

POST DIPLOMA IN STRUCTURAL ANALYSIS AND PROJECT MANAGEMENT

QUALIFICATION FILE

**Ministry of Micro, Small and Medium
Enterprises, New Delhi
(MSME-Technology Centre)**

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

NSDA Reference

CONTACT DETAILS OF THE AWARDING BODY FOR THE QUALIFICATION

Name and Address of Awarding Body:

O/o DC (MSME),
Ministry of Micro, Small and Medium Enterprises
Nirman Bhawan,
Maulana Azad Road,
New Delhi - 110108

Name and Contact Details of Individual dealing with submission:

L.RajaSekhar
Dy. General Manager
Contact No. +91 9437491950
Email- rajasekharl@yahoo.com

List of documents submitted in support of the Qualification File:

1. Detailed Curriculum (Ref: Annexure-I)
2. Industry Validations

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SUMMARY

Qualification Title:

**POST DIPLOMA IN STRUCTURAL ANALYSIS AND PROJECT MANAGEMENT
(MSME / PDSPM / 61)**

Nature and Purpose of the Qualification:

Nature: Post Diploma Course

Purpose:

Learners who attain this qualification are competent in Civil Construction work and can get a job in a captive or commercial construction work or become an entrepreneur.

- Qualifying learners attain skills to work in Auto CAD, STADD PRO, and 3DS MAX, REVIT ARCHITECTURE, ADOBE PHOTOSHOP, GPS & DGPS, AUTO LEVEL, ADOBE PREMIERE, ARC GIS, AUTO PLOTTER & ROAD ESTIMATER, PRIMAVERA, GOOGLE SKETCH UP & TOTAL STATION software.
- Qualified learners are capable of doing any type of building planning & designing, interior & exterior designing, estimation and costing related to constructional work.
- Participants will be able to design civil constructional work by considering the strength of civil construction.

Body/bodies which will award the Qualification:

MSME Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi

Body which will accredit providers to offer courses leading to the qualification:

MSME Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi

Body/bodies which will be responsible for assessment:

Examination Cell of MSME Technology Centre

Occupation(s) to which the Qualification gives access:

Project Engineer/ Project Supervisor/Project Co-ordinator.

Proposed level of the Qualification in the NSQF:

Level-6

Anticipated volume of training /learning required to complete the Qualification:

1 year (1560 Hours)

Entry requirements/recommendations:

Diploma/Degree in Civil Engineering pass.

Progression from the qualification:

After completion of course Junior Project Engineer/Junior Site Engineer and after 3 years of field experience the trainee can work as a site engineer and after that 5 years of experience, the person can work as a Senior Project Manager .

Planned arrangements for the Recognition of Prior Learning (RPL)

Yes

International comparability where known:

OFQAL is offering AVA level -5 Advance technician in civil engineering, which is available to learners in ENGLAND.

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Formal Structure of the Qualification:

Semester -I

Title of component	Mandatory/ optional	Estimated size (learning hours)	Level
Structural drawing	M	40	Level-6
MS office	M	20	Level-6
Auto cad in civil	M	200	Level-6
STAAD –pro	M	160	Level-6
3DS max	M	180	Level-6
Adobe Photoshop cs5	M	20	Level-6
Adobe premiere cs4	M	20	Level-6
Total station	M	40	Level-6
Auto level	M	20	Level-6
Strength of material	M	40	Level-6
Estimating& costing	M	40	Level-6
Total		780	

Formal Structure of the Qualification:

Semester -II

Title of component	Mandatory/ optional	Estimated size (learning hours)	Level
Revit Architecture	M	200	Level-6
Arc-GIS	M	120	Level-6
Primavera	M	120	Level-6
GPS&DGPS	M	50	Level-6
Google Sketch-Up	M	40	Level-6
Auto plotter &Road Estimator	M	50	Level-6
Design of concrete structure	M	40	Level-6
Soft skill	M	40	Level-6
Minor project	M	120	Level-6
Total		780	

Please attach any document giving further detail about the structure of the qualification – e.g. a Curriculum Document or a Qualification Pack.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SECTION 1

ASSESSMENT

Body/Bodies which will carry out Assessment:

Examination Cell of MSME Technology Centre

Will the Assessment Body be responsible for RPL Assessment?

Yes

How will RPL assessment be managed and who will carry it out?

Learners who have met the requirements of any Unit Standard that forms part of this qualification may apply for recognition of prior learning to the relevant Education body. The applicant must be assessed against the specific outcomes and with the assessment criteria for the relevant Unit Standards.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF.

