SAMRAT ASHOK TECHNOLOGICAL INSTITUTE

(Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

Department of Applied Science

Syllabus For EE,CSE, EI, EC, IT, BC, IoT and AIADS Programs

Subject Category	BSC	Subject Code:	CHB101	Subject Name:	Applied Chemistry

Maximum Marks Allotted						Contact Hours			Total Credits
Theory			Practical		Total Marks				
End Sem	Mid-Sem	Quiz/Assignment	End Sem	Lab-Work		L	T	P	
60	20	20	30	20	150	3	-	2	4

Prerequisites:

Students who have completed 12th with Science stream or Chemistry of 12th standard or equivalent

Course Objective:

The main aim of Engineering Chemistry is to make Students familiar with basic concepts of Chemistry, the students face in industry and engineering field. With this background the Students will be able to explain Scientifically the various chemistry related problems in industry/engineering field.

Course Outcomes:

Student after successful completion of course shall possess skills to think critically and analyse chemistry problems in engineering field. Students are expected to solve the chemistry problems with an engineering purview. Laboratory work is intended for students to learn conducting experiments and analyse experimental data.

CO's	CO's Description
CO1	Differentiate hard & soft water, solve the related numerical on water treatment and have knowledge regarding its Significance in industry and daily life.
CO2	Apply their knowledge regarding various types of fuels including petroleum fuels, Fuels Cells, Electrical Vehicle Batteries
CO3	Acquire basic knowledge of various types of Corrosion, its harmful effects and preventive methods.
CO4	To know basic concept of polymers and its properties.To have knowledge about advanced electroactive polymers and their applications. To know preliminary understanding of Nanomaterials and their applications.
CO5	Analyze the need of instruments. Identify and estimate about the unknown/new compounds with the help of spectroscopy/ chromatography.

UNIT	Descriptions	Hrs	CO's	Remarks
I	**WATER TECHNOLOGY:** Sources, Availability, impurities in Water, Types of hardness, Units of hardness. Concentration expression: Normality, Molarity, Molality. Water analysis techniques – Hardness determination by EDTA method, Alkalinity determination. Defects in boiler due to Hard water. External Treatment (Lime-soda, Zeolite & Ion exchange resin method) & Internal Treatment of Boiler feed water. Numerical Problems.	8	1	
II	**ELECTROCHEMISTRY & ENERGY STORAGE SYSTEMS:** Electrochemistry: Introduction, EMF of cell, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation (E, E_o&E_{cell}). Energy Storage Systems: Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working, and applications of Li-ion batteries. Advantages of Li-ion battery as an electrochemical energy system for electric vehicles. Recycling of Lithium-ion batteries by direct cycling Method. Introduction of Na- ion battery, graphene battery. Recycling, disposal and second use of batteries.	8	2	
III	**CORROSION, METHODS OF PREVENTION OF CORROSION** Introduction, Types of Corrosion, Disadvantages of corrosion, Theories of corrosion, Factors influencing the rate of corrosion. Methods of Prevention of Corrosion, Control of Environment, Alloying, Surface coatings, Metal coatings, Electroplating, Galvanization and Tinning, Inorganic coating, Anodizing, Cathodic Protection, Sacrificial Anode Method etc	8	3	

IV	**ENGINEERING MATERIALS:** Polymers: Nomenclature & classification of polymers. Electrically active polymers, Conducting polymers, **Liquid-crystal polymers (LCP),** Photoactive polymers, Photovoltaic materials: solar cells and dye sensitized solar cells-principle and applications, Conducting Polymers: Methods of synthesis and properties of polyaniline (PANi), polypyrrol (PPy) and polythiophene (PTh); applications of these polymers in advanced technologies. Nanomaterials: Synthesis, characterization and applications of nano materials (Eg. fullerene, graphene, carbon nanotubes and quantum dots) in electronic and nano devices. Introduction to Optical Fibres.	8	4	
V	**INSTRUMENTAL METHODS OF ANALYSIS:** Importance of Instrumental techniques. Classification of Instrumental techniques. Introduction to Electroanalytical and Spectroscopic Methods. Principle, Instrumentation, Working and applications of following techniques: Colorimetry, IR Spectroscopy, Conductometry, pH metry, Chromatography and Gas Chromatography.	8	5	
Guest Lectures (if any)				
Total Hours		40		

