

Walchand College of Engineering
 (Government Aided Autonomous Institute)

Credit System for F.Y. B.Tech. (Information Technology) Sem-II AY 2023-24

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	MSE/LA1	ISE/LA2	ESE
Professional Core (Theory)												
01	BS	7MA104	Engineering Mathematics - II	3	1	0	0	4	4	30	20	50
02	BS	7PH103	Engineering Physics	3	0	0	0	3	3	30	20	50
03	ES	7AM102	Engineering Mechanics	2	0	0	0	2	2	30	20	50
04	ES	7CM106	Civil & Mechanical Engineering	3	0	0	0	3	3	30	20	50
05	PC	7IT102	Web Technology	3	0	0	0	3	3	30	20	50
Professional Core (Lab)												
06	BS	7PH155	Engineering Physics Lab	0	0	2	0	2	1	30	30	40
07	HS	7HS101	Communication & Generic Skills	0	0	2	1	3	2	30	30	40
08	ES	7AM155	Engineering Mechanics Lab	0	0	2	0	2	1	30	30	40
09	ES	7CV156	Civil & Mechanical Engineering Lab	0	0	2	0	2	1	30	30	40
10	PC	7IT152	Web Technology Lab	0	0	2	0	2	1	30	30	40
11	VS	7VS151	Engineering Skills - I	0	0	2	0	2	1	30	30	40
			Total	14	1	12	1	28	22			

Notes:

For Theory courses: There shall be MSE, ISE and ESE. Theory-ESE is a separate head of passing.

For Lab courses: There shall be continuous assessment (LA1, LA2, ESE). Lab-ESE is a separate head of passing.

For Lab Courses, (LA1+LA2) should be $\geq 40\%$ to appear for Lab ESE.

For further details, refer to Academic and Examination rules and regulations.

Sheth
Prof. B.S.Shetty
DAC/Secretary, BoS


Dr. R. R .Rathod
 Head, Information Technology Dept./
 Chairman, BoS

S.P.Sonavane
Dr. Mrs. S. P. Sonavane
 Dean Academics
Walchand College of Engg.
Vishrambag, Sangli - 416 415

Page No. ____ / ____
 Date: 21/08/2023

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-24

Course Information

Programme	B.Tech. (CSE/I.T.)
Class, Semester	First Year B. Tech., Sem II
Course Code	7MA104
Course Name	Engineering Mathematics- II(CS/IT)
Desired Requisites:	Mathematics course at Higher Secondary Junior College

Teaching Scheme		Examination Scheme (Marks)			
Lecture	3 Hrs/week	MSE	ISE	ESE	Total
Tutorial	1 Hrs/week	30	20	50	100
Credits: 04					

Course Objectives

1	Familiarize the students with techniques in multivariate integration and Differential equation.
2	Awareness about Mathematics fundamental necessary to solve and analyse the Engineering problem
3	
4	

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO1	Understand the Mathematical tools that are needed to solve optimization problem.	Understanding
CO2	Apply computational tools to solve mathematical problems.	Applying
CO3	Solve the problems in multivariable calculus,	Applying
CO4		
CO5		

Module	Module Contents	Hours
I	Beta-Gamma Functions: Definition of Beta, Gamma functions and properties of Beta Gamma functions	6
II	Curve tracing Tracing of curves for Cartesian and polar coordinate	5
III	Multivariable Calculus: Multiple Integrals: Double integrals, change of order of integration, change of variables (Cartesian to polar) Evaluation of triple integrals, Application of Multiple integrals such as Area enclosed by plane curves, Mass of lamina, Volume of solid.	8

Vivek

Pachot

IV	Linear Differential equations of nth order with constant coefficient: Linear Differential equation with constant coefficient, Complementary function, Particular Integral, Homogeneous Linear Differential equation	7
V	Transportation Problem: North West Corner method, The row minima method, Matrix minima method, Vogel's approximation method.	7
VI	Assignment Problem: Hungarian Method, Unbalanced assignment problem, maximisation problem	6

Textbooks

1	P. N. and J. N. Wartikar, "A Text Book of Applied Mathematics", Vol I and II", Vidyarthi Griha Prakashan, Pune, 2006
2	B. S. Grewal , "Higher Engineering Mathematics", Khanna Publication, 44th Edition , 2017.
3	S.C. Gupta, "Fundamentals of Mathematical Statistics and probability", Sultan chand & Sons,2014.
4	S.D. Sharma "Operation Research" KEDAR NATH RAM NATH Publication,18 th Edition,2017

References

1	Erwin Kreyszig, "Advanced Engineering Mathematics", Wiley Eastern Limited Publication, 2015, 10 th Edition
2	Wylie C.R, "Advanced Engineering Mathematics ", Tata McGraw Hill Publication, 8th Edition, 1999
3	H. K. Dass , "Higher Engineering Mathematics ", S. Chand & Company Ltd., 1 st Edition 2014.
4	S. S. Sastry, "Engineering Mathematics (Volume-I)", Prentice Hall Publication, 3rd Edition 2006

Useful Links

1	https://www.youtube.com/watch?v=KgItZSst2sU
2	https://nptel.ac.in/courses/111105121
3	
4	

CO-PO Mapping

	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2			1										
CO2	2			1										
CO3	2			1										
CO4														

The strength of mapping is to be written as 1: Low, 2: Medium, 3: High

Each CO of the course must map to at least one PO.

Assessment

The assessment is based on MSE, ISE and ESE.

MSE shall be typically on modules 1 to 3.

ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO.

ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.

For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)

Banerjee

Pichot

Walchand College of Engineering, Sangli
(Government Aided Autonomous Institute)

AY 2023-24

Course Information

Programme	B.Tech. (CS / IT)
Class, Semester	First Year B.Tech., Sem I / II
Course Code	7PH103
Course Name	Engineering Physics (CS / IT)
Desired Requisites:	Students are expected to know the basic concept in Physics.

Teaching Scheme		Examination Scheme (Marks)			
Lecture	03Hrs/week	MSE	ISE	ESE	Total
Tutorial	0 Hrs/week	30	20	50	100
Credits: 3					

Course Objectives

1	To provide basic concepts to solve many engineering and technical issues.
2	To give deep insights into the understanding of engineering courses.
3	To encourage them to understand engineering and technical development.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy Level	Bloom's Taxonomy Descriptor
CO1	Exhibit memory of previously learned information by recalling facts, terms, basic concepts in Wave Optics, Modern Physics and Quantum Mechanics, Ultrasonic, Semiconductors, Nanoscience and Nanotechnology, Instrumentation and Transducer.	1	Remembering
CO2	Demonstrate understanding of facts and ideas by recalling, comparing, interpreting for all terms in these modules.	2	Understanding
CO3	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules for various concepts in a different way.	3	Applying

Module	Module Contents	Hours
I	Wave optics: Introduction, interference of light, Newton's rings, Fresnel's diffraction: Fresnel's half-period zones, zone plate and diffraction at a straight edge. Fraunhofer's diffraction: Diffraction due to single slit, Diffraction due to double slits, Plane diffraction grating.	6
II	Modern Physics and Quantum mechanics: Introduction, black body radiation, Planck's quantum theory, Wien's displacement law and Rayleigh – Jeans law, phase velocity, group velocity and particle velocity, de-Broglie's hypothesis, Photoelectric effect, Compton effect, Heisenberg's uncertainty principle and applications, wave function and physical significance, Schrödinger's wave equation: time dependent and time independent, Eigen value and Eigen function.	8
III	Ultrasonic: Introduction, generation of ultrasonic waves (Magnetostriction and Piezoelectric method), detection of ultrasonic waves by Kundt's tube, thermal detection and sensitive flame method, velocity of ultrasonic waves in liquid, applications of ultrasonic waves in scientific and engineering field.	6
IV	Semiconductors: Introduction, formation of energy bands, classification of solid on basis of band theory, number levels in a band, density of states, Fermi-Dirac statistics, Fermi level, variation of Fermi level with temperature, electrical conductivity of metal and semiconductor, Hall effect, basic concept of p-n junction.	7

