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REPORT ON INTERNSHIP PROGRAMME - 2022

WP 3: ACADEMIC STAFF TRAINING AND PREPARATION FOR DELIVERY

foodi
ERASMUS+ CBHE

Project Information

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Executive Summary

The MSc Foodi internship programme is a pivotal component of the MSc Food Processing and Innovation curriculum, designed to bridge the gap between academic learning and industry application. This executive summary offers a concise overview of the programme's objectives, structure, and benefits.

The primary objective of the MSc Foodi internship programme is to provide students with real-world exposure and hands-on experience within the food processing and innovation industry. Through meaningful interactions with industry partners, students are empowered to apply theoretical knowledge in practical settings, fostering the development of industry-relevant skills and competencies. The programme aims to nurture a generation of professionals who are not only well-versed in theoretical concepts but also equipped to tackle real challenges in the food industry.

Spanning across two semesters, the internship programme is seamlessly integrated into the MSc Foodi curriculum. In MIDAS 2, students initiate their engagement with industry partners by visiting companies, conducting interviews, and identifying challenges. This phase sets the stage for the subsequent steps in MIDAS 3, where students design and test prototypes that address these identified challenges. Throughout both phases, students benefit from the guidance of academic and industry supervisors, ensuring a collaborative and enriching learning experience.

1 Objectives of Internship

The internship program for the MSc Food Processing and Innovation (MSc Foodi) holds profound significance as a transformative bridge between academic learning and real-world application. This experiential journey provides students with a unique opportunity to immerse themselves in the dynamic landscape of the food industry. By interning in established food processing companies, research institutions, or innovation-driven enterprises, students gain invaluable insights into the practical aspects of food technology, quality control, and innovation. This hands-on experience fosters the development of crucial skills, such as problem-solving, adaptability, and effective communication, that are essential for success in the competitive food industry.

Moreover, the internship program serves as a powerful catalyst for career advancement. It not only bolsters students' resumes with practical experience but also helps them build a professional network within the industry. This network, cultivated through interactions with industry professionals during internships, often leads to mentorship opportunities, potential job offers, and a better understanding of the industry's demands and trends. Furthermore, internships provide students with a clearer vision of their career path, allowing them to align their academic pursuits with their long-term aspirations. By fostering a seamless integration of theoretical knowledge and real-world exposure, the internship program plays a pivotal role in preparing MSc Foodi graduates to become competent, industry-ready professionals who contribute significantly to the advancement of food processing and innovation.

2 The Internship through MIDAS Programme

The most effective way to acquire the skills necessary for innovation involves configuring, experiencing, and delivering value to others. Sustaining these skills over time requires a willingness to expand one's horizons and foster new connections and networks. This approach to active learning is at the core of what the MSc FOODI program offers to its participants, encapsulated in the acronym MIDAS: Mastering Innovation and Disruptive Approaches to Success.

The MIDAS framework extends throughout the three-semester journey of the MSc Food Innovation and Entrepreneurship (MSc FOODI) program. This culmination of action research empowers learners to excel in crafting novel solutions to challenges within the food industry. Guided by a series of imaginative and innovative exercises, peer discussions, industry consultations, internships, and culminating in a FOODI Conference, students develop the creative confidence that epitomizes an entrepreneurial mindset.

MIDAS encompasses an Industry-Centred Research Project, a pivotal element aimed at closing the gap between academic knowledge and business needs. Participants are afforded the chance to tackle tangible industry challenges by applying the techniques and tools they've garnered.

This journey, coupled with ongoing self-evaluation, facilitates the enhancement of communication, problem-solving, analytical, and teamwork skills. In a bid to foster

comprehensive connectivity, we offer the opportunity for them to present their MIDAS Projects at our FOODI Conference during their final semester.

3   MIDAS 1

Students of MSc Foodi will undertake the MIDAS 1 subject during their first semester. Within the MIDAS 1 module, students will be immersed in the realm of design thinking skills, encompassing an array of innovative and creative problem-solving techniques. They will explore diverse approaches to identifying challenges and generating solutions within the context of the food industry. This exposure will empower them to think critically, analyse complex problems, and envision new possibilities that can drive impactful changes in the field of food processing and innovation.

