



केन्द्रीय प्रौद्योगिकी संस्थान कोकराझार
CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR

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Kokrajhar, Assam 783370

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COURSE STRUCTURE
AND
SYLLABUS FOR
UNDERGRADUATE PROGRAMMES (B. Tech)
1st year (Semester II)
(APPLICABLE FROM AY 2024-2025 ONWARDS)

CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR

Course structure for 2nd semester B. Tech programme	3
01-UCH201	5
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COURSE STRUCTURE
UNDERGRADUATE PROGRAMMES (B. Tech)
1st year
Semester II

Sl. No.	Course Code	Course Name	L	T	P	C
01.	UCH201	Engineering Chemistry	2	1	0	3
02.	UCH271	Engineering Chemistry Lab	0	0	2	1
03.	UMA201	Mathematics-II	3	1	0	4
04.	UCS201	Programming for Problem Solving	2	1	0	3
05.	UCS271	Programming for Problem Solving Lab	0	0	2	1
06.	UCH202	Biology for Engineers	2	0	0	2
07.	UME201	Engineering Mechanics	1	1	0	2
08.	UME271	Workshop Practices	0	0	2	1
09.	UHS201	Universal Human Values	2	1	0	3
10.	UHS202	NSS for youth Development	2	0	4	0
	Contact Hours: 31		14	5	10	20

Legends:	
L	Lecture
T	Theory
P	Practical
C	Credits

Syllabus: Semester II

Paper code: UCH201

Paper name: Engineering Chemistry

Credit:3

Total contact hours: 40

L-T-P: 2-1-0

Part A: Common Course

Module 1 Coordination Chemistry: Importance of coordination chemistry, Types of complexes, Classification of Ligands. Crystal Field Theory to explain nature of bonding in inorganic complexes, and their magnetic & color properties. **4L**

Module 2 Introduction to Reaction Intermediates & Important Reactions: Concept of electron displacement and their applications, types of intermediate organic species and their reactions, brief study of some nucleophilic, addition, elimination, substitution reaction, ring opening & cyclization. **6L**

Module 3 Name Reactions and Drug molecule synthesis: Aldol condensation, Schmidt reaction, Ring expansion & contraction reaction, synthesis of commonly used drug molecules. **4L**

Module 4 Polymer: Concepts, classifications and industrial applications; polymerization processes, degree of polymerization (addition and condensation polymerization); preparation, structure and use of some common polymers: plastic (PE, PP) rubber (natural rubber, SBR), fibre (nylon 6,6). **3L**

Module 5 Chemical Kinetics: Molecularity of a reaction; Rate of reaction; Order of reaction; first and second order kinetics; Half life calculation, Transition state theory, Arrhenius Equation, Reaction dynamics of catalytic reactions **4L**

Module 6 Thermodynamics: Understanding of the basic concepts and definitions, Concept of state function and path function, Concept of U (Internal Energy) & H (Enthalpy), heat capacities (C_v and C_p), reversible and irreversible conditions. 1st law of thermodynamics, Carnot cycle, 2nd law of thermodynamics related problems, entropy, Gibbs Free energy. **5L**

Part B: ECE/IE/CSE

Module 7 Solid State Chemistry: Crystal Systems, Diamond Structure, Miller indices, Stoichiometric and Non-Stoichiometric Defects, Semiconductors, Intrinsic and Extrinsic Semiconductors. **4L**

Module 8 Electrochemistry: Basic concept of Electrochemical Cells; EMF of a cell, Electrodes, reference electrodes, Nernst Equation and its application. Related problems. Principle of lead acid battery. **5L**

Part D: CE/FET

Module 9 Biochemistry: Carbohydrates, lipids, amino acids, proteins, Nucleic acid– DNA and RNA, Vitamins and hormones – sources and application. **3L**

Module 10 Environmental Chemistry: Air & water pollution, water quality measurements- D.O, B.O.D, C.O.D, hardness of water, removal of hardness, greenhouse effect, acid rain, ozone layer depletion, biofuel. **2L**

Text/Reference Books:

