

First Supplement of the Revised Guidelines on the Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of Small Scale Industries (SSI) approved by the Technical Sub-Committee on the CLCSS (TSC) in its 6th meeting held on the 10th day of August, 2006 under the chairmanship of the Additional Secretary & Development Commissioner (SSI)

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INDEX

<u>Sr. No.</u>	<u>Technology Need</u>	<u>Page No.</u>
1.	Accessories	1
2.	Technologies	2-27

Accessories:

Essential accessories required for operation of all eligible machines approved under the Credit Linked Capital Subsidy Scheme for all products/ sub-sectors of the Scheme are approved for the purpose of calculating the subsidy under the Scheme.

(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material

(a) Plastic Moulded/ Extruded Products and Parts/Components.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Moulding/Extrusion	Fully automatic micro processor controlled plastic injection moulding/extrusion machine.	Upto 30.00	1.High rate of production 2. Cost effective 3. Less wastage 4. Better and consistent quality 5.Less power consumption
2.	Tool making (as per CLCSS guidelines as on 20.04.2006)	CNC Milling Machine for in-house Tool room	33	For production of quality dies and moulds.
3.	Manufacture of different type of brushes	CNC Drilling, Filling, Trimming, Tufting, Twin Head Machine, Flagging Machine, Injection Moulding Machine-25 gm to 500 gms. Extrusion and Packing Machine, Plastic Moulding Machine, semi automatic Drilling, Filling, Trimming, Tufting Machine and broom making CNC and semi automatic machine	Upto 90.00	Full automation of the process, high productivity, consistent in quality of the product, hygienic status, cost effectiveness, reduction in labour cost and air pollution, versatile in colour and design etc.

(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material)

(b) Plastic Moulded/ Extruded Products and Parts/Components(products based on reinforced plastic/composite material.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
11.	Extrusion/Injection blow moulding	Micro processor controlled fully automatic extrusion/injection blow moulding machine Automatic Loader On-line auto de-flasher Air handling equipments	Upto 50.00	1.Fully automatic process 2. High productivity. 3.Consistent in quality of the product. 4.Hygienic working conditions 5.Cost effectiveness 6.Reduction in labour cost 7.Reduction in air pollution 8.Reduction in power consumption

(ix) **Food Processing (including Ice Cream manufacturing)**

(d) **Rice flakes/Chiwra (Poha) and Murmura(Puffed Rice):**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Rice Flakes/Chiwra(Poha) and Murmura (Puffed Rice).	Dust collector/dust collecting system	0.20 – 0.75 (depending upon the size of dust collector)	1. Flaking operation becomes dust free. 2. Improvement in hygienic conditions of the unit. 3. Improvement in quality and reduction in breakage of the product. 4. Clean environment.
		Gas fired roaster, including changes of firing system from saw dust to LPG/CNG	1.00 – 5.00	1. Pollution free 2. Better heat recovery 3. Better hygienic condition
		Solar water heating system	3.00 – 10.00	1. Elimination of fuel 2. Reduction in production cost. 3. Free from pollution

(ix) Food Processing (including Ice Cream manufacturing)

(e) Walnut Processing :

Sl. No.	Activity	Technology Need	Cost (Rs. In lakh)	Advantages
	(A) Walnut Processing:			
	(a) Walnut Washing	Washing Tanks with Mechanical Stirrer/agitators	10.00	Better cleaning and acceptability
	(b) Drying	Hot air blowers	10.00	Controlled uniform drying with reduced losses
	(c) Packing Line	Conveyorised automatic sorting, packing and weighing line system	20.00	Efficient packing
	(B) Walnut Kernals Processing:			
	(a) Walnut cracking	Mechanical crackers	20.00	Efficient cracking with minor losses
	(b) Vapour Pressure heat system to control Micro-Biological values	VPH Pressure Vaccumised dryers	25.00	Minimise micro-biological developments
	(c) Size grading	Specific gravity separators	20.00	Efficient grading
	(d) Cleaning and sorting system	High efficiency Laser Sorters/ Colour and foreign matter Segregator	200.00	High efficiency, better product
	(e) Packing	Automatic packing plant for vacuum pouches and OTS cans	40.00	Better packing

