introduction to Chemical Engineering and Biotechnology | 3 | 1 |  | 30 | 70 | 100 | 3 |
| ENG 1208 | Physics Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1210 | Workshop |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1212 | English Lab., |  |  | 3 | 50 | 50 | 100 | 2 |
| ENG 1214 | Professional Ethics & Moral Values | 2 |  |  |  |  |  | 0 |
| **Total** | **13** | **3** | **17** |  |  | **700** | **21** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A)**

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 **SCHEME OF INSTRUCTION & EXAMINATION**

 **II/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1301 | Microbiology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE 1303 |  Organic Chemistry | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1303 | Genetics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1304 | Biology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1305 | Cell and Molecular Biology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1306 |  Basic Electrical and electronics Engineering., | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1308 | Microbiology Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1310 |  Cell and Molecular Biology Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| Total | **18** | **6** | **6** |  |  | **800** | **22** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A)**

**ANDHRA UNIVERSITY**

 **SCHEME OF INSTRUCTION & EXAMINATION**

 **II/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1401 | Biochemistry | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1402 | Fluid Mechanics and Heat transfer | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1403 | Bio Analytical Techniques | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE 1404 | Material & Energy Balance | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE 1405 | Managerial Economics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE1407 | Environmental Science | 3 | - | - | 100 | -- | 100 | 0 |
| BT 1408 | Biochemistry and Bio Analytical Techniques Lab. | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1410 | Fluid Mechanics Lab. | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total** | **18** | **05** | **6** |  |  | **800** | **19** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A) , ANDHRA UNIVERSITY**

**SCHEME OF INSTRUCTION & EXAMINATION**

 **III/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1501 | Biostatistics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1502 |  Mass Transfer  | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1503 | Enzyme Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1504 | Thermodynamics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1505 | Elective-I | 3 | 0 | 0 | 30 | 70 | 100 | 3 |
| BT 1506 | Downstream processing | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1508 |  Unit Operations Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1510  | Downstream Processing Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1512 | Slot for MC (Constitution of India/Essence of Indian Traditional Knowledge) | 3 | 0 | 0 |  |  |  | 0 |
| **Total** | **21** | **05** | **6** |  |  | **800** | **22** |

**Elective-I:** **(BT 1505)**

1. Food technology
2. Process optimization
3. Energy Engineering
4. Systems Biology

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 **SCHEME OF INSTRUCTION & EXAMINATION**

 **III/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1601 | Chemical Reaction Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1602 | Engineering Economics and Bioprocess Design | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1603 | Immunology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1604 | Bioinformatics | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1605 | Bioprocess Engineering. | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1606 | Elective-II | 3 | 0 | 0 | 30 | 70 | 100 | 3 |
| BT 1608 | Bioprocess and Reaction EngineeringLab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1610  | Bioinformatics Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total** | **18** | **05** | **06** |  |  | **800** | **22** |

**Elective-II: (BT 1606)**

1. Pharmaceutical Biotechnology
2. Animal cell culture and Hybridoma technology
3. Cancer Biology
4. Stem cells in health care.
5. Intellectual Property Rights

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 **SCHEME OF INSTRUCTION & EXAMINATION**

 **IV/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: FIRST**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1701 | Environmental Biotechnology | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1702 | Genetic Engineering | 3 | 1 | 0 | 30 | 70 | 100 | 4 |
| BT 1703 | Process Control  | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| CHE 1704 | Industrial Management& Entrepreneurship | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1705 | Industrial biotech products | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1706 | Plant cell and tissue culture | 3 | 1 | 0 | 30 | 70 | 100 | 3 |
| BT 1708 | Process control Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| BT 1710 | Plant cell and tissue culture Lab., | 0 | 0 | 3 | 50 | 50 | 100 | 2 |
| **Total** | **18** | **6** | **6** |  |  | **800** | **23** |

**DEPARTMENT OF CHEMICAL ENGINEERING**

**A.U.COLLEGE OF ENGINEERING (A)**

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 **IV/IV B.TECH (FOUR YEAR COURSE)**

**(WITH EFFECT FROM 2019-20 ADMITTED BATCH ONWARDS)**

**BRANCH: BIOTECHNOLOGY**

**SEMESTER: SECOND**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Code Number | course | Lecture | Tutorial | Practical | Allotment of marks | Total Marks | Credits |
| Hours Per WEEK | Internal | External |
| BT 1801 | Project Work | -- | -- | -- | 50 | 50 | 100 | 12 |