



# ICMT5

17–20 June 2025

Trondheim / Norway

## The Fifth International Conference on Mathematics Textbook Research and Development



Second Announcement



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NTNU



[www.ntnu.edu/icmt5](http://www.ntnu.edu/icmt5)



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## About ICMT

Textbooks are vital curriculum resources for teaching and learning mathematics in classrooms around the world. They play an integral role in defining mathematics as a school subject, shaping the learning opportunities for students by teachers, and supporting teachers' learning. Due to digitalization the range of curriculum resources that can complement or even substitute textbooks has been extended. Textbook content, development and use have always been important themes in mathematics education research. Recent years have seen an increase of international interest in research of digital curriculum resources, in particular e-textbooks, and theoretically driven and empirically grounded development of such resources. Developing an understanding of curriculum resources, including digital resources, and their development, and of how they are incorporated into teachers' professional work, how they promote curricular reforms, and how they support students' learning have become important endeavors in the field. Examining curriculum resources can also offer a window into the intersection of culture and educational practices in any given educational system.

In view of this trend, it is our pleasure to announce the Fifth International Conference on Mathematics Textbook Research and Development (ICMT5) to be held in Trondheim (Norway) from June 17 to 20, 2025.

ICMT5 continues the successful series that started in 2014 with the first ICMT held in Southampton (UK), followed in 2017 by ICMT2 in Rio de Janeiro (Brazil), in 2019 by ICMT3 in Paderborn (Germany), and in 2022 by ICMT4 in Beijing (China).

## Conference Themes

The conference is about all issues related to the development and design, content, history and use of mathematics curriculum resources in print or digital format. The intention is to cover curriculum resources from pre-K to university settings, as well as those for home or out-of-school settings.

Contributions should relate to mathematics curriculum resources (including, but not restricted to, textbooks) in any medium (including, but not restricted to digital or print), and should address at least one of the following themes:

1. Theoretical and/or methodological issues in the design of curriculum resources
2. Theoretical and/or methodological issues in research on curriculum resources
3. Theoretical and/or methodological issues in evaluation of curriculum resources
4. Studies of the use of (including interaction with) curriculum resources by students and/or teachers (including student teachers and teacher educators)
5. Studies of the production, selection, acquisition and distribution of curriculum resources within educational systems and institutions
6. Studies of relations between educational policy and curriculum resources
7. Comparative studies of curriculum resources (including, but not restricted to, international or transcultural studies)
8. Historical perspectives on curriculum resources
9. Perspectives on implications of new technical developments (such as artificial intelligence) for curriculum resources.



## Committees of ICMT5

### International Program Committee (IPC)

- Birgit Pepin (chair; NTNU, Norway & TU/e, Netherlands)
- Marcelo C. Borba (Universidade Estadual Paulista (UNESP), Brazil)
- Jeff Choppin (Rochester University, USA)
- Lianghuo Fan (University of Macau, China; University of Southampton, UK)
- Gabriele Kaiser (University of Hamburg, Germany; Australian Catholic University, Australia)
- Iveta Kohanová (chair of LOC; NTNU, Norway)
- Moneoang Leshota (University of Pretoria, South Africa)
- Shai Olsher (University of Haifa, Israel)
- Takeshi Miyakawa (Waseda University, Japan)
- Janine Remillard (University of Pennsylvania, USA)
- Sebastian Rezat (Paderborn University, Germany)
- Kenneth Ruthven (University of Cambridge, UK)
- Hussein Sabra (University Reims Champagne-Ardenne, France)
- Hendrik Van Steenbrugge (Stockholm University, Sweden)

### Local Organizing Committee (LOC)

- Iveta Kohanová (chair of LOC)
- Birgit Pepin
- Gresa Pozhegu Ermeni
- Torkel Haugan Hansen
- Siri-Malen Høyenes
- Marit Buset Langfeldt
- Anders Sanne
- Solomon Abedom Tesfamicael



## Scientific Program

### Plenaries and panel discussion

The scientific program comprises five (5) 45-minute long plenary lectures by invited speakers to be followed by a 15-minute discussion. Moreover, a panel discussion (with invited speakers) of approximately 45 minutes, followed by a 30-minute discussion, will be provided.