Figure 1 Figure 1: Empathy Map in Define Stage

Furthermore, the MIDAS 1 subject serves as a foundational stepping stone for fostering interdisciplinary collaboration and effective communication. Students will engage in dynamic group discussions, brainstorming sessions, and peer evaluations, cultivating their teamwork and presentation abilities. Through hands-on activities, case studies, and real-world industry scenarios, they will acquire practical insights into transforming concepts into tangible innovations that can address real-world industry needs. By the end of semester, the students need to think and plan for their collaboration with industry.

4 MIDAS 2

MIDAS 2 marks a pivotal phase in the MSc Foodi journey, where students transition from theory to tangible action by embarking on their ventures or collaborations with industry partners. This module harnesses the power of hands-on engagement, immersing students in the real-world challenges faced by the food industry. Through site visits to partner companies, participants gain first-hand insights into the intricacies of the industry's operations, identifying existing problems that require innovative solutions.

Figure 2 Visit to Madani & Co, one of the industry partners

At the heart of this process lies the empathy stage, where students delve into the shoes of industry professionals. By understanding the needs, concerns, and aspirations of the company, they cultivate a deep sense of empathy—a crucial foundation for generating meaningful solutions. This empathetic perspective helps students forge a strong connection with the industry's ecosystem, enabling them to formulate solutions that resonate with the context and intricacies of the food processing landscape.

Following the empathy stage, students delve into the "define" phase, wherein they distil their observations into concrete problem statements. This critical step ensures a clear understanding of the challenges at hand, guiding their subsequent ideation efforts. Through brainstorming and creative thinking, students generate a plethora of innovative ideas that can address the identified problems effectively. The ideation phase encourages the exploration of diverse perspectives, fostering a rich tapestry of potential solutions.

With problem definitions and ideas in hand, students' progress to the "ideate" stage, where they transform abstract concepts into concrete proposals. Employing design thinking principles, they craft detailed solutions that resonate with the industry partners' needs and aspirations. The culmination of this process lies in the students' presentation of their proposals in front of industry partners and their mentors. This pitch showcases not only their innovative solutions but also their ability to communicate, persuade, and collaborate effectively.

MIDAS 2 encapsulates a transformative journey, where students bridge the gap between academia and industry, transforming theoretical knowledge into practical solutions that hold the potential to revolutionize the food processing landscape. Through empathy, problem definition, ideation, and collaborative pitching, students embrace the role of agents of change, embodying the essence of innovation and entrepreneurial spirit that defines the MSc Foodi program.

5   MIDAS 3

As the students' ideas mature and crystallize, this phase begins with the crucial step of finalizing their innovative solutions. Building on the foundation laid in MIDAS 2, students refine their proposals, ensuring that they are comprehensive, feasible, and aligned with the industry partners' needs.

Central to the MIDAS 3 experience are the strategic meetings and industry visits that facilitate in-depth discussions with industry partners. Through these interactions, students engage in constructive dialogues, refining their concepts based on practical insights and feedback from professionals immersed in the food industry. These collaborative exchanges bridge the gap between academic learning and real-world application, ensuring that the proposed solutions remain relevant and effective.

Figure 3 Some of the materials for prototype

Subsequently, students embark on the journey of transforming their refined ideas into tangible prototypes. This stage involves hands-on work, where the concepts take shape in the form of prototypes that reflect the proposed solutions. These prototypes serve as tangible manifestations of their innovative thinking, enabling students to visualize the practical implications of their ideas and facilitating further iterations.

Figure 4 One student is sharing her prototype

Testing, a crucial component of MIDAS 3, follows the prototype development. This stage involves subjecting the prototypes to rigorous evaluation, simulating real-world scenarios to assess their functionality, practicality, and potential impact. Through testing, students uncover potential shortcomings, refine their prototypes, and ensure that their solutions hold up to the industry's demands.

