ARCH 4 DEV

Growing the skills you need for client success.

BTABoK Version 3.0:
Digital Advantage

This document was prepared by Iasa Global

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Course Outline

Welcome to the Architecture for Developers[1] course! This course is an introduction for those wanting to further pursue an architecture career path and understand some of the key tenets and components of architecture. The course is an introduction to styles, architectural requirements, design by intention, agile architecture concepts and the basis for further study in the field of architecture.

Starting Point

This course focuses on the aha moments for technical staff who want to understand how they become architects and/or deliver valuable architecture. They are concerned with the changes needed to people, processes, and technology. To provide the greatest value, you must be able to move beyond creating solutions to satisfy a number of requirements to advising the customer in technology use for the processes and how people and processes will be impacted and need to change as a result of the changes your solution proposes.

Target Audience

This course was designed as an introduction to architecture elements and as a preparatory step for Iasa Core and then Iasa Associate Courses. It is targeted at mid to senior developers, technologists, and infrastructure and cloud specialists who want to get familiar with architecture and to prepare for the journey to become a fully certified architect. As such, there will be a final presentation at the end of class and a certificate of completion upon delivery. The CITA-Foundation Core course which follows this course is the first full level of certification on an Architects career path. We expect the following roles to consider this course:

- Sr Developers
- Infrastructure
- Cloud
- Operations
- IT Experts

This 12-lesson commitment is given in multiple 'modalities'. The online version will be two lessons per week with workshops in class and some homework. The in-person course is 3-3.5 days, with workshops as a part of the class. Additional self-paced learning materials and templates are provided to help complete defined tasks. The time to complete the self-paced activities will be a maximum of 6-10 hours of your time in addition to class time.

Stakeholders, Customers, and the Client's Customer

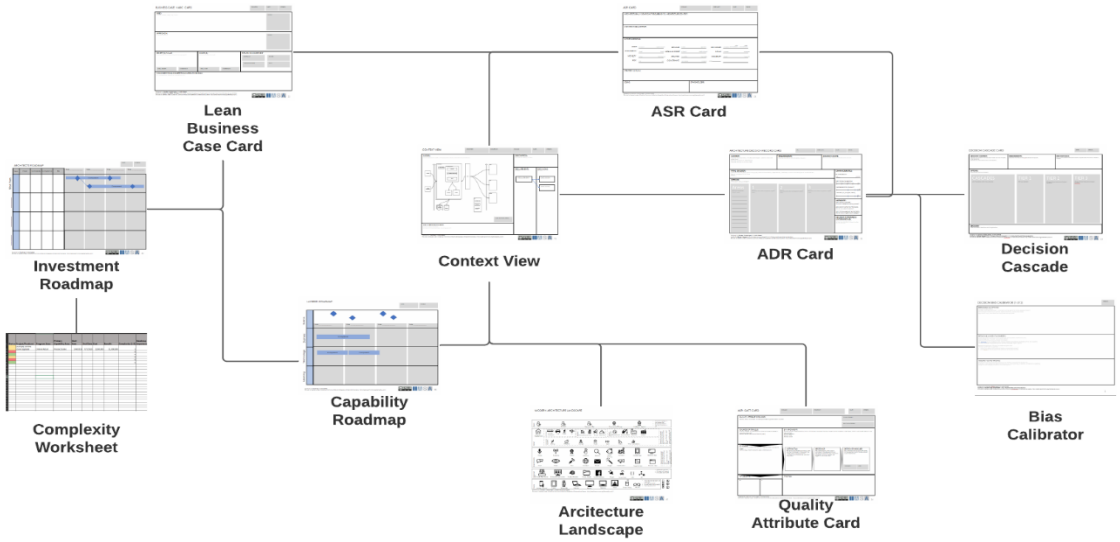
Some terminology in class… a client to you is any employer of your architecture expertise. But a customer to them is whoever benefits from their product or service. As an architect, you have a dual responsibility to both the Client and the Client's Customer. It can be a little crazy-making. In the class, when we say customer, we are almost always referring to the Client's Customer. This is because when you are with your Account, their customer is your true objective as an architect. The demonstration of this fact is what builds a trusted advisor relationship.