*Rajendra
CK.V.Nahale*

V	Nanoscience and Nanotechnology: Introduction to nano-science and nanotechnology, Surface to volume ratio, Two main approaches in nanotechnology -Bottom up technique and top down technique. Nano materials: Methods to synthesize nanomaterials (Ball milling, Sputtering, Vapour deposition, sol gel), properties and applications of nanomaterials. Applications of nanomaterials, Introduction to Carbon Nanotubes and its applications.	6
VI	Instrumentation and Transducers: Introduction, instrumentations, measurement system, control system, Transducer and Sensor: transducers, sensors, classification of transducers, characteristics of transducers, selection criterion for transducers, temperature transducers, strain gauge, pressure transducers, force transducers, optical transducers and actuators.	6

Textbooks

1	M. N. Avadhanulu and P. G. Kshirsagar, "A Text book of Engineering Physics", S.Chand Pub.
2	R. K. Gaur and S. L. Gupta "Engineering Physics", Dhanpat Rai Publications, 2011

References

1	Halliday, Resnic and Walker, "Fundamentals of Physics", John Wiley, 9th edition 2011.
2	A. Beiser, "Concepts of Modern Physics", McGraw Hill International, 5th edition, 2003.
3	Ajoy Ghatak, "Optics", Tata McGraw Hill 5th edition, 2012.
4	Halit Eren, John G. Webster "Measurement, Instrumentation, and Sensors Handbook" CRC Press 2018
5	Charles P.Poole and Frank J. Owner, "Introduction to Nanotechnology", Wiley India.

Useful Links

1	For optics https://nptel.ac.in/courses/122/107/122107035/
2	For Quantum Physics https://nptel.ac.in/courses/122/106/122106034/
3	For Ultrasonic https://freevideolectures.com/course/3531/engineering-physics-i/8
4	For Solid State Physics https://nptel.ac.in/courses/115/105/115105099/
5	For Introduction to Nanotechnology https://youtu.be/ebO38bbq0_4
6	For Instrumentation and Transducers https://youtu.be/1uPTyjxZzyo

CO-PO Mapping

	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2													
CO2	2													
CO3	2													

The strength of mapping is to be written as 1: Low, 2: Medium, 3: High

Each CO of the course must map to at least one PO.

Assessment

The assessment is based on MSE, ISE and ESE.

MSE shall be typically on modules 1 to 3.

ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be Tests, assignments, oral, seminar etc. and is expected to map at least one higher order PO.

ESE shall be on all modules with around 30 - 40% weightage on modules 1 to 3 and 60 - 70% weightage on modules 4 to 6.

For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)

K. V. Radhakrishna
K. V. Radhakrishna

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-24

Course Information

Programme	B.Tech. (CSE, IT, Electrical , Electronics)
Class, Semester	First Year B. Tech., Sem I/II
Course Code	7AM102
Course Name	Engineering Mechanics
Desired Requisites:	Physics

Teaching Scheme		Examination Scheme (Marks)			
Lecture	2 Hrs/week	MSE	ISE	ESE	Total
Tutorial	---	30	20	50	100
Credits: 2					

Course Objectives

- 1** To impart knowledge on fundamentals of mechanics
- 2** To provide knowledge of basic concepts and system of forces in statics and dynamics
- 3** To illustrate the principles of mechanics in engineering applications

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy Level	Bloom's Taxonomy Description
CO1	Explain fundamental concepts in statics and dynamics	II	Understanding
CO2	Apply fundamental concepts of mechanics to solve problems on static systems	III	Applying
CO3	Use Newton's laws of motion, D'Alemberts and work energy principles to solve problems related to dynamic systems	III	Applying

Module	Module Contents	Hours
I	Force System: Fundamentals, Systems, Composition and Resolution, Resultant of planar force systems. Free Body Diagram, Laws of Forces, Varignon's Theorem, Lami's Theorem	5
II	Equilibrium: Concepts of determinacy and indeterminacy, Equilibrium of beams, Supports, Loads, Equilibrium, Reactions Principle of Virtual Work and its applications to statically determinate beams	4
III	Centroid and Moment of Inertia Centre of gravity and Centroid, Moment of Inertia of Plane figure, Composite Sections, Radius of gyration, Mass-Moment of Inertia.	5
IV	Kinematics of Particles Rectilinear motion of particle, Equations of motion, Motion under gravity, Relative Motion, Relation between linear and angular motion, Motion of a Projectile.	5
V	Kinetics of Particles Friction: Laws of friction, application of laws of friction, wedge friction, Newton's laws of motion, D'Alemberts principle, Applications to rough inclined plane, lift, and connected bodies, Circular motion, Rotation of rigid bodies	4

Course Contents for BTech Programme, Applied Mechanics Department, AY2023-24

VI	Work Energy and Impact Work energy Principle, Potential and Kinetic Energy, Law of Conservation of Energy, Impulse Momentum Method Collisions: Impact, Collision of bodies, Coefficient of Restitution, Loss of Kinetic Energy due to Impact	5
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Textbooks		
1	Ramamrutham., S. "Textbook of Applied Mechanics", Dhanpat Rai Publishing Company Limited, 2008.	
2	Bhavikatti., S. S. and Rajashekharappa., K. G. "Engineering Mechanics", New Age International Publishers, 2015, 5 th Edition.	
3	Beer, F. P. and Johnston, E. R. "Vector Mechanics for Engineers Vol. I and II", McGraw Hill Company Publication, 2011, 9 th Edition.	

References		
1	Singer, F. L. "Engineering Mechanics Statics & Dynamics", B. S. Publications, 2011.	
2	Timoshenko, S. and Young, D. H. "Engineering Mechanics", McGraw Hill Companies, 2008, 4 th Edition.	
3	Meriam, L. and L.G. Kraige, "Engineering Mechanics – Dynamics", John Wiley & Sons, 2002, 6 th Edition.	

Useful Links															
CO-PO Mapping													PSO		
Programme Outcomes (PO)													PSO		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1		3													
CO2		3	1												
CO3		3	1												

The strength of mapping is to be written as 1: Low, 2: Medium, 3: High
Each CO of the course must map to at least one PO.

Assessment													
The assessment is based on MSE, ISE and ESE.													
MSE shall be typically on modules 1 to 3.													
ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO.													
ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.													
For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)													

Walchand College of Engineering, Sangli (Government Aided Autonomous Institute)										
AY 2023-24										
Course Information										
Programme	B.Tech. (Electrical, Electronics, CSE and IT)									
Class, Semester	F.Y.B.Tech									
Course Code	7CM106									
Course Name	Civil and Mechanical Engineering									
Desired Requisites:										
Teaching Scheme		Examination Scheme (Marks)								
Lecture	3 Hrs/week	MSE	ISE	ESE	Total					
Tutorial	-	30	20	50	100					
Credits: 3										
Course Objectives										
1	To provide a solid grounding in the fundamental principles and concepts of mechanical engineering, including mechanics, thermodynamics, materials science, and fluid mechanics.									
2	To introduce students to the field of mechanical engineering, its history, scope, and its importance in various industries.									
3	Familiarize students with different building systems, their components, and the principles of building bye-laws, promoting a comprehensive understanding of safe and compliant construction practices.									
4	Provide students with an in-depth understanding of the significance of infrastructure development in urban areas, with a specific focus on transportation, water supply, and waste management.									
5	Enable students to comprehend the properties and applications of various construction materials, including concrete, steel, wood, and masonry, enhancing their ability to design and analyze structures effectively.									
Course Outcomes (CO) with Bloom's Taxonomy Level										
At the end of the course, the students will be able to,										
CO	Course Outcome Statement/s	Bloom's Taxonomy								
		Level	Description							
CO1	Identify suitable materials for engineering applications, understand basic manufacturing processes, and understand mechanical engineering applications in various industries and be aware of current industry practices and standards.	II	Understanding							
CO2	Apply problem-solving techniques to analyze and solve basic engineering problems related to mechanical systems and components	III	Applying							
CO3	Explain the various building systems, their components, and the principles of building bye-laws to ensure safe and compliant construction practices..	II	Understanding							
CO4	Summarize the significance of infrastructure development in urban areas and analyze its impact on transportation, water supply, and waste management..	II	Understanding							
CO5	Analyze the properties and applications of various construction materials, such as concrete, steel, wood, and masonry, to make informed decisions in structural design.	III	Analysis							
Module	Module Contents [Mechanical]				Hours					


