Overview of the course
This is a practical course using microscopes for the study of a number of aspects of beekeeping. Instruction will be given in the use of both high and low power microscopes. Microscope slides will be prepared of pollen from known flowers and compared with preparations of pollen loads collected by a colony of bees within range of them. Samples of pollen from honey will be examined. On Friday evening there will be an illustrated talk on pollination and participants will be encouraged to use the dissecting microscope on Saturday to study floral morphology in relation to pollination.

High power microscopes will be used for testing samples of bees for spores of Nosema spp. Dissecting microscopes will be used to look for Acarapis woodi and for honeybee dissection. Participants will prepare slides of honeybee legs, sting, etc.

You are invited to bring a sample of your own bees for dissection. These are best killed with ethyl acetate, obtainable from Watkins and Doncaster (0845 833 3133) or from Brunel Microscopes (01249 462655). Nail varnish remover will also work. Put a piece of cloth in a honey jar and pour a drop of ethyl acetate on it. The jar will hold up to three matchboxes with bees. Screw on the lid and the bees should be dead in an hour. Kill the bees on Friday and keep cool until dissection on Saturday.

The course will be useful to anyone intending to take the microscopy examination of the British Beekeepers’ Association.

About the Tutors
John Cowan has retired from lecturing at King’s College, London. He holds the National Diploma in Beekeeping and was a member of the Examinations Board of the British Beekeepers’ Association for six years. He has run courses at Flatford Mill for many years.

Maurice Ballard is a highly experienced beekeeper who is keen to share his knowledge to assist other beekeepers in keeping their own hives and colonies as thriving and disease-free as possible.
Start and finish times
Afternoon tea on Friday is available from 1600, but the first formal activity is dinner at 1900 (with the bar open from 1845!).

Residents: Please aim to arrive between 1600 and 1800 to allow us sufficient time to show you to your accommodation and around the communal areas.

Non-residents: You do not need to arrive quite so early but please can you be here by 1800 as we need to show you the communal areas as well.

The course ends at 1600 on Sunday.

Course fees
- Sole occupancy accommodation: £232
- Shared accommodation: £212
- Non-resident: £164

VAT is not applicable

What is included within the fee?
- Up to 8 hours of teaching time a day, with breaks for meals and refreshments
- Full board accommodation including a cooked breakfast, picnic lunch, homemade cakes and an evening meal. Vegetarian and other dietary options are available
- Tea and coffee making facilities available throughout the day
- Use of resources including library, workrooms, studios and the Centre grounds
- Centre-organised transport during the course

Non-resident course fees include all of the above except breakfast and accommodation.

What to bring
A laboratory coat or equivalent is recommended as protection against spillage of stains, etc. Also, bring samples of dead bees (not frozen and preferably freshly killed) for disease analysis, and honey for pollen slide preparation.

You may wish to bring something in which to carry home microscope slides that you have prepared during the weekend. Some will not be sufficiently set to stand edge on and will need to lie flat.

If you have your own dissecting instruments (particularly watchmaker’s forceps and fine sprung scissors) please bring them, though some will be available on loan during the course.

Recommended Books
If you have the following, please bring them:

- Dade, H A (1962 and subsequent reprints) *Anatomy and dissection of the honeybee* International Bee Research Association
- Hodges, D (1952 and subsequent reprints) *The pollen loads of the honeybee* International Bee Research Association
- Kirk, W (1994) *A colour guide to the pollen loads of the honeybee* International Bee Research Association
The following are also recommended:

- White, J (1989) *Pollen, its collection and preparation for the microscope* Published by the author
- Winsby, R (1996) *Microscopy: First steps into a secret world* Manchester Microscopical and Natural History Society

This last book is intended for use in the analysis of fossil pollen. It has excellent photographs and a comprehensive key, but it requires you to learn more technical terms and assumes that the pollen is prepared by the acetolysis method, which gives a clearer picture of the exine than Sawyer’s method, but requires facilities not available to most beekeepers.

**About the Centre**

Flatford Mill lies at the heart of the Dedham Vale, on the banks of the River Stour near the Suffolk-Essex border. The Centre buildings, particularly the Mill and Willy Lott’s House, are instantly recognisable since they feature in many paintings by John Constable. The rich mosaic of lowland landscapes, wildlife habitats and places of historic interest are all reflected in our extensive programme of courses.

**Booking procedure**

Bookings can be made by telephoning the Centre; we are open 0930 – 1700 weekdays and most weekends. Alternatively, bookings can be made via our website: www.field-studies-council.org.

Please see page 4 for directions to the Centre.
Directions to the Centre

The Centre is located between Colchester and Ipswich and is about 10 miles from each, approximately 2 miles from the A12. Please see below for a map showing the last part of the journey.

Our nearest railway station is Manningtree, about four miles away from the Centre. It is on the main line from London Liverpool Street to Ipswich/Norwich and the journey time is approximately one hour. You can also travel to Manningtree station from the north via Peterborough and Ipswich.

Several taxis operate out of Manningtree station and can be pre-booked by us to meet you at the station and return you there at the end of your course.

Directions from the A12

- From the crossroads near the ‘King’s Head’ come down Flatford Lane. It becomes one-way in your favour after 300m.
- 300m further on, note the direction arrow to the Field Centre on the first brown and white tourist sign.
- Turn left at the second tourist sign, down a narrow steep-sided lane. Do not go into or beyond the Flatford public car park.
- Bear left at the bottom of the hill. The Centre forecourt is then 200m further on, indicated by an FSC logo and sign on a low wall.
- On arrival please pull in, onto the forecourt or alongside the buildings in the lane, to keep access unobstructed.
- Please announce your arrival at Reception - the sign by the entrance on the far side of the forecourt.
- Please park In the Centre Car Park after announcing your arrival.