



# The International Course on Wood Conservation Technology 2022

ICWCT Course Report and Evaluation





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The ICWCT is a collaboration between Riksantikvaren (the Norwegian Directorate for Cultural Heritage), ICCROM (The International Centre for the Study of the Preservation and Restoration of Cultural Property) and NTNU (The Norwegian University of Science and Technology). The 20<sup>th</sup> International Course on Wood Conservation Technology was held **14<sup>th</sup> February – 7<sup>th</sup> April 2022**. The ICWCT 2020 was cancelled due to the Corona pandemic, and a completely online course was held for the first time in 2021. As international restrictions were still making travel difficult, it was decided that an online course would also be held in 2022. 20 participants from 15 different countries were accepted on the course, 19 completed the ICWCT 2022.

I would like to thank all the contributors to this second online ICWCT, especially Marie Louise Anker, Special Director of Cultural Heritage Management at Nidaros Cathedral Restoration Workshops (NDR), who represented NTNU for the second time. The 16 contributing lectures all made valuable contributions and suggestions to content, structure, and implementation. Teaching online was a new experience for most of us in 2021, but this second time we all felt more seasoned. Through regular meetings and discussions, our successful cooperation led to a good learning experience for the participants.

In October, the ICWCT was awarded a **European Heritage Award/ Europa Nostra Award** in the category *Education, Training and Skills* for 2022. This was a great honour and a tribute to all the lecturers and resource staff who have worked so hard to make the course happen – every other year since 1984! We are honoured and grateful to Europa Nostra for recognising our efforts. The award will be a great boost and encouragement to keep the course going.

Much of the recorded teaching material was re-used from 2021 but based on our experiences and on constructive feedback, significant sections were changed. In total, approximately 130 hours of learning was prepared, recorded, and made available on the course platform Ed-X (Digit). In addition, approx. 40 hours were spent in synchronous meetings using Zoom. Continuous assessments were made of the assignments. All assignments were compulsory, and a satisfactory result combined with active participation during the course, gave 7,5 ECT University credits from NTNU.

The course evaluation consisted of questionnaires after each Unit, an oral evaluation on the last day as well as an anonymous written questionnaire sent to all participants after the course. A separate evaluation meeting was held with the lecturers after the completion of the course. The organisers' experiences and the participant evaluations are discussed in the following report.

Anne Nyhamar

*Riksantikvaren, Oslo, December 2022*

## Introduction

### **The 20<sup>th</sup> International Course on Wood Conservation Technology, ICWCT was organised as an online course 14<sup>th</sup> February – 7<sup>th</sup> April 2022**

The course has been held in Norway on a biannual basis since 1984, as one of ICCROM's specialised training courses on material heritage conservation. It provides the possibility for mid-career professionals within the area of conservation of wooden cultural heritage to update and specialise their skills. It also provides an international platform where networking and exchange of knowledge with other professionals from all over the world can take place.

For the first time ever, in 2021 the ICWCT was held entirely online. The ICWCT 2020 was postponed due to the Corona pandemic. The ban on international travel and complex quarantine regulations, made it clear to us that a physical course in 2021 would be impossible and the only option was for the course to go online. As many travel and quarantine restrictions were still in place, it was decided that an online course would also be held in 2022, enabling us to get in to the original bi-annual course rhythm.

#### **1. Course Objectives and Learning Outcomes**

##### ***Main objectives:***

- To give the course participants the theoretical and practical knowledge essential for diagnosing causes of deterioration and for selecting the most appropriate methods of conservation and restoration of wood.
- To extend the knowledge of the participants beyond their own professions for a broader understanding of different aspects and approaches to wood conservation.
- To bring people of various professions from different countries and cultures together for a mutual learning experience, drawing on different experiences, practices and approaches to wood conservation and use of wooden materials.

##### ***Learning Outcomes:***

By the end of the course, the participants will be able to

- Analyse how and why the material properties of wood determine its processing and use
- Diagnose the causes of deterioration of wooden structures and objects
- Prioritise the values and ethics associated with wooden structures and objects
- Evaluate conservation options for damaged wooden structures and objects within the context of a range of historical and cultural practices

*Each Unit has its own learning outcomes that align with these.*

## 2. Organisation

### 2.1. Organisers

- **Riksantikvaren** – responsible for overall course planning, administration, and implementation.
- **NTNU** – joint planning and implementation of the course. Responsible for the final examination and academic accreditation. Administering payments of the lecturers and book-keeping (NTNU Videre). Assistance from technical departments with practical advice.
- **ICCROM** – Advertises the course and receives and sorts the initial applications with recommended selection. Professional and practical contribution and support.

### 2.2. Funding

- Riksantikvaren finances the course.
- ICCROM contributes in-kind with advice regarding online teaching and support.
- The cost of NTNU staff time and administration has been shared between NTNU and Riksantikvaren. The Multimedia Centre at NTNU contributed in-kind with assistance in technical matters regarding online teaching, the web platform and filming.

### 2.3. Academic accreditation

NTNU - The Norwegian University of Science and Technology.

### 2.4. Course Direction

Anne Nyhamar, Senior Advisor at Riksantikvaren, was responsible for the overall course administration, implementation and planning together with Marie Louise Anker, PhD, Special Director of Cultural Heritage Management at Nidaros Cathedral Restoration Workshops (NDR) representing NTNU.

Jostein Løvdal, Acting Head of Section, International Cooperation and World Heritage at Riksantikvaren, was kept informed on matters of significance throughout the planning and implementation of the course. Valarie Magar, Unit Manager, Programmes, assisted with advice and recommendations in the planning of the course. Eir Grytli, Professor of Architecture, Department of Architecture and Technology NTNU, was kept informed during the planning of the course.

## 3. Going Online

The ICWCT 2018 took parts of the theoretical curriculum online for the first time with a separate preparatory distance-learning segment to the course. This was a big step for the ICWCT which had been almost unchanged in its structure since 1984. The completely online ICWCT 2021 took the course organisers and lecturers into previously uncharted territory. Inger Dagrann Langseth, Professor in foreign language didactics, at the NTNU Multimedia Centre was helpful with advice along with Sergio Martinez. Andreas Hansen Schille, Senior Executive Officer at the Department of Teacher Education, was extremely helpful in building the course platform editing video material used in the teaching.

This was the second completely online ICWCT, and much of the material from 2021 could be re-used, although significant changes were made based on previous years' experience. Both organisers and lectures benefitted from the experience of ICWCT 2021 and managed the technical challenges better the second time round.

It is important to stress that although the ICWCT 2021 and 2022 were taught entirely online, they were not MOOC (Massive Open Online Courses) but consisted of blended learning methods, using a combination of pre-recorded and synchronous lectures, online chat discussions, live discussions, and regular Zoom meetings. The group was limited to 20 participants. Personal contact with all participants meant that it was very clear if someone was missing from the group. Group discussions and assignments also meant that participation was expected from all students. A clear timetable was designed with regular meetings, all held on the same days of the week and at the same time to avoid confusion. Assignments were expected to be completed on time and according to the schedule to qualify for the final approval and official certificate from NTNU.

## 4. Course Programme

### 4.1. Inauguration

The course was inaugurated on Monday 14<sup>th</sup> February 2022 on Zoom. The Director General of the Directorate for Cultural Heritage Hanna Geiran welcomed the group, as did Marianne Skjulhaug, Dean, Faculty of Architecture and Design, NTNU. The course organisers - Anne Nyhamar and Marie Louise Anker welcomed the participants to the course. We organised a break-out session with smaller groups as icebreakers, encouraging participants to get to know each-other.

### 4.2. Course Curriculum

The curriculum included 6 distinct but interconnected units. All Units were concluded with a student assignment to demonstrate understanding and implement new knowledge through practice.

- **Introduction Unit on Ed-X:** Welcome video and introduction to the course by the course Directors. (See the welcome video here: <https://www.youtube.com/watch?v=JuzPiFvqx5U>) Course overview. Description of the digital platforms and instructions for use. Online etiquette and expectations. Participant Profiles. General information including course timetables and schedules. List of all lecturers and resource people and their contact information.
- **Unit 1: Conservation theory and principles:** *Gamini Wijesuriya, ICCROM, Sri-Lanka*  
The first Unit of the course included reflecting on current principles and approaches that underpin the conservation of wooden heritage. The session also touched on the evolving nature of the conservation discourse over the last 150 years and focused on emerging paradigms. The complexity confronted by practitioners when dealing with wooden heritage was discussed, all which was further elaborated in following units of the course. The students were able to re-assess the status of the conservation discourse by understanding the evolving principles, theories, and approaches and by recognising the diversity and context. They were able to improve their own



approaches in developing a conservation plan by recognising the complex nature of wooden heritage and the need to focus on a wide variety of issues; diverse characteristics of wood, typologies e.g., from objects to buildings to villages/cities, diverse decay mechanisms and diverse treatments. There were contributing lectures by Marie Louise Anker NTNU (Nara Document and the ICOMOS Charter on wooden constructions) and Terje Planke, Norsk Folkemuseum, who took us on a virtual walk around the Folk Museum in Oslo in discussion with Anne Nyhamar. Terje focused on intangible heritage and the implications of the ratification of the convention for the museum and the conservation staff.

- **Unit 2: Wood properties:** *Marco Fioravanti, University of Florence, Italy.*

This Unit formed an introduction to the structure and properties of wood in order to understand the relationship between material and object and conservation. The students got a basic understanding of the origin of damages in wooden artefacts and how wood science and technology as a necessary support for an effective preservation of wooden heritage. The properties of wood that are important in the conservation of historical wooden objects were covered, including the moisture relation, densities, and mechanical properties of the different species. The Unit was divided into sub-sections: Macroscopical and microscopical structure of wood, the moisture relations in wood, elements of wood mechanics and wood aging. A supplementary section focused on the problem of wood identification in Cultural Heritage.

- **Unit 3: Climate and Environment:** *Johan Mattsson - Mycoteam, Norway, Marte Boro - NIKU, Norway, and David Howell - West Dean College, UK.*

The climate and environment influence the condition of both movable and immovable cultural heritage objects. When the climate changes, we need to address the new threats, both biological and physical. In this unit, we looked at the general threats of both global climate change and more controlled climatic environments and introduced basic tools and knowledge on how to monitor and address them.

*Climate change:* Marte Boro started the Unit by introducing the topic of climate change and the consequences for cultural heritage. She gave a presentation of methodology - risk assessment and planning adaptation measures based on CVI and toolkits produced during the Interreg cooperation project [Adapt Northern Heritage](#).

*Biodeterioration:* Johan Mattsson discussed the main reasons for biodeterioration of wood and how the environment influences the damage development. The students saw how all biological activity has a logical reason, and with a fundamental knowledge of the building biology, it is possible to understand the causes of the damages. This makes it possible to handle most of the damages in a simple way, with a minimum of negative influence on the cultural heritage and often without any use of biocides. The following topics were studied: Importance of microclimate, discoloration of untreated wood, wood-decaying fungi, wood-boring insects, wood-destroying insects, and various sampling methods.

*Climatology:* David Howell addressed the discipline of environmental preventive conservation in caring for indoor collections and historic materials. With an emphasis on the role of temperature, relative humidity, and light as agents of deterioration and how they are monitored and controlled, the students got an appreciation of the damage that can be caused by inappropriate environments. At the end of the Unit, they were able to measure and monitor temperature and relative humidity, how to interpret monitored data, and how to decide upon and implement control measures.

- **Unit 4: Conservation of wooden objects:** *Shayne Rivers, West Dean College, UK*  
 This Unit looked at how to examine, interrogate and understand movable wooden objects. It gave an overview of properties of wood that affect the construction methods of movable objects, including structures and joints. At the end of the Unit, students were able to analyse how and why movable wooden objects are constructed and fall apart, prioritise agents of deterioration for movable wooden objects to support problem-solving, assess what matters and why (value) about movable wooden objects and evaluate cost-effective remedial conservation options for damaged movable wooden objects.
- **Unit 5: Surface treatment and climate barriers:** *Per-Willy Færgestad, MiA, Norway, Ida Ottersen, Alliero, Norway and Thor-Aage Kaminka Heiberg, NTNU, Norway*  
 In this unit, focus was on the climate barriers of a building, the building details marking the separation between indoors and outdoors such as the doors and windows. Per-Willy Færgestad presented the changes and developments in local building traditions through the study of the door. The students looked at the different door components and discussed how the modern timber trade has changed local traditions. The consequences of this were reviewed, including the increased use of chemicals.  
 Ida Ottersen guided the students through different types of historical paints and how to prepare and apply them. What paint is and how we use it to protect and decorate were discussed. Thor-Aage Kaminka Heiberg took us into his workshop and demonstrated how a traditional window is put together and explained the processes that must be considered.
- **Unit 6: Wooden built structures:** *Gord Macdonald, Heritage Works, Canada.*  
 Unit 6 looked at understanding historic wooden buildings and how to repair them. The students explored a variety of investigative tools and techniques used to assess the conditions of historic buildings, diagnose common decay mechanisms, and evaluate the performance of historic repairs. The information gathered during this process was then used to prioritize new repairs and determine how they should be monitored.

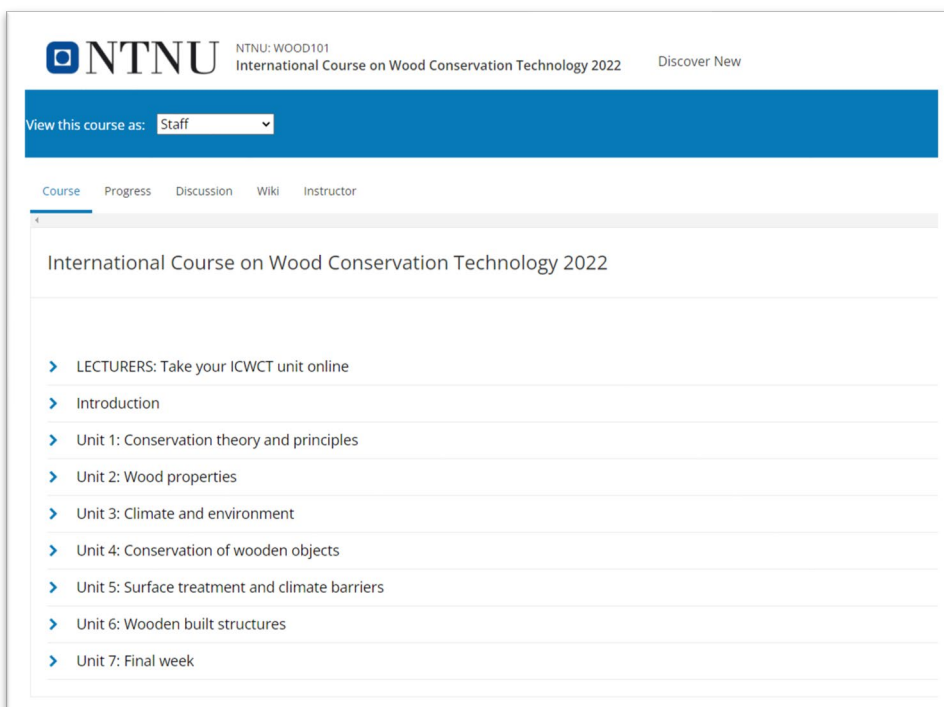
Other themes included: The application of international standards and guidelines (ICOMOS Principles) to the repair of historic wooden buildings, the relationships between materials (wood, metal, stone, mortar, etc.) The role of moisture, moisture migration and breathability in repairs, the significance of traditional materials and forest reserves for specification and repair, the relationships between wooden buildings, trees and wood biology/forest ecology, traditional crafts, tools and technology as cultural heritage, the use of modern technology for investigating historic buildings,

strategic investigation and purposeful documentation and the benefits of a multidisciplinary approach to specification.

