# List of Courses Focus on Employability/ Entrepreneurship/ Skill Development

**Department : *Electronics and Communication Engineering***

**Programme Name : *B.Tech.***

***Academic Year : 2017-18***

***List of Courses Focus on Employability/ Entrepreneurship/Skill Development***

| Sr. No. | Course Code | Name of the Course |
|---|---|---|
| 01. | ENATHS01 | Professional Communication English |
| 02. | CHATBS01 | Engineering Chemistry |
| 03. | MEATES01 | Engineering Mechanics |
| 04. | CSATES02 | Fundamental of Computers |
| 05. | EMATBS02 | Engineering Mathematics-I |
| 06. | CHALBS01 | Engineering Chemistry Lab |
| 07. | MEALES01 | Engineering Mechanics Lab |
| 08. | MEALES03 | Engineering Drawing |
| 09. | CHBTHS02 | Environmental Studies |
| 10. | MEBTES04 | Engineering Thermodynamics |
| 11 | EEBTES05 | Basic Electrical & Electronics Engineering |
| 12 | PHBTBS03 | Engineering Physics |
| 13 | EMBTHS04 | Engineering Mathematics-II |
| 14 | EEBLES05 | Basic Electrical & Electronics Engineering Lab |
| 15 | PHBLBS03 | Engineering Physics Lab |
| 16 | MEBLES06 | Workshop Practices |
| 17 | EC3THS03 | Engineering Economics |
| 18 | EC3TPC01 | Signals and Systems |
| 19 | EC3TBS01 | Engineering Mathematics-III |
| 20 | EC3TES01 | Network Analysis And Synthesis |
| 21 | EC3TES02 | Electronic Devices |
| 22 | EC3TPC02 | Digital Logic Circuits |
| 23 | EC3PES02 | Electronics Devices Lab |
| 24 | EC3PPC02 | Digital Logic Circuits Lab |
| 25 | EC4TBS02 | Numerical Analysis |
| 26 | EC4TPC03 | Automatic Control Systems |

| | | |
|---|---|---|
| 27 | EC4TPC04 | Analog Circuits |
| 28 | EC4TPC05 | Communication System-I |
| 29 | EC4TPC06 | Electronics Measurements & Instrumentation |
| 30 | EC4PPC04 | Analog Circuits Lab |
| 31 | EC4PPC05 | Communication System-I Lab |
| 32 | EC4PPC06 | Electronic Measurements & Instrumentation Lab |
| 33 | EC5TPC07 | Lic & Its Application |
| 34 | EC5TPC08 | Communication System- II |
| 35 | EC5TPC09 | Electromagnetic Field Theory |
| 36 | EC5TPE01 | Microprocessor & Its Application |
| 37 | EC5TPE02 | Data Structure & Operating System |
| 38 | EC5TOE11 | Computer Architecture |
| 39 | EC5TOE12 | OOP in C++ |
| 40 | EC5TOE13 | Introduction to Information Security |
| 41 | EC5TOE14 | Project Management |
| 42 | EC5TOE15 | Rural Technology and Community Development |
| 43 | EC5PPC07 | LIC & ITS APPLICATION Lab |
| 44 | EC5PPE01 | Microprocessor & Its Application Lab |
| 45 | EC5PPC08 | Communication System -II Lab |
| 46 | EC6TPC10 | Digital Signal Processing |
| 47 | EC6TPC11 | Antenna & wave propagation |
| 48 | EC6TPE03 | Data Communication & Computer Networking |
| 49 | EC6TPE04 | Fundamental of VLSI Design |
| 50 | EC6T0E21 | UNIX, Operating System |
| 51 | EC6T0E22 | Probability & Stochastic Process |
| 52 | EC6TOE23 | Advanced Instrumentation |
| 53 | EC6T0E24 | Knowledge management |
| 54 | EC6T0E25 | Engineering System Design Optimization |
| 55 | EC6PPE02 | VHDL Lab |
| 56 | EC6PPC06 | Digital Signal Processing Lab |
| 57 | EC6PSP01 | Seminar |
| 58 | ECETh4101 | Wireless and Mobile Communication |
| 59 | ECETh4102 | VLSI Design & VHDL |
| 60 | ECETh4103 | Power Electronics |
| 61 | ECETh4104 | Microwave Engineering |

| | | |
|---|---|---|
| 62 | ECETh4105 | Embedded System |
| 63 | ECETh4106 | Multirate Systems and Filter Banks |
| 64 | ECETh4107 | Speech Signal Processing |
| 65 | ECETh4108 | Wireless Sensor Network |
| 66 | ECETh4109 | Artificial Intelligence & Expert Systems |
| 67 | ECETh4110 | Neural Network & Fuzzy Logic System |
| 68 | ECETh4111 | Biomedical Instrumentation |
| 69 | ECETh4112 | Semiconductor Devices Modeling & Simulation |
| 70 | ECEPr4101 | Project-I |
| 71 | ECEPr4102 | Seminar |
| 72 | ECEPr4103 | VLSI Design & VHDL Lab |
| 73 | ECEPr4104 | Microwave Engineering Lab |
| 74 | ECETh4201 | Radar & Satellite Communication |
| 75 | ECETh4202 | Principle of Management |
| 76 | ECETh4203 | Optical Fiber Communication |
| 77 | ECETh4204 | Digital Image Processing |
| 78 | ECETh4205 | Cryptography & Network Security |
| 79 | ECETh4206 | Radar Engineering |
| 80 | ECETh4207 | Mobile Computing |
| 81 | ECETh4208 | Nano Technology |
| 82 | ECETh4209 | Vacuum Technology |
| 83 | ECETh4210 | Optimization Techniques |
| 84 | ECETh4211 | Stochastic Process |
| 85 | ECEPr4201 | Project-II |
| 86 | ECEPr4202 | Comprehensive Viva-voce |
| 87 | ECEPr4203 | Circuit Simulation Lab |
| 88 | ECEPr4204 | Optical Fiber Communication Lab |
| 89 | IT7100 | Research Methodology in engineering |
| 90 | ECE7102 | Vaccume Technology |
| 91 | ECE7103 | Finite Element Method |
| 92 | ECE7104 | Sensors Measurement Science & Technology |
| 93 | ECE7105 | Artificial Intelligence |

विभागाध्यक्ष (इलें. एव संचार अभियाँत्रिकी)
H.O.D. (Elect. & Comm. Engineering)
प्रौद्योगिकी संस्थान
Institute of Technology
गु. घा. वि., बिलासपुर (छ.ग.)
G. G. V. Bilaspur (C.G.)

