MSc Timber Building Conservation

The programme

The aims of the programme are:
- to facilitate students’ development of advanced intellectual and practical skills, through a study of the interplay between theories and methods
- to present research-informed teaching and engage students with theories, methods and debates which are at the forefront of relevant research in the conservation of historic timber buildings

The programme will help students to develop:
- a critical understanding of the technical and regulatory bases of timber building conservation and their application to specific problems
- the necessary scientific, regulatory and management knowledge to develop successful careers in this specialist field
- the ability and confidence to apply their knowledge and skills to specific building conservation problems, and also communicate effectively with those working in the field of building conservation and regulatory agencies
- a critical understanding of contemporary issues related to timber building conservation
- the ability to synthesise and challenge orthodox procedures in timber building conservation
- the ability to work independently and carry out original research investigations in timber buildings and their conservation

The degree also aims to provide students with transferable skills in data gathering and analysis, report writing and project management.

Information about the structure of the programme

This is a two-year, part-time post-graduate course. The course is delivered by and based at the Weald & Downland Open Air Museum near Chichester, where the buildings and staff provide an excellent resource for study and research. Students are registered with the Museum, not with the University. Successful completion of the course leads to a University of York award of Master of Science in Timber Building Conservation.

The programme consists of six study modules (TBC1-TBC6), each of five days (Wednesday to Sunday), spread over the first eighteen months of the course. Each module centres on a particular aspect of timber building conservation with lectures and demonstrations by leading specialists. The programme includes study tours of important historic buildings and craft workshops.

In general, each unit is assessed by an assignment equivalent to a 5,000 word essay. Following this taught part of the course, the student undertakes a programme of personal research for the submission of a 15,000 word dissertation (TBC7). Exit awards at PG Certificate and PG Diploma levels are available to students who are unable to progress to the MSc.

The unit headings are based on the history and technology of the particular subject. The important related themes of ethics, policy, architectural history, economics and professional practice are throughout the taught course.

Alongside fully contributing to seminar discussions, special guest lectures and discussions in workshops each student will be expected to give presentations to fellow students and staff within their studies.

Students are required to undertake private reading, study and research during the whole of the course.
Information about the modules

TBC1 DEVELOPMENT OF TIMBER STRUCTURES

The physical evidence of timber buildings that confronts the conservator has often been altered over a period of time. This module aims to:

• provide a systematic understanding of the evolution and development of timber structures and frames
• enable students to analyse and interpret complex structural sequences based on detailed knowledge of the patterns and development of timber construction and its use and adaptation to suit particular social and cultural needs.
• ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies.
• ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation.

Indicative content

• History and variation of construction; regional patterns of wall and roof construction
• Construction: traditional carpentry as a system; trees, beams and frames
• Construction details: windows, doors, stairs, floors
• Timber construction in special-purpose buildings
• Patterns of adaptation of timber buildings
• Analysis and interpretation of historic timber buildings: the role of the archaeologist
• Techniques of recording historic timber buildings; typological dating
• Evolution of vernacular house types and plans
• Case study of a timber building conservation project

TBC2 TIMBER SCIENCE AND DECAY

This unit aims to:

• provide a comprehensive understanding of the biological and physical properties of timber as a building material, and the failure of timber due to fungal, insect and physical decay. A thorough understanding in these areas is essential in making appropriate judgements on the maintenance and conservation of timber buildings.
• provide detailed knowledge of the histology of timber, and the reasons for, and processes of, decay.
• introduce students to the current debate about different ways of combating the agents of decay.
• ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies.
• ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation.

Indicative content

• Histology of timber: structure and physiology of trees.
• Physical properties of timber including movement (shrinkage or swelling) and the performance of wood under load.
• The growing, management, felling and converting of timber, traditional and modern.
• Current practice in the timber trade for conversion, drying and grading.
• Selection of timber.
• Recognition and analysis of fungal, insect and physical decay processes in timber used in buildings.
• Science and methods of control and treatment of decay.
• Recognition and analysis of mechanical defects and failure in structural timber.
• Methods and standards of survey in the analysis of defects and decay.
• Development of treatment strategies.
Historic woodland management.
The theory and practice of dendrochronology.
Case study of a timber building conservation project.

TBC3 TIMBER FRAMING SYSTEMS

Recent research has re-discovered the system and sequence by which traditional timber buildings were prefabricated. This unit aims to:

- provide detailed knowledge of the processes by which historic timber buildings were created, introducing the historic craft methods of prefabricating and erecting timber frames. Having systematic knowledge of such traditional systems is essential to inform judgements about intervention for conservation of timber buildings.
- ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies.
- ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation.

Indicative content

- Traditional carpentry workshop practice
- The evolution of woodworking tools
- The principles of setting out and fabrication of historic timber frames in Britain
- The process of erecting timber-framed buildings
- Comparative traditions of framing
- Techniques of measuring and drawing timbers
- Knowledge of similar systems in other countries
- Case study of a timber building conservation project

TBC4 SITE AND WORKSHOP PRACTICE & ASSOCIATED MATERIALS

This module aims to:

- set the context within which the timber conservator works by providing detailed knowledge and experience of health & safety, site organisation, management and documentation as applied to historic timber buildings.
- provide detailed knowledge and practical experience of tools, equipment and safe working practices in the workshop and on site.
- provide detailed knowledge and practical experience of the diverse materials associated with timber structures: brick, earth, stone, tiles, slate and thatch.
- ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies.
- ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation.