Sourabh A. Patil

I	Introduction Engineering Materials, Properties of engineering materials (metals, polymers, ceramics) Material selection considerations for computer hardware and robotics applications Material testing and characterization techniques, Overview of manufacturing techniques (casting, machining, molding, etc.) Rapid prototyping methods (3D printing, laser cutting, etc.) for computer hardware prototypes.	6
II	Thermodynamics and Heat Management, Basic concepts of thermodynamics and heat transfer Heat dissipation and thermal management in computer hardware, Electronic Packaging and Cooling Packaging considerations for computer components and devices Cooling strategies for high-performance computer hardware	7
III	Introduction to Robotics, Basics of robotics and its integration with computer engineering, Overview of robotic mechanisms and control system, Gears, pulleys, belts, and other power transmission elements Bearings and lubrication Linkages and mechanical movements relevant to computer engineering	6
Module	Module Contents [Civil]	Hours
IV	Introduction to Civil Engineering Scope of civil engineering, Disciplines of civil engineering Role of Civil Engineers in infrastructure development Building Systems: Conceptualization, Need for buildings, Defining Sustainability for Building systems, Structural systems; Load bearing, Framed, Prefabricated, Pre Engineered Construction, Loads on Building, Components in Buildings and their functions, building bye laws, Principle of building planning	7
V	Construction Materials Construction materials and classification Properties and uses of stone, brick, tile, timber, cement, sand, lime, mortar, concrete, bitumen and steel.	6
VI	Urban Infrastructure Urban Planning and Infrastructure, Transport systems, Water supply and drainage, Waste management facilities, Concept of smart city	7

Text Books[Mechanical]

- Materials Science and Engineering: An Introduction" by William D. Callister Jr. and David G. Rethwisch, 10th ed. 2018 edition, Wiley.
- Thermodynamics: An Engineering Approach" by Yunus A. Çengel and Michael A. Boles, 8th edition.2017, McGra hill

Text Books[Civil]

- Bhavikatti S.S "Basic Civil Engineering", I.K. International Publishing House Pvt. Ltd.
- Hirasakar G. K., "Basic Civil Engineering", DhanpatRai publications, 1st Edition,2007
- Gole L.G., "Introduction to Civil Engineering", Mahu Publisher House, 4th Edition, 2005

References[Mechanical]

- Manufacturing Engineering and Technology (SI Edition), Serope Kalpakjian , Steven R. Schmid, SI edition, 2018, Pearson

References[Civil]

- Bindra S.P., Arora S.P. , "Building Construction", Dhanpat Rai publication, 5th edition, 2012
- Smart Cities Mission Statement & Guidelines, Ministry of Urban Development Government of India

Useful Links[Mechanical]

- <https://ocw.mit.edu/courses/mechanical-engineering/>
- <https://www.coursera.org/browse/engineering/mechanical-engineering>

CO-PO Mapping													PSO	
	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2				1					1		1		
CO2			1											
CO3					2					1				

The strength of mapping is to be written as 1,2,3; Where, 1:Low, 2:Medium, 3:High

Assessment

The assessment is based on MSE, ISE and ESE.

MSE shall be typically on modules 1 to 3.

ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO.

ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.

For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)

Sourabh A. Patil
Sourabh A. Patil

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-24

Course Information

Programme	B.Tech. (Computer Science & Engineering)
Class, Semester	First Year B. Tech., Sem II
Course Code	7IT102
Course Name	Web Technology
Desired Requisites:	

Teaching Scheme		Examination Scheme (Marks)			
Lecture	3 Hrs/week	ISE	MSE	ESE	Total
Tutorial	-	20	30	50	100
Practical	-				
Interaction	-	Credits: 3			

Course Objectives

1	To make students understand technologies involved in a web application.
2	To enable students to develop simple web form using basic web technologies and host it.
3	To enable students to develop a responsive web application.
4	To make students understand security issues involved in web applications and how to handle them.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy Description
CO1	Distinguish between static and responsive layout, HTML, HTML5 and explain web security issues.	Understand
CO2	Implement web forms, web pages using front end and back end technologies with suitable UI for a target device.	Apply
CO3	Observe effect of changing CSS styles and dynamic styling using JavaScript	Analyse

Module	Module Contents	Hours
I	Module 1: Introduction to World Wide Web Overview of the Internet and the World Wide Web, Evolution of web technology and its impact on society, Understanding web browsers and web servers, Introduction to Web Developer Tools	6
II	Module 2: HTML Basics and HTML5 Introduction to HyperText Markup Language (HTML), Creating a simple HTML page with headings, paragraphs, and lists, Working with hyperlinks and anchor tags, Advances in HTML5	6
III	Module 3: CSS Basics Introduction to Cascading Style Sheets (CSS), Styling HTML elements: text, colors, backgrounds, and borders, Creating layouts using CSS positioning and floats	7
IV	Module 4: Introduction to JavaScript and Document Object Model (DOM) Basics of JavaScript programming language, Variables, data types, and operators, JavaScript functions and control structures, Understanding the DOM and its significance, Manipulating HTML elements using JavaScript, Handling events and user interactions	8
V	Module 5: Responsive Web Design and Introduction to Backend Technologies	6

Course Contents for B. Tech Programme, Department of Computer Science & Engineering, AY 2023-24

S. Shetty
Mr. B.S. Shetty

	<p>Design principles for mobile-friendly websites, Using media queries for responsive layouts, Working with Flexbox and Grid for flexible designs</p> <p>Backend Technologies: Overview of server-side scripting languages (e.g., PHP or Node.js), Introduction to databases and data storage, Building a simple server-side application</p>	
VI	<p>Module 6: Web Forms and Data Validation, Web Hosting and Web Security</p> <p>Forms and Validation: Creating HTML forms for user input, Form handling using JavaScript and server-side scripting</p> <p>Web Hosting: Understanding web hosting and domain registration, Configuring and deploying a basic website on a hosting server, Introduction to Content Management Systems (CMS)</p> <p>Web Security: Common web security threats and vulnerabilities, Best practices for securing web applications, Implementing user authentication and authorization</p>	6

Text Books	
1	Web Technology: Theory and Practice by M. Srinivasan, Released June 2012, Publisher(s): Pearson India, ISBN: 9788131774199
References	
1	Web Application Security by Andrew Hoffman, Released March 2020, Publisher(s): O'Reilly Media, Inc. ISBN: 9781492053118
2	Web Technologies by Achyut Godbole and Atul Kahate, Publication: Tata McGraw-Hill Education Pvt. Ltd., ISBN13: 9781259062681
Useful Links	
1	https://www.w3schools.com/

CO-PO Mapping														
	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1								3	2			1	
CO2	3	1	2						3	2			1	
CO3		1												1

The strength of mapping is to be written as 1,2,3; Where, 1: Low, 2: Medium, 3: High
 Each CO of the course must map to at least one PO.

