

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : CH 310

SUBJECT NAME : Management & Entrepreneurship

FACULTY NAME : VINOD KUMAR JAISWAL

DESIGNATION : LECTURER (PLASTIC TECH.)

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Principles of Management : Management, administration and organisation, difference between them.	2	August			
Scientific management : Meaning, characteristics, object and advantage: Taylor's scientific management	2	September			
Fayol's principles of management	2	September			
Functions of management Types of ownership	2	September			
Types of ownership, sole trading, partnership, joint stock, co-operative and public enterprise	2	September			
Types of organisation, different types and their charts	2	October			
Importance of human relation professional ethics Need for leadership, leadership qualities Motivation	2	October			
Resources Development : Introduction, object and functions of human resource development department	2	October			
Recruitment, sources and methods of selection, need for effective training, method of training, duties of supervisor / Foremen, Role of HRD in industries	2	November			
Wages and Incentives : Definition and requirements of a good wage system methods of wage payment	2	November			
Wage incentives - type of incentive, difference in wage incentive and bonus. incentive to supervisor	2	November			
Material Management : Purchasing Functions and duties of purchase department organisation of purchase department, methods of purchasing, purchase order, contracts	2	December			
legality of contracts types of contracts i.e. piece work contract, lumpsum contract, item rate contract, percentage contract, merits and limitation of each contract system, departmental execution of works.	2	December			
Rate contract - D.G.S & D and C.S.P.O. tender, necessity, types of tenders, tendering procedure, earnest money and security money	2	December			
Store and store keeping : Functions and duties of store department, location and layout of store, bin cards, store ledger.	2	January			
receipt and issue procedure of materials, physical verification of stores, disposal method of unserviceable articles and protection of stores	2	January			
Sales : function and duties of sales department sales promotion advertisement service after sales	2	January			
Financial Management : Function and duties of finance department Brief idea of journal, ledger, trial balance, trading account, profit and loss account, balance sheet Cheques (crossed and bearer), draft, promissory note, letter of credit, brief idea of cost accounting. Numerical problems	2	February			
Marketing Management : Concept of Marketing, Problems of Marketing Pricing policy Distribution channels and methods of marketing	2	February			

Entrepreneurship : Entrepreneurship and Entrepreneur Need of Employment and Opportunities. Essential Characteristics of a good Entrepreneur	2	February			
Industrial Policy. Classification of industries- Tiny, small scale , Medium scale, Large scale, Handicraft, Ancillary Type of industries- Production, Job based & service	2	February			
Entrepreneurial Development : Product identification/ selection Site selection Plant layout Institutional support needed Pre-market survey	2	March			
Entrepreneurship Support System: Role of District Industries Centre in setting up industry	2	March			
Function of NSIC, SISI, NISIET, NRDC, SSIC, SIDO, NMTC, KVIC, RSMML. Role of state finance corporation, state electricity	2	March			
Setting up SSI : Registration of SSI Allotment of land by RIICO Preparation of project report	2	March			
Structure of organisation Building construction Establishment of machines	2	April			
Tax System and Insurance : Idea of income tax, sales tax, excise duty and custom duty Industrial and fire insurance, procedure for industrial insurance. Financial Sources for SSI : Various institutions providing loans for industries Various types of loans Subsidies	2	April			
Labour Legislation and Pollution Control Acts : Industrial acts : factory act 1948 Workmen's compensation act 1923 Apprentices act 1961 Water pollution contract act 1974 and 1981 Air pollution contract act 1981 Environmental protection act 1986 Forest (animal conservation act 1972) Pollution control provisions in motor vehicle act.	2	April			
Project Report : Procedure of preparing a project report Format of project report Preparation of project report for some SSI items ISO : 9000 Series of Quality System : Definition of few important terms related to ISO quality system Various models for quality assurance in ISO : 9000 series Various elements of ISO : 9001 model (20 points) Benefits by becoming an ISO : 9000 company Introduction to total quality management (TQM)	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 204**

