HÖGSKOLAN I BORÅS
VETENSKAP FÖR PROFESSION

# Program Report

Enligt Riktlinjer för löpande utvärdering av kurser och utbildningsprogram vid Högskolan i Borås (Dnr 589-17) ska programrapporten utgå ifrån följande aspekter:

1) Studenternas möjlighet till ansvar och delaktighet
2) Sambanden mellan programmets kurser samt mellan examensmål, lärandemål undervisningsformer och examinationer
3) Forskningsanknytning i programmet
4) Programmets resurser och hur dessa har använts
5) Programmets användbarhet och förberedelse för ett föränderligt arbetsliv

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| **Program Name:**<br>**Master Programme (Two Year) in Technical Textile Innovation** | **Ladok Code: TAMTI** |
| **Extension: 120 Credits** | **Admission round: 2023 (first batch for this newly started program 2023-2025)** |
| **Program Coordinator:**<br>**Veronica Malm** | |

## Execution of Program Evaluation

This program report, based on "Riktlinjer för löpande utvärderingar av kurser och utbildningsprogram vid Högskolan i Borås", Dnr 589-17, compiled by the program coordinator is based on available course reports, course manager meetings (once per year), anonymous program evaluation by student batch 2023, summarized written and oral evaluation given by students during program council meetings (twice a year) and study performance statistics.

## Student Authority and Involvement

Already during the introduction day, program students are informed about the importance of and opportunities for student authority and involvement in continuous follow-up and development work aimed at strengthening educational quality. This motivated students to sign up as class representatives, both main and supleant, already in the first week of their studies. For this newly launched MSc program and the bachelor program *Textile Production and Innovation*, a joint program council was established, including class representatives, course manager representatives, and industry members. The council provides valuable insights into the progression from bachelor to master level, as bachelor students can apply to the MSc program.

Each course includes anonymous student evaluations through sunetsurvey, and some course managers also conduct formative evaluations by collecting continuous feedback. Additionally and before each council meeting (twice per year), the program coordinator asks class representatives to summarise key points regarding: course structure (Canvas guidelines, lectures, planning, and learning sequence), learning outcomes, teaching methodology, course placement within the program, and miscellaneous feedback. At council meetings, relevant topics are discussed with course managers and industry partners, while any sensitive issues are handled separately with the program manager, ensuring transparency and appropriate handling. First- and second-year students are invited to participate, with second-year students joining subsequently. The council meetings often include instant feedback on the connection between course content and industrial relevance, confirming that

learning outcomes align with required knowledge and skills. Based on batch 23's evaluations, changes made by course managers were presented, giving also batch 24 confirmation that active student involvement indeed contributes to strengthening educational quality. The program evaluation followed the same procedure as the course evaluations. All students in batch 2023 were actively involved in the evaluation of their educational program.

**Relationships between the program's courses, and between objectives, learning outcomes, teaching methods, and examinations.**

Schedule of the Programme: The schedule below illustrates the programme courses and the sequence diagram. All courses are compulsory for the students and * points out co-reading courses with the Master Programme in Textile Engineering or Resource Recovery.

<table>
<tr><th></th><th>Period 1</th><th colspan="2">Period 2</th><th>Period 3</th><th>Period 4</th></tr>
<tr><td rowspan="2">Year 1</td><td>Creative Design Processes 7,5 credits</td><td colspan="2">Textile Product Design – Construction and Joining Technologies 7,5 credits</td><td>Advanced Textile Structures 7,5 credits *(TAMTE)</td><td rowspan="2">Project course in Advanced Textiles 15 credits *(TAMTE)</td></tr>
<tr><td>Advanced Fiber and Yarn Technology 7,5 credits *(TAMTE)</td><td>Textile Product Development 6 credits *(TAMTE)</td><td>Ethics in the Textile Value Chain 1,5 credits *(TAMTE)</td><td>Innovative Textile Product Development 7,5 credits</td></tr>
<tr><th></th><th>Period 1</th><th colspan="2">Period 2</th><th>Period 3</th><th>Period 4</th></tr>
<tr><td rowspan="2">Year 2</td><td>Advanced Finishing and Dyeing Technologies 7,5 credits</td><td colspan="2">Project course in Sustainable Development 10 credits</td><td colspan="2" rowspan="2">Thesis Project 30 credits<br><br>* Co-reading</td></tr>
<tr><td>Life Cycle Assessment 7,5 credits* (Resource Recovery)</td><td colspan="2">Circular Economy 5 credits* (Resource Recovery)</td></tr>
</table>