Indicative content

- Health & Safety: site theory and practice
- CDM regulations in relation to timber building conservation
- Tools and machinery: purpose, practice, care and maintenance
- Standards and tolerances in workmanship
- Working in situ: special considerations, constraints and solutions
- Dismantling and re-erecting timber structures
- Health & Safety – lifting equipment and staging
- Overview of the importance of conserving the associated materials.
- Mortar mixes and their analysis
- Brick, earth, stone
- Roofing materials including tiles, slate and thatch
- Case study of a timber building conservation project
TBC5 REPAIR OF TIMBER STRUCTURES

This module aims to:

- provide detailed knowledge and practical experience of repair techniques, both traditional and modern.
- explore the influence of charters and manifestos on the strategic approach and methodologies in building conservation.
- introduce students to the importance of taking a holistic view of a building, and of analysing modes of failure requiring intervention.
- provide the knowledge and skills for analysis of the structural stability of an historic timber building.
- provide detailed knowledge, critical awareness and practical experience of the methods of strengthening and reinforcing timber frames using materials other than timber.
- ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies.
- ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation.

Indicative content

- Criteria for the use of timber replacement repairs: timber selection and specification.
- Measurement and structural analysis of defects and failures.
- The use of timber to replace damaged or missing members: the design of repairs, joints and connections.
- Techniques for insertion of timber repairs in situ and assessment of the need for dismantling.
- Fixings: pegs, bolts, connectors including glues and resins.
- Presentation of case studies and Museum examples.
- Basic structural analysis: stress, strain, forces.
- Analysis of timber frames.
- The principles and calculations of strengthening timber frames.
- Fire resistance and protection of steel reinforcement.
- Strength testing: equipment and procedures.
- Case study of a timber building conservation project

TBC6 CONSOLIDATION AND SURFACE FINISHES. NON STRUCTURAL REPAIR

Conservation of the visible surfaces of timbers is of the utmost importance in achieving a satisfactory result, whether the surfaces were intentionally decorated with painting or carving or simply exhibit original tool marks and the patina of age. This unit aims to:

- provide detailed knowledge and practical experience of the methods of conservation of timber surfaces, applied finishes and friable timber
- introduce students to the philosophy and practice of the parallel specialism of furniture restoration
- ensure that students are exposed to current primary research of the highest quality and critical evaluation of current research methodologies
- ensure that in a case-study seminar students are given an opportunity to marry academic knowledge with a rigorous examination of conservation policy and documentation

Indicative content

- The chemistry of resins and fillers for consolidation and repair
- The design of repairs and consolidation using plastic materials
- Cleaning timbers, the conservation of painted surfaces, and the application of surface finishes
- Cladding and infill panels for timber-framed buildings
- The repair of non-structural elements, such as windows, doors and panelling
- Problems of detailing and surface finish in historic buildings
- Philosophy and practice of furniture restoration
- Case study of a timber building conservation project
TBC7 RESEARCH PROJECT

The research project has a crucial role in the programme allowing students to develop their expertise in research methods, data collection, analysis, interpretation and synthesis, linking them with taught elements of the programme. They will be able to demonstrate advanced communication skills by producing an extensive dissertation or report on their research.

This module enables students to explore in detail core aspects of their subject area, with a view to generating new practical or theoretical insights through a dissertation. It will also develop methodological, research and presentation skills. Within a framework of tutorial support it emphasizes the development of independent student learning and self-management.

Further information about the research project

Tuition on research methods is provided in TBC4 and seminars take place in the Spring and Summer terms at which students present and discuss their plans for the research project: one at TBC5, one at TBC6. Two further meetings are convened during the Summer term.

As soon as the research topic is formally agreed, the Programme Leader will appoint a supervisor or supervisory team, and regular tutorials between student and supervisor will take place to:

- guide students into the initial phases of their research;
- help them to further develop the research design;
- set targets for key stages and milestones of the research project, writing and monitoring processes.

Emphasis will be placed on the need for rigorous planning, detailed background research (e.g. literature searches) and the formulation of a realistic Research Proposal.

A written dissertation of approximately 15,000 words must be submitted by the deadline which is 24 months from the date of the first module.

Information about teaching and learning

Depending on the module, combinations of the following methods are used:

Taught component
- Lectures
- Seminars
- Case studies
- Demonstrations
- Practical exercises
- Visits off-site
- Examination of Museum buildings

Student-managed learning
- Prescribed reading. Many of the contributors are themselves authors of current works in the field
- Site visits. Several of the assignments require that students base their work on buildings they identify
- Notebook. Records of buildings and other relevant notes and drawings in a sketch book form part of a Personal Development Plan for each student.
Information about assignments and assessment

Student assignments take the form of:

Reading
Students are given reading lists, and in many cases critical appraisal of the available literature forms part of the unit teaching. Handout material is used as appropriate.

Essays
Students are required to produce an essay, study or report for each module. The essay for TBC1 is formative, the others are summative assignments. The essays are read by and discussed with the course tutors, who also provide written feedback reports, and a percentage mark. In addition, students are required to write an "overview" assignment, applying the subject matter of the first three modules to a building of their choice.

Tests
Students take a test relating to each module 1-5 during the following modules 2-6. They contain multiple-choice or short answer questions. The test for module 1 is summative and contributes to the overall marks for the unit. The tests for modules 2-5 are formative and as such they do not contribute to the overall marks for the unit.

Student presentations
Each student is asked to give at least one presentation to the student group describing a timber building or conservation case study. These are formatively assessed.

Fieldwork
Students are encouraged to keep a notebook of all the field visits and study they do, relevant to the course, and to discuss this in tutorials. The purpose of this is to encourage the habit of field observation.