- **Buildings of Faith:** The Unit concluded with a webinar on buildings of faith made in wood. Collectively, places of faith account for some of the world's oldest and most remarkable surviving wooden buildings but often involve unique challenges and complex issues associated with respecting both tangible and intangible values. Different approaches to the conservation and use of these buildings around the world were presented, the lectures presented on Ed-X and later discussed with the participating lecturers on Zoom. The session was facilitated by Gord Macdonald, Heritageworks. Lectures were given by Doug Evans, Chair of the ICOMOS-UK wood committee and chair of the IIWC wooden places of faith. Takaaki Nojiri, Standing Director and Senior Conservation Architect, the Japanese Association for Conservation of Architectural Monuments (JACAM) together with Alejandro Martinez de Arbulo (Assistant Professor, Kyoto Institute of Technology, Faculty of Design and Architecture, Japan), and Sjur Mehlum, Multiconsult, Norway.

## ***Appendix 2: Course Programme***

Some of the lecturers have contributed to the ICWCT before, five lecturers were completely new to the course. For some, teaching online was a new experience. The lecturers were asked to be responsible for their respective weeks on Ed-X, organising the on-line curriculum, recording their presentations, and preparing an assignment. In addition to preparing the tutorials, they gave a live presentation on the first day of the Unit and led a one-hour session at the end of their week. Some were also available at an additional (voluntary) Zoom meeting for questions and discussion. The lecturers were also responsible for answering questions posted by the participants in the Chat forum on Ed-X. This meant an obligation to log on to the course platform at least once a day.

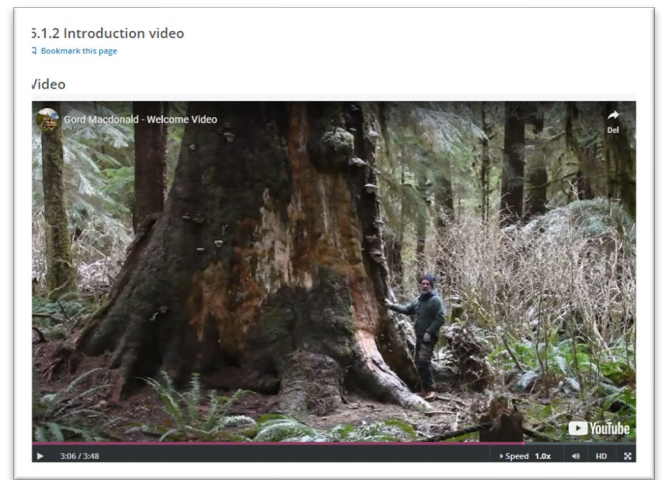
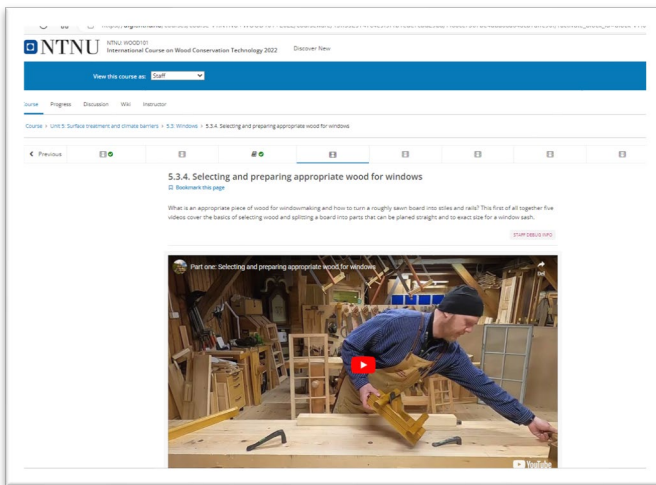


The screenshot shows the course page for the International Course on Wood Conservation Technology 2022 on the NTNU Ed-X platform. The page header includes the NTNU logo, the course code NTNU: WOOD101, the course title, and a 'Discover New' button. Below the header, there is a dropdown menu to view the course as 'Staff'. The main content area has tabs for 'Course', 'Progress', 'Discussion', 'Wiki', and 'Instructor'. The course title is repeated below the tabs. A list of course units is displayed, each with a right-pointing chevron icon:

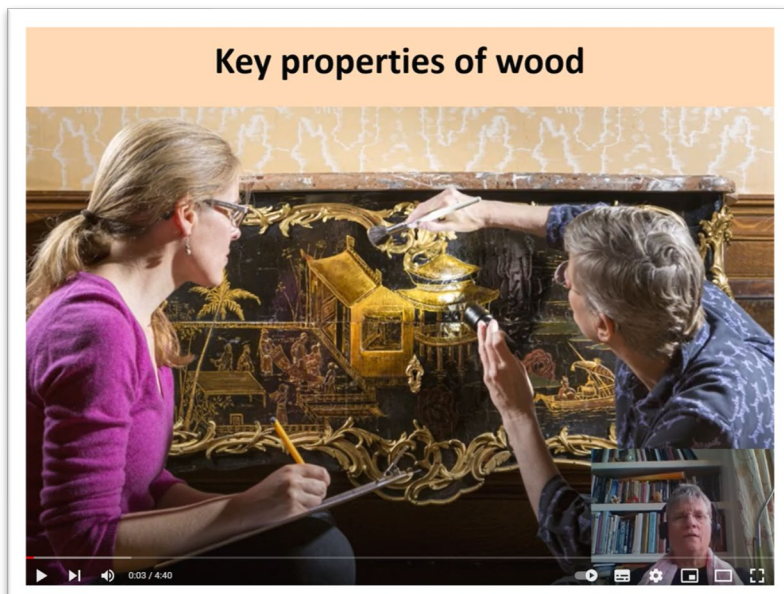
- > LECTURERS: Take your ICWCT unit online
- > Introduction
- > Unit 1: Conservation theory and principles
- > Unit 2: Wood properties
- > Unit 3: Climate and environment
- > Unit 4: Conservation of wooden objects
- > Unit 5: Surface treatment and climate barriers
- > Unit 6: Wooden built structures
- > Unit 7: Final week

### 4.3. Course content on Ed-X

The different lecturers had great freedom in designing the different Units they were responsible for, though a close dialogue and regular contact was upheld in the weeks prior to the course. A special effort was made to link the different Units and relate them to other sections of the course, building on previous assignments and recent course content. The content consisted primarily of pre-recorded video lectures including PowerPoints, links to literature (PDFs/ web-links) quizzes, example images etc and concluded with a practical assignment to demonstrate understanding of the subject matter. Assignments were completed by the participants and uploaded to OneDrive. All students and lecturers had access to the uploaded assignments.



- Above: Examples of pages from Ed-X, showing the main contents-page and
- Above left: Thor-Aage Kathinka Heiberg in Unit 5, demonstrating window construction in his workshop
- Above right: From Unit 6 and the Conservation of wooden built structures with Gord Macdonald in his introduction video from the forest in Canada.
- Below: Shayne Rivers in a video [lecture on wood properties in Unit 4:](#)



## 5. Final evaluation and credits

The ICWCT has previously been concluded with an examination credited by The Norwegian University of Science and Technology (NTNU). The credits given to a practical course is 15 ECTS (European Commission grading system). Because of reduced hours and lack of practical curriculum, the online ICWCT gave 7,5 ECTS.

Due to complications with the practicalities of online examinations in 2021, it was decided to cancel the final exam and that the assessment of the ICWCT 2022 would be continuous and based entirely on the submitted course material and class participation. In addition to the transcript of ECTS (grades) from NTNU, all participants are awarded a ICWCT course certificate issued by Riksantikvaren. This certificate is awarded independently to the exam results and given to all participants who have participated actively, submitted all the assignments, and completed the course.

All participants passed the ICWCT 2022. The official certification from NTNU was sent to the participants in August 2022.

## 6. Lecturers

Lecturers for the course are selected by the organisers. Feedback and reviews from previous courses are also important in the choice of lecturers. The following lecturers were invited to contribute to the ICWCT this year (in order of appearance in the programme):

- **Gamini Wijesuriya**, recently retired from ICCROM represented ICCROM in the programme.
- **Terje Planke**, Senior Conservator in the Section for Building Preservation, Norsk Folkemuseum, Oslo
- **Marie Louise Anker**, Special director, Nidaros Cathedral Restoration Workshop. Representing NTNU.
- **Marco Fioravanti**, Associated Professor of Wood science and technology, University of Florence, Italy
- **Helge Drange**, Professor, University of Bergen, Norway
- **Marte Boro**, NIKU, Norway
- **David Howell**, Lecturer, West Dean College, UK
- **Johan Mattsson**, Manager R&D in Mycoteam, Oslo - Norway
- **Per-Willy Fergestad**, Master Carpenter, Follo Museum, Museums of Akershus, Norway
- **Ida Ottersen**, Master Painter, Alliero, Norway
- **Thor-Aage Kaminka Heiberg**, Assistant Professor, NTNU, Norway
- **Shayne Rivers**, Senior lecturer, West Dean College, UK
- **Gord Macdonald**, Master Carpenter and Buildings Conservator, Heritageworks, Canada
- **Sjur Mehlum**, Multiconsult, Oslo, Norway
- **Daniela Sauer**, Lead Librarian at ICCROM, Italy
- **Doug Evans**, Chair of the ICOMOS-UK wood committee and chair of the IWC wooden places of faith
- **Takaaki Nojiri**, Standing Director and Senior Conservation Architect, the Japanese Association for Conservation of Architectural Monuments (JACAM) Japan
- **Alejandro Martinez de Arbulo**, Assistant Professor, Kyoto Institute of Technology, Faculty of Design and Architecture, Japan

## 7. Participants

### 7.1. Announcement and response

In contrast to all the uncertainty regarding the ICWCT 2021, there was no doubt that the 2022 course should also be held online. Restrictions imposed both nationally and internationally due the pandemic were still very much in place, including the risk of infection and imposed quarantine. Holding a physical course with people from many different countries was not a risk we could take. Having already held an online course the year before, the decision was a much easier one to take second time around. Much of the teaching material was already in place and we were far better equipped to handle online teaching.

The ICWCT 2022 course announcement was published on the ICCROM and Riksantikvaren websites in October 2021. ICCROM was the receiving address for the applications. By the closing date for applications December 20<sup>th</sup> 2021, 34 applications were registered, representing 25 different countries. As this was the first time the ICWCT had been advertised as an online course, we were very unsure as to what to expect regarding number of applications. The low number does seem to be a clear indicator of a preference for a physical course, but it also meant that those who did participate perhaps represented a different target group who would not necessarily be in a position to travel to Norway, even if they had been able to travel.

### Appendix 1: Course Announcement

#### 7.2. Selection of participants



- The ICWCT 2021 map of the world.

The choice of participants aims at securing a relevant professional level and at creating a good group composition. The following main criteria were used for the selection of the participants:

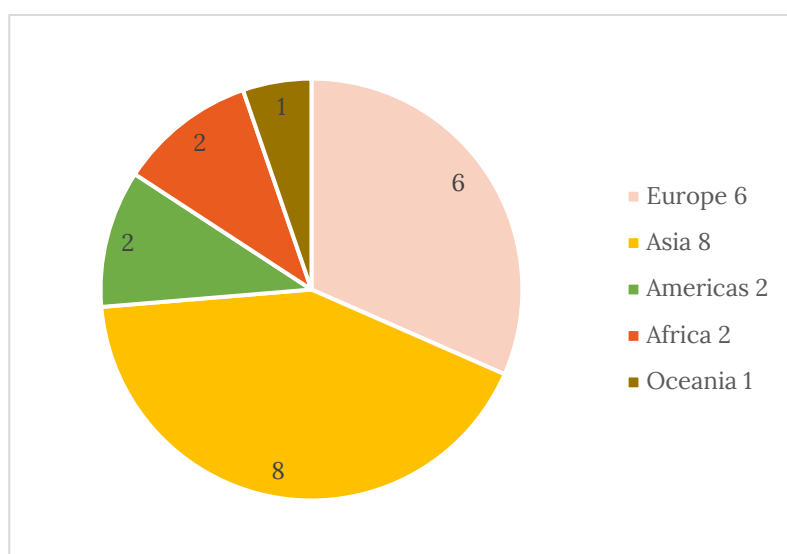
- 1. Minimum 3 years relevant work experience.**
- 2. Diversity in educational and professional backgrounds considering both academic and practical experience.**
- 3. Geographical and cultural diversity.**
- 4. Balanced gender representation.**

Being an online course, as well as the course organisers at Riksantikvaren and ICCROM made proposals separately and drew up a shortlist and a waiting list. The two parties conferred by email and phone and compared their selections. For Riksantikvaren it is always very useful to hear ICCROM's rationale behind their selection and beneficial to learn from their experience. Riksantikvaren informed all applicants concerning the results of their applications.

The final group of participants were from:

- Europe 6, Asia 8, Americas 2, and Africa 2, Oceania 1.  
(One participant from Palestine accepted the place offered but never attended).
- There were 8 female and 11 male participants.
- 8 participants had background as architects or engineers and worked with buildings. 10 were conservators, 1 was a trained craftsman.
- Most of the participants were employed by governmental entities, museums, or other public institutions in their home countries though some are also independent. Several participants were also teachers and in a good position to pass on new knowledge gained.

*Geographical spread of the ICWCT 2022 participants*



## List of participants

Nationality	Name		Current position
Argentina	Christian Luis UNTOIGLICH	M	Independent conservator, manager, and advisor to the National Commission of Monuments, Places, and Historical Properties
China	Yangfan XIE	M	Conservator, The Palace Museum, Beijing
Ethiopia	Martha Negash ASFAW	F	Architectural conservator, Ethiopian Authority of Research & Conservation of Cultural Heritage (ARCCH)
Ethiopia	Haftamu Aberba HAGOS	M	Heritage conservator, Ethiopian Authority of Research & Conservation of Cultural Heritage (ARCCH)
India	Jiten DESAI	M	Principle Architect, Team ARC, heritage conservation. Mumbai
India	Siddharth CHANDRA	M	Conservator, Himalayan Society for Heritage and Art Conservation, Chamba.
India	Dilip MESTRY	M	Conservation Assistant, Chhatrapati Shivaji Maharaj Vastu Sangrahalaya Museum
Norway	Samuel B. FERAGEN	M	Architect, PhD Candidate, NTNU
New Zealand	Zackary BENNET	M	Independent restorer/ conservator/ carpenter, ZJB Design.
Romania	Laura Ioana ZAHARIA	F	Architect. Arcolar company.
Romania	Andrei BUDA	M	Conservator, SC LON Total. PhD student. Associate Professor Lucian Belga University, Sibiu.
Spain	Silvia SANSANO COLOMINA	F	Conservator, MARQ – Archaeological Museum of Alicante
Sri Lanka	Sivaruby SAJITHARAN	F	Lecturer Archaeology, University of Jaffna. Museum collection management
Sweden	Malin CANESSA SELVAD	F	Conservator/ restorer, Stockholms Målerikonservering AB.
Thailand	Ongart HUDAKORN	M	Architect, structural renovation and preservation. Assistant Professor Silpakorn University, Bangkok
Turkey	Lana KUDUMOVIC	F	Heritage preservation Architect. Assistant Prof. Dr. Fatih Sultan Mehmet Vakif University, Istanbul.
UAE	Nirzary PUJARA	F	Conservation Architect. Independent.
USA	Alexa KLINE DE PUIVERT	F	Conservation Research Assistant. Independent consultant.
Yemen	Amgad ABDUL-MUGHNI	M	Teacher of conservation, Sana'a University. Conservator Great Mosque, Old Sana'a.