Assessment (for Theory Course)													
<p>The assessment is based on MSE, ISE and ESE. MSE shall be typically on modules 1 to 3. ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO. ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6. For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)</p>													

*Abnash
Mrs. B. S. S. Zetty*

Walchand College of Engineering, Sangli (Government Aided Autonomous Institute)														
AY 2023-24														
Course Information														
Programme	B.Tech.													
Class, Semester	First Year B.Tech., Sem I & II													
Course Code	7PH155													
Course Name	Engineering Physics Lab.													
Desired Requisites:	Students are expected to know the basic practical knowledge up to HSC													
Teaching Scheme	Examination Scheme (Marks)													
Lecture	-	LAI	LA2	Lab ESE	Total									
Tutorial	-	30	30	40	100									
Practical	2 Hrs/week													
Interaction	-	Credits: 1												
Course Objectives														
1	To gain practical knowledge by applying the experimental methods to correlate with the physics theory.													
2	To learn the usage of electrical and optical systems for various measurements.													
3	To Apply the analytical techniques and graphical analysis to the experimental data.													
Course Outcomes (CO) with Bloom's Taxonomy Level														
CO1	Calculate the diameter of the thin wire, Planck's constant, Refractive index of liquid / radius of curvature of Plano convex lens , Specific rotation of optical active substances, I-V characteristics of Semiconductor diode, Velocity of sound in air, Calculate R.T for specific hall/auditorium, Verify the expression for the resolving power of a telescope													
CO2	Demonstrate Hartley and Colpitt's oscillator and simulation , Wavelength of light by Plane diffraction grating, Wavelength of light by He-Ne LASER													
List of Experiments / Lab Activities.														
List of Experiments/ Lab Activities- Any Eight Experiments														
1	Find the diameter of the thin wire by diffraction of the light													
2	Determination of wavelength of light by plane diffraction grating.													
3	Determine the Specific rotation of sugar solution													
4	Find the wavelength of He-Ne Laser using Plane diffraction grating.													
5	Verify the expression for the resolving power of a telescope.													
6	Measure the wavelength of ultrasonic waves by Kundt's tube method.													
7	Design and simulate Colpitt's & Hartley Oscillator.													
8	Determine the Planck's constant.													
9	Study the I-V characteristic of semiconductor diode.													
10	Newton's ring: Determination of wavelength of light and refractive index of liquid /radius of curvature of Plano convex lens													
11	To calculate the reverberation time of specific hall.													
12	Determination of Fermi energy of copper using a Wheatstone bridge.													
Text Books														
1	C. L. Arora "Practical Physics" S. Chand & Co Edition 2009.													
2	P.R. Sasi Kumar "Practical Physics", PHI Learning Pvt. Ltd 1st edition 2011.													
References														
1	Halliday, Resnic and Walker, "Fundamentals of Physics", John Wiley, 9 th edition 2011.													
2	A. Beiser, "Concepts of Modern Physics", McGraw Hill International, 5th edition, 2003.													
3	Ajoy Ghatak, "Optics", Tata McGraw Hill 5th edition, 2012.													
Useful Links														
1	https://nptel.ac.in/courses/115/105/115105121/													
2	https://www.iitg.ac.in/cet/nptel.html													
3	https://youtu.be/imHvRBOMg84													



 C.K.V. Madhake

CO-PO Mapping For All B.Tech. Programs															
	Programme Outcomes (PO)												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	1	1													
CO2	2														

The strength of mapping is to be written as 1,2,3; Where, 1:Low, 2:Medium, 3:High

Assessment (for Lab. Course)

There are three components of lab assessment, LA1, LA2 and Lab ESE.

IMP: Lab ESE is a separate head of passing. LA1, LA2 together is treated as In-Semester Evaluation.

Assessment	Based on	Conducted by	Typical Schedule (for 26-week Sem)	Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 6 Marks Submission at the end of Week 6	30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 7 to Week 12 Marks Submission at the end of Week 12	30
Lab ESE	Lab activities, attendance, journal	Lab Course Faculty	During Week 15 to Week 18 Marks Submission at the end of Week 18	40

Week 1 indicates starting week of a semester. The typical schedule of lab assessments is shown, considering a 26-week semester. The actual schedule shall be as per academic calendar. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments.

Assessment Plan based on Bloom's Taxonomy Level

Bloom's Taxonomy Level	LA1	LA2	Lab ESE	Total
Remember	10	10	15	35
Understand	10	10	10	30
Apply	10	10	15	35
Analyze	0	0	0	0
Evaluate	0	0	0	0
Create	0	0	0	0
Total	30	30	40	100

*(Signature)
(K.V. Modhale)*

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-2024

Course Information

Programme	First Year B. Tech
Class, Semester	Sem I and Sem II
Course Code	7HS101
Course Name	Communication & Generic skills
Desired Requisites:	10+2 level English

Teaching Scheme		Examination Scheme (Marks)			
Lecture	---	LA1	LA2	ESE	Total
Tutorial	---	30	30	40	100
Practical	2Hrs/week				
Interaction	1Hr/week				
		Credits: 2			

Course Objectives

1	Enable the students to communicate with clarity and precision.
2	Prepare the students to acquire structure of Oral and written expression required for their profession and enable them to acquire proper behavioural skills
3	Provide relevant knowledge about generic skills, its importance and enable them to understand personal attributes like commitment, loyalty, ethical values, team building, and ensure exposure to personal growth.
4	Infuse the ability to positively consider other's views and to work effectively in teams and teach them self-management skills, problem solving skills and technological skills.

Course Outcomes (CO) with Bloom's Taxonomy Level

CO1	Communicate clearly, precisely and competently in different scenario	Apply
CO2	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.	Understand
CO3	Practice Lifelong Learning (LLL) with positive attitude, loyalty, commitment, reliability, self-development and manage himself/herself physically, intellectually and psychologically.	Apply
CO4	Work ethically and effectively as a team member, manage tasks effectively and apply knowledge to solve problems.	Apply

Module	Module Contents	Hours
I	Module 1: Introduction to communicative English <ul style="list-style-type: none"> 1.Fundamentals 2. Elements 3.Process 4.Types 5.Barriers 6.Need to develop good interpersonal and intrapersonal skills 7.Developing effective Listening Skills (types, Barriers, listening and note making) 	02
II	Module2: Communicative Grammar & Developing advanced. <p>Vocabulary.</p> <ul style="list-style-type: none"> 1.Modal verbs, non-modal verbs ,semi-modal verbs 2.Question tags 3.Misplaced Modifiers 4.Passives 5.Phrasal verbs <p>Vocabulary:</p> <ul style="list-style-type: none"> 1. Connectives, 2. Prefixes and suffixes, 3.Synonyms and Antonyms 4.one-word substitutions , 5.Re-arranging Jumbled sentences 6.redundancies 	05

	Module 3 : Formal Communication Skills a. Oral skills: Developing non-verbal skills. 1.Extempore /Public Speaking Skills (speeches) 2.Group Presentation 3.Individual Presentations b. Written Skills: 1.Paragraph Writing 2.Comprehension passage 3.Inter-office communication - Memorandums ,Circulars 4.Report Writing	05
IV	Module 4: Introduction to Generic Skills a. Importance of Generic Skill Development (GSD) b. Global and Local Scenario of GSD c. Lifelong Learning (LLL) and associated importance of GSD.	01
V	Module 5: Self-management skills 1. Knowing Self for Self-Development. (01 hrs) a. Self-concept. b. Attitude. c. Self-esteem. d. Self-confidence. e. Self-motivation. 2 Personal Attributes (02 hrs) a. Loyalty. b. Commitment. c. Honesty and integrity. d. Reliability. e. Enthusiasm. f. Balanced attitude while studying, working and home life. 3. Managing Self – Physical (02 hrs) a. Personal grooming. b. Health, Hygiene. c. Time Management. 4. Managing Self – Psychological (02 hrs) a. Stress, Emotions, Anxiety- concepts and significance. b. Exercises related to stress management. c. Techniques to manage the above.	07
VI	Module 6: Teamwork Skills 1. Team Building (01 hrs.) Definition, hierarchy, team dynamics. 2. Team related skills. (02 hrs) a. Sympathy, empathy. b. co-operation, concern, lead and negotiate. c. work well with people from culturally diverse background. 3. Technological Skills. (02 hrs.) a. Task Initiation, Task Planning, Task execution, Task close out b. Exercises/case studies on task planning towards development of skills for task management. 4. Problem Solving skills. (02 hrs.) a. Prerequisites of problem solving- meaningful learning, ability to apply knowledge in problem solving. b. Different approaches for problem solving. c. Steps followed in problem solving. d. Exercises/case studies on problem solving.	07

