



# SAMRAT ASHOK TECHNOLOGICAL INSTITUTE

(Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

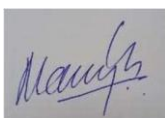
## Department of Applied Science

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

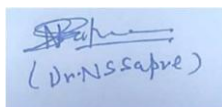
Subject Category	BSC	Subject Code:	CHB101	Subject Name:	Applied Chemistry				
Maximum Marks Allotted						Contact Hours			Total Credits
Theory			Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz/Assignment	End Sem	Lab-Work					
60	20	20	30	20	150	3	-	2	4
<b>Prerequisites:</b>									
Students who have completed 12th with Science stream or Chemistry of 12th standard or equivalent									
<b>Course Objective:</b>									
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.									
<b>Course Outcomes:</b>									
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.									
<b>CO's</b>	<b>CO's Description</b>								
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	<b>WATER TECHNOLOGY:</b> 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	<b>ELECTROCHEMISTRY &amp; ENERGY STORAGE SYSTEMS:</b> 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	<b>CORROSION, METHODS OF PREVENTION OF CORROSION</b> 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	<p><b>ENGINEERING MATERIALS:</b>  Polymers: Nomenclature &amp; classification of polymers. Electrically active polymers, Conducting polymers, <b>Liquid-crystal polymers (LCP)</b>, 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.</p>	8	4	
V	<p><b>INSTRUMENTAL METHODS OF ANALYSIS:</b>  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.</p>	8	5	
Guest Lectures (if any)				
<b>Total Hours</b>		40		
Suggestive list of experiments:				
<b>LABORATORY EXPERIMENTS:(Any 10 experiments to be performed)</b>				
<ol style="list-style-type: none"> <li>To determine strength of unknown Ferrous Ammonium Sulphate <math>\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}</math> (Mohr's Salt) solution by titrating it against intermediate Potassium Dichromate (<math>\text{K}_2\text{Cr}_2\text{O}_7</math>) solution using Di Phenyl Amine(DPA) as internal indicator.[Redox Titration]</li> <li>To determine Temporary, Permanent and Total Hardness in given sample of water by E.D.T.A. method.[Complexometric Titration]</li> <li>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]</li> <li>To determine strength of unknown <math>\text{CuSO}_4</math> solution by titrating it against intermediate sodium thiosulphate (Hypo) solution using starch as final indicator.[Iodometric Titration]</li> <li>To determine the chloride content of the given sample of water using silver nitrate solution with potassium chromate solution as an indicator.[Precipitation Titration]</li> <li>To separate mixture of pigments by Thin Layer Chromatography [Instrumental Methods].</li> <li>To separate mixture of pigments by Paper Chromatography [Instrumental Methods].</li> <li>To verify Beer Lambert's law of colorimetry [Instrumental Methods].</li> <li>To determine amount of Iron by colorimetry [Instrumental Methods].</li> <li>To estimate amount of Iron by UV spectrophotometer.[Instrumental Methods]</li> <li>To determine pH of given solution using pH meter. [Instrumental Methods]</li> <li>To determine strength of acid/base by conductometric titrations. [Instrumental Methods]</li> <li>To determine Moisture content in given sample of coal.[Proximate Analysis]</li> <li>To determine Ash content in given sample of coal.[Proximate Analysis]</li> <li>To determine the Viscosity Index of give lubricating oil by Redwood Viscometer No.1 and Redwood Viscometer 2.[Lubricating Oil Analysis]</li> <li>To determine the Flash Point and Fire Point of lubricating oil by Abel's Apparatus.[Lubricating Oil Analysis]</li> <li>To determine the Flash Point and Fire Point of lubricating oil by Pensky Martin's Apparatus.[Lubricating Oil Analysis]</li> <li>To determine S.E.N. of given lubricating oil[Lubricating Oil Analysis].</li> </ol>				
<b>TEXT BOOKS:</b>				
<ul style="list-style-type: none"> <li>Engineering Chemistry - Jain &amp; Jain - Dhanpat Rai &amp;Company Pvt. Ltd, New Delhi.</li> <li>A Text Book of Engineering Chemistry - S.S. Dara - S. Chand Publication, Delhi.</li> <li>Engineering Chemistry- Shashi Chawla, Dhanpat Rai &amp;Company Pvt. Ltd, Delhi.</li> <li>Engineering Chemistry - Uppal - Khanna Publishers.</li> <li>A Text book of Engg. Chemistry- Agarwal, C.V, Murthy C.P, Naidu, BS Publication, Hyderabad.</li> <li>B. Sivasankar, Engineering Chemistry 1 st Edition, Mc Graw Hill Education (India), 2008</li> <li>O.G. Palanna, McGraw Hill Education (India) Private Limited, 9 th Reprint, 2015</li> </ul>				
<b>REFERENCE BOOKS:</b>				