### **7.3. Course costs and financial support**

The participants do not pay a course fee. As the ICWCT 2022 was held completely online, the participants did not incur the costs of travel to Norway which is normally their own responsibility. Food and travel expenses while in Norway is also usually the responsibility of the individual participant.

The 2022 course organisers saved costs on student accommodation, travel scholarships as well as travel expenses and hotel accommodation for the lecturers. However, the cost of developing the online course in 2021, as well as revising and developing new course material for 2022, recording the lectures and increased time spent on course planning and content development, meant that although well below the normal budget, considerable funds were spent interpreting and adjusting the course material to fit an online format. The two online courses were developed and held within the same budget as one normal physical course.

### **7.4. The role of the participant**

The success of the course has always depended on the participants playing an active role during the programme. This was also very important during the online version of the course. Although some reticence to speak in public was apparent initially within the group, everyone soon became more confident speaking out on Zoom and posting questions in the chat and Discussion Forum on Ed-X. Dividing the group into smaller units for discussion and group-work also helped break the ice and create a group feeling. This was welcomed by the participants.

The mutual exchange of experience and ideas between the participants outside the classroom is always regarded as an important contribution to the quality of the course, and the practical framework aims at strengthening social and professional networking. This was harder to achieve with the online format as the informal areas for contact were lacking. Lively discussions did occur in the different platforms though, and after completing the course, the participants have established a WhatsApp group where they post questions relating to their work and share articles and issues of relevance. This shows that the course has achieved its aim of establishing a lasting professional network.

## **8. Course evaluation**

The course always has both a written and an oral evaluation. The results of the evaluation are an important tool for the improvement of the programme for future courses. For the online course, there was also a written evaluation after every Unit. The oral evaluation was held on the last day on Zoom, where an hour was reserved for a discussion about the course and general feedback. A separate (anonymous) written evaluation form was also sent to all the participants after the course. All participants responded to the final written evaluation. All points will be examined carefully, and efforts will be made to rectify relevant issues before the next course.

**Oral evaluation participants:** Several questions were posed to the participants by the organisers, especially ones that were considered problem areas in 2021. Too little time, more feedback, participant presentations and the practicalities of the final exam were all issues that this year were seen to have been resolved. The general feedback at the oral evaluation meeting was extremely positive and no significant issues were raised.

**Written evaluation participants:** The link to the written evaluation forms were sent to the participants immediately after the completion of the course. We used the questionnaire software *Questback*. The responses were anonymous. 19 out of 19 participants responded to the questionnaire.

The course organisers were extremely satisfied with the results of the written evaluation. The most important questions gave very satisfactory answers. Other comments were all constructive and will help the organisers make necessary changes next time. The full results of the written evaluation are in Appendix 3 of this report. Examples are:

- How likely is it that you would recommend the online ICWCT to colleagues in your home country? *Result: 100% Very likely*
- Do you feel taking the online ICWCT was time well-spent? *Result 95% Yes, absolutely.*
- Overall, were you happy with the lecturers on the course? *Result: 84% Very happy.*
- Will what you have learnt on the course be useful for your work? *Result 84% Very.*

**Oral evaluation lecturers:** A separate evaluation meeting on Zoom was also held with the lecturers after the course. In general, all enjoyed being a part of the online version of the ICWCT and all have reported back that they benefitted from the experience. Other points raised were:

- Getting to know each other through the regular planning-meetings prior to the course was a very positive experience and helped to connect the various Units, reducing the risk of overlapping curriculum. Through the meetings, a sense of ownership, group fellowship was also achieved with the lecturers, not just the organisers the course.
- Although the two online ICWCTs have both been a success, we all agreed that nothing will come close to replacing the physical course! At the same time, the best from the online teaching could be continued, perhaps through a hybrid/ combined online and practical course in the future.

### **8.1. Conclusion of course evaluations**

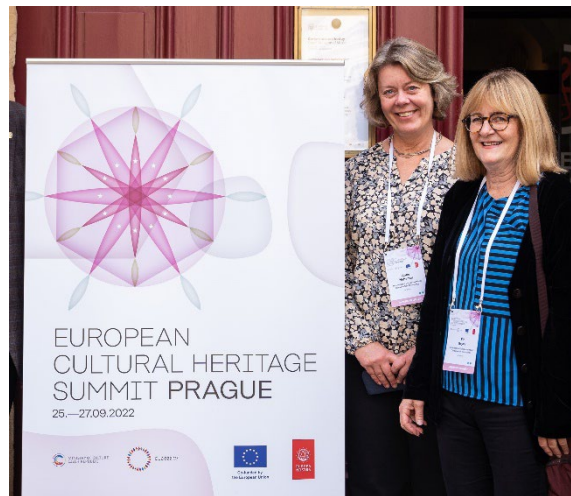
The organisers were very satisfied with both the oral and written evaluations of the ICWCT 2022. The course organisers have received many letters of thanks since the completion of the course and are grateful to the participants for all the positive and constructive feedback. All feedback is much appreciated and will help the organisers in future planning, and ensuring that every new ICWCT is even better than the last!

### **Appendix 3: Results of the written course evaluation**

*(See the full list of all questions, answers, and comments from the ICWCT 2022 participants.)*

## 9. General assessment of the course by the organisers

### 9.1. European Heritage Award/ Europa Nostra Award



*Left: The European Heritage Award/ Europa Nostra Award Ceremony at the National Opera in Prague, October 2022.*

*Right: Anne Nyhamar and Eir Grytli at the European Cultural Heritage Summit in Prague.*

In 2022, the ICWCT was awarded the **European Heritage Award/ Europa Nostra Award** in the category *Education, Training and Skills*. This was a great honour and a tribute to all the lecturers and resource staff who have worked so hard to make the course happen – every other year since 1984! We are very honoured and grateful to Europa Nostra for recognising our efforts and the award will be a great boost and encouragement to continue to organise and host the ICWCT.

Anne Nyhamar (Riksantikvaren) and Eir Grytli (NTNU) represented the ICWCT at the European Cultural Heritage Summit in Prague in October 2022 and received the Award at a formal ceremony at the National Opera. In addition to the ceremony in Prague, a national ceremony was also held at Riksantikvaren's annual 'Autumn Meeting' for regional cultural heritage administrations, museums, and NGOs. The two founders of the ICWCT - Nils Marstein and Knut Einar Larsen were invited and accepted the official plaque from Norway's Europa Nostra representative. Eir Grytli (NTNU) and Tone Olstad (NIKU) who were the course directors for 10 years, also attended the ceremony.



*From left: Riksantikvaren's Director General Hanna Geiran, former Director General Nils Marstein, Knut-Einar Larsen (NTNU), Eir Grytli (NTNU), Tone Olstad (NIKU) and Anne Nyhamar (Riksantikvaren) with the European Heritage Award/ Europa Nostra Award at the Riksantikvaren Autumn Meeting in Roros.*

### **9.2. Going online**

ICWCT 2022 was the first online course which was advertised as such. ICWCT 2021 was created as a solution when Covid struck, this time the participants actively chose to participate in an online course. In chapter 7.1, the number of applications is discussed, showing that far fewer applications than normal were received for this online course, 34 as opposed to 110 in 2018. This shows that more applicants are attracted to a physical course where practical exercises are a part of the curriculum. Travelling to Norway is probably also seen to be a big attraction. On the other hand, when questioned, many of the 2022 participants did say that they would have been unable to travel due to personal and professional reasons. For them, the online course offered a possibility of participating in the ICWCT that they would otherwise not have had.

In 2021, the course organisers had no experience of blended online learning but were forced to think differently and creatively due to the pandemic and Covid restrictions. As previously mentioned, much of the course material from 2021 was re-used, but some major changes were also made to the curriculum and several new lecturers were introduced. It was by no means a repeat, but rather a second chance to perfect a totally new course medium.

*Please see the ICWCT 2021 Report and Evaluation for more details about how this first online course was developed.*

### **9.3. Pre-course information and assignments**

The participants were also asked to complete several preparatory tasks before the start of the course:

1. Complete the online **FutureLearn** course Preserving Norwegian Stave Churches which was made by Course Director Anne Nyhamar and Sjur Mehlum (ICWCT Course Director 2012 – 2018)
2. Read Conservation of Historic Timber Structures – an ecological approach, by Knut Einar Larsen and Nils Marstein – the founders of the ICWCT. The book and its approach form the foundation of the ICWCT.
3. Individual presentations: The participants were asked to upload a short presentation on video of their work to the rest of the group. They were then given 10 minutes each during the course schedule to answer questions relating to their presentations.

### **9.4. Digital platforms**

Overall, we found that Ed-X worked well for both students, lecturers, and organisers. The various Units were opened successively one week ahead of time. This allowed for students to prepare ahead, but at the same time keep the group at the same place in the course schedule. A weakness with Ed-X is that students could not upload documents. This made it necessary to have an additional shared folder on OneDrive for uploading assignments.

The Chat forum on Ed-X was not intuitive and several participants and lecturers struggled initially to understand access and potential. After experiencing this in 2022, we tried to include the Chat forum more for communicating with the group during the Unit. After some initial technical issues last year, we also made an effort to improve the technical guidance to Ed-X at the start of the course. The evaluation shows that some students still experienced initial technical difficulties, something future online courses must consider and improve upon.

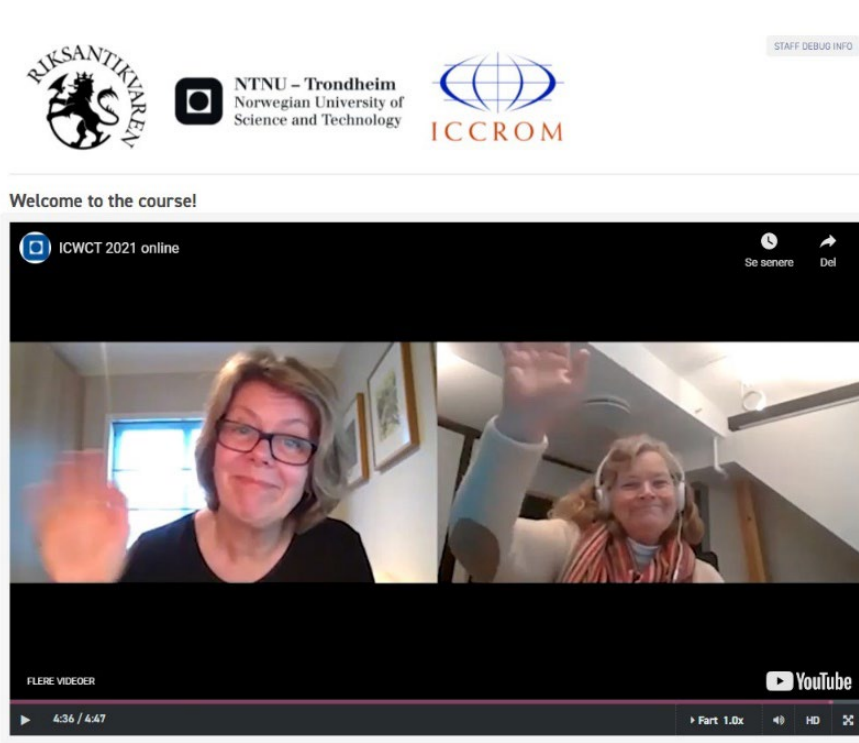
A major challenge with the online course was the issue of international time-zones. Participants logged on from

New York to New Zealand, and there is no ideal solution to this issue. Finding a time where all participants could attend the synchronous meetings on Zoom was not easy, and the organisers were extremely conscious of restricting the meetings to the agreed time of one hour. This proved to be a challenge, and many of the initial meetings felt rushed. We solved this by extending the meeting time for those who were able to stay and keeping any over-time on a voluntary basis.

### 9.5. The Course Directors

The ICWCT Course Team consisted of **Anne Nyhamar**, Senior Advisor in the Section for International Cooperation and World Heritage at Riksantikvaren, and **Marie Louise Anker**, NDR, in this case representing NTNU. They were both responsible for the general planning, administration, and academic content of the course, though Anne took responsibility for all e-mail contact with the participants and lecturers, ICCROM, technical staff and responsibility for hosting and chairing most of the Zoom meetings. Marie was officially responsible for academic accreditation of the course, and for ensuring that the syllabus met the required level. Marie gave a lecture in Unit 1 and was also responsible for organising the groups so everyone would meet everyone during the course - quite a mathematical exercise!

This was Anne's 7<sup>th</sup> ICWCT and Marie's 2<sup>nd</sup>. Cooperation between the two institutions as well as the two organisers personally was excellent.



- Course Directors Anne Nyhamar and Marie Louise Anker on Zoom.

### 9.6. Participants

The composition of the participant group varies from year to year, depending on the applicants. This year as often before, two main groups dominated: architects/ engineers and conservators and we also had one qualified craftsman in the group. Special care was shown in the selection procedure to make a balanced group. The course organisers have always tried to include a wide spectrum of backgrounds and qualifications in the final group selection. However, while striving for the best possible participants, have learnt that over-qualification is also a

challenge. In selecting the participants for the 2022 course, as in previous years, the organisers tried to reduce the number of specialists and PhDs, bringing the participant profile back to the intended “mid-career” professional level. It has been a practise in previous years to select just one participant from each country. With a smaller pool of applicants this was not possible, and a few countries were represented by more than one participant. As the participants were quite different in background and experience, this was not seen to be a problem.

This was the first ICWCT group to apply for an online course. Although selected from a smaller pool, the organisers had no difficulties in finding excellent candidates, and all participants were dedicated in their willingness to participate in and complete the course. Only one selected participant never showed up and did not respond to continued calls and emails. This made the final group number 19 instead of 20.

### **9.7. Lecturers**

The academic programme aims at covering a variety of topics within the framework conservation of wooden heritage. The program is intended to reflect a multidisciplinary and international approach, and at the same time, update and refresh skills and knowledge on different topics. The question of the composition of the curriculum necessarily relates to the wide range of topics within the field of wood conservation; selecting the issues and lecturers is always a challenge. This was especially a challenge with the online course as the number of hours teaching was reduced.

