Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Program Name: Bachelor of Technology

SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		Th	T	P	CREDITS
		END SEM	MST	Q/A	END SEM	Q/A				
BTMA201N	Mathematics II	60	20	20	-	-	3	1	-	4

Course Objective

To introduce the students to the fundamentals of integral calculus, differential equations, and numerical methods.

Course Outcomes

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

1. *know the fundamental principles of integral calculus;*
2. *apply the techniques of integral calculus to the problems of rectification, volume and surface of revolution of curves;*
3. *construct and solve the differential equations of higher order;*
4. *use the concept of finite differences and interpolation in evaluation of value of functions.*

Course Content:

UNIT – I: Calculus of finite differences: Operators, forward difference operator, backward difference operator, E-operator, relation between them, difference of a polynomial, factorial polynomial, Inverse operator. forward difference table, Backward difference Table.

UNIT – II: Interpolation: Introduction to Interpolation; Interpolation with equally spaced interval, forward and backward interpolation formula, Interpolation with unequally spaced intervals, Newton divided difference interpolation, langrage's formula for interpolation and inverse interpolation.

UNIT – III: Integral calculus: fundamental theorem of integral calculus, length of curves, volume, and surface area of revolution of curves.

UNIT – IV: Evaluation of integrals using gamma function. Multiple integral: Double integral, area by double integral. Evaluation of triple integrals.

UNIT – V: Linear differential equations of n^{th} order: Linear differential equations of n^{th} order, method of variation of parameter and Cauchy's homogenous linear equations.

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Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Program Name: Bachelor of Technology

SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		Th	T	P	CREDITS
		END SEM	MST	Q/A	END SEM	Q/A				
BTMA201N	Mathematics II	60	20	20	-	-	3	1	-	4

Texts:

- T. M. Apostol, Calculus, Volume I, 2nd Ed, Wiley, 1967.
- T. M. Apostol, Calculus, Volume II, 2nd Ed, Wiley, 1969.
- K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
- S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill,2005.
- B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi
- Erwin Kreyszig, Advanced Engineering Mathematics, 10th Ed, John Wiley Publisher.

References:

- J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
- J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
- J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
- M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.
- S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.

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B. Tech. (Common for All branches)

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*				
BTPH101	DC	Applied Physics	60	20	20	30	20	3	1	2	5

Course Objectives	1. To develop the comprehensive understanding of laws of physics. 2. To develop ability to apply laws of physics for various engineering applications. 3. To develop the experimental skills, ability to analyze the data obtained experimentally to reach substantiated conclusions.
Course Outcomes	1. Student will be able to comprehend laws of physics. 2. 2. Student will be able to apply laws of physics for various engineering applications. 3. 3. Student will be able to determine physical parameter experimentally and will be able to analyze the data obtained experimentally to draw substantiate conclusions.

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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BTPH101: Applied Physics

UNIT I: Quantum Physics

Introduction to Quantum hypothesis, Matter wave concept, Wave Group and Particle velocity and their relations, Uncertainty principle with elementary proof and applications to microscope and single slit, Compton Effect, Wave function and its physical significance, Development of time dependent and time independent Schrodinger wave equation, Applications of time independent Schrodinger wave equation.

UNIT II: Solid State Physics

Free electron model, Qualitative Analysis of Kronig Penney Model, Effective mass, Fermi level for Intrinsic and Extrinsic semiconductors, P-N junction diode, Zener diode, Tunnel diode, Photodiode, Solar-cells, Hall Effect, Introduction to Superconductivity, Meissner effect, Type I & II Superconductors.

UNIT III: Nuclear Physics

Nuclear Structure & Properties Nuclear models: Liquid drop with semi-empirical mass formula & shell model. Particle accelerators: Cyclotron, Synchrotron, Betatron. Counters and Detectors: Giger-Muller counters, Bainbridge Mass Spectrograph and Auston Mass Spectrograph.

UNIT VI: Laser & Fiber Optics

Stimulated and Spontaneous Emission, Einstein's A&B Coefficients, Population Inversion, Pumping, Techniques of Pumping, Optical Resonator, Properties and Applications of Laser, Ruby, Nd:Y AG, He-Ne lasers. Introduction to Optical fibre, Acceptance angle and cone, Numerical Aperture, V-Number, Ray theory of propagation through optical fibre, Pulse dispersion, applications of optical fibre.