1. ASSESSMENT GUIDELINE:

- Criteria for assessment based on each learning outcome, will be assigned marks proportionately to its importance.
- The assessment for the theory & practical part is based on knowledge bank of questions created by trainers and approved by Examination cell of MSME Technology Centre
- For each Individual batch, Examination cell will create unique question papers for theory part as well as practical for each examination.
- To pass the Qualification, every trainee should score a minimum of 70% cumulatively (Theory and Practical)
- Assessment comprises the following components:
 - Job carried out in labs/workshop
 - Record book/ daily diary
 - Answer sheet of assessment
 - Viva –voce
 - Progress chart
 - Attendance and punctuality

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

2. ASSESSORS:

MSME Technology Centre faculty looking after the course “**POST DIPLOMA IN STRUCTURAL ANALYSIS AND PROJECT MANAGEMENT**”. The students as per guidelines are assessed by Examination cell of MSME Technology Centre. Faculties have been trained from time to time to upgrade their skills on various aspects such as conduct of assessments, teaching methodology etc. These training are usually conducted at Xavier Institute of Management (XIMB), Bhubaneswar, Xavier Labor Relations Institute (XLRI), Jamshedpur and other renowned Institutions/Establishments of the country.

3. ELIGIBILITY TO APPEAR IN THE EXAM:

Minimum 80% attendance is compulsory for the students to appear for the assessments.

4. MARKING SCHEME:

Sr.No.	Method of Assessments	Weightage (Max. marks)	Evaluator
1	Written Test	20	Trainer + Course coordinator + Examiner nominated by Examination Cell of CTTC, Bhubaneswar
2	Practical Test	40	
3	Viva-voce	10	
4	Class/Workshop/Lab performance	10	
5	Project	20	
TOTAL		100	

5. PASSING MARKS:

Passing criteria is based on marks obtained in attendance record, term works, assignments, practical performance, viva or oral exam, module test, practical exam and final exam.

Minimum Marks to pass practical exam – 60%

Minimum Marks to pass theory exam – 40%

6. RESULTS AND CERTIFICATION:

The assessment results are backed by evidences collected by assessors. Successful trainees are awarded the certificates by MSME Technology Centre Ministry of MSME.

ASSESSMENT EVIDENCE:

Assessment evidence comprises the following components document in the form of records:

- 1) Job carried out in labs/workshop
- 2) Record book/ daily diary
- 3) Answer sheet of assessment
- 4) Viva –voce
- 5) Progress chart
- 6) Attendance and punctuality

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SEMESTER- I

Title of Component:STRUCTURAL DRAWING

Outcome To Be Assessed	Assessment criteria for the outcome
Explain the Purpose of drawing. Types of drawing. Different types of lines & uses.	Do exercises to develop drawing manually on drawing sheet.
Demonstrate types of scale with description.	Do unit conversation & make the plain scale, diagonal scale, Vernier scale, comparative scale and scale of chord.
Demonstrate projection & types of projection methods.	Differentiate between 1 st angle & 3 rd angle projection. Draw orthographic views in 1 st and 3 rd angle projection method.
Demonstrate the stairs, door, window and ventilators.	Identify different types of Stairs, Parts of stairs, Different sizes of doors and windows by using technical terms of door and window.
Demonstrate the culverts, syphons and bridges, structural steel work, PEB Structure.	Identify the culverts, syphons, and bridges. Design PEB structure.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component:MS OFFICE

Outcome to be assessed	Assessment criteria for the outcome
Explain importance of MS office. Demonstrate various tool bars and pull down menus of word, excel and PowerPoint	Prepares word documents, excel sheets, power point presentations.
Demonstrate MS word & its uses.	Prepare project related work (writing letter, resume) etc. by the help of MS word.
Demonstrate MS excel & uses.	Prepare project related work in excel sheet like inputting building estimation data & calculating data in MS excel data.

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Demonstrate power point & uses.	Create presentation with the help of MS office power point.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test to create full building estimation & presentation file.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: AutoCAD in civil

