

The Complete Book on Printing Technology with Process Flow Diagrams, Plant Layouts and Machinery Details (Offset, Gravure, Flexographic, Security, Web Offset and Pad Printing) 3rd Revised Edition

Author: NIIR Board of Consultants & Engineers

Format: Paperback

ISBN: 9788194099512

Code: NI111

Pages: 512

Price: Rs. 1,895.00 **US\$** 58.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within **5** days

Printing is a process for reproducing text and image, typically with ink on paper using a printing press. It is often carried out as a large-scale industrial process, and is an essential part of publishing and transaction printing. Printing technology market is growing, due to technological proliferation along with increasing applications of commercial printing across end users.

In India, the market for printing technology is at its nascent stage; however offers huge growth opportunities in the coming years. The major factors boosting the growth of offset printing press market are the growth of packaging industry across the globe, increasing demand in graphic applications, the wide range of application in various industry, and industrialization. The offset printing press market is projected to register healthy growth due to new and advanced technologies are driving the introduction of new product lined of offset printing press from large and medium manufacturers which responsible to register high productivity of offset printing press, and offers better user experience to the end-users and also reduce operational costs.

This book is dedicated to the Printing Industry. In this book, the details of printing methods and applications are given. The book throws light on the materials required for the same and the various processes involved. This popular book has been organized to provide readers with a firmer grasp of how printing technologies are revolutionizing the industry.

The major content of the book are the beginning of printing, the printing industry, sheet-fed offset printing, printing processing, offset press, modern printing process, pad printing application, gravure printing, web offset printing, the flexographic printing, security printing, process flow diagrams, layouts and photographs of machinery with supplier's contact details.

A total guide to manufacturing and entrepreneurial success in one of today's most printing industry. This book is one-stop guide to one of the fastest growing sectors of the printing industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on the commercial production of printing products. It serves up a feast of how-to information, from concept to purchasing equipment.

