

# Module Descriptions

**Department of Mechanical Skills**

**Computer Aided Drafting and Design Skills**

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**Department of Mechanical Skills**

**Computer Aided Drafting and Design Skills**

**2009**





# DEGREE PLAN

## Computer Aided Drafting & Design Skills (CADD)

### Level 1

Serial	Module Code	Module Name	Contact Hours
1	CADD119	Basic 2D AutoCAD	64
2	CADD120	Basic 3D AutoCAD	56
3	CADD121	Basic 2D MicroStation	64
4	CADD122	Advanced 2D Microstation	56
5	ENGC102	English Communication 1	24
<b>TOTAL HOURS</b>			<b>264</b>

### Level 2

Serial	Module Code	Module Name	Contact Hours
1	CADD223	Advanced 3D AutoCAD	64
2	CADD224	Basic 3D MicroStation	56
3	CADD225	Advanced 3D MicroStation	64
4	CADD226	Process Piping CADD Applications 1	56
5	ENGC203	English Communication 2	24
<b>TOTAL HOURS</b>			<b>264</b>

### Level 3

Sr.	Module Code	Module Name	Contact Hours
1	CADD327	Mechanical CADD Applications 1	72
2	CADD328	Architectural CADD Applications 1	72
3	CADD329	Process Piping CADD Applications 2	96
4	TRWT304	Technical Report Writing 1	24
<b>TOTAL HOURS</b>			<b>264</b>

### Level 4

Sr.	Module Code	Module Name	Contact Hours
1	CADD430	Mechanical CADD Applications 2	88
2	CADD431	Architectural CADD Applications 2	88
3	CADD432	Pipe Drafting & Design	64
4	TRWT405	Technical Report Writing 2	24
<b>TOTAL HOURS</b>			<b>264</b>

### Coop (15 Weeks)

Sr.	Module Code	Module Name	Equivalent Contact Hours
1	CADD533	Cooperative Training Program	<b>128</b>

Prerequisite —

Level 1

Contact Hours: 64

**Module Description**

This course is designed to provide a thorough grounding in AutoCAD. It covers the basic Skills to quickly guide students with the use of AutoCAD in their work. Students will Learn many CAD fundamentals and many capabilities in 2D drawings.

**Objectives**

The primary objective of this course is to teach the students the basic commands necessary for professional 2D drawing, using AutoCAD 2006. Hands-on exercises throughout the course explore how to create 2D production drawings.

**Learning Outcomes**

Upon completion of AutoCAD 2006 Fundamentals course, the student will be able to:

- Add text, hatching, and dimensions
- Create a basic 2D drawing using drawing and editing tools.

**Contents**

- Text
- Moving the Origin
- Scale
- Dimensioning

## Pacing Schedule

Contact Hours	Contents	Skills Gained
15	<b>Text</b>	Getting familiar with the AutoCAD Draw commands
	Single line text	
	Multiline text	
	Tabs	
	Indents	
	Line spacing	
	Editing text	
	Background Mask	
	Scale text	
	Coordinate input	
	<i>Exercise</i>	
	Absolute and Relative	
	Direct Distance Entry	
	Inquiry	
	List, Distance, Locate Point	
	Line-weights	
	<i>Exercise</i>	
	Basic Plotting from Model Space	
<i>More Exercises</i>		
15	<b>Assessment 1 (25 %)</b>	
	<b>Moving the Origin</b>	
	Displaying the UCS icon	
	<i>Exercises</i>	
	Polar Coordinate Input	
	Polar Tracking	
	Using Polar Tracking and DDE entry	
	Polar snap	
	Using Polar Tracking and Polar snap	
	<i>Exercises</i>	
	Offset	
	Editing with the Properties Palette	
	<i>Exercises</i>	
	Array, Rectangular & Polar	
<i>Exercises</i>		

Prerequisite —

Level 1

Contact Hours: 64

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
16	<b>Assessment 2 (25 %)</b>	Getting familiar with the AutoCAD Draw commands
	<b>Scale</b>	
	Stretch	
	Rotate	
	<i>Exercises</i>	
	Hatch	
	Gradient Fills	
	Editing hatch	
	<i>Exercises</i>	
	True Associative Dimensioning	
	Grips	
	Linear	
	Baseline	
	Continue	
	Dimension Styles	
	Creating dimension styles	
	Compare two dimension styles	
	Ignore Hatch Objects	
	<i>Exercises</i>	
	Editing dimension text values	
Editing dimension position		
Modify an entire dimension style		
Override a dimension style		
Editing a dimension using properties		
<i>Exercises</i>		
15	<b>Dimensioning</b>	
	Diameter dimensioning	
	Radius dimensioning	
	Angular dimensioning	
	Center mark	
	Creating a dimension sub-style	
	<i>Exercises</i>	
	Aligned dimensioning	
	Leader	
	Special Text Characters	
	Prefix and Suffix	
	<i>Exercises</i>	
	Quick dimensioning	
Editing multiple dimensions		
<i>Exercises</i>		
3	<b>Final Exam (50 %)</b>	

Reference:  
 Exercise Workbook for Beginning AutoCAD, Cheryl R. Shrock.

- Module Description** This course introduces students to the fundamental concepts and work-flows for creating 3D isometric models with AutoCAD.
- Objectives** The primary objective of this courseware is to teach the student powerful tools and techniques for creating and editing 3D isometric models with AutoCAD.
- Learning Outcomes** Upon completion of this course the student will be able to master the commands and defining technical terms related to 3D isometric drawing.
- Contents**
- Match Properties
  - Creating new text styles
  - Display Multiple Drawings
  - Multiline
  - Isometric text

Prerequisite —

Level 1

Contact Hours: 56

## Pacing Schedule

Contact Hours	Contents	Skills Gained
10	<b>Match Properties</b>	
	Creating a Revision Cloud	
	Convert a closed object into a Revision Cloud	
	Revision Cloud Style	
	Wipeout	
	Exercises	
	Arc	
	Exercises	
	Polyline	
	Exercises	
10	<b>Creating new text styles</b>	
	Changing text styles	
	Divide	
	Measure	
	Exercises	
	Serious Business	
	Creating New Layers	
	<b>Assessment 1 (25 %)</b>	
	Loading a Linetype	
	Layer control definitions	
	Model and Layout tabs	
	Viewports	
	How to create a page setup for Paperspace	
	How to plot from Paperspace	
Setting the Pick Box size		
10	<b>Display Multiple Drawings</b>	
	How to configure AutoCAD to display Multiple Drawings	
	How to close a drawing	
	How to change from tiled to cascade	
	Warm up drawings	
	Note to Instructors	
	Exercises 1A, 1B, 1C	
	Review Plotting from Model Space	
	How to customize a toolbar	
	Modify and Rename	
	Create	
	How to Restore the default toolbars	
	How to Customize the Status Bar	
	REDO multiple commands	
	Understanding User Profiles	
	Exercises	
	<ul style="list-style-type: none"> <li>• 2A - Create a new profile</li> <li>• 2B - Importing a User Profile</li> </ul>	
Decimal Setups		

