GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

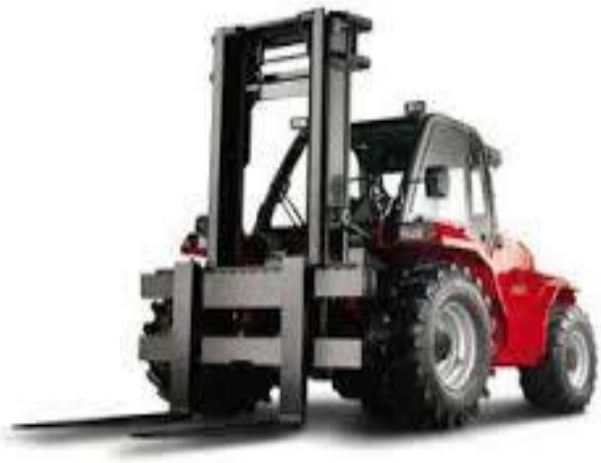
LIGHT VEHICLE OPERATOR
(INTEGRATED STEEL PLANT)

(Duration: Six month)

CRAFTMAN TRAINING SCHEME (CTS)

(Flexi MoU)

NSQF LEVEL- 3



SECTOR – AUTOMOBILE

Directorate General of Training

Skill India
कौशल भारत - कुशल भारत

LIGHT VEHICLE OPERATOR (INTEGRATED STEEL PLANT)

(Engineering Trade)

(Designed in 2019)

Version: 1.0

CRAFTSMEN TRAINING SCHEME (CTS)

(Flexi MoU)

NSQF LEVEL - 3

Developed By
N.M.D.C.IRON & STEEL PLANT, NAGARNAR
JAGADALPUR (C.G.)
&

Ministry of Skill Development and Entrepreneurship

Directorate General of Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector-V, Salt Lake City,
Kolkata – 700 091

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1. COURSE INFORMATION

Flexi- MoU is one of the pioneer programmes under DGT on the basis of the MoU in between DGT & NISP-NAGARNAR for propagating vocational training to allow industries to take advantage of various schemes for conducting training programme in higher employment potential courses according to needs of industries. The concept of Flexi- MoUs was introduced in June-July 2014. DGT and NISP-NAGARNAR have decided to sign this memorandum of understanding to provide an opportunity to the youth to acquire skills related to LIGHT VEHICLE OPERATOR (INTEGRATED STEEL PLANT) through specially designed "Learn and Earn" approach consisting a mix of theoretical and On-the-Job Training (OJT) components and hence improve their employability potential & to contribute in the overall growth of Steel industry by creating a pool of skilled resources.

During the six months duration, a candidate is trained on subjects Professional Skill, Professional Knowledge, Engineering Drawing, Workshop Science & Calculation and Employability Skills. The practical skills are imparted in simple to complex manner & simultaneously theory subject is taught in the same fashion to apply cognitive knowledge while executing task.

The content broadly covers skills in operating a light vehicle, moving, positioning, and transporting the loads in operation process of INTEGRATED STEEL PLANT in today's steel industry. The **six months** course coverage is categorized as below:

The contents covered are safety aspects related to trade, familiarization with integrated steel plant working, covering light vehicle operation. The Light Vehicle Operator is responsible for operating a light vehicle, moving, positioning, and transporting the loads. The Operator controls light vehicle functions by pressing buttons and foot pedals as well as manipulating levers drives safely on the assigned route without Company of a senior driver and will ensure road worthiness of the vehicle through pre-operational checks also the trainee will drive in conformance to standard driving practices, follow Traffic Regulations and maintain good road conduct. Apart from driving the vehicle the trainee will also be able to carry out the basic servicing of vehicle, carry out checks of steering and suspension system for its road worthiness, basic servicing of front and rear wheels, brake and check ignition circuit for proper functioning. The Operator will be required to shift materials from one place to another place. The Operator receives instructions from supervisor via verbal or written instruction to determine the required load movement. Light vehicle Operators operate various types of vehicles like: Trucks, Fowler, Bobcat etc. Light Vehicle Operators - operate diesel powered vehicles/ electric power vehicles to shift the materials as per the operational requirement. This is followed by on job training in coke ovens and bye-product plant, sintering plant, blast furnaces, steel melting shop, thin slab caster, hot strip mill, raw material handling section, power and blowing station and other sections of integrated steel plant.

After successful completion of this **six months** course, arrangements will be made by NISP-NAGARNAR to provide with LMV Driving license to the candidates undergoing this course.