Contents

Contents

1. INTRODUCTION

1.1 History of Printing

1.1.1 Invention of Movable Type

1.1.2 Lithography

1.1.3 Offset Printing

1.1.4 Intaglio

1.1.5 Gravure

1.1.6 Flexography

1.1.7 Screen Printing

1.1.8 Digital Printing

1.1.9 Hybrid Printing

1.2 Uses and Applications of Printing

1.3 Types of Printing

1.3.1 Offset Lithography

1.3.2 Digital Printing

1.3.3 Flexography

1.3.4 Gravure Printing

1.3.5 Screen Printing

1.3.6 Letterpress Printing

1.3.7 Thermal Printing

1.3.8 3D Printing

1.4 Structure of the Printing Industry

1.4.1 Pre-Media

1.4.2 Prepress

1.4.3 Press (Printing)

1.4.4 Postpress/Finishing

2. HOW TO START PRINTING BUSINESS

3. PLANT LAYOUT DESCRIPTION OF PRINTING BUSINESS

4. GRAVURE PRINTING

4.1 History of Gravure Printing

4.2 Principles of Gravure Printing Process

4.2.1 Intaglio/Gravure Method

4.3 Advantages of Gravure

4.4 Limitations of Gravure

4.5 Characteristics

4.6 Main Sections of Gravure Printing Machine

4.6.1 Unwind Section

4.6.2 Printing Section

4.6.3 Drying Section

4.6.4 Rewind Section

4.7 Gravure Image Carrier Preparation

4.7.1 Hand Engraving and Printing

4.7.2 Gravure Image Carriers

4.7.3 Manufacturer of Gravure Cylinders

4.7.4 Gravure Cylinder Imaging

4.7.5 Gravure Engraving

4.8 Gravure Cylinder Preparation Methods

4.8.1 Preparing of Gravure Cylinder by Conventional Method or Carbon Tissue Method

4.8.2 Electronic/Electromechanical Engraving of Gravure Cylinders

4.8.3 Laser Engraving/Laser Cutting Process

- 4.9 Structure of Gravure Cylinder
 - 4.9.1 Gravure Cylinder
 - 4.9.2 Gravure Cylinder Components
 - 4.9.3 Copper Plating and Polishing
 - 4.9.4 Reusing the Cylinders
 - 4.9.5 Ballard Shell Cylinders
- 4.10 Gravure Drying System
 - 4.10.1 Gravure Drying Chamber
 - 4.10.2 Gravure Solvent Recovery System
 - 4.10.3 Higher LELs due to Solvent Recovery
 - 4.10.4 Other Environmental-Friendly Solvent Removal/Reduction Systems Incineration (Thermal Oxidation)
- 4.11 Doctor Blade – Structure, Types, Mechanism
 - 4.11.1 Doctor Blade
 - 4.11.2 Structure and Mechanism of Gravure Doctor Blade
 - 4.11.3 Types of Doctor Blade
- 4.12 Impression Roller - Structure, Types, Mechanisms
 - 4.12.1 Structure and Mechanism of Gravure Impression Roller
 - 4.12.2 Types of Gravure Impression Roller
- 4.13 Gravure Presses
 - 4.13.1 Press Configurations for Packaging
 - 4.13.2 Gravure Label Presses
 - 4.13.3 Gravure Publication Presses
- 4.14 Solvent Based Inks, Water Based Inks, UV and EB Inks
 - 4.14.1 Gravure Solvent Based Inks
 - 4.14.2 Gravure Water-Based Inks
 - 4.14.3 Gravure UV Curing Inks
 - 4.14.4 EB-Curing Inks and Coatings
- 5. SCREEN PRINTING
 - 5.1 History of Screen-Printing
 - 5.2 Principles of Screen Printing Process
 - 5.3 Procedure for Screen Printing
 - 5.4 The Screen Printing Process Offers Several Advantages
 - 5.5 Applications of Screen Printing
 - 5.5.1 Screen Printing on Flat Surfaces
 - 5.5.2 Screen Printing on Curved Surfaces
 - 5.6 Main Sections of a Flatbed Screen Printing Machine
 - 5.6.1 Frame
 - 5.6.2 Base
 - 5.6.3 Screen Fabric
 - 5.6.4 Squeegee
 - 5.7 Image Carriers Used for Screen Printing
 - 5.7.1 Negative and Constructive Creation
 - 5.7.2 Making a Screen Frame
 - 5.8 Various Methods of Preparing Image Carriers for Screen Printing
 - 5.8.1 Preparing the Screen by Knife-Cut Stencil Method
 - 5.9 Photographic Methods of Making Screen Image Carriers
 - 5.9.1 Preparing the Screen by Gelatine Process (“Direct” Method)
 - 5.9.2 Screen Making By Photo Sensitive Films (5-Star Film) Method (Indirect or Transfer Method)
 - 5.9.3 Chromaline Film Method of Screen Making (Direct/Indirect Method)
 - 5.10 Mesh Selection

- 5.10.1 Mesh (Woven Screen Printing Fabric)
- 5.10.2 Materials Used for Screen Printing Fabrics
- 5.11 The Squeegee
- 5.12 Squeegee Selection
 - 5.12.1 Shapes of Squeegee Blades
 - 5.12.2 Squeegee Hardness
 - 5.12.3 Squeegee Materials
- 5.13 Screen Pretreatment
- 5.14 Screen Stretching/Tensioning
 - 5.14.1 Basic Steps in Screen Stretching/Tensioning
- 5.15 Stretching the Screen Printing Fabric
 - 5.15.1 Manual Stretching
 - 5.15.2 Machine Stretching
- 5.16 Types of Screen Printing Machines
 - 5.16.1 Container Printing Machines
 - 5.16.2 The Flatbed Hinged Frame Press
 - 5.16.3 Automatic Flatbed Hinged Frame Screen Presses
 - 5.16.4 The Rotary Screen Press
 - 5.16.5 Carousel Machines
- 5.17 Screen Printing Inks
 - 5.17.1 Components of Inks and Ink Systems
- 5.18 Screen Printing Ink Types
 - 5.18.1 Decalcomanias Inks
 - 5.18.2 Circuit Board Inks
 - 5.18.3 Inks for Posters
 - 5.18.4 Metallic Enamel Inks
 - 5.18.5 Paints for Polymers
 - 5.18.6 Glass Inks
 - 5.18.7 Textiles and Garments: Plastisols and Emulsions
- 5.19 Control of Screen Printing Ink Quality
 - 5.19.1 Appropriate Quality Control Tests for Screen Printing Inks
- 5.20 Typical Screen Printing Equipment
 - 5.20.1 Printer and Films
 - 5.20.2 Mesh Screen
 - 5.20.3 The Inks
 - 5.20.4 Squeegees
 - 5.20.5 Printing Press
 - 5.20.6 Belt Dryer
- 5.21 Silk Screen Printing Process
 - 5.21.1 Design Drafting
 - 5.21.2 Choose and Prepare the Mesh Screen
 - 5.21.3 Expose the Emulsion Paint to Light Source
 - 5.21.4 Prepare the Stencil
 - 5.21.5 Prepare for Screen Printing
 - 5.21.6 Print the Design
 - 5.21.7 Heat-Cure and Finish the Print
- 5.22 Types of Screen Printing Process
 - 5.22.1 Grayscale Printing
 - 5.22.2 Spot-Color Printing
 - 5.22.3 CMYK (4-Color Printing)
 - 5.22.4 Duotone Printing
 - 5.22.5 Half-Tone Printing
 - 5.22.6 Simulated Process Printing