## Pacing Schedule

Contact Hours	Contents	Skills Gained
10	<b>Assessment 2 (25 %)</b>	
	<b>Multiline</b>	
	Justification, Scale and Style <ul style="list-style-type: none"> <li>• Creating</li> <li>• Loading</li> <li>• Editing</li> </ul> Double Line (LT only)	
	<b>Exercises</b> <ul style="list-style-type: none"> <li>• 5A – Create a Multiline Style</li> <li>• 5B – Draw a Multiline</li> <li>• 5C - Trimming a Multiline</li> <li>• 5D – Create a Floor plan using Multiline</li> <li>• 5E – Create a Floor plan using Double Line</li> </ul>	
	<b>Isometric drawings</b> <ul style="list-style-type: none"> <li>• Isometric snap and grid</li> <li>• Isoplanes</li> <li>• Isometric Ellipse</li> </ul>	
	<b>Exercises</b> <ul style="list-style-type: none"> <li>• 6A – Isometric Assembly</li> <li>• 6B – Isometric Object</li> <li>• 6C – Abstract House</li> </ul>	
	Copy, Cut and Paste	
	Draw Order	
	Dimensioning and isometric drawing (Oblique)	
13	<b>Isometric text</b>	
	Exercises <ul style="list-style-type: none"> <li>• 7A – Copy and Paste between two drawings</li> <li>• 7B – Oblique dimensioning</li> <li>• 7C – Abstract House</li> <li>• 7D – Isometric Text</li> </ul>	
	Block <ul style="list-style-type: none"> <li>• Creating</li> <li>• Inserting Attributes</li> </ul>	
	Exercises <ul style="list-style-type: none"> <li>• 8A – Assigning Attributes to a Block</li> <li>• 8B – Assigning Attributes to Multiple Blocks</li> </ul>	
	Editing Attributes	
	Extracting Attributes	
	Excel Files	
	Exercise <ul style="list-style-type: none"> <li>• 9A – Extracting Attributes</li> </ul>	
3	<b>Final Exam (50 %)</b>	

Reference:

Exercise Workbook for Advanced AutoCAD, Cheryl R. Shrock.

Prerequisite —

Level **1**

Contact Hours: **64**

**Module Description** The course will cover the MicroStation 2D software and its applications

**Objectives** This course will develop the basic concept and hands-on skills in the use of MicroStation 2D software. Concentration will be on the 2D exercises for the student to be familiar with MicroStation’s Commands environments and their usage.

**Learning Outcomes** After completing this course the student will be able to use with the MicroStation 2D, He will be able to generate 2D drawings using Microstation software.

- Contents**
- Introduction
  - Snaps & Tentative Points
  - Absolute Coordinates & Grids
  - SmartLine

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
15	<b>Introduction</b>	Getting familiar with the MicroStation V8.9
	Startup	
	Opening New Files	
	The Interface Screen	
	Settings/Dialog Boxes	
	Models (V8.9)	
	Saving Designs	
	Lines, Circles, & View Controls	
	Using the Mouse	
	Opening Tool Boxes	
	Floating Tool Boxes	
	View Control Tools	
	Help Options	
	Selecting & Deleting Elements	
	Single Elements	
	Multi-Elements	
	Power Selector	
	Deleting Elements	
	Undo and Redo	
<b>Assessment 1 (25 %)</b>		

## Pacing Schedule

Contact Hours	Contents	Skills Gained
15	<b>Snaps &amp; Tentative Points</b>	
	Keypoint Snap Mode	
	AccuSnap (V8)	
	Mouse Button Assignments	
	Snaps & Locks Settings Box	
	Snapping to Elements	
	Snap Setting Methods	
	Element Keypoints	
	Other Snap Modes	
	Snap Overrides	
	"Cycling" Through Snap	
	Points	
	Tentative Points/Coordinates	
	Third Party Solutions	
	Design Plane & Working Units	
	The Design Plane	
	Working Units	
	Entering Dimensions	
	Angle Input	
	AccuDraw	
	Activating AccuDraw	
	AccuDraw's Compass	
	Drawing Plane Coordinates	
	Keyboard Shortcuts	
	Circles and AccuDraw	
	Recalling Previous Values	
	Constraining Data Points	
	Relocating Compass Origin	
	Shortcut Snap Modes	
	Unit Roundoff	
Popup Calculator		
AccuDraw Shortcuts List		
<b>Assessment 2 (25 %)</b>		

Prerequisite —

Level 1

Contact Hours: 64

## Pacing Schedule

Contact Hours	Contents	Skills Gained
15	<b>Absolute Coordinates &amp; Grids</b>	
	Data Point Key-In Box	
	Absolute (XY=) Key-In	
	Delta & Distance Key-Ins	
	Using the Grid	
	Polygons	
	Place Block Tool	
	Place Shape Tool	
	Place Orthogonal Shape Tool	
	Place Regular Polygon Tool	
	Arcs and Ellipses	
	Arc Properties	
	Place Arc Tool	
	Center Method	
	Edge Method	
	Ellipse Tools	
Isometric Ellipse		
Arc Editing Tools		
16	<b>SmartLine</b>	
	Setting SmartLine Options	
	SmartLine Vertex Types	
	Smartline's Options	
	Element Symbology	
	Levels	
	Adding Color to Elements	
	Adding Line Style to Elements	
	Adding Line Weight	
	Element Attributes Settings	
	Setting Fill Color	
	Level Symbology	
	Matching Element Attributes	
	Modifying Elements Attributes	
	Advanced Selection Sets	
	Building Fences	
	Copying with a Fence	
	Moving with a Fence	
	Copying with Shape Mode	
	Additional Fence Operations	
Graphic Groups		
Selecting by Attributes		
Selecting by "Select All"		
3	<b>Final Exam (50 %)</b>	

Reference: MicroStation V8.9 Training Manuals

2D Level 1

2D Level 2

3D Level 3

**Module Description** The course will cover the MicroStation 2D software and its applications

**Objectives** This course will develop the advance usage and hands-on skills in the use of MicroStation Software applications. Concentration will be on the practical exercises for the student to be familiar with MicroStation's Commands environments and their usage.

