

## **SCHEME OF TEACHING AND EXAMINATION**

### **B Tech (Third Semester - Chemical Engineering)**

| SI. | Board of                | Studies Courses Course                         | Pe                 | eriod<br>Wee |   | Scheme of Examination |     |        | To<br>Ma | Cr             |        |
|-----|-------------------------|--|--------------------|--------------|---|-----------------------|-----|--------|----------|----------------|--------|
| No. | (BOS)                   | (Subject)                                      | Code               | L            | Т | P                     | Th  | eory/L | ab       | Total<br>Marks | Credit |
|     |                         | 3 /  |                    | L            | 1 | 1                     | ESE | CT     | TA       |                |        |
| 1.  | <b>Basic Science</b>    | Mathematics - III                              | B000311(014)       | 3            | 1 | -                     | 100 | 20     | 30       | 150            | 4      |
| 2.  | Chemical<br>Engineering | Material and<br>Energy Balance<br>Computations | B019312(019)       | 3            | 1 | ı                     | 100 | 20     | 30       | 150            | 4      |
| 3.  | Chemical<br>Engineering | Fuel Technology                                | B019313(019)       | 3            | 1 | 1                     | 100 | 20     | 30       | 150            | 4      |
| 4.  | Chemical<br>Engineering | Inorganic Process<br>Technology                | B019314(019)       | 2            | 1 | ı                     | 100 | 20     | 30       | 150            | 3      |
| 5.  | Chemical<br>Engineering | Instrumentation and Measurement                | B019315(019)       | 2            | - | 1                     | 100 | 20     | 30       | 150            | 2      |
| 6.  | Chemical<br>Engineering | Fuel Technology<br>Lab                         | B019321(019)       | 1            | 1 | 2                     | 40  | -      | 20       | 60             | 1      |
| 7.  | Chemical<br>Engineering | Inorganic Process<br>Technology Lab            | B019322(019)       | 1            | 1 | 2                     | 40  | 1      | 20       | 60             | 1      |
| 8.  | Chemical<br>Engineering | Instrumentation<br>and Measurement<br>Lab      | B019323(019)       | ı            | ı | 2                     | 40  | 1      | 20       | 60             | 1      |
| 9.  | Chemical<br>Engineering | Software Lab                                   | B019324(019)       | -            | - | 2                     | 40  | -      | 20       | 60             | 1      |
| 10. | Humanities              | Personality<br>Development                     | B000306(046)       | -            | - | 2                     |     |        | 10       | 10             | -      |
|     |                         |  | <b>Total Marks</b> | 13           | 4 | 10                    | 660 | 100    | 240      | 1000           | 21     |

L-Lecture, T-Tutorial, P-Practical, ESE-End Semester Exam, CT- Class Test, TA-Teacher's Assessment

## Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai (CG)



## **SCHEME OF TEACHING AND EXAMINATION**

### **B Tech (Fourth Semester - Chemical Engineering)**

| SI.     | Board of                | Courses                                     | Courses Course V |    | Period<br>per<br>Week |    | Scheme of<br>Examination |     |     | Total<br>Marks | Credits |
|---------|-------------------------|---|------------------|----|-----------------------|----|--------------------------|-----|-----|----------------|---------|
| No<br>· | Studies (BOS)           | (Subject)                                   |                  |    | T                     | P  | Theory/Lab               |     |     |                |         |
|         |                         |   |                  |    |                       |    | ESE                      | СТ  | TA  |                |         |
| 1.      | Chemical<br>Engineering | Fluid Mechanics                             | B019411(019)     | 3  | 1                     | -  | 100                      | 20  | 30  | 150            | 4       |
| 2.      | Chemical<br>Engineering | Heat Transfer<br>Operation                  | B019412(019)     | 3  | 1                     | -  | 100                      | 20  | 30  | 150            | 4       |
| 3.      | Chemical<br>Engineering | Organic Process<br>Technology               | B019413(019)     | 3  | 1                     | -  | 100                      | 20  | 30  | 150            | 4       |
| 4.      | Chemical<br>Engineering | Numerical Method in<br>Chemical Engineering | B019414(019)     | 2  | 1                     | -  | 100                      | 20  | 30  | 150            | 3       |
| 5.      | Chemical<br>Engineering | Material Science                            | B019415(019)     | 2  | 0                     | -  | 100                      | 20  | 30  | 150            | 2       |
| 6.      | Chemical<br>Engineering | Fluid Mechanics Lab                         | B019421(019)     | -  | -                     | 2  | 40                       | -   | 20  | 60             | 1       |
| 7.      | Chemical<br>Engineering | Heat Transfer<br>Operation Lab              | B019422(019)     | -  | -                     | 2  | 40                       | -   | 20  | 60             | 1       |
| 8.      | Chemical<br>Engineering | Organic Process<br>Technology Lab           | B019423(019)     | -  | -                     | 2  | 40                       | -   | 20  | 60             | 1       |
| 9.      |                         | Virtual Lab                                 | B019424(019)     | -  | 1                     | 2  | 40                       | -   | 20  | 60             | 1       |
| 10.     | Non-Credit              | Indian Culture and Constitution of India    | B000406(046)     | -  | -                     | 2  | - 1                      | -   | 10  | 10             | -       |
|         |                         |   | Total            | 13 | 4                     | 10 | 660                      | 100 | 240 | 1000           | 21      |