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate AUTO CAD, co- ordinate system, set the paper size and unit setup, Toolbar, Commands, shortcut key.	Calculate the coordinate system in manually & using by AutoCAD software.
Study the drawing & diagram in use	Draw all the drawing & diagram by using software.
Demonstrate to operate the Draw toolbar & modify toolbar, Arc & circle, Array & text.	Make practice some command option, arc & TEXT option by using In all the drawing & diagram.
Generate & modify Hatching, gradient, Layer in drawing.	Identify function & use of Hatching, gradient, Layer in drawing or building plan.
Explain to set the Scale, scale (1:2, 1:5, 2:1 & 2:5) factor & generate the dimension & doing Interior design in drawing.	Set the dimension, scale & modify, increase / decrease the object by using scale factor and create the interior design in the building drawing.
Demonstrate to the Steel design and Basic introduction of steel structure & Different shapes of steel section	Identify to make the steel structure manual in paper sheet & also system. Calculating the steel property (volume, weight, density)
Develop 3D modeling, Use 3D co- ordinates, Set the 3D toolbar, 3D views, Modeling toolbar & Solid editing toolbar.	Set the 3D toolbar & 3D views. Create 3D Drawing & modeling in building plan by using modeling toolbar (extrude, subtract, union, press pull, sweep, loft, revolve, box or other option) & modifying the 3D building model by using solid editing toolbar (Extrude face, move face, shell, color face, chamfer edge, fillet edge or other option).

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Model Spiral stair case & materials, Block, W block, insert block, template	Make spiral stair case & details, Put material texture on spiral stair case & building drawing. Insert block, W block, block & create template with proper dimension and using scale in the drawing.
Demonstrate Syphon, culvert, septic tank & Steel design in 3D. Demonstrate Plotting and Printing	Create 2D plan or 3D diagram for steel structure, Syphon, culvert & septic tank by using 3D option cad software. Set the lay out plan for plotting or printing & transfer .jpg format & work with raster image.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting skill test after completion of this component.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component:STAAD-Pro

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate structural analysis & design and also introduction of 'FEM', stiffness of matrix, possibilities of STAAD pro, condition for STAAD pro & basic requirement for STAAD pro. Discuss about I.S Codes, DOF, DSI,DKI,Co-ordinate systems, load combination, Basic calculation of co-ordinate system through manually.	Calculate the coordinate system manually in paper & using that coordinate points create frame structure & steel structure in STAAD pro software.
Explain the Geometry part & File transfer.	Operate feeding of the co-ordinates in STAAD pro & using tools like copy, paste, insert nodes, views, check dimension, rotate, text, change colors, and choose units with practice. Use AutoCAD software to transfer the file from auto cad to STAAD pro (using ID point system).
Demonstrate to Water tank, Tower, Truss	Prepare water tank by using translational repeat & circular repeat & filling the water tank with plates (concrete slab) Triangular, Quad and by using auto cad software (ID points system), manually calculate amount of water required, find

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	<p>out specification of water tank & use grid system to form the transmission tower & use different types of planes and circular repeat, Generate truss in STAAD pro by using translational repeat & circular repeat make surface to cover the roof.</p>
<p>Demonstrate Property, Calculate Dead & Live, Wind load and Seismic load in building by using STAAD pro software.</p>	<p>Use property option to define material over the structure, Define different shapes Ex: - Circle, Rectangle, Tee, Trapezoidal. Use group option, Assign material over the structure, and define Angle, s-shape, channel, pipe section for steel structure. Manually find out structure, Dead & Live loads Ex: - slab weight, wall weight, column weight, beam weight, live loads & using I.S codes to calculate basic wind speed & pressure, according to the different region by manually. Apply the calculated pressure in STAAD pro & get wind directions, definition X+, X-, Z+, Z- load case detail Using IS code calculate basic shear during earthquake & generate time period by manual calculation.</p>
<p>Find out concrete design, RC designer, shear force & bending moment.</p>	<p>Generate concrete parameters to design column, beam & slab by using IS 456 code. Use STAAD pro to get elaborated details of beam, column & get working drawings from auto cad. Use STAAD pro to define various types of beams such as, simple supported beam, fixed beam, cantilever beam, overhanging beam, continuous beam & different types of supports.</p>
<p>Design steel, shear wall, bridge & foundation.</p>	<p>Use STAAD pro to design steel structures Ex. tower, truss & find out the eligible members. Use the surface panel models to design shear walls(RC wall)using lift room Including practice&STAAD foundation to design, pile, mat, isolated, combined footings.</p>
<p>Means of assessment-1 Assessing the daily work schedule sheet.</p>	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Conducting written test after completion of this component.

Means of assessment-2

Assessing the daily work schedule sheet.

Conducting model test after completion of STADD PRO.

Pass/Fail

Scoring more than 40% in written test and more than 60% in practical (Model) test will be declared as competent.

Otherwise, he/she will be declared as not yet competent.