Suggestive list of experiments:

LABORATORY EXPERIMENTS:(Any 10 experiments to be performed)

1. To determine strength of unknown Ferrous Ammonium Sulphate $FeSO_4.(NH_4)_2SO_4.6H_2O$ (Mohr's Salt) solution by titrating it against intermediate Potassium Dichromate ($K_2Cr_2O_7$) solution using Di Phenyl Amine(DPA) as internal indicator.[Redox Titration]
2. To determine Temporary, Permanent and Total Hardness in given sample of water by E.D.T.A. method.[Complexometric Titration]
3. To determine strength of Sodium Carbonate and Sodium Bicarbonate in given alkaline solution by titrating with standard HCl using phenolphthalein and Methyl Orange indicators.
   Or
   To determine alkalinity in given water sample using Phenolphthalein and Methyl Orange indicators.[Acid Base Titration]
4. To determine strength of unknown $CuSO_4$ solution by titrating it against intermediate sodium thiosulphate (Hypo) solution using starch as final indicator.[Iodometric Titration]
5. To determine the chloride content of the given sample of water using silver nitrate solution with potassium chromate solution as an indicator.[Precipitation Titration]
6. To separate mixture of pigments by Thin Layer Chromatography [Instrumental Methods].
7. To separate mixture of pigments by Paper Chromatography [Instrumental Methods].
8. To verify Beer Lambert's law of colorimetry [Instrumental Methods].
9. To determine amount of Iron by colorimetry [Instrumental Methods].
10. To estimate amount of Iron by UV spectrophotometer.[Instrumental Methods]
11. To determine pH of given solution using pH meter. [Instrumental Methods]
12. To determine strength of acid/base by conductometric titrations. [Instrumental Methods]
13. To determine Moisture content in given sample of coal.[Proximate Analysis]
14. To determine Ash content in given sample of coal.[Proximate Analysis]
15. To determine the Viscosity Index of give lubricating oil by Redwood Viscometer No.1 and Redwood Viscometer 2.[Lubricating Oil Analysis]
16. To determine the Flash Point and Fire Point of lubricating oil by Abel's Apparatus.[Lubricating Oil Analysis]
17. To determine the Flash Point and Fire Point of lubricating oil by Pensky Martin's Apparatus.[Lubricating Oil Analysis]
18. To determine S.E.N. of given lubricating oil[Lubricating Oil Analysis].

TEXT BOOKS:

- Engineering Chemistry – Jain & Jain – Dhanpat Rai &Company Pvt. Ltd, New Delhi.
- A Text Book of Engineering Chemistry – S.S. Dara – S. Chand Publication, Delhi.
- Engineering Chemistry- Shashi Chawla, Dhanpat Rai &Company Pvt. Ltd, Delhi.
- Engineering Chemistry – Uppal – Khanna Publishers.
- A Text book of Engg. Chemistry- Agarwal, C.V, Murthy C.P, Naidu, BS Publication, Hyderabad.
- B. Sivasankar, Engineering Chemistry 1 st Edition, Mc Graw Hill Education (India), 2008
- O.G. Palanna, McGraw Hill Education (India) Private Limited, 9 th Reprint, 2015

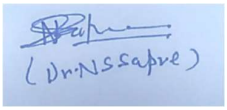
REFERENCE BOOKS:

- Chemistry in Engineering and Technology, Kuriacose J.C. and Rajaram J.,Tata McGraw Hill.
- Applied Chemistry- Theory and Practice, O.P. Viramani, A.K. Narula, New Age International Pvt. Ltd. Publishers, New Delhi.
- Chemistry of Engineering Material-C.V. Agarwal, Andranaidu C. Parameswara Moorthy –B.S. Publications.
- William Kemp, Organic Spectroscopy, 3 rd edition, Palgrave, New York, 2005.

