HI-TECH PROJECTS

(An Industrial Monthly Magazine on New Project Opportunities and Industrial Technologies)

MARCH 2020 Issue

(E-copy)

ENGINEERS INDIA RESEARCH INSTITUTE

Regd. Off : 4449, Nai Sarak, Main Road, Delhi - 110 006 (India)

*** Ph: +91 9811437895, 9289151047, 91-11-23918117, 43658117, 45120361**

*** E-Mail : eiri@eiriindia.org, eiritechnology@gmail.com**

*** Website: www.eiriindia.org, www.industrialprojects.in * PayTM: 9811437895**

Deposit the amount in "EIRI "Account with HDFC BANK CA- 05532020001279 (RTGS/NEFT/IFSC CODE: HDFC0000553) OR ICICI BANK CA - 038705000994 (RTGS/NEFT/IFSC CODE: ICIC0000387) OR UNION BAK OF INDIA CA-307201010015149 (RTGS/NEFT/IFSC CODE: UBIN0530727) OR STATE BANK OF INDIA CA-30408535340 (RTGS/NEFT/IFSC CODE: SBIN0001067) AND JUST SMS US ON PH. 09811437895

PROFITABLE INDUSTRIES FOR YOU

SOLAR POWER PLANT [3266]

Power supply in most of the cities and towns is unreliable, which has forced he people to use small generators. These generators are operated with fossil fuels like kerosene, petrol or diesel cause pollution. It also leads to increase dependence on oil imports. Solar PV power plant consists of SPV modules in arrays (total wattage being 1 kW or more), re-chargeable battery bank, power conditioning unit (inverter & charge controller) etc. When sunlight falls on the SPV module, DC current is produced, which is stored in a battery bank. The inverter converts the DC current from the battery into AC current which, in turn, is used for operating various loads, such as, lights, fans or other electrical appliances in the building, subject to the total load (watts) being restricted to the capacity of the module (Wp).

COST ESTIMATION

Plant Capacity	27360 KWH/Day
Land & Building	Rs. 32 Lacs
Plant & Machinery	Rs. 24.89 Cr.
W.C. for 1 Month	Rs. 10.21 Lacs
Total Capital Investment	Rs. 25.64 Cr.
Rate of Return	4%
Break Even Point	80%

****

CAR SEAT COVERS AND RELATED PRODUCTS [3267]

A car seat is the seat used in automobiles. Most car seats are made from inexpensive but durable material in order to withstand prolonged use. The most common material is polyester. A bucket seat is a separate seat with a contoured platform designed to accommodate one person, distinct from a bench seat that is a flat platform designed to seat up to three people. Individual bucket seats typically have rounded backs and may offer a variety of adjustments to fit different passengers. Early touring cars featured folding auxiliary seats to offer additional passenger capacity. Some early automobiles were available with an exterior rumble seat that folded open into an upholstered seat for one or two passengers. Some sedan models offer fold-down rear seats (e.g. Chevrolet Corvair), to gain cargo space when they are not occupied by passengers. A fold-down front-passenger seat was a feature on the Chrysler PT Cruiser to fit longer items such as a 8-foot (2.4 m) ladder inside the vehicle. The National Traffic and Motor Vehicle Safety Act enacted by the U.S. in 1966 established standards of strength for automobile seats. These included requirements for proper anchorage and construction of automobile vehicle seat assemblies. The legal requirements in some jurisdictions for a child to sit up front is 5'0 and they must weigh more than 80 lbs. Some studies have shown that drivers have an aversion towards carrying the full capacity amount of passengers due to concerns over insufficient vision through the back window. An anti-submarine seat is a kind of seat that incorporates specially shaped panels in the forward edge of the seat cushion, reducing the tendency for the occupant to slide beneath the seatbelt in a severe frontal collision. Anti-submarine seating is a safety feature that may be more important for the front seats than the rear seats. A child safety seat or child restraint system is a restraint which is secured to the seat of an automobile equipped with safety harnesses or seat belts, to hold a child in the event of a crash. All 50 states require child seats with specific criteria. Requirements vary based on a child's age, weight and height. The National Child Passenger Safety Board, managed by the National Safety Council, maintains the quality and integrity of the National Child Passenger Safety Certification Training Program. The program is used to train and certify child passenger safety technicians and instructors in order to assist caregivers in safe transportation of children. Side airbags are often built right into the side of the seat. Seats so equipped should not be covered which impedes the operation of the airbag Car seat covers are accessories that protect the original seat upholstery from wear and add a custom look to a vehicle's interior. They can help to maintain the resale value of the vehicle and maximize the comfort of the driver and passengers. Car Seat Covers and related products are most vibrant and demandable Automobile accessories. The sizes and Dimension is depends upon the different cars available in the market and is manufacture in different sizes.

COST ESTIMATION

Land & Building (600 sq.mt)	Rs.79 Lacs
Plant & Machinery	Rs. 16 Lacs
W.C. for 2 Months	Rs. 1.12 Cr.
Total Capital Investment	Rs. 2.12 Cr.
Rate of Return	26%
Break Even Point	55%

****

n-PROPYL ACETATE [3268]

Normal propyl acetate (also known as n-propyl acetate or 1-propyl acetate) is an organic compound with a molecular formula of $C_5H_{10}O_2$. It is commonly used as a solvent in coatings and printing inks. This product is a clear, colourless liquid that has a distinguishable acetate odour. This product is highly flammable with a flash point of 14° C and a flammability rating of 3.It is highly miscible with all common organic solvents (alcohols, ketones, glycols, esters) but has only slight miscibility in water. The most common method for chemically manufacturing normal propyl acetate is through the esterification of 1-propanol and acetic acid which are heated in the presence of a strong acid. A chemical wholesaler would have a bulk petrochemical storage facility to regulate this product.Storage is normally in a cool, dry and well ventilated facility away from oxidizing agents. Normal propyl acetate should be kept out of direct sunlight, heat and open flames. Solvents such as normal propyl acetate should be stored in drummed containers such as isotanks made of stainless steel, aluminium or carbon steel. A bulk chemical exporter would normally distribute this solvent in bulk vessels or tank trucks.For transportation purposes, normal propyl acetate is classed as a flammable liquid with a fire hazard rating of 2. A full bulk chemical distributor would export the solvent throughout regions such as the UK, Europe, Africa and America. This product is a packing group 2. The major use of normal propyl acetate is as a solvent in the coatings and printing industries.It is a good solvent for these industries because it has the ability to thin many other organic compounds. Normal propyl acetate dissolves a host of resins which make it a suitable solvent for wood lacquers and industrial finishes. Within the printing industry it is mainly used in flexographic and special screening prints. It is also used in aerosol sprays, nail care and as a fragrance solvent. It can also be used as a flavouring additive due to its odour similar to pears. The main user end markets are the printing, coatings, lacquers, cosmetic and flavouring industries.

COST ESTIMATION

Plant Capacity	10 MT./Day
Land & Building (3000 sq.mt)	Rs. 3.64 Cr.
Plant & Machinery	Rs. 4 Cr.
W.C. for 1 Month	Rs. 1.92 Cr.
Total Capital Investment	Rs. 9.74 Cr.
Rate of Return	21%
Break Even Point	57%

****

MINERAL WOOL (STONE WOOL) [3269]

Mineral wool is described as insulation material made of wool of glass and stone wool. It is applicable from the cellar up to the roof in a new building or at the renovation of old buildings. Mineral wool often is defined as any fibrous glassy substance made from minerals (typically natural rock materials such as basalt or diabase) or mineral products such as slag and glass Mineral wool has a unique range of properties combining high thermal resistance with long-term stability. Mineral wool can be divided into two main categoriesglass wool and the stone/slag wool. The products are used in essentially the same applications and differ mainly in the raw materials and melting methods following the melting stage, the processes and environmental issues are essentially identical.

Best Industries to Start and Grow

COST ESTIMATION

Plant Capacity	93.33 Tons/Day
Land (50000 sq.mt.)	Rs.19.99 Cr.
Plant & Machinery	Rs. 118 Cr.
W.C. for 2 Months	Rs. 12.54 Cr.
Total Capital Investment	Rs. 156 Cr.
Rate of Return	24%
Break Even Point	62%

****

PROCESS SPICES AND HERBS FROM CLEANING, GRADING, SORTING AND GRINDING AND ALSO DO STEAM STERILIZATION AND FINALLY TO DO EXTRACTIONS OF OIL FROM SPICES, OIL SEEDS AND HERBS [3270]

Spices which are basically plant products, have a definite role to play in enhancing the taste flavour, relish or piquancy of any food, most of the spices are pagrant, aromatic and pangent. They comprise seeds, bartes, rhizome, leaves fruits and other parts of plants, which belong to varigated species and genera since time immorial, India in renamed to be the have of spices. Most important spices like black pepper (king of spices) cardamom (queen of spices) cardamom (queen of spices), ginger, chilies and turmeric, which are produced in India import it great reputation, and these constitute. The major group of spices. In the list of spices, clave, nutmeg, cinnamon and cassia are known as tree spices, However , spices like fennel, fenugreek, garlic, onion, coriander, cumin, vanilla, saffron; etc. There are a number of spices used along with food, namely; 1. Common Salt, 2. Coriander, 3. Chill, 4. Haldi, 5. Ajwain & Maithee, 7.Onion and so on; These spices are not used are at a time. For preparation of any dish may be Indian or European, may be vegetarian or non-vegetarian we use more than are shice for its preparation. The combination of all the spices but together for the use of one particular dish as known as 'masala' of the spices, the bulk of the dry matter consists of carbohydrater, proteins, tannius, resins, volatile oil, fixed oil, for pigments, mineral, elements, etc. These constituents differ grately in their composition and content in different spices. They have varied physical and chemical properties. Due to this reason, the processing method of different spice, differ widely and required individual expertise in variety operation like curing, drying, cleaning, grading and packing. Harvesting of each spice is done at a particular store of maturity in a particular manner suitable for it avoiding any sort of damage before processing. It is transported to the processing centre as quickly as possible and stored properly before it is taken to up for processing.

COST ESTIMATION

Land & Building (17200 sq.mt.)	Rs.4.83 Cr.
Plant & Machinery	Rs. 3.45 Cr.
W.C. for 1 Month	Rs. 70.59 Cr.
Total Capital Investment	Rs. 79.24 Cr.
Rate of Return	49%
Break Even Point	24%

****

CARDANOL FROM C.N.S.L. OIL (CASHEWNUT SHELL LIQUID) [3271]

Cardanol oil, a renewable raw material well known by product of the cashew industry, has been used as the starting material for the synthesis of novel fulleropyrrolidines cardanol based. In this work, cardanol has been used as building block for the preparation of target cardanol based precursors obtained by the way of the convenient transformation of the functional groups (aromatic ring, -OH group or the double bonds of the side chain) of the cardanolic structure. Pure 3-n-pentadecylphenol and its derivatives having homogeneous chemical composition, used as the precursor of any fulleropyrrolidines, have been prepared by hydrogenation of the un-saturated side chain and subsequent alkylation of the aromatic ring of cardanol. The reactivity of olefinic double bond present in the side-chain which can undergo easy transformation i.e. oxirane formation as well as metathesis reactions affording various interesting fulleropyrrolidines is also described. Cashew nut shell liquid or oil obtained by heat treatment contains about 10% cardol and about 90% cardanol (a vessicant oil liquid) resulting from decarboxylating anacordic acid and its polymers. Formerly, a moister product of the cashew kernel industry in southern India, Cashew nut shell oil has become a valuable raw material in the manufacture of many industrial product. It condenses with formaldehyde and other chemicals into resin that can be used in many unique combination for the manufacture of brake lining, clutch and other friction facings, insulating and water proofing varnishes and coating laminating resins, molding composition oil & acid proof cement & industrial floor tile, type writer rolls, and myriad other products, varnishes made with these resin are resistant to acid and alkalies and possess unusual resistance to the softening action of mineral oil; they are used to coat paper for bottle cap liners and for many other water proofing and insulating purposes. The polymerized liquid is used as a potting compound for magnetoelectric machine armatures in air planes because of its high heat resistance subsequent treatment of the polymerized product with formaldehyde, trioxymethylene, paraformaldehyde or furfuraldehyde at room temperature for 24-72 h produced a substantially infusible solid resin that retains high binding power at elevated temperature without softening hydrogenation of the phenol in the oil produced many useful products such as a cosolvent for rotovore in the preparation of insecticides. The hydrogenaled oil has none of the vesicant action of the original liquid cashew nut shell oil also is used in India for protecting wood and paper against termites and for motor roofing and preserving fish nets, textiles and lumber. The cashew nut shell liquid (CNSL) is a by product & the cashewnut processing industry cashew nut trees are found in Kamataka, Kerela, and Tamil Nadu, Maharashtra etc. About 60,000 tons of nuts are collected annually for processing into kernels ;and in addition 50,000 tons and received from East Africa. Oil is extracted from 1/3 rd of the available nuts. Almost all the cashew processing factories are in the small scale sector. These units adopt either the Drum Roasting Method & nut-oil Butts Process while processing cashew nuts. It is reported that raw cashewnuts contain over 20% oil in the shells. In the old Drum Roasting Process, such if the oil gets burnt during roasting where as in the oil-Bath process about 10% good quality shell oil can be recovered from the oil in the process itself as a bye-product. This oil is of good quality and finds ready market. The shell still contains 10 to 12 percent oil which can be recovered either by solvent extraction or by using expellers. Cashew nut shell liquid is a versatile raw material. The potential availability by CNSL is estimated at 40,000 tons but the actual average production is only by the order by 9,000 tons, primarily due to look of market. The industrial application & CNSL are based open its polymerization to a rubber like material under the influence by acids and on the formation of a wide range of condensation products with aldehydes.

