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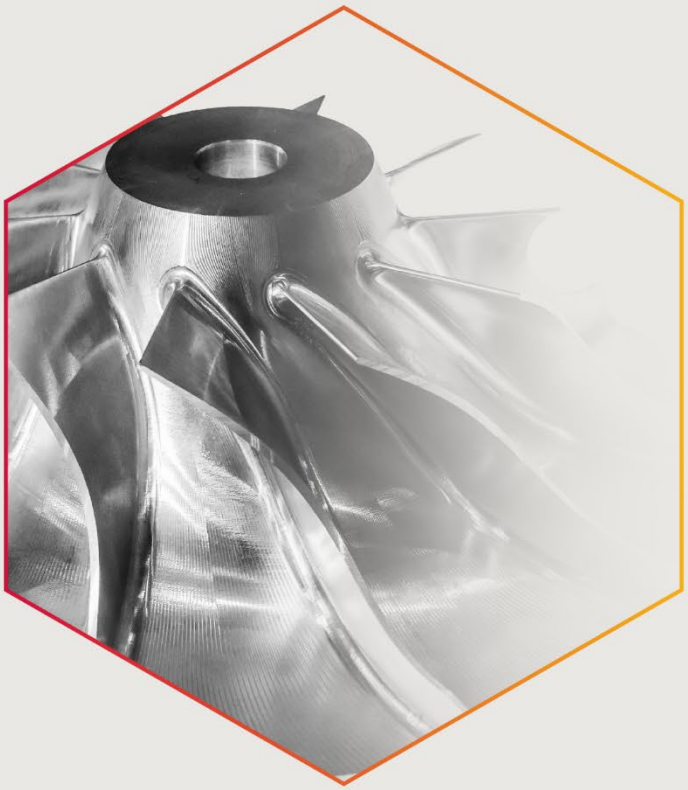

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NETCASTPL4.0
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(Grant Agreement number 101159771)

D2.1 School on S&T Mechanics, Metallurgy & Green Processing

Funding Scheme: Coordination and Support Action

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Project Coordinator (PC):	Prof. Marcin GÓRNY Email: mgorny@agh.edu.pl
PC Organization Name:	AKADEMIA GORNICZO-HUTNICZA IM. STANISLAWA STASZICA W KRAKOWIE
Lead Partner for Deliverable:	AKADEMIA GORNICZO-HUTNICZA IM. STANISLAWA STASZICA W KRAKOWIE
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Dissemination level		
PU	Public	☒
SEN	Sensitive	

NetCastPL4.0 aims to enhance excellence and innovation capacity at AGH, putting AGH in a leading position to nuclei the Networking Pole for Castings Foundry Innovation and Sustainability to face the strategic challenges of Poland and EU foundries and of lightweight components end-user industry. It also aims to engage the country in pan-European collaborative efforts on this topic twinning with the Consiglio Nazionale delle Ricerche (Italy) and AALTO University (Finland). This will be achieved through realization of following specific objectives implemented via 2 WPs:

1. Improving the overall capacity and resources at AGH in advanced lightweight castings science & technology and in emerging Industrial Sustainability assessment and management practices and tools.
2. Conducting exploratory research on "High-tech cast iron and Al alloys for lightweighting castings for the medium and heavy-loaded conditions produced by green molding materials" demonstrating enhanced capacity in novel lightweight materials and components fabrication, modelling and characterisation.
3. Establishing an AGH European Networking Pole on Lightweight Castings Innovation and Sustainability. This will enhance the replication potential developed at AGH, creating strategic partnerships with Research organizations, Universities, Foundries, Industry, Public and Governmental Organizations, and Agencies in light-weighting casting components and Technologies for casting foundries 4.0 development.
4. Providing new results and experiences analysing 3 case-studies in production of light-weight castings components in medium and heavy loaded conditions and automotive for the preparation of a Guide Document on Best Available Practices in the Green Foundries Industry.
5. Leveraging the NetCastPL4.0 partnership at a European level and creating the enabling conditions for a long-lasting joint collaboration.
6. To arrange schools and training workshops in partner countries for scientists and for potential follower foundries and other relevant stakeholders.
7. Raising mobility (internal and external) of scientists and staff in green molding/casting science and technologies.
8. Improving the research management and administration skills at AGH, by creating the Department of European cooperation within AGH.
9. Fostering gender equality issues at AGH and in the castings foundry through implementation of the action plan for Equality, Inclusion, and Diversity.

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1. Scope of the deliverable

As part of the activities under Deliverable 2.1, a training session entitled *"School on S&T Mechanics, Metallurgy & Green Processing"* was held. This event constituted the first of two planned training sessions within Dissemination Work Package 2 (WP2) – Training. One of the key objectives of WP2 is the organisation of both virtual and in-person thematic training sessions, which facilitate the exchange of knowledge in the field of modern foundry technologies and contribute to the development of competences and human resources.

The training took place from 30 June to 2 July 2025 at the Faculty of Foundry Engineering of AGH University of Kraków. The event was organised in close collaboration between three consortium partners of the NetCastPL4.0 project: AGH (Poland), CNR (Italy), and AALTO (Finland).

Participants included representatives from academic institutions – doctoral candidates, early-stage researchers (postdoctoral fellows), and academic staff – as well as experts from the foundry industry in Poland and Central Europe, including representatives of industrial companies that are members of the NetCastPL4.0 project network (https://netcastpl4-0.agh.edu.pl/network-partners/) (Fig. 1).

Fig. 1. *Some of the training participants*

The training focused on the mechanical and metallurgical aspects of thin-walled casting production, with particular emphasis on so-called *green technologies* (Green Casting). The environmentally friendly production of castings, aligned with the principles of sustainable development, requires the integration of advanced scientific knowledge with modern industrial solutions. In light of increasingly stringent environmental regulations, the implementation of models that balance the efficiency of thin-walled casting production processes with environmental costs is gaining significance.

The training programme covered the entire life cycle of thin-walled castings – from planning and material selection, through computer simulations and technological process optimisation, to product quality assessment and environmentally responsible approaches to disposal. The programme and thematic structure of the training were designed in a logical sequence – starting with fundamental topics (aimed at equalising participants' levels of knowledge), followed by advanced subjects discussed in the subsequent days. Upon completion of the training, the teaching materials were made available to the organisers.

Lectures were delivered by distinguished experts representing academic institutions, research institutes, and the industrial sector from Poland, Italy, and Finland. In addition to the lecture component, a key part of the event was an expert panel discussion (Fig. 2.), during which participants addressed the challenges facing the European foundry sector, the impact of the Green Deal policies on manufacturing processes, and the need to adapt engineering education to the demands of Industry 4.0. The exchange of experience in this area played an important role in developing new industry-relevant competences.

Fig. 2. *Photo from the discussion panel*

Upon completion of the training, all participants received certificates of attendance confirming the acquisition of knowledge and competences. In addition, an evaluation survey was distributed to participants with the aim of assessing the quality of the organisation and training content. The deadline for submitting responses was 25 July 2025. The feedback and comments received – both on the substantive content and organisational aspects – will be used in the planning of the next training session conducted under Dissemination Work Package 2 (WP2).

The second edition of the NetCastPL4.0 training, entitled *"School on Perspective & Business"*, will be held in the summer of 2026. It will focus on advanced topics related to the strategic development of the foundry industry, business planning, process digitalisation, and the application of digital technologies in the context of Industry 4.0. This year's edition, which concentrated on foundational topics, thus served as a substantive introduction to future, more specialised training sessions.

The *School on S&T Mechanics, Metallurgy & Green Processing* attracted considerable interest, which was the result of effective promotional efforts – including the promotion of the project at the ITM INDUSTRY EUROPE trade fair in Poznań. The NetCastPL4.0 project and the AGH Faculty of Foundry Engineering were represented at a dedicated stand located within the FOCAST Foundry Salon (Fig. 3). Trade fair participants had the opportunity to obtain detailed information and receive promotional leaflets.

Fig. 3. *Dean of the AGH Faculty of Foundry Engineering - Professor Marcin Górny during the oral presentation of the NetCastPL4.0 project - a frame showing the promotion of the School on S&T Mechanics, Metallurgy & Green Processing event, FOCAST Foundry Salon, Poznań, 4.06.2025*

Organisational details and the training programme are available on the project website at: https://netcastpl4-0.agh.edu.pl/schools-and-workshops/school-on-st-mechanics-metallurgy-green-processing/ (Fig. 4.)