<ul style="list-style-type: none"> <li>• Chemistry in Engineering and Technology, Kuriacose J.C. and Rajaram J., Tata McGraw Hill.</li> <li>• Applied Chemistry- Theory and Practice, O.P. Viramani, A.K. Narula, New Age International Pvt. Ltd. Publishers, New Delhi.</li> <li>• Chemistry of Engineering Material-C.V. Agarwal, Andranaidu C. Parameswara Moorthy -B.S. Publications.</li> <li>• William Kemp, Organic Spectroscopy, 3 rd edition, Palgrave, New York, 2005.</li> </ul>	
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	
<ul style="list-style-type: none"> <li>• Engineering Chemistry (NPTEL Web-book), by B.L. Tembe, Kamaluddin and M.S. Krishnan</li> <li>• <a href="https://nptel.ac.in/course.html">https://nptel.ac.in/course.html</a></li> <li>• <a href="https://ln.ieee.org/resources/e-learning">https://ln.ieee.org/resources/e-learning</a></li> <li>• <a href="https://www.researchgate.net/publication/221928462_ELearning_Usage_During_Chemical_Engineering_Courses">https://www.researchgate.net/publication/221928462_ELearning_Usage_During_Chemical_Engineering_Courses</a></li> <li>• <a href="https://learncheme.com/">https://learncheme.com/</a></li> <li>• <a href="https://www.anits.edu.in/elearn_c.php">https://www.anits.edu.in/elearn_c.php</a></li> </ul>	
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 Prof & Head, Chemistry  
SATI, Vidisha



Dr Manoj Datar  
Dean, Academics Prof & Head, Chemistry  
SATI, Vidisha



# SAMRAT ASHOK TECHNOLOGICAL INSTITUTE (Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

## Department of Electronics Engineering

### Syllabus applicable to July 2022 admitted and later batches

Name of the course:				B. Tech in Electronics & Communication Engineering									
Semester and Year of study				B. Tech 1 <sup>st</sup> Year 2 <sup>nd</sup> Semester									
Subject Category				Engineering Science Course (ESC)									
Subject Code: ECA103				Subject Name: Digital Electronics									
Maximum Marks Allotted										Contact Hours			Total Credits
Theory				Practical			Total Marks	L	T	P			
End Sem	Mid-Sem	Assignment	Quiz	End Sem	Lab-Work	Quiz							
60	20	10	10	30	10	10	150	3	0	2	4		
<b>Prerequisites:</b>													
Applied Physics, Basic Electronics													
<b>Course Objective:</b>													
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.													
<b>Course Outcomes:</b>													
Upon completion of this course, the student will be able to:													
<ul style="list-style-type: none"> <li>• CO1: Convert different number systems and codes used in digital circuits and systems.</li> <li>• CO2: Simplify and analyze the digital logic circuits using Boolean algebra and other mapping techniques.</li> <li>• CO3: Analyze and design different combinational and sequential logic circuits using different mapping techniques and mathematical tools.</li> <li>• CO4: Compare different types of logic families in the domain of performance, efficiency and economy.</li> </ul>													
UNITS	Descriptions							Hrs.	CO's				
I	<b>Introduction to Digital Electronics:</b> 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.							10	CO1				
II	<b>Boolean Algebra and Switching Functions</b> - 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	<b>Combinational Logic Modules and their applications:</b> Adders, Subtractors, Code Converters, parity generators and comparators, Encoders & Decoders, BCD to seven-segment decoder, Multiplexers & Demultiplexers and their applications.							9	CO3				
IV	<b>Sequential Circuits and Systems:</b> Set-Reset latches and flip flops, D-flipflop, R-S flip-flop, J-K Flip-flop, Master slave Flip flop, edge triggered flip-flop, T flip-flops, Shift registers, classification of shift registers, Counters, classification: asynchronous counters, synchronous counters, counters design using flip flops, Introduction to finite state machines.							10	CO3				
V	<b>Logic families:</b> IC specification terminology, Operational characteristics of BJT in saturation and cut-off regions, Operational characteristics of MOSFET as switch; Introduction to different logic							08	CO4				