	(f) Labeling	Video Jet/non contact printer	5.00	To meet EU/PFA etc. Regulations.
	(g) Storage	Cold Stores	50.00	Better shelf life
	(h) Pallets and Stacking	Fork lifts	0.5 lakh each	Better space utilisation
	(i) Floor cleaning equipment for hygiene	High pressure steam machine to remove oil, seepages of product	20.00	Better quality
	(j) Humidity control	De-humidifiers	10.00	To de-humidify the unit and save product from biological activities for better quality and shelf life
	(k) R&D	Laboratory equipments for checking of quality	0.40	Better product development and statutory compliance
	(C) Value addition to walnut kernels: Caramelisation/ coating/roasting etc.	Roasting and coating machine	25.00	Value addition

(x) Poultry Hatchery & Cattle Feed Industry:

Sl. No.	Activity	Technology Need	Cost (Rs. In lakh)	Advantages	
3	Fish Meal (including fish oil):	(i) Cooking.	Cooker.	5.5	Effective cooking and better quality.
		(ii) Pressing.	Screw press.	6.55	Increase in fish meal and fish oil production.
		(iii) Separation.	Centrifuges and decanters.	60.00	Better recovery.
		(iv)Drying.	Steam Drier.	38.00	Effective Drying and better quality.
			Disc driers.	16.00	- do -
			Double stage waste vapours evaporator.	24.00	- do -
			Steam vacuum evaporator.	17.50	- do -
		(v) Grinding.	Pulveriser.	0.50	Better quality.
		(vi) Sieving.	Shifter.	0.20.	Better output and hygienic production.
		(vii)Mixing.	Blender-cum-mixer.	0.50	- do -
		(viii)Miscellaneous.	(a) Water heating tank.	0.65	Optimum processing.
			(b) Control box and spares.	21.50	Essential to operate automatic plants.
			(c) Laboratory equipments.	5.00	Quality control and monitoring for statutory compliance.

(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles

(a) Glass Products

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
13	Tempered glass for auto window/refrigerator, glass partition doors.	Horizontal flat and bent glass electric furnace for tempering with automatic controller and recorders.	140.00	Automatic loading and unloading. Automatic control for heating/cooling. Low electric consumption. Increase in production upto four fold. Improvement in quality.
14	CNC Cutting Machine.	General Engineering Works auto parts CNC Cutting machine.	42.00	Better accuracy of the final product.

(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles.

(e) Refractory Ceramic Fiber Paper

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	(i)Fiber Processing Section:	Mixing vessels with agitators.	10.57	Homogeneous dispersion of the fiber resulting in controlled flow rate to achieve more efficient cleaning and better fiber yields.
		Primary Cyclone Feed Pump.	1.62	
		Primary Hydrocyclone.	2.70	
		Constant Level Feed Tank.	0.69	
		Secondary Cyclone Feed Pump.	1.87	
		Secondary Cyclone.	1.95	
	(ii)Sheet Formation Section:	Open type Headbox with twin formation wire.	17.35	Uniform formation of paper with improved finish. Better dewatering is achieved to reduce the moisture contain resulting in lower fuel cost.
		Vacuum Pumps and Drives.	6.95	
		Continuous Roller Press.	15.40	
		Vacuum Pumps and drives.	3.60	
	(iii)Drying Section:	Continuous Tunnel Dryer with Indirect Fired Hot Air Generator.	26.60	More efficient drying of larger quantity with reduction in fuel cost.
	(iv)Cutting and Winding Section	On-line Slitters and Pope Reel Winder.	12.10	Reduces packing cost and wastages.

(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles

(f) Reinforced Cement Concrete(RCC) Pipes:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Cement Concrete Pipe making by vertical vibration casting method.	(i) Vertical vibrating machine. (ii) Mixing Plant with pan mixture alongwith attachment, computerized weighing setup. (iii) 20 ton crane with all lifting arrangement. (iv) Air compressor. (v) Generator.	119.06	Less energy consumption per pipe. 15-20% material saving. Accurate quality of spigot and socket. More productivity.