2. TRAINING SYSTEM

2.1 GENERAL

Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers range of vocational training courses catering to the need of different sectors of economy/ Labour market. DGT is futuristic in preparing the prospective Indian workforce in building skills and capabilities as per the needs of the industry. In this quest, it has changed the paradigm of growth to job oriented training by partnering with industry to be an enabler of responsible, sustainable and inclusive growth. Towards this end, DGT signed this MOU with the NMDC (NISP)

NMDC shall conduct courses at NISP NAGARNAR in its training institute. On the job training will be conducted inside the plant premises. It will also ensure the eligible trainees take up Apprenticeship / higher education in suitable streams and shall also guide the students to become Entrepreneurs. NISP will strictly follow the policy guidelines for Flexi - MoU as in place from time to time. No deviation for the same would be permitted. Admission and Exam for trades run under Flexi MoU at training locations of NISP NAGARNAR. Theory content to be 25% and practical content to be 75%.

Broadly candidates need to demonstrate that they are able to:

- Read & interpret technical parameters/documentation, plan and organize work processes, identify necessary materials and tools.
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional knowledge, core skills & employability skills while performing the job and maintenance work.
- Check the task/job for functioning, identify and rectify errors in task/job.
- Document the technical parameters related to the task undertaken.

2.2 CAREER PROGRESSION PATHWAYS

- Can work as operator –LIGHT VEHICLE in any integrated steel plant
- Can join Apprenticeship programme in different types of industries leading to National Apprenticeship certificate (NAC).

2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of Six month:

S No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	140
2	Professional Knowledge (Trade Theory)	100
3	Workshop Calculation & Science	20
4	Engineering Drawing	20
5	Employability Skills	40
	Total	**320 hrs**

On The Job Training; (416 hrs)

Revision and Examination (64 hrs)

Total duration hrs. : 320 + 416 + 64= 800 hrs.

Total training hours:-

Duration	Basic Training	On-Job Training	Revision and Examination Total	Total
For 6 months course	320 hrs.	416 hrs. Including one day in a week training at Training. Institute.	64hrs.	800hrs.

2.4 ASSESSMENT & CERTIFICATION

I. Conducting training of selected candidates is the sole responsibility of Industrial Training Partner (ITP).

II. Assessment will be jointly done by ITP and DGT. Practical and formative assessment shall be conducted by ITP, and Computer Based theoretical exams shall be conducted by DGT.

III. ITP must refer to the latest examination reform guidelines issued by DGT dated 4th October 2018 any changes or revisions to the same shall be applicable to flexi-MoU scheme.

IV. Maximum attempts for clearing the exam and obtaining NTC shall be in line with CTS.

V. For practical examination and formative assessment, ITP has been given flexibility to design the questions, assess the candidates and upload their marks in the scheme portal.

VI. ITP shall develop a comprehensive Question Bank (in English and Hindi) of minimum 1000 questions, grouped by chapters and difficulty level. The same shall be vetted by NIMI experts and then be handed over to DGT for conducting theory exams. DGT may add some questions to the same before conducting actual exams.

VII. Theoretical exams shall be conducted by DGT in Computer Based Test format. Upon completion of course and payment of requisite examination fee by ITP, admit cards shall be generated by scheme portal.

VIII. DGT shall arrange for conduct of computer based theory exam at designated examination centres & certify the successful trainees with e-NTC under flexi-MoU scheme with mention of ITP name in the Certificate.

IX. Students, who have successfully appeared in the final exam after completion of course, are eligible to register as apprentices.

The trainee will be tested for his skill, knowledge and attitude during the period of the course and at the end of the training program as notified by the Government of India (GoI) from time to time.

The **Internal Assessment** during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain an individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the template (Annexure –II).

The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The examiner during final examination will also check the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

2.4.1 PASS REGULATION

The minimum pass percentage for practical is 60% & minimum pass percentage of theory subjects is 33%.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment

Evidences of internal assessments are to be preserved until forthcoming yearly examination for audit and verification by examining body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60%-75% to be allotted during assessment	
For performance in this grade, the candidate should perform work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices	• Demonstration of good skill in the use of hand tools, machine tools and workshop equipment. • 60-70% accuracy achieved while undertaking different work with those demanded by the component/job. • A fairly good level of neatness and consistency in the finish. • Occasional support in completing the project/job.
(b) Weightage in the range of 75%-90% to be allotted during assessment	
For this grade, a candidate should perform work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and regard for safety procedures and practices	• Good skill levels in the use of hand tools, machine tools and workshop equipment. • 70-80% accuracy achieved while undertaking different work with those demanded by the component/job. • A good level of neatness and consistency in the finish. • Little support in completing the project/job.
(c) Weightage in the range of more than 90% to be allotted during assessment	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has performed work which demonstrates attainment of a high standard of craftsmanship.	• High skill levels in the use of hand tools, machine tools and workshop equipment. • Above 80% accuracy achieved while undertaking different work with those demanded by the component/job. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.