**Course interconnections and progression:**

The program demonstrates a clear progression from creative design and material science in Year 1 to advanced processes, sustainability, and research in Year 2. Early courses (*Creative Design Processes*, *Advanced Fiber and Yarn Technology*), and *Textile Procuct Design – Construction and joining Technologies* provide foundational skills in ideation and textile technology, which are later applied in product development and innovation projects. Year 2 strengthens technical expertise through *Advanced Dyeing and Finishing Technology* and introduces systemic sustainability tools (*Life Cycle Analysis*, *Circular Economy*), culminating in project-based learning and thesis preparation. Students highlighted that all textile technology courses significantly added to their basic knowledge**,** offering deep insights into fibers, yarns, advanced textile structures, dyeing and finishing. Laboratory sessions and exposure to industry-relevant technologies and sustainability methodologies were highly valued for bridging theory and practice. However, students suggested adding a short introductory textile chemistry module to ease transition into advanced dyeing and finishing.

**Objectives and Learning Outcomes**

Program objectives; creativity, technical mastery, sustainability, and critical thinking, are consistently addressed across courses. Students highlighted learning in advanced textile structures, sustainable

processes, and LCA, alongside design methodology and academic writing. These outcomes were reinforced by hands-on labs and software training (CLO3D, Lectra).

Challenges emerged in some courses: *Life Cycle Analysis* outcomes were perceived somewhat vague, and company collaboration issues delayed data access. Sustainability workshops in *Project Course in Sustainable Development* were considered too basic for students with prior knowledge and a bachelor from the Textile Product Development and Entrepreneurship program at HB, yet on a good level for students with other background (e.g. Textile Engineering). *Textile Product Development* lacked clarity in purpose and structure, weakening its intended role as a bridge to innovation courses.

**Teaching Methods**

Teaching approaches combine lectures, labs, workshops, and industry collaboration, effectively supporting intended outcomes. Research integration and company visits were highly valued. Practical labs in Year 1 and Year 2 enhanced technical competence, though students requested more time and broader exposure to technologies.

Group work fostered collaboration but posed challenges due to uneven motivation; students suggested balancing group and more individual tasks. Coordination among instructors needs improvement to avoid overlapping assignments and inconsistent expectations, particularly in courses with multiple teachers (*Advanced Fiber and Yarn Technology*).

**Examinations and Workload**

Assessment formats (reports, presentations, exams, projects) generally align with learning outcomes, promoting creativity, technical analysis, and problem-solving. However, students reported periods of excessive workload and unclear instructions in some courses. Specific concerns included:

- Literature-heavy exams (*Textile Product Design*) slightly misaligned with lecture content.
- Repetitive assignments and inconsistent expectations (*Fiber and Yarn Technology*).
- Time constraints in *Advanced Dyeing and Finishing* exams (later corrected).

Later corrections and suggestions included redistributing credits to accommodate textile chemistry, clearer timelines, and better integration of reading materials with lectures in those courses. Key improvement areas include workload balance, clearer communication of expectations, and enhanced support for quantitative research methods in thesis work.

**Research connection in the program**

Students consistently highlighted the strong research integration throughout the program. Many courses were taught by instructors actively engaged in research, which enriched lectures with current findings and real-world applications. This connection was particularly evident in sustainability-focused courses (*Life Cycle Analysis*, *Circular Economy*) and advanced technical modules (*Advanced Fiber and Yarn Technology*, *Advanced Dyeing and Finishing Technology*), where students worked on industry-relevant problems and applied scientific methods in labs and projects.