COST ESTIMATION

Plant Capacity	10 MT/Day
Land & Building (4000 sq.mt.)	Rs.1.37Cr.
Plant & Machinery	Rs. 1.26 Cr.
W.C. for 2 Month	Rs. 1.77 Cr.
Total Capital Investment	Rs. 4.51 Cr.
Rate of Return	34%
Break Even Point	49%

****

HERBAL MEDICINAL FOOD SUPPLEMENTS [3272]

Dietary supplement, any vitamin, mineral, herbal product, or other ingestible preparation that is added to the diet to benefit health. Omega-3 fatty acid pills are an example of a dietary supplement. Dietary supplements are used worldwide and represent a broad category of ingestible products that are distinguishable from conventional foods and drugs. In the United States, dietary supplements are defined as products (other than tobacco) intended to supplement the diet

Start Your Own Industry

that contain at least one of the following ingredientsvitamin, mineral, herb or botanical (including extracts of herbs or botanicals), amino acid, metabolite, or any combination thereof. In short, products such as multivitamins, garlic tablets, fish oil capsules, probiotics, natural weight-loss aids, and certain types of energy drinks are examples of dietary supplements. In the United States, dietary supplements must be labeled as such and must be intended for oral administration only, whether as tablets, capsules, powders, or liquids. In addition, dietary supplements must not include chemical compounds that have been approved as drugs or licensed as biologics, unless the compound was previously marketed as a dietary supplement or a food. Supplements are often sold alongside conventional over-the-counter medications in retail outlets. While dietary supplements are not intended to treat, cure, mitigate, or prevent any disease, many consumers often view them as substitutes for conventional medications. More than 50 percent of the U.S. population uses some type of dietary supplement on a regular basis. Surveys of supplement usage in other countries indicate that between 40 and 60 percent of Asian respondents use dietary supplements, and about 30 percent of consumers in Europe and Latin America report regular use of these products. Nutritional supplement, in foods, any vitamin or mineral added during processing to improve nutritive value and sometimes to provide specific nutrients in which populations are deficient. Flour and bread products are often enriched with iron and the B vitamins thiamin, riboflavin, and niacin; and citrus-fruit beverages, naturally containing vitamin C, may be fortified with additional vitamin C units. Addition of iodine to salt has eliminated goitre in some areas in which it was formerly common; and vitamin D may be added to baby foods to combat rickets.

COST ESTIMATION

Land & Building (1800 sq.mt.)	Rs. 1.12 Cr.
Plant & Machinery	Rs. 90 Cr.
W.C. for 2 Month	Rs. 4.80 Cr.
Total Capital Investment	Rs. 7.03 Cr.
Rate of Return	51%
Break Even Point	44%

****

ELECTRIC SWITCHES MANUFACTURING [3273]

The switches are of high quality and are used in hot plates, coolers, washing machines, electric cooking ranges etc. Rotary Switches are to 5 Amps and 15Amps rating and are fitted with very fine quality contracts for long lasting. The contacts close or open. The switches consist of Bakelite body except for the hot plate switch. The hot plate switch has a ceramic base to withstand high temperature. The switches have a 360° rotation. The switches are provided with a black or white knob with proper marking. Single hole fixing is provided by a threaded brush. The switch is secured by a single center fixing nut. Electric switches, plugs, sockets, etc. are nothing but electric fittings which are quite familiar to the people as it is found in every home. They can be manufactured using different major raw materials e.g. steel, brass, thermosetting or thermoplastic resins However this report is totally based on bakelite powder or resin which is thermosetting type. Bakelite powder is also known as phenol formaldehyde resin. also other electrical accessories e.g. plates, lamps holders, may be manufactured from phenol formaldehyde resin and same plant and machineries making the industry highly flexible and profitable. Besides electrical fittings radio cabinets, inks stands, table lamps, door and cabinets, handles, power relay components, camera shutters, textile bobbins and other accessories may also be manufactured with little or no change. As mentioned earlier though electrical fittings may be manufactured from other materials also it may be noted that bakelite electrical fittings are best and economical. Also bakelite is bad conductor of electricity making them shock resistant which may be there is case of metal electrical fittings. Electric fittings are manufactured in different sizes as required by the customer. They may be of two or three pin. Three pin sockets and plugs have one major advantage over two pin one's since they are earthed also. Also various combinations are practiced in the 5-15 ampere range. These combinations are (1) 5 amp. switches, sockets, Bell push & Flush type fuses (2) 15 amp. and 5-15 amps. combination etc. can imagine the scope of this industry. To make it more clear due to the development in electric production more industries will be installed, more and more electricity, as well as industrial purposes which in turn will require more fittings. Most of the bakelite electrical fittings consist essentially of three parts. i. The bakelite or plastic body. ii. Metal inserts and screws, springs etc. iii. Ceramic base. A switch is a device to cut the electric circuit when not desired. A general use switch is a switch intended for use in general distribution and branched circuits. It is rated in amperes and is capable of interrupting its rated current at its rated voltage.

COST ESTIMATION

Land & Building (450 sq.mt.)	Rs.83.10 Lacs
Plant & Machinery	Rs. 21.05 Lacs
W.C. for 1 Month	Rs. 7.79 Lacs
Total Capital Investment	Rs. 1.13 Cr.
Rate of Return	31%
Break Even Point	49%

****

READYMADE DRY MORTAR MANUFACTURING PLANT (2 TON/HOUR) [3274]

Dry Mortar Mix is gaining eminence in modern times owing to its versatile superiority in regard to characteristics over the conventional in-situ mortars viz. better performance easy to uses easy to set and the quality of leaving no crakes and voiles. Besides it has preferably better and wider field of application as patching & repairing materials for plasting purposes and other construction works viz. internal/ external plastering masonry work etc. It is a very good substitute for conventional in-situ mortars. Various types of Ready mix dry mortar comprise internal plaster mortar, external plaster mortar masonry mortar, quick setting mortar high strength mortar repair mortar self leaving flooring mortar pre-mix RCC mortar etc. One specific advantage regarding manufacture of these ready mix dry mortar is that they can be manufactured in a single unit by variation in composition proportions as per different formulations. Ready mix dry mortar is particularly useful on congested siles or in road construction where little space for the mixing plant and for extensive aggregate stockpile is available but the greatest single advantage of ready mix dry mortar is that it may be made under better conditions of control than are normally possible on any large construction sites. These consist of finely ground refractory grain and plasticizers that can be thinly spread on brick during construction. For air - setting mortars sodium silicates or phosphates provide strength at room temperature. Heat setting mortars contain no additives and develop strength only when a ceramic bond is formed at high temperatures. A refractory composition containing chemical agents that sure hardening at temperatures below that of ceramic bonding but above room temperature sometimes called "air hardening". A refractory mortar material which requires relatively high temperature fro the development of a bond. Masonry cements are cements fro use in mortars for masonry construction. They are formulated to yield easily workable mortars and contain special additives that reduce the loss of water from the mortar to the prours masonry units.

COST ESTIMATION

Plant Capacity	20 Ton/Day
Land & Building (3000 sq.mt.)	Rented
Plant & Machinery	Rs. 48.50 Lacs
W.C. for 1 Month	Rs. 43.46 Lacs
Total Capital Investment	Rs.1.04 Cr.
Rate of Return	109%
Break Even Point	45%

****

Visit us at:
www.eiriindia.org

Start Your Own Industry

STAINLESS STEEL BUTT AND BALL BEARING HINGES FOR WOODEN DOOR [3275]

Hinges are devices that are made out of two symmetrical or none symmetrical sheet metal pieces pivot joined together with wire rod for free swinging of the two parts and are used to support doors or windows of buildings and furniture allowing a swing about the support frames. A hinge is a relatively simple bearing, usually involving two plates that meet at a fulcrum which allows a limited amount of rotation. Doors are the most common hinge application, but they are used in so many different situations that to make a comprehensive list would take too long. Zinc Plated & Electro Brass Plain Bearing Butt Hinges

COST ESTIMATION

Plant Capacity	3 MT/Day
Land & Building (2000 sq.mt.)	Rs. 2.16 Cr.
Plant & Machinery	Rs. 1.07 Cr.
W.C. for 2 Months	Rs. 4.10 Cr.
Total Capital Investment	Rs. 7.83 Cr.
Rate of Return	88%
Break Even Point	24%

****

SCHOOL UNIFORM & LADIES GARMENTS (READYMADE GARMENTS) [3276]

As the name itself implies the readymade garments are garments ready for wearing. Wearing garment is a basic need for every human being. The trend for using ready made garments is increasing day by day. Ready to wear garments have been finding more and more acceptance in the indigenous as well as export markets mainly due to low cost of fabrication. Sewing, of cloth as well as saving of time. Manufacture of readymade garments is very simple and easily manageable. Machinery and Raw Materials required to start this industry are indigenously available. The scheme envisages for setting up a unit of readymade garments. viz. Cotton Shirts, Pajamas, Petticoats and blouses which shall be quite acceptable in the rural markets. The readymade garments industry is a highly diversified one consisting of a large number of items based on various fabrics either woven or knitted, for ladies and girls, for men and for boys for sports and swimming. Under-garments, Outer garments, traditional institutional and also industrial garments. The Rs 172,000-crore private education market in India is estimated to be growing at 11 per cent a year — this segment represents 51 per cent of this market. Thus, the market for school uniforms is huge and growing at a fast pace. At present, uniforms are almost 40 per cent of the Rs 32,000-crore kidswear market, with growth of 15 per cent over last year.

COST ESTIMATION

Plant Capacity	200 Nos./Day
Land & Building (546 sq.mt.)	Rs. 26 Lacs
Plant & Machinery	Rs. 57 Lacs
W.C. for 2 Months	Rs. 1.09 Cr.
Total Capital Investment	Rs. 2.03 Cr.
Rate of Return	38%
Break Even Point	60%

****

HYDRATED LIME [3277]

Hydrated lime is a stable, dry, fine powder produced by the chemical combination of quicklime with water. This is the most concentrated form of lime. Hydrated lime,apart from building industries, is also largely used in chemical industries as a cheapest alkali available. It is consumed in hundreds of solidliquid phase reactions. Hydrated lime requirements definitely exceed the vast tonnage of quick lime required in dry, thermal processes such as sintering, smelting, and fluxing etc. Hydrated lime is used for neutralization, coagulation, canticization, dehydration, hydrolyzation and absrption. It is also used as a flux in metallurgy, as a specified lubricant, as a bonding agent, as a filler, as a raw material and also in the manufacture of refrectories. The present existing manufacturing capacity in the country for the manufacture of hydrated lime is not sufficient to meet the growing demand of its dependent chemical and other industries as also in building industry. Raw materials, process equipments, and the necessary know-how involved in the manufacture of hydrated lime are available indigenously. The term lime has broad connotation and frequently is used in refering to limestone. According to precise definition lime can only be a burned form: Quick lime and hydrated lime. These products are oxides or hydroxides of calcium and magnesium, expect hydraulic types in which the CaO & MgO are chemically combined with impurities. The oxide is converted to a hydroxide by slaking on exothermic reaction in which the water combines chemically with the lime.

