Course Introduction
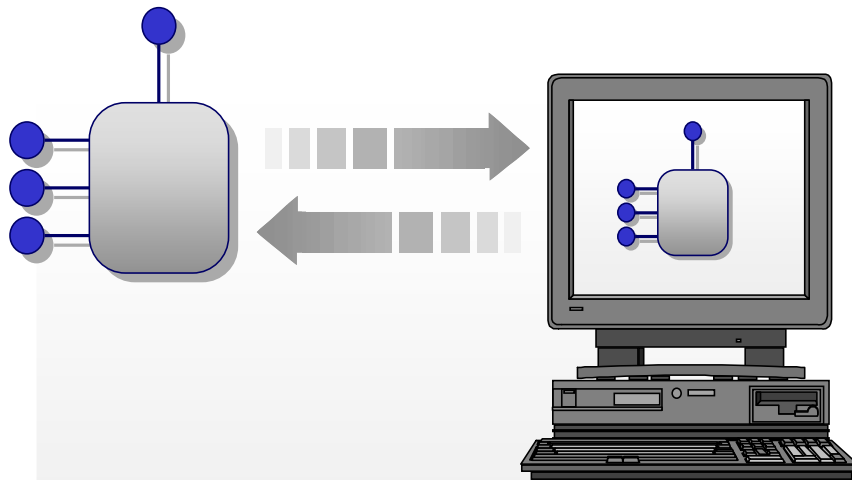
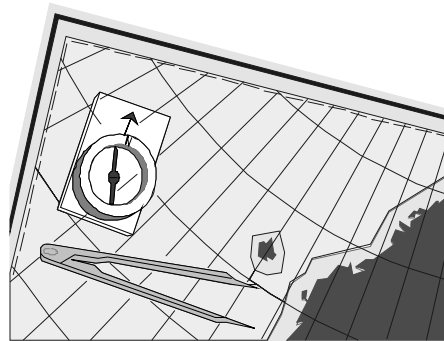**QA·IQ**