(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles:

(g) Refractory brick, Insulation brick & Casting products:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Refractory brick, Insulation brick & Casting products			
i)	Raw material handling & processing :	i) Pay loader, Fork Lift, Jaw crusher, Bucket elevator, conveyor, magnetic separator, Hooper, Pulverisor, Vibrator screen, Rotary screen, Silos, etc.	20.0 to 40.0	<ul style="list-style-type: none"> • Improve crushing & grinding • Reduce time of grinding • Lower contamination with impurities • Lower wastage • Time saving
ii)	Batch Mixing:	Batch weighing car, Roller mill, edge runner mill, paddle mixer, cooper mixer, etc.	15.0 to 40.0	<ul style="list-style-type: none"> • Homogeneous mixing • More accuracy and compactness
iii)	Pressing & Moulding:	Hydraulic/ Friction screw/ Tounge press/pneumatic press, etc.	20.0 to 40.0	<ul style="list-style-type: none"> • Large production • Improve quality • Low wastage • Time saving
iii)	Drying of green product:	Humidity drying chamber.	5.0 to 10.0	<ul style="list-style-type: none"> • Avoid crack development during firing.
iv)	Firing of dried product:	Oil fired tunnel kiln with recycling of waste heat through recuperators or otherwise with parallel provision to switch over to gas firing partly or fully (Dual process) to save cost on oil and energy. Kiln furniture, Temperature recorder, Optical pyrometer, etc.	60.0 to 100.0	<ul style="list-style-type: none"> • Uniform temperature distribution • Low fuel consumption • Continuous process • Fast production • Low pollution • Energy efficient • Easy operation • Time saving • Low wastage

v)	Lab. Testing for Quality Control	Electric muffle furnace, RUL, PLC, PCE, RTE furnaces, CCS machine, MOR machine, Creep testing machine, X-ray spectrometer, Electronic weighing balance, etc.	10.0 to 20.0	<ul style="list-style-type: none"> • More quality assurance • Easy marketing
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(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles:

(h) Chalk Cryons:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Chalk Crayons			
i)	Raw material Mixing:	Electrical/ Hand operated Mixer	0.06 to 0.34	<ul style="list-style-type: none"> • Homogeneous mixing • Time saving
ii)	Moulding:	Hand & Paddle or Electrical operating Compressor Chalk Ejection Machine a). Non-Split Gun metal dies b). Attach to Hand & Paddle or Electrical operated compressor chalk ejection machine	0.4 to 10.00	<ul style="list-style-type: none"> • More accuracy and compactness • Large production • Improve quality • Low wastage • Time saving • Low pollution • Easy operation • Time saving
iii)	Drying of green product:	Electrical Oven Drier with thermo couple	0.30 to 0.50	<ul style="list-style-type: none"> • Uniform drying

(xxxx) Khadi and Village Industries:

(p) . Bio-Technology:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
(i)	Vermi-Compost.	1.Shovel (for mixing) 2.Sieving machine 3.Cutter & Blender 4.Sewing machine	1.15	<ul style="list-style-type: none">• Reduce human drudgery• Hygienic• Reduce the time for packaging of finished product
(ii)	Enriched bio-digested slurry/manure.	1.Shovel (for mixing) 2.Sieving machine 3.Cutter & Blender 4.Sewing machine	1.15	<ul style="list-style-type: none">• Reduce human drudgery• Hygienic• Reduce the time for packaging of finished product

(xxxxii) Steel Re-rolling and/or Pencil Ingot making Industries:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
5.	Hot Rolling of Stainless Steel Sheet.	Rolling by 5 Hi or 7 Hi Hot Rolling machine.	30-40	Power saving, increased productivity & better quality.
6.	Heating of Stainless Steel sheet before rolling.	Pusher type heating furnace.	5.0	Increased productivity with less burning loss.
7.	Cold Rolling of Stainless Steel Sheet.	2 Hi Cold Rolling machine.	25-30	Increased productivity with less maintenance cost.
8.	Annealing of rolled stainless steel sheet.	Roller type annealing furnace.	6.0	Increased productivity, fuel saving.

