Course Objective	Competencies
1. Learn to export CAM simulations to full machine simulator. Parts are more complex than in CAM Applications 1.	• Export fixtures to appropriate database. • Export stock models to appropriate database. • Export part models to appropriate database. • Set export coordinate systems. • Set Work Coordinate System names and numbers. • Simulate to detect collisions and undesirable cutting conditions.
2. Machine parts of increased complexity on CNC machines	• Set up the stock according to the CAM program. • Set Tool Length Offsets. • Set Work Offsets. • Run a graphic simulation. • Run a dry run. • Cut the part. • Perform a First Article Inspection to confirm part quality.
3. Create lathe operation setups using CAD solid modeling.	• Create proper file folders for lab projects. • Identify the proper fixture to hold the workpiece. • Insert all components of lathe setup in an assembly. • Edit stock to required length.
4. Open lathe setups in CAM and perform manufacturing operations.	• Transform assembly into proper plane for lathe operations. • Ensure part is at proper XYZ origin. • Identify stock and fixture solids for manufacturing. • Adjust machining process for tolerance control.

5. Create multiple mill operation setups using CAD solid modeling	• Create proper file folders for lab projects. • Decide how many operations will be required to manufacture a given part. • Discuss how the result of one operation becomes the stock in the next. • Import fixture CAD models into the CAM file for collision detection. • Create initial stock as a solid.
6. Open mill setups in CAM and perform manufacturing operations	• Transform assembly into proper plane for lathe operations. • Ensure part is at proper XYZ origin. • Identify stock and fixture solids for manufacturing. • Adjust machining process for tolerance control.
7. Perform multi-axis machining	• Recognize parts requiring a multi-axis mill. • Import 4^{th} axis fixtures into CAM system. • Define part volumetric center. • Create initial mill stock as a solid. • Perform indexing operations.