Government of Pakistan

National Vocational and Technical Training Commission

Prime Minister Hunarmand Program

"Skills for All"

Course Contents/ Lesson Plan

Course Title: Overhead Crane Operators

Duration: 3 Months

Trainer Name	
Course Title	**Overhead Crane Operators**
Objective of Course	**Employable skills and hands on practice for Overhead Crane Operator** The aim for the team of staff responsible for delivery of the advanced overhead crane operator curriculum is to provide knowledge and develop skills related to the overhead crane operator. The course will allow participants to gain a comprehensive understanding of all the aspects. It will also develop the participant's ability to act in a professional and responsible manner. Teaching staff will provide the technical knowledge and abilities required to solve tasks and problems that are goal-oriented. They will use participant-centered, practically oriented methods. They will also develop a program of practical assessment that reflects the learning outcomes stated in the curriculum. Trainees of the overhead crane operator curriculum will also develop their willingness and ability as individuals to clarify issues, as well as think through and assess development opportunities. Teaching staff will also support trainees in developing characteristics such as self-reliance, reliability, responsibility, a sense of duty and a willingness and ability to criticize and accept criticism well and to adapt their future behavior accordingly. Teaching staff also use the overhead crane operator curriculum to address the development of professional competence. Trainees will acquire the ability to work in a professional environment. By the end of this course, the trainees should gain the following competencies: • Improve the overall quality of training delivery and setting national benchmarks for training of overhead crane operator in the country. • Provide flexible pathways and progression to learners enabling them to receive relevant, up-to-date and recent skills. • Provide basis for competency-based assessment which is recognized and accepted by employers. • Establish a standardized and sustainable system of training for overhead crane operator in the country.

Entry-level of Trainees	Intermediate / Matric
Learning Outcome of the Course	By the end of this course, the trainees should gain the following competencies: • Maintain Safe work Environment • Driving techniques of Luffing cranes • Driving techniques of Overhead cranes • Driving techniques of Gentry cranes • Driving techniques of Fork lifter • Driving techniques of mobile cranes • Lifting Techniques
Course Execution Plan	Total Duration of Course: **3 Months (12 Weeks)**
	Class Hours: **4 Hours per day**
	Theory: **20% Practical: 80%**
	Weekly Hours: **25 Hours Per week**
	Total Contact Hours: 300 **Hours**
Companies Offering Jobs in the respective trade	1. Shipyard 2. Automobile Industry 3. Construction Companies 4. Aircraft Industry 5. Weapon/Armor Industry 6. Atomic Energy 7. SPARCO
Job Opportunities	All over the world there is a high demand in the Heavy Engineering industry for developers in various field such as Overhead cranes operator, Luffing and gentry crane operator. With the help of this course, we will be able to give technical trainings of Advance fabrication to our youth. There are also opportunities for start-up entrepreneurship due to the high demand in the market in the following designated jobs: • Ship Construction • Heavy Engineering Industry • Karachi Port Trust • Ship Repair • General Engineering • Submarine Construction • Sugar Mills
No of Students	25 Morning
Learning Place	Classroom / Workshop
Instructional Resources	

Course Outline:

Scheduled Week	Module Title	Days	Learning Units	Assignment
Week 1	➢ Introduction **Module -1** Chapter 1- KSEW Safety Measures	1	Motivational Lecture Course Introduction Success stories Job market	
		2	Course Applications Institute/work ethics Introduction to cranes General Safety Measures	
		3	Safety Signs Hazard at Workplace Introduction about Karachi Shipyard related to cranes	
		4	Discussion of Safety and hazard related to KS&EW	
		5	Casual visit of cranes in KS&EW	
Week 2	Chapter 2- Crane Safety **Module -2** Chapter 1- Introduction of Cranes	1-2	Introduction of safety precautions related to cranes safety belt	
		3-4	Personal Protective Equipment PPEs Safety of work at height Techniques of barrication Safety precautions about material handling	
		5	Types of cranes Pictorial view of different kinds of cranes	
Week 3	Chapter 2- Signals Chapter 3- Luffing & Overhead cranes	1-2	Introduction of crane signals Code of signals Crane hand signal chart	
		3-5	Introduction of Luffing Cranes Introduction of Overhead Cranes	
Week 4	Chapter 4- Mobile & Tower Cranes Chapter 5- Magnetic & Gentry Cranes	1-2	Introduction of Mobile Cranes Introduction of Tower Cranes	
		3-5	Introduction of Magnetic Cranes Introduction of Gentry Cranes	
Week 5	**Module -3** Chapter 1- Lifting Operations Chapter 2- Crane	1-2	Lifting techniques of MS plates Lifting techniques of cylindrical material	
		3-5	Introduction of Crane Ropes Types of Crane Ropes	

