OCCUPATION ANALYSIS CHART

MOBILE CRANE OPERATOR

Mobile Crane Competency Profile Chart

1. **Identify various 'mobile' cranes**	1.01 Explain structural and operational characteristics of a hydraulic crane	1.02 Explain structural and operational characteristics of lattice boom cranes	1.03 Identify and describe uses for attachments			
2. **Basic Trade Math**	2.01 Perform basic load calculations using accepted industry formulas					
3. **Load Chart Reading**	3.01 Interpret load charts	3.02 Explain difference between gross capacity versus net capacity	3.03 Explain difference between gross load versus net load	3.04 Determine % of capacity load from chart	3.05 Determine capacity limited by structural or stability	3.06 Determine area of operation
	3.07 Determine boom lengths	3.08 Determine boom angles	3.09 Determine load radius	3.10 Identify and calculate load hoist lines	3.11 Interpret range diagrams	3.12 Use load charts to configure crane upper structure and lower structure
	3.13 Calculate main boom capacities (no attachments)	3.14 Calculate main boom capacities (attachment)	3.15 Calculate boom extension capacities	3.16 Identify and determine jib capacities	3.17 Describe crane factors influencing capacity	3.18 Describe site factors that influence capacity and safe operation
	3.19 Describe principles of leverage					

4. **Pre-Lift Planning and Task & Field Level Risk Assessment**	4.01 Inspect access to site – compaction graded, free of hazards	4.02 Determine crane configuration and attachments	4.03 Demonstrate proper crane set up	4.04 Assess ground stability	4.05 Demonstrate proper procedures to level crane	4.06 Set-up mobile crane per manufacturer's instructions
	4.07 Explain and interpret lift study drawings					
5. **Introduction to Operating Procedures**	5.01 Identify responsibilities of each person re: operating procedures	5.02 Determine weights of loads using available means	5.03 Identify center of gravity of the load	5.04 Demonstrate correct set-up and use of outriggers	5.05 Demonstrate use of boom angle indicators	5.06 Identify reasons for slack rope on drums and uneven spooling
	5.07 Define and describe static versus dynamic load	5.08 Describe the results and causes of overloading	5.09 Identify ground stability for operation of the crane	5.10 Identify a critical lift	5.11 Demonstrate proper set-up for rubber tired mobiles	5.12 Demonstrate procedures for rigging up or down
	5.13 Describe and demonstrate procedures for leaving crane unattended	5.14 Describe how to protect personnel in vicinity of crane	5.15 Interpret regulations for working by high voltage equipment	5.16 Demonstrate communications and signalling procedures	5.17 Describe effect of boom contacting an obstruction	5.18 Describe how two-blocking occurs and how to prevent
	5.19 Demonstrate procedures for telescoping booms	5.20 Describe cold weather operation (below -20C)	5.21 Describe reasons for backward collapse of booms	5.22 Describe procedures for using/not using "on rubber" lifting	5.23 Describe and demonstrate how to pick and carry loads per manufacturer's specifications	5.24 Describe procedures for lifting loads with swing or house lock on

	5.25 Describe procedures/ precautions when working with jibs	5.26 Describe the importance of areas of operation	5.27 Describe multi-crane lifts and reasons for reduced loading			
6. **Rigging & Equipment Accessories**	6.01 Describe construction, types and functions of wire rope	6.02 Identify grades of chain	6.03 Identify and demonstrate use of rigging hardware and tools	6.04 Identify accessories and interpret related regulations	6.05 Calculate safe working loads for slings	6.06 Demonstrate proper use of slings
	6.07 Describe types and function of synthetic slings	6.08 Inspect rigging and identify criteria for taking out of service	6.09 Interpret and describe rope lay	6.10 Interpret sizes, grades and classification group of wire rope	6.11 Demonstrate procedures for reeving and lacing load	6.12 Demonstrate advanced rigging techniques
7. **Inspection and maintenance**	7.01 Maintain an equipment log book	7.02 Complete maintenance checklist (engine off)	7.03 Complete maintenance checklist (engine on)	7.04 Maintain equipment as specified by manufacturer	7.05 Perform routine inspections and maintenance of hydraulic systems	
8. **Hydraulics & Applications to Machine Control**	8.01 Describe principles of power transfer	8.02 Describe basic pneumatics systems	8.03 Describe basic hydraulic systems	8.04 Describe operation of hydraulic system components	8.05 Describe qualities of hydraulic fluids	8.06 Describe relation of electric to hydraulic systems
	8.07 Describe principles of hydraulic systems for each crane type					
9. **Engines & Power Systems**	9.01 Identify common engines for mobile cranes	9.02 Identify engine lubrication system	9.03 Describe components of electrical system	9.04 Describe components of the air system	9.05 Describe engine cooling system and servicing procedures	9.06 Describe air intake systems

	9.07 Describe components of fuel systems	9.08 Identify types and grades of oils	9.09 Identify and inspect monitoring devices			
10. **Rules & Regulations for the Mobile Crane Operation**	10.01 Follow regulations in BC OH&S	10.02 Understand environ regulations and emergency procedures	10.03 Describe major elements of WHMIS	10.04 Describe classes of fires and control procedures	10.05 Understand/ follow transportation rules and regulations	10.06 Demonstrate ability to transport crane to the site