सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
DEVELOPMENT COMMISSIONER
MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES
MSME TECHNOLOGY CENTRE

MODEL CURRICULUM

Qualification Name:

PROJECT COORDINATOR (CONSTRUCTION)

Qualification Code:

Version: 2.0

NSQF Level: 5.5

Model Curriculum Version: 2.0

Submitted By:

MSME TECHNOLOGY CENTRE

O/o DC MSME, Ministry of Micro, Small and Medium Enterprises

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COURSES / MODULE TEMPLATE

NOS /Module: Sketch Architectural drawings, section view, 3D View

NOS /Module Code: MSME/PDSPM/01

Outcomes:

After completion of course Student should be able to:

- Apply safe working practices.
- Making geometrical figures using drawing instruments.
- Free hand sketching of building plan elevations & views.
- Sectional views showing orthographic, isometric & oblique projection.
- Exploring the branch of civil engineering.
- Interpret & use company terminology & technical communication.
- Understanding the fundamental of surveying field work.
- 3d&2d drafting of building structure.
- Animation of interior and exterior design of building.
- Making image for modern building in PNG/ JPG format &creation rendering lighting.

Theory Hours: 30 **Practical Hours: 60** **Theory Marks: - 0** **Practical Marks: 100**

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**Auto-CAD**	After completion of unit Student should be able to • Demonstrate use of CAD in Civil Construction, basic knowledge of operating software & commands, and benefit of civil developments in the construction industry. • Do 2d &3d drafting /design with AUTO CAD software.	**Drawing equipment and its application** • What is drawing? • Concept and Introduction of Engineering drawing. • Setting of paper size, drawing of title block with border line. • Drawing of Types of line, their properties, and arrow head. • Types of scale, dimensioning rules & their uses. **Orthographic Projection** • Concept of projection, • Types of projection and applying symbol of projection. **Isometric projection** • Isometric scale • Isometric view **Sectioning** • Types of section • Application • View positioning **Steel structure** • PEB structure & Steel structure work • Syphon, culvert & bridge design Stair, door &ventilator design, and	**60**	**100**

			calculation. **2D & 3D Sketches :** • Setting of paper size, • different types of lines, • Coordinate system & text, arc text. • functional keys • Tool line, circle, and rectangle, modify tools, trim, offset, fillet & chamfer. • Layers & discussion on layer management. • Poly line, rectangle, polygon, and arc, modify tools, mirror, pattern, copy. • Hatch, copy & move. **Dimensioning :** • Scale tools and thread representation. • Dimension and attribute text. • Ellipse, arc, and poly line. • Arc, aligned text, spline, & dimension setting. • Dimension style and dimensional tolerance & limits. • UCS, WCS **3D Modelling :** • Isometric view by wire frame. • Extrude, Revolve, Union, and Subtraction & Intersection, sweep, and extrude face. • Solid primitives, solid editing command (move face, offset face). • 3d syphon, 3d canal fall, 3d water tank, 3d of truss& 3d of foot over bridge • Assembly drawing & attribute text. • Annotation, block & w-block & leader. • Extension files used (. dwt, .scr, and slide). • Primitives used in solid Modelling. • ANIMATION, CAMERA & VIDEO PREPARATION • MAKING CLOCK IN AUTO-CAD		

			• Adding template, plotting & printing		

COURSES / MODULE TEMPLATE

NOS /Module: Analysis of structure & foundation with IS Code.

NOS /Module Code: MSME/PDSPM/02

Outcomes:

After completion of course Student should be able to:

- Demonstrate STAAD- PRO, & its uses. Do frame structure, steel structure & applying properties, loads, shear force and bending moment. Do design of steel, /concrete structure & staad foundation.

