BBAI501 HUMAN VALUES AND PROFESSIONAL ETHICS

SUBJECT CODE	SUBJECT 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*				
BBAI501	Human Values and Professional Ethics	60	20	20	-	-	4	-	-	4

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

Course Objectives

The objective of the course is to disseminate the theory and practice of moral code of conduct and familiarize the students with the concepts of "right" and "good" in individual, social and professional context

Course Outcomes

1. Help the learners to determine what action or life is best to do or live.
2. Right conduct and good life.
3. To equip students with understanding of the ethical philosophies, principles, models that directly and indirectly affect business.

COURSE CONTENT

Unit I: Human Value

1. Definition, Essence, Features and Sources
2. Sources and Classification
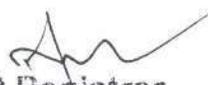3. Hierarchy of Values
4. Values Across Culture

Unit II: Morality

1. Definition, Moral Behaviour and Systems
2. Characteristics of Moral Standards
3. Values Vs Ethics Vs Morality
4. Impression Formation and Management

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Unit III: Leadership in Indian Ethical Perspective.

1. Leadership, Characteristics
2. Leadership in Business (Styles), Types of Leadership (Scriptural, Political, Business and Charismatic)
3. Leadership Behaviour, Leadership Transformation in terms of Shastras (Upanihads, Smritis and Manu-smriti).

Unit IV: Human Behavior – Indian Thoughts

1. Business Ethics its meaning and definition
2. Types, Objectives, Sources, Relevance in Business organisations.
3. Theories of Ethics, Codes of Ethics

Unit V: Globalization and Ethics

1. Sources of Indian Ethos & its impact on human behavior
2. Corporate Citizenship and Social Responsibility – Concept (in Business),
3. Work Ethics and factors affecting work Ethics.

Suggested Readings

1. Beteille, Andre (1991). *Society and Politics in India*. Athlone Press:New Jersey.
2. Chakraborty, S. K. (1999). *Values and Ethics for Organizations*. oxford university press
3. Fernando, A.C. (2009). *Business Ethics - An Indian Perspective* .India: Pearson Education: India
4. Fleddermann, Charles D. (2012). *Engineering Ethics*. New Jersey: Pearson Education / Prentice Hall.
5. Boatright, John R (2012). *Ethics and the Conduct of Business.*Pearson. Education: New Delhi.
6. Crane, Andrew and Matten, Dirk (2015). *Business Ethics*. Oxford University Press Inc:New York.
7. Murthy, C.S.V. (2016). Business *Ethics – Text and Cases*. Himalaya Publishing House Pvt. Ltd:Mumbai
8. Naagrajan, R.R (2016). *Professional Ethics and Human Values*. New Age International Publications:New Delhi.

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DEGREE PROGRAM

B.Sc. IV Sem

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			End Sem University Exam	Two Term Exam	Teachers Assessment*	End Sem University Exam	Teachers Assessment*	Th	T	P	CREDITS
BSPH402	DC	Electrostatics & Magneto statics	60	20	20	30	20	3	1	4	6

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
Q/A – Quiz/Assignment/Attendance, MST MidSem Test.
*Teacher Assessment shall be based on following components: Quiz/Assignment/ Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Objectives:-

1. To develop the comprehensive understanding of laws of physics related to Electrostatics & Magnetostatics and ability to apply them for laying the foundation for research and development.

2. To work ethically as member as well as leader in a diverse team.

Course Outcomes:-

1. Student will be able to understand and solve the problems related to Electrostatics.

2. Student will be able to understand and solve the problem related to Magnetostatics.

3. Student will be able to determine physical parameter experimentally with optimal usage of resources and complete the assignments in time.

BSPH 402-Electrostatics &Magnetostatics

Unit-1

Electric Circuits AC Circuits: - Complex Reactance and Impedance. Series LCR Circuit: Resonance, Power Dissipation and Quality Factor, and Band Width. Parallel LCR Circuit.Network theorems: - Ideal Constant voltage and Constant-current Sources, Network Theorems: Thevenin theorem, Norton theorem, Superposition theorem, Reciprocity theorem, and Maximum Power Transfer theorem.

Unit-2

Electrostatics Coulombs law in vacuum expressed in vector forms, calculations of electric field E for simple distributions of charge at rest, dipole and quadruple fields. Relation between electric field & electric potential ($E = - \nabla V$), torque on a dipole in a uniform electric field and its energy, flux of the electric field, Gauss's law and its application.. Dielectrics, parallel plate capacitor with a dielectric, dielectric constant, polarization and polarization vector P, relation between displacement vector D, E and P. Molecular interpretation of Claussius-Mossotti equation

Unit-3

Magnetostatics Force on a moving charge, Lorentz force equation and definition of B, force on a straight conductor carrying current in a uniform magnetic field, torque on a current loop, magnetic dipole moment, angular momentum and gyro magnetic ratio, Biot and Savart's law, Electromagnetic induction, Faraday's Laws, Electromotive force, Integral and differential forms of Faraday's laws, Self and mutual inductance, Transformers, Energy in a static magnetic field, Maxwell's displacement current, Derivations of Maxwell's equations, Electromagnetic field energy density. Poynting vector,

Unit-4

Current Electricity: Steady current, current density J, non-steady currents and continuity equation, Kirchoff's laws and analysis of multi loop circuits, growth and decay of current in LR and CR circuits, decay constants, LCR circuits. AC circuits, complex numbers and their applications in solving AC circuits problems, complex impedance and reactance, series and parallel resonance. Q-factor, power consumed by an A.C. circuit, power factor, Y and Δ networks and transmission of electric power.

Unit-5

Dielectric Properties of Matter Dielectrics:- Electric Field in Matter. Dielectric Constant.Parallel Plate Capacitor with a Dielectric.Polarization, Polarization Charges and Polarization Vector.Electric Susceptibility.Gauss's law in Dielectrics.Displacement vector D. Relations between the three Electric Vectors. Capacitors filled with Dielectrics.

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References:

1. Introduction to Electrodynamics: David J. Griffiths, 4th Edition, Printice Hall.
2. Classical Electrodynamics: Jhon David Jackson, Jhon Wiley & Sons.
3. Electrodynamics: Emi Cossor&Bassin Lorraine, Asahi Shimbunsha Publishing Ltd.
4. From Neuron to Brain: Kuffler and Nicholas, Sinauer Associates, Inc Pub. Sunderland, Masschuetts (Reference for topics of Bioelectricity) Department of Higher Education, Government of Mad

List of Experiments:

1. Hall probe method for measurement of resistivity.
2. To Study Series Resonance CKT
3. Charging and discharging of Capacitor through resistance
4. Study of B-H Curve (Magneto statics)
5. To study Parallel Resonance
6. Measurement of Frequency of A.C. mains by electrically maintained vibrating rod.(Electromagnetic induction)
7. Growth and decay of current in LR
8. Determination of e/m using Thomson's method.
9. Verification of Thevenin theorem
10. Verification of Norton theorem
11. Verification of Superposition theorem
12. Verification of Maximum Power Transfer theorem.

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Name of the Program: B. Sc. (Plain)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME									
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BSMA 403	DC	Analytical Geometry of three dimensions	60	20	20	-	-	3	1	-	4

Course Objective

To introduce the students with the Fundamentals of the Analytical Geometry of three dimensions.

Course Outcomes

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

1. understand and solve problems of the straight lines in 3D.

2. solve the problems of the planes.

3. know the solution of the problems of the spheres.

4. understand and apply the concepts of the algebra of the Right circular cone.

Course Content:

UNIT – I

Rectangular Cartesian co-ordinates: Distance between two points. Division of a line segment in a given ratio. Direction cosines and direction ratios of a straight line. Projection of a line segment on another line. Angle between two straight lines.

UNIT – II

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Equation of a Plane: General form. Intercept and Normal form. Angle between two planes. Signed distance of a point from a plane. Bisectors of angles between two intersecting planes.

UNIT – III

Equations of Straight line: General and symmetric form. Distance of a point from a line. Coplanarity of two straight lines. Shortest distance between two skew-lines.

UNIT – IV

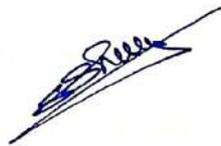Sphere and its tangent plane.

UNIT – V

Right circular cone.

Texts:

1. Co-ordinate Geometry – S. L. Loney.

2. Co-ordinate Geometry of Three Dimensions – Robert J. T. Bell.

3. Elementary Treatise on Conic sections – C. Smith.

4. Solid Analytic Geometry – C. smith.

5. Higher Geometry – Efimov.

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Name of the Program: B. Sc. (Plain)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BSMA 405	DC	**Modern Algebra**	60	20	20	-	-	3	1	-	4

Course Objective

To introduce the students with the Fundamentals of the Modern Algebra.

Course Outcomes

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

1. understand and solve problems of the classical set theory.

2. solve the problems of the group theory.

3. apply the techniques of the ring and field theories.

4. solve the problems of the vector space.

5. understand and apply the concepts of the algebra of matrices.

Course Content:

UNIT – I

Basic concept: Sets, Sub-sets, Equality of sets, Operations on sets: Union, intersection and complement. Verification of the laws of Algebra of sets and De Morgan's Laws. Cartesian product of two sets. Mappings, One-One and onto mappings. Composition of Mappings–concept only, Identity and Inverse mappings. Binary Operations in a set. Identity element. Inverse element.

UNIT – II
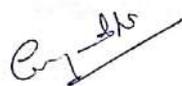
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Introduction of Group Theory: Definition and examples taken from various branches (examples from number system, roots of unity, 2 x 2 real matrices, non-singular real matrices of a fixed order). Elementary properties using definition of Group. Definition and examples of sub-group – Statement of necessary and sufficient condition – its applications.

UNIT – III

Definitions and examples of (i) Ring, (ii) Field, (iii) Sub-ring, (iv) Subfield.

UNIT – IV

Concept of Vector space over a Field: Examples, Concepts of Linear combinations, Linear dependence and independence of a finite set of vectors, Sup-space. Concepts of generators and basis of a finite-dimensional vector space. Problems on formation of basis of a vector space (No proof required).

UNIT – V

Real Quadratic Form involving not more than three variables – Problems only. Characteristic equation of a square matrix of order not more than three – determination of Eigen Values and Eigen Vectors – Problems only. Statement and illustration of Cayley-Hamilton Theorem.

Texts:

1. Modern Algebra – Surjeet Singh & Zameruddin.

2. First Course in Abstract Algebra – Fraleigh.

3. Topics in Algebra – Hernstein.

4. Test book of algebra – Leadership Project Committee (University of Bombay).

5. Elements of Abstract Algebra – Sharma, Gokhroo, saini (Jaipur Publishing House, S.M.S. Highway, Jaipur - 3).

6. Abstract Algebra – N. P. Chaudhuri (Tata Mc.Graw Hill).

7. Linear Algebra – Hadley

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SEMESTER IV

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BSEL404	Electronics	Electronics IV	60	20	20	0	0	3	1	0	4

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***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:
To provide a theoretical & practical knowledge of Microprocessor architecture, interfacing and assembly language programming techniques.

Course Outcomes:
After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes
The students will be able to
1. Demonstrate knowledge of the architecture, organization and operation of microprocessors & Microcontrollers (8085 and 8051), peripherals and memories typically interfaced with them.
2. Execute assembly language programs efficiently for solving problems by using instruction sets.
3. Use an Integrated Development Environment (IDE) as a modern software tool for embedded systems development. (Application & Synthesis).

Syllabus:

UNIT I   8 Hours
Fundamentals of Microprocessors
Introduction, An ideal microprocessor, the data bus, address bus, control bus, microprocessor based system- basic operation, microprocessor operation, microprocessor architecture, instruction set, 8085 and 8086 microprocessor

UNIT II   10 Hours
Programming of microprocessors
Introduction, assembly languages, High-Level Language, application of various language, stacks, subroutines, system software, Programmable DMA controller, Programmable interrupt controller (PIC), programmable communication interface

UNIT III   **8 Hours**

Peripheral Devices and Interfacing

Programmable input/output ports 8255A: Configuration, Modes and Operation. Programmable interval timer 8253, keyboard/display controller 8279, Programmable communication interface 8251 USART, DMA controller 8257.

UNIT IV   **10 Hours**

Microcontroller Architecture

Block diagram of 8051, Architecture of 8051, program counter and memory organization, Data types and directives, PSW register, Register banks and stack, pin diagram of 8051, Interrupts.

UNIT V   **9 Hours**

Interfacing and Application of Microcontroller

Interfacing of – PPI 8255, DAC (0804), interfacing seven segment displays, displaying information on a LCD, control of a stepper Motor (Uni-Polar), Interfacing a 4*4 matrix keypad.

Text Books:

1. Ramesh S. Gaonkar, "Microprocessor Architecture, Programming and application with 8085", 6th Edition, Penram International Publishing, 2013.
2. B. Ram, "Fundamentals of Microprocessors and Microcontrollers", 6th Edition, Dhanpat Rai Publications, 2010.
3. Douglas V. Hall, "Microprocessors and Interfacing: Programming and Hardware", 3rd Edition, Tata McGraw Hill Publishers, 2012.

References:

1. Microcontrollers Architecture, Programming, Interfacing and system Design by Rajkamal, Pearson Education, 2011.
2. A. K. Ray and K. M. Burchandi, "Intel Microprocessors Architecture Programming and Interfacing", 3rd Edition, McGraw Hill International Edition, 2012.
3. Barry B. Brey, "The Intel Microprocessors – Architecture, Programming And Interfacing", 8th Edition, Pearson Education, 2008.
4. Adithya P Mathur, "Introduction to Microprocessor", 3rd Edition, Tata McGraw Hill Publishers, 2001.

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SEMESTER IV

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BSPEL407	Electronics	Electronics Lab IV	0	0	0	30	20	0	0	4	2

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2. Execute assembly language programs efficiently for solving problems by using instruction sets.
3. Use an Integrated Development Environment (IDE) as a modern software tool for embedded systems development. (Application & Synthesis).

Syllabus:

List of Practicals:
Develop/Execute a program:-
1. To move data from one register to another.
2. To move immediate data between different registers.
3. For addition and subtraction.
4. For multiplication.
5. For division.
6. To check whether given no is odd or even.
7. To transfer a block of data from one memory location to another memory location.
8. To add two 32-bit numbers.
9. To add 2 decimal numbers in BCD format.
10. To convert data from gray code to binary code.
11. To convert data from binary code to gray code.
12. Based on 8 bit Logical instructions.
13. To sum integers from 0 to 9.
14. To count negative values in given block of data.
15. To find the smallest number from an array of N numbers.
16. Develop/Execute a Subroutine to find the square of given integer.