## Scheme and Syllabus

**SCHEME OF EXAMINATION B.Tech – I Year (1st Sem.), Common to All Branches,Course – A, w.e.f. Session: 2015-2016**

| S. No | Subject Code | Subjects | Periods /Week | | | Evaluation Scheme | | | | | | Grand Total | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Internal Assessment | | | | | E.S.E | | |
| | | Theory | L[1] | T[2] | P[3] | C.T.[5] | M.S.E[4] | TA[7] | L.A.[6] | Total | | | |
| 1 | ENATHS01 | Professional Communication in English | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| 2 | CHATBS01 | Engineering Chemistry | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| 3 | MEATES01 | Engineering Mechanics | 3 | 1 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 4 |
| 4 | CSATES02 | Fundamentals of Computers | 3 | 1 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 4 |
| 5 | EMATBS02 | Engineering Mathematics - I | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| | | Practical | | | | | | | | | | | |
| 1 | CHALBS01 | Engineering Chemistry Lab | - | - | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| 2 | MEALES01 | Engineering Mechanics Lab | - | - | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| 3 | MEALES03 | Engineering Drawing | - | - | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| | | | | | | | | | | | Total Credits | | 23 |

**SCHEMEOF EXAMINATION B.Tech – I Year (2nd Sem.), Common to All Branches, Course – B, w.e.f. Session: 2015- 2016**

| S. No | Subject Code | Subjects | Periods /Week | | | Evaluation Scheme | | | | | | Grand Total | Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Internal Assessment | | | | | E.S.E | | |
| | | Theory | L[1] | T[2] | P[3] | C.T.[5] | M.S.E[4] | T.A[7] | L.A.[6] | Total | | | |
| 1 | CHBTHS02 | Environmental Studies | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| 2 | MEBTES04 | Engineering Thermodynamics | 3 | 1 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 4 |
| 3 | EEBTES05 | Basic Electrical & Electronics Engineering | 3 | 1 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 4 |
| 4 | PHBTBS03 | Engineering Physics | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| 5 | EMBTBS04 | Engineering Mathematics – II | 3 | 0 | 0 | 10 | 20 | 10 | - | 40 | 60 | 100 | 3 |
| | | Practical | | | | | | | | | | | |
| 1 | EEBLES05 | Basic Electrical & Electronics Engg. Lab | 0 | 0 | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| 2 | PHBLBS03 | Engineering Physics Lab | 0 | 0 | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| 3 | MEBLES06 | Workshop Practice | 0 | 0 | 3 | - | | | 30 | 30 | 20 | 50 | 2 |
| | | | | | | | | | | | Total Credits | | 23 |

[1]-Lecture Hours, [2]-Tutorial Hours, [3]- Practical Hours, [4]- Mid Sem. Exam, [5]-Class Tests/Assignments, [6]-Lab Work Assessment, * - Mandatory course

## INSTITUTE OF TECHNOLOGY

**GURU GHASIDAS CENTRAL UNIVERSITY BILASPUR**

**SCHEME OF B.Tech.III$^{rd}$SEMESTER (CBCS)**

**ELECTRONICS & COMMUNICATION ENGINEERING**

## III$^{rd}$SEMESTER

| S. No : | Subject Code | Subject | Periods | | | Evaluation Scheme | | | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | IA | ESE | Sub Total | |
| 1 | EC3THS03 | Engineering Economics | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 2 | EC3TPC01 | Signals & Systems | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 3 | EC3TBS01 | Engineering Mathematics – III | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 4 | EC3TES01 | Network Analysis And Synthesis | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 5 | EC3TES02 | Electronic Devices | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 6 | EC3TPC02 | Digital Logic Circuits | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 7 | EC3PES02 | Electronic Devices Lab | - | - | 3 | 30 | 20 | 50 | 2 |
| 8 | EC3PPC02 | Digital Logic Circuits Lab | - | - | 3 | 30 | 20 | 50 | 2 |
| | | | 18 | 5 | 6 | 300 | 400 | 700 | 27 |

L: Lecture, T: Tutorial, P: Practical, IA: Internal Assessment, MSE: Mid Semester Exam, ESE: End Semester Exam

# INSTITUTE OF TECHNOLOGY
## GURU GHASIDAS CENTRAL UNIVERSITY BILASPUR
## SCHEME OF B.Tech. IV$^{th}$ SEMESTER (CBCS)
## ELECTRONICS & COMMUNICATION ENGINEERING

| S. No : | Subject Code | Subject | Periods | | | Evaluation Scheme | | | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | IA | ESE | Sub Total | |
| 1. | EC4TBS02 | Numerical Analysis | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 2. | EC4TPC03 | Automatic Control Systems | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 3. | EC4TPC04 | Analog Circuits | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 4. | EC4TPC05 | Communication System-I | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 5. | EC4TPC06 | Electronic Measurements & Instrumentation | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 6. | EC4PPC04 | Analog Circuits Lab | 0 | 0 | 3 | 30 | 20 | 50 | 2 |
| 7. | EC4PPC05 | Communication System-I Lab | 0 | 0 | 3 | 30 | 20 | 50 | 2 |
| 8. | EC4PPC06 | Electronic Measurements & Instrumentation Lab | 0 | 0 | 3 | 30 | 20 | 50 | 2 |
| | | | 15 | 5 | 9 | 290 | 360 | 650 | 25 |