#### L-Lecture, T-Tutorial, P-Practical, ESE-End Semester Exam, CT- Class Test,

#### **TA-Teacher's Assessment**

#### **Note:**

- 1. Duration of End Semester Exam of all theory papers will be of Three Hours.
- 2. Industrial Training of eight weeks is mandatory for B.Tech.. Student. It is to be completed in two parts.
  - > The first part will be in summer after IV semester after which students have to submit a training report which will be evaluated by the college teachers during B.E. V semester.



### **SCHEME OF TEACHING AND EXAMINATION**

### **B Tech (Fifth Semester - Chemical Engineering)**

| SI. | Board of                                  | Courses   | Course       | Peri<br>W | od p<br>/eek |    | The | eory/l | Lab | Total<br>Marks | Credits |
|-----|---|---|--------------|-----------|--------------|----|-----|--------|-----|----------------|---------|
| NO. | Studies                                   | (Subject)   | Code         | L         | Т            | P  | ESE | СТ     | TA  | tal<br>rks     | dits    |
| 1.  | Chemical<br>Engineering                   | Chemical Engineering Thermodynamics                                 | C019511(019) | 3         | 1            | 1  | 100 | 20     | 30  | 150            | 4       |
| 2.  | Chemical<br>Engineering                   | Chemical Reaction<br>Engineering                                    | C019512(019) | 3         | 1            | 1  | 100 | 20     | 30  | 150            | 4       |
| 3.  | Chemical<br>Engineering                   | Process Equipment<br>Design – I                                     | C019513(019) | 3         | 1            | 1  | 100 | 20     | 30  | 150            | 4       |
| 4.  | Chemical<br>Engineering                   | Mechanical Operation  | C019514(019) | 2         | 1            | 1  | 100 | 20     | 30  | 150            | 3       |
| 5.  | 5. Professional Elective-I(Refer Table I) |   |              | 2         | 0            | 1  | 100 | 20     | 30  | 150            | 2       |
| 6.  | Chemical<br>Engineering                   | Chemical Reaction<br>Engineering Lab                                | C019521(019) | -         | -            | 2  | 40  | 1      | 20  | 60             | 1       |
| 7.  | Chemical<br>Engineering                   | Process Equipment<br>Design – I Viva                                | C019522(019) | -         | -            | 2  | 40  | 1      | 20  | 60             | 1       |
| 8.  | Chemical<br>Engineering                   | Mechanical Operation<br>Lab   | C019523(019) | -         | -            | 2  | 40  | 1      | 20  | 60             | 1       |
| 9.  | Chemical<br>Engineering                   | Project – I (Based on<br>Summer Internship/<br>Industrial Training) | C019524(019) | -         |              | 2  | 40  | -      | 20  | 60             | 1       |
| 10. | Non-Credit                                | Environmental Studies   | C000506(020) | -         | -            | 2  | -   | -      | 10  | 10             | -       |
|     |   |   | Total        | 13        | 4            | 10 | 660 | 100    | 240 | 1000           | 21      |

L-Lecturer

T – Tutorial,

P – Practical,

ESE – End Semester Exam,

CT -ClassTest

TA – Teacher's Assessment

#### **Table I (Professional Elective I)**

| S.N. | <b>Board of Studies</b> | Course Code  | Subject                 |
|------|-------------------------|--------------|-------------------------|
| 1.   | Chemical Engineering    | C019531(019) | Nanotechnology          |
| 2.   | Chemical Engineering    | C019532(019) | Optimization Techniques |

Note: (1) 1/4<sup>th</sup> of total strength of students subject to minimum of 20 students is required to offer and elective in the college in a particular academic session.