Modes of Evaluation and Rubric
Evaluation will be continuous as an integral part of the class as well through external assessment. Laboratory assessment will be based on assignments, presentations, and viva of each candidate.
List/Links of e-learning resource
• Engineering Chemistry (NPTEL Web-book), by B.L. Tembe, Kamaluddin and M.S. Krishnan • https://nptel.ac.in/course.html • https://iln.ieee.org/resources/e-learning • https://www.researchgate.net/publication/221928462_ELearning_Usage_During_Chemical_Engineering_Courses • https://learncheme.com/ • https://www.anits.edu.in/elearn_c.php

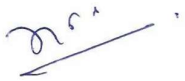
Recommendation by Board of studies on	14.6.2022 (Tuesday)
Approval by Academic council on	16.6.2022 (Thursday)
Subject handled by department	Applied Science (Chemistry)

Dr Manju Singh
Prof & Head, Chemistry
UIT, RGPV, Bhopal



Dr Nitin Sapre
Prof & Head, Chemistry
SGSITS, Indore

Dr J Parashar
Dean, Academics
SATI, Vidisha



Dr Manoj Datar
Prof & Head, Chemistry
SATI, Vidisha

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)

Computer Science and Engineering

Semester/Year			Program		B.Tech.
Subject Category	ESC	Subject Code:	CSA101	Subject Name:	Introduction to Computer Science and Engineering

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
End Sem	Mid-Sem	Assign ment	Quiz	End Sem	Lab-Work	Quiz		L	T	P	
60	20	10	10	30	10	10	150	3	0	2	4

Course Objective:

The objective of this course is to introduce the Computer Science and Engineering and Basic concepts of computers. To understand the component of computer and generation of computer. To familiarize students with the programming and problem-solving concepts using C Programming language. The course will help student to solve the problem using computer programming.

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1: Familiarize the importance of computer science and engineering. Understand the concept of generation of computer and learn about component of computer system.
- CO2: Understand the concept of Problem-solving using C and Implement the flowchart and program for solving Mathematical and Engineering problems.
- CO3: Articulate the Modular Programming Concept and Solve the Engineering Problem using Modular Programming.
- CO4: Articulate the Advance C Programming Concept to Solve the Engineering Problem using Structure, Union and File Management.
- CO5: Describe the various Computer Science disciplines and their applications.

UNITs	Descriptions	Hrs.	CO's
I	**Introduction to Computer Science and Engineering**: Computer: Definition, Classification, Generation, Organization i.e. CPU, register, Bus architecture, Instruction set, Memory & Storage Systems, I/O Devices, and System & Application Software.	6	CO1
II	**Problem Solving using C**: Programming solving using computer concept, flowchart.Rules/ conventions of coding, documentation, naming variables, History of C, Structure of a C Program; Data types, Constant & Variable, naming variables, Operators (arithmetic, logical, bitwise, relational, ternary, Pointers - & and * operators) & expressions, Control Constructs – if-else, for, while, do-while, Case switch statement,Special constructs – Break, continue, exit(), goto& labels,Type conversion & type casting, Priority & associatively of operators; Type modifiers.	10	CO2
III	**Modular Programming:** Arrays; storage classes, Functions; Arguments; Return value; Parameter passing – call by value, call by reference; Return statement; Scope, visibility and life-time rules for various types of variables; Calling a function; Recursion – basics, comparison with iteration, types of recursion- direct, indirect, tree and tail recursion, when to avoid recursion.	9	CO3
IV	**Advance C Programming:** Structure – basic, declaration, membership operator, pointer to structure, referential operator, self-referential structures, structure within structure, array in structure, array of structures. Union – basic, declaration; Pre-processor Directives: C pre-processor – basics, #Include, #define, Enumerated data type; Typedef; File Handling in C- concepts, functions.	8	CO4
V	**Introduction to Computer Science disciplines and their applications**: Networking, Security, Operating System, Data Science, Machine Learning, Cloud Computing, Block chain, web development.	7	CO5
Guest Lectures (if any)		May be arranged as required	
Total Hours		**40**	