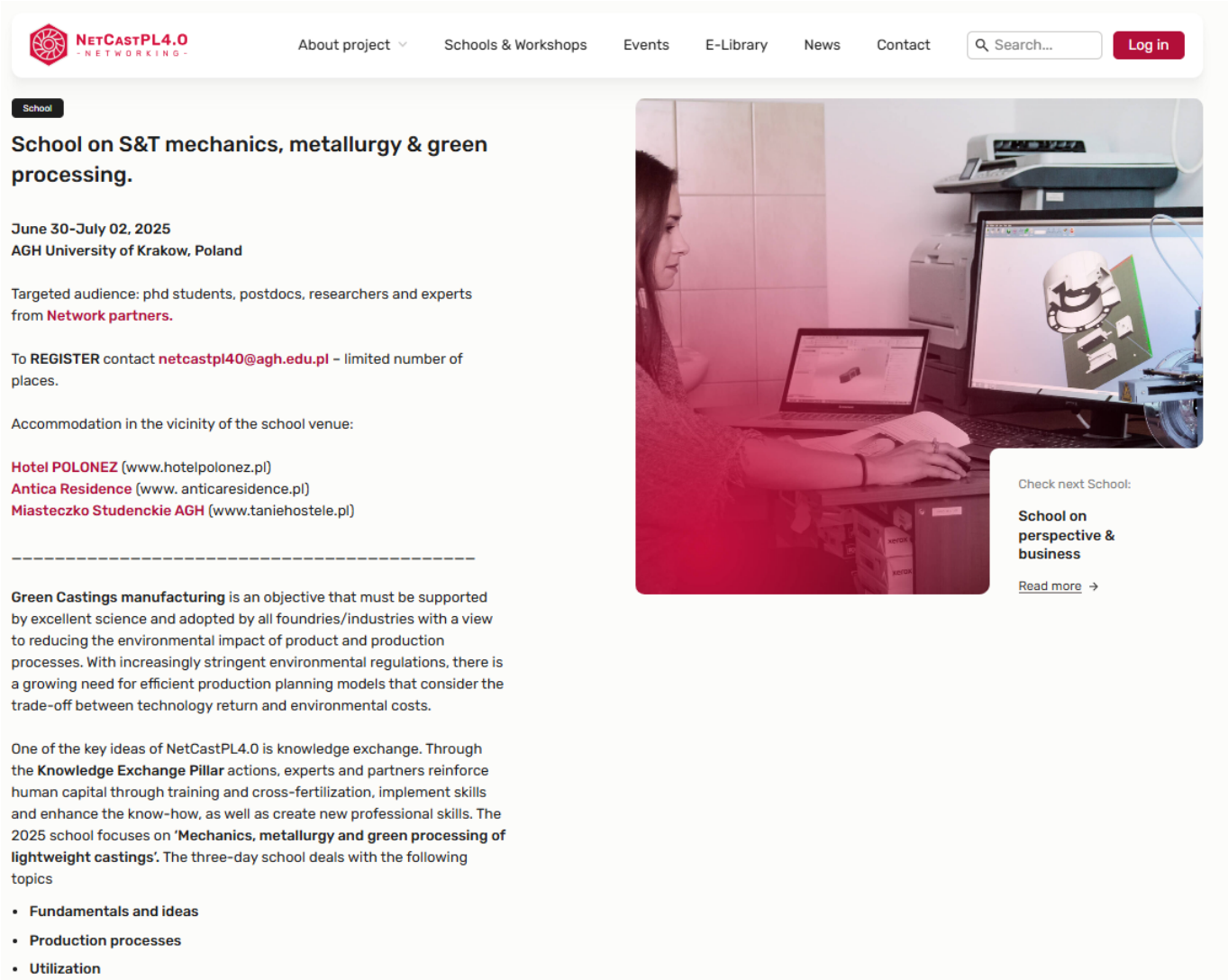


Fig. 4. *Information about the training on the NetCastPL4.0 project website*

This document is divided into four chapters. Each chapter provides information about the organization, process, and insights from the School on S&T Mechanics, Metallurgy & Green Processing.

2. Organization of the School on S&T Mechanics, Metallurgy & Green Processing

2.1 Organizational matters

The preparation of the School on S&T Mechanics, Metallurgy & Green Processing took seven months and included the following activities:

December

- ✓ 09.12.2024 – Presentation of the concept for the event "School on S&T Mechanics, Metallurgy & Green Processing", discussion on the lecture topics, and agreement on a preliminary date for the three-day event;
- ✓ 13.12.2024 – Public presentation of the draft of School on S&T Mechanics, Metallurgy & Green Processing program during oral presentation at Polish Foundrymen's Day 2024 (around 230 participants of the event);

April

- ✓ 25.04.2025 – Final schedule of the event agreed and approved;

May

- ✓ 07.05.2025 – Submission of the preliminary draft of the event promotional flyer to project partners;
- ✓ 15.05.2025 – Approval of the flyer design by the project partners; publication of the training information on the NetCastPL4.0 project website under the "School & Workshop" section (https://netcastpl4-0.agh.edu.pl/schools-and-workshops/);
- ✓ 16.05.2025 – Sending of official invitation to the lecturers;
- ✓ 21.05.2025 – Sending the flyer to representatives of Network partners; opening of registration – individual registration takes place via direct email communication with the project office (netcastpl40@agh.edu.pl);

June

- ✓ 04.06.2025 – Promotion of the "School on S&T Mechanics, Metallurgy & Green Processing" during the ITM Industry Europe Fair in Poznań at the FOCAST Foundry Salon – presentation by the Dean of the Faculty of Foundry Engineering at AGH University, along with information available at the project booth;
- ✓ 23.06.2025 – The end of registration;
- ✓ 24.06.2025 – Production of personalized badges and certificates;

Juli

- ✓ 30.06-02.07.2025 – School on S&T Mechanics, Metallurgy & Green Processing;
- ✓ 11.07.2025 – Sending out the post-training evaluation survey to participants;
- ✓ 28.07.2025 – Analysis of feedback from the evaluation survey.

2.2 Agenda of the School on S&T Mechanics, Metallurgy & Green Processing

The programme of the School on S&T Mechanics, Metallurgy & Green Processing, which took place at the Faculty of Foundry Engineering between 30 June and 2 July, was jointly developed by the project partners and carried out as Figure 5**.**

JUNE 30, 2025 | FUNDAMENTALS AND IDEAS

09:00	10:30	Introduction and fundamentals of lightweight castings (Franco Bonollo, University of Padua)
10:45	11:30	Fundamentals of non-ferrous alloy solidification (Maurizio Vedani, Politecnico di Milano)
11:45	12:30	Fundamentals of ferrous alloy solidification (Kalle Jalava, Aalto University)
Break		
13:30	14:15	Tensile Mechanical properties of thin sections (Giuliano Angella, CNR-ICMATE)
14:30	15:15	Fatigue properties of ductile cast irons (Riccardo Donnini, CNR-ICMATE)
15:30	16:15	FEM Modeling (solidification/welding/stress) with thin sections (Łukasz Madej, AGH University of Krakow)
16:30	17:15	Casting simulation in lightweighting (Janusz Lelito and Pawel Zak, AGH University of Krakow)

JULY 01, 2025 | PRODUCTION PROCESSES

09:00	09:45	Molding materials used in foundry practice (Katarzyna Major-Gabrys, AGH University of Krakow)
10:00	10:45	Molding processes in thin wall castings (Kalle Jalava, Aalto University)
11:00	12:30	Metallurgical processes in ferrous alloys (Riccardo Donnini, CNR-ICMATE)
Break		
13:30	14:15	Castings defects (Franco Bonollo, University of Padua)
14:30	16:00	EU regulation pressures to the foundry industry – the status of the Finnish foundry actions (Juhani Orkas, Association of Finnish Foundry Industry)
16:15	17:15	Discussion on the topics

JULY 02, 2025 | UTILIZATION

09:00	09:45	Potential of ADI in lightweighting (Pekka Kemppainen, Meehanite)
10:00	10:45	Utilization aspects of lightweight non-ferrous castings (Matti Niemi, Novacast Oy)
11:00	11:45	Integrity assessment of castings via tensile strain hardening analysis (Giuliano Angella, CNR-ICMATE)
12:00	12:45	Isothermal Ductile Iron (IDI): Assessment of the Proposal for the Inclusion into the European Standard (Riccardo Zanardi - Zanardi Fonderie S.p.A.)
Break		
13:45	15:15	Green technologies and developments – Towards a Roadmap for green technologies (Kalle Jalava and Nurul Anwar, Aalto University)
15:30	17:15	Discussion and round table on Green technologies utilization

Fig. 5. *Event Schedule – School on S&T Mechanics, Metallurgy & Green Processing (30 June – 2 July 2025)*

Each day of the training, prior to the commencement of lectures, participant registration was conducted. This process included the distribution of personalised name badges and promotional materials related to the NetCastPL4.0 project (Fig. 6).

Fig. 6. *Registration stand with visible promotional materials of the NetCastPL4.0 project - fudge candies, pencils, notebooks, leaflets, and badges*

All participants were required to review and sign documents concerning personal data protection (in accordance with GDPR regulations).

Upon completion of the training, participants received certificates of attendance (Fig. 7), which were made available at the administrative office of the Faculty of Foundry Engineering, AGH University – Room 115.

Fig. 7. *Certificate of Participation in the School on S&T Mechanics, Metallurgy & Green Processing*

2.3 Participants of the School on S&T Mechanics, Metallurgy & Green Processing – statistics and analysis

The training was attended by **74 participants**, including 3 who joined remotely. Among the participants were experts from the foundry industry representing NetCastPL4.0 network partners, as well as researchers, PhD students, and administrative staff representing companies and research institutions from Poland, Finland, and Italy (Fig. 8).

Fig. 8. *Training participants in the lecture hall*

- AGH University of Krakow (**31 participants**):
  - Faculty of Foundry Engineering – 30 participants,
  - ACMIN – 1 participant,
- Consiglio Nazionale delle Ricerche- Istituto di Chimica della Materia Condensata e di Tecnologie per l'Energia -Italy (CNR ICMATE) – **3 participants**,
- Aalto University, Department of Mechanical Engineering in the School of Engineering – **2 participants**,
- University of Padua – **1 participant**,
- Politecnico di Milano – **1 participant**,
- Zanardi Fonderie S.p.A. – **2 participants**,
- Meehanite – **1 participant**,
- Novacast Oy – **1 participant**,
- Association of Finnish Foundry Industry – **1 participant**,
- Polish Foundry Chamber of Commerce – **1 participant**,
- BREMBO Poland Sp. z o.o. – **6 participants,**

- Polish Foundrymen's Technical Association (STOP) – **1 participant**,
- Foseco Limited (Vesuvius Poland Spolka z.o.o.) –**2 participants**,
- Rzeszow University of Technology, The Faculty of Mechanics and Technology – **1 participant,**
- Warsaw University of Technology, Faculty of Mechanical and Industrial Engineering – **1 participant,**
- Silesian University of Technology – **1 participant**,
- Łukasiewicz Research Network – Institute of Non-Ferrous Metals – **3 participants,** without two which are also representatives of the Faculty of Foundry Engineering at AGH University of Krakow
- Consolidated Precision Products Poland Sp. z o.o. – **1 participant**,
- KPR Prodlew-Kraków Sp. z o. o. – **1 participant**,
- DETUR CHEM sp. z o.o. – **1 participant**,
- EUROCAST INDUSTRIES Sp. z o.o. Sp. K. – **3 participants**,,
- Kawmet Foundry (Odlewnia KAW-MET Marek Kawiński Sp. z o.o.) – **1 participant**,
- Prec-Odlew Sp. z o.o. – **2 participants,** including one who is also a representative of the Faculty of Foundry Engineering at AGH University of Krakow,
- Limatherm S.A. – **2 participants ,** including one who is also a representative of the Faculty of Foundry Engineering at AGH University of Krakow**,**
- Innerco Ltd. – **4 participants,** including one who is also a representative of the Faculty of Foundry Engineering at AGH University of Krakow**.**

The charts present a schematic distribution of the training participants by professional role, gender, and nationality (Fig. 9-11). A significant proportion of the attendees were affiliated with the academic sector, with university teaching staff constituting the majority within this group.