**Learning Outcomes** After completing this course the student will be able to master the commands and defining technical terms of 2D Microstation and its applications.

- Contents**
- Manipulate Tools
  - Inquiry Tools
  - Plotting and Printing
  - Reference Files

### Pacing Schedule

Contact Hours	Contents	Skills Gained
15	<b>Manipulate Tools</b>	
	Copy and Move Tools	
	Using the Clipboard	
	Moving Quickly	
	Move Parallel Tool	
	Scale Tool	
	Rotate Tool	
	Mirror Tool	
	Align Elements by Edge Tool	
	Construct Array Tool	
	Modify Tools	
	Element Selection Tool	
	Modify Element Tool	
	Extend Line Tool	
	Two Lines to Intersection	
	Trimming Elements	
	Insert & Delete Vertex Tools	
	Construct Circular Fillet Tool	
	Construct Chamfer Tool	
	Editing with Fences	
	Stretch & the Copy Tool	
Stretch & the Scale Tool		
Stretch & the Rotate Tool		
Manipulate Fence Contents		
Delete Fence Contents Tool		
Clip and Copy Modes		
	<b>Assessment 1 (25 %)</b>	

Prerequisite —

Level 1

Contact Hours: 56

## Pacing Schedule

Contact Hours	Contents	Skills Gained
15	<b>Inquiry Tools</b>	
	Element Information	
	Measuring Tools	
	Annotation	
	Setting Text Attributes	
	Placing Text	
	Text Display	
	Plotting & Text Height	
	Text Tools	
	Character Mapping	
	Text Styles (V8)	
	Dimensioning	
	Dimension & Text Settings	
	Dimension Settings	
	Dimension Element Tool	
	Dim. Size with Arrow & Stroke	
	Dealing with Small Dimensions	
	Changing Dimension Settings	
	Modify Element Tool	
	Associative Dimensions }	
	Editing Dimension Text	
	Angular Dimensions	
	Radial Dimensions	
Using the Text Note Tool		
Dimension Styles (V8)		
<b>Assessment 2 (25 %)</b>		

## Pacing Schedule

Contact Hours	Contents	Skills Gained
13	<b>Plotting and Printing</b>	
	Preparing the Drawings	
	Selecting Elements to Plot	
	Plot Setup – English Units	
	Plot Setup – Metric Units	
	Plot Output Options	
	Plotter Driver Files	
	Key-Ins	
	Key-in Dialog Box	
	Finding Key-In Sequences	
	Direct Key-in Entry	
	Escape Key & Docking	
	Advanced AccuDraw	
	Adding Shortcuts	
	Entering Command Lines	
	Naming Shortcut Key-Ins	
	AccuDraw & Orthographies	
	AccuDraw Settings Menu	
	Advanced Dimensioning	
	Insert and Delete Vertex	
	Dimension Associations	
	Dimensions & Rotated Views	
	Dimension Styles (V8)	
Geometric Tolerances		
Advanced Annotation		
Placement Methods		
Text Nodes		

Prerequisite —

Level 1

Contact Hours: 56

## Pacing Schedule

Contact Hours	Contents	Skills Gained
10	<b>Reference Files</b>	
	New Design Files	
	Referencing a Title Block	
	Modifying Reference Files	
	Adding Text to References	
	Copying Elements	
	Additional Settings and Tools	
	Cells	
	Cell Libraries	
	Placing Cells	
	Placing Shared Cells	
	Using the Cell Selector	
	Other Cell Placement Tools	
	Creating Cells and Libraries	
	Changing Cell Contents	
	Using the Replace Cells Tool	
	More Cell Information	
	Cell Exercise	
	Tags	
	Understanding Tag Organization	
Editing Tags		
Creating Tag Set Libraries		
Change Tags Tool		
Generating Tag Data Reports		
Tags (Text)		
Complex Elements		
Using SmartLine		
Creating Complex Chains		
3	<b>Final Exam (50 %)</b>	

Reference:

MicroStation V8.9 Training Manuals

2D Level 1

2D Level 2

3D Level 3

**Module Description** English Communication 1 is a module for level 1 students of specialization program, as part of the English communicative competence requirement for their diploma. The module is built around a communicative competency-based program that focuses on general English language skills and workplace competencies.

- Objectives**
- To help students build on and enhance EL proficiency achieved at level 4 of BSEL 406.
  - To help them achieve target language competencies required at work.
  - To help them learn and practice the same competencies for job success.

- Learning Outcomes** At the end of the course the students will be able to:
- Illustrate points and express preferences.
  - Listen to and speak about job safety and team work.
  - Participate effectively in meetings.
  - Tell about cause and effect.
  - Express disapproval, make counter-argument, conclude, compare and contrast statements

- Contents** Understanding Company Benefits
- Employees' Rights
  - Job Safety
  - Teamwork
  - Meetings and Minutes
  - Tools and Supplies
  - Unions and Employment Contracts
  - Using Business Machines
  - Self-Employment

Prerequisite **BSEL 406**

Level **1**

Contact Hours: **24**

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
3	Understanding Company Benefits	Illustrating points and express preferences using appropriate words and phrases
3	Employees' Rights	Describing events chronologically and telling about past situations using past perfect tense
<b>Quiz 1</b>		
3	Job Safety	Predicting consequences using past simple present and past
3	Teamwork	Telling about tasks and predicting consequences using causative verbs
<b>Midterm</b>		
3	Meetings and Minutes	Expressing indifference and disapproval and indicating order and sequence using unreal conditional with 'would' and 'could'
3	Tools and Supplies & Unions and Employment Contracts	Persuading and explaining using 'could have', 'would have' and 'however'
<b>Quiz 2</b>		
3	Using Business Machines	Talking about the future and inferring using passive simple future
3	Self-employment	Concluding, comparing and contrasting using 'might have', 'as---as'.
<b>Final Examination</b>		

Reference: Put English to Work , Level 5 by Sandra Linn

**Module Description** The course will cover the AutoCAD 3D software and its applications.

**Objectives** This course will develop the advanced hands-on skills in the use of AutoCAD 3D software applications. Concentration will be on the practical exercises for the student to be familiar with AutoCAD's Commands and their usage.