List of Experiments

1. Make a Poster on Component of Computer Systems/Generation of Computer System with their working. (CO1)
2. Write a program to determine given number is Armstrong number or not.(CO2)

Dr. Kanak Saxena
Chairperson

3. Write a program to determine the roots of quadratic equation $ax^2+bx+c=0$(CO2)
4. Write a program to calculate the factorial of an integer quantity. (CO2)
5. Write a program to print diamond shape using star. (CO2)
6. Write a Program to find and print the sum of first N Prime Numbers.(CO2)
7. Write a program to convert binary to decimal and decimal to binary.(CO3)
8. Write a Program in C to read two arrays, add them and to print the resultant array. Use read_mat(),add_mat() and print_mat() functions. Array should not be declared as global variables. (CO3)
9. Write a program to read two matrix and apply addition, subtraction, multiplication, transpose operation and display result. (CO3)
10. Write a C Program to calculate area of triangle, rectangle, circle using function. (CO3)
11. Write a program using recursive function to output in reverse the sequence of characters input from the keyboard. The input is terminated by new line. Your output should be on a new line. Write an iterative solution for the same.
12. Write a Program to store data about 10 books. Which contain book title, price and number of copies of the book. After reading the data about books your program should display the data of all the book which cost more than Rs 200. (CO4)
13. Write a program using structure to accept the current time in (Hr:min:sec) , update it by one second and to print it. (CO4)
14. Write a program to count characters, spaces and new lines in a file. The name of the file should be entered through command line. (CO4)
15. Create a Poster on any one latest computer science and engineering disciplines. (CO5)

Text Book-

- Let us C By YashwantKanetkar, BPBPublication
- Programming in C, SchaumOutline,McGraw-Hill

Reference Books-

- Programming in ANSI-C By E. Balagurusami, TMHPublication
- C Programming language By Kernighan, Brian, W, Retchie, Dennis,PHI Publication
- Information Technology: Theory and Practice y PRADEEP K. SINHA (Author), PRITI SINHA (Author)

Modes of Evaluation and Rubric

The evaluation modes consist of performance in Two mid-semester Tests, Quiz/ Assignments, term work, end-semester examinations, and end-semester practical examinations.

List/Links of e-learning resource

List and Links of e-learning resources:

1. https://nptel.ac.in/courses/108/105/108105132/
2. https://de-iitr.vlabs.ac.in/

Recommendation by Board of studies on	June-2022
Approval by Academic council on	June-2022
Compiled and designed by	CS & IT
Subject handled by department	CS & IT

Dr. Kanak Saxena
Chairperson

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)
Department of Humanities and Management

Semester/Year		I/II	Program		B.Tech.
Subject Category	Hum	Subject Code:	HUB102	Subject Name:	**Communication and Report Writing**

Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical -		Total Marks				
End Sem	Mid-Sem	Quiz	Assign ment	End Sem	Lab-Work		L	T	P	
60	20	10	10	-	-	100	3	-	2	4

Prerequisites:

In this era of Globalization and Information Technology, English has a special and predominant role in the communicative sphere and thus English commands the most prestigious position in the world in the exchange of information across geographical boundaries. The syllabus has been designed to develop linguistic and communicative competence of Engineering Students.

Course Objective:

1. To improve the language proficiency of the students in English with emphasis on LSRW Skills.
2. To enable the students to study and comprehend the prescribed lessons and subjects more effectively relating to their theoretical and practical components.
3. To develop the communication skills of the students in both formal and informal situations.