Being a lecturer in a cross-disciplinary course is especially challenging as the level of knowledge of the students varies enormously. Ideally, the lecturer should introduce a certain topic for those unfamiliar to the subject, and at the same time give new information to participants who are themselves often experts within the same field. The rapid development within the various subjects requires lecturers of an extremely high standard to be a success on a course such as the ICWCT on a high international level. A broad variety of nationalities is also important when recruiting lecturers, as is considering the international aspect when planning the course content. An ambition for future courses repeated in previous reports, is to include an African and/ or South American lecturer.

The curriculum for the online 2022 course was reduced given the restricted time limit and the very wide scope of subjects within the field. However, the evaluations show that most participants were happy with the academic level of the course, the results showing that 68% thought it was at the right level. 11% found it too challenging. The evaluation also shows that the 47% thought the curriculum was well balanced between objects and buildings – 16% saying it was too much about buildings, and 11% too much about objects!

All lecturers on the ICWCT 2022 course received extremely positive feedback. 84% responded that they were very happy with the lecturers on the course. Nobody was unhappy. The fact that the lecturers this year and last were more involved in the course planning and had more insight into the content of the other units can be seen as one of the great successes of the online course. The organisers are extremely grateful to all the lecturers involved for all the time and dedication spent in the planning of both the 2021 and 2022 ICWCT courses.

## **9.8. Exam**

The online exam was challenging to organise in 2021 and it was decided to base evaluations on continual assessment in 2022. This worked well and was an added stimulus to complete weekly assignments. All participants passed and received official certificates from NTNU with 7,5 internationally recognised ECT points. All participants are also awarded a ICWCT course certificate issued by Riksantikvaren.

## **10. Conclusion and recommendations**

### **10.1. Background and benefits**

The International Course on Wood Conservation Technology (ICWCT) was started in 1984 as a joint project between UNESCO, ICCROM, Riksantikvaren, ICOMOS, and NTNU. The curriculum and organisation of the course are still based on ICCROM's original recommendations. A total of about 450 participants from over 100 different countries have attended the 20 courses that have been organised to date.

In recent years, the numbers of applicants have stabilised. There were 98 applications in 2016 and 110 in 2018. The number of applicants for the 2020 course went down slightly to 80 applications from 38 different countries. The number for the online ICWCT 2021 was only 34, the lowest on record. The low number indicates that the physical course on site in Norway is more attractive to applicants.

Course evaluations show that ICWCT should be continued as an international course, and that it should not be replaced by regional courses. Japan (ACCU-Nara) course in conservation of timber structures focuses on Asian participants, but ICWCT still has many applicants from that region, and some take both the courses. The more recent addition to ICCROM's wood course portfolio is held in Kizhi in Russia. A planned inclusion of a lecturer from Kizhi was cancelled in 2022 due to Russia's invasion of Ukraine and subsequent boycott instructed by Norway's Ministry of Foreign Affairs. Two Japanese lecturers participated successfully. The course organisers hope that the three ICCROM wood courses can continue to cooperate in the future; for example, continuing the exchange of lecturers as well as organisational experience.

It is always important to continuously assess the need and the future of the ICWCT. The course demands a considerable amount of planning-time for the organisers and for the institutions involved. The cost-benefit relationship should always be considered when deciding if the course should be continued. In this aspect, the feedback from the participants is our most reliable source of information. Even with a lower number of applicants, this year's high score in the evaluation results leave no doubt; the course is greatly appreciated and valued, and a clear majority say they have benefitted from the tuition and will recommend the course to colleagues in their home countries.

Several measures have been suggested over the years to reach more people with the existing programme. Riksantikvaren has addressed this issue seriously and completed a project in 2018 with the Multimedia Centre at NTNU to develop a MOOC (Massive Open On-line Course) on the conservation of wooden built heritage, using the restoration of the Norwegian Stave Churches as an example. It is located on the [FutureLearn](#) platform with 4 076 participants currently enrolled. This course has been used as part of the preparatory work for ICWCT participants.

Last year's first online ICWCT has shown that online learning – and more specifically, blended online learning with regular synchronous meetings and a limited group – can work well. The participants were motivated and dedicated. However, judging from both the number of applications as well as feedback from the students, the ideal course format is a combination of both online and physical course formats.

### ***10.2. Cooperation between Riksantikvaren, NTNU and ICCROM***

From the start, the ICWCT was developed as a collaboration between Riksantikvaren and NTNU and ICCROM, enabling the course to be a recognized part of an academic system as well as benefitting from ICCROM's global network and expertise. Offering an academic accreditation adds considerable status and credibility to the course and Riksantikvaren appreciates and values the cooperation with the University.

The collaboration between the Norwegian organisers of ICWCT and ICCROM is regulated through a Memorandum of Understanding which defines the respective roles and responsibilities between the three parties. A revised MoU was drawn up and signed in February 2022. The MoU will be effective through to 31.12.2026 and the three courses (2022), 2024 and 2026. In addition, Riksantikvaren and NTNU have separate course agreements for every ICWCT course held.

### ***10.3. Looking ahead***

The changed format to the ICWCT 2021 and 2022 were a success despite difficult circumstances beyond our control. There is no doubt however, with both the organisers, lecturers, and participants alike, that going completely online has its limitations, and that a return to meeting in Oslo with workshops, hands-on exercises and direct interaction between participants is preferred. Future courses should, however, continue to develop, looking for new opportunities to improve. The advantages of online learning should also not be disregarded, and a hybrid format is perhaps the way to go in 2024.

*Anne Nyhamar*

*(and approved by Marie Louise Anker)*

*Oslo, December 2022.*



## ***11. APPENDICES***

***Appendix 1: Course Announcement***

***Appendix 2: Course programme***

***Appendix 3: Results of the written course evaluation  
Comments from participants.***

## **Appendix 1: Course Announcement 2022**



### THE 20<sup>th</sup> INTERNATIONAL COURSE ON WOOD CONSERVATION TECHNOLOGY - ICWCT 2022

An online course on the conservation of cultural heritage made of wood

**The course will be held online in the period 14<sup>th</sup> February – 8<sup>th</sup> April 2022.**

#### **Partners**

**ICCROM** (International Centre for the Study of the Preservation and Restoration of Cultural Property)

**Riksantikvaren** - The Directorate for Cultural Heritage, Norway

**NTNU** - Norwegian University of Science and Technology

#### **Background and Content**

The ICWCT was initiated as a response to a recommendation by UNESCO and has been organized in Norway every second year since 1984. It is directed towards professionals who have been working for some years within the field of wood conservation. The ICWCT covers a wide range of interdisciplinary topics relating to both buildings and objects made of wood. Due to continued international travel restrictions, the ICWCT 2022 will be held online.

#### **Aim and objectives**

The aim of the course is to promote cultural understanding and research in the field of wood conservation, and to be a valuable resource for the work of the individual participants in their respective countries. The main objectives of the course are:

- to establish a basic knowledge of wood, and the processing and use of wood, both structurally and decoratively;
- to give participants the theoretical and practical knowledge essential for diagnosing the causes of deterioration, and for selecting the most appropriate methods of conservation and restoration of wood;
- to extend the knowledge of participants beyond their own professions for a broader understanding of different aspects and approaches to wood conservation;
- to bring people with various professions from different countries and cultures together for a mutual learning experience, drawing on different experiences, practices and approaches to wood conservation and use of wooden materials.

#### **The course programme**

The curriculum includes distinct but interconnected units covering aspects of: Conservation theory and principles, properties of wood; biodeterioration, decay and damage development of fungi and insects; preventative conservation and climatology, climate change and its effect on wooden cultural heritage, the conservation of wooden objects and furniture as well as the conservation of wooden buildings and structures.

The ICWCT 2022 course programme will be held entirely online. The course uses edX as a course platform and all course material is shared here. Zoom is used for synchronous meetings and discussions. Each week will include both individual and group assignments which will be shared with the group.

The course requires approximately 20-25 hours of study and coursework per week. This time includes approx. 5 hours of live Zoom meetings with synchronous participation. Please note that live meetings are usually held between the hours of 1 – 3 pm CET so flexibility might be required for participants in other time-zones. A good and stable internet connection is necessary. The course is intensive, and we recommend that participants make sure they schedule sufficient time to be able to concentrate on the course. We do not recommend this course being combined with full-time employment.

### Lecturers

Lecturers from many countries will be contributing to the course. All are recognized experts within the field of conservation and with various backgrounds and professional experience.

### Exam

The course gives 7,5 (ECT) university credits from The Norwegian University of Science and Technology (NTNU). A full-time online presence, active participation with completion of all assignments is a requirement to obtain the certification from NTNU.

### Fees

Course participation is free of charge for the selected participants.

### Participants

Applicants should be mid-career professionals with a minimum of three years' work experience in wood conservation. It is of great importance for the success of the course that the participants have relevant experience to contribute with, and benefit from, the mutual exchange of ideas.

*The number of participants is limited to 20.*

### Language

The working language of the course is English. A good knowledge of both oral and written English is essential.

### Applications

To apply, please fill the online application form.

For further information regarding the course, please contact: Anne Nyhamar (The Directorate for Cultural Heritage), e-mail: [anne.nyhamar@ra.no](mailto:anne.nyhamar@ra.no)

### Application deadline

Applications should reach ICCROM by **December 20<sup>th</sup>** to ensure inclusion in our selection process.

All applicants will be notified before January 10<sup>th</sup>, 2022.

**Please note that the implementation of the course is subject to the approval of the ICCROM Programme and Budget 2021-2022 by the General Assembly of ICCROM to be held in November 2021.**

## Appendix 2: Course Programme

### ICWCT 2022 Online Programme 14 February – 8 April 2022

*Please note: 11:00 am CET is the time for all our Zoom meetings unless otherwise stated. All Zoom meetings will in general last approx. 1 hr.*

Date	Introduction
<b>14 February</b> 10:00 - 11:30 am CET	Welcome and introduction to the course and to each other on Zoom <ul style="list-style-type: none"> <li>- <i>Welcome by Hanna Geiran – General Director of the Directorate for Cultural Heritage, Norway.</i></li> <li>- <i>Welcome by Marianne Skjulhaug, Dean, Faculty of Architecture and Design, NTNU</i></li> <li>- <i>Welcome by ICWCT Organising Team: Anne Nyhamar (The Directorate for Cultural Heritage/ Riksantikvaren) Marie Louise Anker (NTNU) How will the course work? Practicalities.</i></li> <li>- Getting to know one-another. Break-out session: Bring your favourite tool!</li> </ul>
<b>15 – 21 February</b>	<b>UNIT 1: Conservation theory and principles</b>
15 Feb. 10:00 am CET  EdX course platform  17 Feb: <b>11:00 am CET</b>  21 Feb: <b>11:00 am CET</b>	<p><i>Zoom meeting: Introduction to Unit 1: Q&amp;A – Christian and Yangfan answer questions regarding their own presentations (10 mins). Conservation theory and principles with Dr. Gamini Wijesuriya (ICCROM)</i></p> <ul style="list-style-type: none"> <li>- Reflect on current principles/approaches that underpin the conservation of wooden heritage. The session will also look at the evolving nature of conservation principles/ approaches over the last 150 years and the latest paradigms. <i>By Dr. Gamini Wijesuriya (ICCROM)</i></li> <li>- The Nara Document and the ICOMOS Charter on wooden constructions. <i>By Dr. Marie Louise Anker</i></li> <li>- Virtual walk around the Folk Museum in Oslo, focusing on intangible heritage and the implications of the ratification of the convention for the museum and the conservation staff. <i>By Dr. Terje Planke</i></li> </ul> <p><i>Zoom meeting: Q&amp;A – Martha and Haftamu to answer questions regarding their own presentations (10 mins).</i></p> <p><i>Dr. Terje Planke available for Q&amp;A regarding his presentation from the Folk Museum</i></p> <p><i>Zoom meeting: Presentation and discussions of student assignments for this Unit with Dr. Gamini Wijesuriya.</i></p>
<b>22 – 28 February</b>	<b>UNIT 2: Wood properties</b>
22 Feb. 11:00 am CET  EdX course platform	<p><i>Zoom meeting: Jiten and Siddharth to answer questions regarding their own presentations.</i></p> <p><i>Introduction to the Unit with Dr. Marco Fioravanti (University of Florence, Italy)</i></p>

<p>24 Feb 11:00 am CET</p> <p>28 Feb 11:00 am CET</p>	<p>Elements of science and technology are discussed to understand the structure, physical and mechanical behaviour of wood. Specific subjects, such as wood identification and wood science applied to preservation of wooden cultural heritage will be covered. Emphasis will be given to the relationship between conservation environments and potential risks of wood damage or degradation.</p> <p><i>Zoom meeting: Q&amp;A – Amgad and Sivaruby to answer questions regarding their own presentations (10 mins).</i></p> <p><i>Discussion with Unit lecturer.</i></p> <p><i>Zoom meeting: Q&amp;A – Presentation and discussions of student assignments for this Unit.</i></p>
<p><b>1 – 14 March</b></p>	<p><b>UNIT 3: Climate and Environment</b></p>
<p>1 March: 11:00 am CET</p> <p>EdX course platform</p> <p>3 March 11:00 am CET</p> <p>EdX course platform</p> <p>7 March 11:00 am CET</p> <p>8 March 11:00 am CET</p> <p>EdX course platform</p> <p>10 March 11:00 am CET</p> <p>14 March 11:00 am CET</p>	<p><i>Introduction to the Unit with Marte Boro (Norwegian Institute for Cultural Heritage Research - NIKU) Johan Mattsson (Mycoteam, NO), David Howell (West Dean College, UK) Andrei and Laura to answer questions regarding their own presentations (10 mins)</i></p> <p>The climate and environment influence the condition of both movable and immovable cultural heritage objects. When the climate changes, we need to address the new threats, both biological and physical. We will look at the general threats of both global climate change and more controlled climatic environments and introduce basic tools and knowledge on how to monitor and address them.</p> <ul style="list-style-type: none"> <li>– Global climate change: By Helge Drange, (University of Bergen).</li> <li>– Climate change and cultural heritage – what are the consequences? Presentation of methodology - Risk assessment and planning adaptation measures. By Marte Boro</li> </ul> <p><i>Q&amp;A - Discussion with Unit lecturer Marte Boro.</i></p> <p>Biodeterioration by Dr. Johan Mattsson.</p> <ul style="list-style-type: none"> <li>– The main reasons for biodeterioration of wood and how the environment influences damage development.</li> </ul> <p><i>Zoom meeting: Ongarth to answer questions regarding his presentation (5 mins).</i></p> <p><i>Q&amp;A - Discussion with Unit lecturer Johan Mattsson</i></p> <p>Daniela Sauer, the Lead Librarian at ICCROM, gives a short introduction to the library and how to access it (15 mins).</p> <p><i>Q&amp;A – Discussion with Johan Mattsson</i></p> <p>Environmental monitoring for indoor climate.</p> <ul style="list-style-type: none"> <li>– The discipline of preventive conservation in caring for indoor environments, collections, and historic materials. The role of temperature, relative humidity, and light as agents of deterioration and how they are monitored and controlled will be discussed. By David Howell</li> </ul> <p><i>Zoom meeting: Q&amp;A – Lana and Nirzary to answer questions regarding their own presentations (10 mins).</i></p> <p><i>Discussion with Unit lecturer David Howell – Q&amp;A</i></p> <p><i>Zoom meeting: Summary of Unit - Group discussions regarding Unit assignment. With Unit lecturers Marte Boro, Johan Mattsson and David Howell.</i></p>
<p><b>15 – 21 March</b></p>	<p><b>UNIT 4: Conservation of wooden objects</b></p>

