



## Class Topics Summary - Beginner MatrixGold Essentials CAD

*For the topics listed below, the speed at which I can cover this will depend on the size of the group. For a classroom of students, I normally recommend 6 online sessions of 3 hours apiece (or 3 full days in person). For individuals, I recommend 4 online sessions (or 2 full days in person).*

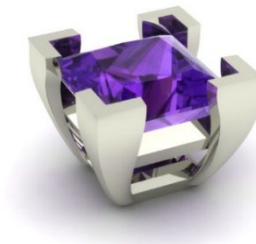
### Part 1

1. Introductions / Explanation of CAD and CAM
2. An Overview of the MatrixGold Interface, and Key Differences
3. Building objects with curves, including
  - Explode, Join, Rebuild, Split, Trim, Fillet and Offset
4. Organizing models with Layers
5. Precision modelling with Snaps and Osnaps
6. Basic transformation commands, including
  - Move, Rotate, Scale, and Mirror
7. Using the Extrude Command



### Part 2

1. Basics of Solid modelling, including
  - Booleans
  - Revolve and Rail Revolve
  - Sweep1
2. Basic Ring Construction
  - Band Rings
  - Solitaire Rings
  - Eternity Bands
3. Preparing a file for Rapid Prototyping
4. Using key dynamic commands such as
  - a. The Ring Rail
  - b. the Profile Placer
  - c. Gemstones
  - d. Dynamic versus classic sweep



### Part 3

1. Review of Strategies for Building Models
  - Review of Strategies
  - Using the Loft command
2. Building your own claw settings
  - Rex Setting
  - Prong Setting
  - Square Setting
3. Building more complex rings
  - Using the 2 Rail Sweep
  - Making a pinched shank
4. Basic Tolerances for Rapid Prototyping







5. Basic Rendering methods
6. Breaking down shapes into simpler commands

## Part 4

1. The Gem on Curve Command
2. Universal Deformation Tools (UDT) and their application
3. Making Chains with Object on Curve
4. Building a Bombe Ring
5. Hollowing out a ring
6. Optional - Pave Stones and Bead Settings on a Surface
7. Optional - Building a Crossover Ring



**Assignment:** Build a CAD model, with render and STL file based on a provided ring design drawing. Tutor to provide feedback on receipt of design. Completion of this assignment is the entry requirement for the next class.

## Class Topics Summary - Intermediate MatrixGold CAD

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### SECTION 1

1. Review of solid modelling strategies
2. Methods of Surface Modelling, including closing open surfaces
3. Network Surfaces
4. Basic Surface Sculpture



### SECTION 2

1. The anatomy of a NURBS surface, and how to control it
  - Sculpting NURBS Control points
  - Shrinking and Untrimming NURBS Surfaces
  - Match/Blend for Curves and Surfaces
2. Building a signet ring (3 methods)
3. 2x Surface inlay techniques
4. 9x Curve on surface strategies
  - Adding inlay on a signet ring
5. Texturing surfaces
  - Flow Along Surface
  - Orient on Surface
  - Splop





## SECTION 3 - Subdivision Modelling (with Rhino 7 SubD)

1. Interface Control
2. Construction via Extruding Primitives
3. Bridge
4. Working with Open Subdivision Surfaces
5. Subdivision Pipe
6. SubD Ring Making techniques
7. Append and Offset SubD
8. Converting from NURBS to Subdivision Surfaces