## Chhattisgarh Swami VivekanandTechnical

## University (CSVTU, NEWAI (C.G.))

### SCHEME OF TEACHING AND EXAMINATION

### **B Tech (Sixth Semester - Chemical Engineering)**

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|---|---|--|--------------|----|--------------|----|-----|-------|-----|----------------|---------|
| Sl.                                     | Board of Studies                                | Courses  | Course       |    | riod<br>Weel | _  | Th  | eory/ | Lab | Total<br>Marks | Credits |
| No.                                     | Board of Studies                                | (Subject)  | Code         | L  | T            | P  | ESE | СТ    | TA  | tal<br>rks     | dits    |
| 1.                                      | Chemical<br>Engineering                         | Mass Transfer –I                                       | C019611(019) | 3  | 1            | -  | 100 | 20    | 30  | 150            | 4       |
| 2.                                      | Chemical<br>Engineering                         | Transport Phenomena                                    | C019612(019) | 3  | 1            | -  | 100 | 20    | 30  | 150            | 4       |
| 3.                                      | Chemical<br>Engineering                         | Process Equipment Design –II                           | C019613(019) | 3  | 1            | -  | 100 | 20    | 30  | 150            | 4       |
| 4.                                      | 4. Professional Elective-II (Refer Table I)     |  |              | 2  | 1            | -  | 100 | 20    | 30  | 150            | 3       |
| 5.                                      | O   | pen Elective – I (Refer Table I                        | (I)          | 2  | 0            | -  | 100 | 20    | 30  | 150            | 2       |
| 6.                                      | Chemical<br>Engineering                         | Mass Transfer –I Lab                                   | C019621(019) | 1  | -            | 2  | 40  | -     | 20  | 60             | 1       |
| 7.                                      | Chemical<br>Engineering                         | Transport Phenomena - Lab                              | C019622(019) | -  | -            | 2  | 40  |       | 20  | 60             | 1       |
| 8.                                      | Chemical<br>Engineering                         | Process Equipment Design –II<br>- Viva                 | C019623(019) | -  | -            | 2  | 40  | -     | 20  | 60             | 1       |
| 9.                                      | Professional Elective – II Lab (Refer Table II) |  |              | -  | -            | 2  | 40  | -     | 20  | 60             | 1       |
| 10.                                     | Humanities                                      | Humanities Technical Communication and Soft Skill C000 |              | -  | -            | 2  | -   | -     | 10  | 10             | -       |
|   |   |  | Total        | 13 | 4            | 10 | 660 | 100   | 240 | 1000           | 21      |

L – Lecturer P – Practical,

T – Tutorial, TA – Teacher's Assessment

ESE – End Semester Exam,

CT -ClassTest

#### **Table I (Professional Elective II)**

| S.N. | Board of Studies     | Subject                        | Course Code  |
|------|----------------------|--------------------------------|--------------|
| 1.   | Chemical Engineering | Petroleum Refinery Engineering | C019631(019) |
| 2.   | Chemical Engineering | Polymer Science & Engineering  | C019632(019) |

#### **Table I (Professional Elective II Lab)**

| S.N. | Board of Studies     | Subject                        | Course Code  |
|------|----------------------|--------------------------------|--------------|
| 1.   | Chemical Engineering | Petroleum Refinery Engineering | C019624(019) |
| 2.   | Chemical Engineering | Polymer Science & Engineering  | C019625(019) |

Note: (1) 1/4<sup>th</sup> of total strength of students subject to minimum of 20 students is required to offer and Elective in the college in a particular academic session.



## B Tech (Sixth Semester)

List of Open Elective – I (Table III ) (For 6<sup>th</sup> Semester)