Text Books	
1	Textbook: Sanjay Kumar, Pushpalata, Communication Skills, Oxford University Press, First edition ,2012
References	
1	Ashraf Rizvi, Effective Technical Communication, Tata McGraw Hills publishing Company 2006
2	William Sanborn Pfeiffer, T.V.S. Padmaja, Technical Communication: A Practical Approach, Pearson, Sixth Edition 2012
3	Exercises in Spoken English, Parts I and II CIEFL, Hyderabad, Oxford University Press
Useful Links	
1	www.oupinheonline.com
2	www.scitechpublications.com

CO-PO Mapping															
	Programme Outcomes (PO)												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1											1				
CO2											1				
CO3									2		2				
CO4									2		3				

The strength of mapping is to be written as 1,2,3; Where, 1: Low, 2: Medium, 3: High
Each CO of the course must map to at least one PO.

Assessment													
The assessment is based on two In-semester evaluations (LA) of 30 marks each, one End-semester examination (ESE) of 40 marks.													
LA1 and LA2 are based on the modules taught (typically Module 1-3) and ESE is based on all modules with 30-40% weightage on modules before LA1 and 60-70% weightage on modules LA2.													

Assessment Plan based on Bloom's Taxonomy Level				
Bloom's Taxonomy Level	LA1	LA2	ESE	Total
Remember				
Understand	10	10	10	30
Apply	20	20	30	60
Analyse				
Evaluate				
Create				
Total	30	30	40	100

Walchand College of Engineering, Sangli
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AY 2023-24

Course Information

Programme	B.Tech. (All Branches)
Class, Semester	First Year B. Tech., Sem I/II
Course Code	7AM155
Course Name	Engineering Mechanics Lab
Desired Requisites:	Engineering Mechanics

Teaching Scheme		Examination Scheme (Marks)			
Practical	2 Hrs/ Week	LAI	LA2	Lab ESE	Total
Interaction	---	30	30	40	100
Credits: 1					

Course Objectives

- | | |
|---|---|
| 1 | To provide hands on practice for the conduct of experiments to verify the principles of mechanics |
| 2 | To demonstrate the graphical methods to verify the analytical solutions |
| | |
| | |

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy Level	Bloom's Taxonomy Description
CO1	Demonstrate verification of laws and basic principles of mechanics through experiments.	III	Applying
CO2	Apply graphical method to solve problems on force system, beams, and frames.	III	Applying

List of Experiments / Lab Activities/Topics

List of Experiments :

1. Verification of law of triangle of forces
2. Verification of law of polygon of forces
3. Determination of support reactions for Simply Supported Beam
4. Verification of the principle of moments using Bell crank lever apparatus
5. Determination of the coefficient of friction for motion on horizontal plane
6. Determination of the coefficient of friction for motion on inclined plane
7. Analysis of concurrent and non-concurrent coplanar force system by graphical method
8. Analysis of statically determinate beams by graphical method
9. Analysis of pin jointed perfect plane frames by graphical method

Textbooks

- | | |
|---|--|
| 1 | Lab Manual Link - https://atifmohd077.files.wordpress.com/2019/03/em-lab-manual-1.pdf |
| 2 | Lab Manual Links - https://jecassam.ac.in/wp-content/uploads/2018/10/1_Engineering-Mechanics-Laboratory-2nd-SEM-DU-Old-Course.pdf |
| 3 | Bhavikatti., S. S. and Rajashekharappa., K. G. "Engineering Mechanics", New Age International Publishers, 2015, 5 th Edition. |

References

- | | |
|---|---|
| 1 | Ramamrutham., S. "Textbook of Applied Mechanics", Dhanpat Rai Publishing Company Limited, 2008. |
| 2 | Beer, F. P. and Johnston, E. R. "Vector Mechanics for Engineers Vol. I and II", McGraw Hill Company Publication, 2011, 9 th Edition. |
| 3 | R. K. Bansal "Engineering Mechanics" Laxmi Publications Ltd. |

Course Contents for BTech Programme, Applied Mechanics Department, AY2023-24

Useful Links													
1	https://nptel.ac.in/courses/112106286												
2	https://www.youtube.com/watch?v=9Yt3I4bP-90												
3	https://www.vlab.co.in/broad-area-civil-engineering												
4	Virtual Lab link by IIT Mumbai - http://vlabs.iitb.ac.in/vlab/labsme.html												

CO-PO Mapping														PSO	
Programme Outcomes (PO)													PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	
CO1					1										
CO2	1														

The strength of mapping is to be written as 1,2,3; where, 1: Low, 2: Medium, 3: High

Each CO of the course must map to at least one PO, and preferably to only one PO.

Assessment				
Assessment	Based on	Conducted by	Typical Schedule	Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 8 Marks Submission at the end of Week 8	30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 9 to Week 16 Marks Submission at the end of Week 16	30
Lab ESE	Lab activities, journal/ performance	Lab Course Faculty and External Examiner as applicable	During Week 18 to Week 19 Marks Submission at the end of Week 19	40

Week 1 indicates starting week of a semester. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming, and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments and related activities if any.

B.B. Sawant

R. Barai

Walchand College of Engineering, Sangli

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AY 2023-24

Course Information

Programme	B.Tech. (Electrical, Electronics, CSE, IT)
Class, Semester	First Year B. Tech. SEM-I & II
Course Code	7CM156
Course Name	Civil and Mechanical Engineering Lab
Desired Requisites:	

Teaching Scheme		Examination Scheme (Marks)			
Practical	2 Hrs/Week	LA1	LA2	ESE	Total
Interaction	-	30	30	40	100
Credits: 1					

Course Objectives

1	To provide a solid grounding in the fundamental principles and concepts of mechanical engineering, including mechanics, thermodynamics, materials science, and fluid mechanics
2	To introduce students to the field of mechanical engineering, its history, scope, and its importance in various industries.
3	To introduce students to fundamental civil engineering experiments and procedures.
4	To develop practical skills in handling civil engineering equipment and instruments.
5	To promote teamwork, problem-solving, and analytical skills while conducting experiments and interpreting results.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy	
		Level	Description
CO1	To understand mechanical testing and inspections, such as hardness testing, non-destructive testing (e.g., ultrasonic testing), and dimensional measurements.	II	Understand
CO2	To demonstrate experiments related to thermodynamics and heat transfer, such as measuring heat conduction through different materials or studying heat dissipation from electronic components.	II	Apply
CO3	Demonstrate identification and reading ability of elements in building drawing.	II	Understand
CO4	Examine the material properties and comment on their quality.	III	Applying
CO5	Use surveying equipment to measure distance and area.	III	Applying

List of Experiments / Lab Activities

Mechanical:

- Ultrasonic thickness measurements and flaw detection.
- Liquid and magnetic particle testing for discontinuity examination.
- Hardness measurements by using Rockwell, Brinell hardness testers.
- Tensile test of metallic materials and study of Stress vs Strain curve.
- Eddy current and acoustic emission flaw measurement techniques.
- Use of machine learning and AI in mechanical testing. Only Demonstration.