[1] This course applies equally to all technical staff, especially those that interact with others in Architecture roles

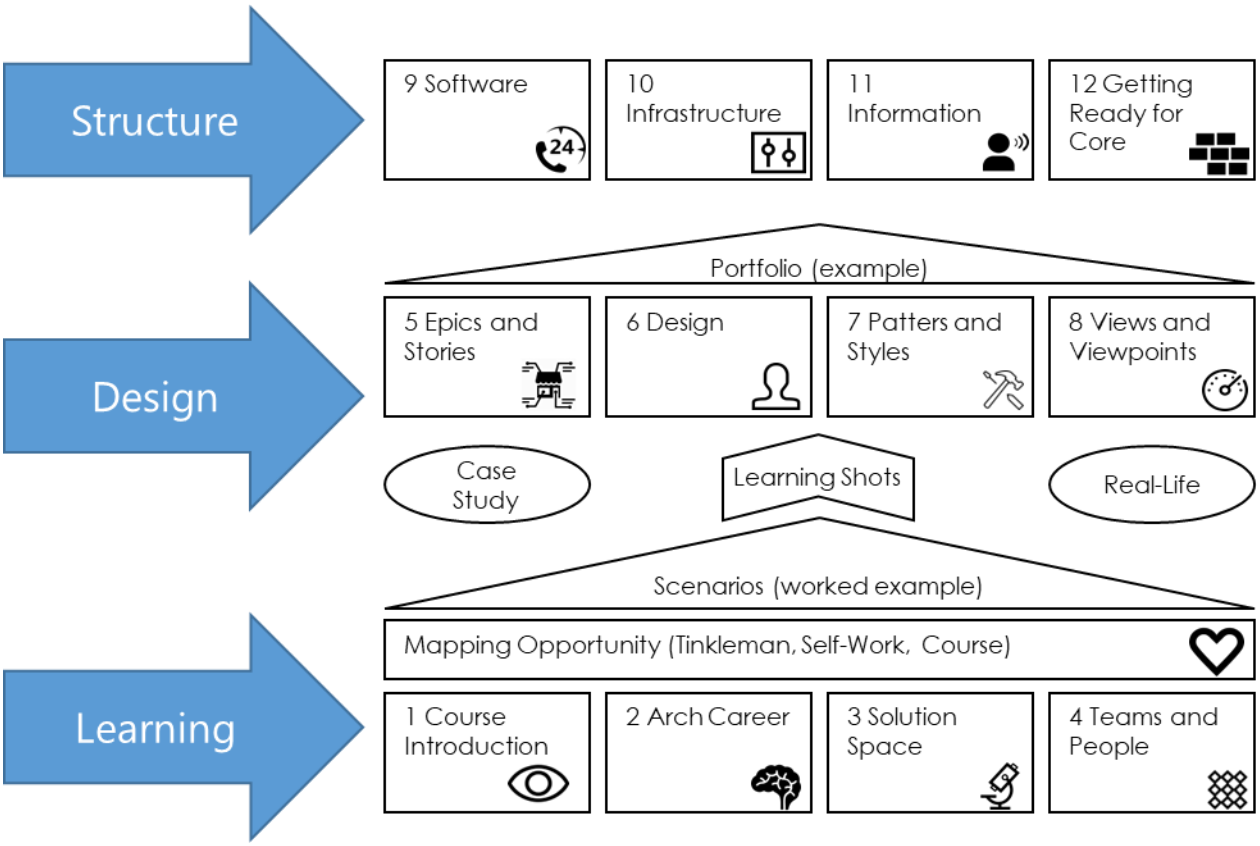
Workshops and Structured Canvas Approach

In each lesson we will introduce you to a range of Canvas and Cards; these bring to life the theory as well as provide a simple workspace for you to experiment, document and share the information you collect and the analysis you perform. Self-paced materials such as Learning Shots indicated for each lesson ere further, optional learning opportunities.

Workshops will be based on practical hands-on code or real-life examples. Here are the primary canvases we use in class.



