Course Name: Power Apps from Basic to Advanced
Duration: 10 Days (8 hours per day)

Day 1 – Power Platform & Architecture Foundations

1. Power Platform Overview

- Power Apps, Dataverse, Power Automate architecture
- Licensing overview
- Capacity & storage types
- Default environment misuse

2. Environment Strategy

- Dev / Test / Prod segmentation
- Managed vs Unmanaged
- Tenant governance basics

3. Power Apps App Types

- Canvas vs Model-Driven
- When to use SharePoint vs Dataverse
- Enterprise decision matrix

4. Introduction to Power Fx

- Declarative model
- Variables (Set, UpdateContext, Collections)
- Formula behavior model

Lab 1 – Environment & Setup

1. Create Dev environment
2. Create solution
3. Configure basic DLP policy
4. Create SharePoint list: Service Requests
5. Explore Dataverse tables

Day 2 – Canvas App Fundamentals

1. Create Canvas Apps

- Blank vs From data
- Phone vs Tablet layout
- App settings

2. Controls & Layout

- Labels, Buttons, Inputs
- Forms (Edit / Display)
- Galleries
- Containers & responsive basics

3. Connect to Data

- SharePoint lists
- Dataverse tables

- Data refresh & connections

4. CRUD Operations

- SubmitForm vs Patch
- Defaults()
- Remove()
- Handling SharePoint complex columns

Lab 2 – Employee Service Request App (Basic)

1. Create Canvas App
2. Connect to SharePoint list
3. Build:
    - Home screen
    - New Request screen
    - My Requests screen
4. Use:
    - EditForm
    - SubmitForm
    - Gallery

Day 3 –Advanced Canvas Development

1. Data Filtering & Delegation

- Filter, Search, LookUp
- Delegable vs non-delegable functions
- Data row limits
- Performance design

2. Business Logic

- If(), Switch()
- With()
- Concurrent()
- Text & date functions

3. Navigation & State

- Navigate()
- Passing parameters
- Collections for temporary storage

4. Testing & Monitoring

- Monitor tool
- Formula debugging
- Error handling with IfError()

Day 4 – Dataverse Data Modeling

1. Tables & Columns

- Standard vs Custom tables
- Ownership types

- Column types (Choice, Lookup, File, Image)

2. Relationships

- 1:N and N:N
- Cascading behaviors
- Referential vs parental

3. Advanced Columns

- Calculated columns
- Rollup columns (performance trade-offs)
- Formula columns

4. Data Integrity

- Alternate keys
- Auditing & change tracking

Lab 3 – Dataverse Architecture Design

1. Create Dataverse tables:
    - Service Request
    - Department
    - Priority
2. Create relationships
3. Add:
    - Rollup column (Total Requests per Dept)
    - Calculated SLA column
4. Configure alternate key

Day 5 – Model-Driven Apps

1. Configure Forms

- Main forms
- Tabs & sections
- Quick create forms
- Subgrids

2. Configure Views

- System vs Personal views
- Editable grids
- Lookup views
- Quick find configuration

3. App Designer

- Sitemap configuration
- App segmentation
- Role-based app access

4. Business Process Flows

- Stages & branching
- Cross-table BPF

Lab 4 – Operations Management App

1. Create Model-driven app
2. Add Service Request table
3. Customize:
    - Main form
    - Quick create form
    - Views (Open Requests, High Priority)
4. Create Business Process Flow:
    - Submitted → Approved → Resolved
5. Assign security roles

Day 6 – Advanced Canvas Engineering

1. Component Libraries

- Reusable components
- Input/output properties

2. Responsive Design

- Containers
- Auto layout
- Breakpoint patterns

3. Complex Data Handling

- Many-to-many relationships
- JSON() and ParseJSON()

4. Offline & Performance

- LoadData() & SaveData()
- App startup optimization

Day 7 – Power Apps + Automation

1. Power Automate Integration

- Trigger flow from Canvas
- Pass parameters
- Return values
- Error handling

2. Dataverse Automation

- Triggers
- Business rules

3. Role-Based UI

- User()

4. Bulk Data Patterns

- Batch updates
- Concurrent operations

Lab 5 – Approval Automation

1. Create Power Automate flow:
    - Triggered from Canvas
    - Manager approval

2. Return approval status to app
3. Update Dataverse record

Day 8 – Developer Extensibility (PL-400 Level)

1. JavaScript in Model-Driven Apps

- Client API
- Event handlers
- Debugging

2. Dataverse Web API

- OData queries
- FetchXML
- Query optimization

3. Plugins

- Execution pipeline stages
- Registration tool
- Debugging strategy

4. Custom APIs

- Calling custom APIs from Canvas Apps

Day 9 – PCF & Advanced Customization

1. Power Apps Component Framework

- PCF architecture
- Creating a basic control
- Deploying to Dataverse

2. PCF in Canvas & Model-Driven

- Dataset controls
- Field controls
- Performance considerations

3. Embedded Canvas in Model-Driven

- Hybrid app strategy

Lab 6 – PCF control creation

Day 10 – ALM, DevOps & Governance

1. Solutions & Layering

- Managed vs Unmanaged
- Layering concept
- Patches & upgrades

2. DevOps Strategy

- Source control
- Solution packager
- Build & release pipelines
- Environment variables & connection references

3. Governance

- DLP policies
- Connector classification
- Security role modeling

4. Performance & Capacity Planning

- Dataverse storage
- API limits & throttling
- Indexing basics
- Troubleshooting slow apps

Lab 7 – Deployment Simulation

1. Convert solution to Managed
2. Export from Dev
3. Import into Test environment