



College Code - 4192

Maitrey Educational Society

**Nagarjuna**

**Institute of Engineering, Technology & Management**  
(AICTE, DTE Approved & Affiliated to R.T.M. Nagpur University Nagpur)

Village Satnavri, Amravati Road, Nagpur 440023

Email: maitrey.ngp@gmail.com; Website: www.nietm.in; Phone No. 07118 322211, 12

## **National Assessment and Accreditation Council**

### **AQAR 2020-21**

#### **NAAC Criteria-1: Curricular Aspects**

##### **1.3 Curriculum Enrichment**

1.3.1	Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum
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## **Criteria-1: Curricular Aspects**

### **1.3 - Curriculum Enrichment**

#### **Metric No. 1.3.1**

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**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**

**Four Years B.E. Course**

Scheme of Examination B.E. First year ( All Branches of Engineering)

**First Semester**

Sub Code	Subjects	Workload in hrs			Credits	Marks					Minimum Passing Marks	
		L	T/A	P		Theory		Practical		Total	Theory	Practical
						Internal	Uni	Internal	Uni			
BSE1-1T	Mathematics-I	3	1	-	4	30	70	-	-	100	45	-
BSE1-2T	Applied Physics	3	2	-	4	30	70	-	-	100	45	-
BSE1-3T	Energy and Environment	2	2	-	3	30	70	-	-	100	45	-
BSE1-4T	<b>Communication Skills</b>	2	-	-	2	15	35	-	-	50	23	-
BSE1-5T	Engineering Graphics	1	-	-	1	15	35	-	-	50	23	-
BSE1-6T	Basics of Civil & Mechanical Engineering	4			Audit	50	-	-		Audit	-	-
BSE1-2P	Applied Physics Lab	-	-	3	1.5			25	25	50	-	25
BSE1-3P	Energy and Environment Lab	-	-	2	1			25	25	50	-	25
BSE1-4P	Communication Skills Lab	-	-	2	1			25	25	50	-	25
BSE1-5P	Engineering Graphics Lab	-	-	4	2			25	25	50	-	25
Three weeks Induction Program												
<b>Total</b>		<b>15</b>	<b>11</b>		<b>19.5</b>	<b>120*</b>	<b>280</b>	<b>100</b>	<b>100</b>	<b>600</b>		

- L- Lecture , P-Practical, T- Tutorial , A- Activity (Half Credit per Hour)

**RTMNU, Nagpur**  
**SYLLABUS FOR FIRST YEAR (SEMESTER I & II) BACHELOR OF TECHNOLOGY**  
**(For All Branches)**

<b>Course Code</b>	BESI-3T			
<b>Course Title</b>	<b>Energy and Environment</b>			
<b>Scheme &amp; Credits</b>	<b>L</b>	<b>T/A</b>	<b>Credits</b>	<b>Semester I</b>
	<b>2</b>	2	<b>3</b>	

<b>Examination Scheme</b>	
T (U) : 70 Marks T (I) : 30 Marks	Duration of University Exam. : 03 Hours

**Course objectives**

1. To impart knowledge in the domain of renewable and non-renewable energy sources.
2. To bring out Impact of Energy Technologies on Environment
3. To inculcate knowledge and skills about assessing the energy efficiency of different energy sources and use of advanced materials for sustainable development.

**Course outcomes**

After studying the course it is expected that the students will have/be able to:

- CO-1 Obtain the knowledge of solid and gaseous fuels and their Calorific Value determination.
- CO-2 Recognize the type of liquid fuels and their uses in IC engines.
- CO-3 Apply the knowledge about the use of alternative sources of energy& utilize solid waste as energy source
- CO-4 Analyze the impacts of Industrial pollution and its control.
- CO-5 Develop innovative ideas for use of advanced materials in sustainable development.

**UNIT 1:- Basics of Energy and Solid Fuels**

**(8 Hours) (Marks 14)**

- Basics of Energy - Introduction, sources and types of energy, Units of energy, Thermal Basics of energy -fuels, thermal energy contents of fuel, heat capacity, sensible and latent heat, evaporation, condensation, steam, moist air and humidity & heat transfer.
- Classification of fuels, Calorific Value (HCV & LCV). Determination of Calorific value by Bomb and Boy's Calorimeter.
- Solid Fuels:- Significance of Proximate and Ultimate Analysis of coal,
- Numerical based on Dulong's formula.
- Numerical on Goutal's Formula for Gross Calorific Value based on Proximate Analysis
- Numerical on Calorific Value determination.
- Numerical on GCV & NCV by using relation formula (convert answer in joules or one of the CV given in joules)

**UNIT 2: Liquid and Gaseous Fuels**

**(8 Hours) (Marks 14)**

- Liquid Fuel:-Fractional distillation of crude oil, Catalytic cracking and its advantages
- Knocking in internal combustion petrol and diesel engine, Octane and Cetane number, Knocking and its relationship with structure of fuel, Doping agents,
- Power alcohol, Gasohol, Diesehol, Aviation fuel, Bio-diesel.
- Gaseous Fuel:-CNG, H<sub>2</sub> as specialised fuel
- Combustion Calculations.