Civil:

- Study and identify basic elements in
 - Site plan,
 - Plan, elevation and section of a residential building
- Study water supply and sanitation plan of a residential building
- Field tests on brick
- Field tests on Cement
- Measurement of distance and area


Soumrah A. Patil

6. Demonstration of Total station	
Text Books [Mechanical]	
1	Raghuvanshi B. S., "A Course in Workshop Technology I", Dhanpat Rai Publications, 10 th Ed., 2009
2	S. K. Hajra Choudhury and A. K. HajraChoudhary, "Workshop Technology" – Vol I [Manufacturing Processes]", Media Promoters and Publishers Pvt. Ltd., 10 th edition, reprint 2001
3	Bawa H S. "Workshop Practice," McGraw Hill Education, Noida, 2 nd edition, 2009 ISBN-13: 978-0070671195
4	Gupta, J. K.; Khurmi, "A Textbook of Manufacturing Process" (Workshop Tech.) R S S Chand and Co., New Delhi, 2020, ISBN:81-219-3092-8
5	Singh Rajender, "Introduction to Basic Manufacturing Process and Workshop Technology", New Age International, New Delhi; 2014, ISBN: 978-81-224-3070-7
References [Mechanical]	
1	W.A.J. Chapman, "Workshop Technology Volume I", CBS Publishing & Distributors, Delhi. [ISBN-13:9788123904016] 2001
2	Rao P.N., "Manufacturing Technology", Vol. I and Vol. II, Tata McGraw Hill House,2017
3	Gowri P. Hariharan and A. Suresh Babu, "Manufacturing Technology – I" Pearson Education, 2008
Text Books [Civil]	
1	Hiraskar G. K., "Basic Civil Engineering", DhanpatRai publications, 1 st Edition,2007
2	Gole L.G., "Introduction to Civil Engineering", Mahu Publisher House, 4 th Edition, 2005
3	Bhavikatti S.S., "Basic Civil Engineering", New Age Publications, 2010
References [Civil]	
1	Duggal S. K., "Surveying (Vol-I)", Tata McGraw Hill, 4 th edition 2013
2	Bindra S. P., Arora S. P., "Building Construction", DhanpatRai publication, 5 th edition, 2012
Useful Links	
1	https://www.vlab.co.in/broad-area-mechanical-engineering

CO-PO Mapping													PSO		
	Programme Outcomes (PO)												1	2	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	
CO1	3		1							1		1			
CO2	3		1												
CO3							2			1					

The strength of mapping is to be written as 1,2,3; Where, 1: Low, 2: Medium, 3: High

Assessment					
There are three components of lab assessment, LA1, LA2 and Lab ESE.					
IMP: Lab ESE is a separate head of passing. LA1, LA2 together is treated as In-Semester Evaluation.					
Assessment	Based on	Conducted by	Typical Schedule (for 26-week Sem)		Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 6 Marks Submission at the end of Week 6		30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 7 to Week 12 Marks Submission at the end of Week 12		30
Lab ESE	Lab activities, attendance, journal	Lab Course Faculty	During Week 15 to Week 18 Marks Submission at the end of Week 18		40

Week 1 indicates starting week of a semester. The typical schedule of lab assessments is shown, considering a 26-week semester. The actual schedule shall be as per academic calendar. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments.

(Signature)
Sonwarkha A. Patil

CO1	3	1				1	1		
CO2	3	1							
CO3			2			1			

The strength of mapping is to be written as 1,2,3; Where, 1:Low, 2:Medium, 3:High

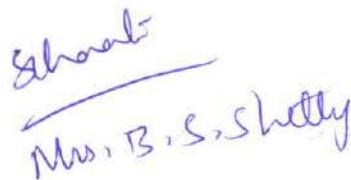
Assessment				
Assessment	Based on	Conducted by	Typical Schedule (for 26-week Sem)	Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 6 Marks Submission at the end of Week 6	30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 7 to Week 12 Marks Submission at the end of Week 12	30
Lab ESE	Lab activities, attendance, journal	Lab Course Faculty	During Week 15 to Week 18 Marks Submission at the end of Week 18	40

Week 1 indicates starting week of a semester. The typical schedule of lab assessments is shown, considering a 26-week semester. The actual schedule shall be as per academic calendar. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments.



Sourabh A. Patil

Walchand College of Engineering, Sangli <i>(Government Aided Autonomous Institute)</i>																																			
AY 2023-24																																			
Course Information																																			
Programme B.Tech. (Computer Science & Engineering) Class, Semester First Year B. Tech., Sem II Course Code 7IT152 Course Name Web Technology Lab Desired Requisites:																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding-bottom: 5px;">Teaching Scheme</th> <th colspan="4" style="text-align: center; padding-bottom: 5px;">Examination Scheme (Marks)</th> </tr> <tr> <th style="text-align: left; width: 15%;">Lecture</th> <th style="width: 15%;">-</th> <th style="width: 15%; text-align: center;">LA1</th> <th style="width: 15%; text-align: center;">LA2</th> <th style="width: 15%; text-align: center;">ESE</th> <th style="width: 15%; text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Tutorial</td> <td style="width: 15%;">-</td> <td style="width: 15%; text-align: center;">30</td> <td style="width: 15%; text-align: center;">30</td> <td style="width: 15%; text-align: center;">40</td> <td style="width: 15%; text-align: center;">100</td> </tr> <tr> <td style="width: 15%;">Practical</td> <td style="width: 15%;">2 Hrs/week</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td style="width: 15%;">Interaction</td> <td style="width: 15%;">-</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">Credits: 1</td> </tr> </tbody> </table>						Teaching Scheme		Examination Scheme (Marks)				Lecture	-	LA1	LA2	ESE	Total	Tutorial	-	30	30	40	100	Practical	2 Hrs/week					Interaction	-				Credits: 1
Teaching Scheme		Examination Scheme (Marks)																																	
Lecture	-	LA1	LA2	ESE	Total																														
Tutorial	-	30	30	40	100																														
Practical	2 Hrs/week																																		
Interaction	-				Credits: 1																														
Course Objectives																																			
1	To enable students to develop simple web form using basic web technologies and host it.																																		
2	To enable students to develop a responsive web application.																																		
3	To make students understand security issues involved in web applications and how to handle them.																																		
4	To enable students to use databases and content management system (CMS)																																		
Course Outcomes (CO) with Bloom's Taxonomy Level																																			
At the end of the course, the students will be able to,																																			
CO	Course Outcome Statement/s				Bloom's Taxonomy Description																														
CO1	Explain responsive and static layouts, databases, web security, CMS, authorization and authentication				Understand																														
CO2	Implement web forms, web pages using front-end and back-end technologies with suitable UI for a target device.				Apply																														
CO3	Observe dynamic web layouts and styling				Analyze																														



 Mrs. B. S. Shetty

List of experiments:

1. **Objective:** Get acquainted with web browsers and web development tools.

Tasks:

- Uninstall and install Google Chrome and Firefox
- Start localhost server
- Install Visual Studio Code

2. **Objective:** Create a basic HTML page with headings, div, paragraphs, and lists.

Tasks:

- Create website for registering students to 'ExcelTech College of Engineering' having 3 pages home.html, signup.html, login.html.
- Use appropriate tasks for following content on home.html
Name of the college, address of the college, information and image of the college
- Create separate sections for: list of UG academic programs, list of PG academic programs, list of faculty members and contact information. Give appropriate title for each section.

3. **Objective:** Understand the concept of hyperlinks and anchor tags.

Tasks:

- Provide hyperlinks for Sign up and Login on home.html. On click of Sign up, user should get navigated to signup.html page. On click on Login page, user should get navigated to login.html. These 2 pages can be blank.
- Provide Search link on the top that navigates to www.google.com
- Provide navigation links on the top of the page on home.html for the following: UG program, PG program, Faculty. On clicking on these links user should get navigated to respective section on the same page.

4. **Objective:** Apply styles to HTML elements using CSS

Tasks:

- Add CSS rules to change the text colour, font, and size of all headers on home.html.
- Set background colour for the page and for paragraph tag.
- Apply borders and margins to elements to create visual effects for paragraph and header tags.