**Learning Outcomes** Upon completion of this course the student will be able to master the commands and defining technical terms related to 3D solid drawings and its applications.

- Contents**
- Design Center
  - Introduction to 3D
  - Polyline "Join" option
  - Plotting Multiple views
  - PROJECTS

Prerequisite **CADD120**Level **2**Contact Hours: **64****Pacing Schedule**

Contact Hours	Contents	Skills Gained
10	<b>Design Center</b>	
	Drag and Drop Hatch Patterns	
	Drag and Drop Layouts, Text Styles, etc.	
	DC Online	
	Tool Palettes	
	Exercises	
	<ul style="list-style-type: none"> <li>• 10A – Inserting Blocks from one drawing to another.</li> <li>• 10B – Inserting Symbols from the AutoCAD today library.</li> <li>• 10C – Inserting a hatch pattern from the Design Center.</li> <li>• 10D – Create a Tool Palette.</li> </ul>	
	External Referenced drawings (XREF)	
	<ul style="list-style-type: none"> <li>• Inserting</li> <li>• Manager</li> <li>• Xbind</li> </ul>	
	Clipping an External Referenced drawing	
	<ul style="list-style-type: none"> <li>• Clipping options</li> </ul>	
	Editing an External Referenced drawing	
	Convert an object to a Viewport	
	Creating Multiple Viewports and Multiple Xrefs	
	Non-continuous Linetype scales within Viewports	
	Exercises	
	<ul style="list-style-type: none"> <li>• 11A – Xref Multiple Drawings</li> <li>• 11B – Creating Multi-scaled views</li> <li>• 11C – Unload, Reload and Detach an Xref drawing</li> <li>• 11D – Clipping an External Reference</li> </ul>	
	Ordinate dimensioning	
	<ul style="list-style-type: none"> <li>• Creating</li> <li>• Jog</li> <li>• Qdim and ordinate</li> </ul>	
	Alternate units	
	Tolerances	
	Geometric tolerances	
	Geometric tolerances and Qleader	
	Datum feature symbol	
	Datum triangle	
	Typing Geometric Symbols	
	Exercises	
<ul style="list-style-type: none"> <li>• 12A – Ordinate dimensioning</li> <li>• 12B – Dual dimensioning</li> <li>• 12C – Deviation &amp; Symmetrical</li> <li>• 12D – Limits</li> <li>• 12E – Geometric tolerances</li> </ul>		

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
20	<b>Introduction to 3D</b>	
	Viewing a 3D model	
	Hiding Lines	
	Wireframe model	
	Surface model	
	Solid model	
	<b>Assessment 1 (25 %)</b>	
	Exercises	
	<ul style="list-style-type: none"> <li>• 13A – Create a Wireframe Model</li> <li>• 13B – Create a Surface Model</li> </ul>	
	Constructing Solid Primitives	
	<ul style="list-style-type: none"> <li>• Box, Sphere, Cylinder, Cone, Wedge, Torus</li> </ul>	
	Exercises	
	<ul style="list-style-type: none"> <li>• 14A – Create 4 solid Boxes</li> <li>• 14B – Create a solid Sphere</li> <li>• 14C – Create 3 solid Cylinders</li> <li>• 14D – Create 2 solid Cones</li> <li>• 14E – Create 3 solid Wedges</li> <li>• 14F – Create 3 solid Torus'</li> </ul>	
	Understanding the UCS	
	Moving the UCS	
	Rotating the UCS	
	New direction for Z axis	
	Drawing with two viewports	
	Plan View	
	Boolean Operations	
<ul style="list-style-type: none"> <li>• Union</li> <li>• Subtract</li> <li>• Intersection</li> <li>• Exercises</li> <li>• 15A – Subtract</li> <li>• 15B – Union</li> <li>• 15C – Moving the UCS</li> <li>• 15D – Assembling 3D solids</li> </ul>		
Extrude		
Region		
<b>Assessment 2 (25 %)</b>		

Prerequisite **CADD120**

Level **2**

Contact Hours: **64**

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
15	<b>Polyline "Join" option</b>	
	Exercises <ul style="list-style-type: none"> <li>• 16A – Extrude</li> <li>• 16B – Extrude with taper</li> <li>• 16C – Extrude along a Path</li> <li>• 16D – Extrude a Region</li> <li>• 16E – Join and Extrude a Region</li> </ul>	
	3D Operations <ul style="list-style-type: none"> <li>• Mirror</li> <li>• Rotate 3D</li> <li>• Align</li> <li>• 3Darray</li> </ul>	
	Exercises <ul style="list-style-type: none"> <li>• 17A - Mirror 3D</li> <li>• 17B – Rotate 3D</li> <li>• 17C – Align</li> <li>• 17D – 2D Array</li> <li>• 17E – 3D Array – Rectangular</li> <li>• 17F – 3D Array – Polar</li> </ul>	
	Solid edit <ul style="list-style-type: none"> <li>• Extrude faces</li> <li>• Move faces</li> <li>• Offset faces</li> <li>• Delete faces</li> </ul>	
	Exercises <ul style="list-style-type: none"> <li>• 18A – Extrude faces</li> <li>• 18B – Move faces</li> <li>• 18C – Offset faces</li> <li>• 18D – Delete faces</li> </ul>	
	Revolve	
	Slice	
	Section	
	Exercises <ul style="list-style-type: none"> <li>• 19A – Revolve</li> <li>• 19B – Slice</li> <li>• 19C – Section</li> <li>• 19D – Hatch the Section</li> </ul>	

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
16	<b>Plotting Multiple views</b>	
	How to control the hidden line plot	
	How to plot with a shade view	
	Dimensioning Multiple views	
	Create a Table	
	How to Insert a Table	
	How to modify an existing Table	
	How to Create a Field	
	How to Update a Field	
	How to Edit a Field	
	Exercises	
<ul style="list-style-type: none"> <li>• 21A – Create a Table</li> <li>• 21B – Draw a Table</li> <li>• 21C – Modify an existing Table</li> <li>• 21D – Add Fields to an existing Table</li> <li>• 21E – Update a Field</li> </ul>		
PROJECTS		
<ul style="list-style-type: none"> <li>• Architectural</li> <li>• Electro-mechanical</li> <li>• Mechanical</li> </ul>		
3	<b>Final Exam (50 %)</b>	

Reference:

Exercise Workbook for Advanced AutoCAD, Cheryl R. Shrock.

