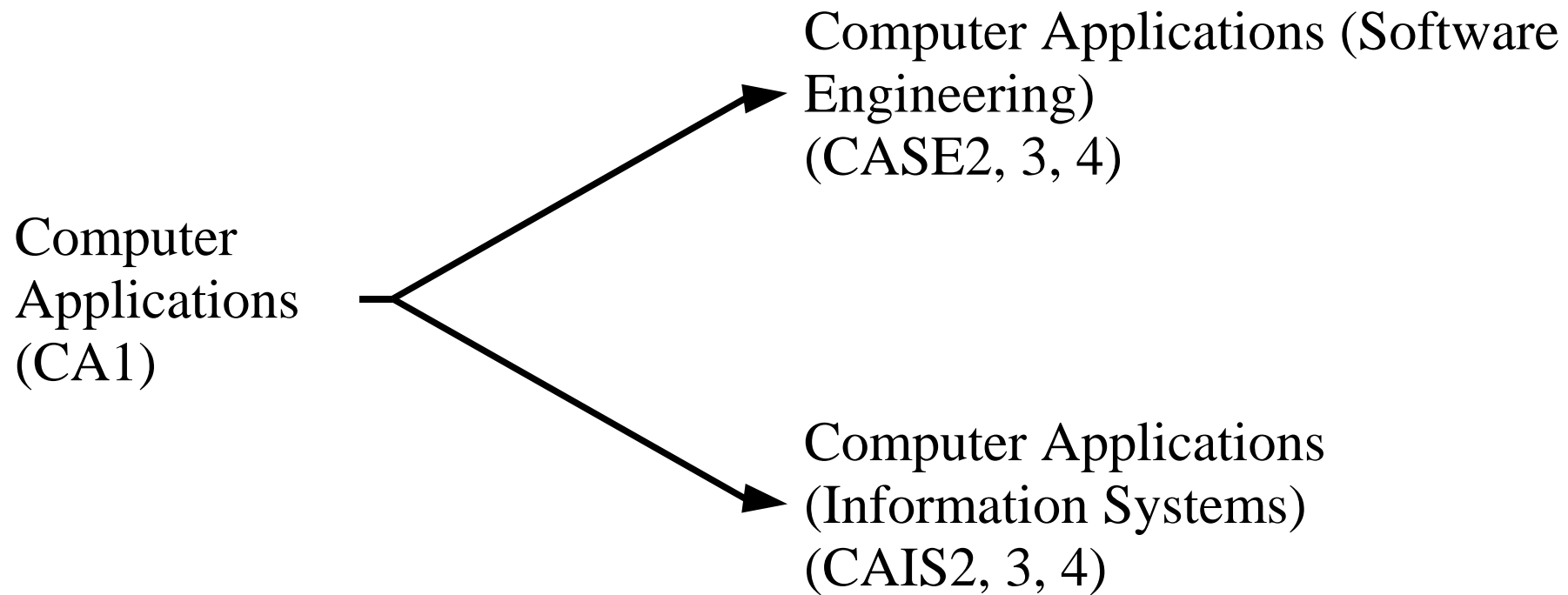


Choice of Streams

Software Engineering – CASE2
Information Systems – CAIS2

Computer Applications



Foundations of Degree

- All students
 - study: **programming approaches**
mathematical subjects that will help them to model systems.
 - carry out extensive **projects** in Years 3 and 4
 - go on **INTRA** placement to industry.
- All graduates will have **good programming and design skills**