|      | Zist of Open                       | Elective - I (Table III ) (For o Sen                   | ilester)     |
|------|------------------------------------|--|--------------|
| S.N. | Board of Studies                   | Subject  | Course Code  |
| 1    | Agriculture Engg.                  | Food Packaging Technology                              | C000601(094) |
| 2    | Agriculture Engg                   | Energy Management & Audit                              | C000602(094) |
| 3    | Agriculture Engg                   | Energy Conservation & Management                       | C000603(094) |
| 4    | Agriculture Engg                   | Disaster Management                                    | C000604(094) |
| 5    | Agriculture Engg                   | Ecology and Sustainable Development                    | C000605(094) |
| 6    | Agriculture Engg                   | Non Conventional Energy Sources                        | C000606(094) |
| 7    | Mechanical Engineering             | Safety Engineering                                     | C000607(037) |
| 8    | Mechanical Engineering             | Value Engineering                                      | C000608(037) |
| 9    | Mechanical Engineering             | Managing Innovation & Entrepreneurship                 | C000609(037) |
| 10   | Mechanical Engineering             | Environment Pollution & Control                        | C000610(037) |
| 11   | Management                         | Enterprise Resource Planning ((Except CSE & IT Branch) | C000611(076) |
| 12   | Computer Science Engg.             | Artificial Intelligence                                | C000612(022) |
| 13   | Computer Science Engg              | Quantum Computing                                      | C000613(022) |
| 14   | Computer Science Engg              | Cyber Security   | C000614(022) |
| 15   | Civil Engg                         | Construction engineering and management                | C000615(020) |
| 16   | Civil Engg                         | Metro system and engineering                           | C000616(020) |
| 17   | Civil Engg                         | Infrastructure Planning and Management                 | C000617(020) |
| 18   | Computer Science Engg              | Parallel Processing & Computing                        | C000618(022) |
| 19   | Computer Science Engg              | Cryptography & Network Security                        | C000619(022) |
| 20   | Computer Science Engg              | Cloud Computing  | C000620(022) |
| 21   | Computer Science Engg              | Computer Networks                                      | C000621(022) |
| 22   | Computer Science Engg              | Internet of Things                                     | C000622(022) |
| 23   | Computer Science Engg              | Data Structures and Algorithms                         | C000623(022) |
| 24   | Computer Science Engg              | Big Data Analytics                                     | C000624(022) |
| 25   | Electrical and Electronics<br>Engg | Electrical Estimation and Costing                      | C000625(025) |
| 26   | Electrical and Electronics Engg    | Energy Auditing and Management                         | C000626(025) |
| 27   | Management                         | Finance Management                                     | C000627(076) |
| 28   | Mechanical Engineering             | Safety Engineering                                     | C000628(037) |
| 29   | Electronics & Telecom.             | AI and Machine learning                                | C000629(028) |
| 30   | Electronics & Telecom.             | Operating Systems                                      | C000630(028) |
| 31   | Electronics & Telecom.             | Internet & Web Technology                              | C000631(028) |
| 32   | Electronics & Telecom.             | Database Management Systems (DBMS)                     | C000632(028) |
| 33   | Electronics & Telecom.             | Device Modelling                                       | C000633(028) |
| 34   | Electronics & Telecom.             | Introduction to MEMS                                   | C000634(028) |
| 35   | Mechanical Engineering             | Principles of Management C000635(03                    |              |
| 36   | Mechanical Engineering             | Advanced I.C. Engines                                  | C000636(037) |

| 37 | Mechanical Engineering | Mechanical Vibrations & Condition<br>Monitoring | C000637(037) |
|----|------------------------|---|--------------|
| 38 | Mechatronics           | Entrepreneurship Developments                   | C000638(067) |
| 39 | Plastic Engineering    | Heat Transfer Operation                         | C000639(095) |
| 40 | Plastic Engineering    | Process Economics and Management                | C000640(095) |
| 41 | Plastic Engineering    | Adhesive and Surface Coating                    | C000641(095) |
| 42 | Information Technology | E-Commerce                                      | C000642(033) |
| 43 | Information Technology | Industrial Economics and Management             | C000643(033) |
| 44 | Information Technology | Project Planning & Management                   | C000644(033) |
| 45 | Information Technology | Bio-Informatics                                 | C000645(033) |
| 46 | Information Technology | Management Information System                   | C000646(033) |
| 47 | Chemical Engineering   | Plant Utility & Safety Engineering              | C000647(019) |
| 48 | Chemical Engineering   | Environment Pollution & Control                 | C000648(019) |

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#### **SCHEME OF TEACHING AND EXAMINATION**

**B Tech (Seventh Semester - Chemical Engineering)** 

| SI. | Board of                                      | dies Course Course                                      |                    | Period per<br>Week |   | Scheme of<br>Examination |            |     | T <sub>0</sub> | Cr             |        |
|-----|---|---|--------------------|--------------------|---|--------------------------|------------|-----|----------------|----------------|--------|
| No. | Studies (BOS)                                 | (Subject)   | Code               | т                  | Т | P                        | Theory/Lab |     |                | Total<br>Marks | Credit |
|     |   |   |                    | L                  | 1 | P                        | ESE        | CT  | TA             |                |        |
| 1.  | <b>Chemical Engg</b>                          | Mass Transfer–II  | D019711(019)       | 3                  | 1 | -                        | 100        | 20  | 30             | 150            | 4      |
| 2.  | <b>Chemical Engg</b>                          | Process Dynamics & Control                              | D019712(019)       | 2                  | 1 | -                        | 100        | 20  | 30             | 150            | 3      |
| 3.  | Chemical Engg                                 | Chemical Engg Process Equipment Design-III D019713(019) |                    | 2                  | 1 | -                        | 100        | 20  | 30             | 150            | 3      |
| 4.  | Professional Elective –III (Refer to Table I) |   |                    | 1                  | 1 | -                        | 100        | 20  | 30             | 150            | 2      |
| 5.  | Open Elective- II (Refer to Table II)         |   |                    | 2                  | 0 | -                        | 100        | 20  | 30             | 150            | 2      |
| 6.  | <b>Chemical Engg</b>                          | Mass Transfer–II Lab                                    | D019721(019)       | -                  | - | 2                        | 40         | -   | 20             | 60             | 1      |
| 7.  | ('homiool L'ngg                               | Process Dynamics &<br>Control Lab                       | D019722(019)       | -                  | - | 2                        | 40         | -   | 20             | 60             | 1      |
| 8.  | Chemical Engg                                 | Project (Phase I)                                       | D019723(019)       | -                  | - | 6                        | 60         | -   | 40             | 100            | 3      |
| 9.  | Chemical Engg                                 | Industrial Training                                     | D019724(019)       |                    |   | 2                        |            |     | 20             | 20             | 1      |
| 10  | Humanities                                    | Universal Human Values 2                                | D000701(046)       | -                  | - | 2                        | -          | -   | 10             | 10             | -      |
|     |   |   | <b>Total Marks</b> | 10                 | 4 | 14                       | 640        | 100 | 260            | 1000           | 20     |