In total, 74 individuals took part in the training, which represents more than half of the intended number and may be regarded as a satisfactory outcome.

A considerable share of the participants were male, accounting for 67.57% of all attendees.

Although the training was primarily targeted at Polish companies, representatives of other nationalities also took part. Including the lecturers, they accounted for slightly more than 20% of the total number of participants.

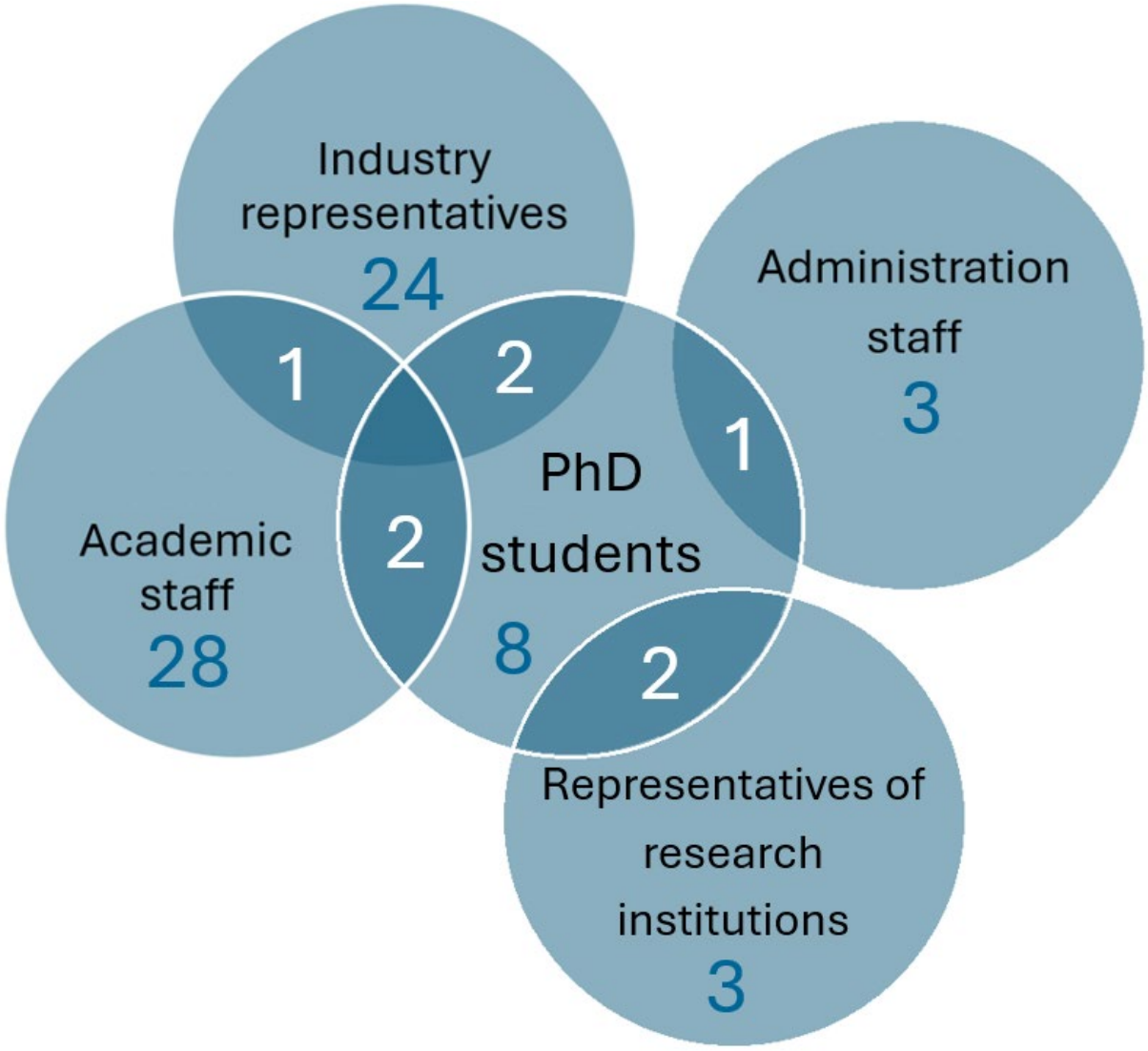


Fig. 9. *Training participants divided according to their occupation*

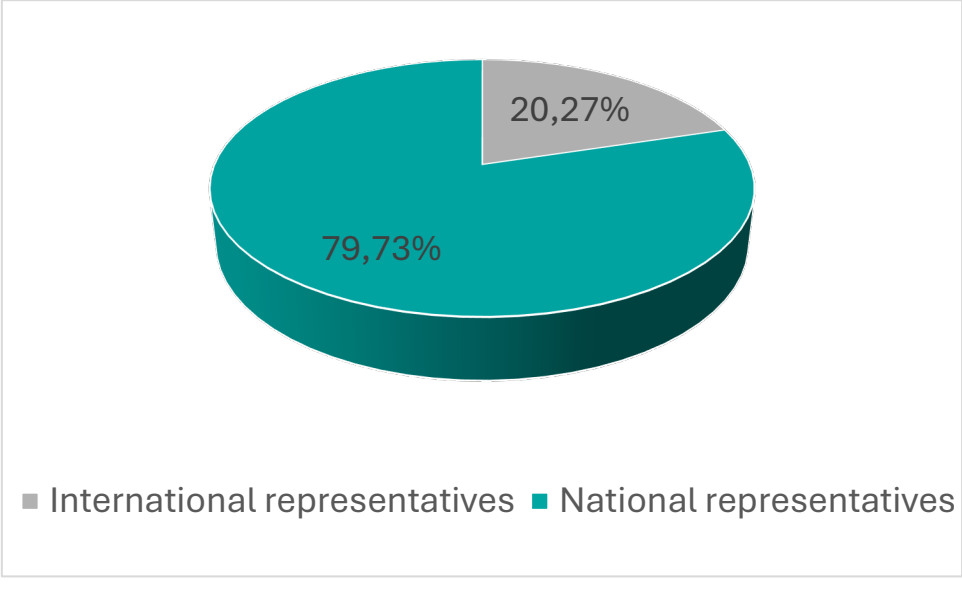


Fig. 10. *Percentage distribution of training participants by their nationality*

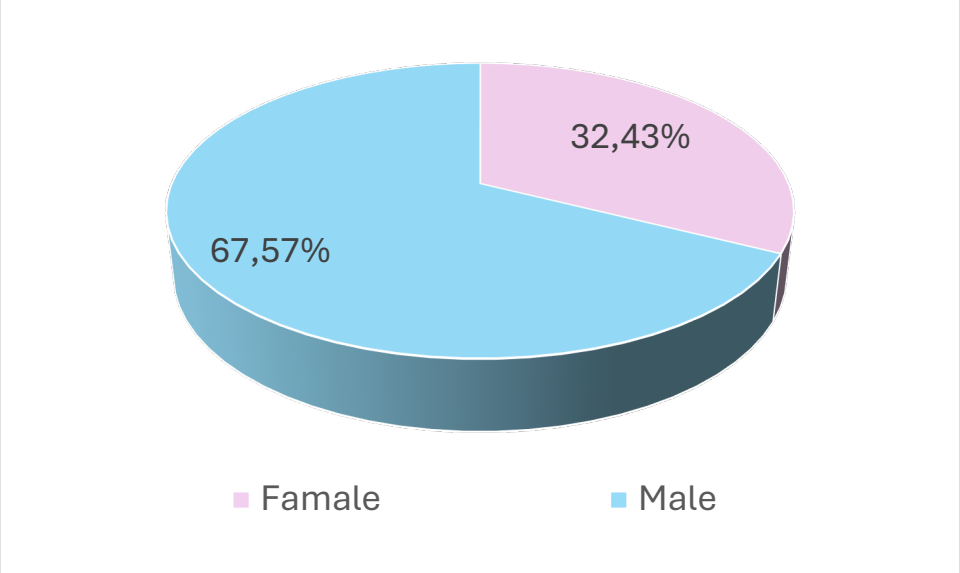


Fig. 11. *Percentage distribution of training participants depending on their gender*

3. Project's dissemination

3.1 Promotion of the School on S&T Mechanics, Metallurgy & Green Processing event and the NetCastPL4.0 project

The *School on S&T Mechanics, Metallurgy & Green Processing* was promoted at both national and international events, including the ITM INDUSTRY EUROPE trade fair within the FOCAST Foundry Exhibition. The training was featured in an oral presentation delivered by the Dean of the Faculty of Foundry Engineering at AGH University of Science and Technology, entitled *NetCastPL4.0 – Innovative Solutions in the Field of Thin-Walled Castings* (Fig. 12).

Fig. 12. *Schedule of performances at the Focast Foundry Salon, with the presentation of the Dean of the Faculty of Foundry Engineering of the AGH University of Krakow in the background*

In addition to the presentation, promotional materials such as leaflets were distributed at the joint stand of the Faculty of Foundry Engineering and the NetCastPL4.0 project (Fig. 13). The presentation generated significant interest and numerous enquiries regarding the training and the *Workshop on Lightweight Castings Innovation* organised by the NetCastPL4.0 consortium.

a)

b)