### **UNIT 3:- Alternate Sources of Energy & Waste to Energy Conversion**

**(8 hours)**

**(Marks 14)**

- Bio-energy, Photolysis of water- Chemical Conversion of Solar Energy.
- Nuclear fuels: Numerical on Binding Energy & Average Binding Energy per Nucleon
- Fuel cells- working, advantages and disadvantages of alkaline, methanol fuel cells.
- Classification of waste on the basis of segregation at source, hazardous solid waste management technology: Physical method, chemical method, biological treatment, Eco-friendly Incineration, Depolymerization, landfill techniques.
- Utilization of Biogas and Landfill Gas for Biofuels and High Value Chemicals, gasification and Utilization of Syngas, Thermochemical Conversion of Syngas

### **UNIT 4:- Environmental impacts of Energy Technologies**

**(8 Hours)**

**(14 Marks)**

- Industrial pollution due to non-renewable energy sources: General Introduction of Industrial pollution and its types. Principle, processes, source of pollution.
- Environmental impact and its control with reference to specific industries; like Nitrogen containing fertilizers- ammonia synthesis, Cement manufacturing Industry; Sulfuric acid manufacturing industry and petroleum Industry

### **UNIT 5:- Advanced materials for sustainable development**

**(8 Hours)**

**(14 Marks)**

- Introduction of Advance materials, properties and applications:- composites, liquid Crystal polymers, conducting polymers, insulating materials, adhesives, biodegradable polymers.
- Nanomaterials in energy- Photochemical devices like lithium ion batteries, Nanomaterials for Energy Storage, nanomaterials in solar cells.

#### **Books Recommended:**

1. Text Book of Engineering Chemistry: S.S. Dara, S. Chand and Company Ltd. New Delhi.
2. Textbook of Engineering Chemistry: P.C. Jain and Monica Jain, Dhanpat Rai and Sons, New Delhi.
3. Materials Chemistry: A.V. Bharati and Walekar, Tech Max Publications, Pune.
4. Energy and Environment: Archana R Chaudhari and Aditi Pandet, S. Chand Publication

#### **Reference Books:**

1. A Text book of Engineering Chemistry: Shashi Chawla; Dhanpat Rai & Sons, New Delhi.
2. Applied Chemistry by N. Krishnamurthy: P. Vallinavagam. And K. Jeysubramanian TMH
3. Applied Chemistry for Engineers: T.S. Gyngell.
4. Fuels and Combustion: Amir Circar, Orient Longmans
5. Fundamentals of Engineering Chemistry (Theory and Practice) :S. K. Singh (New Age Materials)
6. Environmental Chemistry: B. K. Sharma
7. Industrial Energy Management and Utilization: L.C. Witte, P.S. Schmidt and D.R. Brown (Hemisphere Publishing Corporation, Washington, 1998)
8. Energy and Environment- NPTEL lecture notes

## ENERGY AND ENVIRONMENT LABORATORY (BESI-3P)

<b>Course Code</b>	<b>BESI-3P</b>				
<b>Course Title</b>	<b>Energy and Environment Lab</b>				
<b>Scheme &amp; Credits</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>	<b>Semester I</b>
	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	

<b>Examination Scheme</b>	
<b>P (U) : 25 Marks P (I) : 25 Marks</b>	<b>Duration of University Exam. : 03 Hours</b>

### Laboratory outcomes

After completion of this course, the student will develop competencies in

1. The practical knowledge of handling chemicals.
2. Analysing a broad foundation in energy and environment that stresses scientific reasoning and analytical problem solving with a molecular perspective.
3. Experimental techniques using modern instrumentation.