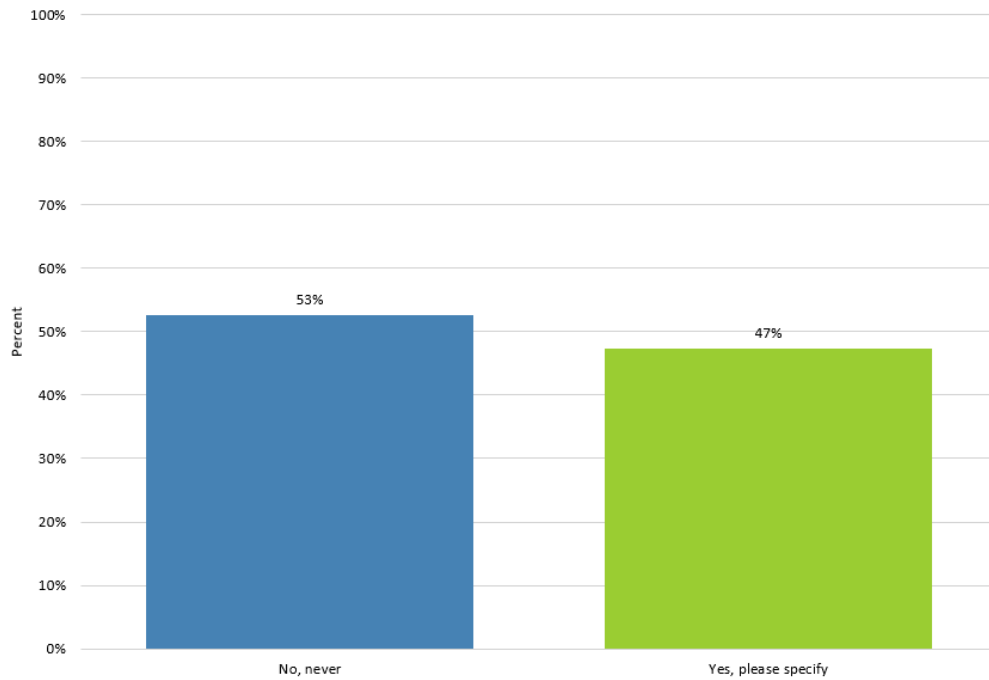
15 March: 11:00 am CET	<i>Zoom meeting: Q&amp;A – Silvia and Malin to answer questions regarding their own presentations (10 mins).</i> <i>introduction to the Unit with Shayne Rivers (West Dean College, UK)</i>
EdX course platform	We look at how to examine, interrogate and understand movable wooden objects, overview of properties of wood that affect the construction methods of movable objects, including structures and joints, and how and why structural failure occurs.
17 March: 11:00 am CET	<i>Zoom meeting: Q&amp;A – Alexa and Dilip to answer questions regarding their own presentations (10 mins).</i>
21 March: 11:00 am CET	<i>Open session on Zoom for an informal round of Q&amp;A with Unit lecturer</i> <i>Zoom meeting. Presentation and discussions of student assignments for the Unit.</i>
<b>22 – 28 March</b>	<b>Unit 5: Surface treatment and climate barriers</b>
22 March: 11:00 am CET	<i>Zoom introduction to the Unit with Ida Ottersen (Alliero) Per-Willy Færgestad (MiA) and Thor-Aage Kaminka Heiberg (NTNU)</i>
EdX course platform	<ul style="list-style-type: none"> <li>– Surface treatment and paint – what is paint and how we use it from protection to decoration. (<i>Ida Ottersen</i>).</li> <li>– Through the analysis of a door, we can learn much about changes and developments in local building traditions. We can see which parts of the tree have been used and how this affects how it is put together. Often certain types of trees are favoured locally for a specific reason. <i>Per-Willy Færgestad (Akershus Restoration Centre)</i></li> <li>– Windows and other exposed building details as a climate barrier. <i>Thor-Aage Kaminka Heiberg</i></li> </ul>
24 March: 11:00 am CET	<i>Zoom: Q&amp;A - discuss with Ida Ottersen, Per-Willy Færgestad and Thor-Aage Kaminka Heiberg</i>
28 March: 11:00 am CET	<i>Zoom: Zoom meeting. Presentation and discussions of student assignments.</i>
<b>29 March – 4 April</b>	<b>UNIT 6: Wooden built structures</b>
29 March: 14:00 am CET	<i>Zoom introduction to the Unit with Gord MacDonald, Heritageworks, Canada.</i>
EdX course platform	This session is about understanding historic wooden buildings and how to repair them. The success or failure of our repairs depends upon how well we understand the nature and performance of traditional materials used in historic buildings, and correctly predicting their <i>future performance</i> in the context of new and emerging risks (e.g., new uses, changing climate, and etc.) We will explore a variety of investigative tools and techniques used to assess the conditions. We will diagnose common decay mechanisms and evaluate the performance of historic repairs.
31 March: 14:00 am CET	<i>Zoom: Zoom meeting:</i> <i>Q&amp;A – Samuel and Zack to answer questions regarding their own presentations.</i>
4 April: 14:00 am CET	<i>Open session on Zoom for an informal round of Q&amp;A</i> <i>Zoom meeting. Presentation and discussions of student assignments.</i>
Ed-X course platform	Buildings of Faith made in wood: Collectively, places of faith account for some of the world's oldest and most remarkable surviving wooden buildings but often involve unique challenges and complex issues associated with respecting both tangible and

<p>5 April: 14:00 am CET</p>          <p>7 April: 14:00 am CET</p>	<p>intangible values. We look at different approaches to the conservation and use of these buildings around the world.</p> <p>– Zoom discussion based on the lectures available on Ed-x.</p> <p>Facilitated by Gord Macdonald, HeritageWorks:</p> <ul style="list-style-type: none"><li>– Doug Evans, Chair of the ICOMOS-UK wood committee and chair of the IIWC wooden places of faith.</li><li>– Takaaki Nojiri (Standing Director and Senior Conservation Architect, the Japanese Association for Conservation of Architectural Monuments (JACAM)</li><li>– Alejandro Martinez de Arbulo (Assistant Professor, Kyoto Institute of Technology, Faculty of Design and Architecture)</li><li>– Sjur Mehlum, Multiconsult Norway: The preservation of the Norwegian Stave Churches.</li></ul> <p><b>Zoom: Final Conclusion of ICWCT 2022 with group evaluation</b></p>
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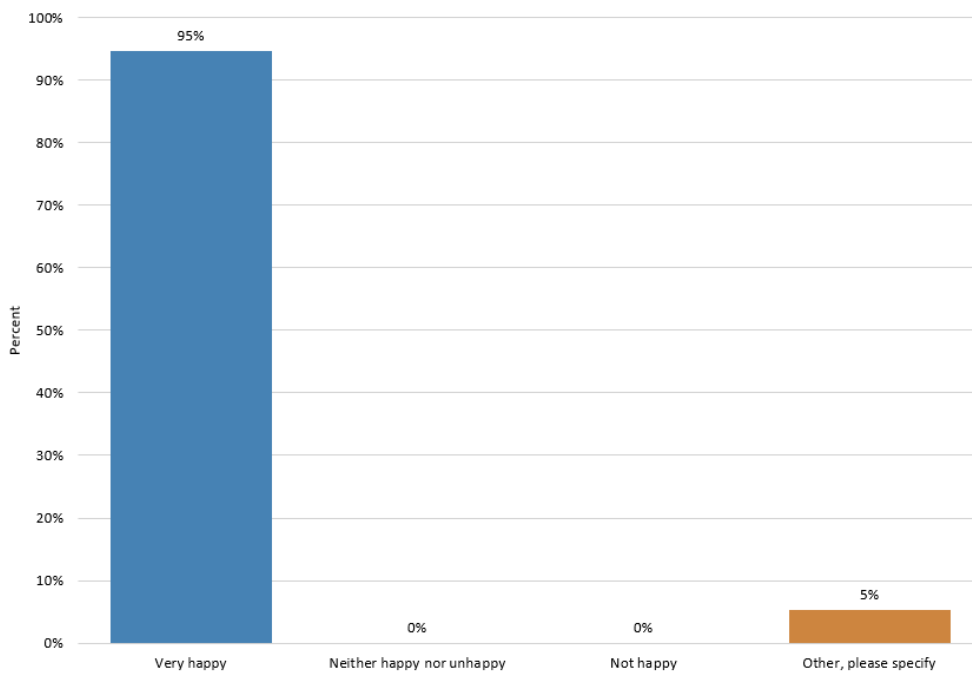
### Appendix 3: Results of the written course evaluation

Following are the complete results of the written evaluation. 19 out of 19 participants responded. Additional comments are added in full below the graphs.

#### 1. Have you done online courses before?

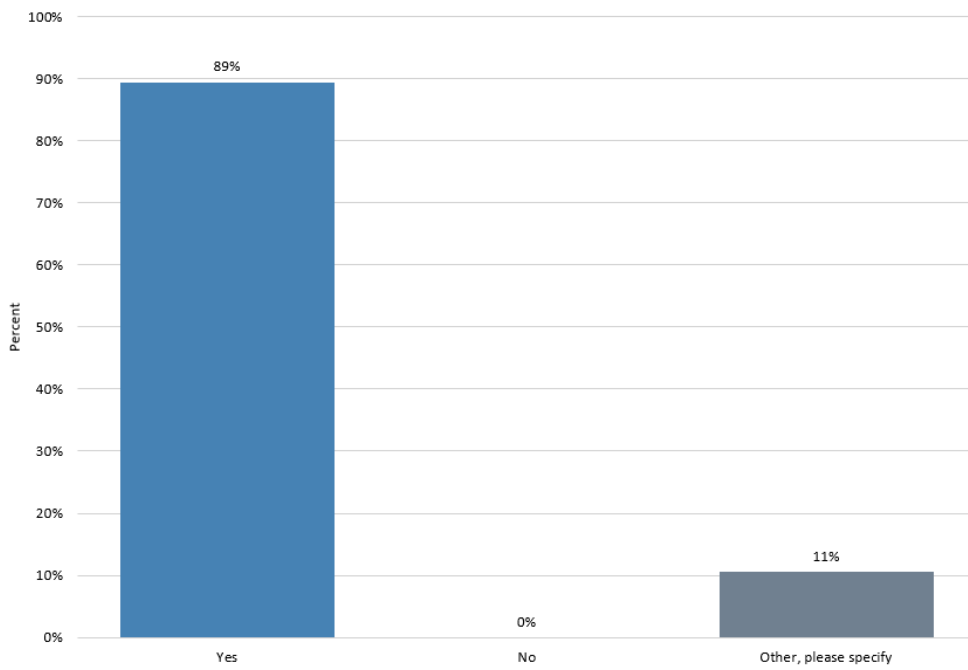


#### 2. Were you happy with the practical organisation of the online ICWCT?

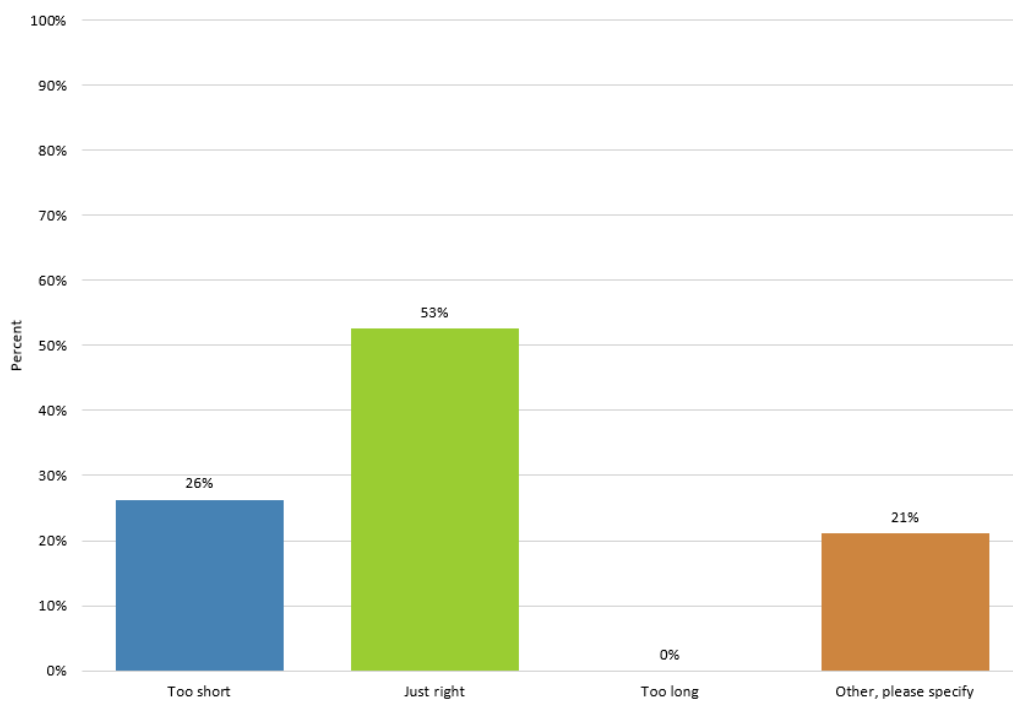




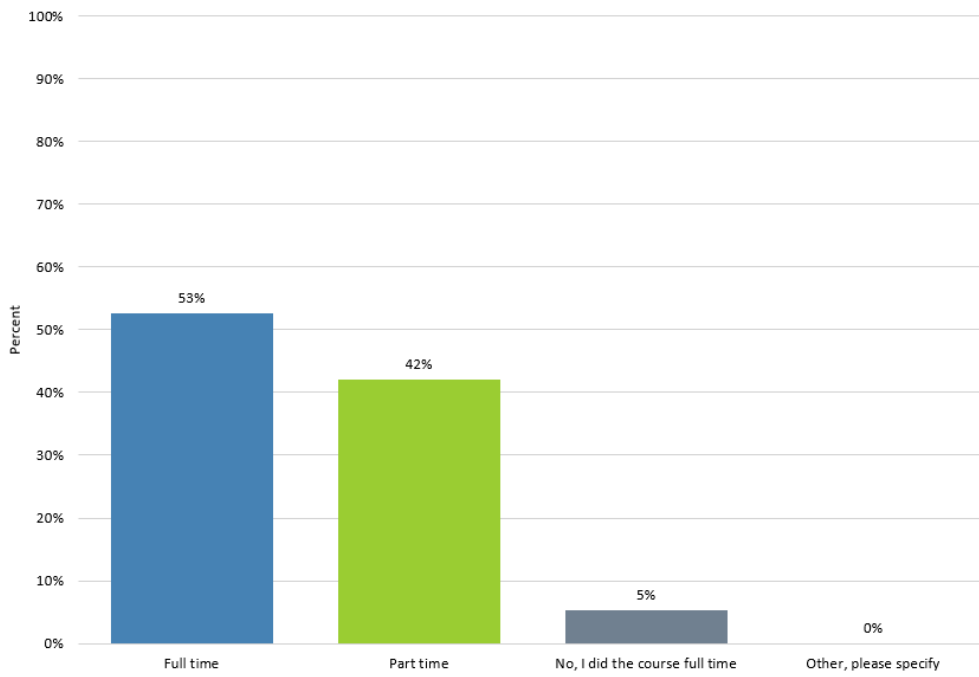
### 3. Was the information and practical assistance during the course sufficient?



