ANNAMACHARYA INSTITUTE OF TECHNOLOGY &SCIENCES:: TIRUPATI
(AUTONOMOUS)
AK 20 Regulations

B.Tech- I Year   **Semester: II**   **Branch: Common to EEE, ECE, CE, ME**

Course Code	Course Title	L	T	P	Credits
20ABS9906	**Differential Equations and Vector Calculus**	**3**	**0**	**0**	**3**

Course Outcomes:
1.Apply the mathematical concepts of ordinary differential equations of higher order.
2. Solve the differential equations related to various engineering fields.
3. Identify solution methods for partial differential equations that model physical processes.
4. Interpret the physical meaning of different operators such as gradient, curl and divergence.
5. Estimate the work done against a field, circulation and flux using vector calculus.

UNIT I: Linear Differential Equations of Higher Order

Definitions, complete solution, operator D, rules for finding complimentary function, inverse operator, rules for finding particular integral (e^{ax}, sinax (or) cosax, X^k, $e^{ax}v$, x v(x)), method of variation of parameters, simultaneous linear equations with constant coefficients.

UNIT II: Equations Reducible to Linear Differential Equations and Applications
Cauchy's and Legendre's linear equations, Applications to simple pendulum, oscillations of a spring, L-C-R Circuit problems and Mass spring system.

UNIT III: Partial Differential Equations – First order
First order partial differential equations, solutions of first order linear and non-linear PDEs.
Solutions to homogenous and non-homogenous higher order linear partial differential equations.

UNIT IV:Vector differentiation
Scalar and vector point functions, vector operator del, del applies to scalar point functions-Gradient, del applied to vector point functions-Divergence and Curl, vector identities

UNIT V: Vector integration

Line integral-circulation-work done, surface integral-flux, Green's theorem in the plane (without proof), Stoke's theorem (without proof), volume integral, Divergence theorem (without proof) and applications of these theorems.

Text Books :
1. B. S. Grewal, Higher Engineering Mathematics, 44th Edition, Khanna publishers, 2017.
2. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, John Wiley & Sons, 2011.

References:
1. Dr.T.K.V.Iyengar, Engineering Mathematics-I,S.Chand publishers
2. R. K. Jain and S. R. K. Iyengar, Advanced Engineering Mathematics, 3/e, Alpha Science
   International Ltd., 2002
3. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics,Laxmi
publication,2008
4. B. V. Ramana, Higher Engineering Mathematics, Mc Graw Hill Education.

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO1	PO1:Apply the knowledge of mathematics	1.1	1.1.1
CO2	PO2:Analyse complex engineering problems	2.1	2.1.3
CO3	PO1:Apply the knowledge of mathematics	1.1	1.1.1
CO4	PO1:Apply the knowledge of mathematics	1.1	1.1.1
CO5	PO2:Analyse complex engineering problems	2.1	2.1.3

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B.Tech- I Year   **Semester: II   Branch: Common to EEE, ECE, CSE**

Course Code	Course Title	L	T	P	Credits
20ABS9904	Chemistry	3	0	0	3

Course Outcomes:
1. Understand the behavior of interactions between mater and energy at both the atomic and molecular levels
2. Compare the materials of construction for battery and electrochemical sensors
3. Understand the preparation, properties, and applications of thermoplastics &thermos settings, elastomers & conducting polymers.
4. HPLC and GC methods used for separation of gaseous and liquid mixtures.
5. Understand the disadvantages of using hard water and select suitable treatments domestically and industrially.

Unit 1: Structure and Bonding Models   **(10 hrs)**

Planck's quantum theory, Schrodinger wave equation, significance of Ψ^1 and Ψ^2 , applications to hydrogen, particle in a box and their applications for conjugated molecules, crystal field theory – salient features – energy level diagrams for transition metal ions – splitting of orbital's in tetrahedral and octahedral complexes, magnetic properties, molecular orbital theory – bonding in homo- and heteronuclear diatomic molecules – energy level diagrams of O_2 , N_2 and CO, calculation of bond order.

Unit 2: Electrochemistry and Applications   **(10 hrs)**

Electrodes – concepts, reference electrodes (Calomel electrode, Ag/AgCl electrode and glass electrode) electrochemical cell, Nern'st equation, cell potential calculations, numerical problems, concept of pH, pH meter and applications of pH metry (acid-base titrations), potentiometry-potentiometric titrations (redox titrations), concept of conductivity, conductivity cell, conductometric titrations (acid-base titrations), photovoltaic cell – working and applications, photogalvanic cells with specific examples. Electrochemical sensors – potentiometric sensors with examples, amperometric sensors with examples.
Primary cells – Zinc-air battery, alkali metal sulphide batteries, Fuel cells, hydrogen-oxygen, methanol fuel cells – working of the cells.
Secondary cells – lead acid, nickel-metal hydride and lithium ion batteries- working of the batteries including cell reactions, button cells,

Unit 3:Polymer Chemistry   **(10 hrs)**

Introduction to polymers, functionality of monomers, chain growth and step growth polymerization, coordination polymerization, copolymerization (stereospecific polymerization) with specific examples and mechanisms of polymer formation.

