DRAFT SYLLASBUS

SYLLABUS FOR WRITTEN EXAMINATION OF RECURITMENT OF LECTURERS IN PRINTING TECHNOLOGY COURSE THROUGH KPSC

PRINTING TECHNOLOGY

Unit 1. Printing Process and Materials: Introduction and principles, types of Major Printing Process and Materials. Relief Printing Processes: Letterpress and Flexographic printing, Recess Printing Processes: Intaglio and Gravure printing-Planographic Printing Processes: Lithography and offset printing, Stencil Printing Process: Screen-printing, Non Impact / Digital Printing Processes: Computer to film, computer to plate and computer to print technologies. Electrophotography. Image carrier preparation, Application and uses for all Major 5 Printing Process. Manufacture of Paper Recycled Paper, Paper Boards, Plastic substrates, Metallic substrates, Printing ink ingredients and Manufacture of printing inks: Drying Mechanisms and Ink Formulations, Inks for different printing processes. Paper sizes and subdivisions (ISO and British Standards).

Unit 2. Pre – Press Technology: Basics of computer Operating System and Peripherals, Color Theory and Management, Bit map and Vector graphic editor latest software's (Photoshop and Illustrator) tools Pixel, size, bit depth, halftone creation, screen angle, spot shape, File, monitor, film, sensing technology. Typography principles for different printing job works. Image Acquisition, File Formats, Pre-Press Terms, Digital work flow & Digital Print Presses(Indigo E - Print 1000, Ominus, Heidelburg DI - 46 - 4, 74 Karat), Different types of printers used for print media (small & Large format printers), Design procedure for Commercial and Display jobs.

Unit 3. Press technologies: Introduction and Classification of Sheet fed & Webfed offset Press, Gravure and Flexography, Screen printing presses. Types of Sheet Feeding, Printing Unit, Inking System, Dampening System, drying & delivery systems of all types of printing process, Pre-makeready & Makeready, troubles & remedies all types of printing process, Introduction, history, trends in the Continuous Stationary and demands for the computer form. Main classification

and advantages of continuous stationary Paper used for production of forms: Various types of papers used in continuous stationary, their specifications, printing requirements, storage conditions, etc, carbon papers - varieties, specifications and manufacturing process. printing and Finishing Techniques of Forms, Different types of presses used for the production of various business materials.

UNIT 4. Security Printing: Introduction to security printing, Security features in printed products, protection from counterfeiters, forgers, fraudsters, criminals and terrorists, essential and security features of bank notes, Types of security printing inks & features, security features in prepress, Security substrates, types of security papers and features, Security design and processes for various print products, Barcodes, Holograms, cheque printing- MICR cheques.

Unit 5. Post press Operations (Wire stitching, Thread sewing, Types of sewing, threads, adhesives, wire, Sewing machine working principles, Stub and perfect binding, Modern adhesive binding machines. Factors affecting quality of adhesive binding, Lay-flat, mechanical, loose leaf, traditional styles, spiral, Wire ,,0((and plastic comb binding, Machines loose leaf binding and case binding. -stages in sheet fed, reel fed, case making machines and casing-in, Ring binding - inter screw, ring metal - types, loose leaf. Ring shapes. Print finishing operations - (embossing, debossing, blind embossing, cutter crush, Gold blocking / foil stamping. Foil and rotary blocking machine) Die printing (Thermography, velvet printing, marbling, varnishing, graining, laminating) Laminating Machine - pouch and tunnel. Gumming, gluing, punching, perforating, drilling. Label punching, applique. Edge decoration - requirement, coloring, marbling, edge guilding. Round corner cutting. Numbering - fo.lio, double and duplicate numbering. Principle of rotary numbering - skip and automatic numbering. Kinds of indexes. Ruling principle of pen and disk ruling machine. Ruling terms. Stretch and shrink wrapping.

UNIT 6. Packaging Technology: Introduction, Classification of packaging - flexible, semi rigid, rigid package, Function, factors influencing design of a package, Hazards and Environmental implications of package, Markings & Tests on package, Cushioning materials and its functions, properties, Classifications etc. polystyrene-process of manufacturing, advantages, applications. Packaging Media's: wood, Paper, Boards and Glass, plastics - properties, advantages, types. Tests on glass & plastics. Process of making plastic film. Metals - functions, uses, cross-section of

tin plate, aluminum foils- manufacturing of foil, properties, applications, methods of laminating foil to film or paper. Production of cartons classification, features, advantages of corrugated containers & plastic, corrugated boards.

