17

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTMA 101		Applied Mathematics-1	60	20	20	0	0	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):
To introduce the students with the Fundamentals of the Engineering Mathematics.

Course Outcomes (COs):
After the successful completion of this course students will be able to

1. apply the techniques of the modern algebra.
2. understand the Quadratic Equations & Binomial Theorem.
3. know the fundamental principles of the vector algebra.
4. study the trigonometric properties used in the engineering.
5. understand the concepts of the coordinate geometry.

Syllabus

Unit-I

ALGEBRA: Logarithm, Definition of natural and common Logarithm, Laws of Logarithm. Simple Problems. Complex Numbers: Definition of Complex numbers, Cartesian and polar. Exponential forms of complex numbers. Modulus, amplitude & conjugate of a complex number, Algebra of Complex numbers (Equality, Addition, Subtraction, Multiplication). Cube roots of unity & its properties. De Moivre's theorem (statement only) and simple problems.

Unit-II

Quadratic Equations & Binomial Theorem: Definition of Quadratic Equations, Analysing the nature of roots using discriminant, Relation between roots & coefficients,Conjugate roots, Binomial Theorem: Definition of factorial notation, definition of permutation and combination with formula, Binomial theorem for positive index (statement only), General term and middle term. Binomial theorem for negative index (statement only), Partial Fraction: Definition of polynomial fraction, proper & improper fractions and definition of partial fractions, Resolving proper fractions into partial fractions with denominator containing non repeated linear factors, repeated linear factors and irreducible non repeated quadratic factors.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Unit-III

Vector Algebra: Definition of a vector quantity. Concept of Position vector and Ratio formula. Rectangular resolution of a vector. Algebra of vectors – equality, addition, subtraction & scalar multiplication. Scalar (Dot) product of two vectors with properties. Vector (cross) product of two vectors with properties. Applications: Application of dot product in work done by a force and projection of one vector upon another. Application of cross product in finding vector area and moment of a force.

Unit- IV

TRIGONOMETRY: Trigonometric Ratios of associated, compound, multiple and sub-multiple angles. Inverse trigonometric functions – Definition, formulae and simple problems. Properties of Triangle – sine, cosine and tangent formulae - Simple Problems.

Unit-V

COORDINATE GEOMETRY & MENSURATION: Co-ordinate System, Cartesian & Polar co-ordinate system, Distance formula and section formula, Area of a triangle and condition for collinearity. Straight Line, Equation of straight line in slope point form, intercept form, two-point form, two-intercept form, normal form. General equation of a straight line. Angle between two straight lines – Condition for parallelism and perpendicularity. Length of perpendicular from a point on a line. Perpendicular distance between two parallel lines. CIRCLE: Equation of circle in standard form, centre-radius form, diameter form, two-intercept form. General equation of circle with a given centre and radius. Simple Problems. Conic Section: Standard equations of parabola, ellipse & hyperbola. Definition of focus, vertex, directrix, axes, eccentricity. Simple problems. MENSURATION: Regular Polygon of n sides – Formula for area and perimeter. Prism and Pyramid – Formula for volume & Surface area. Simple Problems.

Text Books:

1. *B.K. Paul, Diploma Engineering Mathematics (Vol-1), U.N. Dhar & Sons*
2. *A. Sarkar, Mathematics (First Semester), Naba Prakashani*
3. *G.P. Samanta, A Text Book of Diploma Engineering Mathematics, Volume-1, Learning Press*
4. *Dr. S. Bose & S. Saha, A Complete Text Book of Mathematics, Lakhsmi Prakasan*

Reference Books:

1. H.S. Hall & S.R. Knight, Higher Algebra Book Palace, New Delhi
2. S.L. Loney, Trigonometry S. Chand & Co.
3. H.K. Dass Engineering Mathematics S. Chand & Co.
4. T.M. Apostol Calculus, Volume-1, John Wiley & Sons
5. B.K.Pal, K.Das, Engineering Mathematics, Volume-1, U.N. Dhar & Sons
6. B.C. Das & B.N. Mukherjee, Differential Calculus U.N. Dhar & Sons
7. KAR, Engineering Mathematics, Tata McGraw- Hill
8. SINGH, Engineering Mathematics Tata McGraw- Hill

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTPH 101		Applied Physics	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):
Students should be able to;

1. Identify different systems of units and convert units from one system to other as well as conversant with practical units.
2. Estimate and minimize the errors.
3. Select proper measuring instrument considering least count, range and precision required.
4. Select appropriate materials required for a specific purpose by studying properties of materials.
5. To understand and apply the concepts of charge, current, resistance, capacitance and electromagnetism to solve field problems..
6. To understand the properties of laser to apply them for various engineering applications including optical fiber communication.