6. FLEXOGRAPHIC PRINTING

6.1 History

6.2 Benefits and Drawbacks of Flexographic Printing

6.2.1 Benefits of Printing in Flexographic Form

6.2.2 The Drawbacks of Printing Flexographically

6.3 Various Substrates That Flexography Can Print On

6.3.1 Plastic Film

6.3.2 Foil

6.3.3 Corrugated Board

6.4 A Vast Variety of Inks for Flexography Use

6.4.1 Water-Based

6.4.2 Solvent-Based

6.4.3 Energy-Curable (UV & EB-Based)

6.5 Mainstream Types of Flexographic Printing Press

6.5.1 Stack Press

6.5.2 Central Impression (CI) Press

6.5.3 In-Line Press

6.5.4 Wide-Web Press (Substrates of 21-80 Inches)

6.5.5 Narrow-Web Press (Substrates' Length d" 20 Inches)

6.6 The Fundamentals of Flexography the Process of Printing

6.6.1 Flexographic Printing Process

6.6.2 Main Sections of Flexography Printing Machines (Presses)

6.7 All Flexographic Presses are made up of Four Basic Sections Typically Mounted in Succession Between Sturdy side Frames

6.7.1 Unwind Section

6.7.2 Printing Section

6.7.3 Drying Section

6.7.4 Rewind Section

6.8 Flexographic Image Carrier Preparation

6.8.1 Flexographic Plate

6.8.2 Structure of Flexographic Plate

6.9 Plate Preparation Methods

6.9.1 Rubber Plates Preparation

6.9.2 Photopolymer Flexographic Plates

6.9.3 Laser Engraving

6.10 Types of Flexo Inking Systems

6.10.1 Two-Roll Ink Metering System

6.10.2 Modified Two-Roll with a Doctor Blade Ink Metering System

6.10.3 Reverse Angle Doctor Blade Ink Metering System

6.10.4 Chambered Doctor Blade Ink Metering System

6.11 Types of Anilox Cells and Cleaning Systems

6.11.1 The Anilox Roll

6.11.2 Anilox Roll Specifications

6.12 Types of Anilox Roll Based on Cell Shapes

6.12.1 Inverted Pyramid

6.12.2 Quadrangular Cell

6.12.3 Trihelical Cell

6.13 Types of Anilox Rolls Based on Roller Surfaces

6.13.1 Laser-Engraved Ceramic Anilox Rolls

6.13.2 Conventional (Or) Mechanically Engraved Chrome Anilox Rolls

6.14 Types of Anilox Roll Cleaning Systems

- 6.14.1 Roll Cleaning System
- 6.14.2 Jet Wash Type System
- 6.14.3 Powder Blasting System
- 6.14.4 Polymer Bead Blasting System
- 6.14.5 Dry Ice System
- 6.14.6 Laser Cleaning System
- 6.14.7 Ultrasonics
- 6.14.8 Alpha Sound
- 6.15 Types of Flexo Plate Cylinders
- 7. 3D PRINTING
- 7.1 Types of 3D Printing
- 7.1.1 Binder Jetting
- 7.1.2 Direct Energy Deposition
- 7.1.3 Material Extrusion
- 7.1.4 Material Jetting
- 7.1.5 Powder Bed Fusion
- 7.1.6 Sheet Lamination
- 7.1.7 VAT Photopolymerization
- 7.2 Different Types of 3D Printing Technologies and Their Applications
- 7.3 An STL File: What is it?
- 7.4 3D Printing Process
- 7.4.1 3D Modelling
- 7.4.2 Saving the 3D Model
- 7.4.3 Preparing the 3D Model for Printing
- 7.4.4 Checking and Saving the Print File
- 7.4.5 3D Printing
- 7.4.6 Post-Processing
- 7.5 How 3D Printing Works?
- 7.6 Key Industries Leveraging 3D Printing
- 7.6.1 Applications in Medicine and Dentistry