1. Advanced Organic Chemistry: Reactions, Mechanisms, and Structure. By Michael B. Smith, Jerry March, 6th Edition, 2007
2. A Text Book of Organic Chemistry. By Arun Bahl and B S Bahl, 2019.
3. Concise Inorganic Chemistry, J. D. Lee, 5th Edition, 2008.
4. Selected Topics in Inorganic Chemistry. By Wahid U Malik, G D Tuli, R D Madan, 1998
5. Physical Chemistry by P.C. Rakshit revised by S.C. Rakshit; Publisher: Levant Books, 2001.
6. V.R. Gowariker, N.V. Viswanathan, J. Sreedhar, Polymer Science, New Age International Publisher.
7. Introduction to Environmental Engineering and Science, Pearson, Gilbert M. Masters and Wendell P. Ela

Syllabus: Semester II

Course Title: Engineering Chemistry (Practical)

Course Code: UCH-272

Total contact hours: 24

Credit: 1 [L-T-P: 0-0-2]

Experiment-1: Determination of coefficient of viscosity of given liquids (Alcohol and Water) at room temperature by using Ostwald's Viscometer.

Experiment-2: Determination of surface tension of given liquids (Alcohol and Water) at room temperature by using Stalagmometer.

Experiment-3: Preparation of standard solution of oxalic acid.

Experiment-4: Determination of strength of NaOH solution with standard oxalic acid solution

Experiment-5 Determination of hardness of water

Experiment-6 Determination of strength of KMnO₄ solution with standard oxalic acid solution

Experiment-7 Determination of Fe amount using Mohr's salt

Experiment-8 Preparation of Phthalic anhydride

Experiment-9 Introduction to sophisticated instruments like FT-IR, UV-Visible and GCMS spectrophotometer

Text/Reference Books:

1. B. Viswanathan, P. S. Raghavan, Practical Physical Chemistry, Viva

Course Code	Subject Name	Credit: L-T-P	Credits
UMA201	Engineering Mathematics-II	3-1-0	4

Course Objectives: Mathematics fundamental necessary to formulate, solve and analyze engineering problems.

Course Contents:

Module 1: Matrices

Systems of Linear Equations, Linear Independence and linear dependence of set of vectors; Rank of a Matrix, Determinant, Inverse of a matrix, rank-nullity theorem, Symmetric, skew symmetric and orthogonal matrices, Eigenvalues and eigenvectors, linear transformation, Orthogonal transformation, Diagonalization of matrices, Cayley-Hamilton Theorem.

Module 2: First order ordinary differential equations:

Exact differential equations, linear and Bernoulli's equations. Equations not of first degree: equations solvable for p , equations solvable for y , equations solvable for x and Clairaut's type.

Module 3: Ordinary differential equations of higher orders:

Second order linear differential equations with variable coefficients: Euler-Cauchy equations, solution by variation of parameters; Power series solutions: Legendre's equations and Legendre polynomials, Frobenius method, Bessel's equation and Bessel's functions of the first kind and their properties.

Module 4: Complex Variable – Differentiation:

Differentiation, Cauchy-Riemann equations, analytic functions, harmonic functions, finding harmonic conjugate, elementary analytic functions (exponential, trigonometric, logarithm) and their properties, Conformal mappings, Mobius transformations and their properties.

Module 5: Complex Variable – Integration:

Contour integrals, Cauchy-Goursat theorem (without proof), Cauchy Integral formula (without proof), Liouville's theorem and Maximum-Modulus theorem (without proof), Taylor's series, zeros of analytic functions, singularities, Laurent's series; Residues, Cauchy Residue theorem (without proof), Evaluation of definite integral involving sine and cosine, Evaluation of certain improper integrals using the Bromwich contour.

TEXTBOOKS:

1. AICTE's Prescribed Textbook: Mathematics-II (Calculus, Ordinary Differential Equations and Complex Variable), Khanna Book Publishing Co.
2. Reena Garg, Engineering Mathematics, Khanna Book Publishing Company, 2022.
3. Reena Garg, Advanced Engineering Mathematics, Khanna Book Publishing Company, 2021.

4. Linear Algebra and its application by Gilbert Strang, Publisher Cengage India Private Limited 4th Edition
5. Linear Algebra (A modern Introduction) by David Poole, Cengage Learning 4th Edition

REFERENCES:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, John Wiley & Sons, 2006.
2. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
3. W. E. Boyce and R. C. DiPrima, Elementary Differential Equations and Boundary Value Problems, 9th Edn., Wiley India, 2009.
4. D. Poole, Linear Algebra: A Modern Introduction, 2nd Edition, Brooks/Cole, 2005.
5. S. L. Ross, Differential Equations, 3rd Ed., Wiley India, 1984.
6. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall India, 1995.
7. E. L. Ince, Ordinary Differential Equations, Dover Publications, 1958.
8. J. W. Brown and R. V. Churchill, Complex Variables and Applications, 7th Ed., McGraw Hill, 2004.
9. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
10. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.