Figure 5 One of the prototype created by the student

As the culmination of their efforts, students compile their experiences, insights, and outcomes into a comprehensive final report. This report not only documents the journey but also highlights the evolution of their ideas, the iterative process, and the outcomes achieved. Reflection forms an integral part of this process, allowing students to critically assess their journey, lessons learned, and personal growth throughout the MIDAS 3 phase.

6 Identify Industry Partners

FOODI Asean partners identified 42 industry to collaborate for the internship. This includes MCDonalds, Nestle, Khmer Beverages and Flavorista Sdn Bhd. Full list of the companies is available in Appendix 1.

Figure 6 Five companies inked the LOI with UTM. The companies accepted the students for internship in 2022

7   Establishing Letter of Intent

Several ASEAN partners within the MSc Foodi program have strategically established Letters of Intent (LOI) with prominent industry players, marking a significant step towards fostering meaningful collaborations for the internship component. These LOIs serve as formal agreements that outline the terms, expectations, and objectives of the partnership between academia and industry. By forging these alliances, ASEAN partners have created a robust framework that facilitates the integration of students into the industry's operational landscape.

Through these LOIs, industry partners commit to providing students with valuable experiential learning opportunities, allowing them to engage in real-world projects, gain insights into industry practices, and contribute to innovative solutions. On the other hand, academic institutions commit to equipping students with the necessary knowledge and skills, ensuring that they bring a valuable skill set to the industry. This mutually beneficial arrangement not only enriches students' learning experiences but also strengthens the industry-academia relationship, creating a dynamic synergy that paves the way for successful internships.

These established LOIs exemplify the commitment of ASEAN partners to bridging the gap between theory and practice. By proactively engaging with industry partners, they have laid the

foundation for a robust internship program that not only enhances students' professional growth but also enables them to contribute meaningfully to the industry's advancements. Through these collaborations, students gain a first-hand understanding of industry demands, while industry partners benefit from fresh perspectives and innovative ideas brought by the MSc Foodi participants.

Example of an LOI is in Figure .

Figure 7 Example of LOI between UTM and Joshafa Sdn Bhd for the internship

8   The Scope of the Internships

The scope of the internship for MSc Foodi encompasses a comprehensive and transformative experience that bridges classroom learning with real-world industry practices. Within this scope, students assume active roles as learners, innovators, and contributors. Through hands-on experiences, students gain insights into industry practices, refine their skills, and contribute their creative perspectives to address industry challenges.

Industry partners serve as mentors and guides for MSc Foodi students throughout their internship. They offer students the chance to collaborate on real projects, encouraging them to apply their academic insights to solve actual industry issues. Industry professionals provide

students with practical insights, guidance, and mentorship, facilitating their integration into the workplace culture.

Academic supervisors play a critical role in ensuring the success of the internship experience. They act as a bridge between academia and industry, offering guidance and oversight to students. Academic supervisors collaborate closely with industry mentors to align internship experiences with the program's learning outcomes. They facilitate regular check-ins with students, monitor their progress, and ensure that the internship aligns with the students' academic and career goals.

9 Duration of The Internships

Students initiate their internship journey in MIDAS 2 and carry forward their experiential learning into MIDAS 3 during the subsequent semester. Throughout MIDAS 2, students engage in a structured process encompassing three distinct phases of design thinking. This journey empowers them to comprehensively grasp the industry landscape, assess prevailing challenges, and formulate innovative solutions that address these issues.

10 Location

Location of the Internships varies. It depends on the management of the internship for each ASEAN institutions. Due to Covid-19, AIT students cannot go to the industries. Thus, they did they work at the National Science and Technology of Thailand as intern.

Students in Malaysia did their internship in Kuala Lumpur, Johor Bahru and Putrajaya.