SUBJECT NAME : **ADDITIVES AND COMPOUNDING OF PLASTICS**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	LECTURE CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Introduction of compounding Purpose of compounding	2	August	24/08/2015 27/08/2015	N/A	Power point presentation
Types of compounding ingredients Industrial importance of compounding	2	September	31/08/2015 07/09/2015	N/A	Power point presentation
Introduction of antioxidants Types of antioxidants	2	September			
Types of antioxidants Auto-oxidation action	2	September			
Physical and chemical requirements for antioxidants	2	September			
Metal Deactivators: Introduction Mechanism of inhibition by metal deactivators	2	October			
Chemical structures Stabilization of polyolefins in contact with copper	2	October			
Stabilizers: Light stabilizer & Heat Stabilizers	2	October			
Photo-degradation of synthetic polymers Mechanism of U.V. stabilization	2	November			
Stabilization for U.V. absorbers, Quenchers, Hydroperoxide decomposers and free radical	2	November			
Heat Stabilizers for PVC Various type of PVC stabilizers such as inorganic	2	November			
Influence of heat stabilizers on weather and light stability	2	December			
Plasticizers: Introduction Types of plasticizers	2	December			
Theory, methods and steps in plasticization	2	December			
Effects of plasticizers on physical properties such as hardness, tensile strength, elongation, low	2	January			
Fillers and Reinforcements: Introduction Properties of filled and reinforced plastics	2	January			
Various types of fillers and reinforcements and their economic importance.	2	January			
Chemical Blowing Agents: Introduction Required properties	2	January			
Types of blowing agents such as azo compounds, hydrazine derivatives, semicarbazides and	2	February			
Extrusion of foamed P.E. Expandable P.S. beads	2	February			
Colourants: Introduction, Pigments and dyes General properties of coloured plastic such as	2	February			
Various types of colourants such as titanium dioxide, carbon black, inorganic colour pigments	2	February			
Introduction to other additives: Lubricants	2	March			
Processing Aids	2	March			
Flame Retardants	2	March			

Antistatic agents	2	March			
Constructional details and working of mixing and blending equipments used for compounding	2	April			
Internal mixer (banbury minxer)	2	April			
Ribbon blender Dry colour blender	2	April			
Two roll mixing mill Compounding extruder	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 209**

SUBJECT NAME : **PLASTIC PROCESSING - I**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	LECTURE CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Introduction to Plastic Processing Techniques: Injection Moulding, Extrusion	2	August	26/08/2015 31/08/2015	N/A	
Blow Moulding, Thermoforming, Calendering, Rotational Moulding,	2	September		N/A	
Compression Moulding, Transfer Moulding, Fibre Spinning, Reaction Injection Moulding etc.	2	September			
Injection Moulding Processes: Construction and working of various types of	2	September			
Automatic injection moulding machine Plunger and screw type injection-moulding	2	September			
Elements of injection moulding machine: Injection unit	2	October			
Elements of injection moulding machine: Clamping unit	2	October			
Elements of injection moulding machine: Mould Machine Controls	2	October			
Moulding cycles Nozzles	2	November			
Mould temperature control Specifications of machines	2	November			
Moulding defects and their remedies	2	November			
Reaction injection moulding: Introduction, Materials used	2	December			
Reaction injection moulding: Process and equipments used	2	December			
Extrusion Concepts : Introduction, Extruders and their classification	2	December			
Single screw extruders Multiple screw extruders	2	January			
Extruder components: Screws and their types	2	January			
Extruder components: Barrel, Hopper, Die, Adapter etc.	2	January			
L/D ratio, Compression ratio	2	January			
Extruder performance and their curves: Screw characteristic curves	2	February			
Cooling and take-off systems Co-extrusion	2	February			
Static, drag and pressure flow	2	February			
Manufacturing of Blown films	2	February			
Manufacturing of pipe and tubes	2	March			
Manufacturing of Wire and cable coating	2	March			

Manufacturing of Sheets and Profiles	2	March			
Extrusion: Process defects and their remedies	2	March			
Construction and Working of: Scrap Grinder	2	April			
Construction and Working: Hot Stamping Machine	2	April			
Revision of Important Topics	2	April			
Discussion on previous year question papers	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 209 (Practical)**

