Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Program Name: Diploma

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
DTMA101	BS	**APPLIED MATHEMATICS I**	60	20	20	-	-	3	0	-	3

Course Objective

To introduce the students with the Fundamentals of the Engineering Mathematics.

Course Outcomes

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

1. *understand basics of logarithm, complex number, Quadratic Equation, Binomial Theorem and Partial Fraction.*
2. *apply vector calculus to solve the engineering problems*
3. *construct trigonometric functions to solve the problems*
4. *understand and apply the concepts of line, circle and conic sections.*

Course Content:

Unit 1

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 2

Quadratic Equations & Binomial Theorem: Definition of Quadratic Equations, Analyzing the nature of roots using discriminant, Relation between roots & coefficients, Conjugate roots, Binomial Theorem: Definition of factorial notation, definition of

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			THEORY			PRACTICAL		Th	T	P	CREDITS
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DTMA101	BS	**APPLIED MATHEMATICS I**	60	20	20	-	-	3	0	-	3

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.

Unit 3

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 4

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 5

COORDINATE GEOMETRY: 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

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			END SEM	MST	Q/A	END SEM	Q/A				
DTMA101	BS	**APPLIED MATHEMATICS I**	60	20	20	-	-	3	0	-	3

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.

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

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
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Diploma Program
Applied Physics

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
DTPH101	Diploma	Applied Physics	60	20	20	30	20	3	0	2	4

Course Objectives	Students should be able to (A) identify different systems of units and convert units from one system to other as well as conversant with practical units. (B)Estimate and minimize the errors. (C) Select proper measuring instrument considering least count, range and precision required. (D)Select appropriate materials required for a specific purpose by studying properties of materials.(E) To understand and apply the concepts of charge, current, resistance, capacitance and electromagnetism to solve field problems. (F) To understand the properties of laser to apply them for various engineering applications including optical Fibre communication.
Course Outcomes	Students will be able to (A) Convert units from one system to other. (B) Estimate and minimize the errors in measurements. (C) Take precision measurement by selecting proper measuring instrument considering least count, range of precision required. (D) Select appropriate materials required for a specific purpose. (E) Apply the concepts of charge, current, resistance, capacitance and electromagnetism to solve field problems. (F) To handle instruments consists laser and optical fibers for various engineering applications.

Abbreviation		
Th	Theory	**Teacher Assessment (Theory) shall be based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall be exceed 10 Marks).**
T	Tutorial	**Teacher Assessment (Practical) shall be based on following components: Viva/ File/ Participation in Lab work (Given that no component shall be exceed 50% of Marks).**
P	Practical	

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DTPH101: Applied Physics

UNIT I Measurements

1.1 Units: Requirements of standard unit, various unit's 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.

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, and 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.

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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 Fibre 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 fibre: Introduction to Optical fibre, Ray theory of propagation through optical fibre, Acceptance angle and cone, Types of Optical fibre, Numerical Aperture, VNumber, Fractional refractive index change Δ, applications of optical fibre.

References

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).
2. "Engineering Physics", by Dr. S. L. Gupta and Sanjeev Gupta, Dhanpat Rai Publication, New Delhi.
3. "Engineering Physics", by Navneet Gupta, Dhanpat Rai Publication, New Delhi.
4. "Engineering Physics", by H. J Sawant, Technical Publications, Pune, Maharashtra.
5. "Engineering Physics". by MN. Avdhanulu & P. G. Kshirsagar, S. Chand & Co.Edition (2012).

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DTPH101: Applied Physics

List of Experiments:

1. To determine the volume of a box by the Vernier Caliperse.
2. To determine the diameter of a wire by screw guage.
3. To determine the distance between two lines by traveling microscope.
4. To verify Hooke's law.
5. To find refractive index of material of prism using spectrometer.
6. To verify Ohm's law.
7. Measurement of Numerical aperture of fiber by LASER.
8. To determine the mass of cane sugar dissolved in water using half shade polarimeter.
9. To determine the surface tension of a liquid by Jagers's method.
10. To determine the value of coefficient of viscocity of water using Poiseuille' method.

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME102	BEC	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 Educational Objectives (CEOs):

To introduce the (A) main & sub domains of Mechanical engineering (B) To introduce the scope latest & future trends, jobs & research opportunities in the field of Mechanical Engineering.

Course Outcomes (COs):

1. To introduce Mechanical Engineering with the help of case studies, magazine, documentaries, presentation and industrial visit.
2. To introduce the basic concepts of thermodynamics, heat engines, IC engine, production, and case studies.
3. To introduce basic Manufacturing Process.