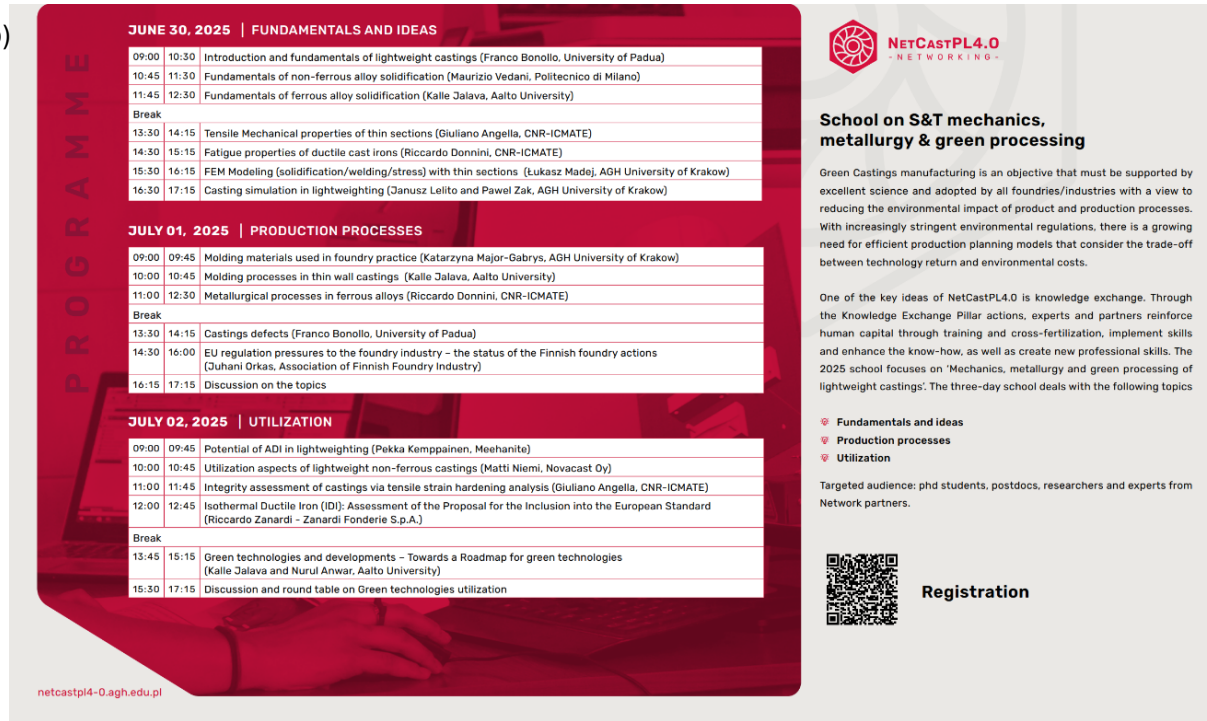


Fig. 13. *Flyer promoting the School on S&T Mechanics, Metallurgy & Green Processing a) front b) back*

The FOCAST trade fair was held in Poznań from 3 to 6 June 2025 at the Poznań International Fair (Międzynarodowe Targi Poznańskie). This event is focused on the presentation of modern industrial solutions and aligns well with the objectives of the Industry 4.0 concept.

Information about the training was also published on the official project website, where key details were provided, including the objectives, schedule, organisational information, and registration instructions. Furthermore, the event was announced in the project newsletter, available at the following link: https://netcastpl4-0.agh.edu.pl/wp-content/uploads/2025/05/How-NetCastPL4.0-Supports-Innovation-in-Lightweight-Castings-%E2%80%93-See-Whats-New.pdf

In addition, a formal invitation and dedicated information were sent directly to representatives of companies affiliated with the NetCastPL4.0 network, including company presidents, encouraging them to disseminate the information among Network Partners.

3.2 Other materials promoting the project

During the event, participants received promotional materials related to the NetCastPL4.0 project, including fudge candies, pencils, notebooks, leaflets, badges, and lanyards bearing the project logo (Fig. 14).

In addition, roll-up banners and printed leaflets promoting the NetCastPL4.0 project were displayed throughout the premises of the AGH Faculty of Foundry Engineering. The roll-ups attracted considerable attention and served as popular photo backdrops, with images later shared on social media by both participants and project partners (Fig. 15).

Due to the official nature of the event, all lecturers were asked to prepare their presentations using dedicated NetCastPL4.0 templates (Fig. 16). This ensured a consistent visual identity and made it clear, during later dissemination of the educational materials – whether by the organisers or by the speakers themselves – that the lectures originated from this specific training event.

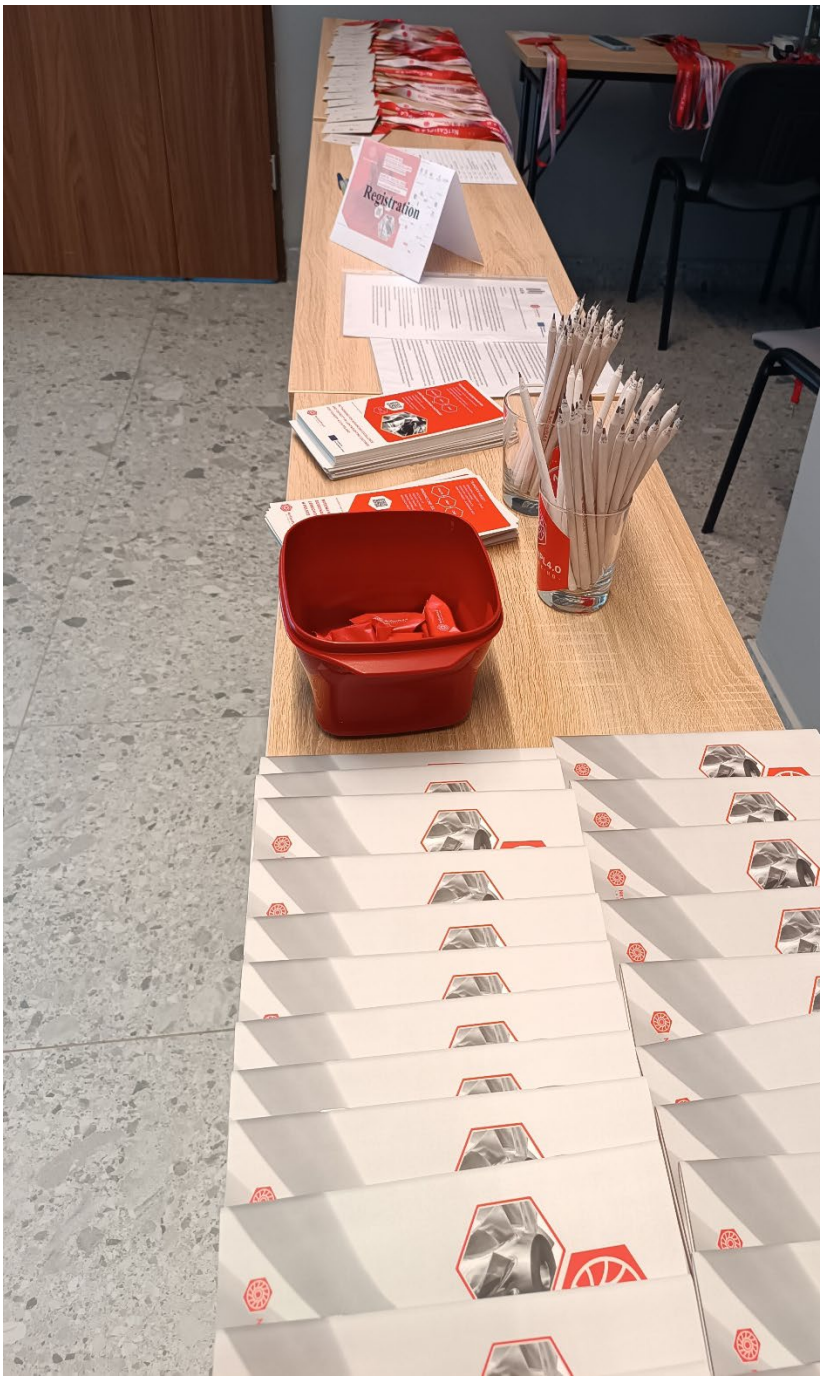


Fig. 14. Promotional materials of the NetCastPL4.0 project

Fig. 15. *Rollup of the NetCastPL4.0 project during the School on S&T Mechanics, Metallurgy & Green Processing*

Fig. 16. *Template of project's Power Point presentation*

4. Assessment of the feedback received

After the training concluded, participants were informed via email about the opportunity to complete an anonymous evaluation survey. The purpose of the survey was to gather feedback on the event and to identify the needs and challenges currently faced by the foundry industry.

The survey was prepared in both Polish and English and was structured into four sections:

1. Overall assessment of the event,
2. Scientific content – divided by the three days of lectures,
3. Organisational aspects and support,
4. Open-ended questions.

In total, the survey contained 33 questions. It was distributed to workshop participants on 11 July 2025, with the deadline for completion set for 25 July 2025. Total amount of respondents for the survey was 28 responses being on the Polish version of the survey.

The main findings from the feedback are as follows:

Overall assessment of the event

The overall organization of the School event was deemed very good from the received feedback, having 93% of the responses either good (25%) or very good (68%). From the received responses, the expectations were met, 96% of the responses being on the positive side (to some extent 28%, well 39% and fully 29%). The attendance in the school improved the participants knowledge in the green processing of castings, getting similarly positive responses (partly 21%, yes 36% and definitely yes 39%). The respondents view on recommending the event to others was also positive, having 32% answering yes and 57% definitely yes. From this feedback, the event can be deemed successful in general.

Scientific content

The feedback questions included the possibility to rate the individual lectures and presentations on their content usefulness and presentation quality. Both were evaluated with a numerical grading (1 to 5), with 1 being the most negative and 5 being the most positive in evaluation. In general, the presentations scored high both in the usefulness and presentation quality, while some presentations also receiving some minor negative ratings.

The average usefulness ratings for all the presentations ranged from 4.2 to 4.7, while the presentation quality averages ranged from 4.4 to 4.8. The few remote presentations in the event did not vary from the general trend with regards to these two aspects in these evaluations.

The evaluations are shared with the presenters to allow them to gain insights from the feedback and enable the project team to improve the second school event in 2026.

Organisational aspects and support

The discussion and the roundtable held at the end second and third days received very good feedback from the respondents, average scores being 4.8 and 4.7, respectively. In general, the respondents felt that they were encouraged to participate in discussion. The responses indicate also that they were able ask questions and receive satisfactory answers.