SUBJECT NAME : **PLASTIC PROCESSING - I (PRACTICAL)**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
General Discussion	2	August			
To produce articles on 0.5 OZ hand injection moulding machine	2	September			
To produce articles on 0.5 OZ hand injection moulding machine	2	September			
To produce articles on 1.0 OZ hand injection moulding machine	2	September			
To produce articles on 1.0 OZ hand injection moulding machine	2	September			
To produce articles on 1.5 OZ hand injection moulding machine	2	October			
To produce articles on 1.5 OZ hand injection moulding machine	2	October			
To produce articles on 2.0 OZ hand injection moulding machine	2	October			
To produce articles on 2.0 OZ hand injection moulding machine	2	November			
To study semi automatic vertical injection moulding machine (capacity 60 grams) and	2	November			
To study semi automatic vertical injection moulding machine (capacity 60 grams) and	2	November			
To make articles on fully automatic injection moulding machine (capacity 90 grams).	2	December			
To make articles on fully automatic injection moulding machine (capacity 90 grams).	2	December			
To make articles on fully automatic injection moulding machine (capacity 90 grams).	2	December			
To make LDPE blown film on blown film extruder	2	January			
To make LDPE blown film on blown film extruder	2	January			
To make LDPE blown film on blown film extruder	2	January			
To make flexible pipe/tube on extrusion plants and checks its qualities.	2	January			
To make flexible pipe/tube on extrusion plants and checks its qualities.	2	February			
To make flexible pipe/tube on extrusion plants and checks its qualities.	2	February			
To study Bag cutting and sealing machine and make LDPE Bags of different lengths.	2	February			
To study Bag cutting and sealing machine and make LDPE Bags of different lengths.	2	February			
To make Diary covers and purse of PVC sheets on high frequency PVC welding machine.	2	March			
To make Diary covers and purse of PVC sheets on high frequency PVC welding machine.	2	March			

To make Diary covers and purse of PVC sheets on high frequency PVC welding machine.	2	March			
Stamping on Plastic Sheets by Hot Stamping Machine	2	March			
To Grind the Waste Plastics on Scrap Grinder and find out its efficiency.	2	April			
To Grind the Waste Plastics on Scrap Grinder and find out its efficiency.	2	April			
Review	2	April			
Review	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 305**

SUBJECT NAME : **FINISHING & DECORATION OF PLASTICS**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Surface Analysis : Introduction	2	August			
Surface analysis techniques: light microscopy, scanning electron microscopy	2	September			
X-ray photoelectron spectroscopy, infrared spectroscopy and laser raman spectroscopy	2	September			
Surface modification by washing, solvent cleaning, abrasion, flame treatment, corona discharge and plasma treatment	3	September			
Testing of treatment levels	1	September			
Surface Finishing: Deflashing, Filing, Tumbling	2	October			
Surface Finishing: Grinding and sanding, Polishing, Ashing, Buffing	2	October			
Machining of Plastics: Introduction	2	October			
Drilling and reaming Tapping and threading	2	November			
Turning and milling Sawing	2	November			
Blanking and die cutting Laser machining	2	November			
Embossing: Introduction Cast embossing	2	December			
Pressure embossing Roll embossers : Nip pressure and roll deflection,	2	December			
Embossing processes : Flat press embossing, vacuum embossing, Dielectric and high frequency	2	December			
Ultrasonic embossing, Chemical embossing Surface texturing	2	January			
Surface Coating and Printing: Dip and flow coating	2	January			
Spray painting :Air atomization, Airless atomization,	2	January			
Rotational atomizers, Paints for plastics	2	January			
Screen-printing Gravure printing	2	February			
Laser Marking: Introduction	3	February			
Laser Marking: Applications	1	February			
Electrolytic Plating: Introduction	2	February			
Electrolytic plating	2	March			
Abrasion Resistant Coating : Thermally cured coating	2	March			
Radiation cured coating	2	March			
Welding and Sealing of Plastics: Introduction	2	March			

Thermal sealing Hot gas welding	2	April			
Hot plate welding Induction welding	2	April			
Spin (friction) welding Vibration welding	2	April			
Revision of Important Topics & Discussion on previous year question papers	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 307**

SUBJECT NAME : **POLYMER FOAMS & ADHESIVES**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	LECTURE CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Adhesives: Introduction of various types of Adhesives	2	August			
Interaction between bodies	2	September			
Function of adhesives	2	September			
Properties of surfaces and interfaces	2	September			
Theory of adhesion and adhesive action	2	September			
Adhesive joints	2	October			
Rigid and flexible joints Composition and formulation of commonly used adhesives	2	October			
Composition and formulation of commonly used adhesives	2	October			
Sealants	2	November			
Hot melt adhesives	2	November			
Acrylic base adhesives	2	November			
Natural rubber adhesives	2	December			
Review	2	December			
Foams: Introduction to rigid and flexible foams	2	December			
Properties of cellular plastics	2	January			
Chemistry and physical formation	2	January			
Foaming ingredients	2	January			
Effect of foaming ingredients on physical properties of cellular plastic	2	January			
Chemistry and formulation	2	February			
Chemistry and formulation	2	February			
Manufacturing process of Polyurethane foams (rigid)	2	February			
Manufacturing process of Polyurethane foams (rigid)	2	February			
Manufacturing process of Polyurethane foams (flexible)	2	March			
Properties of Polyurethane foams (rigid)	2	March			