Theory Hours: 30 Practical Hours:-60 Theory Marks: 0 Practical Marks: -100 OJT-0

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**STAAD. Pro**	After completion of unit Student should be able to • Demonstrate STAAD- PRO, & its uses. • Do frame structure, steel structure & applying properties, loads, shear force and bending moment. • Do design of steel, /concrete structure & bridge design.	**Introduction to strength of material & simple stress and strain :** • Mechanical properties of the material • History & need of strength of material • What is stress, unit& types of stress • What is strain, unit& type of strain, hook's law & poisons ratio & factor of safety, elastic constants. • Solving problems related to elastic constant, finding out the elongation, stress& sapped bar & bar with varying loads in composite bar. **Co-efficient 0f Thermal Expansion :** • Thermal stress & strain, description about co-efficient of thermal expansion • Solving problem related to co- efficient of thermal expansion in beam & column. **Shear Force & Bending Moment :** • Introduction about beam, load & shear	**60**	**100**

			force, bending moment, & sign conversion. • Solving problem related to cantilever beam, subjected by point load, UDL by both point load & UDL combined. • Solving problem related to overhanging beam subjected by point load & UDL. • Finding out the SFD& BMD in continuous beam. **Introduction of software :** • Explain briefly introduction to structural design &analysis, brief introduction about RCC structure. • Doing frame structure • Calculating coordinate points, properties of building. **Geometry, Properties, Supports & Loading :** • Briefly describe about load, types & uses of load, calculation of dead load, live load& floor load • Working with design and analysis of building &, steel structure, preparation of RCC report. • Applying load (wind load, seismic load, floor load, live load, dead load) using by water tank, tower, truss& multi stored building **Analysis & Design of Beams, Columns & Slab :** • Design of beam and column, file transfer, concrete design, steel design, slab design, shear force /bending moment, solve some error • Using I.S code to define concrete design, steel & transfer to file from AutoCAD to STAAD PRO		

			through DXF file. • RCDC **Analysis & Design of Foundation, Shear Wall, Bridge Deck & Staircase :** • Describe about Shear wall design, & foundation • Using surface panel models to design shear wall (RC walls) & lift rooms, using STAAD -foundation to design, pile, mat, and isolated, combined footings. • Do Bridge Deck design & Staircase design • Response spectrum & foundation design foundation design • Preparing Reports		

COURSES / MODULE TEMPLATE

NOS /Module: Design exterior and interior, render, animation with 3DS Max & sketch up, create Color & shadow in Photoshop.

NOS /Module Code: MSME/PDSPM/03

Outcomes:

After completion of course Student should be able to

- Explain about 3ds max. Transfer plan from auto cad to 3ds max, using some standard object, light, camera, material & doing rendering, and animation.
- Explain briefly about the sketch up software, its uses and prepare architectural building and shaping of physical world.
- Explain basic introduction of Photoshop, object transfer, layer creation, creating view port, modify to object using some tool bars, color & shadow creation of object and image creation for modern building.

THEORY HOURS: - 30 PRACTICAL HOURS:- 60 THEORY MARKS: - PRACTICAL MARKS: -100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**3ds Max**	After completion of unit Student should be able to • Explain about 3ds max. Transfer plan from auto cad to 3ds max, using some standard object, light, camera, material & doing rendering, and animation.	**3Ds-Max :** • Exploring the features of 3ds max • Installing Autodesk 3ds max • User interface and setting preferences • Using the help feature of 3dsmax and exiting 3ds max • Understanding the project workflow& geometry primitives • Working with object, grids, pivot point, layers, splines, modifiers, reactors. • Exploring Modelling concepts and NURBS Modelling • Working with editable poly objects • Exploring subdivision Modelling • Animation, inverse kinematics, and character	**60**	**50**

			studio & particle systems and space warps • Understanding animation concepts and exploring kinematics • Using the inverse kinematics methods and working with biped • Understanding character studio and physique • Working crowd systems & working with particle systems and space warps • Introducing the scanline render, ray tracing, advanced lighting, & mental ray rendering • Working with VUE file render • Using texture baking • Exploring the rendered frame window		
UNIT-II	**Sketch-Up**	After completion of unit Student should be able to • Explain briefly about the sketch up software, its uses and prepare architectural building and shaping of physical world.	**Getting started with sketch up :** • Meeting sketch up • Establishing the Modelling mindset • Getting off to a running start **Modelling in sketch up & viewing your model in different ways :** • Modelling buildings in sketch up • Falling in love with components • Going beyond buildings & keeping your model organized • Modelling with photographs • Working styles and shadows • Presenting your model inside sketch up **sharing & parts of tens :** • Working with google earth and the 3d warehouse • Painting your work & exporting images and animations	**15**	**30**