COST ESTIMATION

Plant Capacity	100 MT/Day
Land & Building (6000 sq.mt.)	Rs. 3.08Cr.
Plant & Machinery	Rs. 1.50 Cr.
W.C. for 2 Months	Rs. 2.28 Cr.
Total Capital Investment	Rs. 7.05 Cr.
Rate of Return	39%
Break Even Point	48%

****

AYURVEDIC HOSPITAL 40 BEDED [3278]

PanchaKarma is the cornerstone to Ayurvedic management of disease. Pancha Karma is the process which gets to the root cause of the problem and corrects the essential balance of 'Tridosha' in body. Pancha Karma is not only good for alleviating disease but is also a useful tool in maintaining excellent health. Ayurveda advises undergoing Pancha Karma at the seasonal changes to clean the body, improve the digestion and to improve the metabolic processes. Panchakarma is a Sanskrit word that means "five actions" or "five treatments". This age-old science of purifying the body is an ancient branch of Ayurveda, The Treatment in Ayurveda consists of two main types. One is Shaman Chikitsa, used to subdue the vitiated Doshas, due to which any ailments may be produced. It is administered by using various medicinal herbo-mineral preparations. However, if the Doshas are vitiated beyond a particular level, they give rise to various endotoxins, which have a tendency to be accumulated in the minute channels. These are beyond the level of pacification and hence need to be eliminated or removed from the body. In such cases, the second type of treatment, which is Shodhan Chikitsa or cleansing therapy, is indicated. Since it consists of the five types of main therapies, it is known as the Panchakarma Chikitsa. Ayurveda, the perfect science or knowledge of life is believed to be the oldest treatment method which evolved around 600 BC in India. The word Ayurveda originated from the two Sanskrit words, 'Ayur' meaning life and 'Veda' meaning knowledge. Ayurveda practiced by special physicians called 'Vaidyas' is known to promote positive health, natural beauty and long life. Life, according to Ayurveda, is a combination of senses, mind, body and soul. The medicinal system believes that human beings and nature should be in perfect harmony and that disease occurs when the equilibrium between these two is disrupted. Restoration of this fundamental balance, through the use of nature and its products is the main goal of this medical system. The concept is not just on curing bodily ailments but also on preventing. Ayurveda emphasizes that 'Prevention is better than cure'. In Ayurveda, which is basically a humoural medical system, diseases are understood as an imbalance between the body's three humors, Vata (nerve energy), Pitta (catabolic fire energy) and Kapha (anabolic nutritive energy). Natural herbs and minerals are used for preparing medicines. Apart from herbs, purification and detoxification, dietary changes, body massages and meditation are used to promote health and prevent and treat illness. Ayurvedic medicines are rapidly gaining acceptance all over the world as they have no side effects and is found to have cures for even rare ailments. Check out the link Ayurveda to know more about the system. Central Council for Research in Indian medicine and Homoeopathy (CCRIMH) was established in 1969 by the Government of India for a systematic research in Ayurveda . In the year 1978,

CCRIMH was split into four separate councils, one each for Ayurveda & Siddha, Unani, Yoga & Naturopathy and Homoeopathy.

COST ESTIMATION

Plant Capacity	40 BEDED
Land (12000 sq.mt.)	US$ 18.56 Lacs
Plant & Machinery	US$ 8.33 Lacs
W.C. for 3 Months	US$ 2.02 Lacs
Total Capital Investment	US$ 29.47 Lacs
Rate of Return	30%
Break Even Point	50%

****

ALUMINIUM EXTRUSION PLANT CAPACITY10 TON/Day [3279]

Extrusion is a plastic deformation process in which a block of metal (billet) is forced to flow by compression through the die opening of a smaller cross-sectional area than that of the original billet Extrusion is an indirect-compression process. Indirect-compressive forces are developed by the reaction of the workpiece (billet) with the container and die; these forces reach high values. The reaction of the billet with the container and die results in high compressive stresses that are effective in reducing the cracking of the billet material during primary breakdown from the billet . Extrusion is the best method for breaking down the cast structure of the billet because the billet is subjected to compressive forces only. Extrusion can be cold or hot, depending on the alloy and the method used. In hot extrusion, the billet is preheated to facilitate plastic deformation.

COST ESTIMATION

Plant Capacity	12 MT/Day
Land & Building (5000 Sq.mt)	Rs. 4.70 Cr.
Plant & Machinery	Rs. 4.88 Cr.
W.C. for 2 Months	Rs. 10.96 Cr.
Total Capital Investment	Rs. 21.77 Cr.
Rate of Return	76%
Break Even Point	28%

****

EXTRA NEUTRAL ALCOHOL (ENA) WITH MAIZE AS RAW MATERIAL [3280]

Neutral spirit is ethanol, which will only have the characteristic taste and odour of ethanol. It is manufactured from molasses, grains and other carbohydrate raw materials. In order to classi~ the different types of neutral spirit according to the raw materials used for the manufacture, the value of the raw material should be prefixed as follows. Molasses Neutral Spirit Neutral spirit made from molasses will be called molasses neutral spirit. Grain Neutral Spirit ,Neutral spirit made from grain or malt will be named as grain neutral spirit. Similarly prefix will be used according to raw material used for manufacture. Pure Ethyl Alcohol C2 H2O also known as absolute alcohol is a colourless mobile inflammable liquid. The term alcohol was first applied to the spirits of wine ethyl alcohol and now it refers to a series of substances with similar characteristics ethyl alcohol is the active constituent of all intoxicating liquors obtained by the fermentation of starchy materials. It is present in the a days prepared in immense quantities chiefly by fermentation and finds numerous industrial uses, and is also being used as a motor fuel. Starch bearing materials potatoes, rice wheat maize,etc. form another important source of alcohol potatoes were extensively used for the manufacture of alcohol in Germany before the War 1st. Alcohol produced from grains costs more than that produced from molasses and grains are chiefly used for the production of patable liquers. Alcohol possesses excellent solvent properties, and it is used for the extraction of several drugs and for the manufacture of tinctures and others medicinal prepaparation. It is also employed for the extraction of essential oils, and for the preparation of perfumes, essences and flavours. For a developing country like India, where the basic organic chemical Industry had to take a start from the available source, ethyl alcohol has been found to be a suitable raw material for a variety of products. So it was in the fitness of things that India started some of the major thermoplastics and chemical intermediates from alcohol.

COST ESTIMATION

Plant Capacity	60 KL/Day
Land & Building (35 Acres)	Rs. 24.80 Cr.
Plant & Machinery	Rs. 44 Cr.
W.C. for 3 Months	Rs. 17.51 Cr.
Total Capital Investment	Rs. 89.31 Cr.
Rate of Return	20%
Break Even Point	58%

****

COLD STORAGE FOR POTATO AND ONIONS [3281]

Onion, being high in water content, is a delicate commodity to store and requires special procedure and parameters, giving rise to the concept of Onion cold storage. The proposed project envisions setting up of an onion cold storage unit in Gujarat to tackle the problem of post harvest storage. It will be an essential infrastructure for onion exporters, both in private and public sector. CA Cold storage is used to Onions and Potato. Once they are kept in the cold storage, they do not get spoiled even after many months. Some times, in production season of certain vegetable or fruit crop, the demand for that thing decreases, which in turn decreases they consumption in surplus amount of that particular item is kept in a cold storage. So this item, when needed, can be taken from the cold storage & can be made available to consumers very easily. Onion is an important vegetable crop grown in India and forms a part of daily diet in almost all households throughout the year. It is also used for medical purpose. But due to non-availability of appropriate post-harvest storage facilities, 20-25% of the total produced onions are wasted, which in terms of value amounts to crores of rupees. Building up of the cold storage unit would minimize the waste upto the level of 3 to 4% that would in turn help the onion growers, and stabilize onion prices in market for all types of consumers. A major challenge in India is potato storage as potato production that takes place in the cold months of October-November to February-March (about four-fifths of total production) is followed by hot summer months; this makes refrigeration necessary for storage. 2 Cold storage takes place on a large scale. It is estimated that there were about 3,400 cold storage facilities in the beginning of the 2000s in India (CIP, 2006) but they had increased to 5,386 units in 2008 that could store over eighteen million tons of crops.3 Most of the cold storages in India are used towards potato storage. CIP (2006) estimates that approximately three-fifths of potatoes in cold storages are table potatoes, intended for consumption, while the other two-fifths are used for seed. Using average storage fees from our survey (and assuming 80% of cold storage use by potatoes), it is estimated that about 0.4 billion USD is spent yearly by traders and farmers on storage for these potatoes in India, indicating the considerable size of this business. Selection of location for the cold storage is a very important task. So, this should be done very carefully. While selecting a location for the cold storage the following factors should be accounted for:- 1. Market and production field should be near the cold storage so that the expenditure incurred in to and for transportation is less and it is convenient also. 2. Cold storage should be near a highway so that the transportation to other cities is not difficult. 3. At the site of the cold storage, the cost of the land should be less. 4. There should be a convenient arrangement of water and electricity at the location, where cold storage is to be established.

COST ESTIMATION

Plant Capacity	5000 MT Cold Storage
Land (68.80 sq.mt.)	Rs. 3.04 Cr.
Plant & Machinery	Rs. 2.61 Cr.
W.C. for 1 Month	Rs. 11.92 Lacs
Total Capital Investment	Rs. 5.94 Cr.
Rate of Return	13%
Break Even Point	69%

****

ICE TUBE MANUFACTURING [3282]

Tube IceTube ice, commonly called cylinder ice, is formed by freezing potable water on the inside of a series of vertical metal cylinders around which refrigerant

is evaporating at a low temperature. When the cylinders are nearly full of ice, hot gas is used to loosen the ice from the cylinder walls. The ice falls downward and is broken into pieces by a spinning breaker bar or other apparatus. The ice is then usually fed up a screw conveyer or auger to a mechanical storage bin or "rake," where it is stored until it can be bagged or processed. Tube ice is recognizable from the trademark hole in the middle of each "tube." The density of tube ice in storage is approximately 32 lb/ft3 (0.41 kg/m3). Because of the hot gas thawing system employed, tube ice is harvested wet. In order to deliver a superior product that does not freeze together, the ice should be refrozen, which dries the surface of the ice and prevents sticking together. This may be accomplished through the use of a drying system or by placing in a cold room immediately after bagging. Ice cube is a well known product and the commercial ice cube is made in the ice plant while the ice can be prepared at homes also in the refrigerators. Only the water is filled in trays and these trays are kept in refrigerators. After a certain period the water will freeze and ice cube can be obtained. The method of refrigeration of water into ice cube is almost similar on commercial scale refrigeration are mostly used for the production of ice cube. Medium and small scale freezing equipments are used in conjunction with the large capacity refrigerators. Ice cube is produced and marketed usually in the form of cubes which may be either crystal-clear or opaque, the latter is considered to be inferior. The opaqueness is due to the presence of minute babbles of air released during the cooling process. The water employed for ice cube making should be preferably free from dissolved solids. formerly when steam was used as a source of powers for driving refrigeration machines the exhaust steam was condensed after filtration and the distilled water so obtained was frozen into ice cube. Electricity is now used for running refrigeration plants and economic production of clear ice cube from raw water without proof distillation has gained importance. Various methods of treatment have been developed for this purpose and it now possible to use water containing dissolved solids up to 1300 p.p.m. to yield ice cube of good marketable quality.

COST ESTIMATION

Plant Capacity	20 MT/Day
Land (2000 sq.mt.)	Rs. 2.47 Cr.
Plant & Machinery	Rs. 1.22 Cr.
W.C. for 3 Months	Rs. 48.98 Lacs
Total Capital Investment	Rs. 4.59 Cr.
Rate of Return	41%
Break Even Point	47%

****

Visit us at:
www.eiriindia.org

WOOD PLASTIC COMPOSITE BOARD (WPC) [3283]

Wood–plastic composites (WPCs) are a form of composite combining wood-based elements with polymers. The processes for manufacturing WPCs include extrusion, injection molding, and compression molding or thermoforming (pressing). Newer manufacturing processes for WPCs include additive manufacturing via fused layer modeling and laser sintering. An important constraint for polymers used in WPCs is requiring process conditions (melt temperature, pressure) that will not thermally degrade the wood filler. Wood degrades around 220 °C; thus, general-purpose polymers like polyethylene and poly vinyl chloride are typically used for manufacturing WPCs. Wood fibers are inherently hydrophilic because of the hydroxyl groups contained in the cellulose and hemicellulose molecular chains. Thus, modification of the wood fiber via chemical or physical treatments is very critical to making improved WPCs. The most abundant profiles made from wood–plastic composites are boards or lumber used in outdoor decking applications. Although early WPC products were mainly extruded for profiled sections, nowadays, many injected parts made of WPC are being introduced for various industries, including electrical casings, packaging, daily living supplies, and civil engineering applications. Mold and mildew and color fading of WPCs tend to be the durability issues of prime importance for WPCs. Most recent research on WPC durability focuses on studies to better understand the mechanisms contributing to various degradation issues as well as methods to improve durability. Most WPC products in the USA are utilized in building materials with few exceptions for residential and commercial building applications, which means that building codes are the most important national rules for the WPC manufacturers. New developments are being made especially in the area of nano additives for WPCs including nanocellulose. Recently, the trend of patent registrations for WPCs has shifted to new products or applications instead of the materials itself. Wood-plastic composites (WPCs) are composite materials made of wood fiber/wood flour and thermoplastic(s) (includes PE, PP, PVC etc.). In addition to wood fiber and plastic, WPCs can also contain other ligno-cellulosic and/or inorganic filler materials. WPCs are a subset of a larger category of materials called natural fiber plastic composites (NFPCs), which may contain no cellulose-based fiber fillers such as pulp fibers, peanut hulls, bamboo, straw, digestate etc. Chemical additives seem practically "invisible" (except mineral fillers and pigments, if added) in the composite structure. They provide for integration of

Hi-Tech Projects

(Date of Posting 24th to 30th of Every Month, Weight of Magazine- Upto 48 Gram)