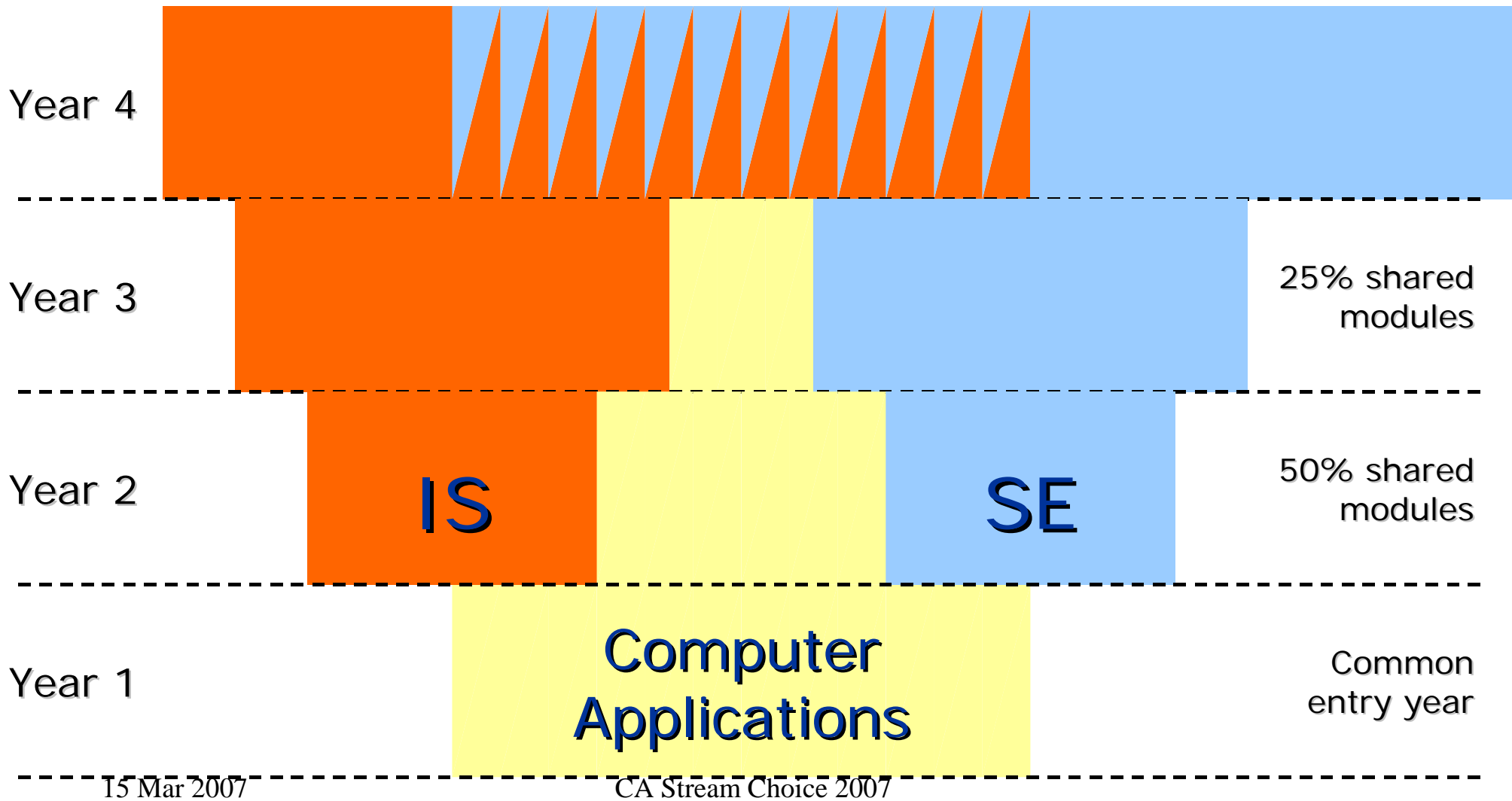
Foundations of Degree

- Different streams emphasise different aspects of computing.
- Both provide good employment opportunities at graduation.
- Try to choose based on your interest in the subjects provided by the streams

Foundations of Degree

- Detailed information is on the web at:
<http://www.computing.dcu.ie/current/index.html>
- Look at this to help you decide.
- When you have decided, fill in the Stream Choice form at
<http://www.computing.dcu.ie/current/ca1/forms/firstyearstream.html>

CA Degree - 4-year structure



Year 2 modules

Information Systems	Common Semester 1	Software Engineering
Application Programming	Introduction to Networks & Internet	Assembly Language Programming
Business Organisation	Logic	Data Structures and Algorithms
Human Factors in Computing	Probability	Languages and Computability
	Semester 2	
Analytical Information Systems	Introduction to Databases	Advanced Computer Architectures
Organisational Information Systems	Introduction to Operating Systems	Linear Algebra
Statistics	Systems Analysis	OO Design and Implementation

Year 3 modules

Information Systems	Common	Software Engineering	OR
Information System Strategy	Semester 1 OO Analysis and Design	Algorithms & Complexity	Y
Project and Process Management	Database Deployment	Computer Networks 2	E
Sampling Theory/Survey Design	Introduction to Artificial Intelligence	Operating Systems Design & Implementation	A
	Semester 2		R
	Year 3 Project		O
	INTRA		A D