COURSE OUTCOMES: The objective of this course is to familiarize the prospective engineers with techniques in matrices, ordinary differential equations and complex variables. It aims to equip the students to deal with advanced level of mathematics and applications that would be essential for their disciplines.

The students will learn:

- The essential tool of matrices and linear algebra in a comprehensive manner.
- The effective mathematical tools for the solutions of differential equations that model physical processes.
- The tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems.

Paper code: UCS201
Paper name: Programming for Problem Solving
Total contact hours: 44

Credit: 3
L-T-P: 2-1-0

Module 1: Introduction to Computer

Contact hours: 5

Components of a computer, Basic Operating System, compilers, number systems, number system conversion.

Module 2: Introduction to Algorithm, and Flowcharts

Contact hours: 5

Introduction to algorithms, flowchart/pseudocode, basic examples.

Module 3: Basics of Programming

Contact hours: 7

Introduction of source code, Syntax, and logical errors, object and executable code, variables (with data types), operators and expressions, precedence, and associativity.

Module 4: Conditional Branching and Loops

Contact hours: 10

Conditional and unconditional branching, concepts, and examples of loops.

Module 5: Arrays

Contact hours: 10

Introduction to arrays, 1-D, 2-D arrays, sorting and searching, and strings.

Module 6: Functions

Contact hours: 7

Basic concepts of functions, parameter passing, recursive functions,

Books / References:

1. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill.
2. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill.
3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India.
4. Yashavant Kanetkar, Let Us C, BPB Publications.

Paper code: UCS271

Paper name: Programming for Problem Solving Lab

Total contact hours: 30

Credit: 1
L-T-P: 0-0-2

The laboratory should be preceded or followed by a tutorial explaining the approach or algorithm for the problem given.

Lab 1: Familiarization with the programming environment and simple computational problems.

Lab 2 - 3: Problems using conditional statements.

Lab 4 - 5: Iterative problems.

Lab 6 -9: Array, and strings problems.

Lab 10-11: Functions, Recursive functions.

Books / References:

1. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill.
2. E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill.
3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India.
4. Yashavant Kanetkar, Let Us C, BPB Publications.

Syllabus: Semester II

Paper code: UCH-202

Paper name: Biology for Engineers (Theory)

Credit:2

Total contact hours: 24

L-T-P: 2-0-0

Module 1 Introduction: Fundamental differences between science and engineering by drawing a comparison between eye and camera, Bird flying and aircraft, Biological observations of 18th Century: Brownian motion, origin of thermodynamics. **3L**

Module 2 Instrumental Technique: Basic idea and applications of X-ray, UV-Vis, NMR, GC-MS, SEM, TEM, DSC, HPLC instruments, ICP-OES. **3L**

Module 3 Biomolecules and Enzymes: Molecules in life, Sugar, starch, cellulose, amino acids, nucleotides, DNA/RNA, lipids. Enzyme catalysed reactions, enzyme classification, mechanism, enzyme kinetics, RNA catalysis. **3L**

Module 4 Micro and Macromolecular analysis: Fermentation, Identification and classification of microorganisms, growth kinetics. Proteins-structure and functions, Hierarch in protein structure, primary secondary, tertiary and quaternary structure, proteins as enzymes, transporters, receptors and structural elements. **3L**

Module 5 Metabolism: Application of thermodynamics to biological system, exothermic and endothermic Versus endergonic and exergonic reactions. Concept of K_{eq} and its relation to standard free energy, spontaneity, ATP as energy currency, glycolysis, Krebs cycle, photosynthesis. **3L**

Module 6 Heavy metal contamination and removal: Toxic metals (Hg,Cd, As, Pb), Effect of heavy metals in Humans, carcinogenic effects, assessment of heavy metals, removal of heavy metals. **3L**