UNIT V: Wave Optics

Introduction to Interference, Fresnel's Bi-prism, Interference in Thin films, Newton's rings experiment, Michelson's interferometer and its application, Introduction to Diffraction and its Types, Diffraction at single slit, double slit, resolving power, Rayleigh criterion, Resolving power of grating, Concept of polarized light, Double refraction, quarter and halfwave plate, circularly & elliptically polarized light.

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BTPH101: Applied Physics

REFERENCES

1. "Engineering Physics", by Dr. S. L. Gupta and Sanjeev Gupta, Dhanpat Rai Publication, New Delhi.
2. "Engineering Physics", by Navneet Gupta, Dhanpat Rai Publication, New Delhi.
3. "Engineering Physics", by H. J Sawant, Technical Publications, Pune, Maharashtra.
4. "Engineering Physics". by MN. Avdhanulu & P. G. Kshirsagar, S. Chand & Co.Edition (2012).
5. "Fundamentals of Physics", by Halliday, Wiley, India.
6. "Concepts of Modern Physics", by Beiser, TMH, New Delhi.
7. "Atomic and Nuclear physics", by Brijlal and Subraminiyan.
8. "LASERSs and Electro Optics". by Christopher C. Davis, Cambridge Univ. Press (1996).
9. "Optoelectronics an Introduction", by J Wilson & JF.B.Hawkes, "" Prentice-Hall II Edition.
10. "LASER theory and applications", by A. K. Ghatak & Tyaga raja n, TMH (1984).

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BTPH101: Applied Physics

List of experiments

1. Measurement of radius of curvature "R" of convex lens by Newton's ring experiment.
2. Measurement of Numerical aperture of fiber by LASER.
3. Determination of Energy band gap .Eg" ofGe using Four Probe method.
4. Measurement of Frequency of A.C. mains by electrically maintained vibrating rod.
5. Measurement of Resolving Power of Telescope.
6. Measurement of "'A" of LASER light source using Diffraction Grating.
7. Determination of Planck's constant by using photocell.
8. Determination of Energy band gap (Eg) using PN Junction Diode.
9. To determine the mass of cane sugar dissolved in water using half shade polarimeter.
10. To study forward and reverse characteristics of Zener diode.
11. To study forward and reverse characteristics of P-N diode.
12. To study characteristics of Photo diode.
13. To study characteristics of LDR.
14. μ and ω of given prism using spectrometer.
15. Measuring height of a given object using Sextant.

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B.Tech. in Civil Engineering
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COURSE CODE	CATE-GORY	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*				
BTCE 103	BEC	Applied Mechanics	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):
The students (A) will be Able to familiarize with different branches of mechanics (B) with emphasis on their analysis and application to practical engineering problems(C) efficiently & effectively (D).

Course Outcomes (COs):
The students will be able to

1. To apply knowledge of mathematics, science in engineering.
2. To identify, formulate, and solve engineering problems.
3. Demonstrate various types of forces and their analysis.
4. Demonstrate shear force and bending moment on structural member.
5. Demonstrate centre of gravity and moment of inertia determination of different geometrical shapes.

Syllabus

UNIT I **08 Hrs.**

Static and Dynamic Forces: Introduction to Engineering Mechanics; Classification of Engineering Mechanics; Statistics, dynamics, kinematics, and kinetics; Fundamental laws of mechanics. Introduction to dynamics and motion; Types of motions.
Introduction of Force, pressure, and stress; Free Body Diagram; Bow's Notation; Characteristics and effects of a force; System of forces; Resolution of a force; Composition of forces; Resultant / Equilibrant force,

UNIT II **08 Hrs.**

Law of Forces: Parallelogram law of forces; Triangle law of forces; Polygon law of forces; Lami's Theorem; Equilibrium of a body under two / three/more than three forces; Law of superposition of forces.
Moment force; Principle of moments/ Varignon's theorem; Parallel forces; Resultant of parallel forces; Couple, moment of a couple; Resolution of force into a couple.

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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*				
BTCE 103	BEC	Applied Mechanics	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.

UNIT III **09 Hrs.**

Analysis of Framed Structure: Truss, types of trusses; Analysis of truss; Various methods of analyzing the truss; Numerical analysis of truss.

UNIT IV **09 Hrs.**

Beams: Types of beams; Simply supported beam, overhanging beam, cantilever beam; Introduction to roller, hinged and fixed supports; Different types of loading; Calculation of support reaction, shear force and bending moment for simply supported and cantilever beams.

UNIT V **08 Hrs.**

Centre of Gravity: Introduction to centroid and centre of gravity; Determination of centroid of simple figures; Centroid of composite sections.
Moment of Inertia: Definition of moment of inertia; Theorems of moment of inertia; Radius of Gyration; Moment of inertia of standard sections; Moment of inertia of composite section.