11 Supervision

Supervision was effectively conducted through a combination of online and onsite interactions. Throughout MIDAS 2, students engaged in regular visits to the company, where they conducted interviews, carried out observations, and immersed themselves in learning about the company's operations. This hands-on approach allowed students to gain invaluable insights into industry practices and challenges.
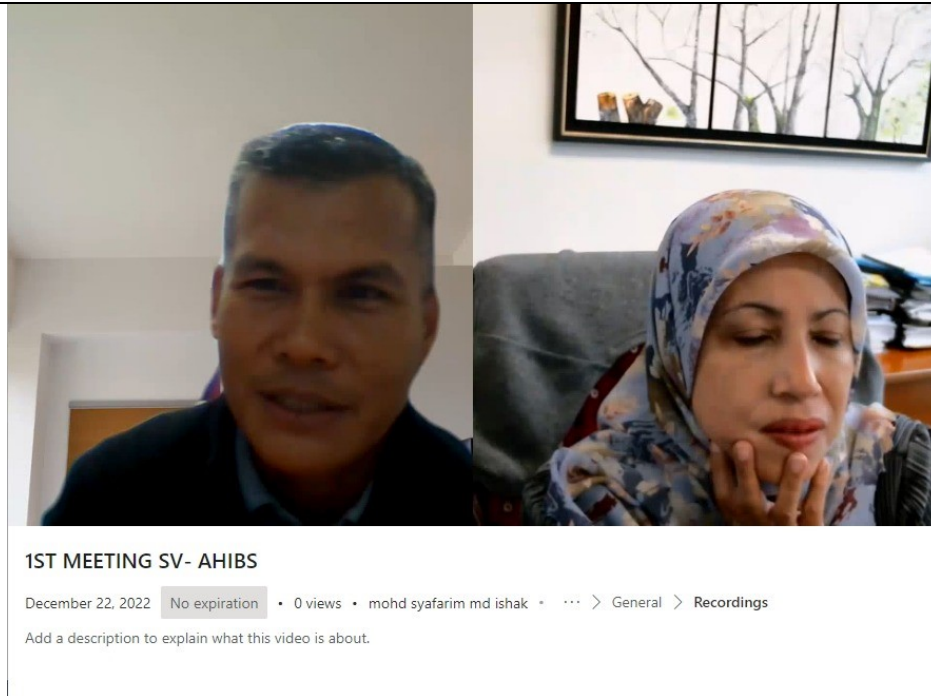
Figure 8 Online supervision meeting during the internship

As the internship progressed to MIDAS 3, students continued to actively participate in the real-world environment. This phase required students to take their learning to the next level by testing their developed prototypes directly at the company's site. This practical application allowed students to gauge the effectiveness of their solutions within the actual operational context, thereby enhancing their understanding of real-world implications and refining their problem-solving skills.

12 Visits to Companies

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Figure 9 Visits to the Flavorista, one of the companies for Internship

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13 Evaluations

The evaluation process was meticulously carried out through the joint efforts of both the academic supervisor and the industry supervisor. This collaborative approach ensured a comprehensive assessment of students' performance and contributions during their internship journey. By leveraging the unique perspectives of both supervisors, a well-rounded evaluation was achieved, encompassing both academic rigor and industry relevance. This dual evaluation process not only provided students with valuable feedback but also validated the alignment of their experiential learning with the program's objectives and industry demands.