Title of Component:3DS MAX

Outcome to be assessed	Assessment criteria for the outcome
Use 3D modeling in 3DS max for animation. Understand standard primitives with modifier and extended primitives with modifier,	Work with object & modifier, reactors with 3Ds max. Work with grids, Use snap tool, Move an object, Rotate an object, Mirror an object, Clone an object.
Explore modeling concept, Import file from auto cad to 3Ds max & work with external design data.	Create floor plan, elevation, Work with editable poly objects, Modify editable poly object. Make shapes by using spline & Modify spline object using sub object.
Demonstrate to enhancing models with materials and work with UVW maps.	Draw the drawing adding materials to object and refer libraries, Understand the multi/sub-object for the window & doors, UVW map & make the rendering.
Demonstrate light, camera & explore rendering, texture.	Operate lighting& different type of camera. Make scaling renderer& mental ray/ renderer Use texture in3d building by using 3ds max software.
Use the v-ray & Understand the animation concepts in 3ds max.	Work with v-ray, Set v-ray, V-ray rendering& animation in building. Work with free camera& biped in drawing.
Means of assessment-1	
Assessing the daily work schedule sheet.	
Conducting written test after completion of this component.	
Means of assessment-2	
Assessing the daily work schedule sheet.	
Conducting practical test to make interior & exterior design by using 3ds max software.	
Pass/Fail	
Scoring more than 40% in written test and more than 60% in practical test will be declared as competent.	
Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component: ADOBE PHOTOSHOP CS5

Outcome To Be Assessed	Assessment criteria for the outcome
Demonstrate adobe Photoshop & Navigating Photoshop.	Provide texture on existing modern building by using Photoshop tools. Menus and panel, Open new files. Open existing files.
Explain the tool box Exploring panels and menus.	Create and view a new document Customizing the interface Setting preferences.
Demonstrate zooming and panning of an image & work with images.	Sketch multiple images use by rulers' guides, & grids, Adjust colors with the new adjustment panel.
Explain Resizing, cropping and Editing images.	Resize the images by pixels & resolution using commands. Cut the images. Use tools for Color correction & Effects (blur, noise etc).
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test to create modern building by using adobe software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in Practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: ADOBE PREMIERE CS4

Outcome To Be Assessed	Assessment criteria for the outcome
Demonstrate adobe premiere cs4	Introducing adobe premiere, setting up a project, setting up a sequence, Expending the work flow
Explain the edit tool box Exploring panels and menus.	Edit by selection tools, track select tools, pipple edit tools, rolling edit tool, rate stretch tool, razor tool, slip tools, slide tool, pen tool, zoom tool
Demonstrate the adding & editing effects.	Do prelates, audio effects, video effects, audio transitions & video transitions, edit the effects from effect control,
Demonstrate the output with the help of adobe media encode.	Put clip motion using Photoshop and after effects to enhance your video project, Overview export options, recoding to videotape, using adobe media encoder,

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	exporting to mobile device & rendering importing Photoshop files as sequences
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test to create modern building video & audio animation with the help of adobe premiere cs4 software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in Practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: TOTAL STATION

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate surveying principle using operational panel of the instruments, Safety instruction.	Do operational panel & other plants of the instruments with the help of machine in field.
Demonstrate centering & leveling of the instruments.	Do centering with the optical plummet eye piece as per procedure with the leaser plummet, do leveling of the circle level with the help of machine.
Create data & co-ordinate measurement.	Do Job selection, Job Details, Job detection, Station orientation of points by help of machine
Demonstrate station shifting, OBS & edit data, data transfer.	Shift the instrument from one station to another station & Download Data. Process data in computer, transfer format to CSV, DWG & DXF with Specter link software.
Means of assessment-1 Assessing the daily work schedule sheet Conducting written test after completion of this component	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test to do job selection, job detailing, station orientation, & observation of point by help of machine.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Otherwise, he/she will be declared as not yet competent.

Title of Component: AUTO LEVEL

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate features of surveying and leveling instruments.	Do leveling & surveying,
Demonstrate auto level/digital auto level & different methods of leveling.	Perform different operations using auto level and calculate various parameters.
Solve the basic numerical related by Height of instrument method.	Perform rise and fall method, error correction & do Fly leveling, profile leveling, simple leveling.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test by using auto level software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: STRENGTH OF MATERIAL

Outcome To Be Assessed	Assessment criteria for the outcome
Demonstrate different materials and their properties.	Identify the materials as per their properties.
Demonstrate stress, strain, coefficient of thermal expansion, poisson's ratio, elastic constants and factor of safety.	Analyze problem related to elastic constant.
Demonstrate the Shear force & bending moment. Introduction about beam, load, and shear force, bending moment, S.F.D, B.M.D & sign convention.	Solve problem related to cantilever beam subjected by point load, UDL & by both of them, solving problem related to simply supported beam subjected by point load, UDL & by both point load & UDL. Solving problem related to overhanging beam subjected by point load & UDL .Finding out S.F.D & B.M.D in continuous beam.
Discuss the civil objective question	Review and analyze the civil core problems.