COM Programming

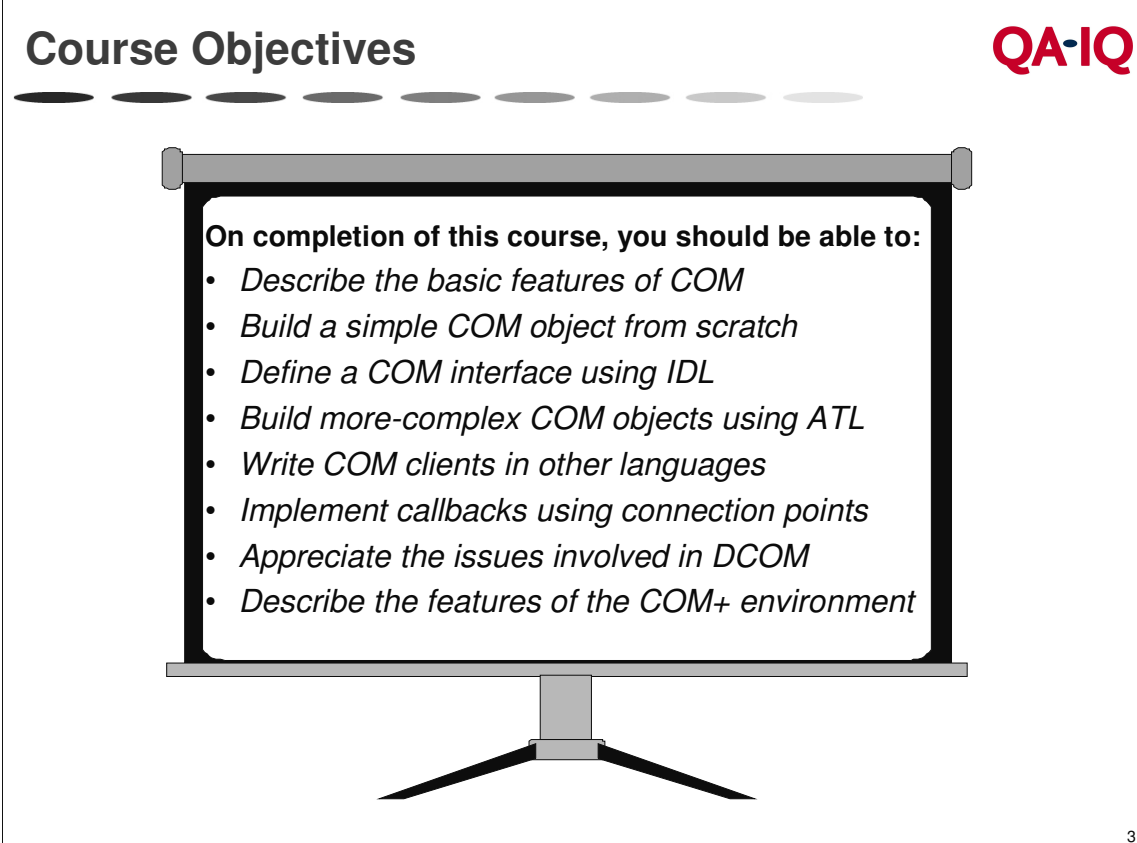# Course Introduction

QA-IQ

- **Objectives**
  - **To introduce the course**

- **Contents**
  - **Course objectives**
  - **Course prerequisites**
  - **Course delivery**
  - **Course contents**

- **Questions and introductions**

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The objectives for this chapter are to introduce the course structure and provide an overall picture of the course content and format.

Course Objectives

QA·IQ

On completion of this course, you should be able to:
- *Describe the basic features of COM*
- *Build a simple COM object from scratch*
- *Define a COM interface using IDL*
- *Build more-complex COM objects using ATL*
- *Write COM clients in other languages*
- *Implement callbacks using connection points*
- *Appreciate the issues involved in DCOM*
- *Describe the features of the COM+ environment*

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Whew!

The course offers a broad introduction to the fundamentals of programming COM and COM+ applications and components.

We'll start by working our way through the "Why of COM?" - why we need it and the advantages of what basic COM programming offers us. We'll do this using raw C++ with no wizard support, as this guarantees a solid foundation for everything else that follows.

We'll then progress on to using new languages, such as Interface Definition Language (IDL), and new tools like the Active Template Library (ATL) that combine to make us more productive COM programmers.

Then we'll tackle some of the general programming issues that COM attempts to fix, such as support for different programming languages, before working up to writing more complex COM servers.