### Students should-

- **Perform any six experiments.**
- **Study of any one experiment in virtual lab topics based on the syllabus.**
- **Study of any one demonstration experiment.**

- 1) Determination of Flash Point of the given sample by Cleveland's open cup apparatus.
- 2) Determination of Flash Point of the given sample by Abels/ Pensky Martens close cup apparatus.
- 3) Determination of Neutralisation number (Acid value) of oil.
- 4) Determination of Viscosity by Redwood Viscometer and specific gravity of Biodiesel at different temperatures.
- 5) To determine Sulphate Concentration in a given water sample.
- 6) Determination of amount of Chloride (in  $\text{Cl}^-$  form) by Mohr's method.
- 7) Determination of COD of water sample.
- 8) To determine the Total Solids, Suspended Solids and Total Dissolved Solids of a given water sample.
- 9) Determination of turbidity of given water sample by Nephelometry
- 10). Proximate analysis of coal -Determination of % of Moisture and % of Volatile Matter in coal sample
- 11) Proximate analysis of coal -Determination of % of ash in coal sample
- 12) Demonstration of determination of % carbon by Carbon residue conradson apparatus.
- 13) Demonstration of determination of Consistency of grease by Penetrometer.
- 14) Demonstration (Virtual) of determination of Calorific value of solid/liquid fuels.
- 15) Demonstration (Virtual) of estimation of flue gas by Orsat's apparatus.

### Activities

1. Preparation of Audit Report for Industry waste generation.
2. Survey of greener synthesis of common drugs ( in the form of chart and/or model)
3. Nearby industrial chemicals safety measures
4. Study of Chemical processes involved in nearby industries (Cement, Paper, Electroplating, Water purification industry etc.)
5. Study of separation and recycling techniques of polymers and E-waste.
6. Study of Biogas plant.
7. Study of the production process of biofuels.
8. Study of the biomass briquetting machine.

## Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

### Subject: Communication Skills

Total Credits:02

Sub.Code: BSE1-4T

2020-21, Semester: I

Teaching Scheme

Examination Scheme

Lectures: 2 Hours/ Week (Theory)

T (U) : 35 Marks T (I) : 15 Marks

Duration of University Exam. : 02 Hours

**Course Objective: To enhance competency in English language among learners.**

Course Outcomes:

1. Students will be able to overcome barriers of communication.
2. Students will acquire public speaking skills and handle group situations professionally.
3. Students will be able to comprehend passages and compose paragraphs.
4. Students will be able to construct error free and meaningful sentences in English.

Dr. M. N. Gamiya  
 (Dr. Sajid Anwar)

(B. R. Chide)

(Arbhasati)

### Syllabus of Communication Skills (Theory)

**Unit 1:A.** Introduction to Communication, Importance of Communication, Process of Communication,

Types of communication- Verbal and Non Verbal

**B.** Oral and Written Communication, Barriers to Communication and methods to overcome them. (6 hours)

**Unit 2: A.** Listening Skills, Importance of Listening, Types of Listening, Listening Barriers and methods to overcome them .

**B.** Effective Speaking Skills, Components of Public Speaking, Overcoming stage fear in public speaking, Group Discussion-Process and techniques (6 hours)

**Unit 3:A.** Reading Skills, Importance of Reading, Sources of Reading, Skimming, Scanning, Comprehending passage

**B.** Writing Skills, Process and Techniques of Composition-Précis, Paragraph, Essay (6 hours)

**Unit 4:A.** Basic Grammar: Tenses and its types, Sentences and its types

**B.** Transformation of Sentences- Assertive-Imperative-Interrogative-Exclamatory, Reported Speech.(6 hours)

### Books Recommended:

1. Technical Communication by Meenakshi Raman and Sangeeta Sharma, OUP
2. Public Speaking and Influencing Men in Business by Dale Carnegie
3. Essentials of English Grammar by Micheal Swan
4. Professional Communication Skills by Bhatia and Sheikh
5. Business Communication by K.K. Sinha
6. Communication Skills by Dr. P. Prasad
7. Communication Skills by Sanjeev Kumar and Pushpalata, OUP

B. Agrawal  
(Dr. Bhurika Agrawal)

Abul  
(Dr. Sajid Anwar)

BR  
(B.R. Chidi)

Dorally  
(Dr. Dora Thompson)

Geeje  
Dr. M.N. Ginyo

noor  
(Dr. Nawaz Khan)

Abul  
(Ar. Bhatia)



**Subject: Communication Skills**

Total Credits:01

2020-21, Semester: I

Sub.Code: BSE1-4P

Teaching Scheme

Examination Scheme

Practical : 2 Hours/ Week Practical

P (U) : 25 Marks P(I) : 25 Marks

Duration of University Exam. : 03 Hours

Course Objective: To enhance competency in all the four skills (LSRW) of English language among learners.