Module 7 –Genetics: To convey that “Genetics is to biology what Newton’s laws are to Physical Sciences” Mendel’s laws, Concept of segregation and independent assortment. Concept of allele. Gene mapping, Gene interaction, Epistasis. Meiosis and Mitosis be taught as a part of genetics. Emphasis to be give not to the mechanics of cell division nor the phases but how genetic material passes from parent to offspring. Concepts of recessiveness and dominance. Concept of mapping of phenotype to genes. Discuss about the single gene disorders in humans. Discuss the concept of complementation using human genetics. **3L**

Module 8 Information Transfer: Molecular basis of information transfer. DNA as a genetic material. Hierarchy of DNA structure- from single stranded to double helix to nucleosomes. Concept of genetic code. Universality and degeneracy of genetic code. Define gene in terms of complementation and recombination. DICOM Image formats, The DNA Technology (Use and Application) Regulation Bill, 2019. **3L**

References:

- 1) General Biology, Uma Devi Koduru, Khanna Book Publishing Company.
- 2) Biology: A global approach: Campbell, N. A.; Reece, J. B.; Urry, Lisa; Cain, M, L.; Wasserman, S. A.; Minorsky, P. V.; Jackson, R. B. Pearson Education Ltd
- 3) Outlines of Biochemistry, Conn, E.E; Stumpf, P.K; Bruening, G; Doi, R.H., John Wiley and Sons
- 4) Principles of Biochemistry (V Edition), By Nelson, D. L.; and Cox, M. M.W.H. Freeman and Company
- 5) Molecular Genetics (Second edition), Stent, G. S.; and Calender, R.W.H. Freeman and company, Distributed by Satish Kumar Jain for CBS Publisher
- 6) Microbiology, Prescott, L.M J.P. Harley and C.A. Klein 1995. 2nd edition Wm, C. Brown Publishers
11. Instrumental Methods of Chemical Analysis (Analytical Chemistry), By B. K. Sharma, 2000.

Course Outcomes:

After studying the course, the student will be able to:

1. Describe how biological observations of 18th Century that lead to major discoveries.
2. Convey that classification per se is not what biology is all about but highlight the underlying criteria, such as morphological, biochemical and ecological
3. Highlight the concepts of recessiveness and dominance during the passage of genetic material from parent to offspring
4. Convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine
5. Classify enzymes and distinguish between different mechanisms of enzyme action.
6. Identify DNA as a genetic material in the molecular basis of information transfer.
7. Analyse biological processes at the reductionistic level
8. Apply thermodynamic principles to biological systems.
9. Identify and classify microorganisms

Paper Code: UME 201
Paper Name: Engineering Mechanics
Total contact hours: 24 Hours

Credit: 02
L-T-P: 1-1-0

Course objectives:

The following are the objectives of this course:

- To obtain the resultant of various forces
- To calculate support reactions through conditions of equilibrium for various structures
- To understand the role of friction in equilibrium problems
- To obtain the centroid, centre of gravity and moment of inertia of simple composite bodies
- To know the kinematics and kinetics of particles

Module 1: Force System

Force, moment and couple, resultant of forces.

Module 2: Equilibrium

Free body diagram, reactions, equations of equilibrium, Lami's theorem.

Module 3: Analysis of Structures

Analysis of simple trusses, method of joints and method of sections, analysis of frames and beams.

Module 4: Friction

Concept of dry friction, applications of friction to simple machines - inclined planes, wedges, screw jacks, pulleys.

Module 5: Distributed Force System

Centre of mass and centroid, centre of gravity, centroids of lines, areas, volumes and composite bodies, moments of inertia, parallel axis theorem, perpendicular axis theorem, moments of inertia of simple and composite bodies.

Module 6: Kinematics and Kinetics of Particles

Kinematics of particles: Rectilinear motion and curvilinear motion; Kinetics of particles: Newton's second law, work and kinetic energy, linear impulse and momentum of particles.

Books / References:

1. Shames, I.H., Engineering Mechanics, Prentice Hall, 4th Edition, 2005.
2. Timoshenko, S. & Young, D. H., Engineering Mechanics, McGraw Hill, 5th Edition, 2017.
3. Meriam, J. L., and Kraige, L.G., Engineering Mechanics: Statics, Vol. 1. John Wiley & Sons, 9th edition, 2018.
4. Meriam, James L., and Kraige, L.G., Engineering Mechanics: Dynamics. Vol. 2. John Wiley & Sons, 9th edition, 2018.
5. Kumar, K.L. and Kumar V., Engineering Mechanics, McGraw Hill, 4th Edition, 2017.
6. Beer F.P. and Johnston, E.R., Vector Mechanics for Engineers: Statics and Dynamics, Tata McGraw Hill, 12th Edition, 2019.
7. Hibbler, R.C., Engineering Mechanics: Principles of Statics and Dynamics, Pearson Press, 14th Edition, 2017.