Plastics - Thermoplastics and Thermosettings, Preparation, properties and applications of – Bakelite, urea-formaldehyde, Nylon-66, carbon fibres, Elastomers–Buna-S, Buna-N–preparation, properties and applications.
Conducting polymers – polyacetylene, polyaniline, polypyrroles – mechanism of conduction and applications.

Unit 4:Instrumental Methods and Applications   **(10 hrs)**

Principle and applications of Colorimetry, AAS, AES, UV-Viscible spectrophotometry (Beer-Lambert's law, Instrumentation ,Principles and applications of Chromatographic techniques(GC & HPLC), separation of gaseous mixtures and liquid mixtures(GC & HPLC methods).

Unit 5: Water Technology   **(10 hrs)**

Introduction –Soft Water and hardness of water, Estimation of hardness by EDTA Method - Boiler troubles **-** scale and sludge, Industrial water treatment – specifications for drinking water, Bureau of Indian Standards(BIS) and World health organization(WHO) standards, zeolite and ion-exchange processes - desalination of brackish water, reverse osmosis (RO) and electrodialysis.

Text books:

1. Jain and Jain, Engineering Chemistry, 16/e, Dhanpat Rai, 2013.
2. Peter Atkins, Julio de Paula and James Keeler, Atkins' Physical Chemistry, 10/e, Oxford University Press, 2010.

Reference books:
1. J. D. Lee, Concise Inorganic Chemistry, 5/e, Oxford University Press, 2008.
2. Skoog and West, Principles of Instrumental Analysis, 6/e, Thomson, 2007.
3. Ben L. Feringa and Wesley R. Browne, Molecular Switches, 2/e, Wiley-VCH, 2011.
4. Willard Merritt Dean Settle, 7 th Edition Instrumental methods for analysis

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO: 1	PO 1: Apply the knowledge of basic science	1.2	1.2.1
CO: 2	PO 1: Apply the knowledge of basic science	1.4	1.4.1
CO: 3	PO 1: Apply the knowledge of basic science	1.2	1.2.1
CO: 4	PO 4: Analyse complex engineering problems	2.4	2.4.4
CO: 5	PO 1: Apply the knowledge of Basic science	1.2	1.2.1

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B.Tech- I Year   Semester: II   Branch: Common to EEE, ECE, CSE

Course Code	Course Title	L	T	P	Credits
20AES0101	**Basics of Civil & Mechanical Engineering**	3	0	0	3

Course Outcomes:

CO: 1   Understand principles of Stress and Strain.
CO: 2   Understand basic principles of Strain Measurement and apply the concepts of Strain Rosettes for strain measurement.
CO: 3   Understand common building materials used in construction and analyze characteristics of common building materials
CO: 4   Apply velocity ratio concepts in power transmission
CO: 5   Understand the principles of CAD, CAM & CIM

PART – A

UNIT – I:

Basic Definitions of Force – Types of Stress and Strain, Thermal stress and thermal strain – Elasticity, Types of supports, Types of loads - Shear force – Bending Moment – Torsion.

UNIT – II:

Measurement of Strain - Electrical Capacitance and Resistance Strain gauges – multi channel strain indicators. Rosette analysis – Rectangular and Triangular strain rosettes – Wheatstone bridge, Linear Variable Differential Transformer (LVDT).

UNIT – III:

Characteristics of common building materials – Brick, Steel, Concrete and their applications in Construction Industry, Structural components of building.

PART – B

UNIT – IV: Power Plants

Classification of Power plants – Steam Power Plants – Nuclear Power Plants – Gas turbines – Hydro Power Plants – Solar energy – wind energy – Tidal Power – Geo Thermal Power.

UNIT – V: Transmission of Power

Transmission of Power – Belt and Rope Drives – Types of Belts – Materials – Velocity ratio – Speed Ratio – Rope Drives – V-Belt – Flat Belt.

UNIT – VI: Computer Aided Design & Manufacturing

Introduction to engineering applications of computer aided design – Computer Aided Drawing – Advantages of CAD – Computer Aided Manufacturing – Functions of Robots in manufacturing Applications – advantages of Robots – Computer integrated Manufacturing (CIM).