Finally, we'll take a look at the COM+ environment, although this will be only an introduction to this component management environment.
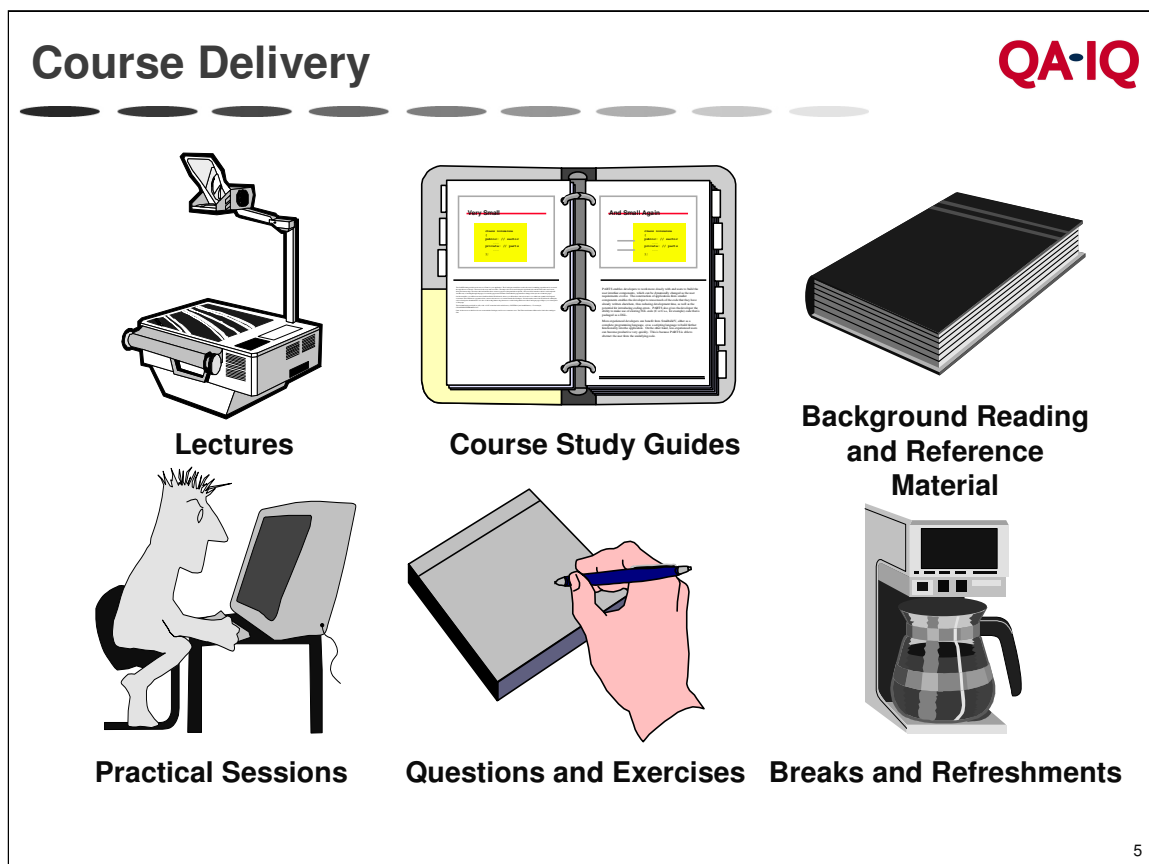
Course Prerequisites **QA-IQ**

- **Essential...**
    - **Good working knowledge of object-oriented programming**
    - **At least 6 months experience with C++**
    - **At least 3 months experience in Win32 programming**

- **Beneficial...**
    - **Experience with Visual Basic**
    - **Experience of developing client/server applications**
    - **Familiarity with Microsoft Visual Studio**

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If you feel that you are on the wrong course, tell us now! We will try to help you find the right one.

We do make some assumptions about you, as stated in the course outline and prerequisites in the course catalogue.

Course Delivery

QA-IQ

Lectures

Course Study Guides

Background Reading and Reference Material

Practical Sessions

Questions and Exercises

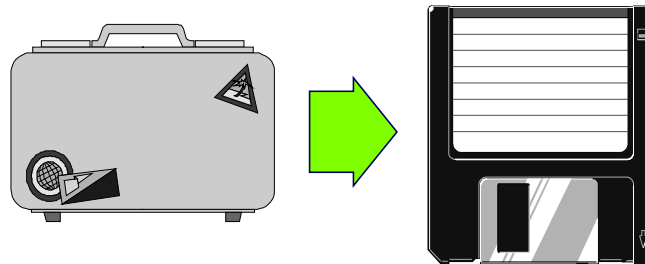**Breaks and Refreshments**

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Each chapter has well defined objectives and covers a topic in detail. The lecture notes are included in the course study guide, with supporting notes per page providing additional information and descriptions.

Practical Experience

QA-IQ

- **A practical session will follow each lecture**
  - **All practicals are self-contained**

- **Full model solutions are provided**
  - **You may take away your work and the model solutions**

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The practical sessions give you the chance to consolidate the information that has been presented in the preceding session. For each practical there is a model solution provided, which you can use to help you complete the exercise.

During the practical sessions, use your instructor! If you are having difficulty, ask the instructor for help.

You can also use the practical sessions to experiment - feel free to extend on the exercise as provided.