	families; TTL, CMOS, ECL, IIL etc., Structure and operations of TTL and CMOS gates, comparison of performance characteristics of various logic families.		
Guest Lectures (if any)		May be arranged as required	
<b>Total Hours</b>		45	
<b>Suggestive list of experiments:</b>			
<ol style="list-style-type: none"> <li>1. Study of different digital IC's in term of their technical specification. (Pin diagram application etc.) Testing of IC's by using IC tester. (CO4)</li> <li>2. Study of different digital logic gates and verifications of their truth table. (CO2)</li> <li>3. To design the basic logic gates using universal gates and verify their truth table. (CO2)</li> <li>4. To design 4-bit two input adder using 7483 IC and verify truth table. (CO3)</li> <li>5. To convert the Binary code to Gray code using 7486 IC. (CO1, CO3)</li> <li>6. To study and verify the De Morgan's Theorem. (CO2)</li> <li>7. To design the half adder using Universal gate. (CO3)</li> <li>8. To Design the full adder using Universal gate. (CO3)</li> <li>9. Verification of state tables of RS, and JK flip-flops using NAND &amp; NOR gates. (CO3)</li> <li>10. Verification of state tables of T and D flip-flops using NAND &amp; NOR gates. (CO3)</li> </ol>			
Text Book-			
<ul style="list-style-type: none"> <li>• M. Mano, "Digital Logic and Computer Design", Pearson Education.</li> <li>• T. L. Floyd, "Digital Fundamentals", Pearson Education.</li> <li>• A. Anand Kumar, "Fundamentals of Digital Circuits", PHI.</li> </ul>			
Reference Books-			
<ul style="list-style-type: none"> <li>• R.J. Tocci, "Digital Systems Principles &amp; Applications".</li> <li>• W.H. Gothman, "Digital Electronics" (PHI).</li> </ul>			
List and Links of e-learning resources:			
<ol style="list-style-type: none"> <li>1. <a href="https://nptel.ac.in/courses/108/105/108105132/">https://nptel.ac.in/courses/108/105/108105132/</a></li> <li>2. <a href="https://de-iitr.vlabs.ac.in/">https://de-iitr.vlabs.ac.in/</a></li> </ol>			
<b>Modes of Evaluation and Rubric</b>			
The evaluation modes consist of performance in Two mid-semester Tests, Quiz/ Assignments, lab work, end-semester examinations, and end-semester practical examinations.			
Recommendation by Board of studies on		15.06.2022	
Approval by Academic council on			
Compiled and designed by			

A horizontal strip containing several handwritten signatures and initials in blue ink. From left to right, the signatures appear to be: 'Dyala', 'H. Hingol', 'S. S. S.', 'A. Anand Kumar', 'S. S.', 'T. S.', 'Anand Kumar', and 'Dyala (HOD)'.



**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:	ITC101	Subject Name:	Python Programming								
Maximum Marks Allotted										Contact Hours		Total Credits	
Theory				Practical			Total Marks			L	T		P
End Sem	Mid-Sem	Assignment	Quiz	End Sem	Lab-Work	Quiz							
60	20	10	10	30	10	10	150	3	0	2	4		
<b>Prerequisites:</b>													
<ul style="list-style-type: none"> <li>• High School Level Mathematics</li> <li>• Elementary Knowledge of Computer</li> </ul>													
<b>Course Objective:</b>													
This course introduces core programming basics—including data types, control structures, algorithm development, and program design with functions via the Python programming language. The course discusses the fundamental principles of Object-Oriented Programming.													
<b>Course Outcomes:</b>													
Upon completion of this course, the student will be able to:													
CO-1: Ability to install python and its different packages.													
CO-2: Implement solution logic of problem and draw it in the form of algorithm.													
CO-3: Design and write a python program for given algorithm.													
CO-4: Understand and apply the list logics to problem solution.													
CO-5: Understand Object Oriented with reference to python programming.													
<b>UNITS</b>	<b>Descriptions</b>							<b>Hrs.</b>	<b>CO's</b>				
I	Introduction to computer science, algorithms, data representation in computers, hardware, software and operating system. Installation of python- interactive shell, IDLE, saving, editing, and running a script. The concepts of datatypes: variables, immutable variables, numerical types, operators, expressions, Indentation and comments in the program.							8	CO1				
II	Conditional Statements- Conditions, Boolean Logic, Logical operators and Ranges. Control Statements- Break, Continue and Pass. Flow Control-if, if-else, nested if-else, Loop statements- for loop, while loop, Nested loops.							8	CO2				
III	String: subscript operator, indexing, slicing a string; strings and number system: converting strings to numbers and vice versa. Strings and text files, manipulating files and directories, os and sys modules, text files: reading/writing text and numbers from/to a file, creating and reading a formatted file (csv or tab-separated).							9	CO3				
IV	Lists, tuples, and dictionaries. Basic list operators, replacing, inserting, removing an element, searching and sorting lists, dictionary literals, adding and removing keys, accessing and replacing values, traversing dictionaries.							7	CO4				
V	Classes and OOP: Classes, objects, attributes and methods, defining classes, design with classes, Inheritance, Overloading, Overriding, and Data hiding. Exception: Exception Handling, except clause, Try finally clause, User Defined Exceptions.							8	CO5				
Guest Lectures (if any)								--					
<b>Total Hours</b>								40					
<b>List of Experiments</b>													
<ol style="list-style-type: none"> <li>1. Write a program in python to check a number whether it is prime or not.</li> <li>2. Write a program to check a number whether it is palindrome or not.</li> <li>3. Write a function to swap the values of two variables through a function.</li> </ol>													