Open feedback and potential improvements

The open feedback enabled the respondents to give open feedback and constructive criticism on the areas that can be improved on the organization of the school. Some areas of interest are emphasized here:

- The respondents liked the thematic variability of the presentations and overall diversity of topics included in the school
- The ability to have international discourse during the school, and overall capacity for discussions during the event
- The technical level of the presentations should be increased in parts and made more in-depth to match the participant knowledge, e.g. less basics
- Company/Industry-side knowledge should be utilized more in these kinds of events to enable sharing of experiences on the topics
- Having remote presentations decreases the overall quality of presentations due to technical matters, etc. sound

Conclusions from the feedback

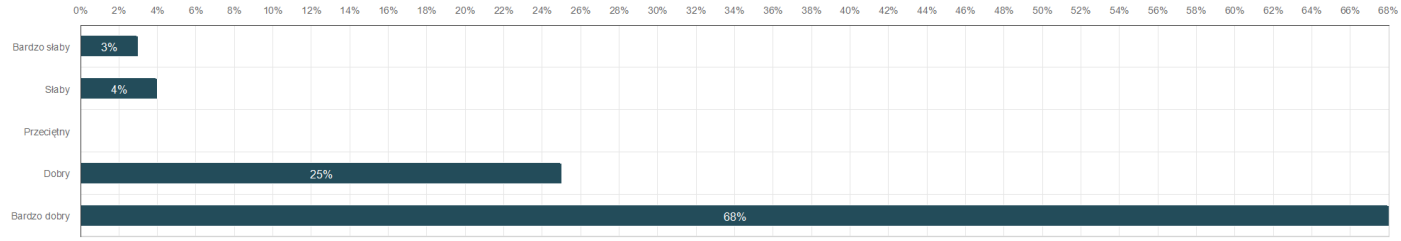
The number of respondents (28) was enough to get a good overview on the event. Overall structure, organization and the quality of presentations and topics was well received with the participants. Additionally, several improvement avenues were also identified from the received feedback. The feedback will be utilized in the planning and implementation of the 2nd School in 2026.

NetCastPL4.0 Evaluation Survey: School on S&T mechanics, metallurgy & green processing PL

Total number of respondents: 28

How would you rate the overall organization and execution of the School?

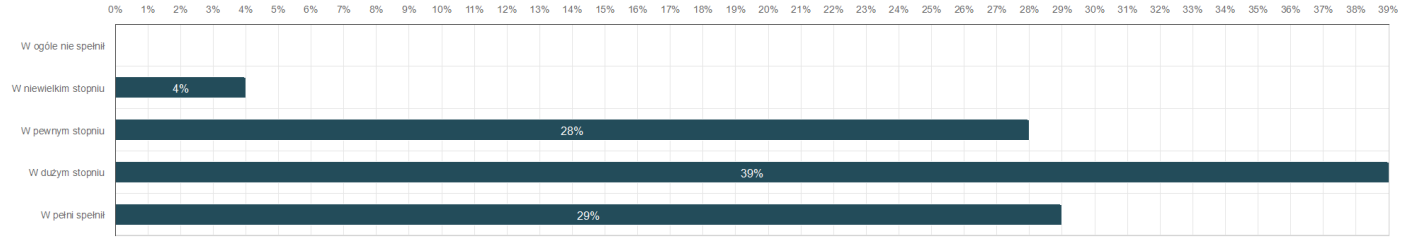
Number of respondents: 28



	n	Percent
Very weak	1	3,6%
Weak	1	3,6%
Average	0	0,0%
Good	7	25,0%
Very good	19	67,8%

To what extent did the School's program meet your expectations?

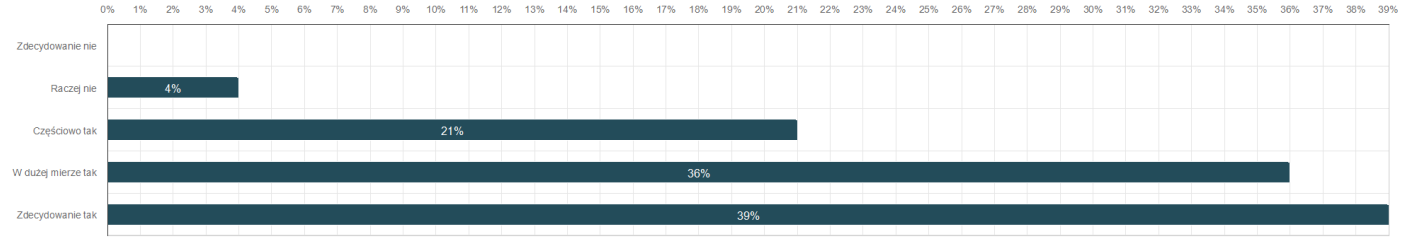
Number of respondents: 28



	n	Percent
Not at all	0	0,0%
To a small extent	1	3,6%
To some extent	8	28,5%
To a large extent	11	39,3%
Fully met	8	28,6%

Do you think that the School has contributed to expanding your knowledge of "green castings" and related technologies?

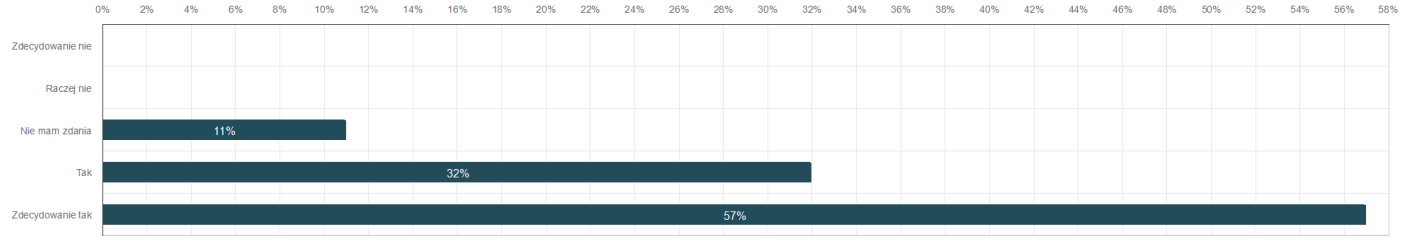
Number of respondents: 28



	n	Percent
Definitely not	0	0,0%
Rather not	1	3,6%
Partially yes	6	21,4%
To a large extent, yes	10	35,7%
Definitely yes	11	39,3%

Would you recommend this event to others in industry or academia?

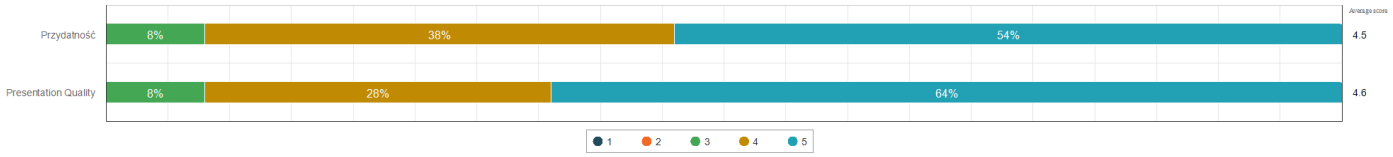
Number of respondents: 28



	n	Percent
Definitely not	0	0,0%
Rather not	0	0,0%
I don't have an opinion	3	10,7%
Yes	9	32,2%
Definitely yes	16	57,1%

Introduction and fundamentals of lightweight castings (Franco Bonollo, University of Padua)

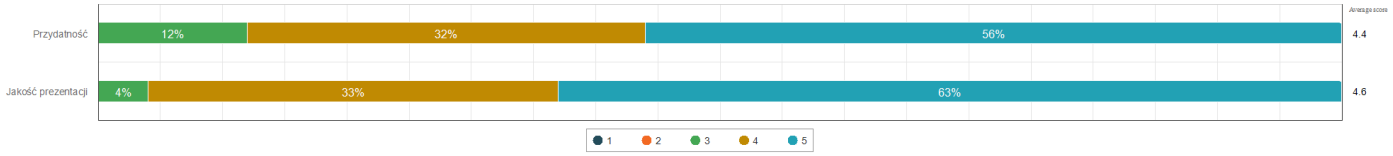
Number of respondents: 26



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	7,7%	38,5%	53,8%	4,5	5,0
Presentation Quality	0,0%	0,0%	8,0%	28,0%	64,0%	4,6	5,0
Total	**0,0%**	**0,0%**	**7,9%**	**33,3%**	**58,9%**	**4,5**	**5,0**

Fundamentals of non-ferrous alloy solidification (Maurizio Vedani, Politecnico di Milano)

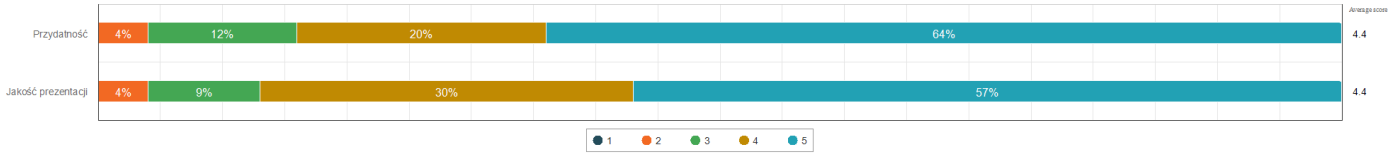
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	12,0%	32,0%	56,0%	4,4	5,0
Presentation Quality	0,0%	0,0%	4,2%	33,3%	62,5%	4,6	5,0
Total	**0,0%**	**0,0%**	**8,1%**	**32,7%**	**59,3%**	**4,5**	**5,0**

Fundamentals of ferrous alloy solidification (Kalle Jalava, Aalto University)

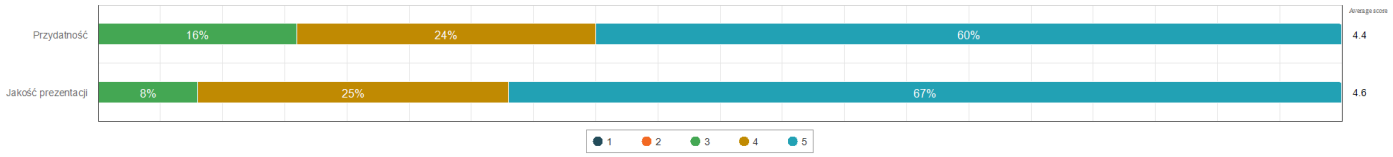
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,0%	12,0%	20,0%	64,0%	4,4	5,0
Presentation Quality	0,0%	4,4%	8,7%	30,4%	56,5%	4,4	5,0
Total	**0,0%**	**4,2%**	**10,4%**	**25,2%**	**60,3%**	**4,4**	**5,0**

Tensile Mechanical properties of thin sections (Giuliano Angella, CNR-ICMATE)