Project-based courses and the thesis further strengthened research skills by requiring literature reviews, critical analysis, and data-driven reporting. Students appreciated learning academic writing and experimental design, though they requested more support for quantitative research and statistical analysis during the thesis phase. Overall, the program successfully linked education to ongoing research and industry innovation, fostering a strong scientific foundation for future careers.

**Program resources**

The program has a strong research foundation, which students recognized and appreciated. Only in a few courses assistent lecturers taught, but all courses were managed and also taught by senior lecturers, docents and professors actively engaged in research, bringing current findings and scientific perspectives into lectures. According to the students, this was particularly evident in sustainability-focused courses and advanced technical modules, where students worked on industry-relevant problems and applied research-based methods in labs and projects. In some courses, assistent lecturers also taught. Students also value the competence of the technical staff in wokshops and labs, many of whom have extensive industry experience. Project-based courses and the thesis further strengthened research skills through literature reviews, critical analysis, and data-driven reporting. Students valued learning academic writing and experimental design but requested more support for quantitative research and statistical analysis during the thesis phase. Overall, the program successfully connects education with ongoing research and industry innovation, preparing students for both academic and professional careers

**Utility and readiness for professions**

Students highlighted the program's strong technical and sustainability focus, research connection, and international environment. They valued industry exposure and reported significant personal and professional growth, including improved critical thinking and project management skills. Students highlighted that the program provides excellent resources for professional preparation. Well-equipped laboratories, advanced machinery, and specialized software tools such as CLO3D and Lectra allowed hands-on experience in fiber analysis, yarn spinning, dyeing, finishing, and 3D product design. These resources helped bridge theory and practice, making learning highly relevant to industry standards. Industry collaboration was another major strength. Study visits, guest lectures, and real-world projects with companies gave students insight into current practices and professional expectations. The integration of sustainability and life cycle analysis further aligned the program with emerging trends in the textile sector.

From the student perspective, these resources and experiences significantly improved employability by developing technical expertise, problem-solving skills, and familiarity with industrial processes. Students suggested expanding lab time, ensuring exposure to all technologies, and offering clearer guidance in project-based courses to maximize readiness for professional roles.

**Adjustments made for the 2024 intake**

Based on previous student feedback, several adjustments were implemented for the 2024 intake:

**Course Structure and Scheduling**

- *Advanced Fiber and Yarn Technology:* Clearer instructions on lab report writing were introduced. In Year 1, differences in prior knowledge between students with an engineering background (e.g., TAMTE) and those with a textile technology background became evident. Many students lacked experience in technical report writing and laboratory documentation at the expected level. To address this, a structured framework and detailed guidelines were developed to support students from textile technology programs and ensure consistency in academic standards.
- Measures were implemented to reduce overlapping assignments and harmonize expectations**,** particularly in courses with multiple instructors such as *Advanced Fiber and Yarn Technology*. Improved coordination among teachers helped clarify requirements and streamline workload.
- *Advanced Dyeing and Finishing Technology:* Extended lab time and added an extra lab day to reduce stress and allow more hands-on experience as well as demonstrations.

**Content Adjustments**

- Clearer communication of expectations was implemented in *Advanced Fiber and Yarn Technology* and *Textile Product Development*.
- Better integration of literature with lectures in *Textile Product Design* and and guidance on what is essential for exams.
- Added more structured project instructions and timelines in project-based courses to reduce confusion.

**Teaching and Coordination**

- Information about international students provided earlier to course managers for better planning. (Still needs attanension)
- *Advanced Dyeing and Finishing Technology:* Since the 2024 intake, this course has been redesigned as a hybrid/distance-learning format. All lectures and laboratory demonstrations are recorded, enabling distance students to participate and providing program students with the opportunity to revisit the material at their own pace. This approach supports deeper learning and allows students to consolidate knowledge by reviewing complex topics multiple times.

**Examinations and Workload**

- Adjusted exam time in *Advanced Dyeing and Finishing Technology* after feedback on fairness.
- Reduced repetitive assignments and clarified grading criteria in courses with multiple teachers.

**Program-Level Improvements**

- Plans for earlier thesis topic guidance and planning for improved support for quantitative research methods.
- Consideration of adding a short introductory textile chemistry module to support progression into advanced courses.