Text Books:

1. Shanmugam G and Palanichamy M S, "Basic Civil and Mechanical Engineering", Tata McGraw Hill Publishing Co., New Delhi.
2. Ramamrutham S., "Basic Civil Engineering", Dhanpat Rai Publishing Co. (P) Ltd.

References:

1. S.Trymbaka Murthy., "Computer Aided Engineering Drawing" , Universities Press
2. Seetharaman S., "Basic Civil Engineering", Anuradha Agencies.
3. Venugopal K. and Prahu Raja V., "Basic Mechanical Engineering", Anuradha Publishers, Kumbakonam.
4. Er. R. Vaishnavi, Basic Civil and Mechanical Engineering, 2/e, S. Chand Publications.

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO1	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
	PO2: Problem analysis	2.2	2.2.1
		2.3	2.3.1
CO2	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
	PO2: Problem analysis	2.2	2.2
		2.3	2.3.1
CO3	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
	PO2: Problem analysis	2.2	2.2.1
		2.3	2.3.1
CO 4	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
CO 5	PO1: Engineering knowledge	1.2	1.2.1
	PO2: Problem analysis	1.3	1.3.1
		1.4	1.4.1
CO 6	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1

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B.Tech- I Year   Semester: II   Branch: Common to EEE, ECE, CE, ME

Course Code	Course Title	L	T	P	Credits
20AES0505	**Internet of Things (IoT)**	**3**	**0**	**0**	**3**

Course Outcomes:
CO1: Interpret the vision of IoT from a global context.
CO2: Determine the Market perspective of IoT.
CO3: Compare and Contrast the use of Devices, Gateways and Data Management in IoT.
CO4: Implement state of the art architecture in IoT.
CO5: Illustrate the application of IoT in Industrial Automation and identify Real World Design
Constraints.

Unit-I
M2M to IoT-The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context,
A use case example, Differing Characteristics.

Unit-II
M2M to IoT - A Market Perspective- Introduction, Some Definitions, M2M Value Chains, IoT
Value Chains, An emerging industrial structure for IoT, The international driven global value chain
and global information monopolies. M2M to IoT-An Architectural Overview- Building an
architecture, Main design principles and needed capabilities, An IoT architecture outline, standards
considerations.

Unit-III
M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking,
Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT
Analytics, Knowledge Management

Unit-IV
IoT Architecture-State of the Art - Introduction, State of the art.

Unit-V
IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and
Operational View, Other Relevant architectural views. Real-World Design Constraints-
Introduction, Technical Design constraints-hardware is popular again, Data representation and
visualization, Interaction and remote control. Industrial Automation- Service-oriented
architecture-based device integration, SOCRADES: realizing the enterprise integrated Web of
Things, IMC-AESOP: from the Web of Things to the Cloud of Things

TEXT BOOK:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1st Edition, Academic Press, 2014. (ISBN-13:978-0124076846)

REFERENCE BOOKS / WEBLINKS:

1. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands-on-Approach)", 1st Edition, VPT, 2014. (ISBN-13: 978-8173719547)

2. Francis daCosta, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1st Edition, Apress Publications, 2013. (ISBN-13: 978- 1430257400)

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO: 1	PO 5: Modern Tool Usage	5.1	5.1.1
CO: 2	PO 5: Modern Tool Usage	5.2	5.2.1
CO: 3	PO 4: Conduct investigations of complex Problems	4.3	4.3.1
CO: 4	PO 3: Design/Development of Solutions	3.4	3.4.1
CO: 5	PO 6: Engineer & Society	6.1	6.1.1

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B.Tech- I Year   **Semester: II**   **Branch: Common to all Branches**

Course Code	Course Title	L	T	P	Credits
20AES0301	Engineering Graphics	1	0	4	3

Course Outcomes:

CO: 1   Draw various curves applied in engineering.
CO: 2   Show projections of solids and sections graphically.
CO: 3   Draw the development of surfaces of solids.
CO: 4   Use computers as a drafting tool.
CO: 5   Draw isometric and orthographic.

Unit I: Introduction to Engineering graphics: Principles of Engineering Graphics and their significance-Conventions in drawing-lettering - BIS conventions.

   a) Conic sections including the rectangular hyperbola- general method only,

   b) Cycloid, epicycloids and hypocycloid

   c) Involutes

Unit II: Projection of points, lines: Projection of points in any quadrant, lines inclined to one or both planes, finding true lengths, angle made by line.