3. JOB ROLE

Light motor vehicle driver or simply driver needs to drive safely on the assigned route with or without company of a senior driver and will be in employment/or hired for a duration. This is also applicable to drivers commercially working in the employment of a car owner or commercial drivers' pool. Individual needs to have a valid LMV learners driving licence or LMV driving licence.

Following are the list of job roles undertaken by **Light Vehicle Operator (Integrated Steel Plant):-**

1. Loading and Unloading of materials in different sites of the Plant as per instructions of the supervisor.
2. Safe driving of vehicle in different types of roads, curves, hills and Valleys.
3. Maintaining log book , vehicle fitness certificate, permit and tax.
4. Maintaining Vehicle registration, insurance of motor vehicle driving license and its renewal.
5. Inspection of vehicle like testing of different brakes, steering alignment, tyres, tubes and batteries.
6. Work in braking failure, steering failure/get locked, bursting of tyre , fire , engine breakdown etc in emergency situation.
7. Work for preventive maintenance of the vehicle like air clearance, cleaning and adjusting injectors, air conditioning and heating units.
8. Anticipation, judgment positioning the vehicle according to other road. Use of IPDE Principle while driving.
9. Exercise of driving signals before crossing bridges like condition of bridges and road signals.
10. Exercise of appropriate signaling mirrors while lane changing or over taking. Location of head high switch, use of head light, use of dipper at night.

Reference NCO: 8322.0501 - Light motor vehicle driver

4. GENERAL INFORMATION

Name of the Trade	**Light Vehicle Operator-INTEGRATED STEEL PLANT (Flexi MoU)**
NCO – 2015	**8322.0501**
NSQF Level	Level-3
Duration of Craftsmen Training	Six month
Entry Qualification	Passed 5th Class examination or its equivalent
Minimum Age	18 years as on first day of academic session.
Unit Strength (No. Of Student)	20
Space Norms	192 Sq. m.
Power Norms	17 KW
Instructors Qualification for	
1. Light Vehicle Operator (Integrated Steel Plant) trade	B.Voc/Degree in Automobile Engineering or Mechanical Engineering from recognized Engineering College /university with one year experience in the relevant field. **OR** 3 years Diploma in Automobile Engineering or Mechanical Engineering from recognized board of technical education with two years' experience in the relevant field. **OR** NTC/NAC in the Trade of "Driver Cum Mechanic (Light Motor Vehicle)" with 3 years post-qualification experience in the relevant field. **Essential Qualification:** NCIC (National Craft Instructor Certificate) in Driver Cum Mechanic (Light Motor Vehicle) or relevant trades. ***Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications. However, both of them must possess NCIC in any of its variants.***
2. Workshop Calculation & Science	B.Voc/Degree in Engineering from AICTE/ UGC recognized Engineering College/ University with one year Experience in the relevant field. OR 3 years Diploma in Engineering from AICTE/ recognized Board of Technical Education or relevant Advanced Diploma (Vocational) from DGT with two years experience in the

	relevant field. OR NTC/ NAC in any one of the engineering trades with three years experience in the relevant field. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in relevant trade OR NCIC in RoDA or any of its variants under DGT.
3. Engineering Drawing	B.Voc/Degree in Engineering from AICTE/ UGC recognized Engineering College/ University with one year Experience in the relevant field. OR 3 years Diploma in Engineering from AICTE/ recognized Board of Technical Education or relevant Advanced Diploma (Vocational) from DGT with two years experience in the relevant field. OR NTC/ NAC in any one of the relevant engineering group of trades categorized under Engineering Drawing / D'man (Mech. / Civil) with three years experience. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in relevant trade OR NCIC in RoDA / D'man (Mech. / Civil) or any of its variants under DGT.
4. Employability Skill	MBA/ BBA /any Graduate / Diploma in any discipline with Two years experience with short term ToT course in Employability Skills from DGT institutes. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above). **OR** Existing Social Studies Instructors in ITIs with short term ToT course in Employability Skills from DGT institutes.
5. Minimum Age for Instructor	21 Years
List of Tools and Equipment	As per Annexure – I

Distribution of training on Hourly basis: (Indicative only)

Total Hours/ Week	Trade Practical	Trade Theory	Work shop Cal. & Sc.	Engg. Drawing	Employability Skills
32Hours	14Hours	10Hours	02 Hours	02 Hours	04Hours

5. NSQF LEVEL COMPLIANCE

NSQF level for **Light Vehicle Operator** trade CTS (Flexi MoU): **Level -3.**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

a. Process
b. Professional Knowledge
c. Professional Skill
d. Core Skill
e. Responsibility

The broad learning outcome of **Light Vehicle Operator (Integrated Steel Plant)** trade under CTS (Flexi MoU) mostly matches with the Level descriptor at Level- 3.