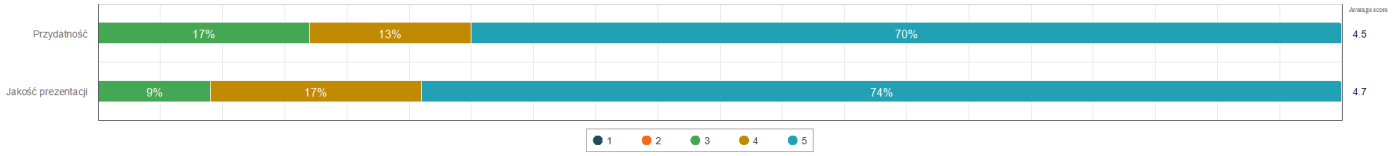
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	16,0%	24,0%	60,0%	4,4	5,0
Presentation Quality	0,0%	0,0%	8,3%	25,0%	66,7%	4,6	5,0
Total	**0,0%**	**0,0%**	**12,2%**	**24,5%**	**63,4%**	**4,5**	**5,0**

Tensile Mechanical properties of thin sections (Giuliano Angella, CNR-ICMATE)

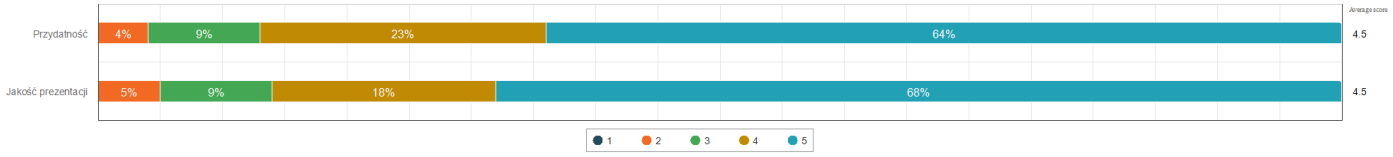
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	17,4%	13,0%	69,6%	4,5	5,0
Presentation Quality	0,0%	0,0%	8,7%	17,4%	73,9%	4,7	5,0
Total	**0,0%**	**0,0%**	**13,1%**	**15,2%**	**71,8%**	**4,6**	**5,0**

Fatigue properties of ductile cast irons (Riccardo Donnini, CNR-ICMATE)

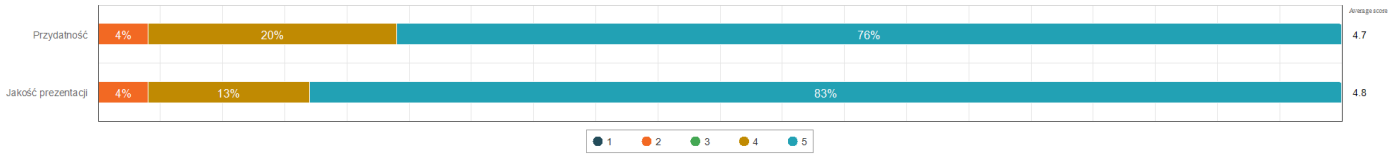
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,6%	9,1%	22,7%	63,6%	4,5	5,0
Presentation Quality	0,0%	4,5%	9,1%	18,2%	68,2%	4,5	5,0
Total	**0,0%**	**4,6%**	**9,1%**	**20,5%**	**65,9%**	**4,5**	**5,0**

FEM Modeling (solidification/welding/stress) with thin sections (Łukasz Madej, AGH University of Krakow)

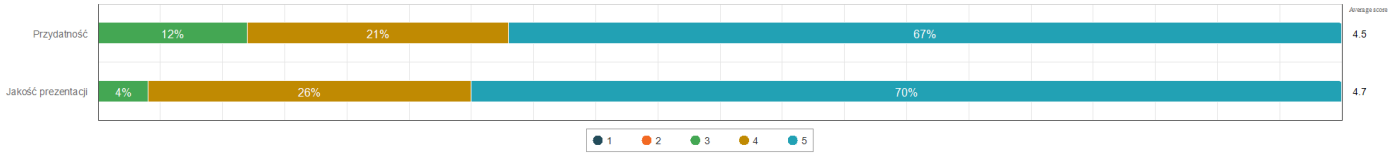
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,0%	0,0%	20,0%	76,0%	4,7	5,0
Presentation Quality	0,0%	4,2%	0,0%	12,5%	83,3%	4,8	5,0
Total	**0,0%**	**4,1%**	**0,0%**	**16,3%**	**79,7%**	**4,7**	**5,0**

Casting simulation in lightweighting (Janusz Lelito and Pawel Zak, AGH University of Krakow)

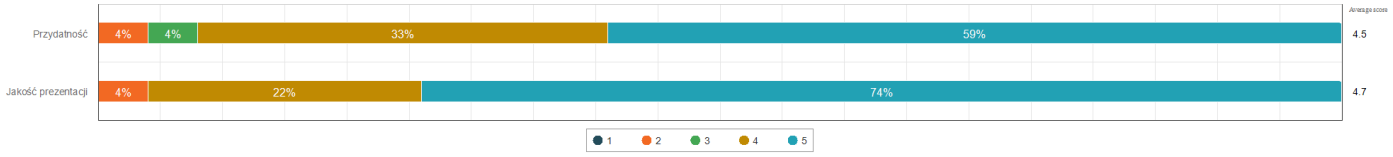
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	12,5%	20,8%	66,7%	4,5	5,0
Presentation Quality	0,0%	0,0%	4,3%	26,1%	69,6%	4,7	5,0
Total	**0,0%**	**0,0%**	**8,4%**	**23,5%**	**68,2%**	**4,6**	**5,0**

Molding materials used in foundry practice (Katarzyna Major-Gabryś, AGH University of Krakow)

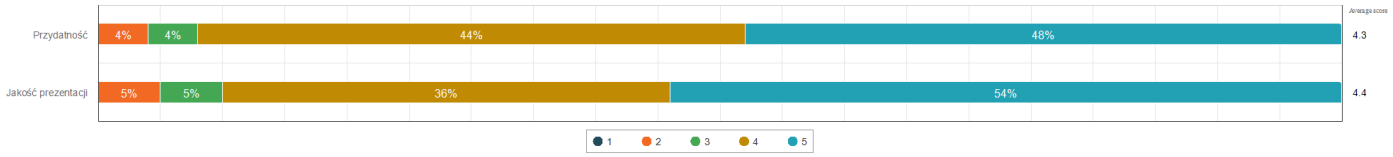
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,2%	4,2%	33,3%	58,3%	4,5	5,0
Presentation Quality	0,0%	4,4%	0,0%	21,7%	73,9%	4,7	5,0
Total	**0,0%**	**4,3%**	**2,1%**	**27,5%**	**66,1%**	**4,6**	**5,0**

Molding processes in thin wall castings (Kalle Jalava, Aalto University)

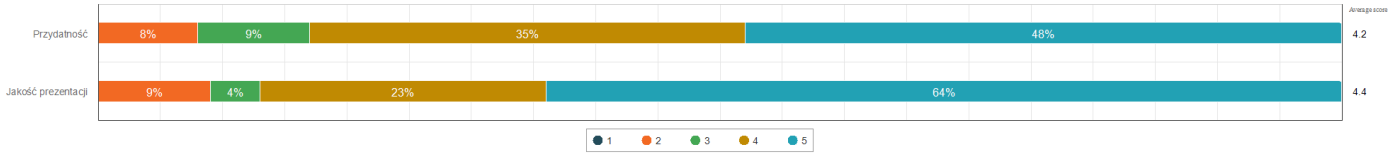
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,4%	4,3%	43,5%	47,8%	4,3	4,0
Presentation Quality	0,0%	4,6%	4,5%	36,4%	54,5%	4,4	5,0
Total	**0,0%**	**4,5%**	**4,4%**	**40,0%**	**51,2%**	**4,4**	**5,0**

Metallurgical processes in ferrous alloys (Riccardo Donnini, CNR-ICMATE)

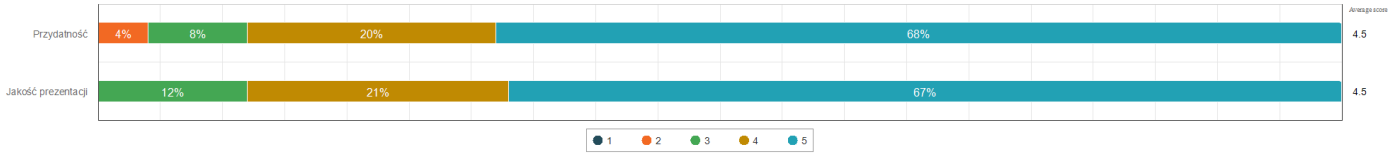
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	8,7%	8,7%	34,8%	47,8%	4,2	4,0
Presentation Quality	0,0%	9,1%	4,6%	22,7%	63,6%	4,4	5,0
Total	**0,0%**	**8,9%**	**6,7%**	**28,8%**	**55,7%**	**4,3**	**5,0**

Castings defects (Franco Bonollo, University of Padua)

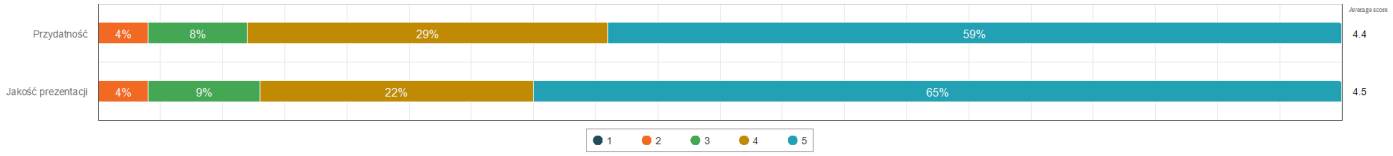
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,0%	8,0%	20,0%	68,0%	4,5	5,0
Presentation Quality	0,0%	0,0%	12,5%	20,8%	66,7%	4,5	5,0
Total	**0,0%**	**2,0%**	**10,3%**	**20,4%**	**67,4%**	**4,5**	**5,0**

EU regulation pressures to the foundry industry – the status of the Finnish foundry actions (Juhani Orkas, Association of Finnish Foundry Industry)

