



Model Curriculum

Draughtsman

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Draughting
REF ID: CON/Q1301
NSQF LEVEL: 4





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Draughtsman

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Draughtsman”, in the “Construction” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Draughtsman		
Qualification Pack Name & Reference ID. ID	CON/Q1301		
Version No.	1.0	Version Update Date	23-08-2017
Pre-requisites to Training	ITI/Diploma Civil and 12 years site experience in same occupation for Non Trainer Worker		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Carry out the initial setup and understand the requirement for preparation of drawings: Will be able to perform preparatory work for undertaking construction drawing works. • Prepare 2 dimensional civil drawings using computer aided design (CAD) system: -. Will be able to perform 2-D drawing in software with required details and using standard procedures and ISO codes. • Work effectively in a team to deliver desired results at the workplace: - Interact and communicate effectively with co-workers, superiors and sub-ordinates across different teams also support co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task • Plan and organize work to meet expected outcomes: - Prioritize work activities to achieve desired results and organize desired resources prior to commencement of work 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Draughtsman” Qualification Pack issued by “Construction Skill Development Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (08:00 hrs.)</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Introduction to the job roles • Major responsibilities of Draughtsman • Role description/functions and tasks performed by Draughtsman. • Expected personal attributes from the job role • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions for Draughtsman. 	<p>Classroom Requirement</p> <ol style="list-style-type: none"> 1. Classroom of 30 students capacity 2. Black/White board 3. Projector/LED Monitor 4. Computer 5. Registers 6. Trade specific charts and other teaching aids
2	<p>Carry out the initial setup and understand the requirement for preparation of Drawings</p> <p>Theory Duration (hh:mm) 38:00</p> <p>Practical Duration (hh:mm) 58:00</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Types of drawings including, sections, elevations, projections, development, orthographic, as built drawings, working drawings, shop drawings, site layout drawings, contour and other survey maps etc. • Knowledge of different types of plotters and printers and their operation • Knowledge of different types and sizes of papers and area of application • Knowledge of procedure for consultation and information transfer • Performing required arithmetic computations using scientific calculator • Knowledge of standard procedure for storing and maintaining documents, importance and need for document controlling • Knowledge of methods and procedures used to minimize the chances of infecting a computer with a virus • procedure to follow in case there are corruptions or virus attacks • Knowledge of basic set-up and operation of the computer system, and the peripheral devices that are used e.g printer, projector etc. • Details and specifications, rough sketches, drawing brief, RFD etc. required for preparation of the drawings and 	<ol style="list-style-type: none"> 1. computer with sufficient configuration to work with heavy software 2. auto cad or equivalent software 3. all computer peripherals 4. printers and plotters 5. scientific calculator