Unit 7. Advertising Theory: Definition of Advertising, Advertising as a tool of communication, The Communication process, Marketing communication, Advertising, & personnel selling, Advertising Sales promotion, Advertising Publicity, Advertising Public relation. Advertising classifications, Advertising as a carrier(Advertisers, Advertising agencies, Media), Planning and operations of Advertising media, types of media, Advantages of each media, Visualization, Visualization techniques, Visualization and creativity, Advertisement copy, Sub-division of copy, Slogans, Requirements of slogans, Essentials of a good copy, Outdoor copies, Requisites of an effective layout, illustrations.

Unit 8 . Web Technology: Introduction to web technology, Internet, Intranet and Extranet, ISP, Connection methods, Web server, Web browser, World wide, Web (WWW), Internet Protocols, URL, Internet address format, IP address, Domain name system, Internet tools, Router, Gateway, Promoting and maintaining a site, search engines, search methods, Cookies, Crackers, Hackers, Firewalls, Proxy server. Introduction to XML, JavaScript, Flash, Sound forge, E-Advertising. Basic Concepts of photoshop: An Introduction, creating, Opening and saving files, Menus, Toolbox, Color control icons, Mode control icons, creating new images, Image capture. Image Handling: Cropping an image, adjusting image size, increasing the size of the work canvas, saving an image. Layers: Adding layers, dragging and pasting selections on to layers, dragging layers between files, viewing and hiding layers, Editing layers, rotating selections, scaling an object, preserving layers transparency, moving and copying layers, duplicating layers, deleting layers, merging layers, using adjustment layers. Concept of Multimedia (Picture/Graphics, Audio, Video) Sound: Recording Sound using Sound Recorder (Capture), Sound capture through sound editing software (ex: Sound forge), Sound editing, Noise correction, Effect enhancement; Voice Recognition Software Philips/Dragon, MIDI Player. File Format: AIFF (Audio Input File Format from Apple Mac) MIDI, WAV, MP3, ASF (Streaming format from Microsoft). Importing audio and saving audio from Audio CD.

Unit 9. Quality Control: Paper Properties and Testing: Printability properties, Runability and End use, Paper testing, Interrelationships of Paper properties and Paper handling, Ink Properties and Testing: Optical properties, Working properties, End use properties - light fastness, abrasion, water, heat, chemical

resistance, absence of odor or taste, adhesion to substrate and other properties. print quality and standardization of press, quality control aids & equipments of press.

Unit 10. Print Management: HRM for printing, employment policy, evaluation of skills requirements for printing occupations, recruitment, job evaluation, staff appraisal, motivation training, human resources factors that limit productivity, staff flexibility. Manning and training requirements, states of industry, analysis and development of human resources strategy. Management personal skills and development, job satisfaction through involvement. Single and double entry book keeping system. Objectives of bookkeeping. Meaning of journal, ledger, debit, credit, asset, liability and capital. Differences between journal and ledger. Types of accounts. Journalizing rules, problems. Trial balance and format. Format of balance sheet and income statement, contents to be explained. Ratio Analysis - liquidity ratios, leverage ratios, turnover ratios, profitability ratios. Problem Solving. Introduction of Cost Accounting: Cost accountancy and its subjects, relationship of cost and financial accounting, cost accounting and management accounting, costing as a basis for estimating, the purpose of cost accounting, advantages of cost accounting, installation of costing system, costing system for printing industry and related problems. Elements of Cost and Costing Techniques: The concept of cost, Analysis of cost, elements of cost, the costs which are to be ascertains. Procedure of linking costs with cost, centers and cost units, methods of cost finding. Overhead - classification, allocation and apportionment. Overhead absorption rates and problems. Analytical approach to costing. Estimating: Purpose and functions of estimating from printer point of view and customers point of view. Difference between costing and estimating. Qualifications of an estimator, working environment, estimators tools, estimating paper - selection of paper, allowance for waste, allowance for trimming, weight of loose sheets, weight of a reel of paper. Estimating ink - Ink consumption formula, Ink allowance for spoilage. Estimating binding materials - Board requirement, estimating covering materials, estimating sewing thread, estimating stitching wire, estimating adhesives. Terms and conditions -approved by AIFMD. Analytical approach to estimating.