Course Syllabus



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Lesson 1 – Introduction

In the introduction we cover the basics of architecture as well as the understanding of the practice. Students get to see the difference between technologists, developers, operations and infrastructure.

Behavioral Objectives: • **Define personal course objectives** • **Define class outcome goals** • **Describe the client/customer/stakeholder** • **Discuss Architecture and its Definition**
Self-paced materials: • **Iasa self and peer assessments (class invitations to be sent)** **What is Architecture: https://btabok.iasaglobal.org/what-is-architecture/**
Practice/demonstration of techniques and tools • **Workshop: What are the types of architects, how do they differ?** • **Arch Definition Canvas**

Lesson 2 – Architecture Career Path

Understanding competencies in context of the career path. Becoming an architect is a lifelong journey.

Behavioral Objectives: • **Understand the career of architecture** • **Compare with Technical Expert** • **Demonstrate the overlaps** • **Demonstrate specializations and shared skills**
Self-paced materials: • **Competencies 1: https://btabok.iasaglobal.org/competencies-module-1/** • **Business Technology Architecture Body of Knowledge | IASA - BTABoK (iasa-global.github.io)**
Practice/demonstration of techniques and tools • **Worksheet: Career Path Canvas** • **Worksheet: Competency Canvas**

Lesson 3 – Solution Space

Describe the entire solution space. These are the areas architects consider when designing, delivering and deploying a solution.

Behavioral Objectives:

- **Describing a Project vs a Product**
- **Building and Working with Team(s)**
- **Describe the Rational and Target Outcomes**

Self-paced materials:

- **Context View** https://btabok.iasaglobal.org/context-view/

Practice/demonstration of techniques and tools

- **Canvas: Solution Design Space Canvas**

Lesson 4 – Teams and People

Understanding the role of architects and architecture in the modern team and team of teams. This lesson digs into agile methods and design concepts such as emergent design and intentional architecture. It also clarifies the people who work on architecture vs being an architect.

Behavioral Objectives:

- **Think through the team and team roles**
- **How would an architect interact proactively**
- **How do we get buy off on designs and ideas**
- **How do we understand our stakeholders**

Self-paced materials:

- **Human Dynamics:** https://btabok.iasaglobal.org/competencies-3/
- **Stakeholder Management:** [Stakeholder Driven Approach - BTABoK (iasaglobal.org)](https://btabok.iasaglobal.org/competencies-3/)
- **Dev/Ops and Teams** https://itabok.iasaglobal.org/agile-architecture-scale/

Practice/demonstration of techniques and tools

- **Spreadsheet: Stakeholder Analysis**
- **Worksheet: Agile Team Designer**

Lesson 5 – Stories and Epics

Let's dig deep on requirements. This goes from an engineering-level understanding of the types of requirements to a detailed view of stories, epics, features and how technologists begin wondering which requirement is architectural.

Behavioral Objectives:

- **Define and describe architecturally significant requirements. Be able to defend and describe the impact of the requirements and how it shapes the solution.**
- **Going from Detailed Requirements to Epics to Enablers**
- **Begin drawing out the design space and decisions**

Self-paced materials:

- **Detailed Requirements and their Evolution**
- **Architecturally Significant Requirements** https://itabok.iasaglobal.org/architecturally-significant-requirements/

Practice/demonstration of techniques and tools

- **Card: ASRs – Features, Value, Quality Attributes, Constraints**
- **Canvas: Service Blueprint**
- **Canvas: Customer Journey and the UI**

Lesson 6 – Design Space(s)

Design spaces are places where the architecture happens. From the whiteboard to coding. Understanding the design space and decisions will help you to grow your systems thinking capabilities.

Behavioral Objectives:

- **Defining the Design Space**
- **Development Value Streams**
- **Continuous Everything: Getting the Right Velocity**
- **Modeling and Notations**

Self-paced materials:

- **Design:** https://btabok.iasaglobal.org/architecture-design/
- **APIs and Services:** https://btabok.iasaglobal.org/services-and-integration/

Practice/demonstration of techniques and tools

- **Worksheet: Design Spaces**
- **Worksheet: Components and Dependencies**

Lesson 7 – Patterns, Styles and Reference Models

Understanding the use of patterns in architecture is essential to re-use knowledge and solutions.