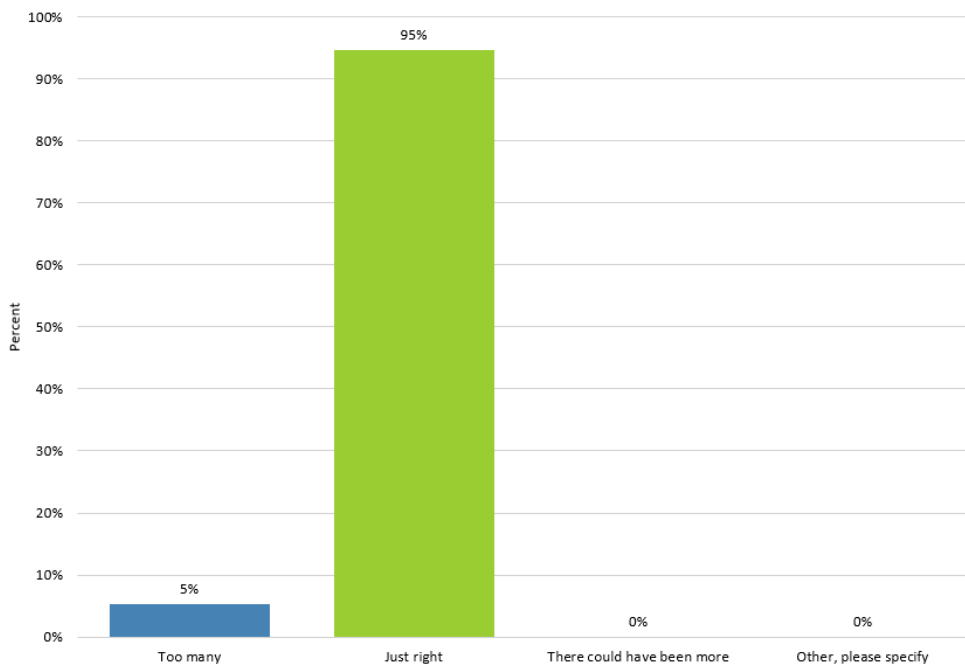
### 4. Was the duration of the course satisfactory?



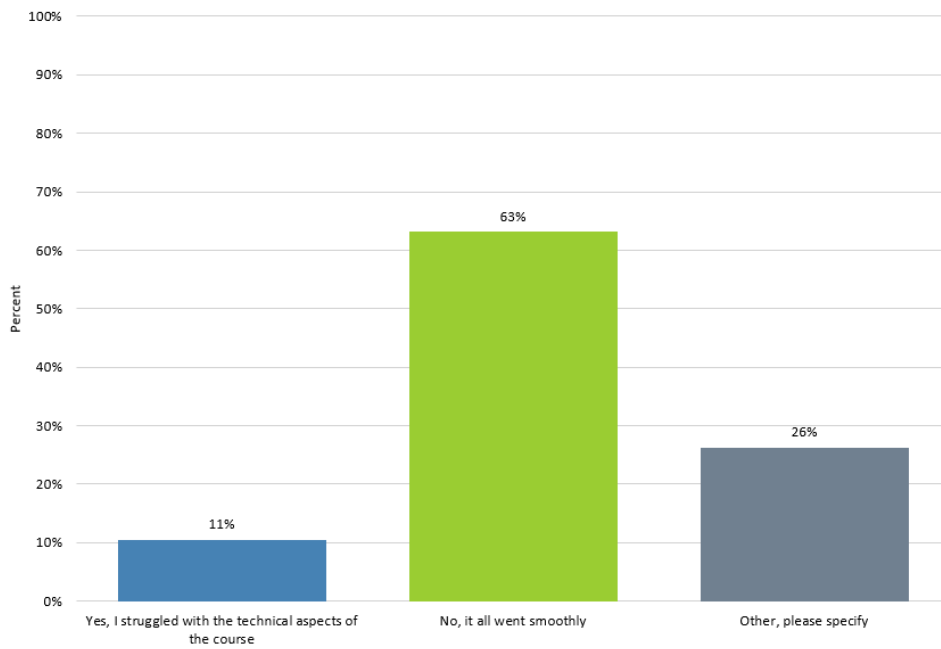
## 5. Did you work while doing the course?



## 6. Was the number of participants convenient?



### 7. Did you have technical difficulties logging on to any of the course platforms?



7: Did you have technical difficulties logging on to any of the course platforms?

Yes, I struggled with the technical aspects of the course

I have to solve the problem of network control before I can see the video screen

No, it all went smoothly

I faced some difficulties in entering and the sound was often cut off, but this was not related to you, but to the weak internet in Yemen as a result of the destruction of the main gateway to the Internet in Yemen, and the permanent power cuts in Yemen as a result of the war

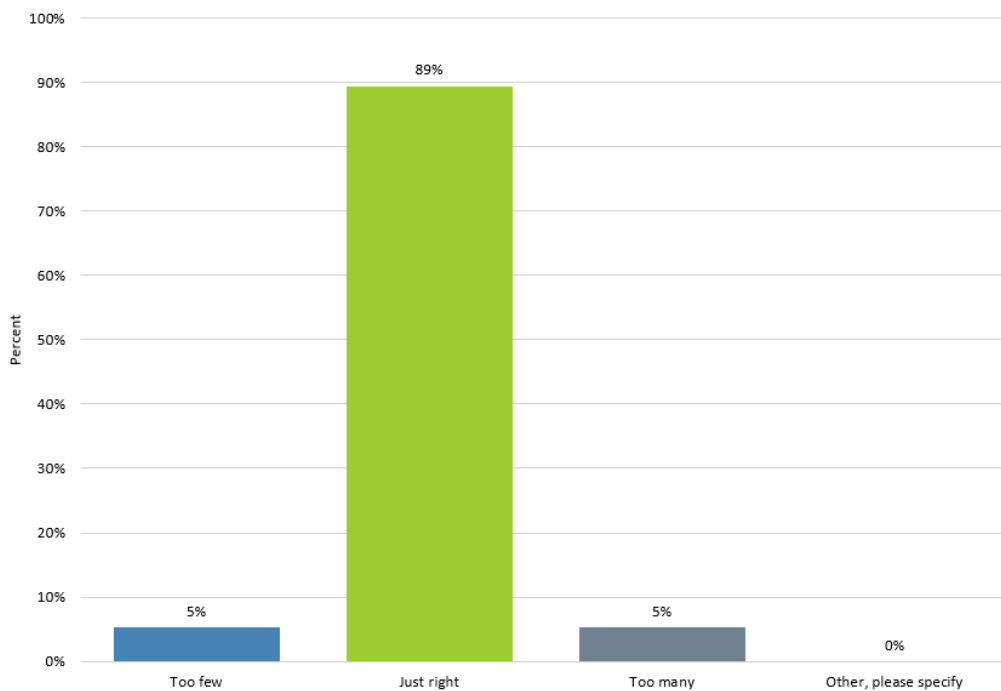
No, it all went smoothly

Yes, I struggled with the technical aspects of the course

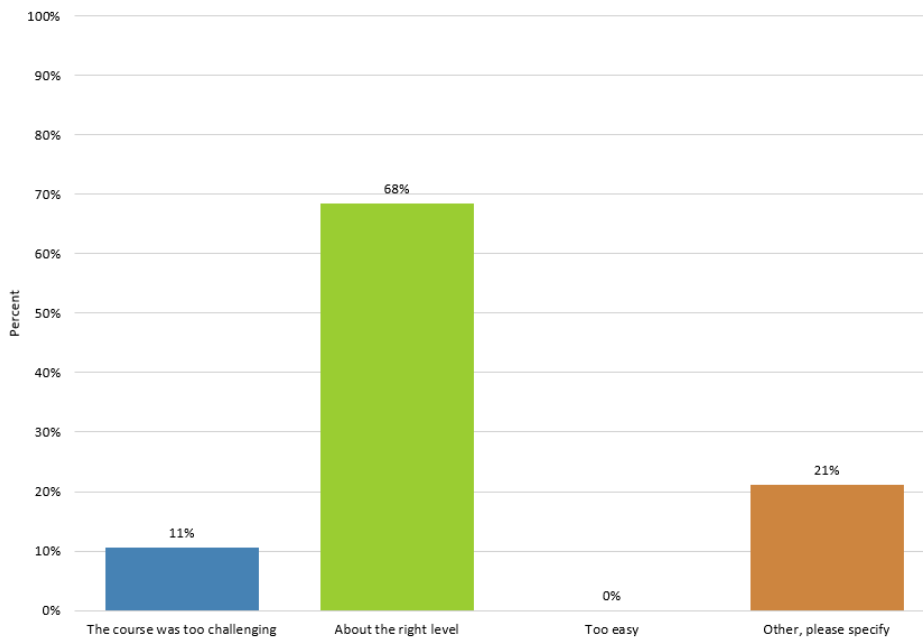
It took me a while to get a routine, but it just depended on me. I really appreciated the organization of the course

At times finding course material was a little difficult due to the share volume of material

### 8. Were there enough synchronous meetings on Zoom?



### 9. How did you find the academic level of the course?



#### *About the right level*

*When it comes to chemistry, it's a little difficult for me*

*the course was very well structured and every aspect was covered right from the basic concepts to the advance levels, some technical lectures needed a bit more time but experts helped in understanding those concepts during discussions.*

*The course was too challenging*

*About the right level*

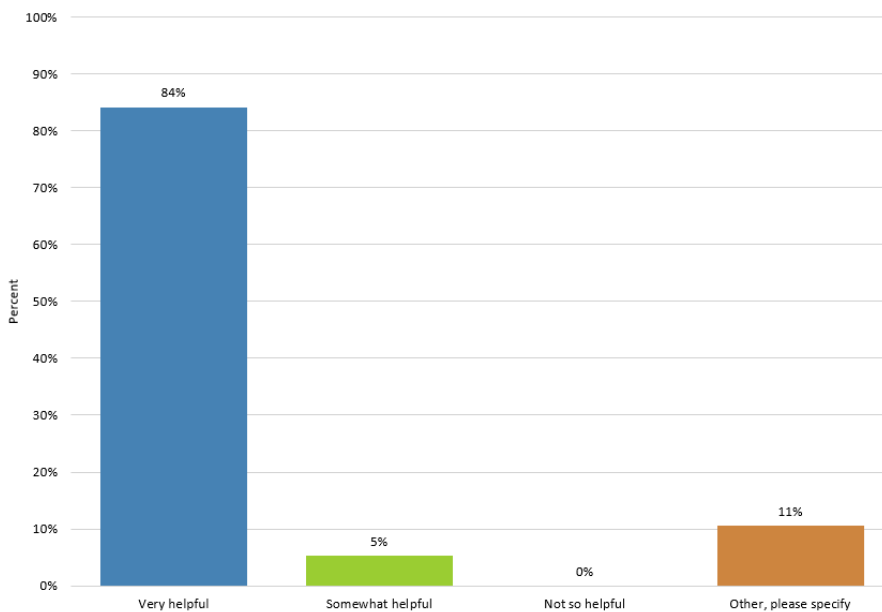
*The course was too challenging*

*About the right level*

*some parts are too difficult but some parts are too easy*

*Perfect!*

### 10. How helpful were the homework assignments to your understanding of the material?



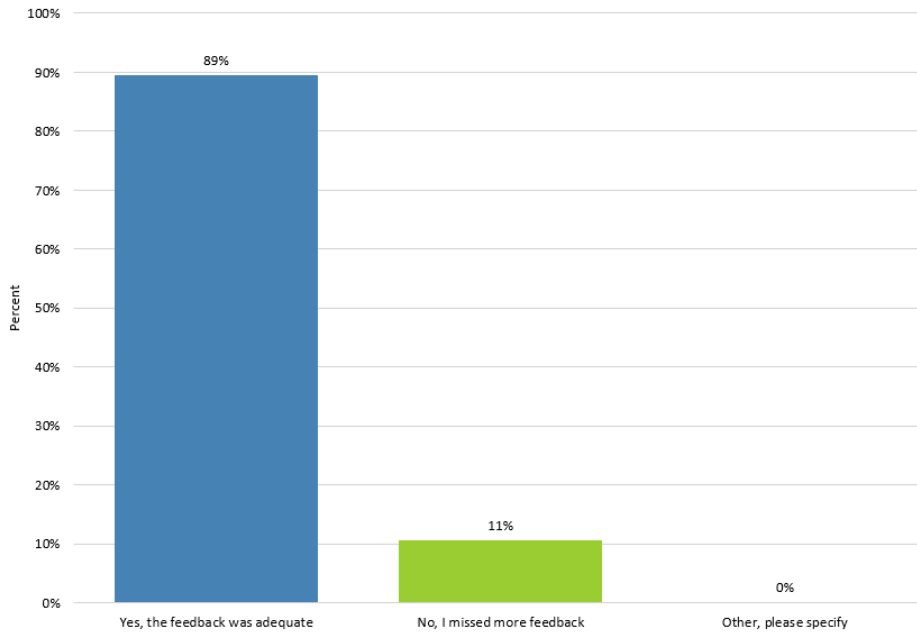
#### *10: How helpful were the homework assignments to your understanding of the material?*

*Very helpful*

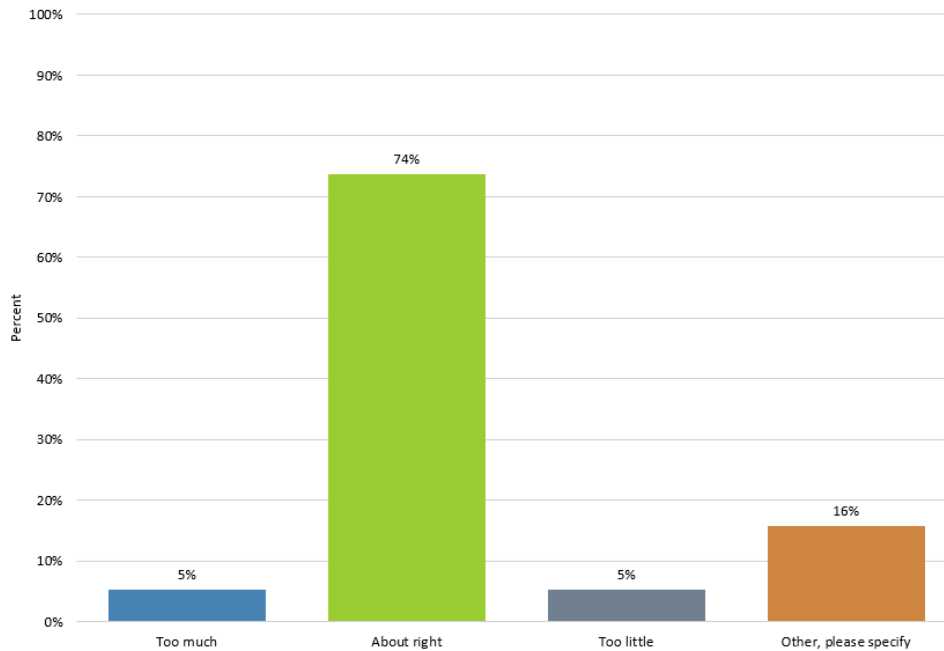
*somewhat helpful, but covid pandemic caused a difficulty in a homework site access.*