Textbooks:

1. R.S. Khurmi, N. Khurmi, A Textbook of Engineering Mechanics, S Chand Publishing.
2. R.K. Rajput, A Textbook of Applied Mechanics, Laxmi Publications

Reference Books:

1. S.P, Timoshenko, Engineering Mechanics, McGraw Hill Education.
2. R.C. Hibbler, Engineering Mechanics: Statics & Dynamics, Pearson Education
3. A. Boresi & Schmidt, Engineering Mechanics- statics dynamics, Thomson Books

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COURSE CODE	CATE-GORY	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*				
BTCE 103	BEC	Applied Mechanics	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.

List of Practical's:

1. To verify the law of Triangle of forces
2. To verify the Lami's theorem.
3. To verify the law of parallelogram of forces.
4. To verify law of polygon of forces
5. To determine support reaction and shear force at a given section of a simply Supported beam and verify in analytically using parallel beam apparatus.
6. To determine the moment of inertia of fly wheel by falling weight method.
7. To verify bending moment at a given section of a simply supported beam.
8. Study of Various Beams and their Loading conditions

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COURSE CODE	CATE-GORY	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*				
BTEE106		Fundamentals of Electrical and Electronics 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):

1. To impart the basic knowledge about the Electric and Magnetic circuits.
2. To explain the working principle, construction, applications of Transformers, DC machines and AC machines.
3. To understand the concept of diode, and transistors.

Course Outcomes (COs):

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

1. Apply knowledge of mathematics to analyze and solve electrical circuit problems.
2. Illustrate basic knowledge about the Electric and Magnetic circuits.
3. Distinguish the working Principles of various Electrical Machines.
4. Understand the concept of diodes and transistors.

Syllabus

UNIT I **8 Hrs.**

DC Circuits: Electrical circuit elements (R, L and C), voltage and current sources, Kirchoff current and voltage laws, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems.

AC Circuits: Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor. Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), Three-phase balanced circuits, voltage and current relations in star and delta connections.

UNIT II **9 Hrs.**

Magnetic Circuits: Basic definitions, self-inductance and mutual inductance, energy in linear magnetic systems, coils connected in series, AC excitation in magnetic circuits, magnetic field produced by current carrying conductor, Force on a current carrying conductor. Induced voltage, laws of electromagnetic Induction, direction of induced E.M.F.

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COURSE CODE	CATE-GORY	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*				
BTEE106		Fundamentals of Electrical and Electronics 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.

Single phase transformer: General construction, working principle, e.m.f. equation, equivalent circuits, phasor diagram, voltage regulation, losses and efficiency, open circuit, and short circuit test

UNIT III **8 Hrs.**

Electrical Machines: Construction, Classification & Working Principle of DC machine, induction machine and synchronous machine. Working principle of 3-Phase induction motor, Concept of slip in 3- Phase induction motor, Explanation of Torque-slip characteristics of 3-Phase induction motor. Types of losses occurring in electrical machines. Applications of DC machine, induction machine and synchronous machine.

UNIT IV **8 Hrs.**

PN Junction diode: Principle of operation, V-I characteristics, Junction breakdown, Avalanche breakdown, various types of diodes: Zener diode, Schottky diode, PIN diode, varactor diode, Zener diode as voltage regulator

Rectifier: Half wave rectifier and Full wave rectifier.

UNIT V **9 Hrs.**

Bipolar Junction Transistors: PNP and NPN transistors, Principle of operation, Ebers-Moll model, early effect, CB, CC, CE configuration and its input and output characteristics, transistor as an amplifier.

Textbooks:

1. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
2. D.P Kothari, I.J Nagrath, "Basic Electrical and Electronics Engineering" , McGraw Hill Education (India) Private Limited, Second Edition 2020.
3. Boylestad and Nashelsky, "Electronic Devices and Circuit Theory", Pearson Education,11th Edition, 2013.

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COURSE CODE	CATE-GORY	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*				
BTEE106		Fundamentals of Electrical and Electronics 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. V.N Mittal & Arvind Mittal, " Basic Electrical Engineering", TMH, Second Edition.
2. R.K Rajput, "Basic Electrical and Electronics Engineering" , University Science Press, Second Edition 2012.
3. J.B Gupta, " Electronic Devices and Circuit", S.K. Kataria & Sons, ,2013.