Unit III: Projections of Planes: Projection of points in any quadrant, lines inclined to one or both planes, finding true lengths, angle made by line. Projections of regular plane surfaces.

Projections of Solids: Projections of regular solids inclined to one or both planes by rotational or auxiliary views method.

UnitIV: Sections of solids: Section planes and sectional view of right regular solids- prism, cylinder, pyramid and cone. True shapes of the sections.

Development of surfaces: Development of surfaces of right regular solids-prism, cylinder, pyramid, cone and their sectional parts.

UnitV: Orthographic Projections: Systems of projections, conventions and application to orthographic projections.

Isometric Projections: Principles of isometric projection- Isometric scale; Isometric views: lines, planes, figures, simple and compound solids.

Text Books and Reference Books:

1. K.L.Narayana&P.Kannaiah, Engineering Drawing, 3/e, Scitech Publishers
2. N.D.Bhatt, Engineering Drawing, 53/e, Charotar Publishers
3. Dhanajay A Jolhe, Engineering Drawing, Tata McGraw-Hill
4. Shah and Rana, Engineering Drawing, 2/e, Pearson Education
5. Basant Agarwal &C.M.Agarwal, Engineering Drawing, Tata McGraw-Hill

Additional Sources

YouTube: http-sewor,Carleton.cag,kardos/88403/drawings.html conic sections-online, red woods.edu

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO: 1	PO 1: Engineering knowledge	1.3	1.3.1
CO: 2	PO 3: Design/Development of Solutions	3.2	3.2.1
CO: 3	PO 1: Engineering knowledge	1.3	1.3.1
CO: 4	PO 3: Design/Development of Solutions	3.2	3.2.2
CO: 5	PO 5: Problem analysis	5.1	5.1.1

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B.Tech- I Year   **Semester: II**   **Branch: EEE, ECE, CSE**

Course Code	Course Title	L	T	P	Credits
20AES0102	**Basics of Civil & Mechanical Engineering Lab**	0	0	3	1.5

Course Outcomes:

CO: 1   Impart basic principles of bending test on simply supported beam
CO: 2   Understand principles of strain measurement using electrical strain gauges
CO: 3   Impart concepts of compression and torsion
CO: 4   Apply velocity ratio concepts in power transmission
CO: 5   Understand the principles of CAD, CAM & CIM

PART – A

Laboratory Experiments:
1. Tensile test on mild steel
2. Bending test on (Steel/Wood) simply supported beam
3. Use of electrical resistance strain gauges
4. Compression test on concrete cube/ brick
5. Torsion test on steel.

PART – B

The following contents are to be done by any 2D software package
1. Basic drawing and editing commands: line, circle, rectangle, erase, view, undo, redo, snap, object editing, moving, copying, rotating, scaling,
2. Mirroring, layers, templates, polyline, trimming, extending, stretching, fillets, arrays, dimensions.
3. Dimensioning principles and conventional representations.
4. Any three simple 2D diagram by using software package.

CO No.	PO No. and keyword	Competency Indicator	Performance Indicator
CO1	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
	PO2: Problem analysis	2.2	2.2.1
		2.3	2.3.1
CO2	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
	PO2: Problem analysis	2.2	2.2.1
		2.3	2.3.1
CO3	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
		1.4	1.4.1
CO 4	PO1: Engineering knowledge	1.2	1.2.1
		1.3	1.3.1
CO 5	PO1: Engineering knowledge	1.2	1.2.1
	PO2: Problem analysis	1.3	1.3.1
		1.4	1.4.1

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B.Tech- IYear   **Semester: II**   **Branch: EEE, ECE, CSE**

Course Code	Course Title	L	T	P	Credits
20ABS9909	Chemistry Lab	0	0	3	1.5

Course Outcomes:
1. To familiarize the students with the basic concepts of chemistry of materials
2. Prepare advanced polymer materials
3. Measure the strength of an acid present in secondary batteries
4. To familiarize with digital and instrumental methods of analysis

List of Experiments:
1. Determination of Hardness of a groundwater sample.
2. Estimation of iron (II) using Diphenylamine indicator (Dichrometry – Internal indicator method)
3. Determination of pH metric titration of strong acid vs. strong base,
4. Conductometric titration of strong acid vs. strong base
5. Determination of Fe(II) in Mohr's salt by potentiometric method.
6. Determination of percentage of Iron in Cement sample by colorimetry
7. Determination of Strength of an acid in Pb-Acid battery
8. Preparation of phenol-formaldehyde resin
9. Preparation of TIO_2/ZnO nano particles
10. Estimation of Calcium in port land Cement
11. Adsorption of acetic acid by charcoal
12. Thin layer chromatography