Course outcomes:

- Explain the construction of free-body diagrams of rigid bodies in equilibrium, subjected to coplanar concurrent and non-concurrent forces
- Identify the force systems for given conditions by applying the basics of mechanics
- Analyse the simple structures by the joints, sections and graphical method
- Study of friction in simple machines
- Apply the concepts of centroid and centre of gravity in simple and composite bodies and determine moments of inertia for simple engineering components
- Analysis of kinematics and kinetics of particles for engineering applications

Paper Code: UME 271
Paper Name: Workshop Practice
Total contact hours: 24 Hours

Credits: 01
L-T-P: 0-0-2

Course objectives:

- To understand basic engineering processes for manufacturing and assembly
- To understand, identify, select and use various marking, measuring, holding, striking and cutting tools and equipment
- To understand and interpret job drawings and produce and inspect the job for specified dimensions
- To understand, operate, and control different machines and equipment, adopting safety practices

Module 1: Introductory

Introduction to workshop technology, safety precautions, health and environmental issues, and demonstrations in the machine, carpentry, fitting, and welding shops.

Module 2: Carpentry Shop

Introduction to woodworking tools and machines, making jobs such as T-joints, cross-halving joints, dovetail joints, etc. and other utility joints.

Module 3: Fitting Shop

Study of different fitting tools, power hammers and machines; Simple exercises involving filing, sawing, drilling, etc.; making jobs as per drawing, like squaring a rectangular metal piece, making a V-block of a metal piece, etc.

Module 4: Welding Practice

Introduction to different welding tools, machines and welding processes; Practice arc welding, oxy-acetylene gas welding, etc.; Making jobs such as lap joints, butt joints, T-joints etc., as per the drawing provided in the lab manual.

Module 5: Machine Shop

Introduction to various machine tools and demonstration of various machining processes; Making jobs as per drawing using various conventional machines such as lathe machine, milling machine, shaping machine, drilling machine, etc.

Module 6: CNC machining

Introduction to CNC machines and part programming, Simulation of different part programs, Writing and execution of part programs for CNC Lathe machine and CNC Milling machine

References:

1. S.K. Hajra Choudhury, A.K. Hajra Choudhury and Nirjhar Roy, Elements of Workshop Technology, Vol. I: Manufacturing Processes, Media Promoters & Publishers Pvt. Ltd., 17th Edition, 2015.
2. S.K. Hajra Choudhury and Nirjhar Roy, Elements of Workshop Technology, Vol. II: Machine Tools, Media Promoters & Publishers Pvt. Ltd, 16th Edition, 2023.
3. W.A.J. Chapman, Workshop Technology, Part 1, CBS Publishers and Distributors Pvt. Ltd., 5th Edition, 2001.

4. W.A.J. Chapman, Workshop Technology, Part 2, CBS Publishers and Distributors Pvt. Ltd., 4th Edition, 2007.
5. W.A.J. Chapman, Workshop Technology, Part 3, CBS Publishers and Distributors Pvt. Ltd., 3rd Edition, 1995.
6. P.N. Rao, Manufacturing Technology, Vol. 1, McGraw Hill Education, 5th Edition, 2018.
7. P.N. Rao, Manufacturing Technology, Vol. 2, McGraw Hill Education, 4th Edition, 2018.
8. HMT, Mechatronics, McGraw Hill Education, New Delhi, 2017.
9. H. Gerling, All About Machine Tools, New Age International, 3rd Edition, 2021.