Course Outcomes:-
Students will be able to;

1. Convert units from one system to other.
2. Estimate and minimize the errors in measurements.
3. Take precision measurement by selecting proper measuring instrument considering least count, range of precision required.
4. Select appropriate materials required for a specific purpose.
5. Apply the concepts of charge, current, resistance, capacitance and electromagnetism to solve field problems.
6. To handle instruments consists laser and optical fibres for various engineering applications.

Syllabus

Unit:I
Measurements:
1.1 Units: Requirements of standard unit, various units systems (CGS, FPS, MKS, SI), conversions, fundamental and derived physical quantities and their units, dimensions and dimensional analysis.
1.2 Errors: Accuracy, precision of instruments, errors, types of errors, minimization of errors, significant figures, problems.
1.3 Measuring instruments: Venire caliper, micrometer screw gauge, spherometer, thermometer, galvanometer, voltmeter, Ammeter with least count and range, errors in them and correction to it.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Unit:II Properties of matter

2.1 Elasticity: Deformation, restoring force, stress, strain, Hooke's law, stress-strain diagram for some materials (steel, aluminum, cast iron, concrete), breaking stress.

2.2 Viscosity: Newton's law of viscosity, coefficient of viscosity, streamline and turbulent flow, critical velocity, Reynold's number, problems, Stokes' law, determination of viscosity, factors affecting viscosity.

2.3 Surface tension: Cohesive and adhesive forces, angle of contact, surface tension, capillary action, problems, factors affecting surface tension.

Unit: III

Optics

3.1 Wave theory of light: Huygen's theory, wavefronts, laws of reflection and refraction, total internal reflection, dispersion, angle of deviation, problems.

3.2 Interference and diffraction: Principle of superposition, constructive and destructive interference, conditions to obtain steady interference pattern, Young's double slit experiment, diffraction, fresnel and fraunhofer diffraction, applications and problems.

3.3 Polarization: Polarized and unpolarized light, qualitative treatment of polarizer and analyzer, half shade polarimeter, applications.

Unit: IV

Electricity and Electromagnetism

4.1 Electricity and Electromagnetism: Coulomb's Law, Electric Field, Intensity of Electric field and Electric Potential, Capacitance, capacitors in series and parallel. Ohm's law, resistance, conductance, resistivity, conductivity, series and parallel combination of resistors, problems.

4.2 Electromagnetism: Oersted experiment, magnetic field, magnetic flux, magnetic flux density, Biot-Savart law, magnetic field near straight conductor and at the centre of current carrying coil, problems.

Unit: V

Laser and Fiber Optics

5.1 Laser: Stimulated and Spontaneous Emission, Population Inversion, Pumping, Optical Resonator, Properties and Applications of Laser, Ruby, He-Ne lasers.

5.2 Optical fiber: Introduction to Optical fibre, Ray theory of propagation through optical fibre, Acceptance angle and cone, Types of Optical fibre, Numerical Aperture, V- Number, Fractional refractive index change Δ, applications of optical fibre.

Text Book: -

1. Engineering Physics by Gaur R. K. and Gupta S. L., Dhanpat Rai Publications, New Delhi, Eighth Edition, 2001., Physics Text Book of 11th & 12th std.(NCERT)

References:-

1. Fundamentals of Physics Extended, By Halliday D., Resnik R. and Walker, Wiley, India, New Del hi, Eighth Edition, 2008.

2. Physics for scientists and Engineers by Serway R. A. and Jewett, Jr. J. W., Thomson Learning (Indian reprint), New Delhi, Sixth Edition, 2007.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

List of Laboratory experiments

1. Use of micrometer screw gauge and determination of zero error.
2. Use of micrometer screw gauge and observations with traveling microscope.
3. Use of vernier caliper and observations with spectrometer.
4. Determination of resistivity of a given wire.
5. Determination of volume of a given vessel by spherometer.
6. To find unknown resistance by PO box.
7. To verify Hooke's law.
8. To determine internal resistance of cell using potentiometer.
9. To find refractive index of material of prism.
10. To find refractive index of material of glass slab.
11. To verify Ohm's law.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME 101		Engineering Drawing	60	20	20	30	20	3	0	4	5