Prerequisite **CADD122**

Level **2**

Contact Hours: **56**

**Module Description** The course will cover the MicroStation 3D software and its applications

**Objectives** This course will develop the basic concept and the advance usage hands-on skills in the use of MicroStation 3D software applications. Concentration will be on the practical exercises for the student to be familiar with MicroStation's Commands environments and their usage.

**Learning Outcomes** After completing this course the student will be able to master the commands and defining technical terms related to the mentioned software applications.

- Contents**
- Patterning (Hatching)
  - AccuDraw in 3D
  - Utility Tools
  - Convert to 3D

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
15	<b>Patterning (Hatching)</b>	
	Multi-Lines	
	Placing Multi-Lines	
	Using Multi-Lines	
	Editing Wall Junctions	
	Custom Line Styles	
	Curves	
	Curve Tools Locations	
	Place Point or Stream Curve	
	B-Spline Curves	
	Points	
	Dimension Style	
	Miscellaneous Items	
	AutoCAD Workmode	
	Data Cleanup	
	Models and Views	
	<b>Assessment 1 (25 %)</b>	

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
15	<b>AccuDraw in 3D</b>	
	Define Compass Orientations	
	View Compass Orientations	
	Design Cube Orientations	
	ACS Orientations	
	3d Primitive Tools <ul style="list-style-type: none"> <li>• Place Slab</li> <li>• Place Sphere</li> <li>• Place Cylinder</li> <li>• Place Cone</li> <li>• Place Torus</li> <li>• Place Wedge</li> </ul>	
	Standard Editing Tools	
	Exercises	
	Extrude	
	Construct Revolution	
	Extrude Along a Path	
	Shell Solid	
	Thicken to Solid	
	Modify Solid	
	Remove Faces and Heal	
	Taper Solid	
	Boolean Construct Union	
	Boolean Construct Intersection	
	Boolean Construct Difference	
	Cut Solid	
	Fillet Edges	
	Chamfer Edges	
	Edit 3d Primitive	
Exercises		
<b>Assessment 2 (25 %)</b>		

Prerequisite **CADD224**Level **2**Contact Hours: **64****Pacing Schedule**

Contact Hours	Contents	Skills Gained
10	<b>Utility Tools</b>	
	Align Faces	
	Change SmartSolid Display	
	Extract Faces or Edges	
	Intersect Surface/Solid	
	Construct Facet	
	Free-Form Surfaces	
	B-Spline Curves	
	3d Surface Display	
	Surface by Section or Network	
	Surface by Edges	
	Place Free-Form Surface	
	Exercise	
	Sweeps, Projection, Fillet Surfaces	
	Construct Skin/Solid Surface	
	Sweep Along Two Traces	
	Construct Helical Surface	
	Offset Surface	
Construct Trim		
13	<b>Convert to 3D</b>	
	Construct Stitch	
	Untrim Surface	
	Change to Active Surface	
	Split Surface	
	Extend Surface	
	Rebuild Surface	
	2D/3D Cells, & Patterning	
	Import/Export 2D/3D Designs	
	Cells in 3D	
	Patterning in 3D	
	Perspective Views	
	Basic Perspective Layouts	
Change View Perspective Tool		
3	<b>Final Exam (50 %)</b>	

Reference:

MicroStation V8.9 Training Manuals

2D Level 1, 2D Level 2, 3D Level 3

Prerequisite **CADD224**Level **2**Contact Hours: **64****Module Description**

This course explores MicroStation's 3D capability in detail and provides detailed coverage of the most popular concepts and tools in MicroStation's 3D environment, including 3D Primitives, 3D view controls. The course includes discussions of drawing composition and an introduction to MicroStation rendering, including lighting effects, camera setup and applying materials.

**Objectives**

This course will develop the advance usage on hands-on skills in the use of MicroStation Software applications. Concentration will be on the practical exercises for the student to be familiar with MicroStation's Commands environments and their usage.

**Learning Outcomes**

After completing this course the student will be able to master the commands and defining technical terms related to the mentioned software applications.

**Contents**

- Lights & Camera Settings
- Advance Rendering Setup
- Ray Trace, Radiosity, & Particle Trace
- Solar Studies & Flythrough

Prerequisite **CADD224**Level **2**Contact Hours: **64****Pacing Schedule**

Contact Hours	Contents	Skills Gained
20	<b>Lights &amp; Camera Settings</b>	
	Basic Rendering Methods	
	Lighting Types	
	Placing Lights	
	Area Lights	
	Saving Rendered Views	
	Advanced Camera Settings	
	Material Assignments	
	New Base Drawing	
	Material Options and Settings	
	Material Definitions	
	Color/Level Material	
	Assignment	
	<b>Assessment 1 (25 %)</b>	
	Attribute Material Assignment	
Procedural Textures		
Viz Enhancement		
20	<b>Advance Rendering Setup</b>	
	Import House Design	
	3D Cells Creation	
	Wall and Ceiling Materials	
	Window Insertion	
	Exterior Finishes	
<b>Assessment 2 (25 %)</b>		
21	<b>Ray Trace, Radiosity, &amp; Particle Trace</b>	
	Interactive vs. Photo-Realistic	
	Photo-Realistic Methods	
	Ray Trace Method	
	Radiosity Method	
	Distant Lights & Sky Openings	
	Environmental Maps	
Distance Cuing		
3	<b>Final Exam (50 %)</b>	

Reference:

MicroStation V8.9 Training Manuals

2D Level 1

2D Level 2

3D Level 3

Prerequisite **CADD223, 225**Level **2**Contact Hours: **56**

**Module Description** This course will cover piping terminology, pipe manufacture, piping fittings, piping flanges, valves, piping symbols.

**Objectives** This course develops basic knowledge in Process Piping applications using AutoCAD and MicroStation software.

**Learning Outcomes** After completing this course the student will be able to:

- Use conventional piping terminology.
- Identify and describe common pipe fittings, pipe flanges and valve types.
- Identify, describe and select common pipe symbols.