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Means of assessment-1

Assessing the daily work schedule sheet
Conducting written test after completion of this component.

Pass/Fail

Scoring more than 40% in written test will be declared as competent.
Otherwise, he/she will be declared as not yet competent.

Title of Component: ESTIMATING & COSTING

Outcome To Be Assessed	Assessment criteria for the outcome
Explain estimating & different types of estimates.	Estimate, requirements for building design.
Demonstrate the standardization of brick, brick calculation & density of building materials & percentage of cost for different material.	Calculate number of brick required for area, weight of brick, different brick densities required cost percentage of labor & different cost percentage of material.
Demonstrate concept of basic and proposed building plinth area calculation of plinth rate & cube rate.	Calculate plinth rate & cube rate.
Demonstrate the foundation and footing calculation, long/short wall method and centerline method.	Calculate Lime concrete, footings, plinth height, plinth wall and super structure wall. Solve problem with long and short wall and centerline method.
Calculate amount of cement, fine aggregate and coarse aggregate abstract for quantities.	Solve problem with ratio of cement, fine aggregate & coarse aggregate. Fresh technical siltation rate of different material with volume calculation.
Means of assessment-1	
Assessing the daily work schedule sheet Conducting written test after completion of this component	
Pass/Fail	
Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SEMESTER- II

Title of Component:REVIT ARCHITECTURE

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate the Revit architecture & Revit element	Create a new project, Sketch element, Modify an element, Move an element, Rotate an element, Mirror an element, Delete an element, Work with project view.
Demonstrate annotation and detailing with building component.	Create levels, Work with level, elevation & Floor plan. Work with wall, Add doors to a wall, Add window to a wall & component.
Work with editing tools. Color and section wall & floor and roofing element.	Use align tools, Split tools Trim tools, Offset tools, Match type tools, Set color for wall. Understand section libraries, Create a floor, Modify floor, Create roof, Modify roof, Create ceiling, Modify ceiling, Cut open in.
Demonstrate basic components, annotation & detailing, dimension, presentation tools.	Identify Temporary dimension, Permanent dimension, modify dimension, Room & area Analyze Area, Color fill skim, Camera views Work through.
Demonstrate rendering basics, templates & printing.	Do the rendering work flow, Use light, Add plants & entourage, Render & image. Understand the sectioning, floor plan, elevation, Work with sheets. Use title block, Print the drawing
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the building plan or model design, interior or exterior component by using Revit architecture software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component: ARC-GIS

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate the remote sensing application & Multi Concept of Remote sensing.	Analyze the Type of remote sensing, Historical prospective in Remote sensing Advantages and disadvantages. Do multi station images, multi band images, date images , stage images, Multi Polarization images Multi Enhancement images, Multi-Disciplinary Analysis.
Explain the physics of basic components & stages of remote sensing.	Do the Electromagnetic Radiation with the help of remote sensing machine. Mode to Transfer of Energy in EMR.
Demonstrate to GIS	Analyze the GIS and its definition, & understand Why GIS. Component and hardware requirement.
Demonstrate to User interface and tool identification.	Work with different satellite & Import different satellite imagery data, Digitization of import data & Analysis, preparation of final reports.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the electromagnetic Radiation & Work with different satellite with the help of ARC- GIS software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: PRIMAVERA

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate the BASIC introduction of primavera & CPM scheduling.	Analyze basic of primavera & basic navigation and operation. Do Project planning, Scheduling, activity, resource codes, calendar, step templates, resource (labor/non labor/ material), & cost account structure.
Explain to Critical path method using with CPM scheduling.	Create schedule updates & developing and formatting schedules. Do the work brake down structure, deferent activities, critical path analysis, resource management & cost

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	management.
Explain how to monitoring ,controlling the project & to handle issues of managements, lay outs etc.	Understand reviewing baseline schedules, update schedules, Time impact analysis & the scope of work, contractual start and finish date of the project. Do the major milestones of project & deliverables of various disciplines. Establishing the progress measurement weightages for phase/disciplines and activates.
Demonstrate EBS, super structure work, deferent types of relationship & tracking progress.	Get the schedules from disciplines, planning recourse required for the project. Getting the baseline schedule sign off from the customer & preparation of S-curve for engineering, procurement, construction and commissioning and overall. Prepare weekly & monthly progress reports & submit progress reports to top managements. Prepare delay analysis and present to all concerned discipline manager & managements or coordinate among construction and commissioning team.
<p>Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.</p>	
<p>Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the project planning, scheduling, controlling & monitoring the project / management by using primavera.</p>	
<p>Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.</p>	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component:GPS & DGPS