*Very useful, both homework and questions asked by readers. Each requires an in-depth understanding, sometimes of issues that I would have gone over more superficially.*

**11. Did you get sufficient feedback from the lecturers on your questions and course assignments?**



**12. Was the amount of group-work satisfactory?**



**12: Was the amount of group-work satisfactory?**

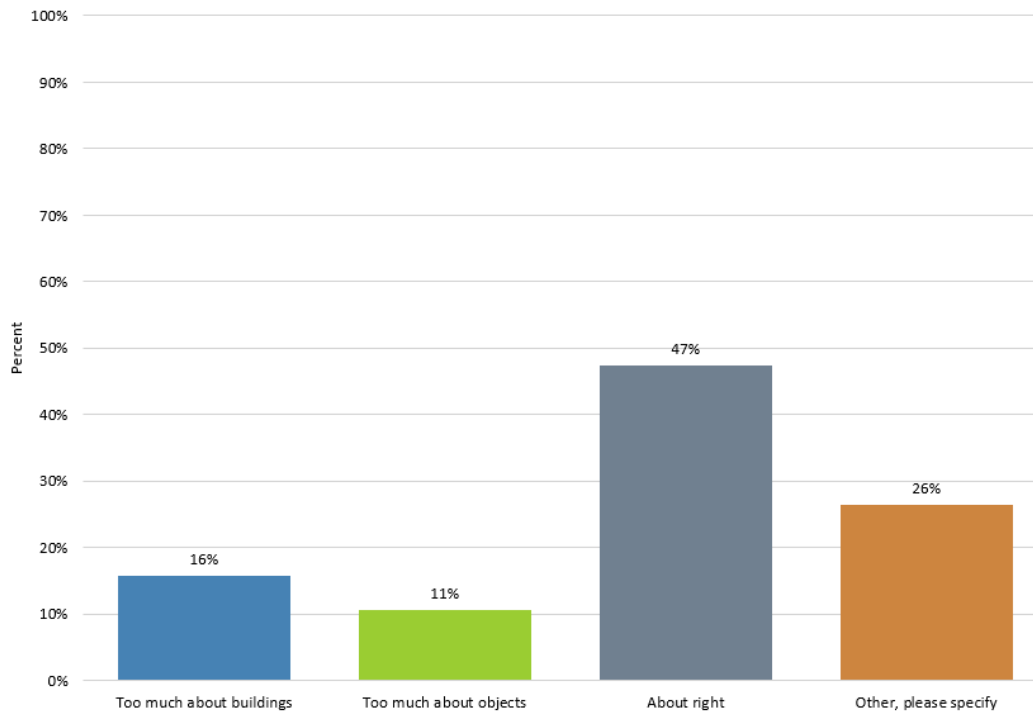
*About right*

*In addition to the regular discussion on zoom, in the group discussion, if you can have a global chat, similar to China's wechat chat software, it will be better. You can communicate at any time. Sometimes it is not limited by the time zone, but it is really difficult.*

*More group assignments would have helped better interactions*

*The amount of group-work was satisfactory, but it was a little challenging to find a good time that worked for all group members because of the time zone differences. It's possible that the group work coordination should have been facilitated a little more by the course organizers, for example by having it as a part of the common sessions?*

### 13. Was the curriculum well balanced?



13: Was the curriculum well balanced?

Shane's unit deserves more time( unit 4)

Too much about buildings

I think we can give a bit more space for objects as the problems in them are due to many reasons such as transportation, change in original environment etc.

About right

It was well structured and organized course that was balanced and incorporated

About right

Too much about buildings

Too much about objects

Too much about buildings

Too much about objects

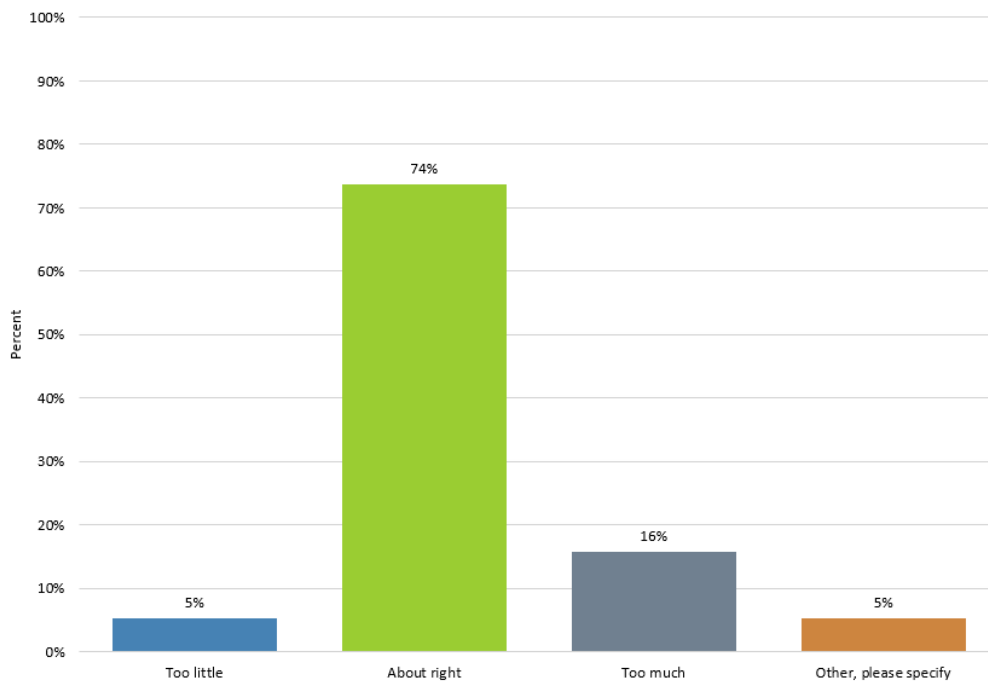
About right

Was more on the biological structure of wood and objects. Can be a little more about buildings.

About right

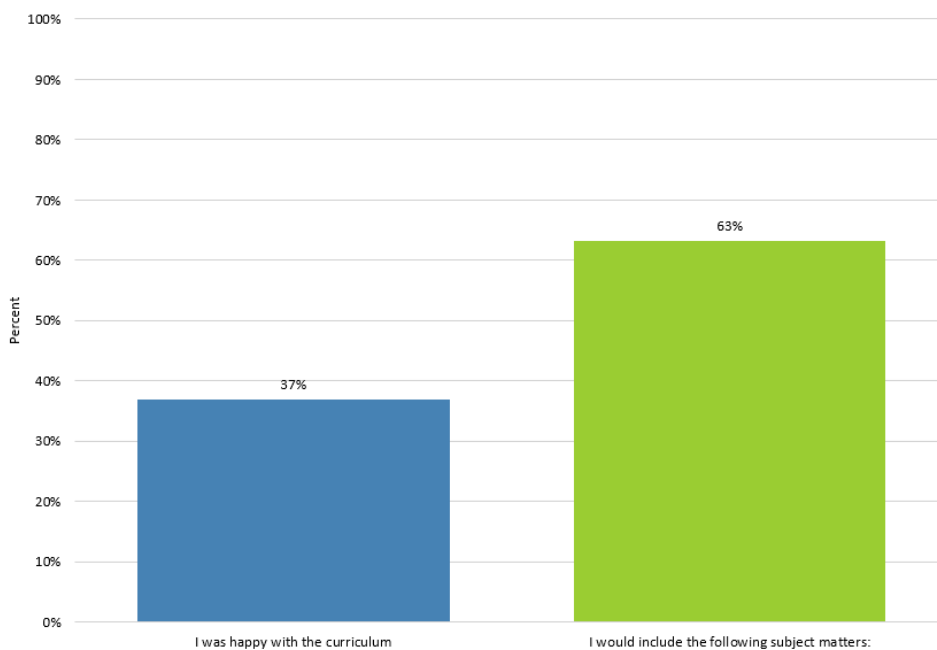
As I was following the course I found myself thinking that there was too much content about objects, but after the course was finished I found myself thinking that it all was quite well-balanced altogether. There might have been a little too much about the wood anatomy, that also was repeated several times in the different units. I felt that I understood best the wood anatomy when it was presented as part of the real-world applications in the units about objects and buildings.

### 14. Was the amount of course-work what you expected?



*The amount of course-work were about right but I did not expect that almost all of the work had to be done within the working week (Monday-Thursday) many times*

### 15. Given more time, were there any subject matters you missed that should be included in future courses?



*15: Given more time, were there any subject matters you missed that should be included in future courses?*

*More on treatments ( products, techniques, etc...)*

*Aesthetic analysis*

*1. scientific methods of species identification of wood, 2. selection and procurement process of wood for conservation, and of course the practical aspect whose glimpse we saw in short video uploaded by Mr. Gord.*

*I was happy with the curriculum I was happy with the curriculum*

*The mechanism of damage to wooden collectibles (internal and external factors) .. A study of the causes, results and treatment methods*

*More in-depth case studies in building intervention such as chemical repairing and techniques*

*Not new subjects, but the extension of those led by carpenters: discussions on case studies. Some of the case studies may be those proposed by students building structure elements, such as columns & beams etc*

*Timber in archaeological sites and more about timber buildings / carvings.*

*I was happy with the curriculum*

*I was happy with the curriculum*

*I was happy with the curriculum*

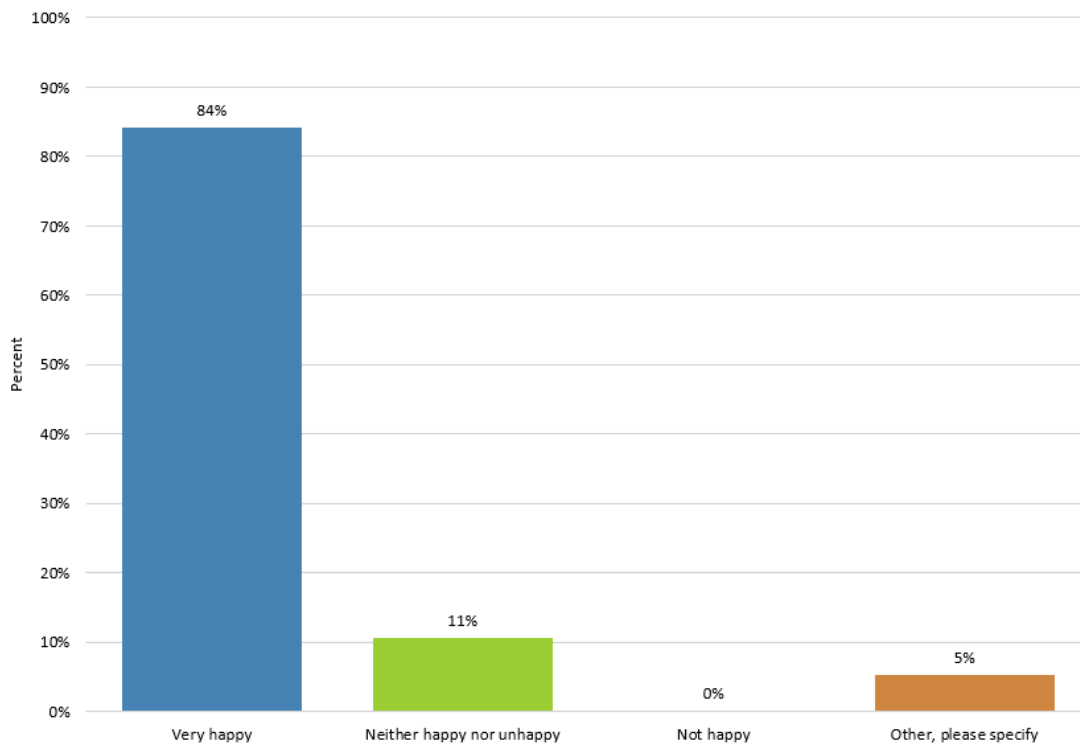
*I would have liked a lecture during Unit 5 with consolidation of the different paint layers with synthetic versus natural adhesives and how this affects the wood, breathability etc.*

*More practical exercises & case studies would have definitely helped*

*Perhaps a more in-depth look at wooden buildings as more complex structures composed of several types of constructions and elements, as well as the relationship between wood and other materials?*