List of Experiments:

1. Verification of KCL and KVL.
2. Separation of resistance and inductance of choke coil.
3. Study of Transformer and its name plate rating.
4. Determination of Turns ratio and polarity of Single-Phase Transformer.
5. Determination of circuit parameters of a single-phase transformer by O.C. and S.C. tests.
6. Measurement of power in a three-phase circuit by two wattmeter methods.
7. Measurement of various line & phase quantities for a 3-phase circuit.
8. Study of No-load characteristics of D.C shunt Generators.
9. To determine and analyse the V-I characteristics of PN Junction diode and Zener Diode.
10. To determine input and output characteristics of transistor amplifiers in CE, CC and CB configurations.

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING&EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			ENDSEM University Exam	Two Term Exam	Teachers Assessment*	ENDSEM University Exam	Teachers Assessment*				
BTCS207	BEC	COMPUTER PROGRAMMING-II	0	0	0	30	20	0	0	2	1

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 Objectives:

1. To understand Object oriented concepts.
2. To understand programming using object oriented techniques.
3. To understand the use of various system libraries.
4. To have the knowledge of important topics and principles of software development.
5. To write a computer program & to solve specified problems.
6. To use the Java SDK environment to create, debug and run simple Java programs.
7. To study event driven Graphical User Interface(GUI)programming

Course Outcomes:

1. Students should be able to explain the object oriented concepts.
2. Students should be able to write programs using object-based programming techniques including classes, objects and inheritance.
3. Able to use of various system libraries.
4. Be aware of the important topics and principles of software development.
5. Have the ability to write a computer program to solve specified problems.
6. Be able to use the JavaSDK environment to create, debug and run simple Java programs.
7. Introduce event driven Graphical User Interface(GUI) programming

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B.Tech. (Non CSE & IT Branch)
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COURSE CODE	CATEGORY	COURSE NAME	TEACHING&EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			ENDSEM University Exam	Two Term Exam	Teacher Assessment*	ENDSEM University Exam	Teachers Assessment*				
BTCS207	BEC	COMPUTER PROGRAMMING-II	0	0	0	30	20	0	0	2	1

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-I

Java Fundamentals: Features of Java,OOPS Concepts Java virtual machine, Byte code interpretationDatatypes,variable,arrays,expressions,operators,andcontrolstructures,Objects,Introduc tiontoClassInstance members and member functions, constructors, constructor overloading, Static Method, Static classes ,Inner classes.

UNIT-II

Introduction to Java classes and objects: Java features: Java syntax, data types, data type conversions, control statements, operators and their precedence. Introduction to Class: Instance members and member functions. Inner Classes, String Handling, Wrapper classes

UNIT-III

Inheritance, Polymorphism and Collection: Class relationships: Inheritance and its types, Merit and Demerits. Association, Association inheritance, Polymorphism: Dynamic method dispatch, Runtime polymorphism, Abstract classes, Interface sand packages, Collections.

UNIT-IV

Exception Handling and Multithreading: Exceptions: Need for exceptions, Exception hierarchy:CheckedUncheckedexceptions,Try,catch,finally,Throw,throws,creatingexceptions.Mul tithreading:ThreadLifecycle,Multihreading advantages and issues, Simple thread program, Priorities and scheduling, Thread Synchronization.

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Choice Based Credit System (CBCS) in the Light of NEP-2020
B.Tech. (Non CSE & IT Branch)
(2021-2025)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING&EVALUATION SCHEME								
			THEORY			PRACTICAL					
			ENDSEM University Exam	Two Term Exam	Teachers Assessment*	ENDSEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTCS207	BEC	COMPUTER PROGRAMMING-II	0	0	0	30	20	0	0	2	1

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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UNIT-V

Java I/O, Applets, Event Handling, and Database Connectivity: Basic concept of streams I/O stream &reader-writer classes. File handling. Applet and its Life Cycle, Basic GUI elements, Event Delegation Model and event handling Swing components: Applet, JButton, JFrame, etc. Sample swing Programs JDBC architecture establishing connectivity and working with connection inter face working with statements, Creating and executing SQLstatements, working with Result Set.

Text Books:

1. Java- Head First 2nd edition Kathy Sierra , Bert Bates.
2. Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill Companies.
3. Java Programming John P. Flynt Thomson 2nd.

Refrences:

1. Java Programming Language Ken Arnold Pearson.
2. The complete reference JAVA2, Hervertschildt. TMH.
3. Big Java, Cay Horstmann 2nd edition, Wiley India Edition.
4. Javá – Balaguruswamy.