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate GPS & satellite.	Identify main segments used for navigation & Differentiate between the mobile GPS & GPS instrument.
Explain GPS device & Function of GPS instrument.	Measure the point to point distance using GPS device through satellite.
Demonstrate advantages, disadvantages and limitation of GPS instrument.	Do the GPS work in survey. Solve the common errors of GPS survey &Principles of GPS device.
Explain Basic introduction to Post Processing method & real time kinematic method.	Do the work in static mode and Kinematic Mode. Do the TRCM correction, ATOM correction ,RTK correction &Correlating Base , Rover dataformation of base line ,& Report preparation
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test to Measure the point distance by using GPS &DGPS satellite software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component: GOOGLE SKETCH-UP

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate to Google sketch up & modeling in sketch up.	Make the beyond building models by using google sketch up components, keep your model organized & modeling with photographs.
Explain to presenting/ viewing your model in different ways.	Do the Work with styles and shadows, presenting the model inside sketch up.
Demonstrate to sharing the model what you've made & using parts of tens.	Do the work with Google earth and 3d warehouse, printing your model, exporting images and animations. Create presentation documents with layout & deeper into lay outs Trips the ten sketch up, ten plug-ins, extensions, resources worth & discover the works in ten ways.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the modern buildings & create animations putting images and shadows by using Google sketch up software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component: AUTO PLOTTER & ROAD ESTIMATOR

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate the topographic surface & auto plotter software	Analyses the user interface and history of auto plotter software, Introduction of Infycons soft. Pvt. Ltd, & How to open the software.
Explain about main menu bars, survey menu bars, Importing & Processing of the raw data.	Work with File Menu Bar, Config. menu bar, Edit menu bar, View menu bar, Draw menu bar, Tool menu bar, Data Menu Bar, Dtm Menu Bar, Section Menu Bar, Design Menu Bar, Cogo Menu Bar Do the file import from surveying instrument to excel file format. Generate the data setting & create symbols.
Demonstrate the Creation of contours, section view, Generate of grid, & calculation volume.	Make the 2D and 3D contours & create L-section & C-section. Finding volume between a dtm surface and datum by terrain volume by section. Finding volume between a dtm surface and datum by terrain volume by dtm.
Demonstrate basic introduction about road & description of menu bars.	Analyses Road section, Road alignment, About change in road Work with main menu bars, Data menu bar, Standard menu bar, Draw menu bar, Snap menu bar, Dimension menu bar, Edit menu bar & Report menu bar.
Prepare final report & project.	Make Road section C, L-section, & Report of detailed estimation With hard copy.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the 2D and 3D contours by using autoplotter software & making road section, road alignment & detailed estimation of road by using road estimator software.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Title of Component: MINOR PROJECT

Outcome to be assessed	Assessment criteria for the outcome
Demonstrate about the basic knowledge of footing & types of footings.	Analyses the sizes of footings & check the one way shear, two way shear, development of length etc.
Explain about drawing layout of building n field.	Create a building plan in Auto-CAD & determining the column position of the building. Make the separate drawing for column and footing & provide ordinate dimensioning in the layout drawing.
Explain about various type of truss & how to design the truss by providing loads.	Analysis the various components of truss & arrangement of components to make truss model. Make project of footing, layout, and trusses in model.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the project footing, layout, trusses in model.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component: DESIGN OF CONCRETE STRUCTURE

Outcome to be assessed	Assessment criteria for the outcome
Explain the basic Introduction to design of concrete structure.	Analyses the different design methods like Working Stress Design (WSD), Ultimate load designed method, & Limit State Method.
Demonstrate the Stress strain distribution diagram of a Singly Reinforced Section.	Make a diagram Designed of loads, safety factor for loads Designed strength, & Assumption made in limit state method. Make a beam design & detailing using in limit state design methods
Explain about slab design, column design & footing design.	Do the slab design, slab detailing, column design & detailing, footing design & detailing in deferent ways

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	and methods.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet. Conducting practical test do the slab design, column design & footing design & detailing in manually.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent.	