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>preparations of rough sketches for confirmation from seniors</p> <ul style="list-style-type: none"> • Estimation of time required based upon scope of work <p>Practical: Carry out preparatory works prior to commencing the work of preparation of drawing</p> <ol style="list-style-type: none"> 1. read and interpret the drawing requirements and consult superiors or concerned authority in case of any confusion or ambiguity in 2. check that all required peripheral devices are connected and correctly operating and start up the software and 3. adjust the page size, measurement unit, scale and plot area before starting the work set drawing parameters like, colour, layer, line type, line weight, text font etc. in the software 4. prepare title block for the drawing covering specification required by the client 	
3	<p>Prepare 2 dimensional civil drawings using computer aided design (CAD) system</p> <p>Theory Duration (hh:mm) 158:00</p> <p>Practical Duration (hh:mm) 238:00</p>	<p>Theory:</p> <ul style="list-style-type: none"> • knowledge of different types of construction projects, their scope, types of drawings required in each • basic understanding of concepts of civil engineering • Complete conceptual and practical knowledge of operation of recommended software including methods to improve productivity of self (shortcuts, libraries). • Knowledge to interpret design parameters, instructions, request for drawing modifications and other drawing requirements • complete knowledge of various Indian and International code of practice applicable to drawing relevant to construction work • knowledge of different types of drawings, their requirements for execution and details they should cover for various types of projects • knowledge of different symbols and terms used in civil drawings, fabrication drawings, landscaping, layout drawings & survey maps • knowledge of dimensions and positions, their representation, checking of dimensions and checks for ensuring accuracy of drawings <p>Practical:</p>	<ol style="list-style-type: none"> 1. computer with sufficient configuration to work with heavy software 2. auto cad or equivalent software 3. all computer peripherals 4. printers and plotters <p>scientific calculator</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>Prepare various drawings used in different type of construction project, (covering at least site lay out plans, shuttering drawing, floor plan layouts, reinforcement drawing, fabrication shop drawing, excavation detailing, survey maps, electrification drawing, services drawing and layouts)</p> <ol style="list-style-type: none"> 1. perform necessary computations and convert dimensions to required scale 2. use the system software to provide required details in the drawings 3. provide section details as per instructions 4. use tools to highlight or magnify the details and locations of critical importance 5. use appropriate symbols and create legends as required in the drawing 6. use appropriate denotations for continual and other details in the drawing 7. maintaining documents and drawings as per organizational norm 8. store the drawings in appropriate partitions 9. operate printers and plotters to produce hard copies of the drawings in required numbers 	
4	<p>Work effectively in a team to deliver desired results at the workplace</p> <p>Theory Duration (hh:mm) 04:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code CON/N8001</p>	<p>Theory:-</p> <ul style="list-style-type: none"> • Method of oral and written communication skills with co-workers related to cutting, bending and tying works • Method of oral and written communication skills for informing trade senior about any lack of information in the drawing/sketches or deviation from the work • Reading and interpretation of sketches • How to understand and follow work methods, by adhering to instructions or consulting with seniors • Method of providing instruction to subordinates or reporting to seniors clearly and promptly • Seek necessary support and complete assigned tasks within stipulated time duration • Keep good relation and maintain well behavior with co-workers <p>Demonstration/ Practical :- The skills will be developed and practiced while carrying out following trade related activities in a predictable and familiar working condition</p> <ol style="list-style-type: none"> 1. Selection of materials, tools or devices for defined purpose 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		2. Handling material, tools and equipments relevant to reinforcement works 3. Carrying out cutting and bending of rebar 4. Carrying out fabrication, placing and fixing of reinforcement for R.C.C structures 6. Selection and handing over of desired/ appropriate tools/ materials while assisting trade senior	
5	Plan and organize work to meet expected outcomes Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code CON/N8002	Theory:- <ul style="list-style-type: none"> Basic concept of productivity, sequence of working and implementation of safety and organizational norms while working Optimization of resources To plan reinforcement activities within defined scope of work Upkeep, storing and stacking methods of tools, materials used for domain specific works Requisition of resources, reporting for requirement of resources orally and in written to concerned authority Importance of housekeeping, Demonstration/ Practical :- The skills will be developed and practiced while carrying out following trade related activities in a predictable and familiar working condition <ol style="list-style-type: none"> Selection of materials, tools or devices for defined purpose in an optimum manner Handling material, tools and equipment relevant to reinforcements works Prioritize all works/ activities Planning cutting and bending activities Carrying out fabrication, placing and fixing of reinforcement for R.C.C structures Optimum use of resources while performing task Adherence to stipulated timelines for completion of electrical activities/ tasks 	
	Total Duration Theory Duration 245:00 Hrs. Practical Duration 355:00 Hrs.	Classroom Requirement (for 30 students) Classroom of 30 students capacity, Black/White board, Projector/LED Monitor, Computer, Registers , Trade specific charts and other teaching aids, computer with sufficient configuration to work with heavy software auto cad or equivalent software, all computer peripherals, printers and plotters, scientific calculator	

Grand Total Course Duration: **600 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by Construction Skill Development Council of India)

Trainer Prerequisites for Job role: “” mapped to Qualification Pack: “CON/Q1301, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q1301”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field
3	Minimum Educational Qualifications	ITI/12th
4a	Domain Certification	Trainer/Assessor-50% in each NOS & 80% overall, Lead trainer/ Lead Assessors- 50% in each NOS and overall 90%
4b	Platform Certification	Trainer/Assessor-80% in each NOS and Lead trainer/Lead Assessors-90% in each NOS
5	Experience	i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12 th pass minimum eight years of field experience and preferably two years of teaching Experience.



CRITERIA FOR ASSESSMENT OF TRAINEES

<u>Job Role</u>	Draughtsman
<u>Qualification Pack</u>	CON/Q1301
<u>Sector Skill Council</u>	Construction

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.
7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8. After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
9. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack within the specified timeframe set by SSC.
10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