Course outcomes:

- Acquire skills in basic engineering practice to identify, select and use various marking, measuring, and holding, striking and cutting tools & equipment and machines
- Understand job drawing and complete jobs as per specifications in the allotted time
- Inspect the job for the desired dimensions and shape
- Demonstrate the different types along with parts, working principles, mechanisms and operations of various machines such as lathe, milling, grinding, etc. and equipment, adopting safety practices

Central Institute of Technology Kokrajhar
Department of Humanities and Social Sciences

Course Code: UHS- 2 01 Universal Human Values		
Course Title: Universal Human Values	2L:1T:0P	3 Credit
Module-1		
<p>Introduction to Value Education :- Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations</p>		
Module-2		
<p>Harmony in the Human Being :- Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health : Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress, WHO Guidelines</p>		
Module-3		
<p>Harmony in the Family and Society :- Harmony in the Family – the Basic Unit of Human Interaction, meaning of Justice (nine universal values in relationships), Justice in Human-to Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings.</p>		
Module-4		
<p>Harmony in the Nature/Existence :- Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence- human being as cause of imbalance in nature, pollution, depletion of resources and role of technology etc.</p>		
Module-5		
<p>Implications of the Holistic Understanding – a Look at Professional Ethics:- Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession (a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers (b) At the level of society: as mutually enriching institutions and organizations – Right understanding and dilemmas of professional ethics in present world.</p>		

Reference Books

1. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amar kantik, 1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. The Story of Stuff (Book).
4. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
5. Small is Beautiful - E. F Schumacher.
6. Slow is Beautiful - Cecile Andrews
7. Economy of Permanence - J C Kumarappa
8. Bharat Mein Angreji Raj – Pandit Sunderlal
9. Rediscovering India - by Dharampal
10. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi

OBJECTIVES:

The objective of the course is four fold:

1. To train the student for Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.
2. To understand (or develop clarity) the harmony in the human being, family, society and nature/existence
3. To strengthen self-reflection.
4. To infuse a sense of commitment and courage to act.

Course Code: UHS202

Course Title: NSS for Youth Development

Number of Credits: 0 (L: 2, T: 0, P: 4, C:0)

Course Category: Humanities & Social Science Courses

Objectives:

- # Develop the idea of voluntarism:
- # Acquire leadership qualities and democratic attitude;
- # Develop capacity to meet emergencies and natural disasters
- # Identify the needs and problems of the community and involve them in problem Solving process;

Course Content:

Module	Topics	Lecture	Tutorials	Practical	Credit
I	Introduction to NSS • NSS as an organization (Aims & Objectives, Structure, Functioning & Funding) • Formation and functions of Advisory Committee of the NSS Unit • Needs and Preparation of Annual Activity Plan of NSS Unit • Activities under NSS: Regular Activities and Special Activities including Special Camping Programme • Village / Slum Adoption: Procedure and Guidelines, Maintaining records of the Village / Slum • Collaboration with other Govt. agencies, NGOs & Voluntary Organizations	2	0	0	0
II	NSS & Camps :- Camping in NSS for Youth Leadership: National and Regional Level Camps, Pre RD and RD Camps, Youth Parliaments, International Youth Exchange Programmes, Youth Delegations • Awards in NSS: University Level, State Level and National Level – Procedure and Guidelines	2	0	0	0

III	Health & Hygiene:- Youth Health and Role of NSS •Concept and Importance of Health, Hygiene and Sanitation • Concept and Elements of Healthy Lifestyles – Role of Yoga • Concept of Effect of HIV/AIDS, Drugs and Substance Abuse, Role of NSS in their Eradication •Concept and Need of First Aid, Preparation for First Aid. • Role of NSS in Developing a Healthy Lifestyle	2	0	0	0
IV	Environment & Youth:- Environment Issues and Role of NSS •Introduction to Environment Conservation • Importance of Sustainable Development – SDGs • Concept of Climate Change & Role of NSS Volunteers • Concept of Waste Management & Role of NSS Volunteers •Concept of Natural Resource Management & Role of NSS Volunteers	2	0	0	0
V	Disaster & Hazard Management :- Disaster Management and Role of NSS •Introduction to Hazard & Disaster Management . Classification of Disasters and their Effects •Concept of Disaster Management and Mitigation • Role of NSS in Disaster Management with emphasis on disasters specific to NE India • Importance of Civil Defense Training to NSS Volunteers	2	0	0	0

Total hours :-10Hrs

Text/Reference Books:

1. NSS Manual published by the Ministry of Youth Affairs & Sports, Govt. of India
2. National Youth Policy Document
3. National Service Scheme - A Youth Volunteers Programme For Under Graduate Students as Per UGC Guidelines by J D S Panwar, A K Jain & B K Rathi (Astral)
4. Communication Skills by N Rao & R P Das (HPH)
5. Biodiversity, Environment and Disaster Management by Shamna Hussain (Unique Publishers)
6. Environmental Studies by P K Pandey (Mahaveer Publications)