### Symposia

Symposia are devoted to a specific theme or issue of curriculum resource research. Up to three (3) hours divided into two (2) blocks are available for symposia. The organizers of a symposium are responsible for the organization within the symposium in terms of scientific formats, speakers, and schedule. Contributions to symposia might be personally invited by the organizers or via an open call on the conference website.

### Oral Communications

Oral communications present empirical studies, theoretical essays or methodological contributions. These can report on either completed or ongoing research. Oral communications are organized into nine (9) themes of the conference.

A time slot of up to 30 minutes is devoted to an oral communication and should include around 15 minutes for discussion.

### Poster session

The conference program comprises an individual slot of two (2) hours for poster presentations.

The detailed conference program will be published on the conference website after the review process concludes in March 2025.

However, the program will begin with registration on Tuesday, June 17, 2025, from 10:30 to 12:30 (Oslo time), followed by the opening ceremony and plenary lecture. The conference is expected to conclude around 13:00 (Oslo time) on Friday, June 20, with a Closing ceremony.





## Plenary lectures

The IPC is pleased to announce the following scholars as plenary lecturers at ICMT5.



**Annalisa Cusi**

Sapienza University of Rome, Italy

*Theme 4 - Studies of the use of (including interaction with) curriculum resources by students and/or teachers (including student teachers and teacher educators)*

### **The use of digital resources for learning and metacognition: exploring students' perspective**

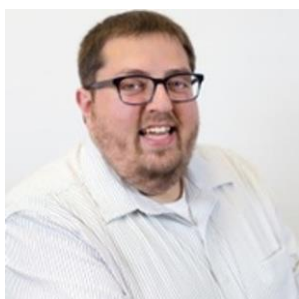
This talk focuses on students' use of digital resources and their reflections on the role of these resources as tools to support mathematics learning and metacognition. Through the lens provided by the instrumental genesis framework (Rabardel, 2002) and interpreting the students' interaction with digital resources and environments in terms of co-action (Hegedus & Moreno-Armella, 2009), I will discuss the main findings of some studies conducted at upper secondary and university levels, which aimed at investigating both the utilisation schemes that students develop when interacting with digital resources, including digital resources using generative artificial intelligence, and their perspectives on this interaction. Based on these results, I will propose some reflections on how the instrumental genesis framework could be extended to take into account the interactions between human users and digital environments in the new context that the advent of generative artificial intelligence has brought to the research scene.

Contel, F., & Cusi, A. (under revision). Investigating the role of ChatGPT in supporting metacognitive processes during problem solving activities. *Digital Experiences in Mathematics Education*.

Cusi, A., Telsoni, A. I., & Visconti, K. (2022). Students' reflections on the design of digital resources to scaffold metacognitive activities. In C. Fernández, S. Llinares, A. Gutiérrez, & N. Planas (Eds.), *Proceedings of PME*, Vol. 2 (pp. 203–210). PME.

Hegedus, S.J., & Moreno-Armella, L. (2010). Accomodating the instrumental genesis framework within dynamic technological environments. *For the Learning of Mathematics*, 30(1), 26–31.

Rabardel, P. (2002). People and technology – a cognitive approach to contemporary instruments. <https://hal.archives-ouvertes.fr/hal-01020705>



**Alden Jack Edson**

Michigan State University, East Lansing, Michigan, USA

*Theme 1 - Theoretical and/or methodological issues in the design of curriculum resources*

### **The Evolution in Curriculum Design of a Problem-Based Mathematics Curriculum: New Directions for the AI World**

This session explores the evolution of curriculum design within the Connected Mathematics Project (CMP), highlighting its efforts to provide a problem-based mathematics curriculum, *Connected Mathematics*. For over 40 years, CMP has developed student and teacher materials through iterative design, extensive field-testing, evaluation, and dissemination, adapting to emerging educational



needs and technological advancements. Over four iterations, the curriculum evolved to meet diverse needs, contexts, and populations. Each iteration reflects a commitment to helping students and teachers develop mathematical knowledge, understanding, and skill along with an awareness of and appreciation for the rich connections among mathematical strands and between mathematics and other disciplines.

