Teaching Discrete Mathematics 1 (TD1)

1st February 2022

Overview

Discrete maths features in all AS/A level Further Mathematics specifications, albeit under different titles:

- Discrete Mathematics - AQA and OCR A
- Decision Mathematics - Edexcel
- Modelling with Algorithms - OCR B (MEI)

Teaching Discrete Mathematics 1 (TD1) is a sustained professional development course for teachers wishing to build their confidence in teaching this content, and covers the discrete maths material common to all AS level Further Mathematics specifications.

TD1 consists of:
- Nine live online tutorials
- Two compulsory study days
- Access to our online Integral platform, including course-specific teaching and learning resources
- Email support from tutors and access to an online group forum

Towards the end of the course a short assignment is issued, for which support and guidance are provided. Course certificates will be available for those participants completing the assignment.

After TD1, participants have the opportunity to continue to TD2, which will further expand understanding of teaching discrete maths content.

Aims

- Gain a deep understanding of the application of algorithms to a wide range of problems
- Develop skills with using standard algorithms to solve optimisation problems
- Learn project planning processes which minimise overall costs and make the best use of available resources
- Develop confidence with incorporating practical work within maths teaching
- Link topics in discrete maths with other areas of maths

Who will benefit from attending?

TD1 is designed for A level Further Mathematics teachers who are new to teaching discrete/decision mathematics, or those that have previously taught D1 but wish to broaden and deepen their understanding.

Our sustained courses enable teachers to broaden and deepen their subject, pedagogical and pedagogical content knowledge. Teachers, with enhanced subject knowledge, are therefore better equipped to make links between topics, address students' misconceptions and confidently challenge learners at all attainment levels. Our course aims and intended outcomes are consistent with the principles set out in the Education Inspection Framework.

Content

TD1 covers the discrete/decision mathematics content for AS/A level Further Mathematics. This includes the following topics:

- Graph Theory
- Algorithms
- Algorithms on Networks
- Critical Path Analysis
- Linear Programming: Graphical
- Game Theory
- Allocation
- First Order Recurrence Relations
- Binary Operations
- Mathematical Preliminaries

These topics appear within the Further Mathematics specifications of the current Mathematics A levels.

Materials and Equipment

A computer with a reliable internet connection will be required to attend the online tutorials. In addition, a headset with a microphone is suggested to get the best experience of the online tutorials.

Frequently Asked Questions

Do I need to have taught A level Mathematics before doing the TD1 course?
There is no requirement that applicants have taught A level Mathematics before undertaking TD1.

How much time will I need to devote to studying?
It is difficult to be specific as this will depend on previous experience. In the past, delegates have reported spending between 1 and 4 hours studying each week. Ideally, delegates should aim to study regularly for a few hours each week however, in reality many working teachers have weeks when this is difficult and they use out-of-term time to catch up.

It is not our usual policy to allow teachers to enrol on more than one sustained course (TAM, PALM, TFM, TM, TS, TD) at the same time. Please contact us at cpd@mei.org.uk before making multiple course applications.

Do I have to hand in any work during the course?
The TD1 assignment is the only work that delegates hand in. To receive a certificate at the end of your TD1 course you will need to submit and pass the TD1 assignment. Certification is optional but we strongly encourage you to submit an assignment anyway to help you consolidate what you have learnt. In the past most teachers have chosen to submit an assignment.

Cost

This course is free of charge to teachers working in state-funded schools and colleges in England. For others the course fee is £300.

Schools and colleges located within [Priority Areas](#) are eligible to receive a subsidy of £250 per study day.

Study Schedule

Study days

Study days are face-to-face events that take place from 10:00 to 16:00, with lunch and refreshments provided. Attendance at both days is expected.

Please note that although it is our intention to run these study days face-to-face, all events are subject to government restrictions and may be moved online if required. We therefore advise against making non-cancellable travel arrangements.

Study day 1:

Coventry
Saturday 12 March 2022

Study day 2:

Coventry
Saturday 21 May 2022

Online Sessions

Online sessions take place from 19:00 to 20:15. They are conducted live and recordings are available for playback.

Date	Topic
Tue 1 Feb 2022	Course introduction
Thu 10 Feb 2022	Graph Theory
Thu 3 March 2022	Algorithms on Networks 1
Thu 17 Mar 2022	Algorithms
Thu 31 Mar 2022	Algorithms on Networks 2
Thu 5 May 2022	Linear Programming
Thu 19 May 2022	Critical Path Analysis
Thu 9 Jun 2022	Allocation
Thu 23 Jun 2022	First Order Recurrence Relations

Assignment:

During the summer you will work towards completing an assignment. The deadline for this assignment is 5 September 2022.

Key Facts

Event ref:	#9027
Audience:	Teachers
Curriculum focus:	A level Further Mathematics
Mathematical focus:	Discrete
Event format:	Sustained Professional Development
Event length:	6 months
Study days:	2
Online sessions:	9
Region:	National
Venue:	Online classroom and study days in Coventry
Start date:	Tue 1st Feb 2022
Fee:	Free for state-funded schools; £300 otherwise
Priority Area subsidy:	2 x £250

Registration

For more information, or to register for this event, please visit https://amsp.org.uk/events/details/9027