Behavioral Objectives:

- **Define architectural styles including Microservices, Integration and Modular Monoliths**
- **Understand the impact of patterns and pattern applications**

- **Find and discover pattern libraries**

Self-paced materials:

- **Modern Patterns** https://itabok.iasaglobal.org/modern-patterns-1/
- **Technical Debt** https://itabok.iasaglobal.org/technical-debt/

Practice/demonstration of techniques and tools

- **Canvas: Pattern Worksheet**
- **Canvas: Technical Loans**

Lesson 8 – Views and Viewpoints

In this lesson you will review and develop different types of views and viewpoints for a solution delivery. Different examples will be provided as well as comparison of modeling languages and documentation of architecture descriptions.

Behavioral Objectives:

- **Describe a view and within an architecture description**
- **Describe the views needed for delivery of the architecture**
- **Describe how the architecture can evolve throughout the lifecycle**

Self-paced materials:

- **IT Environment:** https://btabok.iasaglobal.org/competencies-4/
- **Architecture Design:** https://btabok.iasaglobal.org/architecture-design/
- **Architecture Descriptions:** https://btabok.iasaglobal.org/archdescriptions/

Practice/demonstration of techniques and tools

- **Canvas: Engagement Model Process**
- **Architecture Views: Setup and evolve a template**

Lesson 9 – Software Architecture

This lesson focuses on the software intensive sections of an architecture and where they reside. It will help you to understand the elements of a working software architecture and how they interact with other elements of the solution.

Behavioral Objectives:

- **Define and identify modern architecture styles including microservices, serverless, hexagonal architectures**
- **Choose language and development platforms for multiple teams**
- **Describe the Development view within the architecture**
- **Describe the Testing Methods in use**

Self-paced materials:

- **From Code to Architecture**
- **UI, Services, Data**
- **Patterns: https://btabok.iasaglobal.org/modern-patterns-1/**
- **QA: Testing Software Architecture**

Practice/demonstration of techniques and tools

- **Worksheet: Architecture Designs**
- **Worksheet: Fitness functions**
- **Worksheet: Testing through the lifecycle**

Lesson 10 – Infrastructure and Cloud

In this lesson you will develop a basic cloud infrastructure view of a project by understanding what are the key elements, views, designs and decisions.

Behavioral Objectives:

- **Defining the development, integration, testing and production environments**
- **Define difficulties in multi-team builds and appropriate velocity**
- **Discuss immutable infrastructure and replaceable components**

Self-paced materials:

- **IT Environment: https://btabok.iasaglobal.org/competencies-4/**
- **Architecture Design: https://btabok.iasaglobal.org/architecture-design/**
- **Cloud and Hybrid Design**

Practice/demonstration of techniques and tools

- **Cloud Infrastructure View/Design**
- **Structured/Unstructured Data**

Lesson 11 – Information and Data

In this lesson you will look at the emergence of architecture in information and data. From large data, to data and integration patterns, this lesson will help you understand the solution, information, integration and data spaces.

Behavioral Objectives:

- **Define a working Data Model for the Test Application**
- **Describe how the information would flow through the system of systems**

- **Describe entities and understand the beginnings of DDD**
- **Describe data/integration patterns**

Self-paced materials:

- **Domain Driven Design**
- **Reporting, Transactions and Integration**
- **Details Design Example**

Practice/demonstration of techniques and tools

- **Event Storming**
- **Detailed Context Views**

Lesson 12 – Closing and Next Steps

In the final lesson you will bring together everything you have learned into an architecture description and make a short presentation of your work throughout the course.

Section 12 – Putting It All Together

Behavioral Objectives:

- **Define you customer outcomes and describe your wins and losses**
- **Demonstrate changes in your behavior towards customers and businesses**
- **Understand the next steps in becoming an architect – the Iasa Career path**
- **How you can get your organization to start doing architecture right**

Practice/demonstration of techniques and tools

- **Final Presentation Workshop: Putting all of the work you have done together into a comprehensible presentation (template provided)**