L – Lecturer ,T – Tutorial, P – Practical , CT –Class Test ESE – End Semester Exam TA – Teacher's Assessment

Note: - The students have to attend the four weeks industrial training / summer internship in B. Tech

program after sixth semester, which will be evaluated in seventh semester.

#### Table I (Professional Elective III)

| S.N. | <b>Board of Studies</b> | Course Code  | Subject                 |
|------|-------------------------|--------------|-------------------------|
| 1.   | Chemical Engineering    | D019731(019) | Solid Waste Engineering |
| 2.   | Chemical Engineering    | D019732(019) | Food Technology         |

Note: (1) 1/4th of total strength of students subject to minimum of 20 students is required to offer and elective in the college in a particular academic session.



## **B Tech (Seventh Semester)**

## List of Open Elective – II (Table III ) (For 7<sup>th</sup> Semester)

| S.N. | Board of Studies       | Course Code  | Subject   |  |  |  |  |
|------|------------------------|--------------|---|--|--|--|--|
| 1    | Agriculture Engg       | D000701(094) | Biomass Management For Fodder And Energy.       |  |  |  |  |
| 2    | Agriculture Engg       | D000702(094) | Gully And Ravine Control Structures             |  |  |  |  |
| 3    | Civil Engg             | D000703(020) | Design Of Structures.                           |  |  |  |  |
| 4    | Agriculture Engg       | D000704(094) | Reservoir And Farm Pond Design.                 |  |  |  |  |
| 5    | Mechanical             | D000705(037) | 3 D Printing & design                           |  |  |  |  |
| 6    | Management             | D000706(076) | TechnologyManagement                            |  |  |  |  |
| 7    | Information Technology | D000707(033) | Decision Support & ExecutiveInformationsystem   |  |  |  |  |
| 8    | CSE                    | D000708(022) | Software Technology                             |  |  |  |  |
| 9    | Management             | D000709(076) | Knowledge Entrepreneurship                      |  |  |  |  |
| 10   | Management             | D000710(076) | Intellectual Property Rights                    |  |  |  |  |
| 11   | Biotechnology          | D000711(018) | Phytochemistry                                  |  |  |  |  |
| 12   | Biotechnology          | D000712(018) | Clinical Research and Trial Management          |  |  |  |  |
| 13   | Biotechnology          | D000713(018) | Cellular and Molecular Diagnostics              |  |  |  |  |
| 14   | Chemical Engineering   | D000714(019) | Environmental Legislation & Impact Assessment   |  |  |  |  |
| 15   | Civil Engineering      | D000715(020) | Environmental management and Legislations       |  |  |  |  |
| 16   | Civil Engineering      | D000716(020) | Hydraulics of water and waste water             |  |  |  |  |
| 17   | Civil Engineering      | D000717(020) | Disaster Management                             |  |  |  |  |
| 18   | CSE                    | D000718(022) | Neural Network and Deep Learning                |  |  |  |  |
| 19   | CSE                    | D000719(022) | Big data and Hadoop                             |  |  |  |  |
| 20   | CSE                    | D000720(022) | BioInformatics                                  |  |  |  |  |
| 21   | CSE                    | D000721(022) | SoftwareTesting                                 |  |  |  |  |
| 22   | EEE                    | D000722(025) | Switched Mode Power Converter                   |  |  |  |  |
| 23   | EEE                    | D000723(025) | Internet of Things                              |  |  |  |  |
| 25   | EEE                    | D000724(025) | Non Conventional Energy Sources                 |  |  |  |  |
| 26   | EEE                    | D000725(025) | Sensors and Transducers                         |  |  |  |  |
| 27   | Information Technology | D000726(033) | E-Commerce & strategic IT                       |  |  |  |  |
| 28   | Management             | D000727(076) | Entrepreneurship                                |  |  |  |  |
| 29   | Information Technology | D000728(033) | Decision Support & Executive Information system |  |  |  |  |
|      | Computer Science &     |              | Software Technology                             |  |  |  |  |
| 30   | Engg.                  | D000729(022) |   |  |  |  |  |
| 31   | Electrical Engineering | D000730(024) | Solar PV Energy System                          |  |  |  |  |
| 32   | Mechanical Engineering | D000731(037) | Energy Conservation & Management                |  |  |  |  |
| 33   | Information Technology | D000732(033) | Information Theory & Coding                     |  |  |  |  |
| 34   | Management             | D000733(076) | Project Planning, Management & Evaluation       |  |  |  |  |