ELECTRONICS & COMMUNICATION ENGINEERING Effective From 2017-18 (CBCS)

## INSTITUTE OF TECHNOLOGY

## GURU GHASIDAS CENTRAL UNIVERSITY BILASPUR

### SCHEME OF B.Tech. V$^{th}$ SEMESTER (CBCS)

ELECTRONICS & COMMUNICATION ENGINEERING

## V$^{th}$ SEMESTER

| S. No : | Sub Code | Subject | Periods | | | Evaluation Scheme | | | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | IA | ESE | Sub Total | |
| 1. | EC5TPC07 | LIC & its Application | 3 | 1 | | 40 | 60 | 100 | 4 |
| 2. | EC5TPC08 | Communication System – II | 3 | 1 | | 40 | 60 | 100 | 4 |
| 3. | EC5TPC09 | Electromagnetic Field Theory | 3 | 1 | | 40 | 60 | 100 | 4 |
| 4. | EC5TPE01 | Microprocessor & Its Applications | 3 | | | 40 | 60 | 100 | 3 |
| 5. | EC5TPE02 | DS & OS | 3 | | | 40 | 60 | 100 | 3 |
| 6. | EC5TOE11 - EC5TOE15 | Open Elective | 3 | | | 40 | 60 | 100 | 3 |
| 7. | EC5PPC07 | LIC & its Application Lab | | | 3 | 30 | 20 | 50 | 2 |
| 8. | EC5PPE01 | Microprocessors & Its Applications Lab | | | 3 | 30 | 20 | 50 | 2 |
| 9. | EC5PPC08 | Communication System –II Lab | | | 3 | 30 | 20 | 50 | 2 |
| | | | 18 | 3 | 9 | 330 | 420 | 750 | 27 |

L: Lecture, T: Tutorial, P: Practical, IA: Internal Assessment, MSE: Mid Semester Exam, ESE: End Semester Exam.

## INSTITUTE OF TECHNOLOGY

## GURU GHASIDAS CENTRAL UNIVERSITY BILASPUR

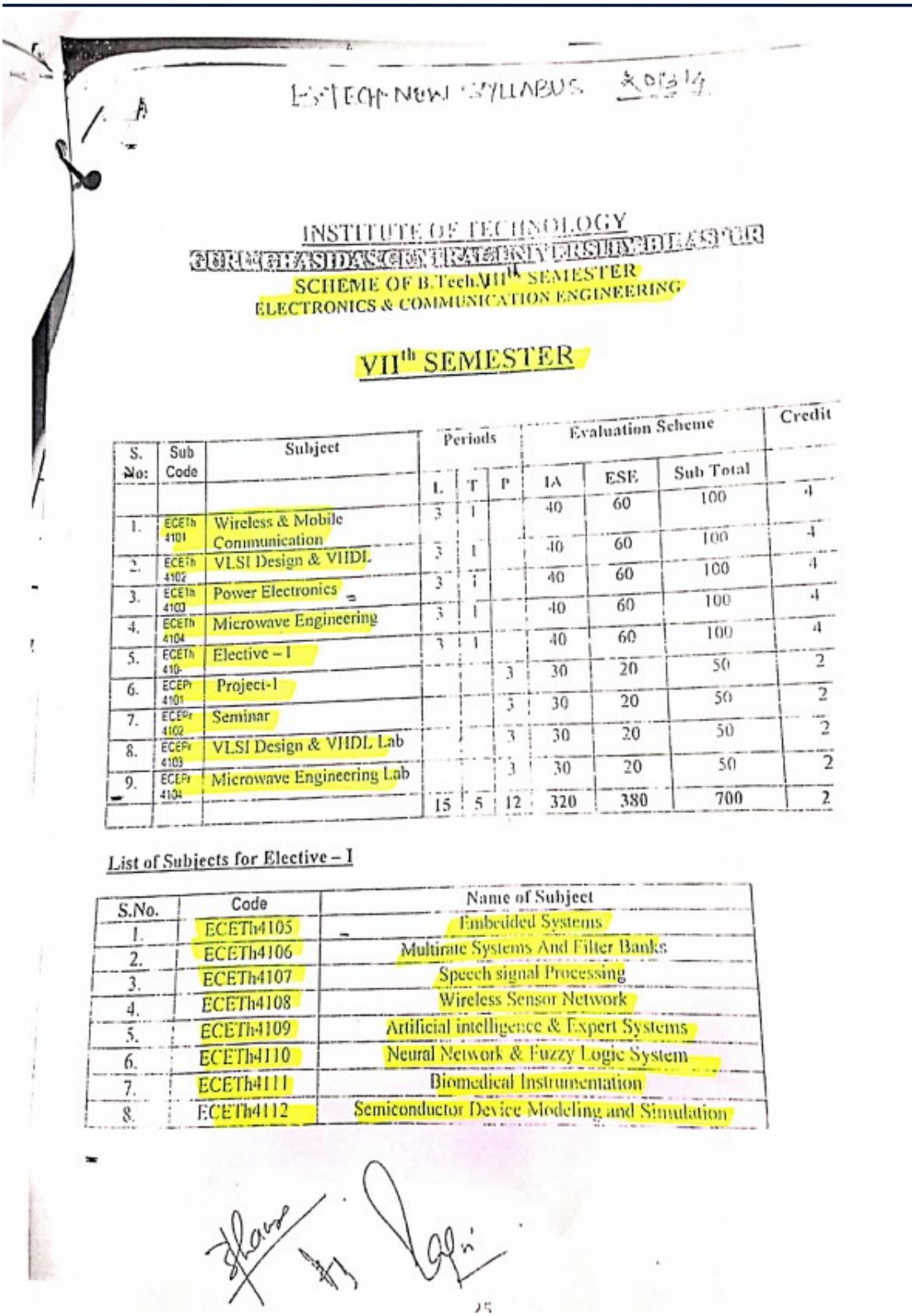
### SCHEME OF B.Tech. VI$^{th}$ SEMESTER (CBCS)