			• Creating presentation documents with layout • Ten sketch up traps and their workarounds • Ten plug-ins, extensions, and resources worth getting & ten ways to discover even more.		
UNIT-III	**Photoshop**	After completion of unit Student should be able to • Explain basic introduction of Photoshop, object transfer, layer creation, creating view port, modify to object using some tool bars, color & shadow creation of object and image creation for modern building.	**Photoshop :** • Launching Photoshop cs, exploring the interface, using screen modes, opening an image using adobe bridge • Selecting a workspace, creating, and deleting a workspaces • Working with panels in Photoshop cs, • Shortcuts keys & menu settings, customizing preferences • Differences between bitmap and vector images, understanding image resolution, editing images, & making colour adjustments • Creating pdf file in Photoshop cs & importing a pdf file into Photoshop cs • Modifying building views by using Photoshop. • Create modern building view by using rectangular marquee tool, clone tools • Setting the current foreground and background colours • Filling a selection with the current foreground colour • Using the content – aware feature & exploring drawing tools, painting tools, retouching tools • Working with actions& automate commands • Exploring 3D model from 2d image using	**15**	**20**

			3d panel& editing 3d shape • Creating an animation, editing an animation& optimizing the animation for web, and printing the image in Photoshop		

COURSES / MODULE TEMPLATE

NOS /Module: Estimation of building with rate analysis of civil works.

NOS /Module Code: MSME/PDSPM/04

Outcomes:

After completion of course Student should be able to

- Estimation of the materials, labour for a given project with detailed cost analysis of that building project.
- Explain MS office, by using MS office prepare word document, spread sheet, presentations etc.

THEORY HOURS: -60 PRACTICAL HOURS: 0 THEORY MARKS: -100 PRACTICAL MARKS: 0

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH Hours	TH Marks
UNIT-I	**Estimation & Costing**	After completion of unit Student should be able to • Estimation of the materials, labour for a given project with detailed cost analysis of that building project.	**Introduction of estimating & different types of estimates :** • Requirements for building estimate purpose of estimate • Plinth area estimate, cube rate estimate, annual estimate & maintenance estimate. **Brick calculation & cost for different material :** • No. of brick required for area, weight of bricks, different bricks densities. • Required cost percentage of labour & different cost percentage of material. • Solving problems for plinth rate and cube rate, based on proposed building plinth area calculation of plinth rate & cube rate of structure **Foundation & footing calculation :** • Earth work, concreate work, brick work steel work, water supply, and sanitation, electrical work • Lime concrete, footings, plinth height, plinth wall, and super structure wall calculation, long & short wall method and center line method. **Abstraction calculation for quantities road estimate:** • Calculating amount of cement, fine aggregate & coarse aggregate • Solving problems with ratio of cement.	**60**	**100**

			• Fresh technical section • rate of different material with volume calculation • Cross sectional area and mild section formula, tender, contract, analysis rates, building estimate data from detailed to abstract in excel sheet.		
UNIT-II	**MS-Office**	After completion of unit Student should be able to • Explain MS office, by using MS office prepare word document, spread sheet, presentations etc.	**MS-Office Word :** • What is Microsoft word. • Identify the items on the word program screen, know how to use tool bars, customize tool bars, work with files**,** • Work on multihull documents, work with text, select/ delete/ format text, format paragraphs, work with lists, insert rows/columns in a table, • Work with graphics by adding clipart/ images from files, use spelling and grammar check, insert header/ footer/ page numbers, preview the document, and print it& use speech tools. **MS-Office Excel :** • What is Microsoft excel, identify the items on the excel program screen, know how to use tool bars, customize toolbars, & work with sheets. • Open an existing saved excel sheet, convert excel to pdf, work on multiple sheets, enter data, inset, and delete rows/ columns. • Inserting picture/ hyperlinks/ symbols, enter a formula, import, filter and sort the data, freeze/ unfreeze worksheets, use pivot tables. **MS-Office Power Point :** • What is power point, identify the items on the power point windows, key board short cuts, create a presentation, saving document in power point, • Selecta slide design, slide lay out, inserting and formatting text and objects, insert a	**30**	**50**

			hyperlink, add slide transition, & add animation to slide content. • Insert sound and video to a slide presentation, using the slide master, view a presentation using slide show7 print a presentation.		