The NSQF Level-3 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Level 3	Person may carry out a job which may require limited range of activities routine and predictable	Basic facts, process and principle applied in trade of employment	Recall and demonstrate practical skill, routine and repetitive in narrow range of application.	Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment.	Under close supervision some Responsibility for own work within defined limit.

6. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

6.1 GENERIC LEARNING OUTCOME

1. Recognize & comply general safe working practices, environment regulation and housekeeping.
2. Comply with environment regulation and housekeeping
3. Interpret & use formal and technical communication.
4. Apply the concept in productivity & quality management in day to day work to improve productivity & quality.
5. List and interpret various acts of labour welfare legislation.
6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.
8. Utilize basic computer applications and internet to take benefit of IT developments in the industry.
9. Demonstrate basic mathematical concept and principles to perform practical operations.
10. Explain basic science in the field of study including simple machine.
11. Read and apply engineering drawing for different application in the field of work

6.2 SPECIFIC LEARNING OUTCOME

12. Apply safe driving of vehicle.
13. Carry out primary checking of vehicle before starting.
14. Perform gear changing for operation of vehicle.
15. Drive vehicle in different mode.
16. Check different systems for smooth driving of vehicle.
17. Carry out preventive maintenance of vehicles.
18. Identify and inspect electrical and mechanical system of vehicle.

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING OUTCOME	
LEARNING OUTCOME	**ASSESSMENT CRITERIA**
1. Recognize & comply with general safe working practices, environment regulation and housekeeping.	Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	Recognize and report all unsafe situations according to site policy.
	Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	Identify, handle and store/ dispose of dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	Identify and observe site policies and procedures in regard to illness or accident.
	Identify safety alarms accurately.
	Report supervisor/ competent authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	Identify and observe site evacuation procedures according to site policy.
	Identify Personal Protective Equipment (PPE) and use the same as per related working environment.
	Identify basic first aid and use them under different circumstances.
	Identify different fire extinguisher and use the same as per requirement.
	Identify environmental pollution and contribute to avoidance of same.
	Take opportunities to use energy and materials in an environmentally friendly manner.
	Avoid waste and dispose waste as per procedure.
	Recognize different components of 5S and apply the same in the working environment.
2. Comply with environment regulation and housekeeping	Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	Deploy environmental protection legislation & regulations
	Take opportunities to use energy and materials in an environmentally friendly manner.
	Avoid waste and dispose waste as per procedure
	Recognize different components of 5S and apply the same in the working environment.

3. Interpret & use formal and technical communication.	Identify and use appropriate words for communication.
	Choose proper tools to communicate.
	Use Positive body language while communicating.
	Maintain proper eye contact to built trust and confidence.
7. Apply the concept in productivity & quality management in day to day work to improve productivity & quality.	Identify factors affecting productivity.
	Explain awareness on quality concepts.
8. List and interpret various acts of labour welfare legislation.	Explain benefits guaranteed under various applicable Acts.
	Interpret applicable labour and industrial laws.
9 Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	Explain energy conservation, cause of global warming and pollution.
	Show protective measures to balance the resources of nature.
	Explain effects of global warming and its precautions from damage. Dispose waste following standard procedure.
10 Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	Explain personnel finance and entrepreneurship.
	Explain role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the Policies / Programmes, procedure and available schemes.
11 Utilize basic computer applications and internet to take benefit of IT developments in the industry.	Work with MS Office viz., word, excel, etc.
	Use internet for finding out various data pertaining to the trade.
4. Demonstrate basic mathematical concept and principles to perform	Solve different mathematical problems
	Demonstrate conversion of Fraction to Decimal and vice versa.
	Perform different mathematical calculation of area, volume, etc.
5. Explain basic science in the field of study	Explain concept of basic science related to the field such as Material science.

including simple machine	Explain difference between Ferrous and Non-Ferrous metals .
	Explain difference between Iron and Steel.
	Solve simple problems on speed and velocity of workshop problems.
6. Read and apply engineering drawing for different application in the field of work.	Read & interpret the information on drawings and apply in executing practical work.
	Read & analyse the specification to ascertain the material requirement, tools and assembly/maintenance parameters.
	Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.