### ELECTRONICS & COMMUNICATION ENGINEERING

## VI$^{th}$ SEMESTER

| S. No: | Sub Code | Subject | Periods | | | Evaluation Scheme | | | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | IA | ESE | Sub Total | |
| 1. | EC6TPC10 | Digital Signal Processing | 3 | 1 | | 40 | 60 | 100 | 4 |
| 2. | EC6TPC11 | Antenna & Wave Propagation | 3 | 1 | | 40 | 60 | 100 | 4 |
| 3. | EC6TPE03 | Data Communication & Computer Networking | 3 | | | 40 | 60 | 100 | 3 |
| 4. | EC6TPE04 | Fundamental of VLSI Design | 3 | | | 40 | 60 | 100 | 3 |
| 5. | EC6TOE21 - 25 | Open Elective | 3 | | | 40 | 60 | 100 | 3 |
| 6. | EC6PPE02 | VHDL Lab | | | 3 | 30 | 20 | 50 | 2 |
| 7. | EC6PPC06 | Digital Signal Processing Lab | | | 3 | 30 | 20 | 50 | 2 |
| 8. | EC6PSP01 | Seminar | | | | 30 | 20 | 50 | 2 |
| | | | 15 | 2 | 6 | 290 | 360 | 650 | 23 |

L: Lecture, T: Tutorial, P: Practical, IA: Internal Assessment, MSE: Mid Semester Exam, ESE: End Semester Exam.



B.TECH NEW SYLLABUS 2013

INSTITUTE OF TECHNOLOGY
GURU GHASIDAS CENTRAL UNIVERSITY BILASPUR
SCHEME OF B.Tech. VII[th] SEMESTER
ELECTRONICS & COMMUNICATION ENGINEERING

## VII[th] SEMESTER

| S. No: | Sub Code | Subject | Periods | | | Evaluation Scheme | | | Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | IA | ESE | Sub Total | |
| 1. | ECETh 4101 | Wireless & Mobile Communication | 3 | 1 | | 40 | 60 | 100 | 4 |
| 2. | ECETh 4102 | VLSI Design & VHDL | 3 | 1 | | 40 | 60 | 100 | 4 |
| 3. | ECETh 4103 | Power Electronics | 3 | 1 | | 40 | 60 | 100 | 4 |
| 4. | ECETh 4104 | Microwave Engineering | 3 | 1 | | 40 | 60 | 100 | 4 |
| 5. | ECETh 410- | Elective – I | 3 | 1 | | 40 | 60 | 100 | 4 |
| 6. | ECEPr 4101 | Project-I | | | 3 | 30 | 20 | 50 | 2 |
| 7. | ECEPr 4102 | Seminar | | | 3 | 30 | 20 | 50 | 2 |
| 8. | ECEPr 4103 | VLSI Design & VHDL Lab | | | 3 | 30 | 20 | 50 | 2 |
| 9. | ECEPr 4104 | Microwave Engineering Lab | | | 3 | 30 | 20 | 50 | 2 |
| | | | 15 | 5 | 12 | 320 | 380 | 700 | 2 |

List of Subjects for Elective – I

| S.No. | Code | Name of Subject |
|---|---|---|
| 1. | ECETh4105 | Embedded Systems |
| 2. | ECETh4106 | Multirate Systems And Filter Banks |
| 3. | ECETh4107 | Speech signal Processing |
| 4. | ECETh4108 | Wireless Sensor Network |
| 5. | ECETh4109 | Artificial intelligence & Expert Systems |
| 6. | ECETh4110 | Neural Network & Fuzzy Logic System |
| 7. | ECETh4111 | Biomedical Instrumentation |
| 8. | ECETh4112 | Semiconductor Device Modeling and Simulation |

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B.TECH NEW SYLLABUS 2012-13

INSTITUTE OF TECHNOLOGY
GURU GHASIDAS CENTRAL UNIVERSITY, BILASPUR
SCHEME OF B.Tech. IIIrd SEMESTER
ELECTRONICS & COMMUNICATION ENGINEERING

## VIIIth SEMESTER

| S. No: | Sub Code | Subject | Periods L | T | P | Evaluation Scheme IA | ESE | Sub Total | Credit |
|---|---|---|---|---|---|---|---|---|---|
| 1. | ECETh 4201 | Satellite & Radar Communication | 3 | 1 | | 40 | 60 | 100 | 4 |
| 2. | ECETh 4202 | Principle of Management | 3 | 1 | | 40 | 60 | 100 | 4 |
| 3. | ECETh 4203 | Optical Fiber Communication | 3 | 1 | | 40 | 60 | 100 | 4 |
| 4. | ECETh 4204 | Elective – II | 3 | 1 | | 40 | 60 | 100 | 4 |
| 5 | ECEPr 4201 | Project-2 | | | 6 | 30 | 20 | 50 | 3 |
| 6. | ECEPr 4202 | Comprehensive Viva-voce | | | | | 50 | 50 | 2 |
| 7. | ECEPr 4203 | Circuit Simulation Lab | | | 3 | 30 | 20 | 50 | 2 |
| 8. | ECEPr 4204 | Optical Fiber Communication Lab | | | 3 | 30 | 20 | 50 | 2 |
| | | | 12 | 4 | 12 | 250 | 350 | 600 | 24 |