As educational needs and technological advancements have evolved, CMP has embraced these changes to further enhance its curriculum. The design of a mathematics curriculum involves setting clear learning objectives, engaging students with meaningful problems, employing sound pedagogical strategies, providing robust assessment and feedback mechanisms, and supporting teacher planning and reflection. Recent advances in digital technologies have prompted CMP to develop a digital collaborative platform that integrates artificial intelligence for teaching and learning. Artificial intelligence in education often focuses on personalized learning, support for students with special needs and multi-language learners, online and blended learning, and teacher feedback on classroom dynamics and student engagement. This session will discuss how CMP's platform integrates artificial intelligence to assess, support, and track students' proportional reasoning, potentially transforming the teaching and learning of mathematics. Understanding these developments is crucial for advancing student engagement, improving teaching practices, supporting teacher growth, and informing future educational policies.



**Lianghuo Fan**

University of Macau, Macao SAR, China

*Theme 5 - Studies of the production, selection, acquisition and distribution of curriculum resources within educational systems and institutions*

### **Digitalizing mathematics textbooks in the age of AI: What have we learned from a large research project (EZSMP) in Chinese education settings?**

The fast development of information and communication technology, particularly in the area of Artificial Intelligence (AI), has transformed in a sense every aspect of education, including the development and designing of modern mathematics textbooks. Nevertheless, research in this area, particularly about what and how AI can be integrated into the development of mathematics textbooks, is still relatively at an early stage (Fan et al., 2013). This presentation is based on a large research project entitled "A study of developing digital mathematics textbooks and its effect on mathematics teaching and learning", or called EZSMP for short, of which I served as the PI. Starting from 2019, the project team has developed a comprehensive digital mathematics curricular resource platform for mathematics teaching and learning, with a core part being the digitalization of a complete series of mathematics textbooks at the junior secondary level. The digital resources developed have been used in more than 10 schools in the East China region including Shanghai, Zhejiang, and Jiangsu. In the presentation, I will introduce the rationale and research focus, illustrate the conceptual framework, and report the relevant findings of the project. I will also discuss the problems and challenges encountered in the designing, developing and use of the digital mathematics textbooks, and share my views on issues in relation to the development, use and research concerning digital mathematics textbooks.

Fan, L., Zhu, Y. & Miao, Z. (2013). Textbook research in mathematics education: development status and directions. *ZDM-International Journal on Mathematics Education*, 45(5), 633-646.  
<https://doi.org/10.1007/s11858-013-0539-x>



**Jana Trgalová**

Université Claude Bernard Lyon 1, Lyon, France

*Theme 3 - Theoretical and/or methodological issues in evaluation of curriculum resources*

### **Evaluation of digital curricular resources: an issue for research and teacher education**

Recent research on the use of digital tools and resources in mathematics education acknowledges the fact that being aware of a tool / resource affordances and limitations is necessary to make relevant choices when planning and enacting digitally enhanced mathematics teaching. Hence, being able to evaluate digital tools and resources appears as a key component of mathematics teachers' digital competency.

In this talk, we will compare and contrast diverse approaches to the evaluation of digital resources, highlighting the complexity when it comes to define evaluation criteria. We will conclude by drawing implications for mathematics teacher education and by outlining avenues for further research on this issue.



**Jana Višňovská**

University of Queensland, Brisbane, Australia

*Theme 7 - Comparative studies of curriculum resources (including, but not restricted to, international or transcultural studies)*

### **Mathematics as (an invisible) theory in the world of curriculum resources**

In this presentation I draw on the history of mathematics and mathematics education to show that at the time when mathematics as an academic discipline was reconceptualised, the proposals for propagating the changes to school mathematics were highly contested, and accepted only tentatively, as conjectures to be revisited. Using analyses of current national curriculum documents from Australia and Mexico, I demonstrate that these once tentative changes act as the unquestionable truths about mathematics in schools today. They affect what mathematics can and cannot be—and thus how it can and cannot be encountered by students. In addition, they render certain phenomena invisible (and thus not attended to and unachievable) in both mathematics teaching and mathematics education research. As conceptualised in the primary curricula of these two countries, mathematics is *not* a practice developed in response to the human need for understanding of quantitative phenomena, and quantitative phenomena are currently *not* part of the mathematics-to-be-taught. These omissions have severe consequences in that they introduce mathematical incoherencies into classrooms.

While it is possible to envision textbooks that correct the omissions introduced by curricular frames to some extent, the cause I raise is that of adopting *mathematically coherent conceptualisations* to underpin mathematics in curricular frameworks, so that these frameworks could provide sound guidance to textbook designers and teachers. I give two historical examples, from France and China, in which such conceptualisations—theories of school mathematics—underpinned mathematics curricula. I propose some directions for what a construction of a mathematically coherent theory of school mathematics might involve today.