**Contents**

- Piping Terminology.
- Piping Fittings.
- Piping Flanges.
- Reviewing and Exercises.

### Pacing Schedule

Contact Hours	Contents	Skills Gained
10	Piping Terminology	Familiarization conventional piping terminology.
	Pipe Manufacture	
12	Assessment 1 (25 %)	
	Piping Fittings	
	Exercises	
16	Assessment 2 (25 %)	
	Piping Flanges	
	Reviewing and Exercises	
3	Final Exam (50 %)	

Reference:  
Process piping hand out.  
Piping Guide.

Prerequisite **ENG 102**Level **2**Contact Hours: **24****Module Description**

English Communication 2 is a module for level 2 students of specialization program that builds on English Communication 1 as part of the communicative competence requirement for their diploma. The module is built around a communicative competency-based program that focuses on communication skills and workplace competencies.

**Objectives**

- To consolidate the students' communicative competence achieved at level 1 of the skill program.
- To develop language skills, document literacy, critical thinking and problem solving in workplace situations.
- To develop purposeful use of language in realistic contexts and communicative competence.

**Learning Outcomes**

At the end of the course the students will be able to:

- Check assumptions, express values and understand social systems
- Express wishes and confirming conjectures
- Summarize, bargain and predict things
- Analyze and express values and judgments, negotiate and talk about causes and effects.

**Contents**

- Career Planning and Self-Assessment
- Taxes and Tax Forma
- Rights, Responsibilities and Benefits.
- Performance Reviews
- Health Problems on the Job
- Emergency Procedures
- Scheduling and Budgeting
- Using Computers
- Job Promotions

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
3	Career Planning and Self-Assessment	Checking assumptions, expressing values and analyzing using tag questions and appropriate noun clauses
3	Taxes and Tax forms	Paraphrasing and confirming conjectures using past subjunctive and direct speech
<b>Quiz 1</b>		
3	Rights and Responsibilities	Summarizing, bargaining and predicting using future perfect and future conditional
3	Performance Reviews	Reporting information and complimenting using passive simple future and passive present perfect
<b>Midterm</b>		
3	Health Problems on the Job	Predicting and analyzing using future perfect continuous.
3	Emergency Procedures	Expressing values, requesting information and predicting consequences using present continuous conditional and embedded questions.
<b>Quiz 2</b>		
3	Scheduling and Budgeting	Compromising and negotiating using clauses with 'although' and 'unless'.
3	Using Computers and Job Promotions	Talking about possibility, cause and effect and expressing judgment using causative and past unreal conditional
<b>Final Examination</b>		

Reference: Put English to Work – Level 6 by Sally Gearhart

Prerequisite **CADD223, 225**

Level **2**

Contact Hours: **72**

**Module Description** This course will cover Mechanical terminology, manufacture drawings and working drawings, in Orthographical drafting in 2D environment.

- Objectives**
- This course develops Basic of Orthographical drafting using AutoCAD and MicroStation, and understanding the sectioning and auxiliary views.

**Learning Outcomes** Upon completion of this course the student will be able to:

- Draw Mechanical parts in Multiview projection.
- Identify and describe parts in Drawings.
- Gain the techniques of visualizations of parts.

- Contents**
- Orthographic Projection Part 1
  - Orthographic Projection Part 2
  - Sectioning
  - Auxiliary Views

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
18	<b>Orthographic Projection Part 1</b>	Familiarization with Orthographies Views Projection
	Monge's Plans of Projection	
	Three Rules for Orthographies Views	
	Selecting the Best and Necessary Views	
	Planar Surfaces <ul style="list-style-type: none"> <li>• Surfaces Parallel to a Projection Plane</li> <li>• Inclined Surfaces</li> <li>• Oblique Surfaces</li> </ul>	
	Nonplanar Surfaces	
	Reading Orthographies Views	
	Surfaces-by- Surfaces Technique	
	Point-by-Point Technique	
	Cut-by-Cut Technique	
	Developing Planar and Nonplanar Surfaces	
	Developing Hidden Linework	
	Priority of Linework	
	Practice in Reading and Developing Views	
	One-View and Tow-View Descriptions of Views	
	First-Angle Projection and Third-Angle Projection	
	Exercises	
<b>Assessment 1 (25 %)</b>		

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
18	<b>Orthographic Projection Part 2</b>	Familiarization with Orthographies Views Projection
	Partial Views	
	Removed Views	
	Incomplete Views	
	Conventional Revolutions	
	Left-hand and Right-hand Parts	
	Machined Holes	
	Cylindrical Intersections	
	Fillets, Rounds, and Runouts	
	<b>Computer Graphics In Action</b>	
	Exercises	
	<b>Assessment 2 (25 %)</b>	
17	<b>Sectioning</b>	Understanding the impotents of sectioning to clarify the work piece
	Sectional Views and Cutting Plans	
	Offset Sections	
	Full Sections	
	Half Sections	
	Revolved Sections and Removed Sections	
	Broken-Out Sections	
	Ribs, Webs and Spokes in Section	
	Aligned Sections	
	Assembly Sections	
	Conventional Breaks in Sections	
	Exercises	
16	<b>Auxiliary Views</b>	
	The Glass Box and the Auxiliary Viewing Direction	
	Development of a primary auxiliary View of an Inclined Surface	
	Development of a primary auxiliary View of an Inclined Surface with a Curving Boundary	
3	Development of a Secondary Auxiliary View of an Oblique Surface	
	<b>Final Exam (50 %)</b>	

Reference:

Modern Engineering Graphics &amp; Design

Prerequisite **CADD223, 225**Level **3**Contact Hours: **72**

**Module Description** The course will cover Architectural designing.

**Objectives** This course develops:

- Basic knowledge in architectural applications in AutoCAD and Microstation
- Familiarization of drawing fundamentals through project design exercises.

**Learning Outcomes** After completing this course the student will be able to:

- Read and understand a house or building plan with its abbreviations, symbols, and legends.
- Define common technical terms in architecture.
- Create house plan, elevations, and 3d perspective drawings.

**Contents**

- Architectural Designing.