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Practical List :

1. InstallationofJ2SDK
2. Write a program to show Scope of Variables
3. Write a program to show Concept of CLASS in JAVA
4. Write a program to show Type Casting in JAVA
5. Write a program to show How Exception Handling is in JAVA
6. Write a Program to show Inheritance
7. Write a program to show Polymorphism
8. Write a program to show Access Specifiers (Public,Private,Protected)in JAVA
9. Write a program to show use and Advantages of CONTRUCTOR.
10. Write a program to show Interfacing between two classes
11. Write a program to Add a Class to a Package
12. Write a program to show Life Cycle of a Thread
13. Write a program to demonstrate AWT.
14. Write a program to Hide a Class
15. Write a Program to show Data Base Connectivity Using JAVA
16. Write a Program to show "HELLOJAVA" in Explore using Applet
17. Write a Program to show Connectivity using JDBC
18. Write a program to demonstrate multithreading using Java.
19. Write a program to demonstrate applet lifecycle.
20. Write a program to demonstrate concept of servlet.

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTME103	BEC	WORKSHOP PRACTICES	0	0	0	30	20	0	0	2	1

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Course Educational Objectives (CEOs):
To paraphrases with (A) workshop technology, industrial safety, and understand material properties. (B) Carpentry shop, fitting shop, (C) welding and casting.

Course Outcomes:
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 understand the need of workshop, technology related to it, and industrial safety and precautions.
2. Student would be able to use carpentry tools, analyses various wood joints and their properties.
3. Students would be able to use fitting tools to make various shapes and design.
4. Student would be able to recognize various welding techniques and their needs.
5. Students would be able to design various shapes by using casting technologies.

Syllabus:

UNIT I **(6 Hrs)**

Introduction to Workshop Technology & Industrial Safety:

Workshop Technology: Introduction, need of workshop and types of workshop

Industrial Safety- Introduction, objective of industrial safety, causes of accidents, common sources of accidents, preventive measures, and common safety methods.

UNIT II **(6 Hrs)**

Carpentry Shop:

Introduction, types of timbers, defects in timbers, timber prevention, characteristics of good timber, common tools used in carpentry shop (marking and measuring tools; cutting tools and striking tools), and common wood joints (cross-lap, corner-lap, dovetail and bridle joints).

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UNIT III **(6 Hrs)**

Fitting Shop:

Introduction, tools used in fitting shop (measuring tools, holding tools, cutting tools, striking tools and supporting tools) and operation performed in fitting work.

UNIT IV **(6 Hrs)**

Welding Shop:

Introduction, terminological elements of welding process, welding joints (lap joints and butt weld joint), welding positions, advantages and disadvantages of welding, classification of welding, gas welding processes and safety recommendation for gas welding.

UNIT V **(6 Hrs)**

Casting:

Pattern making and sand casting, Pattern materials, Types of pattern, Pattern allowances. Core prints. Moulding sand, ingredients, classification, sand additives, properties of moulding sand, sand preparation and testing. Green sand mould preparation. Cores and core making – Types of cores.

Text and Reference Books:

1. "Workshop Technology (Part-I)" by W.A.J. Chapman, CBS Pub, 2001.
2. "Production Technology (Vol-I)" by R.K. Jain, Khanna Publishers, 19th ed. 2019.
3. "Principles of Manufacturing Material & Process" by J.S. Campbell McGraw Hill, 1984.
4. "Welding: Principles & Practices" by Edward R. Bonhart, McGraw Hill Edu. India
5. "Welding and Welding Technology" by Richard L. Little, McGraw Hill, 2017.
6. "Principles of Foundry Technology" by P.L. Jain, McGraw Hill, 2017.
7. "Manufacturing Technology (Vol-I)" by P. N. Rao, McGraw Hill, 2017.
8. "Workshop Technology (Vol-I)" by B.S. Raghuvanshi, Dhanpat Rai & Co. 2015.

List of Experiments:

1. To study various industrial safety precautions & preventive measures.
2. To study the various timber properties, its defects and its prevention.
3. To make various joints (L-joint, T-joint, Cross joint, etc.) using carpentry tools.

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BTME103	BEC	**WORKSHOP PRACTICES**	0	0	0	30	20	0	0	2	**1**

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4. To perform various fitting shop operations using fitting tools.
5. To study various welding methods and its safety precaution.
6. To make various welding joints (Butt joints, Lap, joints, corner joints, etc).
7. To study various types of patterns and pattern allowances.
8. To study properties of moulding sand and prepare a mould.
9. To study various types of cores and its application in casting.

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