Dr. Kanak Saxena  
 Chairperson

4. Write a python program to Read a file line by line and print it.
5. Write a program to display the number of lines in the file and size of a file in bytes.
6. Write a program to calculate the factorial of an integer using recursion.
7. Write a program to print Fibonacci series using recursion.
8. Write a program for binary search.
9. Python Program for Sum of squares of first n natural numbers.
10. Python Program to find sum of array.
11. Python program to read character by character from a file.
12. Python Program to print with your own font.
13. Python program to print even length words in a string.
14. Python program to check if a string is palindrome or not.
15. Program to print ASCII Value of a character.
16. Python program to find smallest and largest number in a list.
17. Python program to find the size of a Tuple.

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:

4. <https://nptel.ac.in/courses/108/105/108105132/>
5. <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

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*Dr. Kanak Saxena*  
 Dr. Kanak Saxena  
 Chairperson



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

Semester/Year		III/IV		Program			B.Tech.				
Subject Category	Hum	Subject Code:	HUB 101	Subject Name:		Language and Writing Skills					
Maximum Marks Allotted							Contact Hours			Total Credits	
Theory				Practical		Total Marks					
End-Sem	Mid-Sem	Quiz	Assignment	-	-		L	T	P		
60	20	10	10	-	-	100	3	-	-	3	
<b>Prerequisites:</b>											
English language is the most commonly used communicative medium in the corporate sector. The students of engineering need to have a good command over English to express themselves effectively and efficiently. To speak confidently you need to practise.											
<b>Course Objective:</b>											
<ol style="list-style-type: none"> <li>1. The students will learn to express themselves and their thoughts in English in a professional way.</li> <li>2. The students will get to learn the principles of English grammar.</li> <li>3. The students will have a better and enriched use of English vocabulary.</li> <li>4. The students will have a better and skilled approach to understanding and writing.</li> <li>5. The students will learn professional business correspondence.</li> </ol>											
<b>Course Outcomes:</b>											
After completion of the course student will be able to											
CO1	The students will develop the ability to communicate effectively.										
CO2	The students will have an extended way of expressing themselves.										
CO3	They will develop the ability and confidence to face real life situations/interviews.										
CO4	Students will be in a position to understand the basic concepts of the language enabling them to speak and write correctly.										
CO5	They will be able to successfully handle real life situations of business correspondence.										
UNITs		Descriptions						Hr s.	CO's		
I		Language Skills: LSRW, Conversational Skills, Role Plays, Debate, JAM, introducing yourself.						10	1		
II		Common Errors in Writing: Parts of Speech, Tenses, Voice, Sentence Structure, Punctuation.						6	2		
III		Vocabulary Development: Using Dictionaries and Thesaurus, Synonyms, Antonyms, Homonyms, Derivation from root words, Jargon/Scientific Jargon.						8	3		
IV		Writing Skills: Paragraph writing, Précis Writing, Note-making, Note-taking, Methods of Preparing Notes, Reading Process, Benefits of effective reading, Active and Passive Reading.						8	4		