SPECIFIC LEARNING OUTCOME	
LEARNING OUTCOME	**ASSESSMENT CRITERIA**
1. Apply safe driving of vehicle.	Demonstrate first aid and use of PPE.
	Carry out driving system failures, defensive driving.
	Comply with road rules and regulations, traffic and road signals.
	Demonstrate hand signals of traffic and constables and wardens.
	Explain speed regulations on city road and highways.
	Demonstrate foot control, hand control, emergency stopping, use of engine break, stopping the vehicle using hand brake.
2. Carry out primary checking of vehicle before starting.	Check leakage of fuel, oil , water , air , battery etc.
	Review vehicle registration, insurance of motor vehicle, driving license and its renewal.
	Describe entry of log book, vehicle fitness certificate.
	Produce Permit & tax production and documents on demand by checking officers.
3. Perform gear changing for operation of vehicle.	Perform gear shifting UP shifting and DOWN shifting.
	Use over drive gears.
	Explain gear pattern on different vehicle and pressure shifting method in modern vehicle.
4. Drive vehicle in different mode.	Explain lane selection and good vehicle clearance.
	Practice of good control over vehicle while driving on curves and Islands.
	Operate reverse gear.
	Demonstrate Speed control, confidence and steering control.
5. Check different systems for smooth driving of vehicle.	Check the cooling systems and types of anti freeze.
	Test air intake, exhaust systems, lubricant, fuel properties and engine terminology.
	Explain function of different parts, descriptions and functions.

	Explain function of four stokes, S and CI engines.
6. Carry out preventive maintenance of vehicles.	Perform maintenance of air cleaner, clean and adjust.
	Demonstrate maintenance of injectors.
	Explain maintenance of air conditioning and heating unit.
	Carryout emission testing and explain procedure of testing.
	Demonstrate maintenance of different types of clutch and gear boxes.
7. Identify and inspect electrical and mechanical system of vehicle.	Identify and inspect drum brake, disc brake, hydraulic brake, electrical brake, pneumatic brake.
	Explain and Inspect different types of wheel, designation and constructions.
	Explain Cross ply and radial ply, desirable properties of components and their functions.
	Maintenance of tyre and tubes.
	Inspect alignments of steering, excessive steering effort, poor self centering and memory steering.

8. SYLLABUS (BASIC SKILLS)

Durations (Hrs.)	Reference learning outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
Professional Skill 20Hrs.; Professional Knowledge 10Hrs.	Apply safe driving of vehicle.	• Safety Precautions while handling Tools, equipment and Machinery. • Familiarisation with the name and location of different assemblies of motor vehicles.	Motor Vehicle Act., Legal awareness Environmental Education (pollution etc.). Life enriches education, attitude & body language, Traffic rules & signs. First Aid, Fire precautions & seat belts. Necessities of different assemblies of all (types) motor vehicles.
Professional Skill 20Hrs.; Professional Knowledge 10Hrs.	Carry out primary checking of vehicle before starting.	• Preliminary checking of the vehicle before driving. • Straight driving on an open ground and practice in observing different gauges and meter while driving.	Driving road rules. Knowledge about log book and different papers related to vehicles.
Professional Skill 20Hrs.; Professional Knowledge 10Hrs.	Perform gear changing for operation of vehicle.	Practice in changing gear from • Low gear to high gear and • High gear to low gear	Road traffic signal and hand signal. Local road map reading.
Professional Skill 20Hrs.; Professional Knowledge 15Hrs.	Drive vehicle in different mode.	• Driving through different lanes (02 Lanes / 03 Lanes/ 04 Lanes) and curves, practice in reverse driving.	Precautions to be taken while driving through lanes, curves and islands. Locating reverse gear, confidence speed control and steering control.
Professional Skill 20Hrs.; Professional Knowledge 15Hrs.	Check different systems for smooth driving of vehicle.	• Practice on different tools and gauges used for maintenance of vehicles, general servicing of vehicle. Check Oil level in different unit i.e Engine oil/Brake Oil etc. Checking thermostat valve in cooling system.	Tools, measuring instruments, layout of different units on vehicle. Knowledge about CNG & LPG Gas kit. Cooling and lubrication system. Air Intake System. Exhaust system, Different types of fuel.

		• Checking coolant reservoir tank. Air bleeding in diesel vehicle.	
Professional Skill 20Hrs.; Professional Knowledge 20Hrs.	Carry out preventive maintenance of vehicles.	• Cleaning air filter and exhaust manifold, Silencer pipe, cooling motor. • Emission testing and adjustment of air fuel ratio. • Checking and setting wheel bearing play. • Checking wheel jam & slipping of clutch.	Catalytic converter. Coolant part (Coolant reservoir tank). Cooling fan & motor. Emission testing equipment & procedure of testing. Different types of clutch and gear boxes. Wheels Jam, Slipping of Clutches, Wind sealed washer tank, Wiper Blades. Necessity of wheel rotation (Parallel and Diagonal). Different types of tyres & treads of the tyres. Wheel alignment.
Professional Skill 20Hrs.; Professional Knowledge 20Hrs.	Identify and inspect electrical and mechanical system of vehicle.	• Checking Wheel rotation and tyre pressure. Checking treads of tyre. • Checking wheel alignment. • Checking wiper. • Adjustment of brake paddle play, checking of brake fluid level Bleeding brake system Tracing electrical circuit in vehicle. • Checking different components of electrical system including fuse box and locating defective component. • Carrying out checks on Alternator unit, Battery and Power units. Checking the Air conditioner and heater unit.	Different types of brakes including hand brakes. Different components in electrical system. Function of electronic control module, Different sensors, IAT, MAP, ECT, CMP, CKP, VSS, TP and O2. Check oil level in different units as required and also water level. Maintenance of lead acid battery and various methods of charging.