COURSES / MODULE TEMPLATE

NOS /Module: Intro to surveying, leveling, types, GPS/DGPS function & uses.

NOS /Module Code: MSME/PDSPM/05

Outcomes:

After completion of course Student should be able to

- Definition of surveying, classification based upon the nature of the field survey.
- Horizontal & vertical plane, datum surface or line bench marks etc.
- Introducing parts of the instruments
- Coarse centering & fine centering
- Focusing the cross hairs, focusing the target point& measure the points.
- Stake out ground height, stake out height difference, and stake out distance, leveling & data management.
- Performing by long section & cross section method create road profile
- Procedure of centering with the optical plummet eyepiece
- Procedure of centering with the leaser of plummet
- Procedure of leveling with the circle level.
- Job selection, job details, job deletion
- Station orientation, observation of points
- Practice of OBS& DATA EDIT DATA
- After transferring process data, Create Topo map in AutoCAD software.
- Function of GPS/DGPS instrument& uses of GPS/DGPS.
- How the GPS/DGPS working in survey
- What are the common errors of GPS/DGPS survey
- Advantages & disadvantages
- Limitation of GPS/DGPS instrument
- Procedure of GPS/DGPS device & practice.
- Find out coordinate of any point by Static Survey and creating topo map by PPK Survey/RTK Survey.

THEORY HOURS: 30 PRACTICAL HOURS: -60 THEORY MARKS: 100 PRACTICAL MARKS: -100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH Hours	PR Hours	TH Marks	PR Marks
UNIT-I	**Auto Level**	After completion of unit Student should be able to • Do leveling & surveying	**Auto Level :** • Definition of surveying, classification based upon the nature of the	**10**	**20**	**30**	**30**

		• Perform different operations using auto level and calculate various parameters. • Perform rise and fall method, error correction	field survey. • Horizontal & vertical plane • Plane, datum surface or line bench Marks etc. • Introducing parts of the instruments • Coarse centering & fine centering • Focusing the cross hairs, focusing the target point& measure the points. • Stake out ground height, stake out height difference, and stake out distance, levelling & data management.				
UNIT-II	**Total Station**	After completion of unit Student should be able to • Do operational panel & other plants of the instruments with the help of machine in field. • 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. • Do Job selection, Job Details, Job detection, Station orientation of points by help of machine • Shift the instrument from one station to another station & Download Data.	**Total Station :** • Introduction of surveying & levelling, and types of surveying. • Introducing operational panel & other parts of the instrument, • Safety instruction • Procedure of centering with the optical plummet eyepiece • Procedure of centering with the leaser of plummet • Procedure of levelling with the circle level. • Job selection, job details, job deletion • Station orientation, observation of points • Practice of OBS& DATA EDIT DATA	**10**	**20**	**40**	**40**

UNIT-III	**GPS & DGPS**	After completion of unit Student should be able to • Identify main segments used for navigation & Differentiate between the mobile GPS & GPS instrument. • Measure the point to point distance using GPS device through satellite. • Do the GPS work in survey. Solve the common errors of GPS survey & Principles of GPS device. • Identify main segments used for navigation & Differentiate between the mobile GPS, GPS instrument, DGPS. • Measure the point to point distance using DGPS device through satellite. • Do the DGPS work in survey. Solve the common errors of DGPS survey & Principles of DGPS device. • Process data in computer, transfer format to CSV, DWG & DXF with Specter link software.	**GPS & DGPS :** • Introducing the GPS & what is GPS. • Introduction to main segments uses for navigation • Difference between the mobile & GPS instrument. • Introducing to GPS device& parts of GPS instrument • Function of GPS instrument& uses of GPS. • Multipath error • Inaccurate clock • Measurement noise • How the GPS works in survey • What are the common errors of GPS survey • Advantages & disadvantages • Limitation of GPS instrument • Procedure of GPS device & practice. • Static Mode • Kinematic Mode • TRCM correction • ATOM correction • RTK correction	**10**	**20**	**30**	**30**

COURSES / MODULE TEMPLATE

NOS /Module: Employability Skills

NOS /Module Code: MSME/ES/04

THEORY HOURS: 120 PRACTICAL HOURS: - THEORY MARKS: 100 PRACTICAL MARKS: -

Refer Standard Curriculum developed by NCVET. (120-hours-MC-Employability-Skills_v4-DGT (1).pdf)

COURSES / MODULE TEMPLATE

NOS /Module: Carry out Architectural modeling, exterior and interior, render, animation with Revit detailing.