Title of Component:SOFT SKILL

Outcome To Be Assessed	Assessment criteria for the outcome
Demonstrate Communication Skills, use language as a tool of communication	Explain briefly the basics of communication, soft Skills, nonverbal communication.
Demonstrate and improve the participant's vocabulary skills.	Read and speak the Sounds of English – Vowels & Consonant. Word Accent – Accent, Tone, Pitch.
Demonstrate Personality Development	Use body posture and simple common vocabulary while delivering speech in public. Wok on improving personality development.
Demonstrate the writing format of cover letter, resume/curriculum vitae, etc.	Write a cover letter for applying a job in manufacturing sector with your resume attached.
Means of assessment-1 Assessing the daily work schedule sheet. Conducting written test after completion of this component.	
Means of assessment-2 Assessing the daily work schedule sheet Conducting mock drill after completion of this component.	
Pass/Fail Scoring more than 40% in written test and more than 60% in practical test will be declared as competent. Otherwise, he/she will be declared as not yet competent	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SECTION 2

Evidence of Level

Title/Name of the qualification/Component: Post Diploma in Structural Analysis and Design			
Level-6			
NSQF Domain	Outcomes of the Qualification/Component	How the job role relates to the NSQF level descriptors	NSQF Level
Process	<p>Post Diploma in Structural Design and Analysis qualification identifies and exhibits wide range of specialized knowledge and skill set which is variable basing on different locations of the earth during preparation of drawings of Civil Engineering structures along with the analyzing the strength of the structures which may be standard and non-standard practice.</p>	<p>Job holder is expected to execute the design and analysis process required for various structural members like columns, beams, trusses, etc. their behavior in various type of load conditions which requires wide range of specialization in knowledge and skill in designing and analysis under different conditions. These processes may be standard and non-standard in nature. Hence the qualification is kept at level 6 as per the process is concerned.</p>	6
Professional Knowledge	<p>The curriculum of the qualification Post Diploma in Structural Design and Analysis covers wide range thorough understanding and knowledge of different type of structural members, their material strength, bending moment, shear force, various modulus, study of complete structural members behaviour in different load condition etc. along with inclusion of detailed study of Engineering Drawing, Site survey, Estimation and Costing.</p> <p>Post Diploma in Structural Design and Analysis qualification has thorough knowledge of operations of various modern equipment like total station, leveling, surveying, GPS etc. to</p>	<p>Job holders needs to have in depth knowledge and understanding engineering drawing, properties and strength of building construction materials, site survey, Estimation and costing, Building rules and regulations etc. Therefore this is pegged at level 6.</p>	6

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	support the all these activities.		
Professional Skill	<p>Post Diploma in Structural Design and Analysis qualification have the ability to apply practical knowledge and understanding in interpreting the building and architectural drawings.</p> <p>Post Diploma in Structural Design and Analysis also have the ability to perform various operations required to designing analyzing and preparing the civil structures systematically within the boundary of Building Rules and regulations applicable in India.</p> <p>Post Diploma in Structural Design and Analysis imparts detail in depth skill to use different types of instruments to maintain the desired quality and durability of the structures.</p>	<p>Job holder is engaged in tasks such as designing, drafting, analyzing and interpreting structural Drawing, making site survey using appropriate work stations within the quality framework and norms. These activities are variable in nature basing on the geographical conditions of the locality. The occupation is designed to prepare the trainees to generate solutions to specific problems encountered during work of study for which this is pegged at level 6.</p>	6
Core Skill	<p>Post Diploma in Structural Design and Analysis curriculum is designed to have reasonable good numerical abilities, mathematical calculations required for analyzing the data, communication skills to receive, provide, and transmit information logically to the appropriate person or the group involved in the activities.</p> <p>Use of appropriate measuring techniques, units and number systems to express degree of accuracy units and number systems representing degree of</p>	<p>The jobholder needs to have Generic Skills of writing, Oral and Communication Skills. Jobholder needs Document postproduction requirements. Understand the project requirements/client requirement which requires reasonably good clarity in oral and the written skills and while working on the content he needs to be aware of the social, political and natural environment.</p> <p>Also the job holder is competent enough to prepare the estimation and costing sheet by gathering analytical and logical data for the</p>	6