Syllabus

Unit-I **8HRS**

Overview of Engineering: introduction to engineering, classification of engineering disciplines, overview of mechanical engineering, domain and scope for mechanical engineers, specialization in mechanical engineering and job opportunities.

Unit-II **9HRS**

Thermodynamics: Introduction & basic definition of thermodynamics, terminology related with thermodynamics, laws of thermodynamics, properties of steam. Case study on topic related to thermodynamics.

Unit-III **8HRS**

Measurement: Introduction, various measuring instruments & devices, linear & angular measurement, measurement of displacement, velocity, and acceleration (translational and rotational), force, torque and

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME102	BEC	Basic Mechanical Engineering	60	20	20	30	20	3	0	2	4

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strain, vibration and shock, measurement of pressure, flow, temperature and liquid level, viscosity, and humidity. Case study on topic related to the any measuring devices.

Unit-IV **10HRS**

Heat Engine: Introduction to IC engine; terminology of IC engine, cycles used in IC engine, two and four stroke petrol and diesel engines, Introduction to boiler, types of steam boilers, properties of steam, terminology related to steam and boilers, mounting and accessories of steam boiler, Case study on topic related to the heat engines.

Unit-V **7HRS**

Manufacturing Processes: Material properties, definition, and classification of basic manufacturing process; introduction to casting, rolling, extrusion, welding, brazing, soldering. Case study on topic related with manufacturing engineering

Text Books:

1. Gupta, D. K., Gupta, B., & Baredar, P. (2020). A Textbook of Basic Mechanical Engineering. DHANPAT RAI & Co.
2. Raghvendra, N. V., & Krishnamurthy, L. (2013). Engineering Metrology and Measurements. Oxford University Press.
3. Rajput, R. K. (n.d.). Mechanical Engineering. Birla Publications PVT. LTD. .
4. Sawhney, A. K., & Sawhney, P. (2017). A Course in Mechanical Measurements and Instrumentation & Control. Dhanpat Rai & Co. (P) Limited.

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME102	BEC	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.

References:

1. Kreith, F., & Goswami, D. (2004). *The CRC Handbook of Mechanical Engineering* . CRC Press.
2. Smith, E. H. (1994). *Mechanical Engineer's Reference Book.* Society of Automotive Engineers,U.S.

List of Experiments:

1. To study Two-Stroke & Four-Stroke Diesel Engines.
2. To study Two-Stroke & Four-Stroke Petrol Engines.
3. To study the Cochran and Babcock & Wilcox boilers.
4. To study the working and function of mountings and accessories in boilers.
5. To conduct experiment on temperature measurement and check different characteristics of measurements
6. To conduct experiment on linear and angular measurements and check different characteristics of measurements.
7. To conduct experiment on Stress, strain and force measurements and check different characteristics of measurements.
8. To conduct experiment on Speed/Velocity, acceleration measurements.

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			THEORY			PRACTICAL		L	T	P	CREDITS
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DTME101	BEC	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):

(A)Use drawing equipment, instruments & Materials (B) Follow and apply standard practice as per bureau of I.S. Develop the ability to draw various curves used in engineering practice. (C)Develop the ability to draw orthographic view of objects and draw the projections of point, line and planes.

Course Outcomes (COs):

1. Develop the ability to draw sectional view of various types of solids and construct development of surfaces.
2. Develop the concept and ability to draw the isometric projections and views.
3. Sketch the various Fasteners & tools used in mechanical engineering.

Syllabus

Unit-I **10HRS**

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

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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME101	BEC	Engineering Drawing	60	20	20	30	20	3	0	4	5

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit.
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Unit-II **8HRS**

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

Unit-III **10HRS**

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 **8HRS**

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 **6HRS**

Introduction to Computer Drafting: Introduction to different commands in the drawing software.

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DTME101	BEC	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.

Text Books:

1. BHATT, N. D. (53rd Edition 2019). *Engineering Drawing.* Charotar Publishing House PVT. LTD.
2. Luzadder , W. J. (7th edition 1976)). *Fundamentals of Engineering Drawing.* Prentice Hall.
3. Shah , P. J. (2008). *A Textbook of Engineering Drawing.* S. Chand Publishing.

References:

1. French, T. E., & Vierck, C. J. (1966). *Fundamentals of Engineering Drawing.* McGraw-Hill.
2. Gopalakrishna , K. R. (2017). *Engineering Drawing Vol 1 & 2 Combined.* Subhas Publications / Subhas Stores.