Year 4 modules

Information Systems	Common		Software Engineering
Software Process Improvement Business Process Management	Semester 1		Compiler Construction 1 Digital Signal Processing 1 Concurrent Programming Cryptography
Logistics Management	Semester 2		Compiler Construction 2 Real Time Embedded Distributed Programming Security Protocols
Project Multimedia Information Retrieval Database 1:Relational Theory & Multidatabase Computer Graphics Speech Processing	Technical Communication Skills Software Patterns & Metrics * Artificial Intelligence Operations Research	Project OO Models * Operations Research/Management Science	Multimedia Technology Database 2:Protocols & Systems

What is Information Systems?

- Information systems is the application of Information and Communications Technology to business and organisational requirements.
- Studying information systems means learning how to analyse business needs and develop applications that are related to them.
- There is an emphasis on the management of data and the use of data communications.

Second Year IS modules: Semester 1

As well as the common modules (**Logic**, **Probability** and **Intro** to networks) you will study:

- **Business Organisation:**

A study of how businesses and organisations function, and the flow of information within them

- **Application Programming:**

Designing and building systems using high-level languages.

- **Human Factors:**

Human-Computer interaction and User Interface design

Second Year IS modules: Semester 2

- As well as the common modules (**Systems Analysis, Database and Operating Systems**) you will study:
 - **Statistics:**
Statistical techniques useful for handling business and project-management issues
 - **Organisational Information Systems:**
A study of computer-based systems used in business, and how to design them.
 - **Analytical Information Systems:**
Analysing and using information stored in business information systems

Third Year IS modules

- **Project and Process Management:**
How to manage software projects, so that the final product is of good quality, completed on time and within budget.
- **Sampling Theory and Survey Design:** statistical methods for collecting and analysing data. Provides the techniques needed for Management Science and Project Management options.
- **Information Systems Strategy:** how organisations can make use of technology to improve the business and gain competitive advantage.