Course Outcomes:

1. Students will be able to overcome listening barriers of communication.
2. Students will be able to enhance their comprehending skills and speaking skills.
3. Students will be able to give effective presentations and handle group situations professionally
4. Students will be able to use figurative language in their formal as well as informal communication.

*Girija*  
Dr M.N. Girija

*Abhis*  
(Dr. Sajid Anwar)  
*Abhi*

*DR*  
(B.R. Chide)

## Syllabus of Communication Skills (Practical)

1. Barriers to Communication- Overcoming listening barriers
2. Non-verbal Communication
3. Reading Skills
4. Speaking Skills
5. Presentation Skills
6. Group Discussion
7. Interview Techniques
8. Use of Figurative Language

B. Agrawal  
(Dr. Bhumiika Agrawal)

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Giriyog  
Dr. M. V. Giriyog

Nawaz  
(Dr. Nawaz Khan)

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(Ar. Choudhary)

## Scheme of Examination B.E. First year ( All Branches of Engineering)

### Second Semester

Sub Code	Subjects	Workload in hrs			Credits	Marks					Minimum Passing Marks		
		L	T/A	P		Theory		Practical		Total	Theory	Practical	
						Internal	Uni	Internal	Uni				
BSE2-1T	Mathematics-II	3	1	-	4	30	70	-	-	100	45	-	
BSE2-2T	Advanced Engineering Materials	2	2	-	3	30	70	-	-	100	45	-	
BSE2-3T	Applied Chemistry	3	2	-	4	30	70	-	-	100	45	-	
BSE2-4T	Computational Skills	2	-	-	2	15	35	-	-	50	23	-	
BSE2-6T	Basics of Electrical Engineering	2	-	-	2	15	35	-	-	50	23	-	
BSE2-7T	Engineering Mechanics	2	-	-	2	15	35	-	-	50	23	-	
BSE2-8T	Indian Culture & Constitution	2	-	-	Audit	50	-	-	-	Audit	-	-	
BSE1-5P	Workshop Practices	-	-	4	2	-	-	50	50	100	-	50	
BSE2-2P	Advanced Engineering Materials	-	-	2	1	-	-	25	25	50	-	25	
BSE2-3P	Applied Chemistry	-	-	3	1.5	-	-	25	25	50	-	25	
BSE2-4P	Computational Skills	-	-	2	1	-	-	25	25	50	-	25	
Three weeks Induction Program													
<b>Total</b>		<b>16</b>	<b>5</b>	<b>11</b>	<b>22.5</b>	<b>135*</b>	<b>315</b>	<b>125</b>	<b>125</b>	<b>700</b>			

- L- Lecture , P-Practical, T- Tutorial, A- Activity (Half Credit per Hour)

\* Audit course marks are not counted in total marks

#### Guidelines

- Energy and Environment shall be taught by faculty of Chemistry and will come under board of Applied Science and Humanities (only by Chemistry Dept)
- Advance Engineering Materials shall be taught by faculty of Physics and will come under board of Applied Science and Humanities (only by Physics Dept)

**Computational Skills**  
**(Total Credits: 02)**  
**SUBJECT CODE: BSE2 - 4T**

**Teaching Scheme**

**Practical: 2 Hours/Week**

**Examination Scheme**

**Theory**

**T (U): 35 Marks T (I): 15 Marks**

**Duration of University Exam: 02 Hrs**

**Unit 1: Introduction to Programming****(6 Hrs)**

Introduction to components of a computer system (disks, memory, processor, where a program is

stored and executed, operating system, compilers etc.)

Idea of Algorithm: steps to solve logical and numerical problems. Representation of Algorithm: Flowchart/Pseudocode with examples.

From algorithms to programs; source code, variables (with data types) variables and memory locations, Syntax and Logical Errors in compilation, object and executable code.