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Use drawing equipment, instruments & Materials. Follow and apply standard practice as per bureau of I.S.
2. Develop the ability to draw various curves used in engineering practice.
3. Develop the ability to draw orthographic view of objects and draw the projections of point, line and planes.
4. Develop the ability to draw sectional view of various types of solids and construct development of surfaces.
5. Develop the concept and ability to draw the isometric projections and views.
6. Sketch the various Fasteners & tools used in mechanical engineering.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes

1. Student would be able to draw scale, conic sections and engineering curves.
2. Student would be able to draw projection of point and line; indentify the use of these concepts in practical life.
3. Students would be able to understand plain &3D model at various orientations and draw their projection.
4. Student would be able to draw the projections of with and without sectioning of solid models and surface development.
5. Students would be able to understand the difference between orthographic view and isometric projections.

Syllabus

Unit-I

USES OF DRAWING AIDS: Drawing equipment instruments and materials, planning & layout of drawing, I.S. codes for planning & layout.

LINES, LETTERING & DIMENSIONING: Different types of lines, Vertical capital & lower case letters, inclined capital & lower case letters, Numerals & Greek alphabets. Dimensioning methods-

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

aligned method & unilateral with chain, parallel, progressive & combined dimensioning.

Unit-II

ENGINEERING CURVES: Construction of Polygons. Various types of curves like Ellipse, parabola, hyperbola, cycloid, epicycloid, hypocycloid, Involute & spiral.

Unit-III

PROJECTIONS OF POINTS, LINES & PLANES: Reference planes, Orthographic projections, 1st Angle and 3rd Angle projection, Projections of points , Projections of Lines- Determination of true lengths & inclinations, Projections of plane- circular, square, rhombus, triangular, regular pentagonal & hexagonal plane surfaces, determination of true shape.

Unit-IV

ORTHOGRAPHIC PROJECTIONS: Simple Orthographic and Sectional Orthographic Projections of simple machine parts.

ISOMETRIC PROJECTIONS: Difference between isometric projections & isometric drawing. Isometric views & isometric projections.

Unit-V

INTRODUCTION TO COMPUTER DRAFTING: Introduction to different commands in the drawing software

References

1. *Elements of Engg. Drawing – N.D. Bhatt*
2. *Engineering Drawing – P.J.Shah*
3. *Fundamentals of Engg. Drawing – W.J.Luzzadar*
4. *Fundamentals of Drawing – K.R.Gopalkrishna*
5. *Fundamentals of Engg. Drawing – French & Vierck*

List of Experiments

The students should workout the problems on the following topics preferably on quarter imperial drawing sheets during the practical.

1. Three sheets on problems from geometrical constructions, lettering & types of lines
2. Five Sheets on the topic of Engineering Curves.
3. Four Sheets on Projections of Points & Projections of Straight Lines.
4. Three Sheets on Projections of Planes.
5. Five Sheets on the topic of Orthographic Projections. B. Demonstration of drafting software to the students.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME 102		Basic Mechanical Engineering	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.**

Course Education Objectives:-

- To introduction with engineers, need of mechanical engineers, fields and scopes.
- To introduction to thermodynamics, heat engines, production and case studies.

Course Outcomes:-

- Student would be able to understand the need of mechanical engineers, their scope and opportunities.
- Student would be able to analyze basics of thermodynamics and able to understand various mechanical instruments.
- Students would be able to understand I C engines, their working and operating conditions.
- Student would be able to recognize production methodology and their need.
- Students would be able to demonstrate various case studies based on heat engines, basics of thermodynamics, productions, etc.

SYLLABUS-

UNIT-I

INTRODUCTION TO MECHANICAL ENGINEERING

Introduction to engineering, importance of engineers, classification of engineers, introduction to mechanical engineers, domain and scope for mechanical engineers, specialization in mechanical engineering and job opportunities

UNIT-II

INTRODUCTION TO THERMODYNAMICS

THERMODYNAICS- Introduction, terminology related with thermodynamics, laws of thermodynamics

MEASUREMENT- Introduction, measurement of temperature, measuring devices; measurement of pressure, measuring devices

UNIT-III

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

INTRODUCTION TO HEAT ENGINES

I.C. ENGINE- Introduction, terminology of IC engine, cycles used in IC engine, two and four stroke engines

BOILERS- Introduction, steam, types of steam, properties of steam, boilers, types of boilers, terminology related to steam and boilers

UNIT-IV

INTRODUCTION TO PRODUCTION

Introduction to mechanical properties, basic manufacturing processes, introduction to casting, welding brazing, and soldering

UNIT-V

CASE STUDIES

Case study on topic related to thermodynamics, measuring devices, heat engines, production methods, etc.