| 35 | Electronics & Telecom  | D000734(028) | Java Programming                                |
|----|------------------------|--------------|---|
| 36 | Electronics & Telecom  | D000735(028) | Cloud computing                                 |
| 37 | Electronics & Telecom  | D000736(028) | Big data Mining                                 |
| 38 | Electronics & Telecom  | D000737(028) | Cryptography & Network security                 |
| 39 | Electronics & Telecom  | D000738(028) | Neural Network & Fuzzy Logic                    |
| 40 | Electronics & Telecom  | D000739(028) | RF IC Design                                    |
| 41 | Information Technology | D000740(033) | Graph Theory And Applications                   |
| 42 | Information Technology | D000741(033) | Biometrics                                      |
| 43 | Information Technology | D000742(033) | Quantum Computing                               |
| 44 | Information Technology | D000743(033) | Entrepreneurship essentials                     |
| 45 | Information Technology | D000744(033) | Managerial Skills                               |
| 46 | Mechanical Engineering | D000745(037) | Mechatronics                                    |
| 47 | Mechanical Engineering | D000746(037) | Engineering Economics                           |
| 48 | Mechanical Engineering | D000747(037) | Computer Graphics                               |
| 49 | Mechanical Engineering | D000748(037) | Control Engineering                             |
| 50 | Management             | D000749(076) | Technology Management                           |
| 51 | Information Technology | D000750(033) | Decision Support & Executive Information system |
| 53 | Management             | D000751(076) | Finance Management                              |
| 54 | Management             | D000752(076) | Project Planning, Management & Evaluation       |
| 55 | Mechanical Engg.       | D000753(037) | Safety Engineering                              |
| 56 | Mechanical Engg.       | D000754(037) | Energy Conservation & Management                |
|    | Computer Science &     | D000755(022) | Bio Informatics                                 |
| 57 | Engg.                  |              |   |
| 58 | Management             | D000756(076) | Knowledge Entrepreneurship                      |
| 59 | Plastics Engineering   | D000757(095) | Renewable Energy                                |
| 60 | Plastics Engineering   | D000758(095) | Plastics Waste Management and Recycling         |