- 7.6.2 Defense and Aerospace
- 7.6.3 The Automobile Industry
- 7.6.4 Personal and Consumer Products
- 7.6.5 Aeronautics and Space Travel
- 7.6.6 Customized Apparel and Style
- 7.6.7 Culinary Arts and Food
- 8. DIGITAL PRINTING
- 8.1 Types of Digital Printing
- 8.2 Digital Print Media and Products
- 8.3 Benefits of Digital Printing
- 8.4 Digital Printing Process
- 8.5 Which Type of Machinery is used in Digital Printing?
- 8.5.1 Prepress Stage Machinery
- 8.5.2 Essential Machinery for the Printing Stage
- 8.6 The Role of Pile Turners in Digital Printing
- 8.7 Digital Printing in Packaging and Labels
- 8.7.1 Label Presses and Corrugated Packaging Printers
- 8.7.2 Colour Label Presses
- 8.7.3 Corrugated Printers
- 9. ULTRA VIOLET (UV) PRINTING
- 9.1 Benefits of UV Printing
- 9.2 History of UV Printing Process
- 9.3 Which Materials are Suitable for UV Printing?

- 9.4 Which Parts Make up a UV Printing Machine's Core?
 - 9.4.1 Printheads
 - 9.4.2 PCB (Printed Circuit Board)
 - 9.4.3 Curing Light
 - 9.4.4 Machine Body
 - 9.4.5 Guide Rail
 - 9.4.6 The Process of Printing in Ultra-Violet (UV)
 - 9.4.7 LED UV Printing
- 9.5 The UV Printing Process
- 10. OFFSET PRINTING TECHNOLOGY
 - 10.1 The Offset Lithographic Process's Past
 - 10.2 Lithography and Offset Printing Fundamentals
 - 10.3 The Offset Printing Principle
 - 10.4 Configuration and Structure of Sheetfed Offset Press
 - 10.4.1 Single Color Offset Press
 - 10.4.2 Multi-Color Sheet-Fed Presses
 - 10.4.3 Convertible Press
 - 10.5 Types of Sheetfed Offset Press
 - 10.5.1 Inline Press
 - 10.5.2 Stack Type Press
 - 10.5.3 Blanket to Blanket Press
 - 10.5.4 Common Impression Cylinder Presses
 - 10.6 Sheet Control and Delivery in Offset Press
 - 10.7 Types of Automatic Feeder
 - 10.7.1 Single Sheet Feeder or Successive Sheet Feeder
 - 10.7.2 Stream Feeder
 - 10.8 Feeder Head Components
 - 10.9 Sheet Registering Devices
 - 10.10 Early Sheet Detectors (or) Electromechanical Type Sheet Detectors
 - 10.11 Sheet Insertion Devices
 - 10.12 Delivery Section
 - 10.13 Offset Press Printing Unit
 - 10.13.1 Establishing a Sheetfed Printing Press
 - 10.14 Types of Blankets
 - 10.14.1 Conventional Blanket (or) Non-Compressible Blankets
 - 10.14.2 Compressible Blankets
 - 10.15 Construction of Inking System
 - 10.15.1 Roller Setting
 - 10.15.2 Roller the Distance Between the Plate and the form Roller
 - 10.15.3 Setting Form Roller to Oscillator
 - 10.16 Ink System Issues
 - 10.17 Dampening System
 - 10.17.1 Construction of Dampening System
 - 10.17.2 Composition of Dampening Solution
 - 10.17.3 Dampening Solution pH
 - 10.17.4 Conductivity of the Dampening Solution
 - 10.17.5 Dampening System Roller Setting
 - 10.17.6 Conventional Dampening System
 - 10.17.7 Continuous Dampening System
 - 10.17.8 Dahlgren Dampening System
- 11. TEXTILE PRINTING
 - 11.1 Textile Printing's Historical Background