An Industrial Monthly Magazine on Hi-Tech Projects & developed and underdeveloping Technologies with lucrative Project opportunities

Editor
Sudhir Gupta

Asst. Editor
Ankur Gupta

SUBSCRIPTION RATES FOR INDIA

Single Copy Rs. 20/-
One Year Rs. 225/-
Three Years Rs. 650/-

(Add Rs. 100/- for outstation cheques. Please make the Draft/Cheque in favour of "Engineers India Research Institute, Delhi"

FOR OVERSEAS

Single Copy US$ 10/-
One Year US$ 120/-

PUBLISHERS

ENGINEERS INDIA RESEARCH INSTITUTE
4449 Nai Sarak, Main Road, Delhi - 110006 (INDIA) **Ph** : 9111- 23916431, 23918117, 45120361, 9811437895, 9289151047
E-Mail : eiritechnology@gmail.com, eiriprojects@gmail.com
Website: www.eiriindia.org
www.eiribooksandprojectreports.com

Patrons may also directly transfer the fund for Project Reports & Books in following EIRI current accounts:

HDFC BANK - 05532020001279
(RTGS/NEFT/IFSC CODE: HDFC0001981)

ICICI BANK - 038705000994
(RTGS/NEFT/IFSC CODE: ICIC0000387)

AXIS Bank Ltd. - 054010200006248
(RTGS/NEFT/IFSC CODE:UTIB0000054)

UNION BAK OF INDIA -307201010015149
(RTGS/NEFT/IFSC CODE: UBIN0530727)

STATE BANK OF INDIA -30408535340
(RTGS/NEFT/IFSC CODE: SBIN0001273)

AND SMS US ON PH. +91 9811437895

polymer and wood flour (powder) while facilitating optimal processing conditions. In recent years, people in the flooring industry starts referring to WPC as a type of floor that has a basic structure of top vinyl veneer plus a rigid extruded core (the core can be made without any wood fiber). WPC is now an established product category within LVT. This type of WPC is different than the WPC decking and is not intended for outdoor usage.

COST ESTIMATION

Plant Capacity	1024 sq.ft./Day
Land & Building (500 sq.mt.)	Rented
Plant & Machinery	Rs. 30 Lacs
W.C. for 1 Month	Rs. 10.69 Lacs
Total Capital Investment	Rs. 43.69 Lacs
Rate of Return	52%
Break Even Point	61%

****

SULPHATE OF POTASH [3284]

Potassium sulfate (K2SO4) (in British English potassium sulphate, also called sulphate of potash, arcanite, or archaically known as potash of sulfur) is a non-flammable white crystalline salt which is soluble in water. The chemical compound is commonly used in fertilizers, providing both potassium and sulfur. When potassium sulfate is heated in water and subjected to swirling in a beaker, the crystals form a multi-arm spiral tructure when allowed to settle. Potassium sulfate could be used to study spiral structures in the laboratory. Two crystalline forms are known. Orthorhombic ß-K2SO4 is the common form, but it converts to a-K2SO4 above 583°C. These structures are complex, although the sulfate adopts the typical tetrahedral geometry. It does not form a hydrate, unlike sodium sulfate. The salt crystallize as double six-sided pyramids, classified as rhombic. They are transparent, very hard and have a bitter, salty taste. The salt is soluble in water, but insoluble in solutions of potassium hydroxide (sp. gr. 1.35), or in absolute ethanol. The dominant use of potassium sulfate is as a fertilizer. K2SO4 does not contain chloride, which can be harmful to some crops. Potassium sulfate is preferred for these crops, which include tobacco and some fruits and vegetables. Crops that are less sensitive may still require potassium sulfate for optimal growth if the soil accumulates chloride from irrigation water. The crude salt is also used occasionally in the manufacture of glass. Potassium sulfate is also used as a flash reducer in artillery propellant charges. It reduces muzzle flash, flareback and blast overpressure. It is sometimes used as an alternative blast media similar to soda in soda blasting as it is harder and similarly water-soluble. Potassium sulfate (K2SO4) mineral name arcanite forms colorless, no hygroscopic crystal. It occasionally occurs in nature in the pure state in salt deposit, but is more widely found in the form of mineral double salts in combination with sulfates of calcium, magnesium, and sodium. Potassium sulfate is after potassium chloride the most important potassium containing fertilizer being used mainly for special crops. Potassium sulfate constitutes 5% of the world demand for potash fertilizer. Prior to 1939, the German potash industry was the chief source of potassium sulfate for American chemical and fertilizer industries, although considerable tonnages were being produced in this country by the interaction of potassium chloride and sulfuric acid as a side product of salt-cake manufacture. With the termination of European imports, the production of the salt was undertaken on a larger scale by the American Potash and Chemical Corp. through the interaction of burkeite (Na2CO3 2Na2SO4) with potassium chloride followed in turn by the successful recovery of this salt from langbeinite by the International Minerals and Chemical Corp. In agricultural use potassium sulfate is preferred for the tobacco crop of the Southeast and the citrus crop of Southern California.

COST ESTIMATION

Plant Capacity	200 Ton/Day
Land (40,000 sq.mt.)	Rs. 21.20 Cr.
Plant & Machinery	Rs. 32 Cr.
W.C. for 2 Months	Rs. 45.63 Cr.
Total Capital Investment	Rs. 99.73 Cr.
Rate of Return	32%
Break Even Point	47%

****

CITRIC ACID FROM SUGARCANE MOLASSES [3285]

Citric acid (C6H8O7, 2 - hydroxy - 1,2,3 - propane tricarboxylic acid), a natural constituent and common metabolite of plants and animals, is the most versatile and widely used organic acid in the field of food (60%) and pharmaceuticals (10%). It has got several other applications in various other fields. Currently, the global production of citric acid is estimated to be around 736000 tones/year (Química e Derivados, 1997), and the entire production is carried out by fermentation. In Brazil, almost the entire demand of citric acid is met through imports. There is constant increase (3.5-4%) each year in its consumption, showing the need of finding new alternatives for its manufacture. Citric acid was first isolated by Karls Scheels in 1874, in England, from the lemon juice imported from Italy. Italian manufacturers had monopoly for its production for almost 100 years, and it was sold at high cost. This led extensive attempts all over the world to find alternatives way for its production, which included chemical and microbial techniques. In 1923, Wehmer observed the presence of citric acid as a by-product of calcium oxalate produced by a culture of Penicillium glaucum. Other investigations showed the isolation of two varieties of fungi belonging to genus Citromyces (namely Penicillium). However, industrial trials did not succeed due to contamination problems and long duration of fermentation (Rohr et al., 1983). The industrial process was first open by Currie, in 1917, who found that Aspergillus niger had the capacity to accumulate significant amounts of citric acid in sugar based medium. He also showed that high concentrations of sugar favoured its production, which occurred under limitation of growth. In the thirties, some units were implanted in England, in Soviet Union, and in Germany for the commercial production. However, the biochemical basis was only cleared in the fifties with the discovery of the glycolytic pathway and the tricarboxylic acid cycle (TCA). Consequently, an improved process employing submerged fermentation was developed in United States. Although methods were well developed to synthesis citric acid using chemical means also, better successes were achieved using microbial fermentations, and over the period of time, this technique has become the method of ultimate choice for its commercial production, mainly due to economic advantage of biological production over chemical synthesis. Much attention has been paid on research to improve the microbial strains, and to maintain their production capacity. Citric acid was first isolated from lemon juice and crystallized as a solid by Scheele in 1784. It is found as natural constituent of citrus fruits, pine apples, peaches, figs and other fruits and tissues. The citric acid extracted from these products is known as a"natural citric acid" in contrast to "fermentation citric acid" lemons, limes and pine apples are the principle sources of natural citric acid, which is produced chiefly in Italy, especially Sicily, and also in California, Hawai and the West Indies. It has made the United States self sufficient in respect to the citric acid supply and greatly changes the commerce of the world in citric acid and calcium citrate. Recent developments in the citric acid fermentation include the change from the older established shallow pan method to a deep tank submerged method. A group headed by S.M. Martin of the National Research laboratory of Canada has been especially active in the development of the submerged production of citric acid from ferrocyanide-treated beet molasses by Aspergillus Niger. In Russia, Imshenetskiietal through the use of ultraviolet radiation, obtained an A. Niger mutant that produced 16-22% more citric acid than parent strain, which is used in Commercial production of this product. The mutant strain produced 25-30% less mycellium than the parents yet it consumed 26-51% more sucrose per

gram of dry mycellium. The yield of citric acid from the sugar consumed varied form 57-74%.

COST ESTIMATION

Plant Capacity	40 MT/Day
Land (20,000 sq.mt.)	Rs. 20.61 Cr.
Plant & Machinery	Rs. 29.87 Cr.
W.C. for 2 Months	Rs. 12.87 Cr.
Total Capital Investment	Rs. 64.21 Cr.
Rate of Return	22%
Break Even Point	56%

****

MODERN RICE MILL [3286]

Rice sheller is the process that helps in removal of hulls and bran from Paddy grains to produce polished rice. The objective of rice milling is to get whole grain rice and preserve most of the rice kernel, in their approximate original shape. In order to improve nutritional and cooking quality of rice, a pre-treatment is given to paddy and the rice so obtained by milling the pretreated paddy is known as parboiled rice. The rice obtained from milling untreated rice is known as raw rice or white rice. Primary milling of rice is an important activity in food grains. Rice is used in almost all parts of India. Few decades ago, rice grains were processed at family level before cooking. Today, due to Industrialization and global competitive market trend, it has emerged as one of the major industrial activity in tiny, small, medium and large scale sector to cater to the needs of increasing population. Large number of mills engaged in processing/ milling of rice are spread over in almost all states across the country. Due to increasing demand the number of rice mills will continue to increase throughout the country. The input to the Rice mill is paddy whereas the output is parboiled rice and raw /white rice depending upon whether the pretreatment is given to paddy or not. The objective of milling is to get whole grain rice and preserve most of the rice kernels in their original shape. The technologies used for rice milling in tiny and small mills are mostly conventional in nature and are not oriented towards minimizing pollution by incorporation of in plant pollution prevention cum control measures. These units generate substantial amount of pollution, especially air pollution as a result of fugitive emissions from various operations. The pollution is particularly high in cleaning of paddy, parboiling of paddy and milling of rice. Primary and secondary cleaning of paddy gives rise to solid waste and fugitive emission in the work environment. The coal or husk fired boiler generates fly ash, suspended particulate matter, smoke, and oxides of carbon. Residents of nearby towns suffer due to pollution generated by rice mills. Though some of changes are being brought in production processes to improve the efficiency and lowering the cost of production etc., as regards to pollution abatement & control it remains mostly unsatisfactory. A Civil Writ came up for hearing before the Punjab and Haryana High Court recently and during hearing, the Hon'ble Court had passed an interim order-"It be made known as to why rice husk etc. cannot mandatory be required to be stored, after expulsion by the machine, directly into an enclosed area, so that it does not in any way get out of the factory premises on to the crops/ passing vehicles/any residence made in open fields/on farm workers, at all." In compliance of the orders passed by the court, Punjab Pollution Control Board carried out a study so that some immediate action could be taken to prevent air pollution in the surrounding areas by following enclosed storage practices. The study included inspection of shellers of different capacities, measures taken by these shellers to store the Rice Husk in an environmentally sound manner, adequacy of the enclosure provided around the rice husk storage area, etc. After going through recommendations of the study, court expressed that problem of spillage of Rice Husk could not be solved without providing air tight enclosures. The court also expressed that loading/handling of Rice Husk should be inside the air tight enclosure, so as to rule out any possibility of rice husk particles becoming air borne. The handling and proper disposal of Rice Husk Ash is also a big problem. The ash deposited in the nearby areas is causing health impacts to humans as well as plants. Keeping in view the orders passed by the court and the gravity of air pollution caused by this sector, Central Pollution Control Board entrusted a project on 'framing the guidelines for sitting of rice shellers/mills; handling and storage of rice husk and handling; storage and disposal of ash generated in boiler using rice husk as fuel' to Federation of Indian Chambers for Commerce and Industry, so as to improve the environmental performance of the rice mills.