	Ropes		Uses of crane Ropes Order of Ropes	
Week 6	Chapter 3- Types of Cranes Chapter 4- Shackle	1-2	Manila rope Sisal rope Hamp rope Cariso rope Safety practices while using ropes	
		3	Introduction of Shackle	
		4	Types of Crane Shackle Uses of crane Shackle	
		5	**MID-TERM EXAM**	
Week 7	Chapter 4-Types of Shackle	1	Screw pin anchor shackle Round pin anchor shackle	
		2	Screw pin chain shackle Safety type anchor	
		3	Practical of Shackle Pin & Packet shackle	
		4	Forelock shackle Clean shed shackle	
		5	Lungless shackle Towing shackle Practical of Shackle	
Week 8	Chapter 5 - Knots	1	Introduction of Knots Types of Crane Knots	
		2	Uses of crane Knots Reef Knot Timber Hitch	
		3	Clove Hitch Rolling Hitch	
		4	Catspaw Hitch Bow Line Running Bow Line	
		5	Sheep Shank Sheet Band Practical of knots	
Week 9	Chapter 6- Shilling wire Chapter 7- Loading Capacity of crane	1	Introduction of Shilling wires Types of Crane Shilling wires	
		2	Uses of crane Shilling wires	
		3	Introduction of loading capacity of cranes Manual Loading capacity of different cranes	
		4	Principals of driving cranes Handling of load on slings of the crane	
		5	Practical of Loading operations	
Week 10	Chapter 8-Lifting **<u>Module -4</u>** Chapter 1- Practical of	1	Introduction of Lifting of cranes lifting parameters of different cranes	
		2	Principals of lifting material Practical of lifting material	
		3	Lifting of 1.5 tons weight Lifting of 7 tons weight	

	Lifting On job training in parallel with short course	4	Lifting of 125 tons weight Lifting of MS plate	
		5	Lifting of pipes and thin sheets On job training: Aims to provide industrial training to the Trainees as part of overall training program Ideal for the manufacturing trades As an alternate to the projects that involve expensive equipment Focuses on increasing Trainee's motivation, productivity, efficiency and quick learning approach in parallel with short course.	
Week 11	Chapter 2- Crane Hooks Chapter 3- procedure of Sealing	1	Introduction of crane hooks Safety precautions of crane hooks	
		2	Maintenance of crane hoist Use of sealing for material lifting	
		3	Place the material in the right way Responsibilities of crane operator	
		4-5	Importance of crane operators Special instruction of crane operators	
Week 12	Chapter 4- Visual assessment Entrepreneurship and Final Assessment	1-2	Visual assessment of approximate weight Steel Pipe Profiles Sections Equipment Machines	
		3	Job Market Searching Self-employment Business Incubation and Acceleration	
		4-5	**FINAL EXAM**	

List of Machinery / Equipment

Sr. No	Name of item as per curriculum	Quantity physically available at the training location
1	All types of Knots	Available
2	All types of Shilling	Available
3	All types of ropes	Available
4	All types of Shackle	Available
5	Fork lifter	Available
6	Cranes (Luffing, gentry, mobile and overhead)	Available

Minimum Qualification of Teachers / Instructor

The qualification of teachers / instructor of this course should be minimum **of DAE in Mechanical with minimum 3 years of experience** in relevant trade.