(xxxxvi) Industrial Gases.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Manufacture of Oxygen and Nitrogen Gas by Air Separation Method:			
	(i) Water Cooling System	Cooling Tower & Pumps.	0.60-0.70	Ensures cooling of water upto 5 degree Celsius which results in low section temperature of air at each stage of the multi-stage air compressor which will ultimately increase the efficiency of the compressor and cause reduction in maintenance hours and power consumption.
	(ii) Air Filtration System	Air Suction Filter.	0.30	This would help better filtration of air for higher final air discharge(FAD) from air compressor and lower maintenance hours.
(iii) Air Compression System		(a) Air Compressor.	14 – 25 (Depending upon the capacity of air Compressor)	Saving in power cost with improved final air discharge and higher production due to better thermal efficiency, improved material of construction, design and more compression stages.
		(b) Inter Cooler.	0.75 - 1.5	Saving power on account of low air temperature at all stages would reduce the frequency of choked tubes.

		(c)Electric Motors.	1.5 - 3.6	Energy efficient.
		(d) Electric Motor Starter.	2.0	Save power and reduces electric maintenance and reduces frequent break-downs.
		(e)Electric power capacitor.	0.7	Power conservation by correcting power factor.
(iv)Air chilling	Chilling Unit.		2.0 – 4.0 (Depending upon the chilling capacity)	Save power and high temperature drop of process air which helps in improving the plant performance.
(v)Air separation	(a) Expansion engine.		5.25	Reduce power cost and startup time. Higher efficiency would help in smooth production of nitrogen, simultaneously it will also reduce the operating head pressure.
	(b) Air separation unit.		16.0 - 25.0	Save power cost, higher yield with better quality, replacement of high pressure gas compressor by liquid filling pumps, reduces cost of power and maintenance. Facilities of withdrawal of liquid and ultra pure nitrogen.

(xxxxvii) Printing Industry:

S.No	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
01.	Pre-press Section:	Computers- PIV and above(Win/Mac).	0.40	Improvement in Speed efficiency and quality.
02.		Printers:		
2.1		Laser printer with postscript- Size A3, Speed: 45 CPM.	1.00	Enhances Quality and speed output with larger printout for present market needs.
2.2.		Inkjet(Colour)- Size A3, Resolution 2400 DPI.	0.60	Increases print quality, output nearest to desired print quality.
3.1		DTP Software-		
		Corel draw 11 & above,	0.75	Increased Quality, Speed and efficiency. Enable giving better effects in printing .
		Photoshop CS(B) & above,	0.60	
		Freehand,	0.60	
		Acrobat distrilor,	0.70	
3.2		Acrobat illustrator.	0.60	
4	PC Operating system- Window XP and OS 10	0.20	Support all latest software packages.	
5	Scanner-Colour2400 DPI & above.	1	High quality scanning.	
6	Printable image- CTP Computer to plate Size: 4ups(20"X30") & 8 ups(size 30"X40").	65 for 4 ups 85 for 8ups.	Computer to plate, image will be transferred directly from computer to plate. It eliminates one operation as well as it produces high quality.	
7	Plate exposure- Metal Halide lamp exposure unit size 8ups 30"X40" Power 5 KW.	1.75	Advancement in exposing the plate. Quality ,speed and accuracy.	
	Plate Developer- Plate Processor Size 8 ups(30"X42") power 5 KW.	6	Mechanized developing (plates will be processed by chemical with the automation).	