COST ESTIMATION

Plant Capacity	40 Ton/Day
Land & Building (6000 sq.mt.)	Rs. 3.35Cr.
Plant & Machinery	Rs. 2.23 Cr.
W.C. for 3 Months	Rs. 5.6 Cr.
Total Capital Investment	Rs. 10.96 Cr.
Rate of Return	41%
Break Even Point	39%

****

GINGER OIL EXTRACTION (GINGER ESSENTIAL OIL COMBINED WITH GINGER POWDER) [3287]

Ginger, one the most important and oldest of spices consist of the prepared and sun dried rhizomes of Zengeber officenale race. The rhizomes know in the trade as hand or races reach the spice trade either, with the outer cortical layers intact (Coated a unnscraped ginger) or with the outer coating partially or completely removed. To improve their appearance some grades of ginger are bleached by various means by liming. Ginger possesses a warm pungent taste and a pleasant odor, hence its wide use as a flavourant in numerous food preparation and beverages, ginger bread, soups, pickles and many popular soft drinks. Like most/pungent spices, ginger is consumed all over the world, particularly in tropical or warm countries It dilates the superficial vescells of the spin, resulting first in a feeling of warmth, then in increased activity of the sweet glands and perspiration and finally in a marked cooling effect on the skin. The odor of rhizomes is caused by the presence of volatile oil (1 to 3%) which can be isolated by steam distillation of the comminuated spice. The pungent principles on the other hand, are non-volatile and must be extracted by percolation with suitable solvent which procedure yields the so called oleoresin of ginger. Since the essential oil is contained chiefly in the epidermal tissue, great care should be exercised in the peeling of rhizomes and excessive scraping must be avoided Indeed, unpeeled ginger constitutes a must more suitable raw material for distillation purpose than peeled ginger. According to the historical researches of Hoff mann ginger was continually known to and highty esteemed by ancient Greeks and Romans who obtained the spices from Arabian traders via Red sea. It was introduced to Germany and France in the ninth Century and to England in the 10th Century. The spaniards brought ginger to the west Indies and to Mexico soon after the conquest and as early as 1547 the spices was exported from Jamaica to Spain. Since the rhizomes can easily be transported in a living state for Considerable distance, the plant has been introduced to many tropical and sub tropical countries and is now Cultivated in several part of the world. The most important producing region being Jamaica. Cochin and Calicut (Malabar Coast, South India), Sierra Leone and Nigeria (W. Africa) Southern China and Japan, of these Jamaica produces what most connoisseurs consider the finest grade, possessing the most delicate aroma and flavour. The Cochin quality ranks perhaps second. It Exhibits a Characteristics lemon like by note, for which reason some experts prefer the Cochin ginger to that from Jamaica.

COST ESTIMATION

Plant Capacity	100 MT/Annum
Land & Bldg. (4000sq.mt.)	Rs. 2.15 Cr.
Plant & Machinery	Rs. 1.39 Cr.
W.C. for 2 Months	Rs. 16.82 Cr.
Total Capital Investment	Rs. 20.54 Cr.
Rate of Return	48%
Break Even Point	28%

Market Overview Cum Detailed Techno Economic Feasibility Reports

- **To get Loan/Finance from Banks/Finacial Institutes.**
- **To set up your own Industry/Unit**
- **To have Detailed & Exhaustive Data on any Project.**

* EIRI Project Reports are prepared by highly qualified & experienced consultants & Market Research and Analysis supported by a panel of Experts and Computerised.

* Data provided are reliable and uptodate collected from manufacturers/suppliers, plant already commissioned in India.

A complete List of Industrial Project Reports are given on www.eiribooksandprojectreports.com

EACH DETAILED PROJECT REPORT CONTAINS:

☛**INTRODUCTION :** Project Mix, Uses & Applications, Quality Control Measure & Their Introduction for Attaining Required Properties Economy & Productivity Competence.

☛**MARKET OVERVIEW :** Market Position, Installed Capacity Production, Anticipated Demand, Present Manufacturers, Statistics of Imports & Exports, Estimated Demand, Demand & Supply Gap (If available), LI/IL Issued Recently

☛**PROCESS OF MANUFACTURE :** Inventory Controls & Tests, Comparative Study of Process for Manufacturing the Product, Formulations, Process Flow Sheet Diagram, Process Detail in Stages from Raw Materials to Finished Products

☛**RAW MATERIALS :** Raw Material Specifications, Market Codes & Raw Material Prices, Sources of Procurement of Raw Materials [Imported/Indigenous]

☛**PLANT & MACHINERY :** Range of Machineries Required, Detailed Specifications of Machines & Equipmants, Prices od Machineries, Suppliers of Plant and Machineries.

☛**LAND & BUILDING :** Total Land Area Requirement with Rates, Covered Area Break-up with Estimated Costs of Construction

☛**PROJECT ECONOMICS :** Land & buildings, Plant, Machinery & Other Fixed Assets, Total Capital Investment, Working Capital Assessment, Raw Material & Consumable Stores, Staff Salaries & Wages, Utilities & Overheads, Total Cost of Project, Sources of Finance/Refinance, Break Even Point Determination.

For assessing Market Potential, Corporate Diversifications, Planning, Investment Decision Making and to start your own setup, Entrepreneurs and Industrialists are most welcome to contact EIRI.

EIRI Technocrats and Engineers have just prepared
"MARKET OVERVIEW CUM DETAILED TECHNO ECONOMIC FEASIBILITY REPORTS"
on following lucrative products which are most viable and profitable and having bright future scope

Cold Storage, Cold Supply Chain, Cold Storage By Controlled Atmosphere, Cold Storage For Potato & Horticulture, Cold Storage For Frozen Food, Multipurpose Cold Storage, Cold Storage For Fruits & Vegetables

Cold storage
Cold storage (controlled atmosphere or ca) for potato, capacity: 100,000 bags (50 kg per bag), storing capacity: 5000 mt
Cold storage and ice making plant
Cold storage for frozen food
Cold storage for fruits & vegetables
Cold storage for fruits, vegetables and pulses
Cold storage for potato (1,00,000 bags) 50 kg/bag
Cold storage for potato and other horticulture and other hoticulture products
Cold storage for potato and other horticulture products Cap. 5000 mt or 1,00,000 Bag (50 kg/Bag)
Cold storage for potato andonions
Cold storage plant
Cold supply chain (cold chain)
Cold supply chain for meat
Deep freezer
Finest & Smart Project Report On Cold Storage
Frozen potato patty
Liquid glucose from potatoes
Multi commodity cold storage 500 mt
Multipurpose cold storage
Potato chips
Potato chips and crisps

Visit us at:
www.eiriindia.org

Avail One **Free** Copy of
HI-TECH PROJECTS
Industrial Monthly Magazine
by Email, Contact at:
eiriprojects@gmail.com
Eiritechnology@gmail.com

Copper & Copper Products Like Copper Enamelling, Copper Flats & Tubes, Copper Wire Drawing, Copper Powder, Copper Ingot, Copper Sulfate, Copper Plating, Copper Foils, Copper Cable, Copper Ash And Allied

Aluminium/Copper cable lugs
Brass and copper tube
Continuous casting copper wire rods
Copper and aluminium wire and cable manufacturing unit
Copper and brass ingots
Copper and cobalt from the ore

EIRI is an expert ***Industrial Consultant*** *working over 35 years and specialized to prepare all types of* ***Detailed Project Reports*** *based on clients requirements. Do Contact Today at:*
eiritechnology@gmail.com

containing copper and cobalt from mines
Copper berrylium alloy springs
Copper extraction from slag by electronic process
Copper foil
Copper ingots, rods making & wire drawing
Copper phthalocyanine blue & green
Copper phthalocyanine crude (cpc)
Copper plant
Copper plating on metallic parts by electroless dipping method, copper brightening colouring & lacquerint
Copper powder
Copper powder by electrolytic process
Copper powder from copper scrap
Copper products from copper scrap
Copper rod wire drawing and pvc wire & cables
Copper smelting plant
Copper strip coil from scrap
Copper sulphate
Copper tubes and pipes from scrap
Copper wire drawing and Enamelling plant
Copper wire drawing and super enamelling
Copper wire rods from copper scrap
Copper/brass sheets, circle & utensils
Electric wire (double cotton coated) aluminium and copper
Enamelling of copper wire
G.i.wire and barbed wire
Melting of copper and rolling process
Melting of copper and rolling process for getting circles
Metal separation (copper, tin, lead) from soent wash acid
Paper coated aluminium and copper wire
Re-rolling copper and brass sheet and rods
Super enamelled aluminium & copper wires (from bar/rod)
Super enamelled copper wire (from copper cathode rod)
Super enamelled copper wire (from copper scrap)
Tmt rolling mill (cap.12000 Ton/ month)
Zinc & copper sulphate
Zinc and copper sulphate from brass ash

Disposable/SurgicalProduct

Absorbant cotton (surgical cotton)
Absorbent cotton and surgical bandages
Anesthesia (all types) used in hospitals (by inhalation, local & general)
Band-aid (johnson & johnson type)
Disposable baby diaper
Disposable needles for syringes
Disposable plastic cups, glass etc.(by using automatic thermoforming machine)
Disposable plastic cups, glasses etc.
Disposable plastic razor
Disposable Plastic Syringes (2 Ml. & 5 Ml. Size) (Cap: 40,000 Nos/Day)
Disposable plastic syringes & needles
Disposable plastic syringes (2 ml and 5 ml size)
Disposable plastic syringes (sterilised)
Disposable plastic syringes, needles & needle tube plant
Disposable surgical caps & masks
Hair Extension Manufacturing Unit (Hair Vig)
Integrated surgical cotton
Integrated surgical rubber goods industry
Sanitary napkins disposal paper bags (biodegradable)
Surgical adhesive plaster
Surgical cotton & bandage
Surgical cotton plant
Surgical cotton, roller bandage and crepe bandage
Surgical disposable gloves (dipped rubber goods)
Surgical examination gloves
SURGICAL GLOVES DIPPING PLANT
Surgical methylated spirit
Thermocole based disposable glass, cups & plates

Edible Oils, Essential Oils & Lubricating Oils Industry

Aerosol
Agarbatti & allied
Agarbatti perfumery compound
Air/oil/fuel filter
Ajowan extraction from ajowan seeds
Bees wax manufacture
Bees wax refining & bleaching
Bio-diesel from algae
Blending of lube oil (blending of lubricating oils & manufacture of greases)
Brake oil (brake fluid)
Calcium base grease
Camphor
Candles (semi automatic)
Cardamom oil
Cardmom oil (cap:20 kg/ day)
Castor oil
Castor oil & its derivatives oleoresin, turkey red oil, dco, hco, sebacic acid, 12-hydroxy stearic acid
Castor oil derivative oleoresins
Chilli oil
Citronella oils
Clove oil
Compressor oils
Concentrate of rose, jasmine & lily etc.
Core oil from cashewnut shell
Corn oil (maize oil)
Cotton seed oil solvent extraction plant (capacity 150 ton/day)
Crude edible oil refining (refining of edible oils)
Crude oil refining
Curcumin & turmeric oil from turmeric
Cutting oil
Decolourisation of refined rice bran oil (edible grade)
Dehydrated castor oil
Dhoop batti
Dot-4 brake oil
Edible oil extraction and refining
Edible oil manufacturing 200 tpd
Essential oils distillation unit (basil & cornmint)
Essential oils from wood flex and chips (cyperus wood oil, rose wood oil, sandal wood oil)
Essential oils manufacturing
Ethanol (bio fuel) from rice straw
Eucalyptus oil
Eugenol from cinnamon leaf oil
Eugenol from cinnamon oil
Extra high temperature lubricating grease (2500-30000C)
Extraction & distillation of essential oils, oleoresins, flavours & fragrances
Extraction of essential oils (by super critical method)
Extraction of essential oils (cardamom, jeera, ajowan, ginger oils, etc. & packaging of ground spices)
Extraction of essential oils/ natural extracts oil
Extraction of jasmine essence
Extraction of large cardamom oil
Extraction of oil from oil seed expander extrusion technology)
Extraction of wild apricot (chulli) oil
Fat liquor sulphated oil
Fish oil
Food grade lubricant or grease
Fractional distillation of crude oil
Fractional distillation of essential oil & medicinal plant extract
Fuel oil from jatropha (jatropha bio-diesel oil extraction from jatropha seed)
Garlic oil & powder
Geraniol citronellal & hydroxy citronellol
Ginger oil, sandalwood oil & nagarmotha oil
Grease manufacturing
Ground nut oil mill
Ground nut processing
Hair removing wax
High temperature grease
Integrated wax complex
Ionone from lemon grass oil
Jasmine & lilly flower oil
Jatropha bio-diesel
Jatropha biodiesel oil extraction from jatropha seed
Kesh kala tel (vasmol or godrej keshkala tel type)
Lemon grass oil production
Liquid paraffin
Lube oil & grease
Lube oil & grease from used engine oils
Lube oil blending greases plant
Lube oil blending with greases
Lubricating oil
Lubricating oil repacking and manufacture of greases
Margarine butter (low cholestrol) from vegetable oil
Marorphali powder and oil (powder and extraction of oil frommarorphali)
Menthol crystals
Menthol oil & crystal
Micro crystalline wax
Mineral turpentine oil (m.t.o.)from petroleum (superior kerosene oil or other material)
Mustard oil (edible oil)
Mustard oil (expeller)
Mustard oil and flour mill (integrated unit)
Mustard oil extraction & refining plant
Mustard oil plant
Mustard oil processing plant