Properties of Polyurethane foams (flexible)	2	March			
Manufacturing process of Polystyrene foam	2	March			
Properties of Polystyrene foam	2	April			
Manufacturing process and properties of Epoxy foam	2	April			
Review of Important Topics	2	April			
Discussion on previous year question paper questions	2	April			
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **PL 310**

SUBJECT NAME : **Management & Entrepreneurship**

FACULTY NAME : **VINOD KUMAR JAISWAL**

DESIGNATION : **LECTURER (PLASTIC TECH.)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Principles of Management : Management, administration and organisation, difference between them.	2	August			
Scientific management : Meaning, characteristics, object and advantage: Taylor's scientific management	2	September			
Fayol's principles of management	2	September			
Functions of management Types of ownership	2	September			
Types of ownership, sole trading, partnership, joint stock, co-operative and public enterprise	2	September			
Types of organisation, different types and their charts	2	October			
Importance of human relation professional ethics Need for leadership, leadership qualities Motivation	2	October			
Resources Development : Introduction, object and functions of human resource development department	2	October			
Recruitment, sources and methods of selection, need for effective training, method of training, duties of supervisor / Foremen, Role of HRD in industries	2	November			
Wages and Incentives : Definition and requirements of a good wage system methods of wage payment	2	November			
Wage incentives - type of incentive, difference in wage incentive and bonus. incentive to supervisor	2	November			
Material Management : Purchasing Functions and duties of purchase department organisation of purchase department, methods of purchasing, purchase order, contracts	2	December			
legality of contracts types of contracts i.e. piece work contract, lumpsum contract, item rate contract, percentage contract, merits and limitation of each contract system, departmental execution of works.	2	December			
Rate contract - D.G.S & D and C.S.P.O. tender, necessity, types of tenders, tendering procedure, earnest money and security money	2	December			
Store and store keeping : Functions and duties of store department, location and layout of store, bin cards, store ledger.	2	January			
receipt and issue procedure of materials, physical verification of stores, disposal method of unserviceable articles and protection of stores	2	January			
Sales : function and duties of sales department sales promotion advertisement service after sales	2	January			
Financial Management : Function and duties of finance department Brief idea of journal, ledger, trial balance, trading account, profit and loss account, balance sheet	2	January			

Cheques (crossed and bearer), draft, promissory note, letter of credit, brief idea of cost accounting. Numerical problems	2	February			
Marketing Management : Concept of Marketing, Problems of Marketing Pricing policy Distribution channels and methods of marketing	2	February			
Entrepreneurship : Entrepreneurship and Entrepreneur Need of Employment and Opportunities. Essential Characteristics of a good Entrepreneur	2	February			
Industrial Policy. Classification of industries- Tiny, small scale , Medium scale, Large scale, Handicraft, Ancillary Type of industries- Production, Job based & service	2	February			
Entrepreneurial Development : Product identification/ selection Site selection Plant layout Institutional support needed Pre-market survey	2	March			
Entrepreneurship Support System: Role of District Industries Centre in setting up industry	2	March			
Function of NSIC, SISI, NISIET, NRDC, SSIC, SIDO, NMTC, KVIC, RSMML. Role of state finance corporation, state electricity	2	March			
Setting up SSI : Registration of SSI Allotment of land by RIICO Preparation of project report	2	March			
Structure of organisation Building construction Establishment of machines	2	April			
Tax System and Insurance : Idea of income tax, sales tax, excise duty and custom duty Industrial and fire insurance, procedure for industrial insurance. Financial Sources for SSI : Various institutions providing loans for industries Various types of loans Subsidies	2	April			
Labour Legislation and Pollution Control Acts : Industrial acts : factory act 1948 Workmen's compensation act 1923 Apprentices act 1961 Water pollution contract act 1974 and 1981 Air pollution contract act 1981 Environmental protection act 1986 Forest (animal conservation act 1972) Pollution control provisions in motor vehicle act.	2	April			
Project Report : Procedure of preparing a project report Format of project report Preparation of project report for some SSI items ISO : 9000 Series of Quality System : Definition of few important terms related to ISO quality system Various models for quality assurance in ISO : 9000 series Various elements of ISO : 9001 model (20 points) Benefits by becoming an ISO : 9000 company Introduction to total quality management (TQM)	2	April			
TOTAL	60				