8	Printing Section:	Printing Machines:		
8.1		Small offset Machine A4/A3 size.	4	Advanced printing machine without metal types for speed and quality printing.
8.2		Single colour offset machine size 17"X23"/19"X26'.	8	To undertake Bigger size job work and high speed of printing.
8.3		Two colour Offset Machine size 19"X26".	15	High speed for multi colour printing. At a single operation two colours can be printed, therefore less rejection and high productivity.
8.4		4 color offset machine Size 19" x 26"	90	More productivity being four color printing in single operation.
8.5		Web offset single colour unit cut off size 510mm	15	Fast production therefore greater productivity ie 8000 impressions per hour to 20,000 impressions per hour.
8.6		Single colour mini offset 10"X15"	4	For performing jobs like bill pamphlets letter head vouchers etc.
9	UV Coating	Computerized control panel UV curing size 24"/30"/40" Power 13/14/24 KW respectively	8	To use for liquid coating which can be applied either by screen, rollers, offset or flexo etc. When exposed to Ultra Violet lights it forms a film adhering to the substrate giving a special effect to printed area, and thus provide value addition to printed material..
10	Paper Cutting	Paper Cutting Machines:		
10.1		Semi automatic Paper cutting Machine power operated Size 26"/32"/36"/42".	3	
10.2	Programme Cutting Machine Computerized control panel(Safety accuracy & measurement will be done in a touch button). Size: 26"/28"/30"/32"/36"/42" Power 1/2/3/5 KW.	6 to 15	Better efficiency.	

10.3	Folding:	Semi Automatic folding machine Size:4 ups 20" x 30", 8ups 30" x 40".	5	Increased production & quality.
10.4		Fully automatic folding machine with computer control- Size: 4ups 20" x 30". 8 ups 30" x 40".	15	For increased production and better quality.
10.5	Punching	Punching machine Size 23"x36".	4	Better cost and efficiency.
10.6		Auto control punching machine, Computerized control panel- Size 18"x23", 23"x36" 30"x40".	6	
10.7	Water base Lamination.	Lamination machine- Computerized control panel Size 38"/42".	2 -4	Better Quality and Efficiency.
10.8	Thermal base Lamination.	Thermal Lamination machine-Computerized control panel Size 38"/42".	4 - 8	Better Quality and Efficiency.
10.9	Testing equipment	Testing lab with the following equipment(with one or many) Cobb meter Tensile meter GSM Meter (gram age per Sq. meter) Newton meter Micro meter Vibration meter	5	Determines water absorption/penetration (cobb value) of paper and board. Measures the tensile strength of paper and board. Measures directly substance of paper, paper board and other materials in terms of GSM. For measuring the resistant against tearing of paper, paper board, plastic film, foils and other similar materials For rapid and accurate measurement of thickness of paper, paperboard, plastics, foils etc. For laboratory investigations of resistance of packages and products.

		Hand bar Density meter Drop tester		For pasting offset ink. For testing the average smoothness, porosity and softness of paper, film by determining the time necessary for air/light to flow through and colour values. To check the box compression strength.
10.10	Sewing	Semi automatic sewing machine Size 17” to 23” width	4.50	Sections/forms will be sewed together by this machine it stiches 1000 sections per hour, therefore, better speed and quality is obtained. The sections will be fed by auto mode and checked and sewing operation will be done accurately for better quality and enhanced production.
10.11		Auto section sewing machine Size 17” to 23” width	35	
10.12	Binding	Single clamp perfect binder Size 40 pages to 400 pages Feeding will be done 10 books	4.50	This will gluing the back and fixing the wrapper to the back of the book. This will increase quality and production.
10.13		Ten clamp perfect binder Size 40 pages to 400 pages Feeding will be done 10 books	30	
11	Digital printing	Digital Printers - Xerox 6060 or 8000 HP. 1050 OCE 900 platinum	- 80 84 80	For better and increased production.