5. **Objective:** Understand how to create layouts using CSS positioning and floats.

Tasks:

- Create a simple two-column layout using CSS positioning for home.html.
- Add various sections on home.html to div tags. Create float-right, float-left CSS class and apply to div tags.
- Convert links for UG programs, PG programs and Faculty into visually appealing boxes using div tag and appropriate styling.

6. **Objective:** Familiarize with the basics of JavaScript programming.

Tasks:

- Perform arithmetic operations (add, subtract, divide and multiply) by creating functions and using JavaScript operators.
- Write a function that accepts 2 strings and returns concatenated string.
- Write a function to check if a number is odd or even.
- Write a function that accepts a number n and outputs all numbers from 0 to n in increasing order.

7. **Objective:** Understand the Document Object Model (DOM) and its significance.

Tasks:

- Create login.html which accepts Username and Password. Provide Submit button.
- On click of button, check if username is 'admin' and password is 'PwD123'. If entered details are correct, navigate to home.html and provide text message 'Login successful!' on the home.html in green. If details are incorrect, navigate to home.html and provide text message 'Unsuccessful login..' on the home.html in red.

8. **Objective:** Create HTML forms for user input and handle form submission using JavaScript.

Tasks:

- Design signup.html to accept following information from user: First name, Last name, Age, Contact number, Address (multi-line input should be accepted), Email ID, Username, Password Course Contents for BTech Programme, Department of Computer Science & Engineering, AY2023-24 and Confirm Password. Provide Submit button.

Text Books	
1	Web Technology: Theory and Practice by M. Srinivasan, Released June 2012, Publisher(s): Pearson India, ISBN: 9788131774199
References	
1	Web Application Security by Andrew Hoffman, Released March 2020, Publisher(s): O'Reilly Media, Inc. ISBN: 9781492053118
2	Web Technologies by Achyut Godbole and Atul Kahate, Publication: Tata McGraw-Hill Education Pvt. Ltd., ISBN13: 9781259062681
Useful Links	
1	https://www.w3schools.com/

CO-PO Mapping														
	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3												2	2
CO2	2		2		3				3				2	3
CO3	1		1							2			1	1

The strength of mapping is to be written as 1,2,3; Where, 1: Low, 2: Medium, 3: High
Each CO of the course must map to at least one PO.

Assessment				
There are three components of lab assessment, LA1, LA2 and Lab ESE.				
IMP: Lab ESE is a separate head of passing.(min 40 %), LA1+LA2 should be min 40%				
Assessment	Based on	Conducted by	Typical Schedule	Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 8 Marks Submission at the end of Week 8	30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 9 to Week 16 Marks Submission at the end of Week 16	30
Lab ESE	Lab activities, journal/ performance	Lab Course Faculty	During Week 18 to Week 19 Marks Submission at the end of Week 19	40

Week 1 indicates starting week of a semester. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming, and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments and related activities if any.

*Ghorai
Mrs. 13.s.shetty*

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2022-23

Course Information

Programme	B.Tech. All Branches
Class, Semester	First Year B. Tech. SEM-I & II
Course Code	7VS151
Course Name	Engineering Skills-I
Desired Requisites:	

Teaching Scheme		Examination Scheme (Marks)			
Lecture	-	LA1	LA2	ESE	Total
Tutorial	-	30	30	40	100
Practical	2Hrs/Week			-	
Interaction	-	Credits: 1			

Course Objectives

- 1 To train the students to use different tools and equipment involved in the manufacturing processes
- 2 To develop the skills to handle the basic cutting tools and devices required for various manufacturing processes, interpret the given job drawing, select relevant fitting tools
- 3 To prepare the students to carry out the various operations to make a finished product

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy	
		Level	Description
CO1	Describe the basic methods, operations and processes of manufacturing	I	Understand
CO2	Illustrate the simple mechanical systems, machines, equipment, the basic working of cutting tools for manufacturing.	II	Apply
CO3	Use of Fitting tools, job holding devices, measuring tools	III	Apply
CO4	Check verticality and level difference.	III	Apply
CO5	Estimate the material requirement in constructed structure.	III	Apply
CO6	Sketch building plan.	III	Apply

List of Experiments / Lab Activities

List of Mechanical Engineering Skills:

1. Introduction to **wood working**, the hand tools required and machines:
Perform Planning operation, cutting by chisel to prepare small **mobile phone stand** [Square joint type] (4 Hrs)
2. Introduction to **fitting shop** tools, equipment/machines:
Job consisting of **male and female parts** viz.one with groove, another with matching projection, holes on both and their assembly, as per given job drawing.
operations to be performed: Marking, Punching, Saw cutting, Drilling, Edge filing operations (4 Hrs.)
3. Introduction to **sheet metal work**: Job of small **sheet metal tray** as per given job drawing with following operations: Marking, Cutting, bending/folding (4 Hrs.)

List of Civil Engineering Skills:

1. Establishing verticality, right angle corner, and level difference in masonry construction (2 Hrs)
2. Line out of building plan on site (2 Hrs)
3. Estimate the quantities/ material requirement for (4Hrs)
 - a) Brickwork
 - b) Concrete components/elements
 - c) Flooring
4. Sketching of building plan and calculation of FSI (2Hrs)

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Text Books [Mechanical]	
1	Raghuvanshi B. S., "A Course in Workshop Technology I", Dhanpat Rai Publications, 10 th Ed., 2009
2	S. K. Hajra Choudhury and A. K. HajraChoudhary, "Workshop Technology" – Vol-I [Manufacturing Processes], Media Promoters and Publishers Pvt. Ltd., 10 th edition, reprint 2001
3	Bawa H S. "Workshop Practice," McGraw Hill Education, Noida, 2 nd edition ,2009 ISBN-13: 978-0070671195
4	Gupta, J. K., Khurmi, "A Textbook of Manufacturing Process" (Workshop Tech.) R S S Chand and Co., New Delhi, 2020, ISBN: 81-219-3092-8
5	Singh Rajender, "Introduction to Basic Manufacturing Process and Workshop Technology", New Age International, New Delhi; 2014, ISBN: 978-81-224-3070-7

References [Mechanical]

1	W.A.J. Chapman, "Workshop Technology Volume I", CBS Publishing & Distributors, Delhi. [ISBN-13: 9788123904016] 2001
2	Rao P. N., "Manufacturing Technology", Vol. I and Vol. II, Tata McGraw Hill House, 2017
3	Gowri P. Hariharan and A. Suresh Babu, "Manufacturing Technology – I" Pearson Education, 2008

Text Books [Civil]

1.	Gole L. G., "Introduction to Civil Engineering", Mahu Publisher House, 4 th Edition, 2005
2.	Bhavikatti S. S., "Basic Civil Engineering", New Age Publications, 2010

References [Civil]

1	Bindra S. P., Arora S. P., "Building Construction", Dhanpat Rai publication, 5 th edition, 2012
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Useful Links

1	https://www.vlab.co.in/broad-area-mechanical-engineering
2	https://drive.google.com/file/d/1tp5yV2ghp_Slub58S7iKnvvJyoEwQVYq/view
3	https://www.youtube.com/@workshop.supdtjmdabir5653
4	https://www.youtube.com/watch?v=gPaBULgRRuM
5	https://www.youtube.com/watch?v=f7tTNRH_04
6	https://www.youtube.com/watch?v=UD3q5R0N8U4
7	https://www.youtube.com/watch?v=uapzeNwKq4U
8	https://www.youtube.com/watch?v=jbRgJbIGAwc
9	https://www.youtube.com/watch?v=TeErxz59Sss
10	https://www.youtube.com/watch?v=F4SwbJ1euB8
11	https://www.youtube.com/watch?v=cuv-tP6JHEI
12	https://www.youtube.com/watch?v=vUIY_BiLyFI
13	https://www.youtube.com/watch?v=xMQOR6Jg3o4
14	https://www.youtube.com/watch?v=OdrBpPNJMaI
15	https://www.youtube.com/watch?v=uAIXHqOm0AM
16	https://www.youtube.com/watch?v=DzCBASUKpF4
17	https://www.youtube.com/watch?v=TQ_NeHenT9Y
18	https://www.youtube.com/watch?v=rkp2Uvpop-g
19	https://www.youtube.com/watch?v=iDJ_sMvXsYs
20	https://www.youtube.com/watch?v=xZgtyNdGHvs

CO-PO Mapping

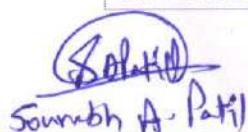
	Programme Outcomes (PO) Mechanical										PSO			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1				1										
CO2				1										
CO3					1									

The strength of mapping is to be written as 1,2,3; Where, 1: Low, 2: Medium, 3: High

Assessment

There are three components of lab assessment, LA1, LA2 and Lab ESE.