List of Subjects for Elective – II:

| S.No. | Code | Name of Subject |
|---|---|---|
| 1. | ECETh4204 | Digital Image Processing |
| 2. | ECETh4205 | Cryptography & Network Security |
| 3. | ECETh4206 | Radar Engineering |
| 4. | ECETh4207 | Mobile Computing |
| 5. | ECETh4208 | NanoTechnology |
| 6. | ECETh4209 | Vacuum Technology |
| 7 | ECETh4210 | Optimization Techniques |
| 8 | ECETh4211 | Stochastic Process |

**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING,
INSTITUTE OF TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA,
BILASPUR (C.G.)**

EVALUATION SCHEME OF Pre-Ph.D. COURSE WORK

EFFECTIVE FROM SESSION 2012-13

| S.N. | Name of the subject | Subject code | Periods / Week L- T- P | ESE Duration | ESE MARKS | | Credits |
|---|---|---|---|---|---|---|---|
| | | | | | Max. | Min. | |
| 1 | Research Methodology in Engineering | IT7100 | 3-1- 0 | 3 Hrs. | 100 | 50 | 4 |
| 2 | Elective –I | | 3- 1- 0 | 3 Hrs. | 100 | 50 | 4 |
| 3 | Elective –II | | 3-1- 0 | 3 Hrs. | 100 | 50 | 4 |
| 4 | Seminar | IT7101 | - | -- | 100 | 50 | 2 |
| | Total | | 9-3-0 | - | 400 | 200* | 14 |
| | LIST OF ELECTIVES | ** | Duration of the semester will be 6 months. | | | | |
| SN | Name of the subject | Subject code | | | | | |
| 1 | Vacuum Technology | ECE7102 | | | | | |
| 2 | Finite Element Method | ECE7103 | | | | | |
| 3 | Sensors & Measurement Science and Technology | ECE7104 | | | | | |
| 4 | Artificial Intelligence | ECE7105 | | | | | |

- Candidate has to score minimum 60% of the aggregate marks to qualify in ESE .
- Two core subjects as Electives ( 4 credits each ) to be decided by the DRC .

ESE : End Semester Examination , L: Lecture, T: Theory P: Practical
Max : Maximum marks in ESE ;
Min : Minimum pass marks in each subject as 50%

## SEMESTER-I

| Syllabus | SEMESTER-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | ENATHS01 | Credit: 3 | | | SESSIONAL - TA | | | | ESE |
| Subject | PROFESSIONAL COMMUNICATION IN ENGLISH | L | T | P | CT | MSE | TA | Total | |
| | | 3 | 0 | 0 | 10 | 20 | 10 | 40 | 60 |

**UNIT-1:** Business Communication: Some key concepts

Meaning and process of communication, Types, channels, Medium of Communication, Barriers of communications, Professional communication; types and principles.

**UNIT-2:** Business Letters

Elements and layout of a business letter, Application, enquiries, calling quotation, sending quotation, orders complains and adjustment.

**UNIT-3:** Report writing

Technical reports; essentials, characteristics and structure. Observation report survey report, trouble report, project report.

**UNIT-4:** Reading comprehension:

Developing comprehension skill through reading of passanges, summarizing, précis writing etc.

**UNIT-5:** Speaking

The process of speaking. Various phonetory orangs. Introduction to phonetics, classification of pure English sounds. Relation between sound, symbol and alphabet.

**Suggested Books and References:**

1. D'Souza Evnice and Shahani, G; "Communication Skills in English" Noble Publishing House.
2. Fiske, John, "Introduction to Communication Studies" Rotledge London.
3. Sharma, R.C. and Mohan,, K "Buisness Corres, Pondence and Report Writting", Tata Magraw Hill, New Delhi.
4. Gartside, "Model Business Letter", Pitman London, 1992.
5. Chhabra, Dr. T.N., "Professional Communication, Sun India Publications,New Delhi.

| Syllabus | SEMESTER-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | CHATBS01 | Credit: 3 | | | SESSIONAL - TA | | | | ESE |
| Subject | ENGINEERING CHEMISTRY | L | T | P | CT | MSE | TA | Total | |
| | | 3 | 0 | 0 | 10 | 20 | 10 | 40 | 60 |

**Unit - 1:**

Hybridization, Valence Shell Electron Pair Repulsion (VSEPR) theory and its application in predicting shape and geometry of molecules. Molecular Orbital Theory - bond order, magnetic properties and MO diagram of homo-nuclear diatomic molecules and ions.

**Unit - 2:**

Inductive effect, field effect, hyper-conjugation and resonance. Stability of reaction intermediates - Carbocation, carbanion and Free Radicals. Name reactions – Aldol condensation, Benzoin condensation, Cannizzaro reaction and Perkin reaction.

**Unit - 3:**

Optical isomerism - definition and example of optical activity, plane of symmetry, enatiomers, diastereomers, meso compound and racemic mixture. R-S nomenclature. Geometrical isomerism - cis-trans isomerism and, E-Z nomenclature. Conformational analysis of ethane and n-butane.

**Unit - 4:**

Definition of polymers, theimoplastic and thermosetting polymer, addition and condensation polymers, ionic and free radical mechanism of polymerisation. Example of some polymers, viz., Kevlar, Bakelite, Urea-formaldehyde resin and vulcanisation of natural rubber.

**Unit - 5:**

Electromagnetic radiation, [fV Spectroscopy - Electronic transitions, auxochromes, chromophores, bathochromic and hypsochromic shift, Woocl r,vorcls-Fieser rule for calculating Ln*.. for conjugated dienes and u,B-unsaturated aldehydes and ketones. Note: Problems related to above units shall be asked in examination.

