Surface and Cylindrical Grinder Operator 24

Long Term

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WB

SYLLABUS FOR (TRADE NAME) :SURFACE & CYLINDERICAL GRINDING MACHINE OPERATOR

UNDER CODE OF REGULATIONS FOR
INDUSTRIAL SCHOOLS

AS APPROVED BY
DEPARTMENT OF EMPLOYMENT AND
TRAINING, CHEPAUK,
CHENNAI 600 005.

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LIST OF COMMITTEE MEMBERS

FOR THE TRADE OF SUR. & CYLINDERICAL GRINDING M/C OPERATOR

.. Members and Experts

1. Sri. T. SUNDARARAJAN
   Regional Join Director
   Gundy, Chennai – 32.

2. Sri. P. DWARAKA
   Assistant Director
   Guindy, Chennai – 32.

3. Sri. S.J. MANOHARAN
   principal (I/C)
   CSI Rural Community College
   Industrial School
   Melrosapuram – 603 204.

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COURSE DETAILS

Name of Trade	**: SURFACE AND CYLINDRICAL GRINDER OPERATOR**
Qualification	**: VIII Pass**
Age	**: 14-40 Years**
Duration	**: 1 Year**
Number of Trainees	**: 20**
Number of Practical hours	**: 32 hrs. per week**
Number of Theory Hours	**: 8 hrs. per week**
Number of Workshop Calculation hours	**: 2 hrs. per week.**
Number of Engineering Drawing hours	**: 2 hrs. per week**
Space Required	
Workshop	**: 1000sq. feet**
ClassRoom	**: 200 sq. feet**
Power Required in KW	**: 3 k.w.**

DRAFT SYLLABUS FOR THE TRADE OF SURFACE&CYLINDERICAL GRINDING MACHINE OPERATOR ONE YEAR UNDER INDUSTRIAL SCHOOL PATTERN

Duration : One Year

WEEK NO	TRADE THEORY	TRADE PRACTICAL	ENGINEERING DRAWING	WORKSHOP CALCULATION
01	Introduction of RCC Industrial school, Facilities, course offer	-----	-----	-----
02	Advantage of the trade (Scope of the trade)	Introducing the work shop discipline.	-----	-----
03	Safety & House keeping	Studying workshop layout	-----	-----
04	Introduction of usage of hand tools.	Handiling method of Hand tools.	Different types of Lines	Reading the scale and calibration
05	Hand tools care and usage	Handling tools with different method	Different types of Lines	Conversion from MM to Inches
06	Hand tools care and usage	Handling tools with different method	Different types of Lines	Conversion from MM to Inches
07	Function of grinding M/C and parts	Introduction types of grinding	Letter writing	Conversion from Inches to MM
08	Grinding principle of Operation	Types of grindings different speed & feed	-do-	Multiplication, Subtraction
09	Types of grinding machine uses	Marking, Punching	-do-	-do-
10	Types of grinding M/C purpose	Marking, Punching Filing	Formation of drawing sheets	Basic conversion FPS unit to MKS Units.
11	Principle operation of grinding M/C	Marking, Punching Filing	Method of title box	Basic conversion FPS unit to MKS Units.

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WEEK NO	TRADE THEORY	TRADE PRACTICAL	ENGINEERING DRAWING	WORKSHOP CALCULATION
12	Principle of operation	Marking, Punching Filing	Free hand sketches straight line Square rectangle	Simple problem with addition, multiplication
13	Introduction of surface grinding types	Introduction of surface grinding m/c with different types	Free hand sketches straight line Square rectangle	Ratio & Proportions
14	Types of surface grinding m/cs purpose	Function of surface grinding with move ment.	Learning first angle projection	Fraction
15	Types of surface grinding m/cs purpose	Plain surface grinding (Rough)	Learning first angle projection	Decimal multiplication subtraction, addition.
16	Revised Previous syllabus and exam conducted (Quarterly) I term			
17	Description and function of grinding m/cs and part movement (General)	Plain surface grinding	Learning third angle projection	Decimal multiplication subtraction, addition
18	Description and function of surface grinding parts	Plain grinding finish -ing	Learning third angle projection	Solving simple problem
19	Cylinderical grinding m/c operations	Square grinding	Learning third angle projection	Allowance, tolerance
20	Grinding machine operation and techniq- ues	Square grinding	Method of box forming	Solving the problem allowance, tolerance in shop floor.
21	Operations and techniques and work holding devices	Key grinding	Method of box forming	-do-
22	Work holding devices	Step grinding	Drawing the Iso metric views	Shop problem in fraction
23	Types of grinding wheels - explain	Step (Key) grinding	Drawing the Iso metric views	Shop problem in both fraction and decimal fraction