The **Panel discussion** on *Theme 2- Theoretical and/or methodological issues in research on curriculum resources* will be organized by



**Carl Winslow**  
University of Copenhagen, Denmark

## Key dates

	<b>starts</b>	<b>ends</b>
<b>Registration</b>	1 <sup>st</sup> Dec 2024	1 <sup>st</sup> May 2025
<b>Early bird registration</b>	1 <sup>st</sup> Dec 2024	1 <sup>st</sup> March 2025
<b>Submissions of</b> - symposia - oral communications	1 <sup>st</sup> Sept 2024	20 <sup>th</sup> Oct 2024
<b>Submissions of posters</b>	1 <sup>st</sup> Sept 2024	1 <sup>st</sup> Nov 2024
<b>1<sup>st</sup> review</b>	1 <sup>st</sup> Nov 2024	20 <sup>th</sup> Dec 2024
<b>Revision of contributions</b>	5 <sup>th</sup> Jan 2025	15 <sup>th</sup> Feb 2025
<b>2<sup>nd</sup> review</b>	20 <sup>th</sup> Feb 2025	20 <sup>th</sup> March 2025
<b>Final decision about acceptance of contributions</b>	30 <sup>th</sup> March 2025	
<b>Conference</b>	17 <sup>th</sup> – 20 <sup>th</sup> June 2025	



## Submission process

Contributions should be about all issues related to the development and design, content, history and use of mathematics curriculum resources in print or digital format. The intention is to cover curriculum resources from pre-K to university settings, as well as those for home or out-of-school settings. Contributions should relate to mathematics curriculum resources (including, but not restricted to textbooks) in any medium (including, but not restricted to digital or print), and should address at least one of the conference's nine themes, with the authors choosing one of the themes, which they believe is most relevant to their contribution.

Submissions should be original, i.e. have not been published previously. They need not be limited to completed research. On-going studies may be submitted, provided that theoretical framework and preliminary results are provided in the text submitted. Submissions should be concise (see page limitation below) but must contain all information necessary to inform both reviewers and other researchers.

Contributions may be presented as oral communications, symposia, or posters at the conference. The same review criteria apply to all contributions (see section Review Guidelines).

Two types of papers are suitable for ICMT5:

- (A) Reports of studies (involving empirical or developmental research) and
- (B) Theoretical essays or methodological contributions.

**Reports of empirical studies** should cover, as a minimum, the following:

- a statement regarding the focus and rationale of the presented research (including problem, goals and/or research questions);
- the study's theoretical framework including references to the related literature;
- a description of the research methods used (criteria for sampling and/or choice of participants; data collection instruments; data analysis procedures) ;
- results (including a sample of data additional data can be presented at the conference but some data ought to accompany the proposal) ;
- final remarks or conclusions, indicating the significance of the paper.

**Theoretical essays** and methodological contributions should cover, as a minimum, the following:

- a statement regarding the focus, the rationale and the aim of the theoretical or methodological contribution;
- a statement about the paper's theoretical, philosophical or methodological framework including references to related literature;
- a clearly articulated statement of the author's position on the focus or theme and of the arguments that support this position;
- implications for existing and further research in the respective area.



All submissions must be written in English and submitted in both MS Word and PDF formats via the [ConfTool](#) electronic submission system. The submission process opens on 1st September 2024.

#### *Oral communications and symposia*

Authors have to submit a paper of maximum eight (8) pages, which has to follow the formatting guidelines provided by the conference organizers. A template and guidelines for proposals are available at [conference webpage](#). The deadline for the submission of proposals for oral communications and symposia is **20<sup>th</sup> October 2024**.

Each proposal for an oral communication or a symposium will be reviewed by two other authors who submitted a proposal. Proposals that do not conform with the formatting guidelines, or exceed the maximum number of pages may be rejected without further consideration or peer review. Authors will have the option to revise their submission once before the final decision about acceptance is made.

Each author of an oral communication or a symposium agrees to review up to two other proposals.

#### *Posters*

Authors have to submit a paper of two (2) pages, which has to follow the formatting guidelines provided by the conference organizers. A template and guidelines for proposals are available at [conference webpage](#). The deadline for the submission of poster proposals is **1<sup>st</sup> November 2024**.