V	Business Writing: Types of letters, Structure and Layout; E-mail Writing, Resume and cover letter, Memo, Notices, Circulars, Agenda and Minutes of meeting.	8	5
Guest Lectures (if any)			
<b>Total Hours</b>		40	
Text Book-			
<ol style="list-style-type: none"> <li>1. Business Correspondence and Report Writing - By R.C. Sharma; TMH.</li> <li>2. Living English Structure - By W.S. Allen; Longmans.</li> <li>3. English Grammar - Ehrlich, Schaum Series; TMH.</li> <li>4. English for Effective Communication, Oxford.</li> </ol>			
Reference Books-			
<ul style="list-style-type: none"> <li>• Cambridge English Pronouncing Dictionary, Cambridge University Press, India, 2012 Rs360/-</li> <li>• A Practical English Grammar</li> <li>• Oxford IBH Pub Sanjay Kumar PushpLata</li> <li>• Spoken English for India - By R.K. Bansal and IB Harrison Orient Longman.</li> </ul>			
Modes of Evaluation and Rubric			
Two mid semester tests, Quiz, Sessional and an end semester examination.			
List/Links of e-learning resource			
<ul style="list-style-type: none"> <li>• <a href="https://onlinecourses.nptel.ac.in">https://onlinecourses.nptel.ac.in</a></li> <li>• <a href="https://www.classcentral.com/swayam">https://www.classcentral.com(swayam)</a></li> </ul>			
Recommendation by Board of studies on		19/12/2022	
Approval by Academic council on			
Compiled and designed by		Dr. Amitosh Singh	
Subject handled by department		Department of Humanities	



# SAMRAT ASHOK TECHNOLOGICAL INSTITUTE (Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

## Department of Electronics Engineering Syllabus applicable to July 2022 admitted and later batches

Name of the course:	B. Tech in Electronics & Communication Engineering
Semester and Year of study	B. Tech 1 <sup>st</sup> Year 2 <sup>nd</sup> Semester
Subject Category	Engineering Science Course (ESC)
Subject Code: ECL110	Subject Name: Electronics Workshop

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks	L	T	P	
End Sem	Mid-Sem	Assignment	Quiz	End Sem	Lab-Work	Quiz					
-	-	-	-	30	10	10	50	1	0	2	2

### Prerequisites:

Applied Physics, Basic Electronics

### Course Objective:

The aim of the course content is to develop different types of skills leading to the achievement of the following competency:

- Test various electrical and electronics components, and measure circuit parameters.
- Able to identify various Resistors, capacitors, inductors and transformers etc.. Use of instruments such as analog & digital multimeter, CRO and Function generator, etc.
- Interpret data sheet of various electronics components, different ICs and their schematic/ pin diagram.
- Use of Bread board, PCB design software and assembly of electronics components.

### Course Outcomes:

After completion of the course the students will be able to:

- Identify electronics components' schematic symbols and interpret its parameters using data sheets. Perform their testing using lab instruments.
- Design prototype circuit on a bread board or simulator and use it to assemble and test it.
- Describe PCB design technique and assemble the electronic circuits.
- Locate the fault and troubleshoot the circuit board.
- Design and complete a mini-project.

### Suggestive list of experiments:

- Identification, Study and Testing of various electronic components:  
(a) Resistances-Variety types, Color coding (b) Capacitors-Variety types, Color coding, (c) Inductors (d) Diodes (e) Transistors (f) SCRs (g) ICs (h) Photo diode (i) Photo transistor (j) LED (k) LDR (l) Potentiometers (m) PID diagram, etc. (CO1)
- Study of symbols for various Electrical & Electronic Components, Devices, etc. (CO1)
- Assembling and Testing of Various Circuits such as diode clipping and clamping circuits on Bread board / Circuit Simulators. (CO2)
- (a) Study of soldering components, solders, tools, heat sink. (CO3)  
(b) Soldering and de-soldering practice.
- (a) Design and fabrication of PCB for a given circuit. (CO3)  
(b) Assemble the given circuit on PCB and test it. (CO3)
- Study of electronic test and measuring equipment: Multimeter, Oscilloscope, Function Generator and Regulated Power Supply. (CO1)
- Study PCB designing software and generate the routing layout. (CO2, CO3)
- Perform the troubleshooting of circuit and understand safety aspects. (CO4)
- Study of component data sheet and its interpretation (CO1)
- Design and assembly of a mini project. (CO5)