9. SYLLABUS -CORE SKILLS

9.1 ENGINEERING DRAWING AND WORKSHOP CALCULATION & SCIENCE

Engineering Drawing	Duration in Hrs.	Workshop Science & Calculation	Duration in Hrs.
Engineering Drawing – Introduction to Engineering Drawing and Drawing Instruments – • Conventions • Viewing of engineering drawing sheets. • Method of Folding of printed Drawing sheet as per BIS SP: 46-2003	1	**Material Science** Types of metals, Physical and Mechanical Properties of metals, Types of ferrous and non-ferrous metals, Introduction of iron and cast iron.	4
Drawing Instrument • Drawing board, T-square, Drafter (Drafting M/c), Set squares, Protector, Drawing Instrument Box (Compass, Dividers, Scale, and Diagonal Scales etc.), pencils of different grades, Drawing pins/ Clips.	1	**Unit, Fractions** Classification of Unit System, Fundamental and Derived Units F.P.S, C.G.S, M.K.S and SI Units, Measurement Units and Conversion, Factors, HCF, LCM and Problems, Fractions – Addition, Subtraction, Multiplication and Division, Decimal Fractions - – Addition, Subtraction, Multiplication and Division, Solving Problems by using calculator	6
Free hand drawing of – • Lines, polygons, ellipse etc. • Geometrical figures and blocks with dimension • Transferring measurement from the given object to the free hand sketches. • Solid objects – Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions. • Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches.	10	**Mass, Weight, Volume, and Density** Mass, volume, density, weight & specific gravity	2

Lines • Definition, types and applications in drawing as per BIS: 46-2003. • Classification of lines (Hidden, centre, construction, extension, Dimension, Section). • Drawing lines of given length (Straight, curved). • Drawing of parallel lines, perpendicular line. • Methods of Division of line segment	4	**Speed and Velocity** Rest, motion, speed, velocity, difference between speed and velocity, acceleration and retardation	4
Drawing of Geometrical figures: Definition, nomenclature and practice of – • Angle: Measurement and its types, method of bisecting. • Triangle: different types • Rectangle, Square, Rhombus, Parallelogram. • Circle and its elements • Different polygon and their values of included angles. Inscribed and circumscribed polygons.	4	**Mensuration** Area and perimeter of square, rectangle and parallelogram, Area and Perimeter of Triangle, Area and Perimeter of Circle, Semi-circle , circular ring, sector of circle, hexagon and ellipse.	4
TOTAL	**20**	**TOTAL**	**20**

9.2 CORE SKILL- EMPLOYABILITY SKILLS

Syllabus for Employability Skills (40 Hrs.)		
Module	**Topics**	
1. Behavioural Skills	**Duration: 3 Hrs.**	**Marks: Nil**
Expectation Setting	Creating a focused and responsible learning environment	
Personal Strength Analysis/Strength Blindness	Self -awareness and confidence building	
Perception Management	Display Professionalism at the institute and work place	
Ethics, Values& Etiquette	Increased social initiations relationships and networks Acceptance of peers from different cultures and social groups and work with them. Collaboration with team to prioritize the common goal and compromise individual priorities.	
Social Etiquette	Characteristic of a responsible citizen- Display the same by respecting self, others, environment, care for duty and value for time.	
2. English Literacy	**Duration: 10 Hrs.**	**Marks: 10**
Functional English	Importance of Learning English Different Naming words, Words used for replacing names, Action words, Describing people, place and their use. Introduction to punctuation - Comma, Full stop, Question mark. Singular plural Change of tense - Simple present, past; present, past progressive Construction of simple sentences - Kinds of sentences Usage of appropriate words to express themselves Greetings & Self Introduction Asking &responding to questions Sharing information with others Speak and provide information about workplace	
Reading	Reading simple sentences about: a) Self b) Work c) Environment	
Written English	Simple writing skills	
3. Communication Skills	**Duration: 5 Hrs.**	**Marks: 8**
Self- Introduction	Interview Skills/Confidence Building	
a. Verbal Communication	Understand the usage of appropriate words to express themselves Communicate effectively on telephone.	
b. Non-Verbal Communication	Manage Personal Hygiene and Presentation	
	Positive body language: adopt and use it appropriately to build a positive impression	
	Maintaining appropriate eye-contact in building trust and confidence	