List of Experiments:

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.
6. Demonstration of drafting software to the students

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME105	DCC	Engineering Materials	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 understand (A) engineering materials, atomic structure crystal structure, imperfection, etc. (B)To understand phase transformation, heat treatment, alloys, and mechanical properties.

Course Outcomes (COs):

After undergoing this course, the students will be able to:

1. distinguish between metals and non metals and ferrous and non ferrous materials.
2. explain the arrangement of atoms in various crystals.
3. carry out various heat treatment processes.
4. analyze microstructure and changes in microstructure due to heat treatment.
5. classify various types of plastics and rubber.

Syllabus

Unit-I **8 HRS**

Engineering Materials: Introduction, classification of materials; need of engineering materials; important properties of materials. Thermal, Chemical, Electrical, Mechanical properties of various materials. mechanical tests; modes of fracture.

Unit-II **9 HRS**

Crystallography - Fundamentals: Crystal, Unit Cell, Space Lattice, Arrangement of atoms in Simple Cubic Crystals, BCC, FCC and HCP Crystals, Number of atoms per unit Cell, Atomic Packing Factor, Crystal imperfection- Introduction, types of imperfection.

Deformation of materials: Overview of deformation behavior and its mechanism, behavior of material under load control and strain control.

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			THEORY			PRACTICAL		L	T	P	CREDIT
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME105	DCC	Engineering Materials	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.

Unit-III **9 HRS**

Metals and Alloys - Ferrous Materials: Different iron ores, Basic process of iron-making and steel-making, Classification of iron and steel. Different types of Cast Iron, manufacture, and their use.

Steels and alloy steel: Classification of plain carbon steels, Properties and usage of different types of Plain Carbon Steels, Effect of various alloys on properties of steel, Uses of alloy steels (high speed steel, stainless steel, spring steel, silicon steel)

Non-Ferrous Materials: Properties and uses of Aluminum, Copper and Zinc and their alloys

Unit-IV **9 HRS**

Phase transformation: Introduction, rate of transformation, mechanism of phase transformation and application of transformation; Iron-carbon system, iron-carbon equilibrium diagram; TTT-diagram, transformation of austenite upon continuous cooling and martensitic transformation.

Heat Treatment: Introduction, Heat treatment processes – hardening, tempering, annealing, normalizing, Casehardening and surface hardening, Hardenability of steels, Selection of case carburizing. heat-treatment furnaces.

Unit-V **7 HRS**

Plastics: Important sources of plastics, Classification-thermoplastic and thermoset and their uses, Various trade names of plastics, Plastic coatings, food grade plastics. Applications of plastics in automobile and domestic use.

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DTME105	DCC	Engineering Materials	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.

Text Books:

1. Rajput, R. K. (2008). *Engineering Materials.* New Delhi: S. Chand & Co. Ltd. .
2. Dogra , D., & Sharma , A. (2012). *Engineering Materials & Metallurgy.* S.K. Kataria & Sons.
3. Ashby, M. F. (Third edition 2006). *Engineering Materials Volume 2: An Introduction to Microstructures, Processing and Design.* Burlington: Butterworth-Heinemann.
4. Manchanda , V. K. (1999). *Textbook Of Materials Science.* New India Publishing House.
5. Choudhury , S. H. (1978). *Materials Science and Processes.* Indian Book Distributing.

References:

1. Basu, D. (2001). *Dictionary of Material Science & High Energy Physics.* CRC Press.
2. Singh, I. P. (2018). *Materials Science And Engineering.* JAIN BROTHERS.
3. Callister, W. D., & Rethwisch, D. G. (2018). *Materials Science and Engineering: An Introduction, 10th Edition.* John Wiley & Sons, Inc.

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTME103	BEC	Workshop Practices	0	0	0	30	20	0	0	4	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit.
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Course Educational Objectives (CEOs):

Know basic (A) workshop processes (B) Read and interpret job drawing.

Course Outcomes (COs):

1. Identify, select, and use various marking, measuring, holding, striking, and cutting tools & equipment's. Operate, control different machines and equipment's.
2. Inspect the job for specified dimensions.
3. Produce jobs as per specified dimensions.
4. Adopt safety practices while working on various machines.

Syllabus

Unit-I **10HRS**

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 **8HRS**

Carpentry shop: Introduction, Various types of woods, Different types of tools, machines and accessories.

Unit-III **9HRS**

Fitting shop: Introduction Various marking, measuring, cutting, holding, and striking tools.

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DTME103	BEC	Workshop Practices	0	0	0	30	20	0	0	4	2

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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 equipment's.