Figure 10 Final Evaluation Form

14 Pitching
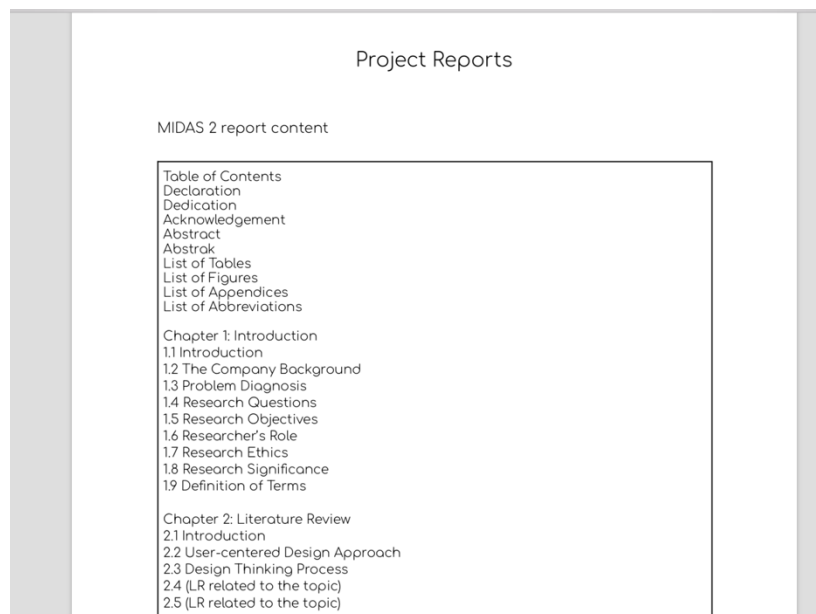
The pitching session was dedicated to the ideation phase, providing students with an opportunity to present their innovative ideas that stemmed from the initial two phases of the design thinking process. In this context, students were tasked with showcasing their creative solutions, reflecting their comprehensive understanding of industry challenges and the insights gained through empathetic understanding and problem definition. This pitch presentation served as a platform for students to demonstrate their ability to translate theoretical knowledge into practical and innovative concepts. By articulating their ideas effectively, students not only showcased their communication skills but also provided a glimpse into their potential to contribute fresh perspectives and solutions to real-world industry challenges.

Figure 11 Pitching session involves industry partners, academics and students
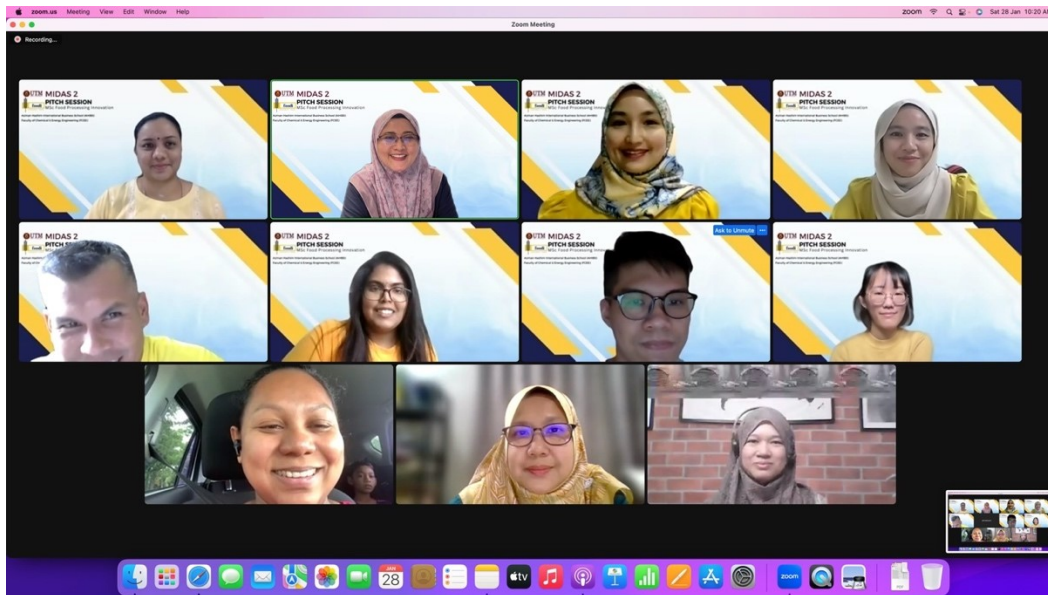
15 Report for MIDAS 2

The report submitted during the MIDAS 2 phase encompasses a comprehensive exploration of various facets critical to the students' project development process. This report serves as a structured documentation of their progress and insights, contributing to the iterative nature of their experiential learning journey.

The literature review section forms the foundational aspect of the report, where students delve into existing academic and industry literature relevant to their project's domain. This critical analysis enables them to identify trends, gaps, and best practices, providing a solid groundwork for their subsequent project stages.