	Impact of touch in a formal environment. Acceptable and unacceptable touch.
	Role of tone in any communication.
Campus to Work	Time Management and Planning Skills
	Interview skills- its phases & ways to crack interview.
4. I.T. Literacy	**Duration: 5 Hrs. Marks:10**
Basics of Computers	Introduction to Computers and its applications Hardware and peripherals Starting and shutting down of computer Basic of computer Networks.
Operating System	Basics of Operating System Types of Operating Systems User interface of Windows 10 OS/ latest Create, Copy, Move and delete Files and Folders Use of External memory like pen drive, etc,
MS-Word	Basic operating of Word Processing Creating, opening and closing Documents Use of shortcuts, Creating and Editing of Text, Formatting the Text Creating simple document like - resume, letter writing, job application etc., Printing document
Web browsers & Search Engines	Introduction to world wide web (WWW), Useful websites, web browser - usage, search engine etc. Using popular sites like Bharat Skills, Skill Training related Government portals, naukri.com and other job portals, CITS applications, Apprenticeship portal (NAPS), resize images, signing up, Online fund transfer using UPI gateway.
Email	Creating & using an email account –like Gmail or any other. Usage of CC & BCC. Attaching documents Checking email and composing Email.
Mobile application	Scanning QR/AR code, Sharing best practices and downloading trade related videos using Wi-Fi, Fund transfer through App like BHIM.
5. Entrepreneurship Skills	**Duration: 5 Hrs. Marks: 06**
Entrepreneur	Need of becoming entrepreneur
	Ways to become a good entrepreneur
	Enabling environment available to become an entrepreneur. Different Govt. institutions/schemes promoting Entrepreneur viz., Gramin banks, PMMY-MUDRA loans, DIC, SIDA, SISI, NSIC, SIDO. Different Government schemes supporting entrepreneurship.
6. Maintaining Efficiency at Workplace	**Duration: 3 Hrs. Marks: 04**
Maintaining Efficiency at Workplace	Factors affecting productivity
	Improving Productivity
	Personal finance literacy Planning, Saving, Tax, Govt. schemes for financial safety e.g. Pradhan Mantri Jeevan Jyoti Bima Yojana (**PMJJBY**), etc.
7. Occupational Safety, Health and Environment Education	**Duration: 3Hrs. Marks: 04**

Safety and Health	Introduction to Occupational Safety & health at work place, Occupational Hygiene
Occupational Hazards	Basic Hazards. Chemical, Physical (Electrical, Temperature, Illumination) Ergonomic, Biological, Vibro acoustic, Mechanical, Psychosocial Hazards, Prevention of hazards
Accident and Safety	Different types of Personal Protective Equipment (PPE) Accident Prevention techniques
First-aid	Care of injured & Sick at the workplace First-Aid & Transportation of sick person
Basic provisions on safety and Health	Basic provisions of safety & health
Environmental Issues	Introduction to Environment, ecosystem and factors causing imbalance Pollution and pollutants including liquid, gaseous, solid and hazardous waste Protecting the environment - Energy Conservation, global warming Segregation and disposal of waste
8. Labour Welfare Legislation	**Duration: 02 Hrs.** **Marks: 02**
Labour Welfare Legislation	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's compensation Act, POSH. Interpret applicable labour and industrial laws.
9. Quality Management	**Duration: 02Hrs.** **Marks: 02**
Quality Concept and Consciousness	Create awareness on introduction of quality Concepts.
10. Preparation to the world of work	**Duration:02 Hrs.** **Marks: 04**
Career Plan	Identify the difference between job and career
Basic Professional Skills	Job roles available in respective trades
Career Pathways	Awareness of industries, and the respective professional pathways
Search and apply for a job	Awareness of higher education / up skilling (short-term) options Steps involved in online application for Instructor course, Apprenticeship and different jobs in popular site like theindiajobs.com, naukri.com, monsterindia.com, Govt. website.

DETAILS OF COMPETENCIES (ON-JOB TRAINING)

Learning to be covered in Industry for LIGHT VEHICLE OPERATOR Trade (Integrated steel plant).

1. Safety and best practices/ Basic culture (5s/Kaizen)
2. Log book writing and maintaining records.
3. Storing of different tools and consumables.

i. Operation Garage :- Transport of material through operation garage from one department to another department like Blast Furnace, Sintering Plant, Coke Oven, RMHS, Power Plant, Steel Melting Shop, Scrap and Salvage Department, Hot Strip Mill, Thin Slab Caster.

ii. On the Job training will be conducted by Master worker who will be in operation garage. He will provide on the job training in operation and maintenance of light vehicles such as Trucks, Fowler, Bobcat, etc.