Course Outcomes:

1. Students will develop the ability to listen, speak, read and write effectively in both academic and non-academic environment.
2. The students will have an understanding of multidisciplinary contexts.
3. They will be able to successfully handle real life situations of business correspondence.
4. They will also develop the ability to analyse and interpret any technology related subjects.
5. Students will be in a position to make presentations on topics of technical and general interests; current issues related to politics; work and business environment.

UNITs	Descriptions	Hrs.	CO's
I	Significance of Communication: Process of Communication, The importance of Effective Communication in Business, Verbal and Non-Verbal Communication, Oral and Written Communication, Barriers to Communication.	10	1
II	Employability Traits: Job Interview (Body Language), Types of Interviews, Interview Skills, Employability Skills, Group Discussion.	6	2
III	Soft Skills: Goal Setting, Qualities of a good leader, Time Management, Time Wasters, Problem Solving.	8	3
IV	Report Writing: Definition, Importance, Types of Reports, Structure and Layout, Technical Writing, Essay Writing.	8	4
V	Applied Grammar in Communication: Articles, Punctuations, Question Tags, Subject-Verb, Agreement, Prepositions, Narration.	8	5
Guest Lectures (if any)			
Total Hours		40	

Suggestive list of experiments: NA

1. NA

Text Book-

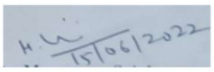
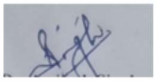
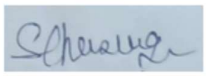
1. A.J. Thomson and A.V. Martinet, A Practical English Grammar, Oxford IBH Pub Sanjay Kumar PushpLata, English for Effective Communication, Oxford.

Reference Books-

- Language and Life: A Skills Approach Board of Editors,Orient Black Swan Publishers,
- India. 2018.
- 3. Business Correspondence and Report Writing - By R C Sharma; TMH.
- 4. Living English Structure – By W.S. Allen; Longmans.
- 5. English Grammar – Ehrlich, Schaum Series; TMH.

• 6. Spoken English for India – By R.K. Bansal and IB Harrison Orient Longman. • 7. New International Business English – by Joans and Alexander; OUP. • 8. Effective Technical Communication – Rizvi; TMH • 9. Body Language – Vinay Mohan Sharma
Modes of Evaluation and Rubric
Two mid semester tests, Quiz, Sessional an end semester examination.
List/Links of e-learning resource
• https://onlinecourses.nptel.ac.in • https://www.classcentral.com (swayam)

Recommendation by Board of studies on	26/02/2022
Approval by Academic council on	
Compiled and designed by	Dr. Amitish Singh, Dr. Manorama Saini and Dr. Veena Datar
Subject handled by department	Department of Humanities


SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)

Computer Science and Engineering

Semester/Year			Program		B.Tech.
Subject Category	ESC	Subject Code:	CSA102	Subject Name:	Digital Electronics

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
End Sem	Mid-Sem	Assignment	Quiz	End Sem	Lab-Work	Quiz		L	T	P	
60	20	10	10	--	--	--	100	3	0	0	3

Prerequisites:

Basics of Physics

Course Objective:

The objective of this course is to provide the fundamental concepts associated with the digital logic and circuit design. To familiarize students with the different number systems, logic gates, minimization of logic circuits and combinational and sequential circuits utilized in the different digital circuits and systems. The course will help student to design and analyze the digital circuits and systems.

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1: Convert different number systems and codes used in digital circuits and systems.
- CO2: Simplify and analyze the digital logic circuits using Boolean algebra and other mapping techniques.
- CO3: Analyse and design different combinational logic circuits using different mapping techniques and mathematical tools.
- CO4: Compare different types of sequential circuits viz. counters in the domain of analysis.