- 11.2 Printing Method
 - 11.2.1 Block Printing
 - 11.2.2 Screen Printing
 - 11.2.3 Engaved Roller Printing
 - 11.2.4 Transfer Printing
 - 11.2.5 Stencilling
 - 11.2.6 Digital Printing
 - 11.2.7 Rotary Screen Printing
 - 11.2.8 Direct Printing
 - 11.2.9 Discharge Printing
 - 11.2.10 Resist Printing
 - 11.2.11 Ink-Jet Printing
 - 11.2.12 Heat-Transfer Printing
- 11.3 Early Textile Printing Methods
- 11.4 Comparison Between Dyeing and Printing
- 11.5 Enter Digital Direct Reactive Textile Printing
- 11.6 Wet Printing Techniques
 - 11.6.1 Preparation of the Print Paste
 - 11.6.2 Printing the Fabric
 - 11.6.3 Drying the Printed Fabric
 - 11.6.4 Fixation of the Printed Dye or Pigment
 - 11.6.5 Afterwashing
- 11.7 Printing Methods
 - 11.7.1 Flat-Bed Screen Printing
 - 11.7.2 Rotary Screen Printing
 - 11.7.3 Screen Engraving
 - 11.7.4 Laser Engraving
 - 11.7.5 Engraved Roller Printing
 - 11.7.6 Heat Transfer Printing
 - 11.7.7 Digital Ink-Jet Printing
- 12. CTP (COMPUTER TO PLATE)
 - 12.1 What is a CTP Machine?
 - 12.2 Technology
 - 12.3 Computer-to-Plate Advantage
 - 12.4 Computer to Plate versus Computer to Film
 - 12.5 CTP Method
 - 12.5.1 Internal Drum Imagesetters
 - 12.5.2 External Drum Imagesetters
 - 12.5.3 Flat-Bed Imagesetters
 - 12.6 Types of CTP-Plates (Computer-to-Plate)
 - 12.6.1 Photopolymer Plates
 - 12.6.2 Silverhalogen Plates
 - 12.6.3 Thermal Plates
 - 12.7 Advantages of CTP vs. CTF
 - 12.8 Disadvantages of CTP vs. CTF
 - 12.9 CTP Process
 - 12.9.1 Digital File Preparation
 - 12.9.2 Computer-to-Plate Imaging
 - 12.9.3 Plate Development
 - 12.9.4 Mounting on the Printing Press
 - 12.9.5 Printing
 - 12.10 What Types Of CTP Plates
 - 12.10.1 Silver Salt Diffusion Transfer Type