### Text Books-

- Troubleshooting Electronic Equipment by R. S. Khandpur, MHE, India

2. Testing of Electronic Components, Sarkar and Fernandes, Shroff Publishers 3. Basic Electronic Components, V.K. Barbudhe, Notion Press	
Reference Books- 1. Beginner's Guide to consumer electronics repair, K. Douglas, iUniverse publishers 2. A guide to Electronic Maintenance and Repair, A. M. Yousufu and Y. Ali S., Author House Publishers. 3. How to Diagnose and Fix Everything Electronic, M. J Geier, MGH	
List and Links of e-learning resources: 1. <a href="https://www.circuitlab.com/">https://www.circuitlab.com/</a> 2. <a href="https://www.partsim.com/simulator">https://www.partsim.com/simulator</a> 3. <a href="https://www.tinkercad.com/learn/circuits">https://www.tinkercad.com/learn/circuits</a> 4. <a href="https://circuitmaker.com/">https://circuitmaker.com/</a> 5. <a href="https://www.datasheets.com/">https://www.datasheets.com/</a>	
<b>Modes of Evaluation and Rubric</b>	
The evaluation modes consist of performance in lab work and end-semester practical examinations.	
Recommendation by Board of studies on	15.06.2022
Approval by Academic council on	
Compiled and designed by	

A horizontal strip containing several handwritten signatures and initials in blue ink. From left to right, the signatures are: 'D. Saha', 'H. K. Saha', 'S. K. Saha', 'A. K. Saha', 'S. K. Saha', 'S. K. Saha', 'S. K. Saha', and 'S. K. Saha'.



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:	MAC102	Subject Name:		<b>Professional Ethics and Social Responsibility</b>					
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks	Contact Hours			
End Sem	Mid-Sem	Quiz	Assignment	End Sem	Lab-Work	Quiz		L	T	P	
00	00	00	00	30	10	10	50	0	0	2	Grade
<b>Prerequisites:</b>											
To enable the students to instill moral, to create an awareness of professional ethics, human values, loyalty and social responsibility.											
<b>Course Objective:</b>											
At the end of the course, the students will be able to:											
<ol style="list-style-type: none"> <li>1. To learn the importance of values and ethics in personal life and professional careers.</li> <li>2. To gain knowledge of ethical behavior.</li> <li>3. To acquire the basics of social responsibility.</li> </ol>											
<b>Course Outcomes:</b>											
<ol style="list-style-type: none"> <li>1. To imbibe and internalize the basic purpose of human values.</li> <li>2. To appreciate professional rules and codes of conduct in personal life and professional careers.</li> <li>3. To know the importance of values and ethics in professional behavior.</li> <li>4. To impart norms of professional ethics in life through <b>rationality, consistency and impartiality</b>.</li> <li>5. To inculcate the sense of social responsibility.</li> </ol>											
UNITs	Descriptions							Hrs.	CO's		
I	Principles of professional ethics: honesty, trustworthiness, loyalty, being law-abiding, no sinister motives, socially responsible, respect, accountability and fairness to all							8	1		
II	Codes of conduct: public, clients, professional community, profession, workplace rights and responsibilities, other stakeholders.							6	2		
III	Factors necessitating professional ethics: advisory responsibilities, contractual duties; The importance of ethical behavior in business.							4	3		
IV	Personal ethics: impartiality, rationality, consistency and reversibility Norms of professional ethics in our life.							8	4		
V	Corporate social responsibility: environmental, philanthropic, ethical,							9	5		

	and economic responsibility.		
Guest Lectures (if any)		2	
<b>Total Hours</b>		40	
Suggestive list of experiments:			
1. N.A			
1. Text Book- Professional ethics includes Human values, R. Subramanian, Oxford higher education.			
Reference Books-			
2. Professional Ethics and Social Responsibility, Daniel E. Wueste, Rowman and Littlefield Publication, INC			
3. Professional ethics and human values, R. S. Naagarazan, New age international (P) limited ,New Delhi,2006.			
4. Human values and professional ethics,Jayshree Suresh, B. S. Raghvan,S. Chand			
5. <a href="http://www.slideword.org/slidestag.aspx/human-values-and-Professional-ethics">http://www.slideword.org/slidestag.aspx/human-values-and-Professional-ethics</a> .			
Modes of Evaluation and Rubric			
Questionnaire,Quiz,Presentation and standard procedure will be followed .			
List/Links of e-learning resource			
<ul style="list-style-type: none"> <li>• <a href="https://onlinecourses.nptel.ac.in">https://onlinecourses.nptel.ac.in</a></li> <li>• <a href="https://www.classcentral.com">https://www.classcentral.com</a> (swayam)</li> </ul>			
Recommendation by Board of studies on	26/02/2022		
Approval by Academic council on			
Compiled and designed by	Dr. Manorama Saini and Dr. VeenaDatar		
Subject handled by department	Humanities and Management		

H.V.  
15/06/2022

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