UNITs	Descriptions	Hrs.	CO's
I	**Introduction to Digital Electronics**: Review of number system and conversions; Binary Arithmetic, Signed and Unsigned representation, Binary codes, Gray Code, Code Conversions, Error detection and correction codes - parity check codes and Hamming code.	8	CO1
II	**Boolean Algebra and Switching Functions -** Study of basic logic gates, Basic postulates and fundamental theorems of Boolean algebra; Standard representation of logic functions - SOP and POS forms; Simplification of switching functions - K-map and Quine-McCluskey tabular methods.	8	CO2
III	**Combinational Logic Modules and their applications**: Adders, Subtractors, Code Converters, parity generators and comparators, Encoders & Decoders, BCD to seven-segment decoder, Multiplexers & Demultiplexers and their applications.	9	CO3
IV	**Sequential Circuits and Systems:** Set-Reset latches and flip flops, D-flipflop, R-S flip-flop, J-K Flip-flop, Master slave Flip flop, edge	7	CO4

Dr. Kanak Saxena
Chairperson

	triggered flip-flop, T flip-flops, Shift registers, classification of shift registers.		
V	**Counters classification**: asynchronous counters, synchronous counters, counters design, BCD counter, MOD counters, ripple counter, Introduction to finite state machines.	8	CO4
Guest Lectures (if any)		--	
Total Hours		40	

List of Experiments

Text Books-

- M. Mano, "Digital Logic and Computer Design", Pearson Education.
- T. L. Floyd, “Digital Fundamentals”, Pearson Education.
- A. Anand Kumar, “Fundamentals of Digital Circuits”, PHI.

Modes of Evaluation and Rubric

The evaluation modes consist of performance in Two mid-semester Tests, Quiz/ Assignments, term work, end-semester examinations, and end-semester practical examinations.

List/Links of e-learning resource

List and Links of e-learning resources:

3. https://nptel.ac.in/courses/108/105/108105132/

https://de-iitr.vlabs.ac.in/

Recommendation by Board of studies on	June-2022
Approval by Academic council on	June-2022
Compiled and designed by	CS & IT
Subject handled by department	CS & IT

Dr. Kanak Saxena
Chairperson

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)
Department of Applied Science

Semester/Year		First Sem	Program		B.Tech.
Subject Category	Departmental Core	Subject Code:	MAB101	Subject Name:	Linear Algebra and Calculus

Maximum Marks Allotted							Contact Hours			Total Credits
Theory				Practical		Total Marks				
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work		L	T	P	
60	20	10	10	-	-	100	3	1	-	4

Prerequisites:

Basic of Differentiations, Integrations and Matrices.

Course Objective:

The objective of this course is to familiarize the prospective engineers with techniques in calculus, and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

Course Outcomes:

This course is to develop students abilities to:

1. Apply Differential Calculus to Notions of Curvature. Apart from some other Applications they will have a Basic Understanding of Taylor's Theorem, Maxima and Minima.
2. The Fallouts of Partial Differentiation that is Fundamental to Application of Analysis to Engineering Problems.
3. Finding area and Volume using Double and Triple Integrals.
4. The Essential Tool of Matrices and Linear Algebra in a Comprehensive Manner. Student will understand Matrices and their Application to Solve System of Linear Simultaneous Equations.
5. Students will Gain Experience with Problem Solving in Boolean Algebra and Graph Theory.