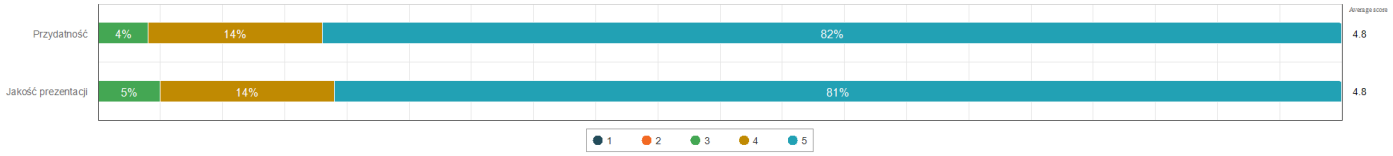
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,2%	8,3%	29,2%	58,3%	4,4	5,0
Presentation Quality	0,0%	4,4%	8,7%	21,7%	65,2%	4,5	5,0
Total	**0,0%**	**4,3%**	**8,5%**	**25,5%**	**61,8%**	**4,4**	**5,0**

Discussion on the topics

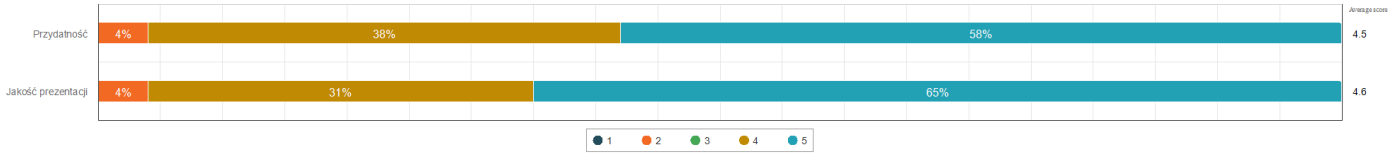
Number of respondents: 22



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	4,6%	13,6%	81,8%	4,8	5,0
Presentation Quality	0,0%	0,0%	4,8%	14,3%	80,9%	4,8	5,0
Total	**0,0%**	**0,0%**	**4,7%**	**14,0%**	**81,4%**	**4,8**	**5,0**

Potential of ADI in lightweighting (Pekka Kemppainen, Meehanite)

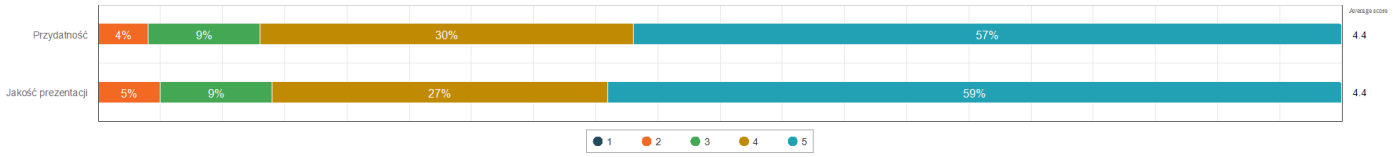
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,2%	0,0%	37,5%	58,3%	4,5	5,0
Presentation Quality	0,0%	4,4%	0,0%	30,4%	65,2%	4,6	5,0
Total	**0,0%**	**4,3%**	**0,0%**	**34,0%**	**61,8%**	**4,5**	**5,0**

Utilization aspects of lightweight non-ferrous castings (Matti Niemi, Novacast Oy)

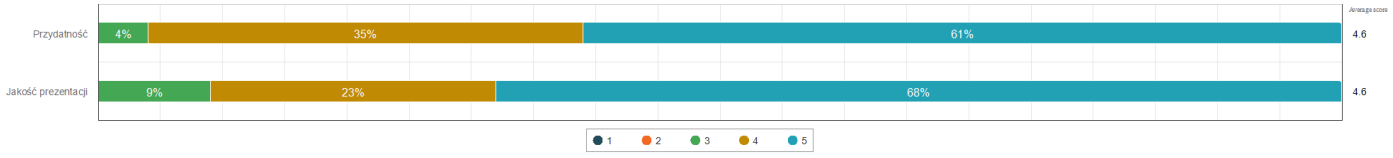
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,4%	8,7%	30,4%	56,5%	4,4	5,0
Presentation Quality	0,0%	4,5%	9,1%	27,3%	59,1%	4,4	5,0
Total	**0,0%**	**4,5%**	**8,9%**	**28,9%**	**57,8%**	**4,4**	**5,0**

Integrity assessment of castings via tensile strain hardening analysis (Giuliano Angella, CNR-ICMATE)

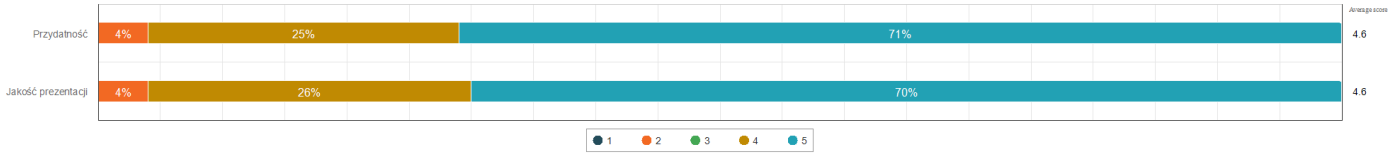
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	4,3%	34,8%	60,9%	4,6	5,0
Presentation Quality	0,0%	0,0%	9,1%	22,7%	68,2%	4,6	5,0
Total	**0,0%**	**0,0%**	**6,7%**	**28,8%**	**64,6%**	**4,6**	**5,0**

Isothermal Ductile Iron (IDI): Assessment of the Proposal for the Inclusion into the European Standard (Riccardo Zanardi – Zanardi Fonderie S.p.A.)

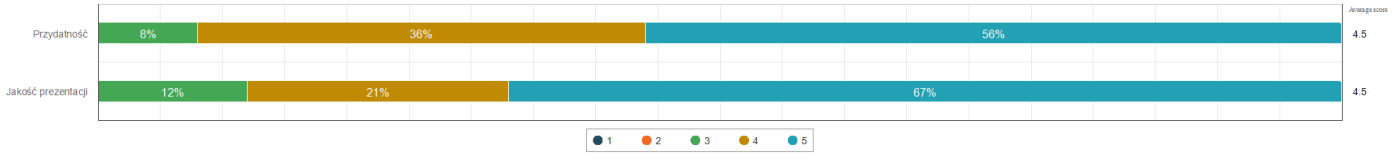
Number of respondents: 24



	1	2	3	4	5	Average	Median
Usefulness	0,0%	4,2%	0,0%	25,0%	70,8%	4,6	5,0
Presentation Quality	0,0%	4,3%	0,0%	26,1%	69,6%	4,6	5,0
Total	**0,0%**	**4,3%**	**0,0%**	**25,6%**	**70,2%**	**4,6**	**5,0**

Green technologies and developments – Towards a Roadmap for green technologies (Kalle Jalava and Nurul Anwar, Aalto University)

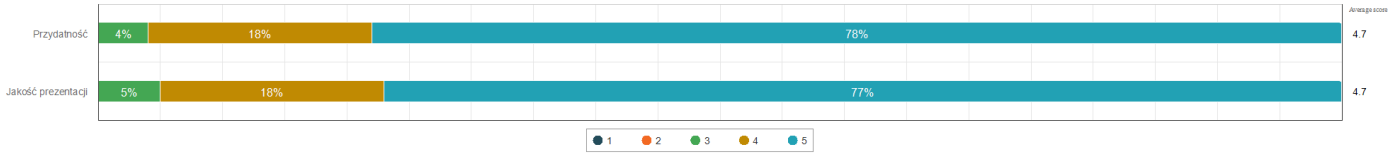
Number of respondents: 25



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	8,0%	36,0%	56,0%	4,5	5,0
Presentation Quality	0,0%	0,0%	12,5%	20,8%	66,7%	4,5	5,0
Total	**0,0%**	**0,0%**	**10,3%**	**28,4%**	**61,4%**	**4,5**	**5,0**

Discussion and roundtable on Green technologies utilization

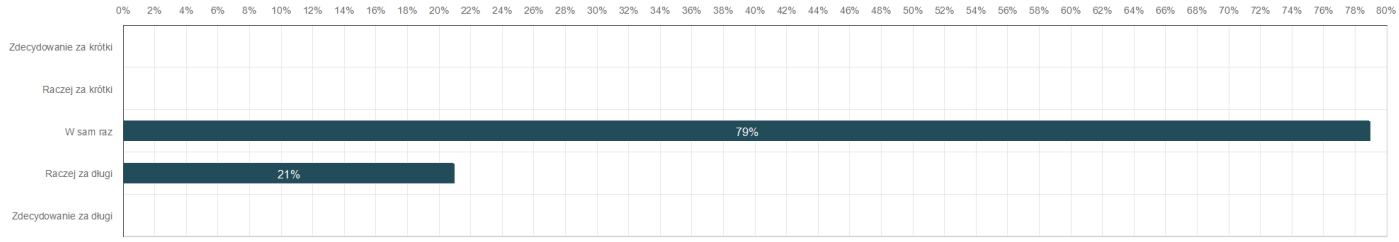
Number of respondents: 23



	1	2	3	4	5	Average	Median
Usefulness	0,0%	0,0%	4,3%	17,4%	78,3%	4,7	5,0
Presentation Quality	0,0%	0,0%	4,5%	18,2%	77,3%	4,7	5,0
Total	**0,0%**	**0,0%**	**4,4%**	**17,8%**	**77,8%**	**4,7**	**5,0**

Was the School's schedule properly organized and was the time allocated for individual sessions sufficient?

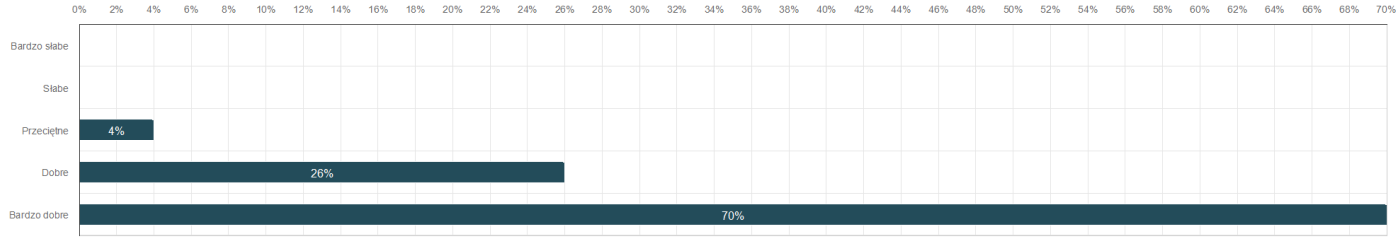
Number of respondents: 28



	n	Percent
Far too short	0	0,0%
Rather too short	0	0,0%
Just right	22	78,6%
Rather too long	6	21,4%
Far too long	0	0,0%

How do you assess the technical conditions (e.g. sound quality, video, availability of materials) during the presentation?