## Pacing Schedule

Contact Hours	Contents	Skills Gained
	<b>Architectural Designing</b>	
8	Architectural Terms, Materials, Codes and Zoning	Applications of AutoCAD and MicroStation in 2d
	Illustrations ( fixtures) Orthographic, Oblique, Axonometric(isometric and trimetric)	
	Perspective Drawings	
8	Title Blocks and Borders Set up, Measurement System, Conversion Problems, Dimensioning	
	Alphabet of Lines	
8	Plotting Traverse	
	<b>Assessment 1 (25 %)</b>	
	Site Development Plan, Plat Survey Plan	
	Building Location Plan Perspective	
8	Basic Design ( Bungalow, Two- storey, Split-levels, Multiple Dwellings) Furniture Sizes (window types, door types) Clearances ( bath room, dining, living, bedroom)	
10	Floor Plans	
	<b>Assessment 2 (25 %)</b>	
	Symbols and Notations	
	Reflected Ceiling	
7	Reflected Ceiling Plan	
	Roof Plan	
	Front Elevation ( Facing North )	
7	Right Side Elevation ( Facing East)	
	Left Side Elevation ( Facing West )	
	Rear Elevation ( Facing South )	
7	Sections ( <b>aa</b> and <b>bb</b> )	
	Window Types by Operation	
	Door Types	
6	Stair details	
	Wall details	
	Ceiling Details	
	Toilet and Bath Details	
3	<b>Final Exam (50 %)</b>	

Reference: Architectural Theories and Design (by George S. Salvan, FUAP )  
 Architectural Building Materials and Estimate (by George S. Salvan, FUAP )  
 Architectural Utilities 1, 2, and 3 (by George S. Salvan, FUAP )  
 Architectural and Structural Topics, (by George S. Salvan, FUAP )  
 AEC Drafting Fundamentals, ( Jules Chiavaroli, AIA, NCARB )

Prerequisite **CADD226**Level **3**Contact Hours: **96****Module Description**

This course will cover flow diagram terminology, introduction to process equipment, ISA symbology and controls, mechanical utility flow diagram development and line tagging

**Objectives**

This course develops Familiarization of Process Flow Diagram and Mechanical Flow Diagram Development.

**Learning Outcomes**

After completing this course the student will be able to:

- Use flow diagram terminology.
- Describe typical process plant equipment.
- Identify the factors involved in process design and use correct symbology to develop a process flow diagram.
- Use ISA symbols to indicate process control systems on a process flow diagram.
- Use mechanical or utility flow symbols to convert a process flow diagram to a mechanical flow diagram.
- Apply line tagging procedures to flow diagrams.
- Produce a line list for a mechanical flow diagram.

**Contents**

- Valves.
- Piping Symbols.
- Flow Diagram Terminology
- Introduction to process Equipment
- Process Flow Diagram Development
- ISA Symbology and Controls
- Mechanical Utility Flow Diagram Development
- Line tagging

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
8	Valves	Understanding Process flow diagram and Mechanical flow diagram drawings
8	Piping Symbols	
10	Flow Diagram Terminology	
	Assessment 1 (25 %)	
10	Introduction to process Equipment	
15	Process Flow Diagram Development	
	Assessment 2 (25 %)	
15	Reviewing and Exercises	
10	ISA Zymology and Controls	
10	Mechanical Utility Flow Diagram Development	
7	Line tagging	
3	<b>Final exam (50 %)</b>	

Reference:  
Process Piping hand out  
Piping Guide

Prerequisite —

Level **3**Contact Hours: **24**

**Module Description** Technical Report Writing 1, is offered to students to improve their English language proficiency in writing short technical reports which is part of their diploma requirement. The module integrates different methods of report writing with the basic mechanics organized writing.

- Objectives**
- To consolidate and extend the writing skills they have learned in ENGC 203.
  - To help technical student write short reports involving technical expression.

- Learning Outcomes** After completing this module the student will be able to:
- use writing as a means of communication in work environments
  - write short reports involving technical expression
  - organize information using the mechanics of writing

- Contents**
- Introduction to Technical Report Writing
  - Precaution Instructions
  - Operational Instructions
  - Progress Reports
  - Accident Reports
  - Industrial Visit Reports

### Pacing Schedule

Contact Hours	Contents	Skills Gained
3	Introduction to Technical Report Writing	Learning the basics of paragraph writing
3	Precaution Instructions	Sequencing precautionary instructions following the rules of writing
<b>Quiz 1</b>		
4	Operational Instructions	Writing operational instructions using the imperative form of verb
<b>Midterm</b>		
5	Progress Reports	Ability to write reports on jobs completed and not completed using present perfect and past simple verb forms
<b>Quiz 2</b>		
5	Accident Reports	Writing short reports on causes and consequences of accidents using past tense verb forms
4	Industrial Visit Reports	Reporting industrial visit experiences using past tense verb forms
<b>Final Examination</b>		

Reference: Technical Report Writing 1 (In-house made)

**Module Description**

## Course Description:

This course will cover Mechanical terminology, manufacture drawings and working

Drawings, in Orthographical drafting in 2D environment.

**Objectives**

## Objectives:

This course develops basics of mechanical elements such as fasteners and welding symbols using AutoCAD and MicroStation.

**Learning Outcomes**

## Learning Outcomes:

After completing this course the student will be able to :  
Model different mechanical elements using either AutoCAD or Microstation softwares.

Identify and describe mechanical parts in Drawings.

**Contents**

## Contents:

Dimensioning.

Fasteners & Mechanical Elements.

Welding symbols & Welding.

Exercises in Working Drawings and Electronic Documentations.

Projects.

Prerequisite **CADD327**Level **4**Contact Hours: **88****Pacing Schedule**

Contact Hours	Contents	Skills Gained
17	<b>Dimensioning</b>	Understanding the Dimension of a work piece
	Terminology	
	Extension and Dimension Lines	
	Basic Dimensioning Principles	
	Dimensioning Layout-Further Details	
	Limited Drawing Space Dimensioning	
	Leaders and Counter-holes Dimensioning	
	Unidirectional and Aligned Values	
	Angular Dimensions	
	Repetitive Dimensioning	
	Coordinate Dimensioning	
	Offset Dimensioning	
	Dimensioning of Special Features	
	A Suggested Procedure for Dimensioning	
Exercises		
15	<b>Fasteners</b>	
	Screws and Bolts	
	Pins and Other Nonthreaded Fasteners	
	<b>Assessment 1 (25 %)</b>	
	Characteristics of Fasteners	
	Dimensions and Size Specifications of Fasteners	
	Nuts	
	Springs	
Exercises		
15	<b>Welding Symbols &amp; Welding</b>	
	Welding Symbols	
	Type of Welding Joints	
	Welding Dimensioning	
	<b>Assessment 2 (25 %)</b>	
18	<b>Exercises in Working Drawings and Electronic Documentations</b>	
	Exercises in Working Drawings	
	Exercises in Electronic Documentations	
20	<b>Projects</b>	Ideas
3	<b>Final Exam (50 %)</b>	

Reference:

Modern Engineering Graphics &amp; Design

**Module Description** The course will cover Structural designs, Electrical, Plumbing, and HVAC.

- Objectives** This course develops:
- Basic knowledge in structural designing using AutoCAD and Microstation
  - Ability on to come up with hidden skills in imaginative arts.