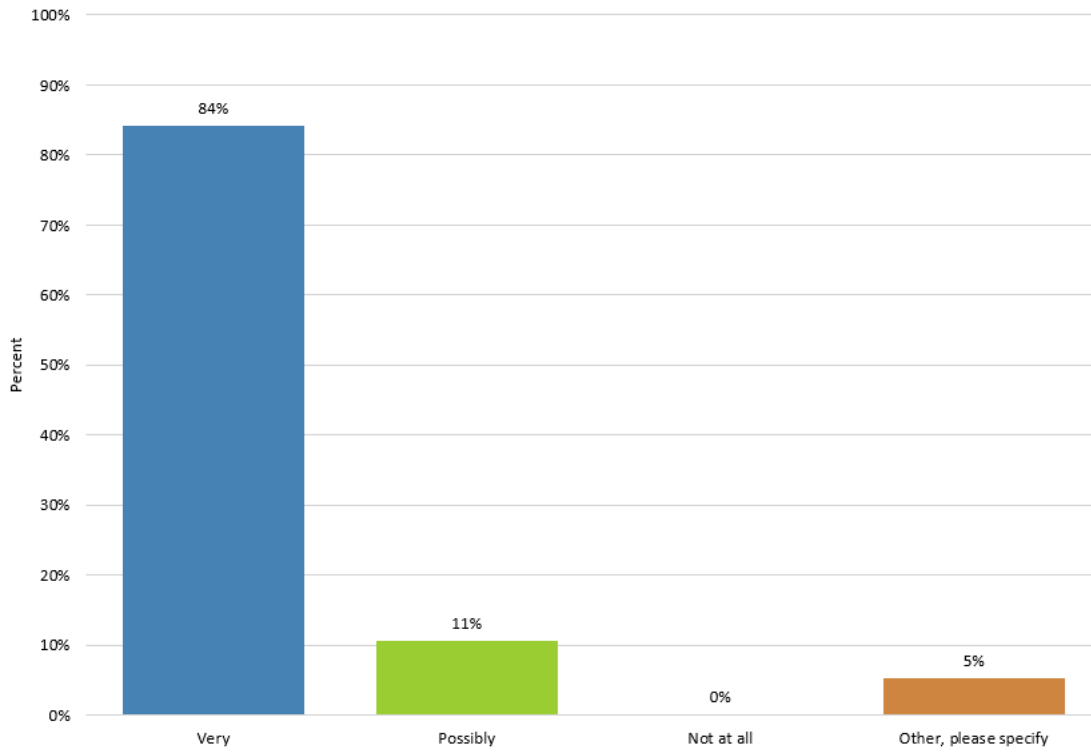
*I was happy with the curriculum*

## 16. Overall, were you happy with the lecturers on the course?



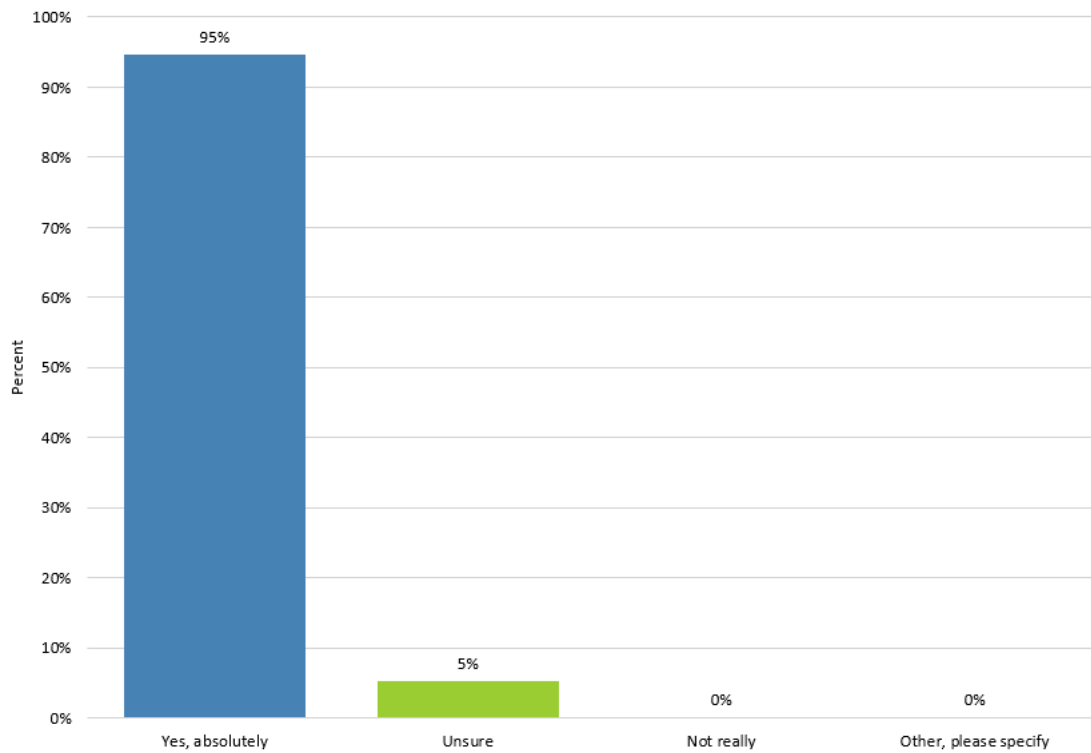


### 17. What will you have learnt on the course be useful for your work?



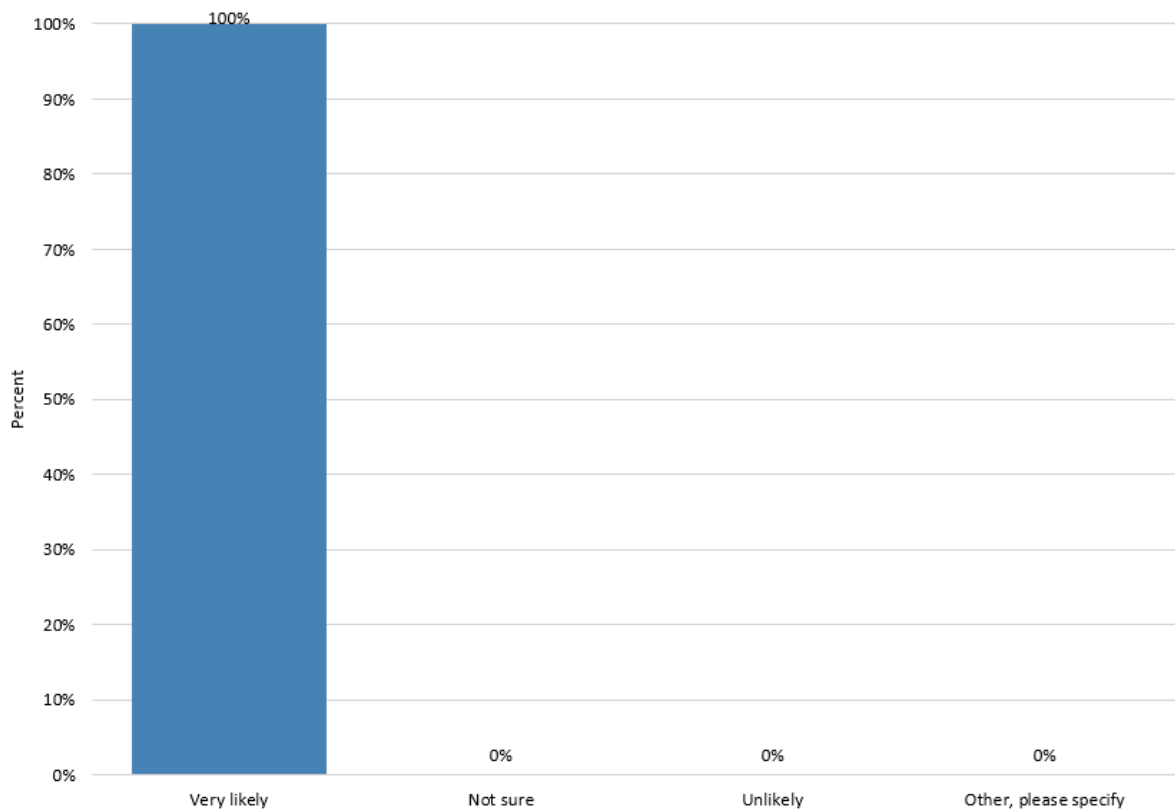
*Yes, a lot! Apart from a lot of technical and scientific information, I became more attentive to wooden objects and paints (subjects I was not very attached to before) I am more confident in my intuition and judgment - I know better the directions in which I judge well and the ones in which I must be more cautious.*

### 18. Do you feel taking the online ICWCT was time well-spent?



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19. How likely is it that you would recommend the online ICWCT to colleagues in your home country?



18: Which part of the course was most useful to you?

- The lectures on RH which I found very deeply researched and clearly explained, as well as unit 1 - principles of conservation and unit 2 and 4 which are more technical.
- I can get useful contents from different units, but the scope of my work is the restoration and conservation of indoor wooden heritage. Therefore, unit 4 is directly related to my work, which can solve many technical problems.
- The course really helped in broadening the spectrum of my understanding about wood as a material, its decay and conservation aspects. In addition to this few things I would like to mention that I have very useful:
  1. Discussion (in sessions and on platform)
  2. Method of explaining and language used by the experts
  3. online group meeting
- Unit 1 which is the philosophy and principles in heritage conservation. In my situation I am a lecturer in this subject so it is very helpful. And also other subjects also helped but those are not easy to me because I am not the architects

- Every aspect of the lessons and lectures in this course was quite valuable to me. The course was really exciting and interesting, and all of the lecturers were highly dedicated and helpful. Every unit and slide has contributed value and knowledge to my life. Individuals and group assignments were crucial in allowing me to put what I had learned in the lectures into practice.

The most essential thing to which I never paid attention while doing the inspection was the door and window . Finally, the door and window lectures provided me with significant information on where and what to focus my attention, something I had never considered previously. Everything in this course, including the lectures and units, was extremely vital and crucial, and I have taken them most useful.

- The program is completely useful, especially Unit 4 (despite the information density and insufficient time), as well as Unit 6 and 7
- It would be unfair to select one aspect, since everything was very useful to me and has given me different perspectives on my profession or new information.
- Building conservation techniques
- Carpenters: UNIT 5, 6 and 7
- I would say all parts the course was useful but the most suitable was the surface treatment and climate barriers and Wooden Built Structures.
- The lecture videos were very informative, and the discussion forum allowed me to ask my questions right away and interact with everyone. The course being online was very convenient in many ways.
- the most useful part was biodegradation and climatology. In addition, the information about the equipment used for the investigations helped me.
- Unit-1,2,3 and 4 are most useful for me.
- I would say that all of the parts equally are useful. Topics which are related to the area in which i work have helped to enhance knowledge and got some more practical notes about etc. while from other part it was very helpful to get more information and gain new knowledge.
- For me in my daily work, I think that unit 2 on wood properties and unit 4 Conservation on wooden objects will be most useful. I have gained a deeper understanding of wood as a material and a new approach to problem solving the various objects I have in front of me. Unit 1 and 3 have been a good repetition with addition of new knowledge from the University. Unit 5 and 6 have broadened my knowledge and created an understanding of what opportunities there are and the importance of networking and gathering professionals in different fields.
- The units about buildings (unit 5, 6 and 7) were the most relevant to me, as well as unit 1 about theory and principles.
- All of them were quite useful but the one that I really enjoyed and felt that time was lacking is unit 4.
- Fascinated with the scientific lectures on wood chemistry and biodeterioration

#### 19: Which part of the course was least useful to you?

- I would not say it was not useful, but perhaps at times a bit redundant - climate change. This unit could be slightly shortened.
- I think the content of environmental monitoring is very important, but since I am not directly responsible for this part of the work, I often only have the right to make suggestions. Therefore, at this stage, this part of the content is not of great guiding significance to me.
- Every thing was sufficient. I think we can add few more things in surface treatments and there conservation.
- Unit 6, it is quite useful because I haven't the opportunity for participating Wooden heritage but I can get the knowledge from it
- There was no part of the course that was least useful. I found every aspect of the course to be quite beneficial.
- I think the first unit, given that most of the information covered was already known, but that does not diminish the importance of unit 1, as it is considered an indispensable knowledge base.
- I have taken advantage of the whole course
- Wooden object conservation
- Theory and Principles: UNIT 1. I'm sorry, I should improve my low interest in these issues
- All of the course was useful
- The unit on climate change and environment. As we are not environment experts, it does not actually come right under my forte. I felt this unit could have been shorter and the data on monitoring and managing / maintaining timber structures could be more.
- It does not exist. Everything was great.
- For me, every piece of information was extraordinarily welcome.
- Unit 5 and 6 are less useful for me.
- I found the unit about conservation of wooden objects (unit 4) to be very interesting and useful to me personally, but the technical conservator knowledge that was taught was not the most relevant to me professionally. I am still glad it was included in the course, because it gave me perspective on why we do things in a certain way in my own field, and on the differences between indoor and outdoor conservation.
- Unit 2 went deeply into wood properties. The knowledge communicated in this unit was useful, but I found the content to be more useful when it was repeated in the later units, in relation to more real-world conservation examples. Then again, perhaps that worked well because we had had a unit about it beforehand.
- I would say that some explanations about relative humidity were a little repetitive along the different units.
- None of it, even parts of the course that I have significant work experience with still brought new information and knowledge.

### Comments from Ed-X after each unit:

- *Laura Zaharia:*
- Unit 2: Prof. Marco Fioravanti amplifies with memorable technical arguments the careful way we look at wood and its degradation.
- The Cavaliere statue analysis in the Assessment of UNIT2 as one of the most challenging and beautiful topics.
- Like UNIT 6, Buildings of Faith was a hot topic for me – a perfect culmination of the course. And here too I would liked to have more time.
- Unit 6: UNIT 6 has the topic I have been looking forward throughout the whole course. The presentations are explosive, and the topics of discussions with which Gord Macdonald challenge us are so complex.
- It would be nice to have more time and discuss detailed case studies of each of students.
- As in UNIT 5 with Per-Willy Færgestad and Thor-Aage Kaminka Heiberg, I ask professional adoption from Gord Macdonald too :)
- Unit 4: Shayne Rivers impresses with her extraordinary technical and practical knowledge, but also with her overflowing and contagious energy.
- She taught me to look more closely at wooden objects and to understand them better, and I am grateful to her.
- Unit 5: Here the worst disadvantages of the online course were felt. Hands-on would have been so necessary...
  
- I have to see Ida M. Ottersen's presentations again because so far I haven't given much importance to paints but the subject has finally won me over.
  
- To UNIT 7 the best feedback is gratitude: Takaaki Nojiri for so interesting case study of japanese approach to wooden monuments, and Alejandro Marinez de Arbulo`s contribution; Doug Evans for the comparative study between the approach of wooden monuments heritage in England and Canada, and for the extraordinary examples in Ethiopia, Spain and Morocco; Gord Macdonald for his challenging case studys, naturally; Sjur Mehlum and Anne Nyhamar for revealing the extraordinary Stave Church Preservation Programme.
  
- Last but not least gratitude goes to Anne Nyhamar for the coherence and fluency with which she led the entire course, and Marie Louise Anker for great and constant support.
- Andrei Buda:
- Unit 4: Mrs. Shayne's classes are a real treasure. During their viewing I did not lose my attention at all, it always brought something interesting. She is a very good teacher. All the information caught me very well, because I work on pieces of furniture, so her advice was extremely useful and is already being put into practice :)).
- Unit 5: This course may have had the greatest impact. It was a shock to find out that in our country we do not have analyzes and treatments for the conservation of these types of wooden structures. It is the beginning of a new research. Thanks! I was fascinated by Mr. Thor's tools and how light he uses them!
- Amgad: Hi Gord... I enjoyed your lectures a lot.. You inspired me in many of its topics, especially 3D documentation methods. Thank you for your valuable efforts.
- Christian: Unit 5: I found it to be a very interesting unit to understand formulations of ancient paintings and construction systems, the explanations are very clear and concrete. Understanding the limitations of this metod of teaching and the times, the only thing I would add is more case studies on restoration of windows, perhaps doors, and some cases of practical intervention on deteriorated oil paints. I really enjoyed the unit and among other things, (I don't want to be unfair), it has left me with interesting data that I will try to experiment with, such as IR heating for the removal of unrecoverable paints or the selection of wood cuts and orientation of growth rings. for the construction of windows, for example. Thank you very much for your dedication and I will be contacting you as questions arise. Best regards.

- Siddharth: Unit 4: Unit 4 was very informative, the uploaded and additional study material is very helpful in understanding the the basic concepts of conservation intervention and their mechanism. The discussion during the online sessions with the expert " Shane Rivers" in which she shared her opinions and experiences related to conservation materials and methods were so practical and crystal clear that really helped in broadening my perspective and approach towards looking at the deteriorated wooden object. Thank you. Siddharth Chandra.
- Alexa: Unit 4: This Unit is so rich and so interesting - to cover it in just one week feels like a rush. There is so much I would love to dive into (for all pieces fit together, really) but there is not enough time. I understand that this is an introduction course but allowing 2 weeks instead of just 1 to actually cover all the material would be great. I know that at the end of the course I will have to get back to this Unit to review and learn more - but Shayne probably won't be as available to answer questions. More time please!
- Nirzary Unit 4: I second this! The most interesting and rich Unit..few more days could be great, duly understanding that rest of the unit lecturers and details are already lined up. If something could be done regarding this, that would be great!