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO:1	PO 4: Analysis and interpretation of data	4.3	4.3.3
CO:2	PO 4: Analysis and interpretation of data	4.3	4.3.1
CO:3	PO 4: Analysis and interpretation of data	4.3	4.3.1
CO:4	PO 4: Analysis and interpretation of data	4.3	4.3.2

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B.Tech- I Year   **Semester: II**   **Branch: EEE,ECE,CE,ME**

Course Code	Course Title	L	T	P	Credits
20AES0506	Internet of Things Lab (IoT Lab)	0	0	3	1.5

Course outcomes: At the end of the course, students will be able to
CO1: Choose the sensors and actuators for an IoT application.
CO2: Select protocols for a specific IoT application.
CO3: Utilize the cloud platform and APIs for IoT application.
CO4: Experiment with embedded boards for creating IoT prototypes.
CO5: Design a solution for a given IoT application.

Lab Experiments:

1. Select any one development board (Eg., Arduino or Raspberry Pi) and control LED using the board.
2. Using the same board as in (1), read data from a sensor. Experiment with both analog and digital sensors.
3. Control any two actuators connected to the development board using Bluetooth.
4. Read data from sensor and send it to a requesting client.   (using socket communication)
Note: The client and server should be connected to same local area network.
5. Create any cloud platform account, explore IoT services and register a thing on the platform.
6. Push sensor data to cloud.
7. Control an actuator through cloud.
8. Access the data pushed from sensor to cloud and apply any data analytics or visualization services.
9. Create a mobile app to control an actuator.
10.   Identify a problem in your local area or college which can be solved by integrating the things you learned so far and create a prototype to solve it (Mini Project).

Text Book:
1. Adrian McEwen, Hakim Cassimally - Designing the Internet of Things, Wiley Publications, 2012

Reference Books:
1. ArshdeepBahga, Vijay Madisetti - Internet of Things: A Hands-On Approach, Universities Press, 2014.
2. The Internet of Things, Enabling technologies and use cases – Pethuru Raj, Anupama C. Raman, CRC Press.

Reference sites:
https://www.arduino.cc/
https://www.raspberrypi.org/

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO: 1	PO 5: Modern Tool Usage	5.1	5.1.1
CO: 2	PO 5: Modern Tool Usage	5.2	5.2.1
CO: 3	PO 4: Conduct investigations of complex Problems	4.3	4.3.1
CO: 4	PO 3: Design/Development of Solutions	3.4	3.4.1
CO: 5	PO 6: Engineer & Society	6.1	6.1.1

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B.Tech- I Year   **Semester: II**   **Branch: EEE,ECE,CE,ME**

MANDATORY COURSE

Course Code	Course Title	L	T	P	Credits
20AMC9902	**Constitution of India**	2	0	0	0

Course Outcomes:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the Powers and functions of Governor, President, Judiciary.
5. Discuss the functions of local administration bodies.

Unit:1   **4 hrs**

History of Making of the Indian Constitution - History Drafting Committee, (Composition& Working)

Unit:2   **8 hrs**

Philosophy of the Indian Constitution - Preamble Salient Features

Unit:3   **8hrs**

Contours of Constitutional Rights & Duties - Fundamental Rights - Right to Equality - Right to Freedom - Right against Exploitation - Right to Freedom of Religion - Cultural and Educational Rights - Right to Constitutional Remedies - Directive Principles of State Policy - Fundamental Duties.

Unit:4   **8hrs**

Organs of Governance - Parliament – Composition - Qualifications and Disqualifications - Powers and Functions **-** Executive, President, Governor **-** Council of Ministers **-**Judiciary, Appointment and Transfer of Judges, Qualifications - Powers and Functions.

Unit:5   **8hrs**

Local Administration - District's Administration head: Role and Importance - Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation - Pachayati raj: Introduction, PRI: ZillaPachayat - Elected officials and their roles, CEO Zilla

Panchayat: Position and role - Block level: Organizational Hierarchy (Different departments) - Village level: Role of Elected and Appointed officials - Importance of grass root democracy.

Suggested books for reading:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

List of COs	PO no. and keyword	Competency Indicator	Performance Indicator
CO 1	PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the Professional Engineering Practice	6.2.	6.2.1
CO 2	PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the Professional Engineering Practice	6.2.	6.2.1
CO 3	PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the Professional Engineering Practice	6.2.	6.2.1
CO 4	PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the Professional Engineering Practice	6.2.	6.2.1
CO 5	PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the Professional Engineering Practice	6.2	6.1.1