- Learning Outcomes** After completing this course the student will be able to:
- Read and understand a house or building plan with its abbreviations, symbols, and legends.
  - Define common electrical & plumbing terms in architecture.
  - Create 3D drawings and rendering.

- Contents**
- Structural Designing.
  - Electrical.
  - Plumbing.
  - 3D Drawings and Rendering.

Prerequisite **CADD328**

Level **4**

Contact Hours: **88**

**Pacing Schedule**

Contact Hours	Contents	Skills Gained
15	<b>Structural Designing</b>	Applications of AutoCAD & Micro-Station in 2D & 3D.
	Foundation Plan	
	Column Lay-out Plan	
	Floor Framing Plan	
16	Roof Framing Plan	
	Girder Beam, Floor Beam, Roof Beam Details	
	<b>Assessment 1 (25 %)</b>	
	Truss Details	
12	Columns and Footing, and Conc. Slab Details	
	<b>Electrical</b>	
	Customary and Metric Units	
	Electrical Lighting Plan ( Power and Outlet )	
	Schematic and Riser Diagram, Load Schedule	
	Fire Escape Layout	
12	<b>Assessment 2 (25 %)</b>	
	<b>Plumbing</b>	
	Sanitary Drainage Plan, Cold Water Supply Plan	
	Storm Drainage Layout, Isometric Plumbing	
15	Septic Vault Plan and Section	
	<b>3D Drawing and Rendering</b>	
	3D Exterior Composition	
15	Lay out and Plotting	
	<b>Plan Exercises</b>	
	Floor Plans and Elevations	
	Perspective	
3	3d House	
	Review	
	<b>Final Exam (50 %)</b>	

Reference: Architectural Theories and Design (by George S. Salvan, FUAP )  
 Architectural Building Materials and Estimate (by George S. Salvan, FUAP )  
 Architectural Utilities 1, 2, and 3 (by George S. Salvan, FUAP )  
 Architectural and Structural Topics, (by George S. Salvan, FUAP )  
 AEC Drafting Fundamentals, ( Jules Chiavaroli, AIA, NCARB )  
 Illustrated Residential and Commercial Construction, ( Peter A. Mann, micro-press)

Prerequisite **CADD226, 329**Level **4**Contact Hours: **64****Module Description**

This course will present information on the design of an efficient process piping system and code requirements. Sessions on piping system related subjects, such as valves and actuators, pumps, insulation, inspection and maintenance, piping failure etc. are also be presented.

**Objectives**

To provide students with a comprehensive understanding of good piping design practices and piping system maintenance fundamentals.

**Learning Outcomes**

Upon completion of this course the students will be able to:

- Apply the design fundamentals of process piping systems.
- Benefit from the knowledge gained from the course about the role of valves and pumps in the effective operation of process piping systems.
- Select pipes suitable for the fluid flow in your process using the insight gained in the course about the pipe characteristics.
- Conduct more effectively preventive maintenance, inspection, testing and repair of process piping systems.
- Follow the ASME, ANSI and CSA codes and standards in design, maintenance and operations.
- develop the pipe layout using the best practices
- optimize your insulation and heat tracing system

**Contents**

- Codes and Standards & Material Selection.
- Piping System Design, Valves and Actuators.
- Fluid Flow in Pipes& pumps.
- Piping System Layout.
- Flexibility calculation and stress analysis.
- Pipe Insulation and Heat Tracing.
- Periodic In-Service Inspections.
- Piping failure and typical problems.

Prerequisite **CADD226, 329**Level **4**Contact Hours: **64****Pacing Schedule**

Contact Hours	Contents	Skills Gained
8	Codes and Standards & Material Selection	
8	Piping System Design, Valves and Actuators	
	Assessment 1 (25 %)	
8	Fluid Flow in Pipes& pumps	
8	Piping System Layout	
	Assessment 2 (25 %)	
8	Flexibility calculation and stress analysis	
8	Pipe Insulation and Heat Tracing	
8	Periodic In-Service Inspections	
8	Piping failure and typical problems	
3	Final exam (50 %)	

## Reference:

Process piping Drafting & Design, 2nd edition  
 Roy A. Parisher, Robert A. Rhea

**Module Description** Technical Report Writing 2, is offered to students to enhance and build on their proficiency in writing short technical reports which they learnt at level 3. The module integrates less- controlled methods of report writing with practicing the skill of filling out various forms required at workplace.

- Objectives**
- To consolidate and extend the report writing skills they have learned in TRWT 304.
  - To help technical student write resumes, more work related reports, and fill out forms involving technical and general vocabulary.

- Learning Outcomes** After completing this module the student will be able to:
- use writing as a means of communication in work environments
  - fill out forms and write short reports involving technical expression
  - write resumes and work related reports

- Contents**
- Making Descriptive Requisitions
  - Curriculum Vitae
  - Letter Writing
  - Cooperative Training Report
  - Filling out Requisition Forms
  - Filling Work -Related and General Forms

### Pacing Schedule

Contact Hours	Contents	Skills Gained
4	Making Descriptive Requisitions	Making official requests in writing for materials needed at work.
3	Curriculum Vitae	Writing CV's in response to job ads
<b>Quiz 1</b>		
4	Letter Writing	Writing formal cover letters for different jobs
<b>Midterm</b>		
4	Cooperative Training Report	Writing relevant reports on cooperative training to department heads
<b>Quiz 2</b>		
5	Filling out Requisition Forms	Ability to make different requisitions by filling out specific forms
4	Filling out Work-related and General Forms	Ability to fill out different forms - an ability required in real life situations
<b>Final Examination</b>		

Reference: Technical Report Writing 2 (In-house made)