**Books recommended:**

1. Kalsi, P.S.; "stereochemistry conformation and Mechanism,,, New Age Int. (p), Ltd. New Delhi
2. Puri, B. R.; sharma, L. R. And pathania, M. s. ,,principals of physical Chemistry", Shoban Lal Nagin Chand & Co.
3. Mukherji, S. M. And Singh, S. P., "Reaction Mechanism in Organic Chemistry, Macmillan India Ltd., New Delhi 2007.
4. Alberty R.A. and Silbey R. J., "physical chemistry,', John wiley & Sons, Inc., Singapore, 1996.
5. cotton F.A., wilkinson G. and Gaus p.L., ',Basic Inorganic chemistry,', John Wiley & Sons, Inc., Singapore; 3rd F,d.,1996.
6. Graham-Solomon T.W., "Fundamentals of Organic Chemistry", John Wiley & Sons, Inc., Singapore, 1997. l. odian T.w., "Principles of polymerization", John wiley & Sons, Inc., New york, 1981.
8. Sykes P., "A Guidebook to Mechanism of Organic Chemistry", Longman Inc., New York, 1981.
9. Dye J'R. r, "Application of absorption Spectroscopy of Organic Compounds", Prentice Hall of India,1965.
10. Williams D.H. and Fleming I., "Spectroscopic Methods in Organic Chemistry", Tata McGraw Hill Edition, New Delhi, 4th Ed., 19gg.
11. Atkins P.w., "Physical Chemistry", oxford Univ. press, 4th Ed., 1990.
12. Morrison R.T. and Boyd R.N., "Organic Chemistry", Prentice Hall of India, 6th Ed,lgg2.
13. Rao C.N.R. and Agarwala U. C., "Experiments in General Chemistry", East-West Press, New Delhi, 1969.

| Syllabus | SEMESTER-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | MEATES01 | Credit: 4 | | | SESSIONAL - TA | | | | ESE |
| Subject | ENGINEERING MECHANICS | L | T | P | CT | MSE | TA | Total | |
| | | 3 | 1 | 0 | 10 | 20 | 10 | 40 | 60 |

**UNIT-1:** Force, classification of force, laws of the forces, equilibrium, moment, varignon's theorem, parallel force, couple, General case of equilibrium and their problems.

**UNIT-2:** Trusses – Analysis by methods of joints and methods of sections. Frames – Analysis of frames, difference between truss & frames.

**UNIT-3:** Friction, law of friction, General problems on friction, wedge friction, Belt friction, Ratio of tension of belt, power transmitted by a belt, Condition of maximum power transmission by belt. Screw friction – Expression for maximum efficiency of a screw jack, and its problems. Simple lifting machine – Velocity Ratio, Mechanical Advantage, Efficiency, reversibility of a machine, wheel and axle, pulley system & its types, single purchase & double purchase winch crab.

**UNIT- 4:** Centroid and centre of gravity, Methods & procedure of finding C.G by method of moments and method of integration for various geometrical areas. Moment of Inertia – various theorems on M.I, Radius of gyration, polar M.I, Centroidal axis, Area moment of inertia, product of Inertia & their problems, Introduction of mass moment of inertia.

**UNIT-5:** Dynamics of body, D 'Alembert's principle, rectilinear motion, work and energy, impulse & momentum and principles of conservation of momentum, collision of elastic bodies.

**Recommend Text Books**

1. Engineering Mechanics – Beer Johnson, TNH publisher
2. Engineering Mechanics – K.L. Kumar, TMH publisher.
3. Engineering Mechanics - Mokashi, TMH, Publisher
4. Engineering Mechanics – Timoshenko & Young, East West publisher
5. Engineering Mechanics - Irvin Shames, PHI publisher
6. Engineering Mechanics – A.K. Tayal. Umesh publication

| Syllabus | SEMESTER-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | CSATES02 | Credit: 4 | | | SESSIONAL - TA | | | | ESE |
| Subject | FUNDAMENTALS | L | T | P | CT | MSE | TA | Total | |
| | OF COMPUTER | 3 | 1 | 0 | 10 | 20 | 10 | 40 | 60 |

**Unit- 1: Number Systems**

Introduction Decimal Number System, Binary Number System, Conversion of Binary Number to Decimal Number , Conversion of Decimal Number to Binary Number System, Addition of Binary Numbers, Binary Subtraction, Use of Complements to Represents Negative Numbers, Conversion of Binary Fraction to Decimal Fraction, Conversion of Decimal Fraction to Binary Fraction System, Octal Number System, Hexadecimal Number System, Binary Coded Decimal (BCD Codes) EBCDIC Code, Gray Codes.

**Unit- 2: Central Processing Unit (CPU) & Memory**

Introduction, CPU Organization, Addressing Modes. Interrupts & Exceptions, Organization of Intel-8085 Microprocessor. Memory: Primary Memory, Secondary Memory, Cache Memory, Virtual Memory, Registers.

**Unit -3: Introduction to Programing Language**

Introduction to Programming Language: Low Level Programming Language, High Level Language, Fourth Generation Language, Introduction to Software, Application Software and System Software, Compiler, Interpreter, Assembler, Device Driver.

**Unit -4: Operating Systems**

Definition, Functions and Objective, Evolution of Operating System, Batch Processing, SPOOLING, Multiprogramming, Multiprocessing, Time Sharing, Real Time Processing.

**Unit -5**: Algorithm and Flowchart

Introduction to Algorithm and Characteristics, Introduction to Flow Chart: Symbols, Rules of Drawing Flow Chart, Advantage and Limitation of Flow Chart, Decision Tables.