Assessment outcomes	Assessment Criteria for outcomes	Total Mark	Out Of	Marks Allocation	
				Theory	Skills Practical
CON/1301: Carry out the initial setup and understand the requirement for preparation of drawings	PC1. ensure that the system is correctly operating	100	9	3.5	5.5
	PC2. check that all peripheral devices are connected and correctly operating		9	3.5	5.5
	PC3. start up the software and adjust the page size, measurement unit, scale and plot area before starting the work		9	3.5	5.5
	PC4. ensure data and information received are sufficient for preparation of drawing		9	3.5	5.5
	PC5. read and interpret the drawing requirements such as rough sketches, specifications, drawing brief, RFD etc. provided by the designer or architect		10	3	7
	PC6. prepare rough sketches from the drawing requirements to ensure that all details for preparation of drawings are available and in order		9	3.5	5.5
	PC7. consult superiors or concerned authority in case of any confusion or ambiguity in the received drawing requirements or for clarification of any related doubts		9	3.5	5.5
	PC8. interpret drawing requirement such as type of projections, types of views etc		9	3.5	5.5
	PC9. estimate the time required to complete the drawing based upon the scope of work		9	3.5	5.5
	PC10. set drawing parameters like, color, layer, line type, line weight, text font etc		9	3.5	5.5
	PC11. prepare title block for the drawing covering specification required by the client or mentioned in the IS code		9	3.5	5.5
	Total	100	40	60	
CON/1302: Prepare 2 dimensional civil drawings using computer aided design (CAD) system	PC1. carry out necessary calculations to compute dimensions of various components/ parts of drawings	100	4	2	2
	PC2. convert the dimensions in required scale to input in system		4	1.5	2.5
	PC3. use drafting principles to produce cad drawings showing plans, sections, elevations, and different types of views		4	2	2
	PC4. use drafting principles to produce topographical maps, contours, civil and structural drawings, architectural drawings		4	2	2
	PC5. use appropriate commands in the software to draw the required drawings as per standard practices		4	1.5	2.5
	PC6. use keyboard commands and pull down menus available in common cad systems to prepare the drawings		4	1.5	2.5
	PC7. use codes and other references that follow the required conventions		4	1.5	2.5
	PC8. draw structures to highlight critical features in accordance with specification requirements		4	1.5	2.5
	PC9. draw civil assemblies to highlight critical features as per specification requirements		4	1.5	2.5

	PC10. create tables to denote the name, dimensions, perimeter and area of various parts or components as per client requirement		4	1.5	2.5
	PC11. add specifications as per the drawing requirements provided by the designer or architect		4	1.5	2.5
	PC12. use relevant and appropriate symbols as per drawing requirement to provide details in the drawings		4	1.5	2.5
	PC13. provide legend in the drawing sheet as per requirement		4	1.5	2.5
	PC14. provide sections and details as per requirement of client, designer or architect		4	1.5	2.5
	PC15. make appropriate denotations for continual and details on the drawing		4	1.5	2.5
	PC16. provide names to the drawings, sections and details as per code of practice or organisational norms		4	1.5	2.5
	PC17. recheck the drawings to confirm their compliance with the supplied design parameters		4	1.5	2.5
	PC18. correct or remake the drawings in case of any corrections observed by superiors		4	1.5	2.5
	PC19. coordinate with seniors for approval of drawing from design team and client as applicable		4	2	2
	PC20. communicate to concerned authorities for informing completion and approval of prepared drawings		4	2	2
	PC21. draft mails and forward the prepared drawing to concerned authority for approval		4	1.5	2.5
	PC22. maintain documents for completion of work and approval of the same as per organisational norm		4	1.5	2.5
	PC23. store the drawings in appropriate partitions		4	1.5	2.5
	PC24. operate printers and plotters to obtain prints of the drawings		4	1.5	2.5
	PC25. produce hard copies of the drawings in required numbers		4	1.5	2.5
		Total	100	40	60
CON/N8001: Work effectively in a team to deliver desired results at the workplace	PC1. pass on work related information/ requirement clearly to the team members	100	10	4	6
	PC2. inform co-workers and superiors about any kind of deviations from work		10	4	6
	PC3. address the problems effectively and report if required to immediate supervisor appropriately		20	8	12
	PC4. receive instructions clearly from superiors and respond effectively on same		10	4	6
	PC5. communicate to team members/subordinates for appropriate work technique and method		10	4	6
	PC6. seek clarification and advice as per requirement and applicability		10	4	6
	PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		15	6	9
	PC8. work together with co-workers in a synchronized manner		15	6	9
		Total	100	40	60



CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	100	13	5	8
	PC2. plan activities as per schedule and sequence		10	4	6
	PC3. provide guidance to the subordinates to obtain desired outcome		13	5	8
	PC4. plan housekeeping activities prior to and post completion of work		8	3	5
	PC5. list and arrange required resources prior to commencement of work		10	4	6
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		8	3	5
	PC7. complete the work with allocated resources		8	3	5
	PC8. engage allocated manpower in an appropriate manner		5	2	3
	PC9. use resources in an optimum manner to avoid any unnecessary wastage		5	2	3
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		5	2	3
	PC11. organize work output, materials used, tools and tackles deployed,		10	4	6
	PC12. processes adopted to be in line with the specified standards and instructions		8	3	5
	Total	100	40	60	