## **B Tech (Seventh Semester)**

## List of Open Elective – II (Table III ) (For 7<sup>th</sup> Semester)

| S.N. | <b>Board of Studies</b>  | Course Code  | Subject                                       |
|------|--------------------------|--------------|---|
| 1    | Agriculture Engg         | D000701(094) | Biomass Management For Fodder And Energy.     |
| 2    | Agriculture Engg         | D000702(094) | Gully And Ravine Control Structures           |
| 3    | Civil Engg               | D000703(020) | Design Of Structures.                         |
| 4    | Agriculture Engg         | D000704(094) | Reservoir And Farm Pond Design.               |
| 5    | Mechanical               | D000705(037) | 3 D Printing & design                         |
| 6    | Management               | D000706(076) | TechnologyManagement                          |
| 7    | Information Technology   | D000707(033) | Decision Support & ExecutiveInformationsystem |
| 8    | CSE                      | D000708(022) | Software Technology                           |
| 9    | Management               | D000709(076) | Knowledge Entrepreneurship                    |
| 10   | Management               | D000710(076) | Intellectual Property Rights                  |
| 11   | Biotechnology            | D000711(018) | Phytochemistry                                |
| 12   | Biotechnology            | D000712(018) | Clinical Research and Trial Management        |
| 13   | Biotechnology            | D000713(018) | Cellular and Molecular Diagnostics            |
| 14   | Chemical Engineering     | D000714(019) | Environmental Legislation & Impact Assessment |
| 15   | Civil Engineering        | D000715(020) | Environmental management and Legislations     |
| 16   | Civil Engineering        | D000716(020) | Hydraulics of water and waste water           |
| 17   | Civil Engineering        | D000717(020) | Disaster Management                           |
| 18   | CSE                      | D000718(022) | Neural Network and Deep Learning              |
| 19   | CSE                      | D000719(022) | Big data and Hadoop                           |
| 20   | CSE                      | D000720(022) | BioInformatics                                |
| 21   | CSE                      | D000721(022) | SoftwareTesting                               |
| 22   | EEE                      | D000722(025) | Switched Mode Power Converter                 |
| 23   | EEE                      | D000723(025) | Internet of Things                            |
| 24   | EEE                      | D000724(025) | Non Conventional Energy Sources               |
| 25   | EEE                      | D000725(025) | Sensors and Transducers                       |
| 26   | Information Technology   | D000726(033) | E-Commerce & strategic IT                     |
| 27   | Computer Science & Engg. | D000727(022) | Software Technology                           |
| 28   | Electrical Engineering   | D000728(024) | Solar PV Energy System                        |
|      | Mechanical Engineering   |              | Energy Conservation & Management              |
| 29   |                          | D000729(037) |   |
| 30   | Information Technology   | D000730(033) | Information Theory & Coding                   |
| 31   | Management               | D000731(076) | Project Planning, Management & Evaluation     |
| 32   | Electronics & Telecom    | D000732(028) | Java Programming                              |
| 33   | Electronics & Telecom    | D000733(028) | Cloud computing                               |

| 34 | Electronics & Telecom  | D000734(028) | Big data Mining                         |
|----|------------------------|--------------|---|
| 35 | Electronics & Telecom  | D000735(028) | Cryptography & Network security         |
| 36 | Electronics & Telecom  | D000736(028) | Neural Network & Fuzzy Logic            |
| 37 | Electronics & Telecom  | D000737(028) | RF IC Design                            |
| 38 | Information Technology | D000738(033) | Graph Theory And Applications           |
| 39 | Information Technology | D000739(033) | Biometrics                              |
| 40 | Information Technology | D000740(033) | Quantum Computing                       |
| 41 | Information Technology | D000741(033) | Entrepreneurship essentials             |
| 42 | Information Technology | D000742(033) | Managerial Skills                       |
| 43 | Mechanical Engineering | D000743(037) | Mechatronics                            |
| 44 | Mechanical Engineering | D000744(037) | Engineering Economics                   |
| 45 | Mechanical Engineering | D000745(037) | Computer Graphics                       |
| 46 | Mechanical Engineering | D000746(037) | Control Engineering                     |
| 47 | Management             | D000747(076) | Finance Management                      |
| 48 | Mechanical Engg.       | D000748(037) | Energy Conservation & Management        |
| 49 | Plastics Engineering   | D000749(095) | Renewable Energy                        |
| 50 | Plastics Engineering   | D000750(095) | Plastics Waste Management and Recycling |



### **SCHEME OF TEACHING AND EXAMINATION**

### **B.Tech (Eight Semester - Chemical Engineering)**

| SI. | Board of<br>Studies<br>(BOS)                       | Courses<br>(Subject)                    | Course<br>Code | Period per<br>Week |   |    | Scheme of<br>Examination |    |     | T <sub>0</sub> | Cr     |
|-----|--|---|----------------|--------------------|---|----|--------------------------|----|-----|----------------|--------|
| No. |  |   |                | L                  | Т | P  | Theory/Lab               |    |     | Total<br>Mark  | Credit |
|     | ( <b>DO</b> 3)                                     |   |                |                    |   |    | ESE                      | CT | TA  |                | T      |
| 1.  | Chemical<br>Engineering                            | Modeling & Simulation (MS)              | D019811(019)   | 3                  | 1 | -  | 100                      | 20 | 30  | 150            | 4      |
| 2.  | 2. Professional Elective – IV (Refer to Table – I) |   |                | 2                  | 1 | -  | 100                      | 20 | 30  | 150            | 3      |
| 3.  | 3. Open Elective – III (Refer to Table – III)      |   |                | 2                  | 0 | -  | 100                      | 20 | 30  | 150            | 2      |
| 4.  | Chemical<br>Engineering                            | Modeling & Simulation (Lab) (MS Lab)    | D019821(019)   | _                  | - | 2  | 40                       | -  | 20  | 60             | 1      |
| 5.  | Chemical<br>Engineering                            | Biochemical Engineering (Lab) (BCE Lab) | D019822(019)   | _                  | - | 2  | 40                       | -  | 20  | 60             | 1      |
| 6.  | Chemical<br>Engineering                            | Project (Phase – II)                    | D019823(019)   | -                  | - | 14 | 350                      | -  | 80  | 430            | 7      |
|     | Total Marks  |   |                |                    | 2 | 18 | <b>730</b>               | 60 | 210 | 1000           | 18     |