**Reference Books:**

1. Computer fundamentals by P.K.Sinha
2. Computer fundamentals by B.Ram
3. Fundamentals of Computers by V.Rajaraman
4. Fundamental of computers & Programming with c by A.K.Sharma

| Syllabus | SEMESTER-I | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | EMATBS02 | Credit: 3 | | | SESSIONAL - TA | | | | ESE |
| Subject | ENGINEERING MATHS-I | L | T | P | CT | MSE | TA | Total | |
| | | 3 | 0 | 0 | 10 | 20 | 10 | 40 | 60 |

**UNIT-1: Differential Calculus**: Successive Differentiation Leibnitz Theorem, Roll's Theorem, Lagrange's Mean value Theorem, Expansion of functions by Maclaurian and Taylor's series. Tangents and Normal's, Maxima and minima of one variable.

**UNIT-2:** Indeterminate forms, Asymptotes, Radius of curvature, Partial differentiation, Total differentiation.

**UNIT-3: Integral Calculus:** Reduction formulae, Curve Tracing, Length, Area, Surface volume, Theorem of Pappas or Guldin. Gamma function, Beta function.

**UNIT-4: Differential Equations:** Differential Equations of first order and its applications, Linear equation of second order, Simultaneous differential equation.

**UNIT-5:** Partial differential equation of first order, linear homogenous partial differential equation, Application of partial differential equation.

**Books Recommended:**

1-Diffrential Calculus by Gorakh Prasad.

2-Integral Calculus by Gorakh Prasad.

3-Diffrential Equation by P.N. Chattrjee.

4-Engineering Mathematics by Bali & Iyangar.

5- Engineering Mathematics by H.K. Das.

6-Higher Engineering Mathematics by B.S. Grewal.

| Syllabus | SEMESTER-I | | | | | | |
|---|---|---|---|---|---|---|---|
| Subject code | MEALES03 | Credit: 2 | | | SESSIONAL - TA | | ESE |
| Subject | ENGINEERING CHEMISTRY LAB | L | T | P | IA | Total | |
| | | 0 | 0 | 3 | 30 | 30 | 20 |

List of Experiments:

Group - A:

1. Standardization of sodium thiosulphate solution by standard potassium dichromate solution.
2. To determine the Normality and Strength (g/L) of given Ferrous Ammonium Sulphate solution 'A' using standard Ferrous Ammonium Sulphate (N/30) solution 'B' taking KMnO4 solution as an intermediate.
3. To determine the concentration of hypo solution ($Na_2S_2O_3.5H_2O$) iodometrically with given Iodine (N/50) solution.
4. Find out the Temporary hardness of given water sample using 0.01M EDTA solution,buffer solution (pH-10) and EBT as an indicator.
5. To determine chloride ion in a given water sample by Argentometric method (Mohr's method)

Group - B:

6. Preparation of Urea Formaldehyde resin.
7. Acetylation of Primary Amine: Preparation of Acetanilide.
8. Base catalyzed Aldol condensation: Synthesis of Dibenzalpropanone.
9. {4+21 Cycloaddition Reaction: Diels-Alder reaction.
10. Preparation of Asprin dnd calculate its yield.

Group - C:

11. To calculate the $\lambda_{max}$ of a given compound using UV-visible spectrophotometer.
12. To separate the metallic ions by paper chromatography.
13. To determine the surface tension of a liquid by stalagmometer.
14. To determine the percentage composition of the given mixture consisting of two liquids A and B (non-interacting system) by viscosity method.
15. To determine the relative viscosity of given liquids by ostwald's viscometer

| Syllabus | SEMESTER-I | | | | | | |
|---|---|---|---|---|---|---|---|
| Subject code | MEALES03 | Credit: 2 | | | SESSIONAL - TA | | ESE |
| Subject | ENGINEERING MECHANICS LAB | L | T | P | IA | Total | |
| | | 0 | 0 | 3 | 30 | 30 | 20 |

1. Verification of Law of Parallelogram of force.
2. Verification of law of triangle of forces.
3. Verification of law of polygon of forces.
4. Verification of law of moment.
5. Practical verification of forces in the member of nib crane.
6. Practical verification of forces in the member of roof truss.
7. Determination of coefficient of friction between two given surface.
8. Determination of coefficient of wheel and axle.
9. Determination of coefficient of single purchase winch crab.
10. Determination of coefficient of double purchase winch crab.
11. Determination of coefficient of simple screw jack.

| Syllabus | SEMESTER-I | | | | | | |
|---|---|---|---|---|---|---|---|
| Subject code | MEALES03 | Credit: 2 | | | SESSIONAL - TA | | ESE |
| Subject | ENGINEERING DRAWING | L | T | P | IA | Total | |
| | | 0 | 0 | 3 | 30 | 30 | 20 |

**UNIT- 1: CONVENTIONAL LINES, DRAWING SHEETS – THEIR LAYOUT &PLANNING:**

Technical lettering – Introduction, single stroke letters, capital and lower letters Scales – Introduction, Representative fraction, construction of scales, Types- plain & diagonal scale. Cycloid curve- Cycloid, Epicycloids & Hypocycloid, and Involutes to a plain curve. Spiral curve – Archimedean spiral and logarithmic spiral.

**UNIT-2: Projection of points:** Concept of quadrant system, first angle and third angle projection, projection of point in all quadrants. General procedure to draw projection of points on HP & VP. Projection of lines – Different situation of lines in spaces.