List of Textbooks-

Mechanical Engineering by R. K. Rajput
Basic Mechanical Engineering by D. K. Gupta
Basic Mechanical Engineering (MP) by Domkundwar

References:

Mechanical Engineering Handbook (CRC Press)
Mechanical Engineering Reference Book by E.H. Smith

LIST OF EXPERIMENTS-

- To perform tensile test, plot the stress,-strain diagram and evaluate the tensile properties of a given metallic specimen.
- To calculate Mechanical Advantage, Velocity Ratio and Efficiency of various temperature and pressure measuring devices and plot graphs.
- To study Two-Stroke & Four-Stroke Diesel Engines.
- To study Two-Stroke & Four-Stroke Petrol Engines.
- To study the Cochran and Babcock & Wilcox boilers.
- To study the working and function of mountings and accessories in boilers.
- To study the vapour compression Refrigeration System and determination of its C.O.P.
- To study the functioning of Window Room Air Conditioner.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTHU 101		Communication Skill	0	0	0	30	20	0	0	4	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.**

Course Educational Objectives (CEOs):

A diploma holder is supposed to write official, business and personal letters. Technical report writing forms another activity of diploma holders. Keeping in view, the above and continuing education needs of diploma holders, communication skill has been considered as essential human science subject. The emphasis of teaching should be to develop necessary competencies (knowledge and skill) in written and oral communication in English.

Syllabus

Unit-I
Prose (Text book) writing in English

Introduction to communication skills in English language.
Concept, principle and procedure for prose selection.
Study and practice in English prose as recommended in the prescribed book (5-lessons)

Unit-II
Correspondence in English: OFFICIAL, BUSINESS AND PERSONAL LETTERS

1. Introduction and understanding of writing letters in English.
2. Concept, principle and procedure in writing official letters.
3. Concept, principle and procedure in writing business letters.
4. Concept, principle and procedure in writing personal letters.
5. Classification of text of letters as Title, Body and closing procedure.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Unit-III

English Grammar

Basic Language Skills : Grammar and usage- Types of Sentences, Phrases & Clauses, Parts of Speech , Direct - Indirect, Active - Passive voice, S-V Agreement, Tenses.

Unit-IV

Communication Techniques

All forms of written communications including drafting reports, notices, agenda note, business correspondences, preparations of summaries and précis, telegrams, circulars, representations, press release and advertisements.
Telephoneic communications

Unit-V

Precis and Comprehension

1. Introduction and understanding of writing precise in English.
2. Concept/ principle or procedure for précis writing.
3. Organizing and summarizing the selected paragraph to develop scheme in précis writing.
4. Text book prescribed by State Board of Technical Education to be followed

References

1. TTTI-Chandigarh. ***A Book of English for Polytechnic, Prose Selection.*** *MacMillan, India*
Krishna Mohan and Meera Bannerji. ***Developing Communication Skills.*** *MacMillan, India*

2. N.K. Aggarwal. ***Better English Grammar & Composition.*** *Arnold Publication, New Delhi*
Thomas Huckin and Leslie Olson. ***Technical Writing and Professional Communication.*** *McGraw Hill, New Delhi*
3. R K Bansal and J B Harrison. ***Spoken English for India.*** *Orient Longman, New Delhi*

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
DTEI102		Fundamental of Instruments and control	60	20	20	0	0	2	0	0	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
Q/A – Quiz/Assignment/Attendance, MST Mid Sem Test.

Course Educational Objectives (CEOs):

6. To introduce the basic functional elements of instrumentation
5. To learn the fundamentals of electrical and electronic instruments
1. To educate on the comparison between various measurement techniques

Course Outcomes:-

After completion of this course the students will be able to

1. to develop and employ circuit models for elementary electronic components, e.g., resistors, sources, inductors, capacitors, diodes and transistors;
2. To apply knowledge of measurement system.
3. To identify, formulate, and solve the fundamentals of electrical and electronic instruments

Syllabus

UNIT-I

Principles of Instrumentation: Basic concepts of Instrumentation block diagram of generalized measurement system, function of different components, basic idea of Electronic, Hydraulics& pneumatic instruments and their Symbolic Representation.