NOS /Module Code: MSME/PDSPM/06

Outcomes:

After completion of course Student should be able to

- Architectural modeling using Revit, set up units & element properties, annotating, detailing, presentation tools, printing, export/import.

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 0 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**Revit**	After completion of unit Student should be able to • Architectural modeling using Revit, set up units & element properties, annotating, detailing, presentation tools, printing, export/import.	**Introducing Revit :** • Understanding the basic concepts and principles of Revit • Installing Autodesk Revit • Understanding the user interface • Using Autodesk Revit help • Improved features of Autodesk Revit **Working with project, project views and work planes :** • Working with plan project by using level, sketching elements, working with wall, adding doors, windows. • Demonstrate Revit architecture discus about floor and roofing elements & project. **Working with basic building components, site design and massing studies :**	**60**	**100**

			• Setting color for wall, about sectioning libraries, basic knowledge of building, Generic Modelling. • Using match type tool & adding color to wall • Create floor & modify, create ceiling & modifying. • Using Revit Structure & MEP **Annotation and Detailing :** • Creating text notes • Creating grids • Creating levels • Working with labels & Legends • Working with detailing & Preparing Bill of Quantity • Sheet Transfer **Rendering Basics :** • Understanding the rendering work flow, using lights, and creating a lighting fixture. • Adding a lighting fixture to a building model & setting the light source • Displaying a light source in a view , controlling the position of a spotlight in a building model & adding plants and entourage • Using and setting a decal in a view & rendering an image.		

COURSES / MODULE TEMPLATE

NOS /Module: Demonstrate Tekla for steel, /concrete structure & bridge design with load application.

NOS /Module Code: MSME/PDSPM/07

Outcomes:

After completion of course Student should be able to

- Demonstrate Tekla, & its uses. Do frame structure, steel structure & applying properties, loads, shear force and bending moment. Do design of steel, /concrete structure & bridge design.

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 0 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH Hours	Marks
UNIT-I	**Tekla**	After completion of unit Student should be able to • Demonstrate Tekla, & its uses. Do frame structure, steel structure & applying properties, loads, shear force and bending moment. Do design of steel, /concrete structure & bridge design.	**Introduction to design of concrete structure :** • Designed methods • Working Stress Design (WSD) • Ultimate load designed method • Limit State Method **Stress strain distribution diagram of a Singly Reinforced Section :** • Designed loads • safety factor for loads • Designed strength • Assumption made in limit state method **Designed of beams (limit state design method) :** • Stress strain distribution diagram for a balanced section • Designed formulas for a beam • CODAL provision • Detailing of beam design **Slab design :** • General notes on designing of slabs • Steps for design of slab • Detailing of slab design **Column design :** • General notes on designing of column • Steps for design of column • Detailing of slab column **Footing Design :** • Types of footing	**60**	**100**

			• Steps for design of footing, Detailing of footing **Planning Structural Layout and Introduction to Tekla Structural Designer :** • Program interface and commands required to run the program • Development of structural layout plans for industrial steel structures • Basics of grids and construction levels **Modelling Industrial Steel Structures (Part 1) :** • Modelling of steel columns • Modelling of steel beams on the ground floor • Managing properties using TSD • Validation of the model **Modelling Industrial Steel Structures (Part 2) :** • Modelling of beams for floor with reference to the structural plan • Modelling of longitudinal and plan bracings • Modelling of slabs **Loading Industrial Steel Structures (Part 1) :** • Load applications • Gravity loads and their application on the model according to IS codes • Calculation and application of dead loads • Calculation and application of live loads • Calculation and application of crane loads **Loading Industrial Steel Structures (Part 2) :** • Calculating lateral loads based on IS codes and applying them to the steel structure model • Calculation and application of manual wind load		