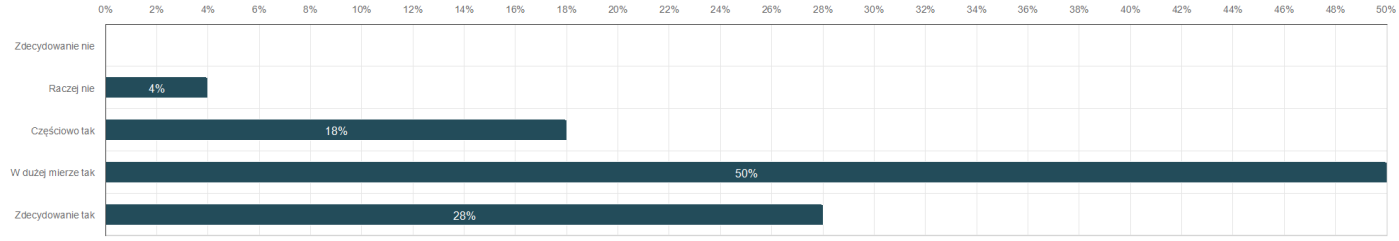
Number of respondents: 27



	n	Percent
Very weak	0	0,0%
Weak	0	0,0%
Average	1	3,7%
Good	7	25,9%
Very good	19	70,4%

Did you feel encouraged to take an active part in the discussions?

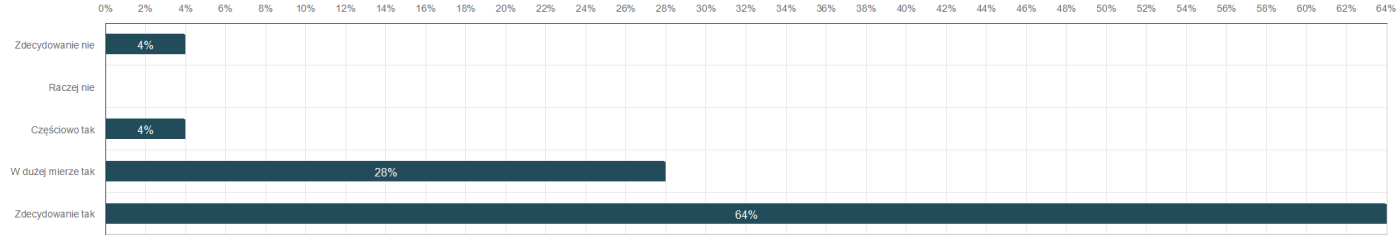
Number of respondents: 28



	n	Percent
Definitely not	0	0,0%
Rather not	1	3,6%
Partially yes	5	17,8%
To a large extent, yes	14	50,0%
Definitely yes	8	28,6%

Did you have the opportunity to ask questions to the speakers and get satisfactory answers?

Number of respondents: 28



	n	Percent
Definitely not	1	3,6%
Rather not	0	0,0%
Partially yes	1	3,6%
To a large extent, yes	8	28,5%
Definitely yes	18	64,3%

What did you like most about NetCastPL4.0 School?

Number of respondents: 19

(Proszę o krótki opis)
-
Właściwy dobór tematyki, prelegrntów i czasu trwania spotkania
organizacja wydarzenia
Możliwość dyskusji w międzynarodowym gronie
Calosciowe podejscie do tematu.
Prezentacja o FEM
organizacja, tematy prezentacji
Prezentacje, wystąpienia poza "naukowe". Tzn. prezentacje z "przemysłu" oraz regulacji UE
Zróżnicowana tematyka i wysoki poziom merytoryczny
róznorodność tematyczna
Dyskusje z obecnymi gośćmi
róznorodna tematyka
Ogólna tematyka dotycząca stopów metali nieżelaznych
W Szkole najbardziej podobało mi się dopasowanie tematów i ich stopnia zaawansowania.
dużo ciekawych i przydatnych tematów
Bardzo ciekawa dyskusja.
nawiązanie kontaktów międzynarodowych
międzynarodowa dyskusja
Informacje o odlewaniu stopow alumnium i magnezu

What do you think could be improved in future editions of the School?

Number of respondents: 19

(Please provide a brief description)
-
większa frekwencja
Informacja odnośnie organizacji i harmonogramu powinna być przekazana wcześniej
-
Mniejsze skupienie na podstawach
Przekazywane treści, były na podstawowym poziomie. Ja oczekiwałem bardziej zaawansowanego szkolenia.
Mniej teorii, prezentacji i informacji na poziomie studenta czyli podstawowych informacji. Więcej zaawansowanej teorii, więcej informacji z przemysłu. Np. teoria symulacji krzepnięcia jest znana, inżynierowie wiedzą jak to działa. Zamiast teorii, można pokazać konkretne zastosowanie do rozwiązania konkretnego problemu z przemysłu.
krótsze przerwy pomiędzy prezentacjami i wcześniejsze zakończenie wydzraenia
Nic nie trzeba poprawiać
mniej teorii, wiekszy nacisk na wyniki badań
Pominięcie podstawowych zagadnień związanych z odlewnictwem na rzecz bardziej zaawansowanych zagadnień
wykłady do 1 godz
Nic
Szkoła ma wielkie możliwości, ale średnio je wykorzystała. Na sali większość osób to przemysł bądź prelegenci, dodatkowo kilku pracowników Wydziału Odlewnictwa. Myślę, że warto pomyśleć nad większym zaangażowaniem w promocję wydarzenia, aby więcej studentów miało możliwość uzyskania poszerzenia swojej wiedzy i certyfikatu.
nic
Wprowadzenie wystąpień wygłaszanych przez przedstawicieli odlewni dotyczacych rzeczywtsych wyzwań i problemów.
mniej prezentacji w formie online, bo jakość dźwięku uniemożliwiająca skupienie się i zrozumienie
poszerzyć różnorodność tematów branżowych
rozdzielić szkolenie osobne sesje dot. alumnium a osobne dot. żelaza

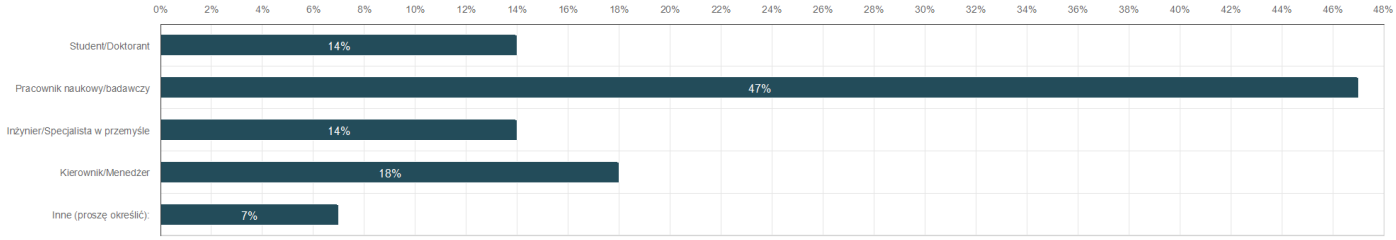
Do you have any additional comments or suggestions about the School or its subject matter?

Number of respondents: 16

(Proszę o krótki opis)
-
Nie
Tematyka bardzo ciekawa, jednak zabrakło pogłębionej analizy odnośnie cienkościennych odlewów (jakie procesy wytwarzania są dedykowane, jakie trudności z wytwarzaniem takich odlewów, wymagania odnośnie odlewów, różnice między odlewami cienkościennymi a standardowymi odlewami)
-
-
Nie
Więcej wiedzy - prezentacji powstałych w przemyśle. Jeśli "teoria" to w postaci nowości nowinek, czegoś czego inżynier o wykształceniu metalurgicznym może nie wiedzieć.
firmy powinny mniej prezentować swój profil, a kłaść wiekszy nacisk na badania
brak
poziom zbyt podstawowy powinien być co najmniej akademicki
Brak
-
wizyta studyjna w zakładach odlewniczych
Wiecej informacji o projektowaniu technologii i wytwarzaniu odlewów cienkościennych.
zaprosić więcej przedstawicieli przedsiębiorstw, to poszerzy możliwości dyskusji
nie

Your role/position:

Number of respondents: 28



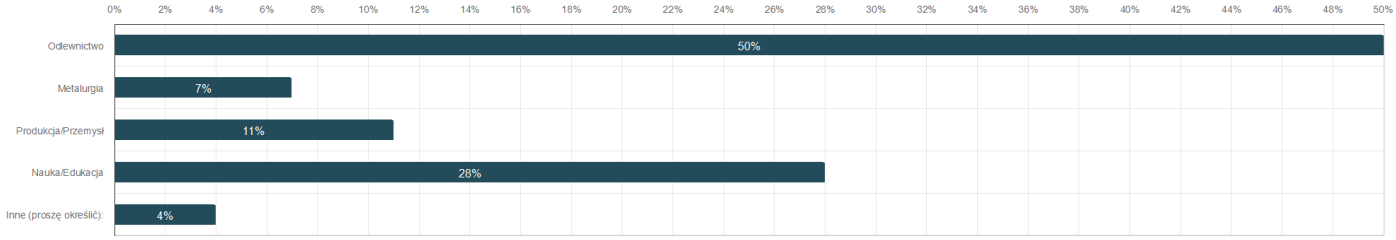
	n	Percent
Student/Doctoral Student	4	14,3%
Researcher	13	46,4%
Engineer/Specialist in industry	4	14,3%
Manager	5	17,9%
Other (please specify):	2	7,1%

Answers given into textfield

Option names	Text
Inne (proszę określić):	administracja
Inne (proszę określić):	Specjalista ds. administracji

Industry in which you operate:

Number of respondents: 28



	n	Percent
Foundry	14	50,0%
Metallurgy	2	7,1%
Manufacturing/Industry	3	10,7%
Science/Education	8	28,6%
Inne (proszę określić):	1	3,6%

Answers given into textfield

Option names	Text
Inne (proszę określić):	Administracja