- 12.10.2 The Polymer Compound Type
- 12.10.3 Silver Salt Emulsion and Polymer Compound Composite Type
- 12.10.4 Spray Mask Type
- 12.10.5 Thermal Type
- 12.11 The Definition of Thermal CTP Technology
- 12.11.1 Classification of Thermal CTP technology
- 13. PAD PRINTING
- 13.1 Description of Parts
- 13.2 The History of Pad Printing
- 13.3 Pros and Cons of Pad Printing
- 13.4 Limitations of Pad Printing
- 13.5 How to Pad Print?
- 13.6 Basic Components of Pad Printers
- 13.6.1 Pad Printer
- 13.6.2 Pad Print Ink Cup
- 13.6.3 Pad Print Ink
- 13.6.4 Printing Pad
- 13.6.5 Pad Printing Plate
- 13.7 Pad Printing Vs. Screen Printing: What're The Differences?
- 13.8 Which Industry Applications Print With Pad Printing?
- 13.9 Factors to Consider During Pad Printing
- 14. WEB OFFSET PRINTING
- 14.1 Design of Web Machines
- 14.2 Reel Stand Unit
- 14.3 Web Control Unit
- 14.4 Printing Units
- 14.5 Main Parts of Printing Unit
- 14.6 Delivery Operations
- 14.7 Ancillary Operations by Delivery Unit
- 14.8 Colour and Its Reproduction
- 14.9 Classification of Colours
- 14.9.1 Primary Colours
- 14.9.2 Secondary Colours
- 14.9.3 Tertiary Colours
- 14.9.4 Influence of Colours
- 14.10 Terminology Related to Colour
- 14.11 Quality Control in Printing
- 14.12 During Printing
- 14.13 After Printing
- 15. SECURITY PRINTING
- 15.1 Credit Cards
- 15.2 Caliper and Dimensions
- 15.3 Hologram
- 15.4 Hologram Types
- 15.5 Uses
- 15.6 Numbering with Micr Ink on Rotary Presses
- 15.6.1 Ink Agitation
- 15.6.2 Heat Fountains
- 15.6.3 Distribution of Ink
- 15.6.4 Form Rollers and Impression Cylinders
- 15.6.5 Cam Setting
- 15.6.6 Setting form Rollers
- 15.6.7 Impression Cylinders

- 15.6.8 Setting Impression
- 15.6.9 Speeds
- 15.7 Methods in Security Printing
 - 15.7.1 Substrates in Security Printing
 - 15.7.2 Security Inks
 - 15.7.3 RFID Hidden Security Features
 - 15.7.4 RFID Tag Categories
 - 15.7.5 RFID Tag Shapes and Sizes
 - 15.7.6 Printing
- 15.8 Prospective Developments in RFID Tags and Security Printing
- 16. HIGH SECURITY PRINTING FOR BANKNOTE
 - 16.1 Specialized Substrates
 - 16.2 Intaglio Printing
 - 16.3 Watermarks
 - 16.4 Security Inks
 - 16.5 Holograms and Kinegrams
 - 16.6 Microprinting
 - 16.7 See-through Registers
 - 16.8 Serial Numbers
 - 16.9 UV Features
 - 16.10 Digital Authentication
- 17. SECURITY PRINTING FOR TAX LABELS, AND OTHER SECURITIES
 - 17.1 Specialized Inks and Dyes
 - 17.2 Substrate Security
 - 17.3 Intaglio Printing
 - 17.4 Microprinting
 - 17.5 Holograms and Foils
 - 17.6 Guilloche Patterns
 - 17.7 Serial Numbers and Barcodes
 - 17.8 Digital Authentication
 - 17.9 Implementation Considerations
- 18. BIS STANDARDS
- 19. PLANT LAYOUT, PROCESS FLOW CHART & DIAGRAM
- 20. PHOTOGRAPHS OF PLANT AND MACHINERY WITH SUPPLIERS CONTACT DETAILS
 - Rotary Screen Printing Machine
 - Flexographic Roll to Roll Printing Machine
 - High Speed Flexo Printing Machine
 - 3 Color Satellite Unit RottaSpeed Web Offset Machine
 - Offset Printing Machine
 - Pad Printing Machine
 - Automatic Heat Press
 - Black and White Digital Print Production System
 - Flexographic Printing Machine
 - Fully Automatic Printing Head
 - Single Colour Electro Pneumatic Pad Printing Machine
 - Manual Pad Printing Machines
 - Label Printing Press
 - Offset Machines
 - Automatic Heat Transfer Machine
 - Semi-Automatic Screen Printing Machine
 - Flatbed Screen Printing Machine
 - Multi Cage Screen Stretching Machine
 - Digital LED UV Flatbed Printing Machine

- Mini Offset Printing Machine
- Rotogravure Printing Machine
- CTP Offset Printing Computer to Plate Machine
- Four Color Offset Machine
- 5 Color B1 Offset Lithographic Printing Machine with Spot Coating

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** npcs.india@gmail.com **Website:** NIIR.org

Sat, 25 May 2024 12:47:19 +0530