			• Application of wind load using Wind Wizard in the software • Calculation and application of seismic load in the model **Analysis and Design of Steel Structures :** • Check and review analysis settings • Analysis of the model • Interpretation of analysis to understand the behaviour of the structure • Design of substructure and superstructure elements **Modelling RC Residential Structures :** • Modelling and designing an RC residential building • Structural layout plan for an RC structure based on architectural drawings • Generating a new model • Grid modelling • Unique floor models in TSD • Modelling of RC Columns • Modelling of RC Beams • Modelling of Shear Walls **Loading for RC Residential Structure :** • Calculation of gravity loads and lateral loads and applying the loads to the model according to inputs and IS codes • Calculation and application of dead loads • Calculation and application of live loads		

			• Calculation and application of wind loads **Loading and Analysis of RC Residential Structures :** • Lateral loadings based on inputs and IS Code - running analysis on the same • Calculation and application of seismic load • Check and review analysis settings • Analysis of the model • Interpretation of analysis results to understand the behaviour of the structure **Design of RC Residential Structure :** • Designing structural elements • Grouping members • Check and design of column size and reinforcement • Check and design of beam size and reinforcement • Group members based on detailing **Design of RC Residential Structures :** • Design of floor slabs • Design foundation for the building • Report generation for structures **Generating Reports and Drawings for Industrial Steel Structures and RC Structures :** • How to generate reports and drawings used for submission while working on a live project • Generating reports for members using the steel and RC model • Managing the drawing layers in the software • Generating arrangement and detail drawings from the Steel and RC Model		

COURSES / MODULE TEMPLATE

NOS /Module: Create types of topographical map through Arc-GIS software.

NOS /Module Code: MSME/PDSPM/08

Outcomes:

After completion of course Student should be able to

- Create & share different types of topographical map, classify symbolize and label map features, create and edit geographic data and designing high quality map & reports through Arc-GIS software.

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 0 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH Hours	Marks
UNIT-I	**Arc-GIS**	After completion of unit Student should be able to • Create & share different types of topographical map, classify symbolize and label map features, create and edit geographic data and designing high quality map & reports through Arc-GIS software.	**Remote sensing application :** • Type of remote sensing. • Historical prospective in remote sensing. • Advantages and dis-advantages. **Multi Concept of Remote sensing:** • Multi Station Images. • Multi Band Images • Multi Date Images • Multi Stage Images • Multi Polarization images • Multi Enhancement images • Multi-Disciplinary Analysis **Physics of remote sensing :** • Stages in Remote Sensing • Basic components of an ideal remote sensing system • Electro Magnetic Radiation • Mode of Transfer of Energy in EMR	**60**	**100**

			• electromagnetic Radiation **Introduction to GIS & User interface and tool identification :** • What is GIS and its definition, Why GIS? • Component and hardware requirement • Introduction to ESRI. • Introduction to Arc-GIS. • Work flow. • Import different satellite imagery data. • Digitization of import data, Image Analysis & DEM Extraction • Analysis and preparation of final report.		

COURSES / MODULE TEMPLATE

NOS /Module: Demonstrate the project, planning, & scheduling by using primavera.

NOS /Module Code: MSME/PDSPM/09

Outcomes:

After completion of course Student should be able to

- Demonstrate the concept of project, planning, & scheduling by using primavera software & determining the types of relationships, calendar & activities etc.

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 0 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**Primavera**	After completion of unit Student should be able to • Demonstrate the concept of project, planning, & scheduling by using primavera software & determining the types of relationships, calendar & activities etc.	**Basic Introduction of CPM scheduling :** • Project planning • Scheduling fundamentals • Critical path method **Introduction to CPM scheduling with primavera :** • basic of primavera & basic navigation and operation • developing and formatting schedules • creating schedule updates **Advance CPM scheduling with primavera :** • Reviewing baseline schedules • Reviewing update schedules • Time impact analysis • Tracking Progress	**60**	**100**

COURSES / MODULE TEMPLATE

NOS /Module: 2D/3D drafting including road C-section/I-section design, estimation.