Unit-IV **8HRS**

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

Unit-V **7HRS**

Smithy shop: Introduction, Different forging processes like shaping, caulking, filleting, setting down operations etc; Safety precautions and safety equipment's.

Text Books:

1. Choudhury, H. (2004). Workshop Technology Vol 1 & 2. Mumbai: Media Promoters & Publishers Pvt. Ltd.
2. Raghuwanshi, B. S. (2014). A Course In Workshop Technology (Manufacturing Processes Vol. 1). Dhanpat Rai & Co.

References:

1. John, K. C. (2010). Mechanical Workshop Practice. New Delhi: PHI Learning Pvt. Ltd. EEE 2010.

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DTME103	BEC	Workshop Practices	0	0	0	30	20	0	0	4	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit.
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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. Demonstration of different welding tools / machines.
3. Demonstration of Arc Welding, Gas Welding, Gas Cutting and rebuilding of broken parts with welding.
4. One simple job involving butt and lap joint in welding shop.
5. Demonstration of different forging tools and Power Hammer.
6. Demonstration of different forging processes like shaping, caulking, fullering, setting down operation etc.
7. One job like hook peg, flat chisel or any hardware item.
8. Demonstration of different fitting tools and drilling machines and power tools.
9. Demonstration of different operations like chipping, filing, drilling, tapping, cutting etc. in fitting shop

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DTCS101	**ODC**	**Computer Application-I**	-	-	-	**30**	**20**	-	-	**2**	**1**

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Course Educational Objectives (CEOs):

1. To understand the concepts of programming languages (object oriented programming and itsimplementation).
2. To understand the concept of program design, program coding, debugging, testing for development.
3. To describe the concepts of loops, arrays.
4. To understand the concepts of memory, pointers, functions, variables.
5. To understand the concepts of class, constructor, destructor.

Course Outcomes (COs):

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

1. Student will able to explain and implement the object oriented programming concepts.
2. Student will design, develop & test program for development.
3. Student will able to apply loop concept in program and design an array program.
4. Student will able to apply & implement the concept of class, constructor & destructor.

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UNIT-I

Basic concepts of Computers, Basic LINUX Concepts and Vi – Editor, Internal and external DOS Commands, Shell programming. Basic concepts of MS-word, excel, PowerPoint and MS access Database.

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DTCS101	**ODC**	**Computer Application-I**	-	-	-	**30**	**20**	-	-	**2**	**1**

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UNIT-II

Learning OS Commands Practice of all Internal and External DOS Commands, Writing simple batch programs, Exposure to Windows environment, Practice of UNIX commands and Vi editor, Writing simple shell script

UNIT-III

Introduction to C: Basic Programming concepts, Program structure in C, Variables and Constants, Data types, Conditional statements, control statements, Functions, Arrays, Structures, Introduction topointers, and Introduction to File Systems.

UNIT-IV

C Programming: Practicing programs to get exposure to basic data types, algebraic expressions, Conditional statements, Input Output Formatting, Control structures, arrays, functions, structures, pointers and basic file handling

References:

1. Kernighan, B.W.," The elements of programming style", McGraw-Hill.
2. Yourdon, E., "Techniques of program structures and design", Prentice-Hall.
Press, W.H.,Teukolsky, S.A., Vetterling W.T.& Flannery, B.P., "Numeri.
3. "Introduction to Computers" by Peter Norton.
4. Yashvant Kanethkar "Shell Programming".

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DTCS101	**ODC**	**Computer Application-I**	-	-	-	**30**	**20**	-	-	**2**	**1**

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
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List of Experiments:

1. Creation and editing of Text files using MS- word.
2. Creation and operating of spreadsheet using MS-Excel.
3. Creation and editing power-point slides using MS- power point
4. Creation and manipulation of database table using MS-Access.
5. Study and practice of Internal & External DOS commands.
6. Using basic DOS commands like date, time, dir, copy con, type, ren etc. Exercise
7. Creating the directory structure and Batch file in the DOS
8. Using Windows XP graphical user interfaces (GUI).
9. Using basic Linux commands
10. Study of Shell programming (Writing shell scripts using control structures)
11. Study and practice of Basic linux Commands – ls, cp, mv, rm, chmod, kill, ps etc
12. Using vi editor Shell Programming (Writing simple shell scripts, use of conditional structures).
13. Study and Practice of MS windows – Folder related operations, My-Computer, window explorer,Control Panel.
14. WAP to illustrate constructor & Destructor
15. WAP to illustrate Object and classes.
16. WAP to illustrate Operator overloading
17. WAP to illustrate Function overloading
18. WAP to illustrate Derived classes & Inheritance.

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