ANNEXURE-I

List of Tools & Equipment Light Vehicle Operator (INTEGRATED STEEL PLANT) (For batch of 20 candidates)			
S.no	**Name of the Tool & Equipments**	**Specification**	**Qty**
A. TRAINEES TOOL KIT			
1	Steel Rule with metric & British graduation	15 cm	20
2	Try Square.	150 mm	20
3	Caliper inside spring type.	150 mm	20
4	Caliper hermaphrodite spring type	150 mm	20
5	Caliper outside spring type	150 mm	20
6	Divider spring type	150 mm	20
7	Scriber		20
8	Centre Punch		20
9	Screw driver		20
10	Chisel cold flat		20
11	Hammer ball peen With handle	0.75 Kg.	20
13	File flat - second cut		20
14	File flat smooth		20
15	File half round second cut		20
16	Hacksaw frame fixed type		20
17	Safety goggles.		20
18	Dot punch		20
B. INSTRUMENTS AND GENERAL SHOP OUTFIT			
19	Allen Key set of 12 pieces	2 mm -14 mm	5 sets
20	Circlip Plier (Ext. and Int.)	150 mm. and 200 (two each)	10 sets
21	Philips screw driver type	set of 5 pieces 100 mm. 300 mm.	5 sets
22	Socket spanner (1 set of 12 nos.)	6mm to 32mm	5 sets
23	Jack	light & heavy type	1 each
24	Wheel wrench	single & cross bar	1 each
25	Measuring Steel Tape	5 Mtr	5
26	Combination plier insulated	200mm	5
27	Grease gun	1.5 kg capacity	1 no
28	Oil Can	500 ml	2 nos
29	Tyre Lever		1 No.
30	Valve Die		10 No
SHOP TOOL, INSTRUMENTS & MACHINERY			
31	Light Motor Vehicle With double clutch and double brake pedal		1

32	Driving Simulator		1 No
33	Light Motor Vehicle Running condition		1
34	Traffic Signal Board		1
35	Battery charger	12v to 36v, 10 AMPs	1

TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
S No.	**Name of the Equipment**	**Quantity**
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software	20 nos.
2.	UPS	As required
3.	Scanner cum Printer	1 no.
4.	Computer Tables	20 nos.
5.	Computer Chairs	20 nos.
6.	LCD Projector	One in each class room
7.	White Board 1200mm x 900mm	One in each class room

ANNEXURE-II
NISP Training Center
Trainee Internal Assessment Report

Name :		**Batch No:**	
Card ID No :		**Dept:**	
Attendance % :			

Quarters	Month	Attend %	Month	Attend %	Month	Attend %	Quarterly Average Attend. %
Qtr-1							
Qtr-2							
Qtr-3							
Qtr-4							

General Assessment **Assessment Period :**

S.No	ATTRIBUTES		Score Qtr-1	Score Qtr-2	Score Qtr-3	Score Qtr-4	Score Sum of 4-Qtrs
1	**Safety**	Knowledge, follow safety precautions and rules					
2	**Sense of Responsibility**	Does he obey Sup/Line i/c instructions					
		Does he attend shift start meetings regularly					
		Does he take supervisors feedback properly					
		Whether he takes planned leaves					
		Does he participates in new drives					
		Does he take care in handling tools					
		Is Punctual					
		Positive, Behaviour, response, learning					
		Maintain 5S at his work station					
		Co-operation - Consider team work, willingness to work with and for others					
		Able to identify and report irregularities at his work place					
3	**Method**	Follow WIS/MOS					
		Able to check faults of previous station					
		Understands tools/equipment functions and its different parts					
		Able to perform the job independently					
4	**Speed**	Able to match line "TACT" time					
		Willingness to learn/flexibility for alternate job					
		Work completion/target achievement					
5	**Quality**	Able to contain defects					
		Awareness about GCA/PDI					
		Skill acquired during "On job training"					
		Total Score					
		Max. Marks					

Fill score in relevant box	**Exellent:4**	**Very Good:3**	**Good:2**	**Fair:1**
			Need Improvement:0	
Remark of Supervisor: Mention Achievement				
Remark of Shift In charge/Dept, Mgr.				
Remark of NISP Training In charge				
Any Remark				

12. COMMITTEE OF TRADE EXPERT

S.N.	Name(S/Shri.)	Qualification	Experience	Status
1.	Dr. S.N.Singh Ex. ED, SAIL Bokaro Steel Plant	BE , Phd.	40 years experience of steel industry	Chairman
2.	S.K.Saha Ex. ED, MEL(SAIL)	BE (Mech.)	25 years experience of mechanical maintenance of steel industry	Member
3.	K.K.Tripathi Sr.Mgr. , NISP, NMDC	BE(Mech.) , MBA	15 years experience of mechanical maintenance	Member
4.	Ramjee Ram Thakur DGM(Mechanical) NISP, Nagarnar	BE (Mech.)	15 years experience in mining in steel industry	Member
5.	P. Agarkar DGM(Mech.) NISP. Nagarnar	BE (Mech.)	20 years experience of mechanical maintenance of steel industry	Member