SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR

SYLLABUS EFFECTIVE FROM: 2017-18
FACULTY OF SICENCE
MSC Plant and Machinery Valuation
Semester- II

PS02CVPM21: PRINCIPLES OF INSURANCE AND LOSS ASSESSMENT (PRIN. OF INSURANCE & LOSS ASSE.)

CREDITS: 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
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	25
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.	25
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	25
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	25

Books for Study:

(i) Modern Law of Insurance in India by Murty/Sharma
(ii) Practice of General Insurance by Federation of Insurance Institutes
Universal Insurance Building, Sir P.M. Road, Bombay 400 001
(iii) Principles of General Insurance by Insurance Institute of India
P.M. Road, Bombay 400 001
(iv) Fire Insurance Claims by Federation of Insurance Institutes
Universal Insurance Building, Sir P.M. Road, Bombay 400 001
(v) IC 34 – General Insurance By: Insurance Institute of India

PS02CVPM22 : PRINCIPLES OF MACHINE TOOLS AND FACTORY EQUIPMENT (PRIN. OF M/C TOOLS & FAC. EQUIP)

CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
1	The evolution, nature and function of machine tools and their control systems, together with standard items of normally associated machine	25

	equipment, cutting tools, 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.	
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.	**25**
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.	**25**
4	The nature and function of the following items of machinery and factory equipment in general use 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.	**25**

Suggested Books

(i) Production Management by Lockyer, Published by Pitman
(ii) How Things work, the Universal Encyclopaedia of Machines by Paladin
(iii) Parry's Chemical Engineers Handbook
(iv) Manufacturing Technology by Hodder and Stoughton
(v) How to buy Metal Working Machinery and Equipment by Lucky D.Slate
Industrial Machinery News Corporation, Michigan U.S.A
(vi) Machinery buyer's guide
Published by All India Machine Tools Manufacturers Association
(vii) Mechanical Engineer's Hand book
(viii) Process engineering for Manufacture
Donald F.Eary and Gerald E.Johnson, Prentice Hall Publishers N.J. U.S.A
(ix) All about Machine Tools, Published by Wiley Eastern Ltd.

In addition to the above recommended reading, students are advised to refer to books on individual industries and manufacturing processes, paying particular attention to process flow diagram.

As it is essential for the student to keep upto-date with advancing technology and machine developments, weekly, fortnightly or monthly publications of various bodies in fields like production/manufacturing machinery/engineering is recommended on a continuing bases.

PS02CVPM23: LEGAL STUDY - I
CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
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.	**25**
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)**	**25**
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	**25**
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	**25**

Suggested Books

(i) Law Relating to Receivers by Woodroffe
(ii) Law of Receivers by Pillai/Nair
(iii) The Insolvency and Bankruptcy Code of India, 2016
(iv) Companies Act (Bare Act) and Companies Rules
(v) Arbitration and Conciliation Act, 1996

PS02CVPM24: VALUATION OF PLANT AND MACHINERY – I
(VALUATION OF P&M-I)
CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
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	**25**
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	**25**
3	Indexation; RBI indices - their uses and limitations; Plant records and asset registers - their compilation, uses and limitations; Preparation of inventories.	**25**
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	**25**

Suggested Books

(i) Valuation of Plant and Machinery (Theory & Practice) by Kirit Budhbhatti
(ii) Appraising of Machinery and Equipment, Edited by John Alico
Published by American Society of Appraisers
ISBN - 07-001475-2, Mc Graw Hill, New Delhi
(iii) Guidance Notes published by Institution of Chartered Accountants of India on Valuation of Fixed Assets.
(iv) 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
(v) Inflation Accounting by W.T. Baxter
(vi) Industrial Valuation by Karslake and Nichols, Published by Estate Gazettes U.K.

PS02CVPM25: VALUATION OF PLANT AND MACHINERY – II
(VALUATION OF P&M-II)
CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
	Study of basic engineering services:	
1	Energy generation - Boilers & their accessories Heat Exchangers Pumps, Fans, Blowers and Compressors.	**25**
2	Solar systems Process Heating Thermopacs Water softening plant / D.M. Plant Energy saving Diesel generation.	**25**
3	Energy utilization - Refrigeration and Air conditioning Applications, system components, ducting & distribution system, insulation.	**25**
4	Electrical installations - Drives, switchgears, relays, HT/LT distribution & sub-distribution system with symbols; Power tariff; Blue print reading; Industrial visits	**25**

Suggested Books

(i) Valuation of Plant and Machinery (Theory & Practice) by Kirit Budhbhatti
(ii) Perry's Hand Book
(iii) Career's Hand book for Air conditioning Practice
(iv) Power Plant Engineering : Skroyzki & Vopat
(v) How Things Work Vol. I & II (The Universal Encyclopedia of Machines)

PS02EVPM21: INDUSTRIAL PROCESSES
CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
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	**25**
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	**25**
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	**25**
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	**25**

Suggested Books

(i) Production Management by Lockyer, Published by Pitman
(ii) How Things work, the Universal Encyclopaedia of Machines two Volumes by Paladin
(iii) Parry's Chemical Engineers Handbook
(iv) Manufacturing Technology by Hodder and Stoughton

In addition to the above recommended reading, students are advised to refer to books on individual industries and manufacturing processes, paying particular attention to process flow diagram.

PS02EVPM22:WATER POLLUTION AND CONTROL TECHNOLOGY
CREDITS : 4

UNIT	DESCRIPTION	WEIGHTAGE (%)
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	**25**

	Methods. Sampling, sample preservation, physical characteristics, chemical characteristics and biological characteristics, drinking water standards.	
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.	**25**
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.	**25**
4	Advanced water treatments – membrane technology; Microfiltration, Ultrafiltration, Nanofiltration Reverse Osmosis, Other treatment technologies: Ion Exchange, Water Softening, Adsorption, Electrodialysis.	**25**

Suggested 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.
4. Garg, S.K. Water and Sewage Treatment. 2002. Blackwell Publishing.
5. Mahajan 1985. Pollution control in process industries. Tata McGraw Hill
6. Metcalf and Eddy Inc. 1979. Waste water Engineering treatment, Disposal, Reuse. Tata McGraw Hill Publ. Co. Ltd.