At the end of the course you will be provided with a disk (or disks) to take away both your work and the solutions. Please remember to follow all your organisation's virus scanning procedures when you return to your office.
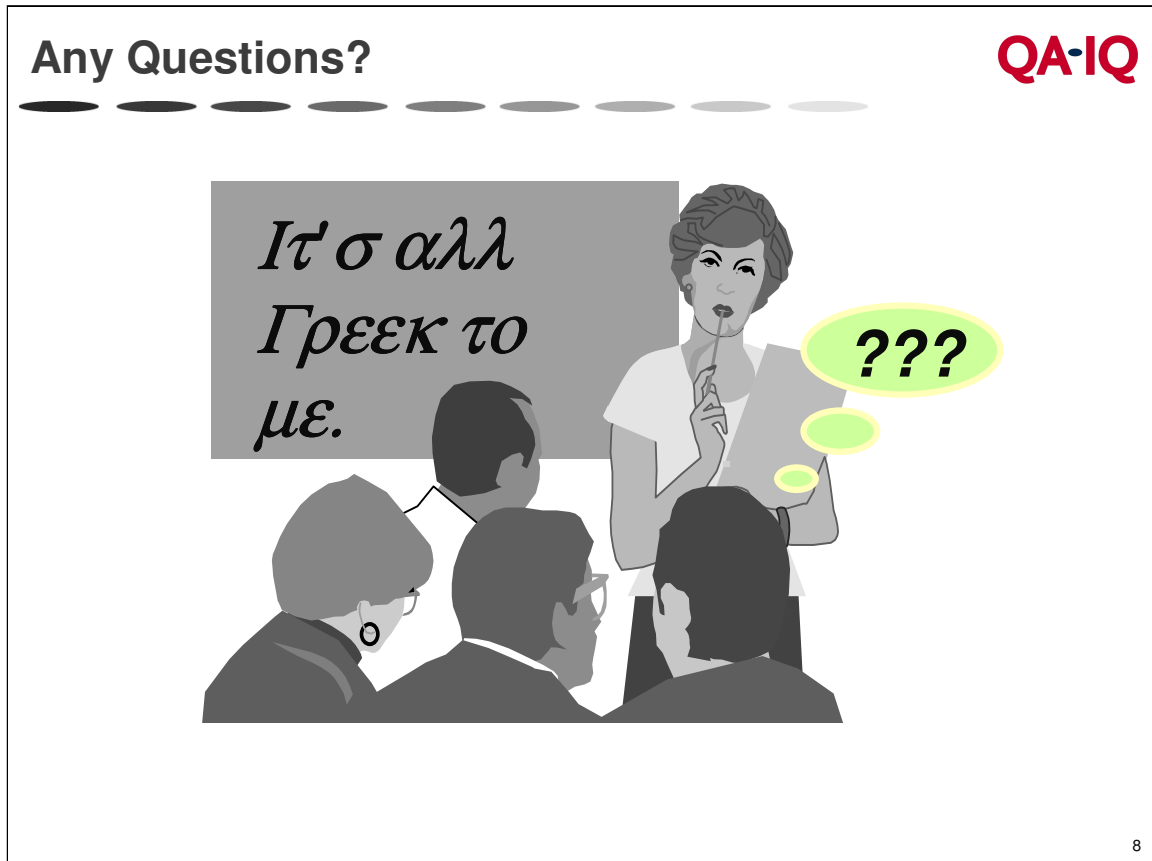
Contents   QA·IQ

1. **Course Introduction**
2. **From C++ to COM**
3. **COM Fundamentals (Client)**
4. **COM Fundamentals (Server)**
5. **Introduction to IDL**
6. **Building a COM Object Using ATL**
7. **Strings, Variants and SafeArrays**
8. **Automation**
9. **Language Integration**
10. **Connection points**
11. **COM EXE Servers**
12. **Distributed COM Fundamentals**
13. **Threads & Apartments**
14. **Introduction to COM+**
15. **The Way Ahead**

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As you can see, we will be covering quite a lot of material during the course.

You should note that there are additional chapters provided in the book. The provide information on other areas of COM programming, such as ActiveX controls and ActiveX Data Objects (ADO). These won't be covered during the course itself, but are simply provided as extra reference material.

If in doubt, ask!

COM is a relatively complex subject, and there will be sections of the course which might not make sense first time. Please ask questions if something isn't clear - you can rest assured that there will be other people in the room who will be thinking exactly the same thing as you!

Also, the instructor will throw out questions from time to time. Enjoy them! Have a go at answering them! It's much more fun that way.