(xxxxviii) Machine Tools:

SI No	Activity	Technology Need	Cost Rs. in Lakh)	Advantages
CASTING DIVISION				
01.	Melting	Divided Blast Cupola.	3-5	15% Coke saving, better melt quality higher tapping temperature, lower emissions & reduced air pollution.
		Gas fired Cupola.	12-15	Eco friendly higher tapping temperature & better melt quality.
		Gas fired Pit Furnace.	0.75-1.50	Eco friendly higher tapping temperature & better melt quality.
		Oil Fired Rotary Furnace.	37 (imported) 3 (indigenous)	Pollution control, better quality product & cost effective.
		Induction furnace with cooling tower & water treatment plant.	10-25	Flexibility to produce ferrous castings of all grades, flexibility for charge mixes selection, best melt quality & eco-friendly.
		Induction ladle refining furnace.	30-40	Value added castings & eco-friendly.
		D.C. Arc Furnace.	30-40	Special grade castings & eco-friendly.
		Oil fired Rotary Furnace.	30 (indigenous) 37-40 (imported)	It is proven technology, reduced air pollution, better quality product & cost effective.
		Metal refiner Converter.	40	Value added castings & eco-friendly.
		Skip Charger for Cupola.	Up to 1.50	Ease of charging, reduced labour cost & better control.
		Pouring/treatment ladles as per IS-4475, 4476.	Up to 1	Quality assurance & increased safety for workmen.

02.	Heat Treatment	Gas fired/High temperature furnace with automatic temperature controller & recorder.	2.50 – 5	Eco friendly, reduced scale loss, facilitate automation & quality improvement.
		Fluidized bed Heat Treatment with controlled atmosphere and recuperates for pre-heating.	20 - 80	Eco friendly, highly energy efficient, requiring minimum time/energy to come on line. Flexible operations with adaptability to handle small batches, control atmosphere minimizing decarbonisation as well provides flexibility to carry out process such as carbonizing, carbonitriding and cyaniding without use of pollution salts. No pre cleaning/drying required & post treatment cleaning minimized.
		Medium frequency Induction heaters.	10 - 20	For controlled depth surface hardening machine tools and parts & improved quality.
		Electrical resistance furnace.	2 - 5	Eco friendly, uniform heating & precise control.
		Forced air circulation furnace.	1 - 3	Uniform heating.
		Forced air low temperature furnace.	1 - 3	Required for tempering operations.
		Induction hardening equipment- 100KW, 500 Hz to 3 KHz.	10 - 15	Higher productivity, consistency in quality & eco-friendly.
		Removable type Hearth type chamber F/C up to 1200 degree Celcius moving with computer compatible temperature controller.	3 - 5	Cost saving, consistency in quality & better productivity.
		Quenching: 1. Water quenching tank-with heat exchanger unit.	0.75	Process requirement to achieve quality.
		2. Oil quenching tank-fitted with oil heating & heat exchanger to obtain desired & cooling rates for hardening.	1.50	Process requirement to achieve quality.
3. Air quenching fans.	0.30	Process requirement to achieve quality.		
Flame Hardening Center.	10-12 Lakhs	Increase in accuracy and durability of the machines.		

03	Quality Control Laboratory	Metallurgical Testing: Metallurgical Microscope with image analyzer, photographic attachment & sample preparation machines.	1.50-10	Quality assurance, Defect analysis, Diversification e.g. SG Iron Production equipment essential to meet process control requirements.
		<p>Laboratory Testing/Quality Control equipment:</p> <p>Stroh lien Apparatus, Muffle furnace, Hot Plate, Glass ware etc.</p> <p>U.T.S.</p> <p>Spectrometer/Mass Spectrometer.</p> <p>Hardness tester.</p> <p>Izod & Charpy Impact testing machine.</p> <p>Ultrasonic testing machine.</p> <p>Magnaflux testing machine.</p> <p>Sand Testing equipment Moisture Teller, Universal Sand Strength teting machine, Sieve shaking device, Compactability scale, Rapid Moisture Teller, Permeability Meter, Mold Hardness Tester, Muffle furnace, Wash bottles, stirrer/Shaker, Hotplate, Vortex shaker, Centrifuge etc. Shatter index machine, Scratch Hardness Tester, Stick point, hot tensile, peel back.</p>	<p>1</p> <p>Up to 3</p> <p>15-25</p> <p>Up to 1</p> <p>Up to 0.75</p> <p>Up to 0.75</p> <p>Up to 3</p> <p>2 to 8</p>	<p>Quality control, defect investigation, Quality assurance, Consistency in quality, Reduced defective casting, Cost control.</p> <p>Reduced defective casting, consistency in quality, Reduction in additives cost & better as cast surface finish.</p>
		<p>Dimensional Inspection instruments: Surface plate for marking, height gauge, micrometer, profile projector with digital reading system, dial & micro snap gauges, floating carriage dia measuring machine, 3-Co-ordinate measuring machine.</p>	Up to 10	Quality assurance & defect analysis.