UNITs	Descriptions	Hrs.	CO's
I	**Differential Calculus:** Lebnitz Theorem, Expansion of functions by Maclaurins and Taylors theorem (one variable), Maxima & Minima of two variables, Curvature: Radius and Centre of Curvature for Cartesian Coordinates.	8	1
II	**Partial Differentiation:** Partial Derivatives of Higher Order, Homogeneous Functions, Euler's Theorem, Total differentiation, Errors and Approximations.	8	2
III	**Integral Calculus :** Definite Integral as a Limit of the Sum, Application in Summation of Series, Multiple Integrals, Change of order of Integration, Application of Double and Triple Integrals (Area & Volume).	8	3
IV	**Matrix :** Definition, Types & Properties of Matrices, Elementary Transformation, Rank of Matrix, Consistency of Linear System of Equations and their solutions, Eigen Values and Eigen Vectors, Cayley Hamilton Theorem and its Application to find the Inverse.	8	4

V	**Boolean Algebra & Graph Theory:** Algebra of logic, Principal of Duality and basic theorem, Boolean expression and Boolean functions, Definition of Graph, Types of Graphs, Sub Graphs, Walk, Path and Circuits,.	8	5
TOTAL HOURS		40	

Reference Books:

1. Engg. Mathematics: By B.S. Grewal
2. Boolean Algebra: R.S. Agrawal
3. Engg. Mathematics: by H.K. Dass
4. Engg. Mathematics : By B. V. Rammanna

Recommendation by Board of studies on	14-06-2022
Approval by Academic council on	16-06-2022
Compiled and designed by	Applied Maths Board of Studies, Chairman Dr. Shailesh Jaloree

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)
Department of Humanities and Management

Semester/Year	II Year	Program	B. Tech All Branches
Subject Category: MAC	Subject Code: MAC101	Subject Name:	**Universal Human Values**

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work	Quiz		L	T	P	
00	00	00	00	60	20	20	100	-	-	2	Grade

Prerequisites:

During the Induction Program, students would get an initial exposure to human values through Universal Human Values – I. This exposure is to be augmented by this compulsory full semester foundation course.

Course Objective:

At the end of the course, the students will be able to:

1. Develop a holistic perspective based on exploration about others and themselves.
2. Develop clarity, importance of harmony and humanity towards family, society and nature/existence.
3. Strengthen self-reflection.
4. Develop commitment and courage to act.

Course Outcomes:

1. By the end of the course, students will become aware of themselves, and their surroundings (family, society, nature)
2. They would have better critical ability.
3. They would become more responsible in life; and keeping human relationships and human nature in mind will be able to handle problems with sustainable solutions.
4. They would also become sensitive to their commitment towards nature and existence.
5. They would be able to apply what they have learnt to their own selves in different day-to-day real-life scenarios, at least a beginning would be made in this direction.

UNITs	Descriptions	Hrs.	CO's
I	Introduction - Need, Basic Guidelines, Content and Process for Value Education 1. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration 2. Continuous Happiness and Prosperity- A look at basic Human Aspirations 3. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority 4. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario	8	1

	5. Method to fulfil the above human aspirations: understanding and living in harmony at various levels. Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility.		
II	Understanding Harmony in the Human Being - Harmony in Myself! 1. Understanding human being as a co-existence of the sentient 'I' and the material 'Body' 2. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility 3. Understanding the characteristics and activities of 'I' and harmony in 'I' 4. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail 5. To ensure Sanyam and Health. Include practice sessions to discuss the role others have played in making material goods. Identifying from one's own life. Differentiate between prosperity and accumulation.	6	2
III	Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship 1. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness. 2. Understanding the meaning of Trust; Difference between intention and competence. 3.Understanding the meaning of Respect, Difference between Respect and differentiation; the other salient values in relationship. 4.Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals. 5. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family. Gratitude as a universal value in relationships. Elicit examples from students' lives.	4	3
IV	Understanding Harmony in the Nature and Existence - Whole existence as Coexistence 1. Understanding the harmony in the Nature. 2. Interconnectedness and mutual fulfilment among the four orders of nature recyclability and self-regulation in nature. 3. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space. 4. Holistic perception of harmony at all levels of existence. 5. Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.	8	4
V	Implications of the above Holistic Understanding of Harmony on Professional Ethics 1. Natural acceptance of human values. 2. Definitiveness of Ethical Human Conduct. 3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 4. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, c. Ability to identify and develop	9	5