(expeller process)
Neem oil captive consumption in production of neem coated urea (plant capacity 2.00 mt per day)
Neem oil plant (20mt seed processing per day)
Oil drilling starch
Oil filling plant
Oil from artemisia herbs
Oil seed & procuement, processing,preservation and storage
Oil service of cars
Oil soap
Oils and storage
Oilseeds procurement, processing, preservation and storage
Oleoresin from spices
Olive oil plant
Palm kernel oil extraction from palm kernel expeller
Palm oil
Palm oil crushing unit
Palmrosa oil from grass
Paraffin wax from slack wax
Peppermint oil
Phenyl pine oil based & black and white
Pouches filling and packaging of edible oil
Rajnigandha oil
Re-refining of used engine oil
Reclamation of hydraulic oils
Reclamation of transformer oils
Reclamation of used engine oil (by vacuum distillation process)
Reclamation of used engine oils
Refined oil- sunflower oil, groundnut oil, staff flower oil & cotton seed oil
Refined vegetable oil
Refining of palm oil, sunflower oil & groundnut oil
Refining of palm oil, sunflower oil and cottonseed oils
Rice bran oil (rbo)
Rose crystals
Rose oil
Rust prevention lubricating oil
Rust prevention oils
Seed oil extraction unit
Seeds grading and processing
Silicon grease
Silicone oil
Silicone oil manufacturing
Smokeless candle
Solvent extraction & refinning (soyabean) (cap 250mt/day & 50 mt/day oil refining
Solvent extraction & refinning (soyabean) (capacity 250 mt/ day & 50 mt/day oil refining)
Solvent extraction of rice bran oil
Solvent extraction plant (oil cake based)
Soya oil and cattle feed from soyabean
Spice oil & oleoresins
Spice oils or oleoresins (extraction of essential oil (cardamon, jeera, ajowan, ginger oil & other spice)
Sunflower oil
Synthetic almond oil
Synthetic ghee
Synthetic musk
Synthetic wax
Teflon grease
Transformer oil
Turbine oil
Turmeric oil extraction from dry turmeric
Turmeric oil oleoresin
Vanaspati unit
Vegetable oil extraction & refining
Virgin coconut oil
Wax crayons
Wax emulsion for textiles
Wetting oil (non ionic)
Wire drawing lubricant

Electrical, Electronic, Computer And Software With Infotech Projects

Aac & acsr aluminium conductors
Air conditioners & parts (window type)
Air conditioners (a.c)
Air conditioners and parts
Air conditions,led tv, washing machines & refrigerators integrated unit
Aluminium alloy conductor
Aluminium cable
Aluminium electrolytic capacitors
Armoured cables
Assembly of pcb (printed circuit board)
Audio cassette assembling & recording
Audio cassettes duplicating recording
Audio cassettes plane & recorded
Audio magnetic heads
Audio magnetic tape
Audio tape deck system
Audio/video cassettes
Auto bulbs
Auto electrical parts (armature)
Auto wire outer (outer for auto wire)
Automatic voltage stabilizer
Automotive components (auto gears)
Battery charger
Battery plates
Black/white t.v. picture tube
Bread boards
Business process outsourcing (bpo)
Cable jelly compound
Camera
Capacitors
Capacitors (aluminium electrolytic tantalum electrolytic ceramic)
Carbon electrode used for battery cell
Carbon potetiometers
Carbon/metal film resistors
Cassettes Tapes (cover)
Ceiling fan
Ceiling fans (stainless steel)
Ceramic insulator
Choke & patti
Choke & starter
Choke used for fluorescent lamps
Chokes & starters
Colour television (tv)
Commutator for electric motor
Compact disc
Compact disc player (audio/ video)
Compact fluorescent lamps
Compact fluorescent lamps with assembling
Compact fluorescent lamps with assembly
Computer assembly
Computer hardware
Computer keyboard
Computer peripherals
Computer printers
Computer ribbon
Computer ribbon cartriges
Computer ribbon reinking or refilling
Computer stationery
Computer stationery & imported hardware parts
Computer terminals
Computerised washing machine (automatic)
Condenser for motor using mpp film
Control panel boards
Cooling coil for air conditioners
Copper rod wire drawing & pvc wire & cables
Copper strip coil from scrap
Cordless telephones
Ct current coils used in transformers of refrigerators
Ct/pt electronic meter
Cyberkiosk
D.g. sets
Data centre
Data processing centre
Dish antenna and cable tv network
Display coolers
Display system (led type)
Distribution transformer
Distribution transformer and repair
Distribution transformer manufacturing and reconditioning
Distribution transformer manufacturing and repairing unit
Domestic electrical appliances-room cooler, washing machine, water heater, electric room heater
Dry cell
E waste recycling (electronic waste viz. crt, circuit board, mobile phones, picture tube, pc, tv, laptop, refrigerator etc.)
E-rickshaw
E-rickshaw (5 nos/day)
E-waste
Eht transformer
Eht transformer for b&w t.v. & transformer for voltage, stabilisers
Electric arc furnace & rolling mill
Electric bulbs
Electric control panel
Electric energy meter
Electric fans
Electric horn for automobile
Electric lamp/gls (incandescent lamp)
Electric mixer
Electric motor winding (for fan, mixies etc.)
Electric motors upto 10 hp. rewinding of all types of motors, water pumps
Electric scooter
Electric steam iron
Electric switches Electric switches plugs sockets & other accessories
Electric water heater
Electric water heater
Electric wire (double cotton coated) aluminium and copper
Electrical & electronic panel meters (analogue & digital, ammeters voltmeters etc)
Electrical appliances
Electrical appliances and spare parts
Electrical choke
Electrical fans
Electrical fixtures
Electrical modular switches
Electrical motor
Electrical panel
Electrical panel board

Highly Profitable Projects for New Entrepreneurs
"EIRI Market Overview Cum Detailed Techno Economic Feasibility Reports"

Electrical panel boards, switch boards, etc of different sizes
Electrical stamping
Electrical switch gears and light fittings
Electrical switches and accessories (polycarbonate based)
Electrical tester & screw driver manufacturing
Electrical tubes & auto bulbs
Electrolyte (like sulphuric acid) for lead acid dry rechargeable 5.5 a.h. battery
Electrolytic capacitors
Electromagnetic relay
Electronic assembly unit
Electronic balast/choke
Electronic choke
Electronic digital watches
Electronic digital weighing machine
Electronic energy meter
Electronic energy meter and flasher
Electronic fire alarm
Electronic gas stove lighters
Electronic manufacturing service (ems) facility in assembly of pcb and components
Electronic pressure indicators, electricals, electronic liquid level indicators, electronic temperature indicator, digital tachometer
Electronic quartz clock
Electronic speaker
Electronic speaker magnet & parts
Electronic t.v.tuners & tape deck mechanism
Electronic telephone instruments
Electronic toys
Electronic watches & clocks
Electronics speaker and parts
Epabx/epax system
Epoxy transformers (current & potential)
Exhaust fan
Fax machines
Ferro magnese/silico mangnese by electric furnace process
Fhp motors
Floppy diskettes
Fluorescent lamp starter
Fluorescent powder for fluorescent tube
Fluorescent tubular lamps with introduction to mercury vapour lamp
Franchise computer education centre
Galvanizing process plant for electrical poles
Gas based heater for domestic and industrial application
Gas detector (lpg)
Generator (battery operated)
Generator set & pump sets
H.t. & l.t. insulator, ht air brake switches d.o. fuse, lightening arrestor
Hardware fitting for transmission line (overhead line material)
Headers for transistor ics semi conductor
Hepa filters
Ht & lt insulators
Ht & mv industrial cubical switch board
Ht air brake switches, d.o. fuse & lightening arrestor
Ht/lt industrial panels
Ice cream stabilizer
Ignition coil for automobile
Induction heater
Industrial refrigeration manufacture
Information moving display (led type)
Injection moulded energy meter boxes and security seal
Insurance claim processing centre (eou)
Integrated circuits
Integrated unit of industrial panel led & cfl bulbs and servo controlled stabilizer
Intercom
Internet based stock trading
Inverter battery
Inverter battery
Inverters 50 hz; 100 to 1000 KVA
Jelly filled telephone cables
L.e.d. bulb & tubes
Laptop computers
Lead acid battery
Lead acid battery maintenance free battery
Lead acid battery plates & assembling of battery
Lead battery plates & assembly
Led bulb and tube
Led bulbs, tubes, panel light, down light etc.
Led bulbs, tubes, panel light, downlight, spot light, street light, flood light, bay light manufacturing
Led lamps & tubes assembling unit
Led light (home and street lights) assembly/ manufacturing plant
Legal transcription & secretarial services centre (eou)
Light emitting diodes (led)
Linear ics trainer kit
Loud speaker
Lt transformer repairing
Luminar light fitting (indoor & outdoor)
Medium voltage switchgear
Metal film resistors
Metallised polypropylene, polyester film capacitor
Mica base electronic components
Mica paper waste paper from mica waste
Micro processors trainer kits based on micro processors
Mini computer (personal computer)
Miniature circuit breaker (mcb)
Miniature watch batteries (button cell)
Mixer/grinder (mixi)
Mobile (transit) concrete mixer plant
Mobile battery & accessories
Mobile battery, charger & accessories
Mobile charger screen protector and mobile housing glass
Mono chrome computer monitor
Motar statar, mcb, change over switches & main switches
Motor for electric ehicles
Motor start electrolytic capacitor
Moulded case circuit breaker
Multi purpose cold storage
Multilayer pcb
Multiple relay for low voltage
Multipurpose cold storage & dehydration and canning of fruits/vegetables
Neon indicator
Neon sign manufacture
Optical fibre cables
Opto mechanical & electrical equipments
Pcb manufacturing (automatic plant)
Photo colour lab
Picture tube (b/w)
Plain paper copier
Plastic film capacitors
Polyester capacitors
Portable generator set
Portable television (tv)
Power capacitors
Power inverters
Power plant (coal, molasses etc. based)
Power plant (gas based)
Power plant (hydro based)
Power plant from bio gas
Power transformers
Prestressed concrete electric poles (200 poles per day)
Printed circuit board manufacturing plant (single, double & multilayer)
Printed circuit board mounting
Printed circuit board mountings for cfl (compact fluorescent lamps)
Processing of low grade tungsten ore
Pvc wire and cable
Radio taxi (on line taxi service)
Reconditioning of picture tube
Recovery of gold from p.c.b. & other electronic waste
Refrigerator, air conditioners, washing machine & colour television integerated unit
Refrigerators and air conditioners
Refrigerators and mini refrigerators
Resin cast ct & pt (1kv)
Semi conductor device
Semi conductors for transistors & diodes
Servo controlled stabiliser
Setting up of a video studio
Sign board
Silicone release paper
Single side and double side printed circuit boards (PCB) manufacturing unit
Smart energy meter
Smoke detectors
Solar cells
Solar electrical panel
Solar modules
Solar photo voltaic system
Solar power plant
Solar products
Solar water heating panels
Solder fluxes
Soldering wire
Stator and rotor of ceiling fan
Stereo amplifiers
Stereo cassette recorders/ players
Storage battery
Street light fitting (indoor and

Market Overview Cum Detailed Techno Economic Faeasibility Report on all Projects are available contact:

ENGINEERS INDIA RESEARCH INSTITUTE

4449, Nai Sarak, Main Road, Delhi - 110 006 (India) * Ph. : +91 9811437895, 9811151047, 91-11-23918117, 43658117, 45120361
Email: eiri@eiriindia.org, eiriprojects@gmail.com Website: www.eiriindia.org, www.eiribooksandprojectreports.com

outdoor) and cfl lamp
Street light fittings surge suppressor
Tantalum capacitors
Teflon coated electric cable
Teflon manufacturing
Teflon tapes & cables
Telemedicine (distance health care)
Telephone (push button & cordless)
Telephone (push button type)
Telephone cords/cables
Television (3 d)
Television deflection components
Television signal boosters
Television tuners
Toggle switches
Torch and tri-light units (integrated plant including miniature bulbs & tubes, engg, plastic moulding and moulds/dies manufacture)
Traction batteries
Transformer for tv
Transformer for voltage stabilizer & eht
Transmission plant fabrication unit
Transmission power line fitting
Transmission tower fitting
Tubular poles for electrical transmissions
Tv & computer monitor picture tube
Tv audio equipment cabinets & their assembling unit
Tv news channel
Uninterrupted power supply (ups)
Variable frequency
Variable voltage ac drive
Video camera
Video cassettes (complete manufacturing & assembling)
Video cassettes recorder (vcr)
Voltage regulator for automobiles
Voltage stabilizer & tv gain booster
Voltage stabilizers
Water heater geyser (electric based)
Water heater geyser (gas based)
Water heater, immersion, tubular heater
Wax & chemical coated, braided tinsel wire
Welding cable and hose
Welding electrodes
Wind energy
Wind energy power project
Wire wound potentiometers
Wire wound resistance
Xlpe armoured cables

ENTERTAINMENT, MEDIA AND LEISURE BASED PROJECTS

Amusement park
Amusement park cum water park
E-Car (4 Wheeler)
It park
Multiplex with cinema pvr (4 screen)