Arithmetic expressions and precedence

**Unit 2:****(10 Hrs)**

- a) Conditional Branching and Loops : Writing and evaluation of conditionals and consequent branching Iteration and loops
- b) Arrays : Arrays (1-D, 2-D), Character arrays and Strings
- c) Basic Algorithms : Searching, Basic Sorting Algorithms (Bubble, Insertion and Selection), Finding roots of equations, notion of order of complexity through example programs (no formal definition required)

**Unit 3:****(8 Hrs)**

- a) Function : Functions (including using built in libraries), Parameter passing in functions, call by value, Passing arrays to functions: idea of call by reference
- b) Recursion : Recursion, as a different way of solving problems. Example programs, such as Finding Factorial

**Unit 4:****(6 Hrs)**

- a) Structure : Structures, Defining structures and Array of Structures
- b) Pointers : Idea of pointers, Defining pointers, Use of Pointers in self-referential structures, notion of linked list (no implementation)

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*(Sajid Anwar)*

*(A.V. Bharadi)*

*(B.R. Chide)*

*(Dr. M. N. Giri)*

**Computational Skills (Total Credits: 01)****SUBJECT CODE: BSE2 – 4P****Teaching Scheme****Practical: 2 Hours/Week****Examination Scheme****Practical****P (U): 25 Marks P (I): 25 Marks****Duration of Internal Practical Exam: 02 Hrs****Students have to perform Practicals based on the theory :****Practical Slot – 1: Fundamentals of Computers and Operating System**

- 1) Demonstrate the internal structure of Computer, its assembly, use of each I/O device and ports.
- 2) Demonstrate the use of System Software like: Windows, Linux .
- 3) Explanation about “C” language Compiler options. Introduction to C++ language.

**Practical Slot – 2: Fundamentals of “C” language**

- 1) To demonstrate all types of operators (Arithmetic, Logical and Relational) of “C” language.
- 2) To demonstrate different data types in “C” language.
- 3) To demonstrate the use of “printf” and “scanf” with all possible options.

**Practical Slot – 3: Fundamentals of Decision Control Structures**

- 1) To demonstrate the use of if-else structure, nested if structure.
- 2) To demonstrate the use of Conditional operators (? Operator).
- 3) To demonstrate the use of Switch.Case construct.

**Practical Slot – 4: Fundamentals of Loop Control Structures**

- 1) To demonstrate the use of “while” control structure.
- 2) To demonstrate the use of “do..while” control structure.
- 3) To demonstrate the use of “for” control structure.
- 4) To demonstrate the use of “break” and “continue” construct

**Practical Slot – 5 and 6: Fundamentals of One Dimensional Arrays**

- 1) To demonstrate the creation of array, addition of an element, deletion of an element and displaying the elements from one dimensional array.
- 2) To demonstrate the implementation of bubble sort, selection sort and insertion sort.
- 3) To demonstrate the implementation of linear search and binary search.

**Practical Slot – 7: Fundamentals of Two Dimensional Arrays**

- 1) To demonstrate the matrix manipulation operations like addition, multiplication.
- 2) To demonstrate the operations on row and columns of two dimensional matrix.

**Practical Slot – 8: Fundamentals of Pointers**

- 1) To demonstrate the pointer declaration and its use.
- 2) To demonstrate the implementation of pointer on array.
- 3) To demonstrate the creation of dynamic arrays using pointer.

**Practical Slot – 9: Fundamentals of Strings**

- 1) To demonstrate the basic operations on string like “length”, “copy”, “reverse”, “truncate”.
- 2) To demonstrate the implementation of two dimensional array of characters.

**Practical Slot – 10: Fundamentals of Functions**

- 1) To demonstrate the implementation of functions.
- 2) To demonstrate the call by value parameter passing method.
- 3) To demonstrate the call by reference parameter passing method.

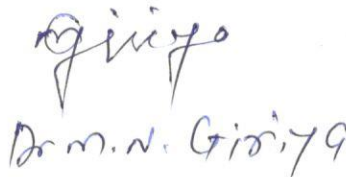
**Practical Slot – 11: Fundamentals of Functions**

- 1) To demonstrate the implementation of recursive function.
- 2) To demonstrate the use of library function (mathematical and string).





(B.R.Chide)



Dr. M. N. Girisya

**Method to conduct the practicals: Out of the two hours allotted:**

The faculty member will teach the basic concepts of practical to the students for 30 minutes.

The next 30 minutes will be on how to implement the problem definition of the practical, i.e., algorithm to implement the problem definition.

The next 1 hour, the students will implement the practical and execute it on computers.

For example: Fundamentals of Loop Control Structures

**Contents:**

To demonstrate the use of "while" control structure.

To demonstrate the use of "do..while" control structure. To demonstrate the use of "for" control structure.

To demonstrate the use of "break" and "continue" construct.

**Cover the concepts of:**

While loop, do..while loop, for loop and break & continue statement.

Explain the implementation of control structure on practical and LCD projector to students. Give one problem definition containing all the concepts of practical and allow students to implement and execute on the computers.