Project Reports

MIDAS 2 report content

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1.9 Definition of Terms

Chapter 2: Literature Review
2.1 Introduction
2.2 User-centered Design Approach
2.3 Design Thinking Process
2.4 (LR related to the topic)
2.5 (LR related to the topic)

Figure 12 Project Report Format for MIDAS 2
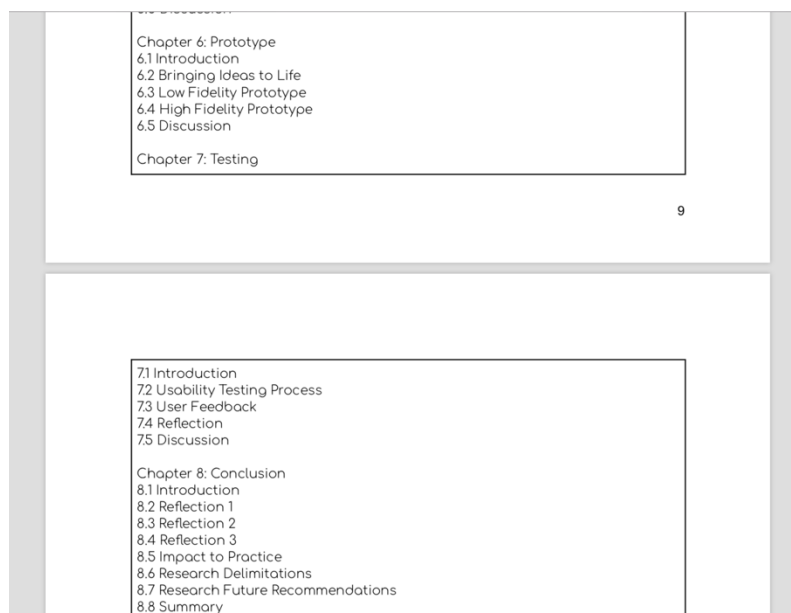
Within the context of design thinking philosophy, students elucidate the core principles and methodologies they employed throughout MIDAS 2. This section offers a comprehensive understanding of the creative problem-solving approach that underpins their ideation process, demonstrating their capacity to approach challenges innovatively.

Empathy, define, and ideate sections constitute essential components of the report. In the empathy phase, students detail their efforts to gain a deep understanding of industry challenges and user needs through immersive experiences. The define phase encompasses the precise definition of the problem at hand, highlighting its scope and intricacies. In the ideation section, students outline the diverse range of ideas they generated as potential solutions, reflecting the breadth of their creative thinking and problem-solving abilities.

16 Report for MIDAS 3

The MIDAS 3 report constitutes a pivotal documentation that captures the culmination of students' efforts, highlighting their progression from ideation to tangible outcomes. This report encapsulates the practical manifestation of their ideas, emphasizing the real-world application of innovative solutions.

At the heart of the MIDAS 3 report lies the prototype, which represents the tangible embodiment of students' creative ideas. This section elaborates on the prototype's design, functionality, and intended impact. Through detailed descriptions and possibly visual aids, students illustrate how their solutions address specific industry challenges and contribute to enhanced processes or products.

Chapter 6: Prototype
6.1 Introduction
6.2 Bringing Ideas to Life
6.3 Low Fidelity Prototype
6.4 High Fidelity Prototype
6.5 Discussion

Chapter 7: Testing

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7.1 Introduction
7.2 Usability Testing Process
7.3 User Feedback
7.4 Reflection
7.5 Discussion

Chapter 8: Conclusion
8.1 Introduction
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8.3 Reflection 2
8.4 Reflection 3
8.5 Impact to Practice
8.6 Research Delimitations
8.7 Research Future Recommendations
8.8 Summary

Figure 13 Project Report Format for MIDAS 3

Testing forms a crucial part of the MIDAS 3 report, as it assesses the practical viability and effectiveness of the developed prototype. Students provide insights into the methodologies employed, the outcomes of testing, and the implications of these results on the viability of their solutions. This section underscores the program's commitment to industry-aligned solutions that undergo rigorous evaluation before implementation.

Figure 14 Student working on the processing of dry dates to enhance dates ice cream production

In summary, the MIDAS 3 report encapsulates the journey from ideation to the tangible creation of prototypes, offering a comprehensive documentation of students' innovative efforts. Through the inclusion of prototype details, the prototyping process, and testing outcomes, this report showcases the program's emphasis on practicality, real-world impact, and the seamless integration of creative thinking and industry relevance.