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WEEK NO	TRADE THEORY	TRADE PRACTICAL	ENGINEERING DRAWING	WORKSHOP CALCULATION
24	Types of dressing	Angular grinding	Drawing the Iso metric views	Shop problem average
25	Introduction of cylindrical grinding	Angular grinding	Drawing in other graphs	Fits & Allowance
26	Types of cylindrical grinding explain	Introduction of cylindrical grinding	Drawing in other graphs	Types of fit allowance solved in shop floor
27	Description and function of machine parts and uses (purpose)	Function of cylindrical grinding and uses	Drawing in other graphs	Basic trignomentary and their relations.
28	Grinding operations and techniques	O.D grinding, step O.D grinding	Sectioning	-do-
29	Types of operation and technic – explain	Step O.D grinding I.D. grinding	To show various materials by sectioning	Angle. slip gauge calculation
30	Types of grinding in cylindrical and types of wheel using bonds	O.D taper grinding and M/C setting	-do-	Angle. slip gauge calculation
31	Work holding devices used in cylindrical grinding	Taper O.D grinding, pin & bush (O.D,I.D) matching	Learning dimension and segregation	Weights,units & Mesurements. Conversions
32	Review of previous syllabus and exam conducted II Term			
33	Balancing of grinding wheels and mounting explain	Pin, bush, grinding (O.D, I.D matching)	Learning Isometric orthographic	Weights,units & Mesurements. Conversions
34	Diamond dresser uses Truing the dresser and Dressing the grinding Wheels.	Wheel Balancing (Truing a grinding wheel)	Learning Isometric orthographic	Learning materials mixing graduation
35	Nomenclatures of grinding wheels	Grinding wheel balancing and truing	Sectioning	Density of the materials & related problems.

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WEEK NO	TRADE THEORY	TRADE PRACTICAL	ENGINEERING DRAWING	WORKSHOP CALCULATION
36	Types of abrasives and selection of grinding wheels, wheel storage, handling and inspection.	Mounting the grinding wheel and types of wheel dressing.	Sectioning	Density of the materials & related problems
37	Introduction of drilling M/C types explain	Types of Drilling M/C and its movement	Sectioning in different parts And materials	Simple equations & simultaneous equations
38	Explain types of drill bits	Types of drill bits and uses of drill bits	Sectioning in different parts and materials	Slip gauges & related Problems
39	Nomenclatures of drill bits.	Introduction of radial Drilling m/c and moving parts.	To read basic Engg. drawing.	Ratio and proportion sums
40	Description function of radial drilling m/c	Types of Drilling	-do-	Fits & Units
41	Method of holding drill bits to spindle re-grinding the drill bits.	Types of drill holes in drilling m/c	Draw not to scale.	Simple problem Square roots, weight units, measurments-convertion
42	Introduction of measuring instruments Precesion-Iron precesion Instruments.	Introduction for measuring Instru-ments.	To continue last three weeks Syllabus.	-do-
43	Handling methods of instruments.	Methods of handling For measuring Instruments.	To draw machine symbols	Simple machining & mechanical advantages
44	Continued last week portion	Methods of handling For measuring Instruments.	Draw machine symbols	Single algebric problems
45	Description use and Instruments. Do's And Don't's.	Methods of handling For measuring Instruments.	To read the blue print.	Area of simple figures. Volume etc..

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WEEK NO	TRADE THEORY	TRADE PRACTICAL	ENGINEERING DRAWING	WORKSHOP CALCULATION
16	Uses of surface plate care and maintenance	Methods of handling For measuring Instruments.	To read the blue print.	Trigonometric & related problems
17	Measuring slip gauge	Methods of handling For measuring Instruments.	To read the blue print.	Single & simultaneous equations
18	-	-	-	Speed, Cutting speed etc..

Note :

From 5th week to 10th week facing and OD turning including ID boring is taught in lathe machine.

49th week to 52nd week review from 1st week syllabus to till date and model exam conducted & preparation for final exam.

ACHIEVEMENTS

1. From academic qualification to the Technical qualification each student learn to operate various kind of machines.

2. Learning the knowldge of handling precision Instruments.

3. Learning to study the Blue Print and Engineering Drawings.

4. By getting suitable job and earn a decent salary to support the family and for their future.

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LIST OF TOOLS AND EQUIPMENTS & MACHINES FOR THE TRADE OF [illegible]

AND CYLINDRICAL GRINDING M/C. OPERATOR.

Sl.No.	Description	QUANTITY (Nos.)
1.	Outside Micrometer 00-25 (5 Nos.), 25-50 (2 Nos.), 50-75 (3 Nos.), 75-100 (2 Nos.), 100-125 (2 Nos.)	14
2.	Vernier Calliper - 150 mm (3 Nos.) 300mm (3 Nos.) 600 mm (3 Nos.)	9
3.	Bore Dial Gauge - 300 mm (1 No.) 35-60 mm (1 No.)	2
4.	Vernier Height Gauge (50-100)	1
5.	Depth Micrometer 0.50 mm (1 No.), 0.75 mm (1 No.) 0.150 mm (1 No.)	3
6.	L-Angle Plate 200 mm, 175 mm	2
7.	Plunger type Dial 0.01 mm - 2 Nos.,0.001 mm (2Nos.)	4
8.	Magnetic V Block	2
9.	Non-magnetic V Block	2
10.	Combination Set 300 mm	2
11.	Steel Parallel Blocks 100x50x25 mm	2
12.	Slip Gauge box (1-87)	1
13.	Cylindrical Grinding Machine	2
14.	Surface Grinding Machine.	2
15.	Lathe (all geared) motorised with all attachments	2
16.	Drilling Machine - 1 No., 25 mm (Cap.)	1