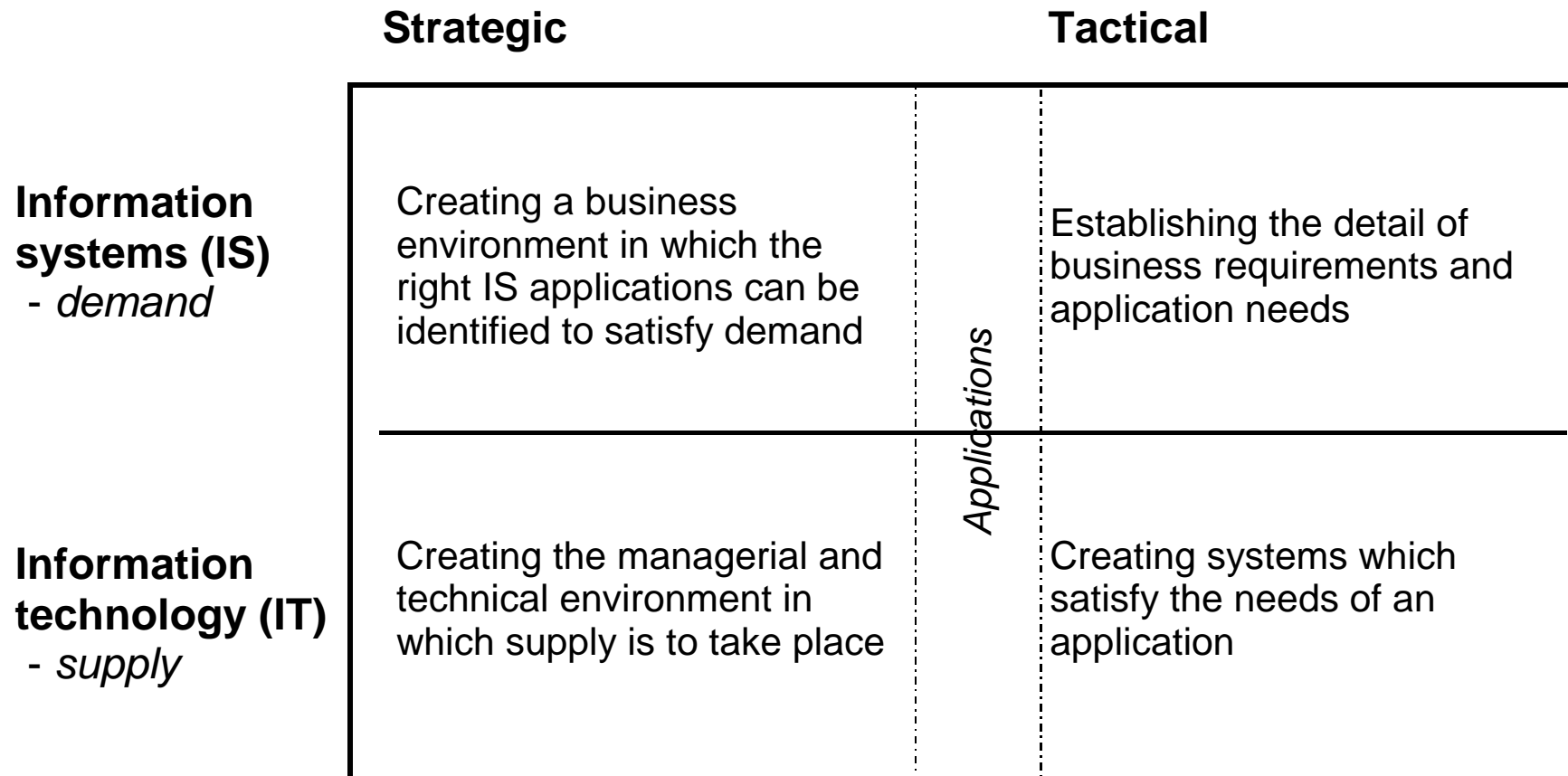
Fourth Year IS modules

- No compulsory courses, other than the Project.

Options include:

- Business Process Management
- Logistics Management
- Multimedia Technology
- eCommerce Applications
- Software Process Improvement
- Forecasting and Time Series
- Risk Theory

Managing Information Systems



Managing Information Systems

CAIS Modules

	Strategic		Tactical
Information systems (IS) - <i>demand</i>	CA221 Business Organisation CA257 Analytical Information Systems CA348 Information System Strategy	Applications	CA220 Statistics CA325 Sampling Theory/Survey Design CA441 Business Process Management CA483 Logistics Management CA427 Operations Research
	CA305 Project and Process Management CA447 Software Process Improvement		CA223 Application Programming CA256 Human Factors in Computing CA222 Organisational Information Systems Other 4 th -year options
Information technology (IT) - <i>supply</i>			

What is Software Engineering?

- Software engineering is the systematic approach to the development, operation, maintenance, and retirement of software.
- Studying software engineering means staying practical, focussing on design and development methods and on delivering correct software across a number of application areas.

Second Year SE modules: Semester 1

As well as the common modules (**Logic**, **Probability** and **Intro to networks**) you will study:

- **Data Structures and Algorithms:**

Dealing with a wide range of the underlying building blocks and methods for programs.

- **Languages and Computability:**

Dealing more precisely with how programming languages solve problems.

- **Assembly Language Programming:**

Designing and writing assembly language programs.

Second Year SE modules: Semester 2

As well as the common modules (**Systems Analysis, Database and Operating Systems**) you will study:

- **Linear Algebra and Vectors:**

 - Mathematical techniques useful for problem-solving

- **Object-oriented Design and Implementation**

 - Detailed study of programming using an object-oriented language.

- **Advanced Computer Architectures:**

 - Analysing and comparing the critical architectural structures of computer designs.

Third Year SE modules

- **Algorithms & Complexity:**
An introduction to the fundamentals of complexity theory.
- **Computer Networks 2:**
Programming under TCP/IP and up to date networking technologies.
- **Operating Systems Design & Implementation:**
An introduction to the design and implementation of modern Operating Systems.

Fourth Year SE modules

- Three compulsory modules, as well as the Project:
 - Software Patterns & Metrics:
Study of current approaches to estimating measuring and designing large object-oriented systems.
 - Object-oriented Models
Comparative approaches to developing models of Object-oriented systems
 - Compiler Construction

Options include:

- Digital Signal Processing
- Concurrent Programming
- Cryptography
- Real Time Embedded Systems
- Distributed Programming
- Security Protocols