Fasteners, Wire Nails, High Tensile Fasteners, Nuts, Bolts, Washers, Rivets, Clips, Hooks, U-Clamp, Nails, Screw, Centre Bolts, Mild Steel Fastener, Clasps, Hook, Stainless Steel Fastener, Paper Clip, Drawing Pin, Wire Drawing And Wire Nail

Billets from steel scrap
Cold rolling of steel strips
Fasteners (nuts & bolts) used in oil and gas
Fasteners (nuts and bolts) used in oil and gas
Hardware iron door fitting (tower bolts, aldrops, hinges and handles etc)
Integrated scrap yard
M.s.billets
M.s.fasteners and s.s. fasteners
Prefabricated steel framed building manufacturing plant
Re-bar and steel sections
Stainless steel sinks
Steel billets from steel scrap & sponge iron
Steel transmission line towers and rolling mill to produce steel sections

Visit us at:
www.eiriindia.org

Fisheries And Aquaculture, Fish Processing, Fish And Marine Products, Fish Farming, Aquaculture, Prawn Farming, Shrimp Farming, Fish Meal, Fish Canning, Fish Feed & Fish Preservation

Fish Net Production
HDPE Fish Net
Fish Processing
Fishmeal And Fish-Oil Factory Of Capacity To Handle 100 Ton Of Raw Material In A Day

Food Processing Industries, Food Technology, Food Science & Technology, Food Industry, Food Industry, Agro Food Processing, Food Processing Projects, Food Processing Packaging

Agrolactor soya milk
Aloevera cultivation & processing
Chakki flour mill
Chana Dall and Besan Plant
Food products (integrated units)
Food colour
Food colour & roasted groundnut gram peas etc. in pouches
Food dehydration (fruits & vegetables)
Food flavours (whisky), vodka, grape, butter scotch)
Food grade grease or lubricant
Food grade lubricant or grease
Food park
Food parlour
Food processing and training centre
Food processing industry
Food processing unit (garlic, pine apple canning & tomato processing)
Food products complex (dehydrated onions, garlic powder & flakes, cattle feed, tomato powder, tomato products, canned fruits & vegetables, tomato puree, groundnut oil, refined oil, dehydrated grapes etc.
Food products manufacturing (integrated complex)
Frosen french frise
Instant food mix (idli mix, dosa mix, sambar mix, vada mix, gulabjamun mix, dhokla mix etc.)
Milk processing plant 5000 ltr/ day (pasteurized milk, flavoured milk,plain dahi & misti dahi)
Papain extraction industry
Pasta roduction plant (short pasta)
Project report milk processing plant 5000 ltr/day (pasteurized milk, flavoured milk, plain dahi & misti dahi)
Rice mill with rice bran oil extraction (solvent extraction)
Sea food processing industry
Tomato, guava and mango pulp cap:10 ton per hour
Tomato,guava and mango pulp Cap:10 ton per hour
Wheat flour mill
Potato Processing
Greem & Red Aloevera Plantation and Processing
Onion Dehydration Plant

Formaldehyde, Urea Formaldehyde, Melamine Formaldehyde Powder, Phenol Formaldehyde Resin, Sodium Formaldehyde, Naphthalene Formaldehyde, Dye Fixing Agent, Formaldehyde Methanol Sort By:

Caustic soda (sodium hydroxide (NaOH) by electrolytic process
Di-methyl phthalates (dmp)
Formaldehyde resin (urea, phenol, melamine & their modified resins)
Formaldehyde resin (urea, phenol, melamine)
Formaldehyde resins (phenol (pf), melamine (mf) & urea (uf) resins)
Melamine formaldehyde
Melamine formaldehyde resin
Pet resin from ethylene glycol and terephthalic acid
Sodium hydro sulfite (cap-6000 Tons/year)

TERMS AND CONDITIONS

Ask for the quotation for the required project report at

eiritechnology@gmail.com or eiriprojects@gmail.com

Mob: +91 9811437895 or +91 9289151047

ENGINEERS INDIA RESEARCH INSTITUTE

Regd. Off : 4449, Nai Sarak, Main Road, Delhi - 110 006 (India)
*** Ph: +91 9811437895, 9289151047, 91-11-43658117, 23918117, 45120361,**
*** E-Mail : eiriprojects@gmail.com, eiri@eiriindia.org**
*** Website: www.eiriindia.org, www.eiribooksandprojectreports.com**

Deposit the amount in "EIRI "Account with HDFC BANK CA-05532020001279 (RTGS/NEFT/IFSC CODE: HDFC00001981) OR ICICI BANK CA - 038705000994 (RTGS/IFSC CODE: ICIC0000387) OR AXIS Bank Ltd. CA- 054010200006248 (RTGS/IFSC CODE:UTIB0000054) OR UNION BAK OF INDIA CA-307201010015149 (RTGS/NEFT/IFSC CODE: UBIN0530727) OR STATE BANK OF INDIA CA-30408535340 (RTGS/IFSC CODE: SBIN0001273) & SMS ON PH. 09811437895

LIST OF PUBLICATIONS/BOOKS PUBLISHED BY: ENGINEERS INDIA RESEARCH INSTITUTE 4449, NAI SARAK, MAIN ROAD, DELHI - 6 (INDIA)

Name of Books	Rs.	US$
AGRO CULTIVATION, ANIMAL FARMING, AGRO PLANTATION & AGRO CHEMICAL/PESTICIDES/ FLORICULTURE/ALOEVERA		
* Poultry Farm & Feed Formula	575/-	58
* Hand Book of Pig Farming	400/-	40
* Agro Based H.B. of Plantation, Cultivation & Farming	500/-	75
* Agro-Based Plantation Cultivation & Farming	475/-	50
* Agro Chemical Industries (Insecticide & Pesticides)	900/-	90
* Technology of Modern Rice Milling and Basmati Rice	600/-	60
* Hand Book of Goat Farming	450/-	50
* Floriculture Hand Book (Flowers Growing Technlgy)	1000/-	100
* Aloe Vera Cultivation, Processings, Formulations and Manufacturing Technology	2500/-	250
DAIRY FARM, MILK PROCESSING AND ICE CREAM		
* Dairy Formulations, Processes & Milk Processing Industries	750/-	75
* Milk Processing and Dairy Products Industries	950/-	95
* Dairy Farming to Produce Milk with Packaging	475/-	50
* Hand Book of Ice Cream Technology and Formulae	750/-	75
* Hand Book of Milk Processing, Dairy Products and Packaging Technology	1675/-	165
* Dairy Farming for Milk Production Technology	975/-	100
* Commercial Dairy Farming with Project Profiles	750/-	75
HERBS CULTIVATION/MEDICINES		
* Herbs, Medicinal & Aromatic Plants Cultivation	650/-	65
* Aushidhi and Sungndhit Paudho Ka Vaysayik (Hindi)	800/-	80
* Aromatic & Medicinal Plants and Biodiesel (Jatropha)	1100/-	110
* Hand Book of Medicinal & Aromatic Plants	875/-	90
FOOD & AGRO PROCESS, TOMATO PROCESSING, PRESERVATION, DEHYDRATION, FRUIT BEVERAGE, POTATO, MAIZE, MEAT, BANANA		
* Fruits & Vegetable Processing Hand Book (2nd Edn.)	900/-	75
* Fruit Beverage & Processing with Mango	750/-	75
* Food Processing & Agro Based Industries (2nd Edn.)	975/-	100
* Preservation & Canning of Fruits and Vegetables	1200/-	120
* Hand Book of Food Dehydration & Drying	1100/-	110
* Meat Processing & Meat Products Hand Book	1275/-	127
* Technology of Food Preservation & Processing	1250/-	125
* Food Packaging Tech	900/-	90
* Agro Based & Processed Food Products	1100/-	110
* Potato & Potato Process	750/-	75
* Technology of Maize & Allied Corn Products	650/-	65
* Technology of Food Processing Industries	975/-	100
* Complete Book on Banana Cultivation, Dehydration Ripening, Processing, Products & Packaging Tech	975/-	100
* Agro Food Processing and Packaging Technology	1100/-	110
* Modern Tech. of Tomato Processing/Dehydration	1100/-	110
* Technology of Food Chemicals, Pigments & Food Aroma Compd.	1100/-	110
* Modern Technology of Agro Processing & Food Packaging Products with Project Profiles	1100/-	110
POULTRY FARM, HATCHERY & CHICKEN MEAT TECHNOLOGY		
* Technology of Chicken Meat and Poultry Products	1750/-	175
* Poultry Farming, Hatchery & Broiler Production	975/-	100
* Fresh processed meat & coated poultry products with manufacturing of dried meat emulsions and curing of poultry products	1100/-	110
* Poultry Farm/Feed Formulae	575/-	60
WOOD, PLYWOOD, PARTICLE, BOARD, BAMBOO & FOREST		
* Modern Technology of Wood, Veneer, Plywood, Particle Board, Fibreboard, Bamboo & Forest Products	1600/-	160
SOAP, DETERGENT & ACID SLURRY		
* Household Soap,Toilet Soap & Other Soap	750/-	75
* Soaps & Detergents	750/-	75
* Synthetic Detergents	975/-	90
* Acid Slurry, Surfactants, Soap & Detergents/Formulae	850/-	85
* Complete Tech Book on Detergents with Formula	950/-	95
* Manufacture of Washing Soap, Toilet Soap, Detergent Powders, Liquid Soap & Herbal Detergents & Perfumes	1100/-	110
* Mfg Tech of Surfactants, Washing Powders, Optical Brighteners &Chelating	1275	125
* Complete Tec. Book on Soaps, Detergents, Cleaners & Fragrance with Formulae	1100/	110
COSMETICS TECHNOLOGY (SYNTHETIC & HERBAL)		
* Cosmetics Processes & Formulations HandBook	1475/-	140
* Herbal Cosmetics & Beauty Products withFormulations	950/-	95
* Profitable Small Scale Manufacture of Cosmetics	950/-	95
* Synthetic&Herbal Cosmetic	975/-	98
* Tech of Herbal Cosmetics & ToiletriesProducts/Formulae	1100/-	
* Start Your Own Hair Shampoos and Conditioners with Manufacturing Processes	900/-	90
* Manufacturing Processes And Formulations Of Cleansing Creams, Baby Products, Face Powders....	975/-	98
* Formulations & Mfg. Processes of Vanishing all Purpose.....	900/-	90
OILSEEDS AND FATS		
* Hand Book of Oils, Fats and Derivatives with Refining & Packaging Technology	950/-	95
* Technology of Oilseeds Processing, Oils & Fats and Refining	1400/-	140
ESSENTIAL OILS & AROMATIC		
* Essential Oils Manufacturing & Aromatic Plants	650/-	65
* Modern Technology of Essential Oils	850/-	85
* Technology of Perfumes, Flavours & Essential Oils	1175/-	120
* Essential Oils Processes & Formulations	650/-	65
PERFUMES AND FLAVOURS		
* Hand Book of Flavours & Food Colourants Technoly	1400/-	140
* H. B. of Perfume & Flavours	975/-	98
* Hand Book of Perfumes with Formulations (2ndEdn.)	900/-	75
* Technology of Perfumes, Flavours & Essential Oils	1175/-	120
* Complete Technology Book on Perfumes, Agarbatti, Dhoopbatti, Attar and other Products Manufacturing & Formulations with Project Profiles	950	95
* H.B. of Flavours Tech.	750/-	75
* Manufacture Of Perfumes, Fragrances, Scents, Essences And Incense Sticks (Agarbatti) With Formulations	975/-	98
SOLAR PV PANELS, ENERGY		
* Tech Of Solar Pv Panels,Energy, Cells, Lantern, Cooler, Light System, Photovoltaic System, Power Plant, Water Heater, Collector, Solar Cooling, Refrigeration, Solar Drying, Home System, Dish Engine & Other Solar Products Mfg.	1250/-	125

AVAILABLE PROCESS TECHNOLOGY BOOKS AT www.eiriindia.org

CHEMICALS, DYES, LUBRICATING OILS, PETRO CHEMICALS ELECTROPLATING

* Small Medium & Large Chemical Industries 375/- 40
* Industrial Chemicals Technology Hand Book 1100/-110
* Modern Technology of Organic & Inorganic Chemicals 1400/-140
* Electroplating, Anodizing & Surface Finishing Tech. 1100/-110
* Hand Book of Agro Chemical Indust.(Insecticide/Pesticide)900/- 90
* Technology of Synthetic Dyes, Pigments Intermediates 1100/-110
* Petrochemicals, Lubricants, Greases & Petroleum Refining900/-90
* H.B.of Lubricants, Greases & Petrochemicals Technology 750/- 75

GUMS, ADHESIVES & SEALANTS

* Technology of Gums, Adhesives & Sealants with Formulations950/-95
* Hand Book of Adhesives with their Formulae (2ndEdn.)900/-65
* Adhesives Technology & Formulations Hand Book 975/- 98
* Technology of Glue & Adhesives with Adhesives Bonding & Formulations 1100/-110
* Complete Hand Book on Adhesives and Adhesion Tech. with Project Profiles 900/- 90