		Process Control Equipment: (a) Carbon equivalent meter. (b) Pyrometer (dip type immersion)	0.75-1.75 0.20	Consistency in quality, reduced defective casting & cost saving.
	Inspection	Surface plate for marking, height gauge, micrometer, vernier calipers.	0.50	Quality assurance & defect analysis.
04	Design & Development	Computers and CAD Software, stimulation software and printer/plotter.	1.50-15	Computerization of design & Development to gain efficient & fast working.
05	Moulding /Core Section	Intensive mixers.	2.50-5	Reduced defective casting, better as cast surface finish, reduction in additive cost & reduced air pollution.
		Simultaneous Jolt/Squeeze Moulding machine.	3-10	Higher productivity, dimensional accuracy & less skill requirement.
		Shell Moulding Machine.	3-5	Higher productivity, dimensional accuracy & less skill requirement.
		Centrifugal casting machine.	1.50 – 3.50	Liner casting exclusive process & eco-friendly.
		Spun pipe casting machine.	Upto 40	Export potential, higher productivity & eco-friendly.
6	Machine Shop	CNC Milling machine CNC Lathe Machine Capstan lathe/Turret lathe Radial Drill Planner Shaper Jig Boring Machine Hydraulic Honing machine CNC drilling Machine Inverter Based welding machine	25-30 10-15 up to 3 up to 5 up to 3 up to 3 up to 5 up to 3 up to 3 Prevailing market price	Higher productivity, dimensional accuracy, less skill requirement & consistency in quality. Better design, faster response time, extremely low ripple, smaller in size & lighter in weight hence portable, more efficient during welding, better weld quality and energy efficient operation.
		Gear shaper.	8 - 9	Improvement in tooth profile of the gears.
		Gear Hobbing.	8 - 9	-do-

7	Tool Room	CNC turning centre.	10-20	Improved high productivity, Precision machining, eco-friendly.
		CNC milling machine.	15-50	Improved high productivity, Precision machining, eco-friendly.
		Electro Discharge machine (EDM).	3-8	Improved high productivity, Precision machining, eco-friendly.
		CNC Wire cut machine.	10-20	Improved high productivity, Precision machining, eco-friendly.
		Profile projector.	0.50-2	Easy to understand drawing and make modification.
		3 D Co-coordinating machine.	2-5	Accurate dimensional inspection.
		Plastic Blow Moulding Machine.	25-75	For manufacturing tool kits.
		Fully Automatic CNC Injection Moulding Machine	15	Modern version for making handle of screwdrivers and sleeves of pliers.
		Special purpose machine Welding Sets.	5-25	Special purpose.
Special Purpose machine for Machining/Grinding/Polishing/finishing.	50-100	Special purpose.		
8	Pattern shop	CNC Milling Pantograph Drilling Disc and bobbin sand grinder	30-50 Up to 2 Up to 1.00 Up to 3	Higher Productivity, consistency in quality narrower as cast dimensions, excellent finish & better productivity.
9	Fettling Section	Shot Blasting Machine. Pedestal Grinder. Swing Frame Grinder. Painting Booth.	Up to 5 Up to 0.50 Up to 0.25 Up to 0.50	Higher productivity & process requirement to achieve quality.
10	Utility Section	Gas fired generating set.	15-40	Eco-friendly & low power cost.
11	Skill upgradation & Training Division	Modern software driven equipment such as CNC trainer mill, CAD/CAM software and modern audiovisual equipment.	Up to 40	To impart training in updated technologies/design.
12	Packing	Packing Machine.	25-50	For better packing.

