I. Introduction to CREO Parametric

- **Overview of CAD/CAM/CAE Concepts:** Understanding parametric design, associative modeling, and feature-based modeling.
- **User Interface and Workspace:** Navigating the CREO interface, managing files, understanding the ribbon, model tree, and various toolbars.
- **Basic Operations:** Getting started with CREO, important terms and definitions, and basic file management.

II. Sketcher Module

- **2D Sketch Creation:** Learning to create and modify 2D sketches.
- **Sketching Tools:** Using various drawing tools like lines, circles, arcs, rectangles, ellipses, splines, etc.
- **Dimensioning and Constraints:** Applying dimensions to sketches and using geometric and dimensional constraints to define sketch behavior.
- **Sketcher Palette and Relations:** Utilizing the sketcher palette for common shapes and understanding sketcher relations.
- **Modifying Sketches:** Techniques for editing, trimming, mirroring, and deleting sketch entities.

III. Part Modeling

- **Base Features:** Creating fundamental 3D features such as:
  - **Extrude:** Adding depth to a sketch.
  - **Revolve:** Creating features by revolving a sketch around an axis.
  - **Sweep:** Sweeping a sketch along a path.
  - **Blend:** Blending between different sketch sections.
  - **Helical Sweep:** Creating helical features.
- **Datum Features:** Creating datum planes, axes, and points for reference in part modeling.
- **Engineering Features:** Applying common engineering features:
  - **Hole:** Creating various types of holes.

    - **Shell:** Hollowing out a part.
    - **Rib:** Adding stiffening ribs.
    - **Draft:** Applying draft angles for molding/casting.
    - **Round (Fillet) and Chamfer:** Rounding edges and chamfering corners.
- **Feature Operations:** Mirroring, patterning (linear, radial, fill patterns), copying, and pasting features.
- **Model Analysis:** Basic tools for analyzing part properties.
- **Design Intent and Parametric Modeling:** Understanding and implementing design intent for robust models.
- **Multibody Design:** Introduction to designing with multiple solid bodies within a single part.

IV. Assembly Design

- **Getting Started with Assembly:** Understanding assembly concepts and approaches (bottom-up and top-down).
- **Assembly Constraints:** Placing and constraining components within an assembly using various constraint types (mate, align, insert, etc.).
- **Interference and Clearance Checks:** Analyzing assemblies for potential interferences and clearances.
- **Exploded Views:** Creating exploded views for assembly documentation.
- **Simplified Representation:** Managing large assemblies using simplified representations.
- **Mechanism Design and Animation:** Basic introduction to defining motion and creating animations of assemblies.

V. Detailing and Drawing Creation

- **Overview of Drafting:** Understanding engineering drawing principles.
- **Creating Drawing Views:** Generating various drawing views (orthographic, isometric, section views, auxiliary views, broken views).
- **Dimensioning and Annotations:** Adding dimensions, notes, symbols, and other annotations to drawings.
- **Bill of Materials (BOM):** Generating and customizing BOM tables.
- **Templates and Formats:** Utilizing drawing templates and formats.
- **Geometric Dimensioning and Tolerancing (GD&T):** Introduction to applying GD&T annotations.

VI. Surface Modeling

- **Basic Surface Creation:** Tools for creating various types of surfaces.
- **Surface Modification:** Operations like trimming, extending, offsetting, merging, and solidifying surfaces.
- **Advanced Surfacing Techniques:** Techniques for creating complex freeform shapes.

VII. Sheet Metal Design

- **Introduction to Sheet Metal:** Understanding sheet metal design principles.
- **Creating Sheet Metal Features:** Adding walls, bends, flanges, cuts, and other features specific to sheet metal.
- **Unfolding and Flattening:** Creating flat patterns for manufacturing.

VIII. Optional/Advanced Topics

Depending on the course level and specialization, a syllabus might also include:

- **Analysis and Simulation:** Introduction to Finite Element Analysis (FEA) within CREO Simulate or CREO Ansys Simulation (structural, thermal analysis).
- **Generative Design:** Exploring generative topology optimization.
- **Additive Manufacturing:** Design considerations for 3D printing.
- **Cabling and Piping:** Creating electrical harnesses and routing pipes.
- **Behavioral Modeling Extension (BMX):** For design optimization based on specific goals.
- **User-Defined Features (UDFs) and Family Tables:** For design automation and managing variations.
- **Data Exchange:** Importing and exporting data between different CAD systems.
- **Project Work:** Applying learned skills to practical design projects.

This syllabus provides a comprehensive overview, and individual courses or training programs may focus on specific modules or offer different depths of coverage.

Are you looking for a syllabus for a specific level (beginner, intermediate, advanced) or a

particular application of CREO (e.g., mechanical design, simulation, manufacturing)?