IMP: Lab ESE is a separate head of passing. LA1, LA2 together is treated as In-Semester Evaluation.


Sourabh A. Patil

Assessment	Based on	Conducted by	Typical Schedule (for 26-week Sem)	Marks
LA1	Lab activities, attendance, journal	Lab Course Faculty	During Week 1 to Week 6 Marks Submission at the end of Week 6	30
LA2	Lab activities, attendance, journal	Lab Course Faculty	During Week 7 to Week 12 Marks Submission at the end of Week 12	30
Lab ESE	Lab activities, attendance, journal	Lab Course Faculty	During Week 15 to Week 18 Marks Submission at the end of Week 18	40
Week 1 indicates starting week of a semester. The typical schedule of lab assessments is shown, considering a 26-week semester. The actual schedule shall be as per academic calendar. Lab activities/Lab performance shall include performing experiments, mini-project, presentations, drawings, programming and other suitable activities, as per the nature and requirement of the lab course. The experimental lab shall have typically 8-10 experiments.				



Sourabh A. Patil

Walchand College of Engineering, Sangli
(Government Aided Autonomous Institute)

AY 2023-24

Course Information

Programme	B.Tech. (I.T. & Computer Engineering)
Class, Semester	First Year B. Tech., Sem I / II
Course Code	7CH103
Course Name	Engineering Chemistry (I.T./ Computer)
Desired Requisites:	Chemistry course at Secondary and Higher secondary level

Teaching Scheme		Examination Scheme (Marks)			
Lecture	2 Hrs/week	MSE	ISE	ESE	Total
Tutorial	0 Hrs/week	30	20	50	100
Credits: 3					

Course Objectives

1	To make student familiar with engineering properties associated with different materials to use them successfully in practice.
2	To provide knowledge and significance of characterization and chemical analysis for using materials in different engineering applications.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

CO	Course Outcome Statement/s	Bloom's Taxonomy Level	Bloom's Taxonomy Description
CO1	Explain terms chemical analysis, Calorific value, water parameters, Types of corrosion, Mechanism of Corrosion, water's industrial applications	II	Understanding
CO2	Draw schematic of water softeners, Glass electrode, GLC setup, Calorimeters	II	Understanding
CO3	Classify types of chemical analysis, hard water, Engineering materials, types of polymers. Chromatography.	II	Understanding
CO4	Calculate concentration of solutions, % of analyte gravimetrically, hardness of water, Calorific values	III	Applying

Module	Module Contents	Hours
I	Module 1. General principles of chemical Analysis Part A: Volumetry Chemical analysis, Its types/ classification, Different ways to express concentration of solution & Numerical problems. Standards and its types, Definition of terms associated with titrimetry. Classification of titrimetry with application of type analysis & Numerical problems.	7
II	Module 2. General principles of chemical Analysis Part B: Gravimetry & Instrument Gravimetry and its requirements, applications and Numerical problems. pH metry, potentiometry, Single beam spectrophotometry w.r.t. Principle, Instrumentation, Calibration, Application Chromatography and its types & Introduction to GLC, Introduction for SEM, TEM, AFM and its applications. Advantages and Disadvantages of instrumental and non-instrumental methods.	6

(Dr. Dodda S. Rao) (A. A. Powar) (T. G. Wagh) (K. V. Madhale) (Mrs. V. B. Virgaonkar)

III	Modules 3. Water Chemistry - Natural sources of water, Impurities in natural water. Water quality parameters Hardness- Definition, Causes, Types, Expressing hardness, units to measure hardness, Numerical problems on hardness calculation, ill effects of hard water in steam generation, Alkalinity, Chloride , Dissolved oxygen(DO), Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) its significance. Ion exchange method of water softening.	7
IV	Module 4 : Corrosion Science Definition of corrosion, Types of corrosion, Dry & wet corrosion, Electrochemical & Galvanic series & its importance, Mechanism of Hydrogen evolution and Oxygen absorption corrosion, Factors influencing rate of corrosion, Various methods for protection from corrosion viz. Surface coatings(Electroplating, Galvanizing, Tinning) Cathodic and Anodic protection.	7
V	Module 5: Energy Science Fuel and its classification, Characteristics of good fuel, Properties of solid, liquid and gaseous fuels. Calorific value, Gross and net calorific value, its units, and determination by Bomb and Boys calorimeter, Numerical problems on calorific value.	6
VI	Module 6: Non-metallic Materials: Engineering materials and its types, polymer: Polymerization reactions. Addition and condensation and co polymerization Plastic & types of plastics, Properties & uses of PVC, PS, Bakelite, Epoxy resin. Elastomers and its properties, Natural rubber and its drawbacks, process of vulcanization Properties and uses of Butyl rubber, Neoprene and Thiokol, Insulating Materials: Introduction, characteristics, Classification, Properties and uses of Glass wool, Thermocole and Asbestos.	6

Textbooks

1	S.K. Singh, "Engineering Chemistry", New Age Publication, 3rd Edition , 2005.
2	Shashi Chawla, "Engineering Chemistry", Dhanpat Rai Publication, 3rd Edition , 2003.
3	Jain P.C. and Jain Monika, "Engineering Chemistry", Dhanpat Rai Publication, 16th Edition, 2013

References

1	O G Palanna, "Engineering Chemistry" Tata McGraw Hill 2009.
2	Mendham, R.C. Denney, J.D. Barnes, M.J.K Thomas, "Quantitative Chemical analysis", Vogel's Pearson Education, 6th Edition , 2008.
3	S.S Dara, "Engineering Chemistry" S. Chand and Company 2008.
4	Askeland and Phule , "The Science and Engineering of Materials" Thomson Publication 4th Edition ,2003
5	V.R. Gowarikar, <i>Polymer Science</i> ", Wiley Eastern Publication, 1986, 1 st Edition
6	Douglas A. Skoog, E James Holler, Stanely R Crouch, " Principles of Instrumental Analysis", Thomson publication, 2007, 6 th Edition

Useful Links

1	https://edu.rsc.org/resources
2	A free resource for Chemistry teachers and students of all levels, including higher education, hosted by Royal Society of Chemistry.
3	https://www.digimat.in/nptel/courses/video/122106028/L01.html
4	https://onlinecourses.nptel.ac.in/noc21_cy49/preview

CO-PO Mapping														
	Programme Outcomes (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3													
CO2	3													
CO3	3													
CO4	3													

The strength of mapping is to be written as 1: Low, 2: Medium, 3: High
Each CO of the course must map to at least one PO.

Assessment													
The assessment is based on MSE, ISE and ESE.													
MSE shall be typically on modules 1 to 3.													
ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments, surprise or declared test etc.													
ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.													
For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)													

(Dr. Dodda S. Rao)

A.A. Powar

(K.V. Madhale)

(Mrs. V.B. Giryaonkar)