**UNIT- 3:** Theory of orthographic projection & projection of planes.

**UNIT –4:** Projection of solids & section of solids

**UNIT – 5:** Development of Surfaces & Isometric Projection

**Recommended Text Book**

1. Fundamental of Engineering Drawing – Luzzadar & Dulf, PHI
2. Engineering Drawing – N.D. Bhatt, Charottar Publishing House
3. Engineering Drawing – Arshad Siddiquee, Zahid Khan & Ahmed, PHI
4. Engineering Drawing – P.S. Gill, S.K. Kataria & Sons publishers.

## SEMESTER-II

| Syllabus | SEMESTER-II | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | MEBTES04 | Credit: 3 | | | SESSIONAL - TA | | | | ESE |
| Subject | ENVIRONMENTAL STUDIES | L | T | P | CT | MSE | TA | Total | |
| | | 3 | 0 | 0 | 10 | 20 | 10 | 40 | 60 |

**UNIT-1: Environment and ecology:** Segments of environment. Concept, structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem, food chains, food webs and ecological pyramids. Types, characteristic features, structure and function of terrestrial and aquatic ecosystem.

**UNIT-2: Environmental Pollution:** Definition, cause, effects and control measures of Air pollution, Water pollution and Land pollution. Smog (Oxidizing & Reducing), Acid rain, Greenhouse effect, Ozone depletion, BOD, COD, Eutrophication, and Solid waste management.

**UNIT-3: Green Chemistry:** Introduction, Principles of green chemistry, Introduction to green solvents and green catalysis: Water, Ionic liquid, CO2, bio-catalysis.

**UNIT-4: Green technologies:** Photochemistry, Sonochemistry, and Microwave assisted reactions.

**UNIT-5: Renewable energy resources:** Solar, Wind, Hydro, Geothermal, Ocean, Fuel cells.

**Books**

1. G. M. Matlers, Introduction to Environmental Engg. & Sciences, Prentice Hall of India Pvt. Ltd.

2. B. J. Novel, Environmental Sciences, Printice Hall Inc.

3. A.K. De, Environmental Chemistry, New Age International (P) Ltd., 5th Ed.

4. Thomas G. Spiro, William M. Stigliani, Chemistry of the Environment, 2nd Edition Prentice Hall of India pvt. Ltd.

5. S. V. S Rana, Essential of Ecology and Environmental Sciences, 4th Edition, PHI, Learning Pvt. Ltd.

6. S.S Dara, Environmental chemistry and Pollution Control, S. Chand & Company Ltd.

7. V. K. Ahluwalia, Green Chemistry: Environmentally Benign Reactions, Ane Books India, New Delhi, 2006.

8. M. M. Srivastava, R. Sanghi, Chemistry for Green Environment, Narosa, New Delhi, 2005

9. D. P. Kothari, Rakesh Ranjan, and K. C. Saigal, Renewable Energy Sources and Emerging Technologies, Prentice Hall of India Pvt. Ltd.

10. M.C. Das & P.C. Mishra, Man & Environment, McMillan India Ltd.

| Syllabus | SEMESTER-II | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Subject code | MEBTES04 | Credit: 3 | | | SESSIONAL - TA | | | | ESE |
| Subject | ENGINEERING | L | T | P | CT | MSE | TA | Total | |
| | THERMODYNAMICS | 3 | 1 | 0 | 10 | 20 | 10 | 40 | 60 |

**UNIT-1: BASIC CONCEPTS AND DEFINITION:** Thermodynamic System, Surrounding and Universe, Phase, Microscopic and Microscopic Point of View, Thermodynamic Equilibrium, Property, state, Path, Quasi-static Process, Reversible and Irreversible process. Heat and work-Forms of work during quasi-static or reversible process, work as a path function, Heat, various thermodynamic processes. Temperature and Zeroth law of thermodynamics, First law of thermodynamics- first law of thermodynamics undergoing cyclic process, first law of thermodynamics undergoing a process, Internal energy of a perfect gas, Application of first law to a closed system, First law of thermodynamics for flow process- flow processes and control volume, flow energy and flow work, first law of thermodynamics applied to open system, General study flow energy equation, application of study flow energy equation

**UNIT-2: SECOND LAW OF THERMODYNAMICS:** Limitation of first law and essence of second law, thermal reservoir, heat engine, thermal efficiency of heat engine, heat pump and co-efficient of performance, statement of second law, equivalence of Kelvin and clausius statement, types of Irreversibility, Carnot cycle, Corollary 1 & 2, Entropy -Clausius inequality, Entropy Principle, temperature and entropy diagram, application of entropy principle.

**UNIT-3: PROPERTIES OF PURE SUBSTANCE:** Properties of steam – types of steam, wet, saturated and superheated steam, phase transformation at constant pressure, T-s and h-s diagram, sensible heat, latent heat, superheat, internal energy, enthalpy, dryness fraction. Steam Processes – Constant volume, adiabatic, isothermal, polytropic, entropy of steam.

**UNIT-4: Vapour Power cycle:** Carnot vapour cycle, rankine cycle , effect of operating conditions on ranking efficiency, principle & method of increasing the thermal efficiency, deviation of actual cycle from theoretical cycle, thermal efficiencies and specific steam

Consumptions, requirement of an ideal working fluid, the reheat cycle, binary vapour cycle

**UNIT-5: Gas power cycles & Boilers:** Air Standard Cycle- Otto, Diesel and Dual, Comparison among cycles, Boilers, Types, Requirements of boiler, boiler efficiency, boiler mountings and accessories.

**Recommend Text Books**

1. Engineering Thermodynamics - P.K. Nag, TMH publisher.
2. Engineering Thermodynamics – C.P. Arora, TMH publisher.
3. Engineering Thermodynamics - Cengel, TMH, Publisher
4. Engineering Thermodynamics - Jones Dugan, PHI publisher
5. Fundamentals of Engg Thermodynamics - R. Yadav, C. P House publisher
6. Applied Thermodynamics – Onkar Singh, New Age Publishing Co.