SMALL SCALE INDUSTRIES, STATIONERY, PAPER, INKS, CANDLES & EXPORT BUSINESS

* Start Your Own Export Business (How To Export) 450/- 45
* Start Your Own Small Business and Industry 350/- 35
* Candle Making Processes & Formulations Hand-Book 750/- 75
* Stationery, Paper Converting & Packaging Industries 400/- 40
* Modern Inks Formulaes & Manufacturing Industries 325/- 35
* Profitable Businesses to Start for Entrepreneurs 400/- 40
* Modern Small & Cottage Scale Industries 650/- 65
* Profitable Small Cottage Tiny & Home Industries (2nd Edn.)900/-90

BIO FUEL, BIO GAS & BIOPROCESSING

* Technology of Bio-Fuel (Ethanol & Biodiesel) 975/-100
* Mod.Tech.of Bioprocessing1475/-150
* ModTech.of BioGas Production1975/-

SWEETS, NAMKEEN & SNACK

* Tech of Sweets (Mithai) 1050/-110
* Technology of Sweets (Mithai), Namkeen and Snacks Food with Formulae 1750/- 175
* Mfr. of Snacks Food, Namkeen, Pappad & Potato Products 900/- 90

PACKAGED DRINKING WATER

* Technology of Water and Packaged Drinking Water 1100/- 110

PRINTING & PACKAGING

* Complete Hand Book on Packaging Technology & Industries 1100/-110
* Printing Process Tech&Indt. 375/- 40
* Hand Book of Printing Technology (Offset, Screen, Flexo, Gravure, Inkjet & Digital) 975/-100
* Hand Book of Offset Printing Technology 500/- 50
* Screen Printing with Processes & Technology 350/- 35
* Hand Book of Prepress 800/- 80
* H. Bookof Packaging Ind. 1300/-130
* Modern Packaging Technology for Processing Food, Bakery, Snack Foods, Spices and Allied Food Products 900/- 90
* Food Packaging Tech. 900/- 90
* Tech. of Printing Inks 1150/-115
* Packaging Technoloy 1150/-115
* Corrugated Boxes 1100/-110

PAINT, VARNISH, SOLVENTS, POWDER COATING & LACQUERS

* Paint Pigment Varnish & Lacquer Manufacturing 450/- 45
* Paint Varnish Solvents & Coating Technology 800/- 80
* Paint, Pigment, Solvent, Coating, Emulsion, Paint Additives & Formulations 950/- 95
* Technology of Coatings, Resins, Pigments & Inks Industries 975/-100
* Mfg. Tech. & Formulations H.B. on Thinners, Putty, Wall & Indu. Finishes & Synthetic Resins 900/- 90
* Technology of SyntheticResins & Emulsion Polymers 975/-100
* Technology of Paints and Coating with Formulations 1750/-175
* Powder Coating Technology 750/- 75
* Paint Technology Hand Book with Formulations (Acrylic Emulsion, Powder Coating, Level ling Agents, PU Ink Binders, Dispersing Agents,Formaldehyde, Polyester Resin, Acrylic Binders and PU Coatings) 1100/- 110
* Complete Hand Book on Paints, Varnish, Resins, Copolymers and Coatings with Manufacturing Process, Formulations/Tech 900/-90/-
* Manufacture Of Nitrocellulose Lacquers, Pu Lacquer, Vacuum Metallizing Lacquers And Other Lacquers With Formulations And Project Profiles 750/- 75/-

PLASTIC/POLYMER PROCESSING, COMPOUNDING, INJECTION MOULDING, ROTATIONAL MOULDING, PLASTIC FILM, FIBRE GLASS, PLASTIC WASTE RECYCLING, MOULDS, PET & RESINS, ADDITIVES INDUSTRIES

* Moulds Design & Processing Hand Book 495/- 50
* Hand Book of Plastic Materials & Processing Technology 750/- 75
* Injection Moulding of Plastics750/-75
* Plastic Processing & Packaging Industries 975/-100
* Plastic Waste Recycling Tech.750/-75
* Technology of Plastic Films 650/- 65
* Rotational Moulding Technology HandBook 750/- 75
* Plastic Compounding, Master Batches, PET & Other Plastics750/-75
* Synthetic Resins Technology with Formulations 800/- 80
* Technology of PVC Compounding & Its Applications 900/- 90
* Polymer & Plastic Technology950/-90
* H.B. of Fibre Glass Moulding450/-45
* Techn. of Reinforced Plastics750/-75
* Plastic Additives Technology 950/- 95
* Technology of PET Bottles, Preform and PET Recycling 850/- 85
* Modern Technology of Extrusion & Extruded Prod. 800/- 80
* Technology of Synthetic Resins & Emulsion Polymers975/-100
* Technology of Plastic Additives with Processes & Packaging 900/- 90
* Complete Technology Book On Identification Of Plastics And Plastic Products Materials 975/-100
* Identification Of Plastics & Other Plastic Process Industries 950/- 95
* Complete Technology Book Of Plastic Processing And Recycling Of Plastics With Project Profiles 1250/-125
* Complete Hand Book Of Blow Moulding Plastics Technology With Project Profiles 975/- 98/-
* Modern Technology Of Injection Moulding, Blow Moulding,Plastic Extrusion,Pet & Other 975/-100

BEE-KEEPING & HONEY PROCESSING

* Tech Book On Beekeeping And Honey Products With Project Profiles 975/- 98
* Complete Technology Book on Honey Processing and Formulations (Harvesting, Extraction, Adulteration, Chemistry, Crystallization, Fermentation, Dried Honey, Uses, Applications and Properties) 1100/- 110
* Modern Bee Keeping & Honey Processing 375/- 40

STARCH MANUFACTURING

* Technology of Starch Manufacturing (Applications, Properties and Composition) with Project Profiles 1100/- 110

SPICE, SEASONING, CONDIMENTS & COLD STORAGE

* Technology of Spices and Seasoning of Spices with Formulae 975/- 98
* Technology Of Spices (Masala) And Condiments With Project Profiles (Cultivation, Uses, Extrn, Composition etc) 1100/-110
* Spices &Packaging with Formula 900/- 90
* Start Your Own Cold Storage Unit 900/- 90

NON WOVEN TECHNOLOGY

* Complete Tech. of Nonwovens Fabrics, CarryBags, Composite, Geotextiles, Medical Textiles, Fibres, Felts, Apparels, Spunlace and Absorbent Nonwoven1175/- 120

PHARMACEUTICALS & DRUGS

* Tablets, capsules, Injectables, Dry Strups, Oral & External Preparations, Eye, Ear 1575/- 155

LEATHER & LEATHER PRODUCTS

* Hand Book of Leather & Leather ProductsTechnology 850/-85

BIOTECHNOLOGY

* Hand Book of Biotechnology900/-90

CERAMICS & CERAMIC PROCESS

* H.B.of Ceramics & Ceramics Processing Technology 1975/- 200
* Modern Tech Of Ceramic Products With Composition 1100/- 110

TREE FARMING

* Hand Book of Tree Farming 800/- 80

MUSHROOM PROCESSING

* Hand Book of Mushroom Cultivation, Processing & Packaging 975/- 98

BIOFERTILIZERS & VERMICULTURE

* Biofertilizers & Vermiculture 900/-100

BIODEGRADABLE PLASTICS AND POLYMERS

* Modern Technology of Biodegradable Plastics and Polymers With Processes (Bio-Plastic, Starch Plastics, Cellulose Polymers & other) 975/- 100
* Production of Biodegradable Plastics & Bioplastics Tech 1500/-150

FROZEN FOOD/FREEZE DRYING

* Frozen Food Processing & Freeze Drying Technology 1000/- 100
* Frozen Food Products 900/- 90

BEER, VODKA, BEVERAGE, WHISKY

* Beer,Cereal Based Beverages, Soy Beverages, Fruit Wine, Vodka, Tea Beverages & Beverages 1100/- 110
* Mfg Tech Hand Book Of Gin, Rum, Whisky, Distillery Spirits, Brandy, Fruit Spirits, Flavours, Maturation & Blending With Other Alcoholic Beverage 1250/- 125

MINERAL AND MINERALS

* Hand Book of Minerals and Minerals Based Industries 975/- 100

RUBBER CHEMICALS, COMPOUNDS

* Rubber Chemicals & Processing Industries 400/- 40
* Modern Rubber Chemicals, Compounds & Rubber Goods Technology 1500/- 150
* Technology of Rubber & Rubber Goods Industries 900/- 90

AYURVEDIC/HERBAL MEDICINES

* Ayurvedic & Herbal Medicines with Formulaes 750/- 75
* Hand Book of Ayurvedic Medicines with Formulations 900/-90

STAINLESS STEEL, NON FERROUS METALS, BILLETS & ROLLING MILL

* Modern Technology of Non Ferrous Metals and Metal Extraction 1100/-110
* Processing Technology of Steels and Stainless Steels 1900/-190
* Modern Technology of Rolling Mill, Billets, Steel Wire, Galvanized Sheet, Forging & Castings 2500/-250
* Mfg Tech of Non-Ferrous Metal Products 1750/- 175

FOOD ADDITIVES/CHEMICALS AND SWEETENERS & FOOD EMULSIFIERS

* Modern Technology of Food Additives, Sweeteners and Food Emulsifiers 1575/- 156
* Technology of Food Chemicals, Pigments and Food Aroma Compounds 1100/- 110

DISPOSABLE MEDICAL PRODUCTS

* Technology of Disposable Medical Products 1750/-175

SOYA MILK, TOFU & SOY PRODUCTS

* Technology of Soya Milk, Tofu, Hydrolyzate, Allied Soyabean Products with project Profile 975/- 100
* Technology of SOYBEAN Products with Formulae 1100/- 100

PRODUCTS FROM WASTE

* Technology of Products from Wastes (Industrial, Agriculture, Medical, Municipality, Organic & Biological) By Panda 900/- 90
* Products from Waste Technology Hand Book 1100/- 110

WINE PRODUCTION

* Technology of Wine Production and Packaging 1750/- 175

CASTING TECHNOLOGY

* Casting Technology H.Book750/- 75

PULP & PAPER TECHNOLOGY

* H.B.of Pulp & Paper, Paper Board & Paper Based Tech. 1150/- 120

FLOUR MILL (ATTA MAIDA, SUJI)

* Start Your Own Wheat Flour Mill (Atta, Maida, Suji, Bran & Besan) 900/- 90

ORGANIC FARMING & FOOD/NEEM

* Hand Book of Organic Farming and Organic Foods with Vermi-Composting & Neem Product 1100/-

FISH FARMING & FISHERY PRODUCTS

* Hand Book of Fish Farming and Fishery Products 650/- 65

TEXTILE AUXILIARY & CHEMICALS

* Textile Auxiliaries & Chemicals with Processes/Formula 1050/- 105
* Tech of Textile Chemicals with Formulations 1450/- 145
* Modern Technology of Textile Auxiliary and chemicals with formulations 1100/- 110
* Textile Processing Chemicals, Enzymes, Dye Fixing Agents and Other Finishes with Project Profiles 1275/- 125

DISINFECTANTS, CLEANERS, PHENYL, DEODORANTS, DISHWASHING DETERGENTS ETC.

* Manufacture of Disinfectants, Cleaners, Phenly, Repellents, Deodorants, Dishwashing Detergents with Formulae 900/- 90

COFFEE & COFFEE PROCESSING

* Coffee& Coffee Processing 525/- 53

ONION CULTIVATION/PROCESSING

* OnionCultivation, Dehydration, Flakes, Powder, Processing & Packaging Technology 975/- 98

BUILDING MATERIAL & CHEMICALS

* Technology of Building Materials & Chemicals with Processes950/- 95

TEXTILE, GARMENTS, DYEING...

* Mod. Tech. of Bleaching, Dyeing, Printing & Finishing of Textiles 750/- 75
* Technology of Textiles (Spinning & Weaving, Dyeing, Scouring, Drying, Printing and Bleaching) 900/- 90
* Garments Manufacturing Tech. 900/- 90

BAKERY, CONFECTIONERY, BISCUITS, COOKIES, BREAKFAST, PASTA & CEREALS

* Technology of Biscuits, Rusks, Crackers & Cookies with Formulations 975/- 98
* Hand Book of Confectionery with Formulations 900/- 90
* Breakfast, Dietary Food, Pasta & Cereal Products Tech 1150/-120
* Modern Bakery Products 900/- 90
* Modern Bakery Technology & Fermented Cereal Products with Formulae 1250/-125
* Confectionery,Chocolates, Toffee, Candy, Chewing & Bubble Gums, Lollipop & Jelly Products 1750/-175
* H.Book of Bakery Industries 950/-95

TECHNOLOGY OF FIBRES

* Fibres With Manufacturing Processes & Properties With Project Profiles 975/- 100