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

	<p>accuracy. Analysis and Interpretation of mechanical strength of any structural members along with ratio and proportions of building materials.</p> <p>Should be able to communicate to the appropriate person in regards to health, safety, first aid etc.</p>	<p>successful project implementation. Therefore it is pegged at level 6.</p>	
Responsibility	<p>Check-up procedures to ensure that project objectives are finished within specified time frames are developed.</p> <p>Checkup procedures to ensure that agreed ethical and legal requirements are met are drawn.</p> <p>Post Diploma in Structural Design and Analysis is responsible for the work and learning of each members in the team with full responsibility for other works and learning. The Job holder is expected to have openness to mentoring, ability to plan and organize the work and identify and solve problems in the course of working with in the team. Understanding the need to take initiative and manage him/herself and others and work to improve efficiency and effectiveness.</p>	<p>Job holder is required to carry out functions such as engineering drawing reading, operating civil construction equipment, analyse the strength, look and durability of the structural members within specified requirement. In these activities job holder is doing the tasks with a group and guides others as and when required. He/she is solely responsible for work output/ performance of the group involved in assigned project and also develop his/her team members as good mentor. Therefore it is pegged at level 6.</p>	6

SECTION 3

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

Evidence of Need

What Evidence is there that the Qualification is needed:

- Decision of the management review meeting.
- Industry Requirements

What is the estimated uptake of this Qualification and what is the basis of this estimate?

- The estimated uptake of this qualification in the year of 2017-18 is 120.
- The basis of this estimation is the requirements of the industries.



Note: The course is started towards the 3rd Quarter of the year 2016. So no placement is done as the 1st batch has not passed out yet.

What steps were taken to ensure that the Qualification(s) does/do not duplicate already existing or planned Qualifications in NSQF?

The qualification is originally designed by curriculum committee comprising the training head, industrial expert, academic professional experts.

The work group under the guidance of curriculum development committee already conducted desk search as well as refers the qualification packs for as a supporting document for the mapping of curriculum.

As per the search it is found that, the course is not available for the skill development of the

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

candidates in Post Diploma in Structural Analysis and Project Management Course of 1 year duration under the construction Sector Skill Council.

What arrangements are in the place to monitor and review the Qualification(s)?

What data will be used and at what point will the Qualification(s) be revised or updated?

- The curriculum committee meeting for review will be in the month of Jan 2018 which comprising industrial expert, Training Head, Representative from existing employers.
- The data used for revision or update will be impact analysis (student and industries) and new subject area opportunities, multiple entry and exits incorporated or RPL strategy implementations.
- The curriculum review and updates, in consultation with industries and expert of respective domain, NOS approved by NSDA will also be referred yearly. (Jan 2018)

SECTION 4

EVIDENCE OF RECOGNITION AND PROGRESSION

What steps have been taken in the design of this or other Qualifications to ensure that there is a clear path to other Qualifications in this Sector?

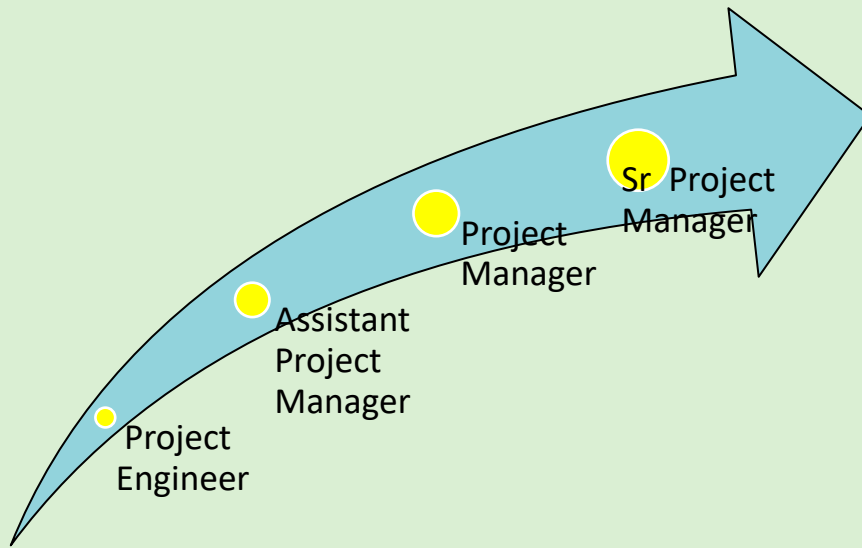
While designing this qualification proper care is taken to link up with the skill development in the field of Civil Engineering and other areas.

Qualifying trainee will obtain a Certificate in 'Post Diploma in Structural Analysis and Project Management'. The Certification gives the opportunities to the trainees to work as Project Engineer/Project Supervisor. As a career progression with this position and experience of 3 years gives career scope as Assistant Project Manager and 5 years' experience leads to Project Manager. Also he/she can become an entrepreneur in this sector after getting 3 year of experience. The below mention diagrams represent the vertical mobility for the job holder as a job progression in architecture/construction Sector.

VERTICAL PROGRESSION

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016



HORIZONTAL PROGRESSION