**Books Recommended:**

1. Herbert Schildt - C Complete Reference (Tata-McGraw Hill)
2. Byron Gottfried, " Programming with C", Schaum;s Outline Series .
3. R Venugopal & S R Prasad. "Mastering C" Tata-McGraw Hill-2207

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Abdul

Abul  
(Ar Bhardi)

DR  
(B.R. chide)

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Dr. M. N. Girya

**Centroids and Moments of Inertia:** Second Moment and products of inertia of plane areas, Moment of inertia of masses. Transfer theorems for moment of inertia and Product of inertia, Polar moment of inertia, Principal axes, Mohr's circle of inertia.

**Virtual Work:** Introduction of Virtual work theorem: Principle of Virtual work applied to equilibrium of Mechanisms, simple beam, Pin jointed frames.

**Unit -IV: (10 Hrs)**

**D'Alembert's Principle,** work Energy method, (Expressions based on center of mass).

**Methods of Momentum :** Linear impulse momentum, considerations for a system of particles, Consideration of linear momentums, Elastic impact of two bodies, Direct central impact.

**Books Recommended:**

1. Engineering Mechanics: F.L Singer
2. Engineering Mechanics: Tmoshenko & Young
3. Engineering Mechanics: Bear and Johnson
4. Engineering Mechanics: I.H.Shames
5. Engineering Mechanics: R.D.Askhedkar & P.B.Kulkarni

ABNS

ABNS  
(A. N. Bhargava)

Giriya  
Dr. M. N. Giriya (B. R. Chidley)

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

**Subject: Indian Culture and Constitution (ICC) BSE 2-8 T**

Semester: II

Course: Audit (Non-credit), Total Marks: 50 (Internal)

Credit: Nil, Teaching Load: 2(Theory)/week

Course Objective:

1. To create an understanding of Indian Constitution and develop respect for the same.
2. To create awareness of India as a State Indian culture and Tradition.

Course Outcomes:

1. Students will become aware of Indian culture and civilization and their role in development of society.
2. Students will understand Industrial work-culture.
3. Students will be sensitized towards professional ethics.
4. Students will understand Indian Constitution and governance of the country.
5. Students will be able to understand the structure and system of work organizations.

*Abul*  
(Dr. Sajid Anwar)

*Abul*  
(AVB hands)

*Prin*

*RR*  
(R. R. Chidre)



**SYLLABUS:**

## Unit-I

1. Concept of Culture and Civilization
2. Vedic Civilization and Indus Valley Civilization
3. Introduction to Vedas, Ashram system, Varna System
4. Concept of Social Engineering (5 Hours)

## Unit-II

1. Meaning and Scope of Industrial Psychology and Industrial Sociology
2. Recruitment, Selection and Training of Workers,
3. Fatigue in industry.
4. Motives for work in industry (5 Hours)

## Unit-III

1. Sustainable Development
2. Social change .
3. Professional Ethics
4. Concept and styles of Leadership in Industry. (4 Hours)

## Unit-IV

1. Indian Constitution and Federal System
2. Fundamental Rights and Directive Principles of State Policy
3. Role of Bureaucracy in Modern Society
4. Socio-Legal Awareness: Right to Information(RIL), Public Interest Litigation(PIL) (5 Hours)

Abhishek

Abhishek

Girija  
Dr m. n. Girija

BR  
(R. R. Chide)

## Unit-V

1. Industrial Democracy
2. Works Organization: Formal and Informal Organization
3. Concept of Power, Authority and Status system;
4. Industrialization, Urbanization and Study of Slums in India . (5 Hours)

## Books Recommended:

- 1) A New Look into Social Sciences- Shabbir, Sheik and Dwadashiwar
- 2) An Introduction to Sociology- Vidya Bhushan and Sachdeva
- 3) Social Science: The Indian Scene-Yogesh Atal
- 4) Applied Humanities-Rajni Tandon
- 5) A History of World Civilizations-J.E.Swain
- 6) Industrial Psychology-Haire Mason
- 7) Introduction to Constitution of India- Durga Das Basu
- 8) Industrial Sociology in India-N.R.Seth
- 9) Human Resource Development and Management- Dr.A.M.Sheikh
- 10) The Economics of Sustainable Development-Surender Kumar

Note: As AICTE has recommended that students of Engineering should learn about Indian Constitution and Indian tradition, we propose above non-credit subject entitled 'Indian Culture and Constitution' to be included in second semester for all branches.

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(Ar. Bhargava)

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BR

(B.R. Chide)