Each author of a poster agrees to review up to two other proposals. Proposals that do not conform with the formatting guidelines, or exceed the maximum number of pages may be rejected without further consideration or peer review. Authors will have the option to revise their submission once before the final decision about acceptance is made.

#### **Further Modalities of Submission and Presentation**

Each author is allowed to submit up to one proposal of each type (symposium, oral communication, poster), as the presenting author. Each conference participant may have his/her name on no more than four (4) conference contributions in total.

The official conference language is English. The language for all types of submissions is English. Accepted contributions must be presented in English.



## Review Guidelines

The ICMT5 review process runs through an electronic submission system called [ConfTool](#). All contributions will be peer-reviewed and the IPC chair together with the LOC chair organize the review process according to the following timeline:

- October 20, 2024: Submission deadline for symposia and oral communications
- November 1, 2024: Submission deadline for posters
- November 1, 2024: IPC and LOC chairs assign reviewers: two conference participants/paper authors for each submission
- December 20, 2024: Reviewers submit their *first* reviews
- January 5, 2025: The LOC chair sends the decision and details of revisions requested to the authors
- February 15, 2025: The authors submit a revised version with a description of the changes made
- March 20, 2025: Reviewers submit their *second* reviews
- March 30, 2025: The LOC chair informs the authors about the final decision
- May 31, 2025: The authors upload the final version of their submission

## Review Process

Reviewers are supposed to judge each proposal in terms of the following criteria:

- 1) Rationale, aim/goals, research questions
- 2) Theoretical framework and related literature
- 3) Methodology / statement of authors position and argumentation
- 4) Statement and discussion of results / Implications for existing research in the area
- 5) Clarity
- 6) Adherence to the ICMT5 template and APA 7 style

In the *first* review, reviewers need to make a clear recommendation on each submission, choosing one of the four points of view referring to the acceptance of a submission for presenting at the conference:

ACCEPT without further modification

ACCEPT with modifications as detailed below

REJECT but resubmit as a poster

REJECT

Reviewers are expected to provide comments that explain their evaluation of the proposal regarding the different categories and suggestions for improvement in a free text field for the authors.



In the *second* review, reviewers evaluate whether authors have attended to their suggestions for amends/comments and make a clear recommendation on each submission, choosing one of the three points of view referring to the acceptance of a submission for the proceedings:

ACCEPT without further modification

ACCEPT with modifications as detailed below

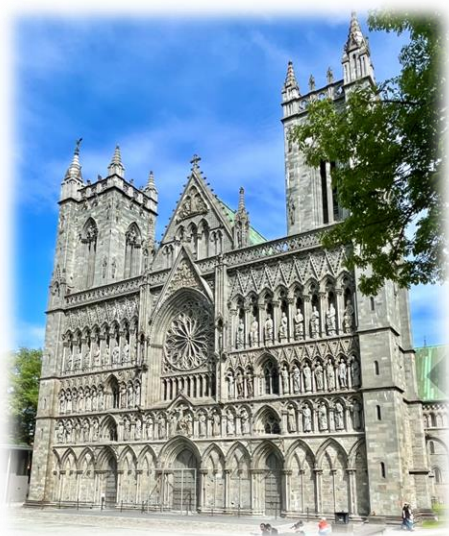
REJECT

Reviewers are expected to provide a short comment that explains their evaluation of the proposal regarding the different categories and in the case of “ACCEPT with modifications as detailed below”, also provide suggestion(s) for improvement in a free text field for the authors.



## Conference Venue

Trondheim is located in the district Trøndelag in the heart of Norway. As the third largest city in Norway, with its 200 000 inhabitants Trondheim is described as a big village or a small city. Trondheim was Norway's first capital city, founded more than 1000 years ago in 997 – but now, instead of Viking raiders and Hanseatic traders, Trondheim is a city where the fusion of history, arts, technology and green initiatives ignite a culture of innovation and rich tradition. Mid-Norway has the highest number of quality food producers in Norway, both fish/seafood and meat, reflected in the large selection of high-quality restaurants serving both traditional Norwegian and international dishes. Walking in Bakklandet full of small cafes and restaurants nestled in colorful wooden houses, visiting Nidaros Cathedral, would, among other sites, be worth it. For more information visit <https://visittrondheim.no/en/>.