NOS /Module Code: MSME/PDSPM/10

Outcomes:

After completion of course Student should be able to

- Demonstrate use of CAD in Civil surveying, basic knowledge of operating software & commands, and benefit of civil developments in the surveying process.
- Do 2d &3d drafting /design with AUTOPLOTTER software.
- Demonstration of road C-section & l-section, with complete design and detailing of road section and volume estimation of road section.

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 0 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR Hours	PR Marks
UNIT-I	**Advance Road Design**	After completion of unit Student should be able to • Demonstrate use of CAD in Civil surveying, basic knowledge of operating software & commands, and benefit of civil developments in the surveying process. • Do 2d &3d drafting /design with AUTOPLOTTER software. • Demonstration of road C-section & l-section, with complete design and detailing of road section and volume estimation of road section.	**Auto Plotter & Road Estimator :** • Introduction of infycons soft. Pvt ltd. • History of auto plotter software. • How to open the software. • Introduction of user interface. • 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 • Import from surveying instrument. • Import the excel file format. • General setting of the data. • Sign convention. • Creation of symbols • Define With the help of group& with the help of range, with the help of individual. • Generate automatic contours. • Making of 2D and 3D contours • Generate grid with the polyline. • Generate grid without the polyline. • Create L-section & C-	**60**	**100**

			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. • Basic introduction about road & description of menu bars: • Road section, Road alignment, About chain age in road • main menu bars, Data menu bar, Standard menu bar, draw menu bar, Snap menu bar, Dimension menu bar, Edit menu bar & Report menu bar. • Road section C & L-Section • Report of detailed estimation with hard copy **Open Roads Designer :** • Introduction • Uses • About open roads connect edition • Comprehensive modelling environment • Premier application migrated to open road designer • How to create workspace & work set • How to create new file • Files to be imported in open road designer • Importing ASCII files • How to create contour & triangulations • How to set contour interval • How to show label of contour • How to create point cloud file • How to attach point		

			cloud • How to create contour in point cloud • How to import CAD file • Graphical filter • How to analyse the contour & activate the terrain • How to create geometry • How to set the standards before creating any geometry • How to create horizontal geometry • How to check design standards • How to create vertical geometry • How to make corridor templates • How to assign corridor to geometry • How to provide transitions curve • Superelevation • How to check cross-section • How to check cross-section at a particular station • How to change corridor template • What to do before placing civil cell • Drawing production • How to make cross-section drawing • How to create drawing (sheets) • How to delete boundaries • How to generate report		

COURSES / MODULE TEMPLATE

NOS /Module: Explain Material Testing equipment for soil, aggregate, bitumen and steel.

NOS /Module Code: MSME/PDSPM/11

Outcomes:

After completion of course Student should be able to

- Explain Different Material Testing Equipments
- Demonstrate different Tests for soil testing
- Demonstrate different Tests for aggregate testing
- Demonstrate different Tests for bitumen testing
- Demonstrate different Tests for steel testing

THEORY HOURS: 30 PRACTICAL HOURS: - 60 THEORY MARKS: 100 PRACTICAL MARKS: - 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH Hours	PR Hours	TH Marks	PR Marks
UNIT-I	**Material Testing**	After completion of unit Student should be able to • Explain Different Material Testing Equipments • Demonstrate different Tests for soil testing • Demonstrate different Tests for aggregate testing • Demonstrate different Tests for bitumen testing • Demonstrate different Tests for steel testing	**Material Testing :** • Tensile Test • Compression Test • Bend Test • Abrasion Test • Aggregate Impact Value Test • Crushing Test • Flakiness & Elongation Test • Specific Gravity of Aggregate • Flow Table Test • Rebound Hammer • California Bearing Ratio Test • Liquid Limit & Plastic Limit test • Permeability Test • Infrared Moisture Test • Soil Cone Penetrometer Test • Soil Swelling Test • Compaction Test • Relative Density Test • Triaxial Test • Marshal Stability Test • Bitumen Softening Test • Bitumen Extractor Test • Pull-out Compression Test • Field Dry Density & Maximum Dry Density Test • Relative Density Test • Tile Abrasion Test • Cement Consistency Test	**30**	**60**	**100**	**100**