L - Lecturer, T - Tutorial, P - Practical, CT - Class Test, ESE - End Semester Exam, TA - Teacher's Assessment

#### **Table-I (Professional Elective-IV)**

| S.N. | Board of Studies     | Course Code  | Subject                             |
|------|----------------------|--------------|-------------------------------------|
| 1.   | Chemical Engineering | D019831(019) | Biochemical Engineering (BCE)       |
| 2.   | Chemical Engineering | D019832(019) | Membrane Science & Technology (MST) |

Note: (1)  $1/4^{th}$  of total strength of students subject to minimum of 20 students is required to offer and elective in the college in a particular academic session.



## B.Tech (Eight Semester)

## List of Open Elective – III (Table – III) (For 8<sup>th</sup> Semester)

| S.N. | Board of Studies                     | Course Code  | Subject  |
|------|--------------------------------------|--------------|--|
| 1    | Agriculture Engineering              | D000801(094) | Environmental Science  |
| 2    | Management                           | D000802(076) | Industrial Engineering & Management  |
| 3    | Computer Science & Engineering       | D000803(022) | Soft Computing Techniques  |
| 4    | Mechanical                           | D000804(037) | Composite Materials  |
| 5    | Electrical & Electronics Engineering | D000805(025) | Industrial Automation  |
| 6    | Mechanical Engineering               | D000806(037) | Production & Product Management  |
| 7    | Electronics & Telecommunication      | D000807(028) | Virtual Instrumentation  |
| 8    | Computer Science & Engineering       | D000808(022) | Data Sciences  |
| 9    | Mechanical Engineering               | D000809(037) | Computational Fluid Dynamics   |
| 10   | Biotechnology                        | D000810(018) | Medical Biotechnology  |
| 11   | Biotechnology                        | D000811(018) | Bioterrorism and National Security   |
| 12   | Biotechnology                        | D000812(018) | Precision Medicine and Wellness  |
| 13   | Chemical Engineering                 | D000813(019) | Non Conventional Energy Sources (NCES) (Except Electrical Engg. and Agriculture Engg.) |
| 14   | Civil Engineering                    | D000814(020) | Air pollution and control measures   |
| 15   | Civil Engineering                    | D000815(020) | Solid and hazardous waste management   |
| 16   | Computer Science Engineering         | D000816(022) | Natural language processing  |
| 17   | Computer Science Engineering         | D000817(022) | Cluster and Grid Computing   |
| 18   | Computer Science Engineering         | D000818(022) | Blockchain   |
| 19   | Computer Science Engineering         | D000819(022) | Data Compression   |
| 20   | Electrical & Electronics Engineering | D000820(025) | Power Plant Engineering  |
| 21   | Electrical & Electronics Engineering | D000821(025) | Utilization of Electrical Energy and Electric<br>Traction                              |
| 22   | Electrical & Electronics Engineering | D000822(025) | Introduction to Micro-electromechanical systems (MEMS)                                 |
| 23   | Management                           | D000823(076) | Management Concept Techniques  |
| 24   | Electronics & Telecom.               | D000824(028) | Operational Research   |

|    | <del> </del>                   |              |   |
|----|--------------------------------|--------------|---|
| 25 | Electronics & Telecom.         | D000825(028) | Android Apps Development                |
| 26 | Electronics & Telecom.         | D000826(028) | Digital Switching & Multiplexing        |
| 27 | Electronics & Telecom.         | D000827(028) | Optimization Techniques                 |
| 28 | Information Technology         | D000828(033) | Business Intelligence                   |
| 29 | Information Technology         | D000829(033) | Game Theory                             |
| 30 | Information Technology         | D000830(033) | Optimization Design And Techniques      |
| 31 | Information Technology         | D000831(033) | Software Metrics and Quality Assurance  |
| 33 | Mechanical Engineering         | D000833(037) | Energy Management and Audit             |
| 34 | Information Technology         | D000834(033) | Cyber Security and Information Security |
| 35 | Mechatronics Engineering       | D000835(067) | Nanotechnology                          |
| 36 | Computer Science & Engineering | D000836(022) | Supply Chain Management                 |
| 37 | Electrical Engineering         | D000837(024) | Electrical Estimation and Costing       |
| 38 | Computer Science & Engineering | D000838(022) | Data Mining &Warehousing                |
| 39 | Plastics Engineering           | D000839(095) | Fiber Technology                        |
| 40 | Electrical Engineering         | D000840(024) | Wind Energy                             |