All scientific activities of the conference will take place at the Kalvskinnet campus of **Norwegian University of Science and Technology (NTNU)**, at the Department of Teacher Education, which is located in the city center. NTNU is a university with an international focus, having a main profile in science and technology, a variety of programmes, and great academic breadth that also includes humanities, social sciences, economics, medicine, health sciences, educational science, architecture, entrepreneurship, art disciplines and artistic activities.



The Department of Teacher Education comprises Norway's largest academic environment within teacher education and educational research, and educates teachers within a wide range of academic and vocational subjects for all the stages of primary and secondary education, from grades 1 through 13. For more information visit <https://www.ntnu.edu/ilu>.





## Registration

Registration will open on 1<sup>st</sup> December 2024 and close on 1st May 2025. All persons intending to attend the ICMT5 must complete an online Registration Form, which will be available on the [conference webpage](#).

### Registration fee

#### **Delegate**

Early bird: 4800 NOK (about 400 eur)

Standard: 5700 NOK (about 490 eur)

#### **Accompanying person**

Early bird: N/A

Standard: 1200 NOK (about 100 eur)

### What's included with registration for delegates?

- access to the conference venue and all sessions
- conference Certificate of Participation
- an opportunity to publish presented contribution(s) in Conference Proceedings for presenters
- coffee break + snack (1<sup>st</sup> day of the conference, June 17, 2025)
- Welcome reception, including finger food (1<sup>st</sup> day of the conference, June 17, 2025)
- 2 x coffee break + lunch (2<sup>nd</sup> day of the conference, June 18, 2025)
- coffee break + lunch + excursion (3<sup>rd</sup> day of the conference, June 19, 2025)
- coffee break (4<sup>th</sup> day of the conference, June 20, 2025)

#### *Please note:*

- Registration fees are in Norwegian krone (NOK).
- The conference fee DOES NOT include the conference dinner.
- Early bird registration will close on 1<sup>st</sup> March 2025.
- Registered Accompanying Persons are entitled to attend all provided coffee breaks and lunches and an excursion on Thursday, June 19, 2025.

### Cancellations and Refund Policy

Cancellations must be notified in writing to the ICMT5 Secretariat at [icmt5@ntnu.no](mailto:icmt5@ntnu.no).

Cancellations made before Thursday, 1st May 2025, will incur a cancellation fee of 1200 NOK.

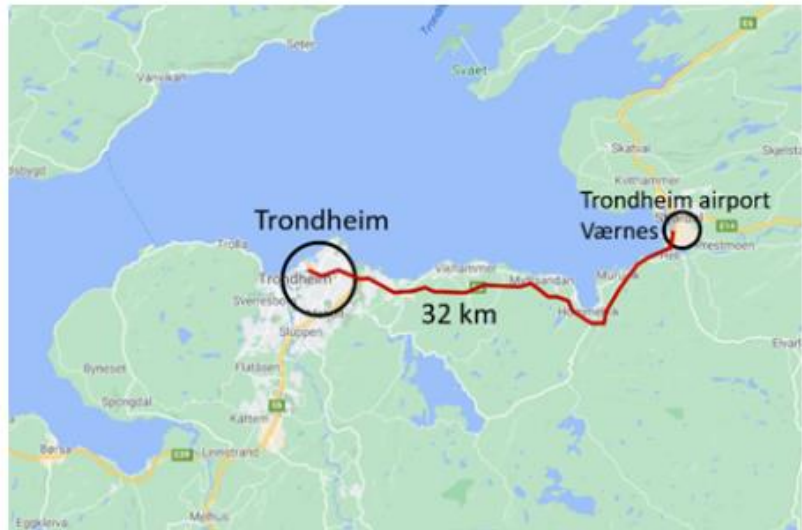
**Cancellations on or after Friday 2nd May 2025 will receive no refund.**



## Travel Information

Trondheim International Airport has daily direct flights to and from Amsterdam, Copenhagen and Stockholm. There are also non-daily direct flights to and from several other destinations in Europe (e.g., London, Gdansk, Krakow, Riga, Berlin, Helsinki, Alicante, Malaga and Split).

There are many daily flights to and from Oslo, only a 50 minute flight away – with many European and intercontinental connections.



Trondheim can also be reached by train from Oslo or by Coastal Express from Bergen along the seaways of the Norwegian fjords.

For more information visit: <https://www.ntnu.edu/icmt5>.