UNIT-II

Performance Characteristics of Instruments : Specification, range, sensitivity, accuracy, precision, error, drift, threshold, resolution, hysteresis, correction, span, linearity, repeatability, reproducibility, speed of response, lag, fidelity, static & dynamic 6 characteristics (Definition with brief explanation only)

UNIT-III

Analog Instruments, Classification, Principal of Operation and its Operating Forces in indicating Instruments, Introduction to Digital Instrumentation , comparison between analog and Digital Instruments

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

UNIT-IV

Sensors & Transducers Definition of sensors & transducers, difference between sensor & transducer, factors governing the choice of transducer, Classification of Transducer: Primary & Secondary, Electrical & Mechanical, Analog & Digital, Active & Passive. Description of the following transducers: Resistance type (potentiometric, strain gauge), Inductance type (LVDT), RVDT.

UNIT-V

Introduction to Control System, Types of Control system, Block diagram of Open loop and closed loop control system their comparison.

TEXT BOOK

1. Murty D V S, "Transducers & Instrumentation", PHI, New Delhi (2016)
2. Sawhney A K, "Electrical and Electronics Measurements and Instrumentation", Dhanpat Rai and Sons.(2015)

REFERENCE BOOKS

1. Kalsi H S, "Electronic Instrumentation "Tata McGraw Hill, New Delhi, 4th Ed. (2012).
2. Patranabis D, "Sensors and Transducers", PHI, New Delhi (2009).
3. Doebelin Ernest O,"Measurement Systems: Application and Design", Tata McGraw Hill Ltd., New Delhi(2004).

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Diploma in Electronics and Instrumentation Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME 103		Workshop Practices	0	0	0	30	20	0	0	4	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.**

Course Educational Objectives (CEOs):

1. Know basic workshop processes.
2. Read and interpret job drawing
3. Identify, select and use various marking, measuring, holding, striking and cutting tools & equipments. Operate, control different machines and equipments.
4. Inspect the job for specified dimensions.
5. Produce jobs as per specified dimensions.
6. Adopt safety practices while working on various machines.

Syllabus

Unit-I

ENGINEERING MATERIALS - Introduction, Different types of ferrous and non-ferrous materials, Properties of engineering materials.
LATHE Machine - Introduction. Various operations performed on Lathe machine. Main parts of Lathe machine

Unit-II

CARPENTRY SHOP - Introduction, Various types of woods, Different types of tools, machines and accessories.

Unit-III

FITTING SHOP - Introduction Various marking, measuring, cutting, holding and striking tools.
Different fitting operation like - chipping, filing, right angle, marking, drilling, tapping etc.
Working Principle of Drilling machine, Tapping dies, its use. Safety precautions and safety equipments.

Unit-IV

WELDING SHOP – Introduction, Types of welding, ARC welding, Gas welding, Gas Cutting. Welding of dissimilar materials, Selection of welding rod material, Size of welding rod and work piece

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Unit-V

SMITHY SHOP – Introduction, Different forging processes like shaping, caulking, fullering, setting down operations etc. Safety precautions and safety equipments.

References

1. *Mechanical Workshop Practice-K.C.John-PHI Learning Pvt Ltd. EEE 2010*
2. *B.S. Raghuwanshi- Workshop Technology – Dhanpat Rai and sons, New Delhi, Ninth Edition 2002*
3. *S.K. Hajra Chaudhary- Workshop Technology Vol I & II – Media Promotors and Publisher, New Delhi. Eighth Edition 1986*

List of experiments

1. Demonstration of different wood working tools / machines in carpentry shop.
2. One simple job involving any one joint like mortise and tenon, dovetail, bridle, half lap etc.
3. Demonstration of different welding tools / machines.
4. Demonstration of Arc Welding, Gas Welding, Gas Cutting and rebuilding of broken parts with welding
5. One simple job involving butt and lap joint in welding shop.
6. Demonstration of different forging tools and Power Hammer.
7. Demonstration of different forging processes like shaping, caulking, fullering, setting down operation etc
8. One job like hook peg, flat chisel or any hardware item.
9. Demonstration of different fitting tools and drilling machines and power tools.
10. Demonstration of different operations like chipping, filing, drilling, tapping, cutting etc. in fitting shop.
11. One simple fitting job involving practice of chipping, filing, drilling, tapping, cutting etc.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore