FACULTY OF

SCIENCE

COURSE STRUCTURE & SYLLABUS

M.SC.(PLANT AND MACHINERY VALUATION)

Effective from Academic Year: 2022-23

Opp. Shastri Maidan, Beside BVM College, Vallabh Vidyanagar, Dist: Anand, Gujarat - 388120
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Faculty Name: Science

Programme Name: M.Sc. (Plant and Machinery Valuation)

Programme Structure Summary

SEMESTER 1											
Course Group	Course Name	Cr	Teaching Scheme				INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
			T	P	Tu	Cont. Hrs					
Core	PRINCIPLES OF ECONOMICS	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	BOOK KEEPING AND ACCOUNTANCY	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	ELEMENTARY SURVEYING AND ENGINEERING DRAWING	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	INTRODUCTION TO STATISTICS	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	PRINCIPLES OF VALUATION	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	-	-	50/20	50/20
Elective*	ELE. OF LAWS AND JURISPRUDENCE / AIR POLLUTION AND CLIMATE CHANGE	4	T	-	-	4	50/20	50/20	-	-	100/40

* Any one elective subject

SEMESTER 2											
Course Group	Course Name	Cr	Teaching Scheme				INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
			T	P	Tu	Cont. Hrs					
Core	TOWN AND REGIONAL PLANNING	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	PRIN. OF M/C TOOLS AND FAC. EQUIP.	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	LEGAL STUDY – I	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	VALUATION OF PLANT AND MACHINERY – I	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	VALUATION OF PLANT AND MACHINERY– II	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	-	-	50/20	50/20
Elective*	INDUSTRIAL PROCESSES / WATER POLLUTION AND CONTROL TECHNOLOGY	4	T	-	-	4	50/20	50/20	-	-	100/40

* Any one elective subject

Faculty Name: Science

Programme Name: M.Sc. (Plant and Machinery Valuation)

SEMESTER 3											
Course Group	Course Name	Cr	Teaching Scheme				INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
			T	P	Tu	Cont. Hrs					
Core	ENVIRONMENTAL IMPACT ASSESSMENT	2	T	-	-	2	25/10	25/10	-	-	50/20
Core	FINANCE, BUSI. & MGNT. STUDIES	2	T	-	-	2	25/10	25/10	-	-	50/20
Core	PRIN. OF INSURANCE & LOSS ASSE.	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	LEGAL STUDY - II	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	VALUATION OF PLANT AND MACHINERY– III	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	VALUATION OF PLANT AND MACHINERY– IV	4	T	-	-	4	50/20	50/20	-	-	100/40
Core	COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	-	-	50/20	50/20
Elective*	REPORT WRITING SUSTAINABLE DEVELOPMENT	4	T	-	-	4	50/20	50/20	-	-	100/40

* Any one elective subject

SEMESTER 4											
Course Group	Course Name	Cr	Teaching Scheme				INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
			T	P	Tu	Cont. Hrs					
Core	FIELD WORK AND SEMINAR	8	-	P	-	-	-	-	-	200/80	200/80
Core	PROJECT WORK	16	-	P	-	-	-	-	-	400/160	400/160
Core	COMPREHENSIVE VIVA-VOCE	1	-	P	-	-	-	-	-	50/20	50/20

Faculty Name: Science

Programme Name: M.Sc. (Plant and Machinery Valuation)

Programme Outcomes

PO-1	Student thoroughly learns valuation of various types of Plant and Machinery for variety of fiscal and non-fiscal purposes
PO-2	Student can work as a professional valuer (Govt. Regd. Valuer) after attaining necessary experience as per legal provisions - under S. 34 AB of Wealth Tax Act as well as under Companies (Registered Valuers and Valuation) Rules, 2017
PO-3	Student can work as an in-house valuer for any banking or non-banking finance company
PO-4	Student can work as an employee with National/Multi National Accounting firms as a qualified Plant and Machinery Valuer
PO-5	Student can work as an employee with practicing valuation firm/company
PO-6	Besides core subjects of plant and machinery valuation, student gets preliminary knowledge about insurance principles, statistics, industrial processes, town planning, law and basics of accounting and finance

Faculty Name: Science

Programme Name: M.Sc.(Plant and Machinery Valuation)

Semester: I

Academic Batch: 2022-23

Course Group	Board of Studies / Faculty Ownership	Course Code	Course Name	Cr	Teaching Scheme				Assessment/ Evaluation Type		External Exam Duration (Hrs.)		INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
					T	P	Tu	Cont. Hrs	T	P	T	P					
Core	Interdisciplinary		PRINCIPLES OF ECONOMICS	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		BOOK KEEPING AND ACCOUNTANCY	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		ELEMENTARY SURVEYING AND ENGINEERING DRAWING	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		INTRODUCTION TO STATISTICS	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		PRINCIPLES OF VALUATION	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	P	-	-	-	-	-	50/20	50/20
Elective	Interdisciplinary		ELE. OF LAWS AND JURISPRUDENCE	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
			AIR POLLUTION AND CLIMATE CHANGE														

 # T = Theory, P = Practical, Tu = Tutorial

Name & Sign [Chairman - Board of Studies]:

Name & Sign [Dean / Director]:

Faculty Name: Science

Programme Name: M.Sc.(Plant and Machinery Valuation)

Semester: II

Academic Batch: 2022-23

Course Group	Board of Studies / Faculty Ownership	Course Code	Course Name	Cr	Teaching Scheme				Assessment/ Evaluation Type		External Exam Duration (Hrs.)		INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
					T	P	Tu	Cont. Hrs	T	P	T	P					
Core	Interdisciplinary		TOWN AND REGIONAL PLANNING	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		PRIN. OF M/C TOOLS AND FAC. EQUIP.	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		LEGAL STUDY – I	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		VALUATION OF PLANT AND MACHINERY – I	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		VALUATION OF PLANT AND MACHINERY– II	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	P	-	-	-	-	-	50/20	50/20
Elective	Interdisciplinary		INDUSTRIAL PROCESSES	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
			WATER POLLUTION AND CONTROL TECHNOLOGY														

 # T = Theory, P = Practical, Tu = Tutorial

Name & Sign [Chairman - Board of Studies]:

Name & Sign [Dean / Director]:

Faculty Name: Science

Programme Name: M.Sc.(Plant and Machinery Valuation)

Semester: III

Academic Batch: 2022-23

Course Group	Board of Studies / Faculty Ownership	Course Code	Course Name	Cr	Teaching Scheme				Assessment/ Evaluation Type		External Exam Duration (Hrs.)		INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
					T	P	Tu	Cont. Hrs	T	P	T	P					
Core	Interdisciplinary		ENVIRONMENTAL IMPACT ASSESSMENT	2	T	-	-	2	T	-	2	-	25/10	25/10	-	-	50/20
Core	Interdisciplinary		FINANCE, BUSI. & MGNT. STUDIES	2	T	-	-	2	T	-	2	-	25/10	25/10	-	-	50/20
Core	Interdisciplinary		PRIN. OF INSURANCE & LOSS ASSE.	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		LEGAL STUDY - II	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		VALUATION OF PLANT AND MACHINERY– III	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		VALUATION OF PLANT AND MACHINERY– IV	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40
Core	Interdisciplinary		COMPREHENSIVE VIVA-VOCE	1	-	-	-	-	-	P	-	-	-	-	-	50/20	50/20
Elective	Interdisciplinary		REPORT WRITING / SUSTAINABLE DEVELOPMENT	4	T	-	-	4	T	-	2	-	50/20	50/20	-	-	100/40

 # T = Theory, P = Practical, Tu = Tutorial

Name & Sign [Chairman - Board of Studies]:

Name & Sign [Dean / Director]:

Faculty Name: Science

Programme Name: M.Sc.(Plant and Machinery Valuation)

Semester: IV

Academic Batch: 2022-23

Course Group	Board of Studies / Faculty Ownership	Course Code	Course Name	Cr	Teaching Scheme				Assessment/ Evaluation Type		External Exam Duration (Hrs.)		INT(T) Max./ Passing	EXT(T) Max./ Passing	INT(P) Max./ Passing	EXT(P) Max./ Passing	Grand Total Max./ Passing
					T	P	Tu	Cont. Hrs	T	P	T	P					
Core	Interdisciplinary		FIELD WORK AND SEMINAR	8	-	P	-		-	P	-	-	-	-	-	200/80	200/80
Core	Interdisciplinary		PROJECT WORK	16	-	P	-		-	P	-	-	-	-	-	400/160	400/160
Core	Interdisciplinary		COMPREHENSIVE VIVA-VOCE	1	-	P	-		-	p	-	-	-	-	-	50/20	50/20

 # T = Theory, P = Practical, Tu = Tutorial

Name & Sign [Chairman - Board of Studies]:

Name & Sign [Dean / Director]:

FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**PRINCIPLES OF ECONOMICS**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of basic concepts of macro economics and micro economics. 2. Study the price mechanism, equilibrium price and law of demand.Study of Ricardian theory of rent, modern theory of rent; and capital and interest. 3. Study of the concepts of inflation and deflation; National Income; savings and investments and parallel economy.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Consumption: Indifference curve - consumer's surplus – elasticity; Production : input - output analysis - short - run and long - run production function - isoquant curves - least cost combination - return to scale; Price Mechanism: - determinants of price mechanism - individual and market demand schedules - law of demand & its conditions - exceptions and limitations of law of demand; individual and market supply schedules - conditions and limitations - reservation price - equilibrium price - importance of time element.	15

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2	Pricing of products under different market conditions: perfect, imperfect or monopoly; Factors of production and payments thereof: (a) Land and Rent - Ricardian theory of rent - scarcity and differential rent - modern theory of rent - concept of quasi rent (b) Labour and Wages - Backward slopping supply curve of labour - determinants of supply of labour - theories of wages with special reference to marginal productivity theory - modern theory - collective bargaining and exploitation of labour - wage differentials and non-competing groups (c) Capital and Interest - Types of capital - gross interest - net interest - the classical theory - the neo classical theory - the liquidity preference theory of rate of interest (d) Organisation and Profit - Functions of entrepreneur - meaning of profit - various concepts of profit theories of profit; Pricing of factors of production.	15
3	Functions & role of money : non-money economy; Inflation and Deflation: Types of inflation - causes - effects - inflationary gap - control of inflation - monetary, fiscal and direct measures - deflation - causes - effects - deflationary gap - measures to control deflation - deficit financing. Price level: relationship between quantity of money and general price level - Prof. Fisher's version of quantity theory of money - determinants of price-level - price index numbers - cost of living index number and weighted index numbers - uses and defects; National Income/National Wealth: Circular flow of income - concepts of GNP & NNP - per capita income and consumption - components of national income - income expenditure and output methods of computing national income.	15
4	Savings and Investment: Savings and types of savings - determinants of savings - investment - types of investment - determinants of investment - relationship between savings and investment; Components of Economy: Primary sector - secondary sector - tertiary sector. Informal sector in Urban economy - Parasitic Components in Urban economy; Parallel Economy: What is parallel economy? Causes and effects of parallel economy on use of land and its valuation - its impact on real estate market - construction industry and parallel economy.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Introduction to Economics by C.N. Vakil & H.N. Pathak (Vora & Co. Publishers Pvt.Ltd.)
2	Elementary Economics by K.P.M. Sundharam (S. Chand & Co. Delhi)
3	Economics by T.K. Mitra
4	Economics by Samuelson
5	Advanced Economic Theory by H.L. Ahuja

Supplementary learning Material:	
1	Micro Economics by Wahida Thomas & Ashok Gaur
2	Business Economics by Sunny Thomas & Wahida Thomas

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Pedagogy: Combination of
(1) ICT enabled
(2) Facilitated learning
(3) Individual learning
(4) Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	20	20	40
2	Coursera Certification	1	10	10	20
3	Assignments/Mini Projects	1	10	10	20
4	Seminar/Presentation	1	5	5	10
5	Participation, Achievements	1	5	5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand the basic concepts of microeconomics and macroeconomics	**20**
CO-2	Analyse pricing and price mechanism	**20**
CO-3	Understand four factors of production	**20**
CO-4	Understand functions and role of money	**10**
CO-5	Understand concepts of savings and investments	**10**
CO-6	Understand causes and effects of parallel economy	**20**

Curriculum Revision:	
Version:	I
Drafted on (Month-Year):	28 April 2022
Last Reviewed on (Month-Year):	--
Next Review on (Month-Year):	April 2025

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**BOOK KEEPING AND ACCOUNTANCY**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of basic concepts of book keeping accountancy. 2. Introduction to double entry book keeping system, account books and various types of accounts. 3. Study of depreciation and various methods of computing depreciation used in accounts.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	The meaning and objects of book keeping. Double Entry book keeping. Introduction to Books of Prime entry and subsidiary books.	15
2	Cash book, bank book, journal ledger, purchase and sale books, debit and credit notes register, writing of books, posting and closing of accounts	15
3	Trading account, profit and loss account, income and expenditure account, presentation of balance sheet	15
4	Factory overhead, administrative overhead, fixed expenses, variable expenses, break-even point Depreciation and methods of computing depreciation used in accounts	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Book Keeping by Jai Narainsing
2	Book Keeping by Basu & Basu

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Supplementary learning Material:	
1	--

Pedagogy: Combination of

(1) ICT enabled
(2) Facilitated learning
(3) Individual learning
(4) Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	The concept double entry book keeping system	**20**
CO-2	Cash book, bank book, journal ledger, purchase and sale books, debit and credit notes register, writing of books, posting and closing of accounts	**20**
CO-3	Trading account, profit and loss account, income and expenditure account, presentation of balance sheet	**20**
CO-4	Factory overhead, administrative overhead, fixed expenses, variable expenses, break-even point	**20**
CO-5	Depreciation and methods of computing depreciation used in accounts	**20**

Curriculum Revision:	
Version:	I
Drafted on (Month-Year):	28 April 2022
Last Reviewed on (Month-Year):	--
Next Review on (Month-Year):	April 2025

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**ELEMENTARY SURVEYING AND ENGINEERING DRAWING**
Course Group: Core	
Course Objectives:	

1. Facilitate to learners the knowledge of various methods of surveying and levelling with the help of various measuring and survey instruments.
2. Study of preparation of plans and maps.
3. Study of use of scales in drawings.
4. Study of various methods of projection with emphasis on orthographic projection and development of various views of the objects.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Introduction: Surveying and leveling, plane and geodetic surveys; control points; different types of maps; conventional symbols; map reading; Classification of surveys and surveying methods: Surveying instruments, common parts bubble tube, telescope, verniers etc. Errors and error propagation.	15
2	Linear Measurement : Chains, bands, tapes; accuracies, errors in measurement, corrections; Directions and Bearings: True meridian, magnetic meridian, use of compass; local attraction errors; angular measurements; Theodolite traversing, Gale's traverse table, optical distance measurement and finding out vertical components from them.	15
3	Elevation Measurement: Principles of different methods; leveling instruments, contours and contour maps; areas and volumes; Horizontal and vertical control for mapping Basic idea of Preparation of Plans and Maps: Introduction to plane tabling; Introduction to remote sensing.	15

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4	Construction and use of plain and diagonal scales; Conventional arrangement of views; first and third angle projections; types of lines, lettering and dimensioning; Introduction to projection of simple solids with varying position of axes and ground lines; Conversion of pictorial views in orthographic views; sectional views.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Surveying by Shri R.C.Bhavsar & Shri R.M. Khetani
2	Surveying Volume -1 by Punamia B.C. -Standard Book House
3	Elementary Engineering Drawing by N.D. Bhatt - Charotar Publishing House
4	Engineering Graphics by K.L. Narayan and P. Kannaiah - Tata McGraw Hill

Supplementary learning Material:	
1	Elementary Surveying by Kulkarni
2	Elementary Surveying by Kanetkar
3	Elementary Surveying by Prof. B.N. Ghosh
4	Surveying by Arora Vol.1

Pedagogy: Combination of
(1) ICT enabled
(2) Facilitated learning
(3) Individual learning
(4) Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Various methods of surveying and levelling	**15**
CO-2	Use of chains and tapes in linear measurements	**15**
CO-3	Use of compass and theodolite	**10**
CO-4	contours and contour maps; areas and volumes	**15**
CO-5	Construction and use of plain and diagonal scales	**15**
CO-6	Conventional arrangement of views; first and third angle projections; types of lines, lettering and dimensioning	**10**
CO-7	Projection of simple solids with varying position of axes and ground lines	**10**
CO-8	Conversion of pictorial views in orthographic views; sectional views	**10**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**INTRODUCTION TO STATISTICS**
Course Group: Core	
Course Objectives:	
1. To facilitate to learners the knowledge of data management 2. Study of probability and sampling 3. Study of regression analysis and index numbers	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Data classifications and processing, graphical representation of data	15
2	Frequency distributions, measures of central tendency; dispersion and skewness	15
3	Elementary theory of probability and probability distributions; Sampling and sampling distribution, estimation; simple test of significance.	15
4	Regression and corelation; multiple correlation coefficient; Index numbers.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Statistical Methods by S.P.Gupta
2	Tatistics for Management by Richard I. , Levin & David S. Rubin

Supplementary learning Material:	
1	--

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Pedagogy: Combination of
(1) ICT enabled
(2) Facilitated learning
(3) Individual learning
(4) Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	20	20	40
2	Coursera Certification	1	10	10	20
3	Assignments/Mini Projects	1	10	10	20
4	Seminar/Presentation	1	5	5	10
5	Participation, Achievements	1	5	5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Data classifications and processing, graphical representation of data	**20**
CO-2	Frequency distributions, measures of central tendency; dispersion and skewness	**20**
CO-3	Elementary theory of probability and probability distributions	**15**
CO-4	Sampling and sampling distribution, estimation; simple test of significance	**10**
CO-5	Regression and corelation; multiple correlation coefficient	**15**
CO-6	Index numbers	**20**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**PRINCIPLES OF VALUATION**
Course Group: Core	
Course Objectives:	
1. To facilitate the learners the basic concepts of valuation with respect to *Ten Commandments of Valuation.* 2. Study of property classification and introduction to three approaches of valuation. 3. Study of various purposes of valuation, various forms of value and factors affecting value of the property 4. Study of basic concepts of income approach, market approach and cost approach of valuation.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Cost, price and value; types of value; Various purposes of valuation, Four ingredients of value, Factors affecting value, value elements, highest and best use, value in use and value in exchange; Annuities, capitalisation, rate of capitalisation, sinking fund, redemption of capital; Construction and use of valuation tables.	15
2	**INCOME APPROACH TO VALUE** ➢ Rent: Origin, classical theories and evolution of the concept ➢ Types of rent – outgoings – income – yield – years' purchase ➢ Lease : lessor and lessee : covenants, terms and conditions ➢ Leasing; land and building; occupational lease ➢ Valuation : lessor's interest, lessee's interest including sub-lease Investment comparisons : Yield from real estate, plant and machinery and other forms of investment – sound investment	15

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3	**MARKET APPROACH TO VALUE** ➢ Market – real estate market – market value; bell type curve ➢ Comparison of sale instances – factors, methods and weightages International Valuation Standards	15
4	**COST APPROACH TO VALUE** ➢ Cost : ingredients – costing methods ➢ Depreciation – various methods of depreciation and their uses in different fields. ➢ Age – effective age – economic life and remaining life Depreciated replacement cost	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Parks' Valuation – 5th Edition (1998) by D.N. Banerjee – Eastern Law House, Calcutta
2	Theory and Practice of Valuation by Roshan H. Namavati Lakhani Book Depot, Near Girgaon Church, Bombay - 400 004
3	Modern Methods of Valuation, 8th Editionby William Britton, Keith Davis and Tony Johnson
4	Valuation Principles and Procedures by Ashok Nain, Kolkata
5	Valuation of Plant & Machinery (Theory & Practice) by KiritBudhbhatti

Supplementary learning Material:	
1	Appraisal Principles and Procedures by Henry A. Babcork American Society Appraisers, P.O. Box 17265, Washington D.C. 20041, U.S.A
2	Basic Real Estate Appraisal by Richard M. Betts and Silas J. Ely American Society Appraisers, P.O. Box 17265, Washington D.C. 20041, U.S.A

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

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Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand basic concepts of valuation and ten commandments of valuation	**40**
CO-2	Understand various purposes of valuation and various forms of value	**30**
CO-3	Carry out valuation of properties with the help of market approach, cost approach and income approach of valuation	**30**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**Comprehensive Viva-Voce**
Course Group: Core	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	1	-	-	-	50/20	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**ELEMENTS OF LAWS AND JURISPRUDENCE**
Course Group: Elective	
Course Objectives:	
1. To facilitate the learners the elementary knowledge of Jurisprudence and Indian legal system including salient features of The Constitution of India. 2. Study of salient features of Indian Contract Act 3. Study of local Government, conveyancing theory and types of titles of properties.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Elementary Jurisprudence: Law- its origin, sources and ramifications; Legislative enactments - subordinate legislation - Judicial precedents. Indian Legal System: Salient features of the Indian Constitution, fundamental rights: directive principles of the state policy; Executive, Legislature and the judiciary; Centre - State relationship.	15
2	Law of Contract: Formation of a contract, parties; void, voidable and unenforceable contract; contingent contract; misrepresentation and fraud - effect thereof.	15
3	Termination of contract; remedies for breach; performance of contract; indemnity and guarantee; law of agency; general principles of tort; tort affecting valuation.	15

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4	Local Government Types- Rural and Urban, constitutional provisions, powers and functions; Sources of revenue : Tax and Fee, Municipal Finance, essential civic services; Conveyancing Outline procedure for sale of immovable property : contract and conveyance; preliminary inquiries, open contract; contract by correspondence; Title: requisition and searches.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Jurisprudence by M.J. Sethna, Publishers : Lakhani Book Depot. Lamington Road, Bombay - 400 007
2	Constitution of India by Basu.
3	Law of Torts by B.S. Sinha, Eastern Book Company, 34 Lal Baugh, Lucknow
4	Mulla on Indian Contract Act (Students Edition)
5	Local Self Government in India by M.P. Sharma

Supplementary learning Material:	
1	Treatise on Calcutta Municipal Corporation Act by D.N. Banerjee & S. Sengupta
2	West Bengal Municipal Act, by D.N. Banerjee

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Analyse different laws affecting valuation of real estate and plant and machinery in the context of Indian Legal System and jurisprudence theory.	**30**
CO-2	Understand various types of contracts through study of Indian Contract Act.	**30**
CO-3	Interpret different conveyancing deeds of properties.	**20**
CO-4	Understand different types of titles of properties.	**20**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**I**
Course Code:	
Course Title:	**AIR POLLUTION AND CLIMATE CHANGE**
Course Group: Elective	
Course Objectives:	
1. To facilitate the learner the knowledge of air pollution, its causes and effects on humans, properties, plants and animals. 2. Study of sampling and measurement of air pollution. 3. Study of climate changes – causes and effects on eco system. 4. Study of disaster management including its causes, prevention and corrections.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Definition, history, sources of air pollution - natural and anthropogenic, primary and secondary, Aeroallergens - sources, biology and health effects, general effects of atmospheric pollutants (PM, HC, CH_4, CO_2, H_2S, CO, NOx, SOx) on humans, animals, plants and materials; Ambient air quality emission standards, automobile pollution (photochemical oxidants, photochemical smog), characteristics - auto exhaust, and its control (catalytic converters), air pollution episodes (Bhopal, Chernobyl, Los Angeles, London smog, Indonesian forest fire), recent case studies on air pollution	15
2	Environmental factors and air pollution - heat, insulation, wind, precipitation, plume behavior, sampling and measurement of air pollution - ambient air and stack monitoring, indoor air pollution, indoor air quality, prevention and control of air pollutants - particulate matter & gaseous pollutants – absorption, adsorption, settling chambers, fabric filters, scrubbers, cyclone & electrostatic precipitators, Clean Development Mechanisms (CDM): carbon sequestration, carbon footprint, carbon trading, carbon market	15

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3	Climate Change: Definition of Climate and weather, Evolution of atmosphere, composition and structure, Particles, ions and radicals in atmosphere, Chemical reactions of different chemical species in the atmosphere, Oxygen and ozone chemistry and ozone hole formation. greenhouse gases- global warming, temperature inversion, global effects of GHGs,Classification of Climates, causes and consequences of Climate changes,Impacts of climate change on ecosystems, Global dispersion of toxic substance: Dispersion and circulating mechanisms of pollutants, ozone depletion, dust dome effect, acid rain, photochemical smog, heat island, Kyoto Protocol, Role of IPCC, Climate change methodologies	15
4	Disaster management- Concept of disasters, causes, prevention and correction hazards related to Earthquakes, Tsunami, Volcanic eruption, Cyclones, Floods, Drought, Landslides, Forest fires, Avalanches and Pest infestation, El nino and La Nina.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	A.K.DE. 1987. Environmental Chemistry. Wiley Eastern Limited
2	Blaikie, P., Cannon, T., Davies, I. and Wisner, B. (1994) At Risk: Natural Hazards, People's Vulnerability, and Disasters. London: Routledge. Bohle, H., Downing, T. and
3	Burroughs, W.J. 2001. Climate Change. Cambridge University Press.
4	Hobbes, P.V. 2002. Atmospheric Chemistry. Cambridge University Press.
5	Houghton, J. 2001. Global Warming. Cambridge University Press.

Supplementary learning Material:	
1	Maslin, M. Global Warming: A Very Short Introduction. (Oxford: Oxford University Press, 2008) [ISBN 9780199548248].
2	Rao, M. 2002. Air Pollution. Prentice & Hall.

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

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Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand the concept of air pollution, and analyse its causes and effects on humans, properties, plant and animals.	**25**
CO-2	Understand the sampling and measurement techniques of air pollution.	**25**
CO-3	Understand the causes and effects of climate changes on ecosystem.	**25**
CO-4	Understand the disaster management – its causes, prevention and corrective methods.	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**TOWN AND REGIONAL PLANNING**
Course Group: Core	
Course Objectives:	
1. To facilitate the learners the knowledge of desirability of planning and planning practices in India. 2. Study of Development plan, town planning schemes, regional plans and new town policies including their respective statutory provisions. 3. Study of salient features of town planning laws in the context of valuation of real estate and plant & machinery.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Desirability of Planning - planning practices in India - planning process and hierarchy of planning (Macro level to Micro level); Physical, social and economic factors in relation to development; Land use planning and management, Concept of city and town as a human settlement	15
2	Preparation of development plan, Land use zoning principles and its effect on real estate; Development plan : agencies involved in plan preparation and implementation: Effect of Development Plan on Valuation, effects of 73rd and 74th constitutional amendments; Legal mechanism for enforcement of planning document - Updating of planning document- Effect of planning document in force.	15
3	**Regional Planning :** Its aim and objectives and basic concepts; Some theories on Regional Planning e.g. delineation of region, types of region; Hierarchy of Regions, Human Settlements. Industrial location theory (WEBER and ISART).	15

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4	**Laws Affecting Planning:** Development plan, rules and regulations as prepared under the Gujarat Town Planning and Urban Development Act 1976 and the M.R.T.P. Act, 1966; The Development Control Regulations; Bombay Land Revenue Code and its important documents to be studied for Real Estate; Agencies involved for the preparation of Development Plan and Regional Plan under various Acts; Introduction to Bombay Provincial Municipal Corporation Act, 1949 and the Gujarat Municipal Act, 1961; Preparation of Draft T.P. Scheme and Final T.P. Scheme	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Planning the Indian Cities by M.N. Buch
2	Town Planning by Institute of Estate Management
3	Modern Town and Country Planning Act, Published by Town and Country Planning Organization, Government of India
4	Urban and Regional Planning: Principles, Practice and the Law by Dr. H. D. Kopardekar and G. R. Diwan
5	Principles of Town & Country Planning by Modok V.S.

Supplementary learning Material:	
1	The Gujarat Town Planning and Urban Development Act, 1976
2	The Maharashtra Town and Regional Planning Act, 1966

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %	**R**: Remembering; **U**: Understanding; **A**: Applying;

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R	U	A	N	E	C	**N**: Analyzing; **E**: Evaluating; **C**: Creating
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand the desirability of planning and planning practices in India.	**30**
CO-2	Understand the concepts of Development Plan, Town Planning Schemes, Fringe Area Development, New Town, Satellite Town, Metropolitan Counter Magnet, Regional Plan etc. tools for Town Planning.	**30**
CO-3	Evaluate and quantify the effects of various planning provisions and regulations on the valuation of properties.	**40**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**PRINCIPLES OF MACHINE TOOLS AND FACTORY EQUIPMENT**
Course Group: Core	
Course Objectives:	
1. To facilitate to learner the knowledge of evolution, nature and function of various machine tools and their control systems . 2. Study of automatic screw machines, boring, broaching and drilling machines. 3. Study of robotic system, inspection and measuring equipment. 4. Study of various types of factory equipment.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	The evolution, nature and function of machine tools and their control systems, together with standard items of normally associated machine equipment, cutting toobls, inspection and measuring equipment; their recognition, differentiation and description; Cutting tools to include drills, reamers, taps and dies, milling cutters, shaped profile cutters, form cutters, hobs, broaches and single-point cutting tools.	15
2	Machine tools to include all types of automatic screw machines, boring, broaching and drilling machines, grinders, gear machinery, power presses, press brakes and guillotine shears, shapers, saws and cut-off machines, machining centres, transfer and indexing machine, jig borers, lathes, milling machines, electro-discharge machines, planners and plano-millers etc.	15

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3	Machine equipment to include robotic systems, arbors, boring heads, chucks, collets, dividing heads, milling heads, rotary tables, machine vices, faceplates, attachment for taper turning, tapping, threading, profiling and slotting, coolant equipment, etc.; Inspection and measuring equipment to include projectors and enlargers, single and multi-axis measuring machines, verniers and micrometers, thread, ring and plug gauges, protractors, straight edges, squares, levels, sine bars and tables, slip gauges etc.	15
4	The nature and function of the following items of machinery and factory equipment in general used throughout industry: Cranes and hoists, gravity and power conveyors, forklift trucks, racking and warehousing systems, air compressors, pumps, fans and electric motors, sheet metalworking plant, welding and cutting plant, woodworking machines, garage plant, firefighting equipment, communications and security equipment, office machinery, computers and private and commercial vehicles.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Production Management by Lockyer, Published by Pitman
2	How Things work, the Universal Encyclopaedia of Machines by Paladin
3	Parry's Chemical Engineers Handbook
4	Manufacturing Technology by Hodder and Stoughton
5	How to buy Metal Working Machinery and Equipment by Lucky D.Slate
6	Industrial Machinery News Corporation, Michigan U.S.A
7	Process engineering for Manufacture
8	Donald F.Eary and Gerald E.Johnson, Prentice Hall Publishers N.J. U.S.A
9	All about Machine Tools, Published by Wiley Eastern Ltd.

Supplementary learning Material:	
1	Machinery buyer's guide Published by All India Machine Tools Manufacturers Association
2	Mechanical Engineer's Hand book

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

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Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	20	20	40
2	Coursera Certification	1	10	10	20
3	Assignments/Mini Projects	1	10	10	20
4	Seminar/Presentation	1	5	5	10
5	Participation, Achievements	1	5	5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Identify and describe various types of machine tools and factory equipment for the purpose of carrying out their valuation.	25
CO-2	Understand the specifications and uses of automatic screw machines, boring, broaching and drilling machines.	25
CO-3	Identify and describe robotic system, inspection and measuring equipment for the purpose of valuation.	25
CO-4	Understand various types of factory equipment.	25

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**LEGAL STUDY – I**
Course Group: Core	
Course Objectives:	
1. To facilitate the learner the knowledge of various aspects of auction sales. 2. Study of Insolvency and Bankruptcy Code of India. (IBC 2016) 3. Study of salient features of Companies Act in the context of debenture holders and creditors. 4. Study of salient features of liquidation procedure.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Authority of auctioneer, Duties of vendor, purchaser and public Misdescription and misrepresentation, advertisements, particulars and catalogues, statements on the rostrum, conduct of sale, reservation of price and right to bid, withdrawal of lots. Bidding agreements; Memorandum of the sale; The deposit, rights of auctioneer against vendor and purchaser, Sales under statute and by order of the court.	15
2	General principles of Insolvency law - the Insolvency and Bankruptcy Code of India, 2016; The role of insolvency practitioners - their powers and obligations - particularly as they affect the treatment and disposal of assets as prescribed by Insolvency and Bankruptcy Board of India **(IBBI)**	15
3	Debenture holders and creditors; fixed and floating charges; retention of title, third party assets; set off and liens; voidable transactions and preferences, continuing of trading, disposals and reorganization	15
4	The powers and duties of official liquidators and court receivers. The basis, method, scope and duration of their appointment. Receivership and liquidation procedures; Law of arbitration and conciliation : Salient features	15

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List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	The Insolvency and Bankruptcy Code of India, 2016
2	Companies Act (Bare Act) and Companies Rules
3	Arbitration and Conciliation Act, 1996

Supplementary learning Material:	
1	Law Relating to Receivers by Woodroffe
2	Law of Receivers by Pillai/Nair

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Carry out valuation of plant and machinery and factory properties for the purpose of auction sales, understanding various aspects of auction sales.	**20**
CO-2	Understand various provisions of IBC 2016 and carry out valuation under that.	**30**
CO-3	Carry out valuation of rights and interests of debenture holders and creditors in plant and machinery under the provisions of Companies Act.	**20**
CO-4	Understand liquidation procedure and carry out valuation for the purpose of liquidation.	**30**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**VALUATION OF PLANT AND MACHINERY – I**
Course Group: Core	
Course Objectives:	
1. To facilitate the learner the knowledge of different basis of value and their uses. 2. Study of various methods of computing depreciation. 3. Study of valuation of plant and machinery by indexation method. 4. Study of valuation of plant and machinery valued with industrial buildings.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Valuation of plant and machinery, bases of value and the purposes for which their use is most appropriate. Interpretation and use of the following terms: gross current replacement cost, net current replacement cost, open market 'in situ' and 'ex situ' and 'existing use' and 'alternative use', residual values, recoverable amount, highest and best use	15
2	Depreciation, various methods of computing depreciation, - its measurement and application in assessing value to the business. Depreciation under Income-tax Act as well as Companies Act Meaning of terms written down/book values; Valuation of Plant & Machinery for municipal rating purposes	15
3	Indexation; RBI indices - their uses and limitations; Plant records and asset registers - their compilation, uses and limitations; Preparation of inventories.	15
4	Plant and machinery normally valued with the premises; Principles of construction and functional design elements of industrial buildings. Constructional requirement under regulatory laws; Industrial visits.	15

List of Practicals / Tutorials:

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1	N.A.

Reference Books:

1	Valuation of Plant and Machinery (Theory & Practice) by Kirit Budhbhatti
2	Appraising of Machinery and Equipment, Edited by John Alico Published by American Society of Appraisers ISBN - 07-001475-2, McGraw Hill, New Delhi
3	Guidance Notes published by Institution of Chartered Accountants of India on Valuation of Fixed Assets.
4	Valuation of Plant and Machinery by C.J.C. Derry
5	Guidance Notes on Valuation of Plant and Machinery published by CVSRTA.
6	Industrial Valuation by Karslake and Nichols, Published by Estate Gazettes U.K.

Supplementary learning Material:	
1	Property Valuation Hand Book B5, Published by Centre for Advanced Land Use Studies, College of Estate Management
2	Inflation Accounting by W.T. Baxter

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand various basis of value and related terminology used in valuation of plant and machinery.	**25**
CO-2	Calculate depreciation by different methods and under different Acts.	**25**
CO-3	Carry out valuation of plant and machinery by indexation method.	**25**
CO-4	Carry out valuation plant and machinery along with industrial premises.	**25**

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FACULTY OF Science	
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Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**VALUATION OF PLANT AND MACHINERY– II**
Course Group: Core	
Course Objectives:	
1. To facilitate the learner the knowledge of basic engineering services such as energy generation, including boilers and heat exchangers. 2. Study of solar systems and energy saving equipment. 3. Study of energy utilization such as refrigeration and air conditioning. 4. Study of electrical installations.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Energy generation - Boilers & their accessories Heat Exchangers Pumps, Fans, Blowers and Compressors.	15
2	Solar systems Process Heating Thermopacs Water softening plant / D.M. Plant Energy saving Diesel generation.	15
3	Energy utilization - Refrigeration and Air conditioning Applications, system components, ducting & distribution system, insulation.	15

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4	Electrical installations - Drives, switchgears, relays, HT/LT distribution & sub-distribution system with symbols; Power tariff; Blue print reading; Industrial visits	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Valuation of Plant and Machinery (Theory & Practice) by Kirit Budhbhatti
2	Power Plant Engineering : Skroyzki & Vopat
3	How Things Work Vol. I & II (The Universal Encyclopaedia of Machines)

Supplementary learning Material:	
1	Perry's Hand Book
2	Career's Hand book for Air conditioning Practice

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand technical aspects of energy generation plants such as boilers, heat exchangers, pumps etc. for the purpose of valuation.	**25**
CO-2	Carry out valuation of plants used in solar system, energy saving, diesel generation etc.	**25**
CO-3	Carry out valuation of energy utilization plants such as refrigeration, air conditioning etc.	**25**
CO-4	Carry out valuation of electrical installations.	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**COMPREHENSIVE VIVA-VOCE**
Course Group: Core	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	1	-	-	-	50/20	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**INDUSTRIAL PROCESSES**
Course Group: Elective	
Course Objectives:	
1. To facilitate the learner the knowledge of industrial history of India. 2. Study of factory planning and lay out. 3. Study of industrial processes of major types of industries. 4. Study of manufacturing methods of various types of products along with their flow diagrams and different machineries used.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Industrial History: The development of technology from about 1857 and the effects of technological advance on production and machinery design. The location of primary industries in relation to sources of energy and raw materials, labour and markets, development of transportation and the effect of industrial development on land use	15
2	Factory planning and lay out: Types of factory, plant layout, production techniques, automation, mass production, batch and one-off production; Principles of Industrial Processes: Material flow, process sequences, automation and process control	15
3	Industrial Processes: The normal processes, methods of manufacture, plant and machinery utilized, flow diagrams and inventory compilation for the following specific industries: textiles, dairy, ice cream and vegetable oil. The nature and function of trade specific machinery in any of the above industries	15

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4	The normal processes, methods of manufacture, plant and machinery utilized, flow diagrams and inventory compilation for the following specific industries: • iron, steel & non-ferrous metal production • chemical and pharmaceutical • plastic and rubber • paper and paper products • printing, binding and publishing • food and drink • cement and ceramic tiles The nature function and inter-relationship of trade specific machinery in any of the above industries	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Production Management by Lockyer, Published by Pitman
2	How Things work, the Universal Encyclopaedia of Machines two Volumes by Paladin
3	Parry's Chemical Engineers Handbook
4	Manufacturing Technology by Hodder and Stoughton

Supplementary learning Material:	
1	Books on individual industries and manufacturing processes, paying particular attention to process flow diagram.

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

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Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand factory lay out and various types of processes at each stage of production.	**30**
CO-2	Identify various types of plant and machineries used in manufacturing of different products and to carry out inventory compilation.	**35**
CO-3	Visit the industry site and inspect different types of industries with respect to the plant and machinery used, their flow diagrams etc.	**35**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**II**
Course Code:	
Course Title:	**WATER POLLUTION AND CONTROL TECHNOLOGY**
Course Group: Elective	
Course Objectives:	
1. To facilitate the learner the basic knowledge of various sources of supply of water including quality and properties of water from each source. 2. Study of ground water – its seepage, conservation and artificial recharge. 3. Study of conventional and advanced water treatment technology.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Supply of water: Sources of water and their characteristics: water from precipitation (Strom water), surface water, ground water. Water Quantity: Water and Its Properties, Necessity of Water, Water Demand, Factor Affecting Water Demand, Population Forecast by Different Methods. Sampling, sample preservation, physical characteristics, chemical characteristics and biological characteristics, drinking water standards.	15
2	Groundwater: Introduction, types of aquifers, means to draw groundwater, Ground water conservation, seepage from surface water, artificial recharge, saline water intrusion - Causes and remedies of saline intrusion.	15
3	Water treatment: Conventional water treatment process, Screening, chemical handling and feeding, coagulation and flocculation, sedimentation, Filtration, Theory of filtration, filtration slow sand, rapid sand and pressure, filters. Disinfection; Criteria for good disinfectant, mechanisms of disinfection, factors affecting efficiency of disinfection, chlorination – chlorine chemistry, chlorination practices in India. Aeration, limitation of aeration, types of aerators.	15

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4	Advanced water treatments – membrane technology; Microfiltration, Ultrafiltration, Nanofiltration Reverse Osmosis, Other treatment technologies: Ion Exchange, Water Softening, Adsorption, Electrodialysis.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Besselviere, E and Schwartz. 1975. Treatment of Industrial Wastes, McGraw Hill.
2	Birdie, G.S. 2002. Water Supply and Sanitary Engineering. Dhanpatraj and Sons Press.
3	Fair, G.M. Geyer, T.C. and Okun, D.A. 1984. Water and waste water Engineering. Vol. I and II, John Wiley and Sons.

Supplementary learning Material:	
1	Garg, S.K. Water and Sewage Treatment. 2002. Blackwell Publishing.
2	Mahajan 1985. Pollution control in process industries. Tata McGraw Hill

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Understand various sources of water including quality and properties of water of each source.	**40**
CO-2	Understand ground water – its seepage, conservation and recharge in the context of land valuation.	**30**
CO-3	Understand basics of conventional and advanced technology for water treatment.	**30**

Curriculum Revision:	
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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**ENVIRONMENTAL IMPACT ASSESSMENT**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of basic concepts of environment, ecology and pollutants 2. Study and evaluate the impact of various types of pollutants on the land, building, plant and machinery 3. Study the important provisions of Air Act, Water Act, Environment Act etc. concerning various types of properties	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
2	-	-	2	25/10	25/10	-	-	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Environment: definition; air, land, water, vegetation, aquatic life, climate and the systems, which interact with nature	7.5
2	Why environmental studies? - a holistic approach to environmental problems	7.5
3	Environment and valuation - Differences between the 'open market price and the negative value consequent on environmental impact; environmental issues of air pollution, acid rain, ozone layer depletion/destruction, water pollution etc.; environmental statement as to effects, negative or positive; measures to restore the damage; cost of cure. Stigma due to environmental factors	7.5

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4	Environmental impact assessment:- Baseline surveys and data collection on environmental levels and pollutants; Preparation of environmental status report; Legal and permissible levels of environmental pollutants; Analysing existing situation against permissible levels to identify excesses; Alternative methods to reduce pollutants to permissible levels through technical process, other solutions; Social - cost-benefit analysis of solutions proposed Recommended measures for short term reduction and long term elimination of negative effects; Environmental Management Plan (EMP) and implementation strategy Financial allocations for EMP; Outlines of environmental legislations : Forest Act, Mining Act, Industrial Health & Safety Act, Municipal Acts, Water Pollution Act, Air Pollution Act, Environment Protection Act, Wild Life (Protection) Act, Archaeological Monuments (Protection)Act etc. Leading case laws on environmental issues	7.5

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Environmental Impact Assessment by Canter, Mc Graw Hill
2	Environmental Impact Analysis by R.K. Jain
3	Environmental Strategy and Concern by Diwan
4	Water Pollution (Prevention) Control Act, 1974, Govt. of India
5	Air Pollution (Prevention) Act, 1981, Govt. of India
6	Environment (Protection) Act, 1986, Govt. of India
7	Guidelines for Environmental clearance of various projects, Dept. of Environment, Govt.of India

Supplementary learning Material:	
1	Forest Conservation Act, 1980, Govt. of India
2	Environmental Laws and Policy in India, By Shyam Divan and Armin Rosencranz, Oxford University Press, New Delhi

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

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Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	10	10	40
2	Coursera Certification	1	5	5	20
3	Assignments/Mini Projects	1	5	5	20
4	Seminar/Presentation	1	2.5	2.5	10
5	Participation, Achievements	1	2.5	2.5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To develop a clear understanding of fundamentals of environment, its components, ecology and various types of pollutants	**20**
CO-2	To evaluate the impact of various types of pollutants on the property values and quantify their effects on market values of the contaminated properties	**30**
CO-3	To understand the legal provisions with respect to compliances for different types of properties under the various Laws	**20**
CO-4	To carry out the valuation of contaminated properties and quantify the effect of stigma factor	**30**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**FINANCE, BUSI. & MGNT. STUDIES**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of basic concepts of finance management 2. Study financial analysis for management decisions 3. Study methods of evaluation of financial statements 4. Study capital structuring and fundamentals of business decisions like acquisitions, mergers etc.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
2	-	-	2	25/10	25/10	-	-	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Goals and functions of finance organization, setting financial controlling system – planning and budgeting; Structuring of balance sheet.	7.5
2	Financial analysis for management decisions – tools of financial analysis - ratio analysis – fund flow, cash flow analysis; Management of working capital - components of working capital importance of working capital.	7.5
3	Investment decision – decision rule, discounted and non-discounted methods – NPV & IRR.	7.5
4	Capital structuring; Mergers and acquisitions for corporate restructuring – valuation of corporate organizations; Managing business – large, medium & small companies.	7.5

List of Practicals / Tutorials:

1	N.A.

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Reference Books:

1	Financial Management - 8th edition I.M. Pandey, Vikas Publication, New Delhi

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**10**	**10**	**40**
2	**Coursera Certification**	**1**	**5**	**5**	**20**
3	**Assignments/Mini Projects**	**1**	**5**	**5**	**20**
4	**Seminar/Presentation**	**1**	**2.5**	**2.5**	**10**
5	**Participation, Achievements**	**1**	**2.5**	**2.5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To develop a clear understanding of fundamentals of financial management	**25**
CO-2	To understand the concepts of financial ratios, cash flow analysis and fund flow analysis	**25**
CO-3	To apply the techniques like Discounted Cash Flow (DCF) – Net Present Value (NPV) and Internal Rate of Return (IRR)	**25**
CO-4	To read the various financial statements and carry out valuation of properties of companies for the purposes of acquisitions, mergers etc.	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**PRIN. OF INSURANCE & LOSS ASSE.**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of fundamentals of insurance of tangible assets 2. Study of various types of insurance policy, perils, risk management, and insurance market 3. Study the process of insurance, loss assessment and claim settlement	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Principles and legal concepts in relation to insurance of buildings and plant & machinery. The contract of insurance. Insurable interests and liability to insure. Duties of the insurer and the insured	15
2	The insurance policy; terms and conditions, perils, beneficial and restrictive clauses. Basics of Fire Insurance Policy and Engineering Policy. Different types of policies; Technicalities and classification of risk; safeguards, property protection. Importance of risk management in insurance sector and it techniques. The insurance market and functions of the insurance broker.	15
3	Valuation principles and techniques in relation to insurance loss assessment; valuation bases, value at risk, sum insured and condition of average, inflation provisions, other contents, obsolescence and betterment	15
4	Principles of claim settlement. Functions of the loss assessor and loss adjuster. Obligations and rights of insurer and insured. Third party claims; Consequential loss insurance, its scope and intention, policy conditions, definition of terms, approach to the consequential loss claim	15

List of Practicals / Tutorials:

1	N.A.

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Reference Books:

1	Modern Law of Insurance in India by Murty/Sharma
2	Practice of General Insurance by Federation of Insurance Institutes, Universal Insurance Building, Sir P.M. Road, Mumbai 400 001
3	Principles of General Insurance by Insurance Institute of India P.M. Road, Mumbai 400 001
4	IC 34 – General Insurance By: Insurance Institute of India

Supplementary learning Material:	
1	Fire Insurance Claims by Federation of Insurance Institutes

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To develop a clear understanding of fundamentals insurance, loss assessment and claim settlement	**25**
CO-2	To develop the concepts of various types of insurance perils	**25**
CO-3	To understand various types of insurance documents	**25**
CO-4	To carry out valuation of tangible assets (insurable value) for the purpose of standard fire policy, reinstatement value policy etc.	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**LEGAL STUDY – II**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of salient features of Sale of Goods Act, Factory Act, Electricity Act, Labour Laws and Environmental Laws 2. Study of licensing of industries and various legal compliances required to establish an industry.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Sale of goods and agreements to sell, seller's obligations as to delivery time, title, description, fitness, quality and quantity; exclusion of obligations, sales by sample, passing of property in goods.	15
2	Transfer of title by non-owner, remedies for breach of contract; rights of unpaid seller against goods.	15
3	Licensing of industries and regulation of industrial activities under various laws; viz., revenue code, industrial licensing laws etc.	15
4	Salient features of various acts such as - Factory Act, - Electricity Act, - Labour Laws Outlines of environmental laws having direct bearing on valuation of industrial undertaking/plant and machinery	15

List of Practicals / Tutorials:

1	N.A.

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Reference Books:

1	Sale of Goods Act by Pollock/Mulla
2	Sale of Goods Act by P.R. Aiyar
3	Environmental Law and Policy in India Cases, Materials & Statutes by Divan/Nobles/Rosencranz
4	The Factories Act by L.L.A
5	Commentaries on Factories Act, 1948 by K.D. Srivastava
6	The Workmen's Compensation Act with Rules by L.L.A
7	Workmen's Compensation Act, 1923 by R.Aiyar/K. Aiyar
8	Employer's Guide to Labour Laws by S.R.Samant

Supplementary learning Material:	
1	Hand book of Electricity Laws by Justice Mallecl
2	Law and Practice of Property Transaction by G.M.Divekar

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To develop a clear understanding of implication of various legal provisions on valuation of Plant and Machineries.	**30**
CO-2	To understand licensing of industries and compliances under various laws	**30**
CO-3	Carry out valuation of industrial properties considering legal factors under Sale of Goods Act, Factory Act, Electricity Act, Labour Laws and Environmental Laws	**40**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**VALUATION OF PLANT AND MACHINERY– III**
Course Group: Core	
Course Objectives:	
1. Facilitate to learners the knowledge of obsolescence affecting valuation of Plant and Machinery 2. Study of valuation of Plant and Machinery in leasing and hire purchase 3. Study of industrial structure and industrial policy in India in the context of valuation of plant and machinery. 4. Study of various credit facilities and institutional arrangements for establishing industries.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Meaning and computation of terms - functional, technological and economic obsolescence	15
2	VALUATION OF PLANT & MACHINERY IN LEASING AND HIRE PURCHASE ➢ Difference between leasing and hire purchasing ➢ Interpretation and classification - finance lease and operating lease ➢ Various types of finance leases. ➢ Treatment of leased assets in company accounts - guidance notes and accounting practices for leased plant and machinery as prescribed by Institute of Chartered Accountants of India. ➢ Hire purchase accounting Role of a Valuer in lease and hire purchase transactions- salient features of a valuation report in sale & lease-back transaction	15

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3	Overview of industrial structure in India. Historical perspective on industrial policy and features of the policy currently in vogue. Impact of current industrial policy on industrial investment. Industrial policy announcement of various States with special reference to incentives and concessions available for industrial investment. Policy for small scale industries. Need to keep track of changes in policy in view of their impact on valuation practice	15
4	Institutional arrangement for provision of industrial credit. Credit flow to industries. Role and functions of specialized development financial institutions, such as, Industrial Development Bank of India, Industrial Credit and Investment Corporation of India Ltd, Small Industries Development Bank of India, Industrial Finance Corporation of India Ltd. Industrial Reconstruction Bank of India, National Small Industries Corporation of India, Unit Trust of India, Life Insurance Corporation, General Insurance Corporation etc.; Role and functions of State Financial Corporations, and State Industrial Investment Development Corporations; Bank finance to industries; Valuation requirements for financial institutions and banks; Future Industrial scenario; The effect of inflation, income tax, corporation tax, government grants and incentives on the value of plant and machinery; Industrial visits.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Leasing by Shri Vinod Kothari
2	Lease Financing and Hire Purchase by Dr. J.C. Verma
3	Appraising of Machinery and Equipment, Edited by John Alico Published by American Society of Appraisers ISBN - 07-001475-2, Mc Graw Hill, New Delhi
4	Valuation of Plant and Machinery by C.J.C. Derry
5	Guidance Note of the Institute of Chartered Accountants of India on leasing
6	International Accounting Standard No. 17 on Lease Accounting

Supplementary learning Material:	
1	Publications of Central Government and State Government Agencies involved in Industrial development
2	Property Valuation Hand Book B5 Published by Centre for Advanced Land Use studies College of Estate Management

Pedagogy: Combination of

1. ICT enabled
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Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	20	20	40
2	Coursera Certification	1	10	10	20
3	Assignments/Mini Projects	1	10	10	20
4	Seminar/Presentation	1	5	5	10
5	Participation, Achievements	1	5	5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To understand various types of obsolescence affecting value of plant and machinery and to quantify their effects.	30
CO-2	To carry out valuation of plant and machinery in leasing and hire purchase.	30
CO-3	To understand industrial structure and industrial policy in India in the context of valuation of plant and machinery.	20
CO-4	To understand various credit facilities and institutional arrangements for establishing industries.	20

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**VALUATION OF PLANT AND MACHINERY– IV**
Course Group: Core	
Course Objectives:	

1. Facilitate to learners the knowledge of various financial reporting standards.
2. Study of valuation aspects of special types of machineries such as jigs, fixtures, press tools, dies, moulds etc.
3. Study of valuation of specialized properties such as hotels, petrol filling stations, docks and harbours and specialized industrial structures.
4. Study of salient features of the Land Acquisition Act of India.
5. To facilitate the student to be able to carry out practice of valuation of plant and machinery adhering to professional code of conduct and ethics.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Valuation for financial statement - historic cost and current cost accounting conventions Overview of Financial Reporting Standards-IFRS, IFRS-1, IAS-16, IAS-36 AS-28 IFRS-3	15

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2	Valuation of specialized machineries / properties like (a) Jigs & fixtures (b) Press Tools (c) Moulds (d) Patterns (e) Dies and Special tools (f) Custom built machineries manufactured by the company by consuming its own material and labour (g) Petrol filling stations (h) Hotels (i) Plant structures and specialized industrial buildings which have no alternative use; Elementary study of docks and harbours; Salient features of Land Acquisition Act, 1894 and The right to fair compensation and transparency in land acquisition, rehabilitation and resettlement Act, 2013; Assessment of compensation for compulsory purchase, disturbance or total extinguishments claims.	15
3	Study of the following literature:- International Valuation Standards published by International Valuation Standards Committee, Manual of Valuation/Guidance notes in relation to valuation of plant and machinery published by Royal Institution of Chartered Surveyors.	15
4	Study of guidance notes and accounting practice for revaluation of fixed assets in books of account published by Institute of Chartered Accountants of India from time to time; Case laws - affecting valuation of plant and machinery; Valuer's role, functions and responsibilities; Code of ethics for valuers; Industrial visits.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Valuation of Plant and Machinery (Theory & Practice) by Kirit Budhbhatti
2	Guidance notes published by Institution of Chartered Accountants of India on Valuation of Fixed Assets
3	Valuation of Plant and Machinery by C.J.C. Derry Property Valuation Hand Book B5, Published by Centre for Advanced Land Use studies, College of Estate Management
4	Current Value Accounting - A practical guide for business Edited by Warren Chippendale, Philips L. Defliese Published by AMCON, ISBM - 0 - 8144-5433-X
5	Manual of Valuation/Guidance Notes in relation to valuation of plant and machinery published by Royal Institution of Chartered Surveyors, NewZealand Institute of Plant and Machinery Valuers, The European Group of Valuers of Fixed assets, Appraisal Foundation U.S.A.

Supplementary learning Material:	
1	Inflation Accounting by W.T. Baxter
2	Industrial Valuation by Karslake and Nichlos, Published by Estate Gazettes U.K.

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

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Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	Written Test	1	20	20	40
2	Coursera Certification	1	10	10	20
3	Assignments/Mini Projects	1	10	10	20
4	Seminar/Presentation	1	5	5	10
5	Participation, Achievements	1	5	5	10

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To carry put valuation for accounting purposes considering relevant financial reporting standards.	**25**
CO-2	To carry out valuation of special types of machineries such as jigs, fixtures, press tools, dies, moulds etc.	**25**
CO-3	To carry out valuation of specialized type of properties such as hotels, petrol filling stations, docks and harbours and specialized industrial structures.	**25**
CO-4	To understand fully the role and function of a valuer and to carry out professional practice of valuation of plant and machinery adhering to professional code of conduct and ethics.	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**COMPREHENSIVE VIVA-VOCE**
Course Group: Core	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	1	-	-	-	50/20	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**REPORT WRITING**
Course Group: Elective	
Course Objectives:	
Facilitate to learners the skill and knowledge of writing of reports on valuation of various types of properties for variety of purposes.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	The subject will cover the teaching of how to write reports for various purposes for which a valuer is normally called upon for advice in general practice.	60

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	Mastering Technical Writing by Joseph C. Mancuso
2	The Technical Writer's Hand book by Matt Young
3	Hand book for Writers and editors by S Sreenivas Rao. Academic Book Centre, 10, Walkeshwar, Ambawadi, Ahmedabad-15.

Supplementary learning Material:	
1	Project reports prepared by past students as a part of fourth semester project work

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Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	**1**	**20**	**20**	**40**
2	**Coursera Certification**	**1**	**10**	**10**	**20**
3	**Assignments/Mini Projects**	**1**	**10**	**10**	**20**
4	**Seminar/Presentation**	**1**	**5**	**5**	**10**
5	**Participation, Achievements**	**1**	**5**	**5**	**10**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
5	25	20	20	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To prepare and write report on valuation of various types of plant and machinery for variety of purposes.	**100**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**III**
Course Code:	
Course Title:	**SUSTAINABLE DEVELOPMENT**
Course Group: Elective	
Course Objectives:	
1. Facilitate to learners the concept of sustainable development in terms of balanced development with respect to economic, social and environmental indicators 2. Study of global challenges in achieving sustainable development 3. Study of ways and means to natural resource management 4. Study of pollution management and green development	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
4	-	-	4	50/20	50/20	-	-	100/40

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Introduction to sustainable development: Concept of sustainable development, Rio earth Summit (1992), Brundtl and commission report, scheme of sustainability: economic, social, environmental; indicators of sustainable development and its selection criteria, Agenda 21 World Summit on Sustainable Development, Local agenda 21 (Earth Summit 2002), planning (for Sustainable Development).	15
2	Global challenges of sustainable development: poverty, pollution, population, finance for sustainable development, health, nutrition, sanitation, energy crisis, disasters, desertification, biopiracy etc. Currencies for evaluations of sustainable development- Biophysical measurements; Environmental degradations and conservation issues; Global change and sustainability issues: Climate change, biological invasion, bio-diversity concerns.	15

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3	Millennium development goals and its recent status (global, Indian), approaches to sustainable development: natural resource management, capacity building, Ecosystem concept in space and time; Ecosystem level processes and landscape level processes; the concept of sustainable development temporal and spatial dimensions.	15
4	Human resource development, pollution management, green policy development, good governance and recycling, reuse and recovery. Ecosystem and social processes in: (a) Rehabilitation of degraded rural landscape, (b) Rehabilitation of unbalanced soils, (c) Rehabilitation of specialized habitats, e.g. water bodies, mangroves; (d) Mined area rehabilitation participatory research and education environmental decision making with people initiates.	15

List of Practicals / Tutorials:

1	N.A.

Reference Books:

1	AID Environment (1997) Strategic Environmental Analysis: A New Planning Framework for Sustainable Development, AIDEnvironment, Amsterdam
2	Banuri, T and Holmberg, J (1992) Governance for Sustainable Development: a Southern Perspective, IIED, London
3	Carew-Reid, J (ed) (1997) Strategies for Sustainability: Asia, IUCN in association with Earthscan, London
4	Degnbol, T (1996) The Terroir Approach to Natural Resource Management: Panacea or Phantom? – the Malian Experience, working paper no 2/1996, International Development Studies, Roskilde University, Denmark

Supplementary learning Material:	
1	Earthscan. 2002. Sustainable Development Strategies: A Resource Book. Organisation for Economic Co-operation and Development, Paris and United Nations Development Programme, New York
2	Grieg-Gran, M (2001) 'Investment in Sustainable Development: The Public–Private Interface', in The Future is Now, vol 2, IIED, London

Pedagogy: Combination of

1. ICT enabled
2. Facilitated learning
3. Individual learning
4. Collaborative learning

Internal Evaluation:

Sr.	Component	Number	Marks per incidence	Total Marks	% of total internal evaluation
1	**Written Test**	1	20	20	40
2	**Coursera Certification**	1	10	10	20
3	**Assignments/Mini Projects**	1	10	10	20
4	**Seminar/Presentation**	1	5	5	10
5	**Participation, Achievements**	1	5	5	10

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Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15	25	15	15	15	15	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	To understand the concept of sustainable development with reference to economic, social and environmental indicators	**25**
CO-2	To understand global as well as local challenges in achieving sustainable development	**25**
CO-3	To understand the methods of resource management, green development and rehabilitation of environmentally degraded sites/properties	**25**
CO-4	To evaluate the real estate in the context of sustainable development and green development	**25**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**IV**
Course Code:	
Course Title:	**FIELD WORK AND SEMINAR**
Course Group: Core	
Course Objectives:	
To enable students to learn data collection from various industries as well as market information of prevalent prices for various types of Plant and Machinery used in variety of industries.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	8	-	-	-	200/80	200/80

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Students will be required - - to collect data from various industries about plant and machinery with specifications - to collect prices for various plant and machinery by inviting quotation and market inquiry - to visit special types of property like Industrial Plant, Cold Storage, Cinema, Hotel etc. and prepare a report on the same The students will be assigned one topic related to valuation and they will be asked to select another topic of their own choice. They will be allowed a fortnights time to prepare papers for presentation before a gathering to be chaired by a member of the faculty. After presentation there will be a session for questions and answers. The performance of the students will be assessed by a team of faculty members.	-

List of Practicals / Tutorials:

1	N.A.

Pedagogy: Combination of
Facilitated learning

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Individual learning Collaborative learning

Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Students will be able to collect various information relevant to valuation of Plant and Machinery from various industries and market inquiry for the same.	**100**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**IV**
Course Code:	
Course Title:	**PROJECT WORK**
Course Group: Core	
Course Objectives:	
To enable student to prepare independent project report after field survey and data compilation for valuation of plant and machinery.	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	16	-	-	-	400/160	400/160

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	The student will be required to prepare independent project report after field survey and data compilation for valuation of plant and machinery.	-

List of Practicals / Tutorials:

1	N.A.

Pedagogy: Combination of

1. Facilitated learning
2. Individual learning
3. Collaborative learning

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Course Outcomes (CO):

Sr. No.	Course Outcome Statements	%weightage
CO-1	Be able to independently carry out valuation of Plant and Machinery of various types of industries for different purposes.	**100**

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FACULTY OF Science	
Effective from Academic Batch: 2022-23	
Programme:	**M.Sc.(Plant and Machinery Valuation)**
Semester:	**IV**
Course Code:	
Course Title:	**COMPREHENSIVE VIVA-VOCE**
Course Group: Core	

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
-	-	-	1	-	-	-	50/20	50/20

* **J**: Jury; **V**: Viva; **P**: Practical

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