17 Reflection Report

The students were exposed to reflection essay in Semester 1. Reflection essays offer a structured means for MSc Foodi students to integrate their learning, assess their progress, enhance communication skills, and foster personal and professional growth. These essays serve as a tool for self-improvement and continuous development, aligning with the program's goal of preparing students for successful careers in the food processing and innovation industry.

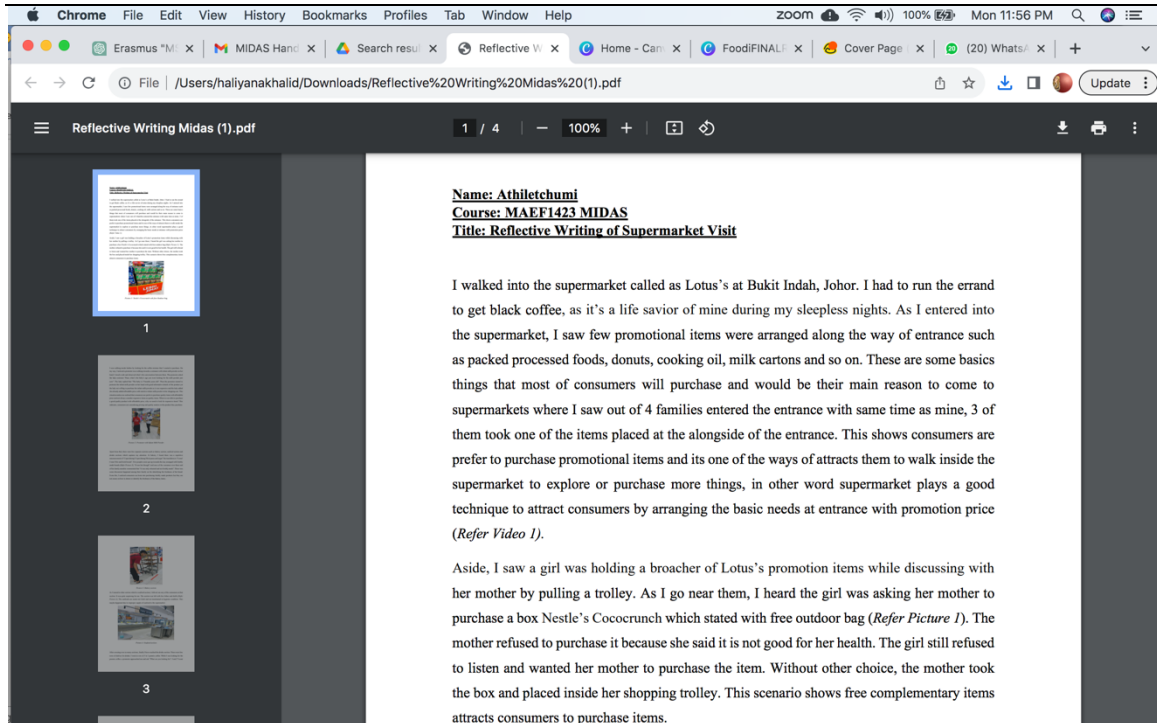The students also need to produce reflection essay in the final semester.

Figure 15 Example of reflection essay

18 Industry Feedback

Industry partners actively contribute their insights and evaluations regarding both innovation and the impact on their respective companies throughout the MSc Foodi program. Their feedback serves as a vital component in assessing the value of students' contributions and the efficacy of their solutions.

During students' visits and interactions with industry partners, feedback focuses on the innovative aspects of the proposed solutions. Industry partners evaluate the originality, practicality, and potential effectiveness of the ideas presented. This feedback helps students refine their concepts, ensuring they align with industry standards and expectations.

In the pitching session, industry partners provide feedback that delves into the potential impact of the proposed solutions on their companies. They assess how these innovations address specific challenges, enhance processes, or contribute to the overall growth and sustainability of the business. This feedback aids in shaping the direction of the projects, emphasizing practicality and feasibility.
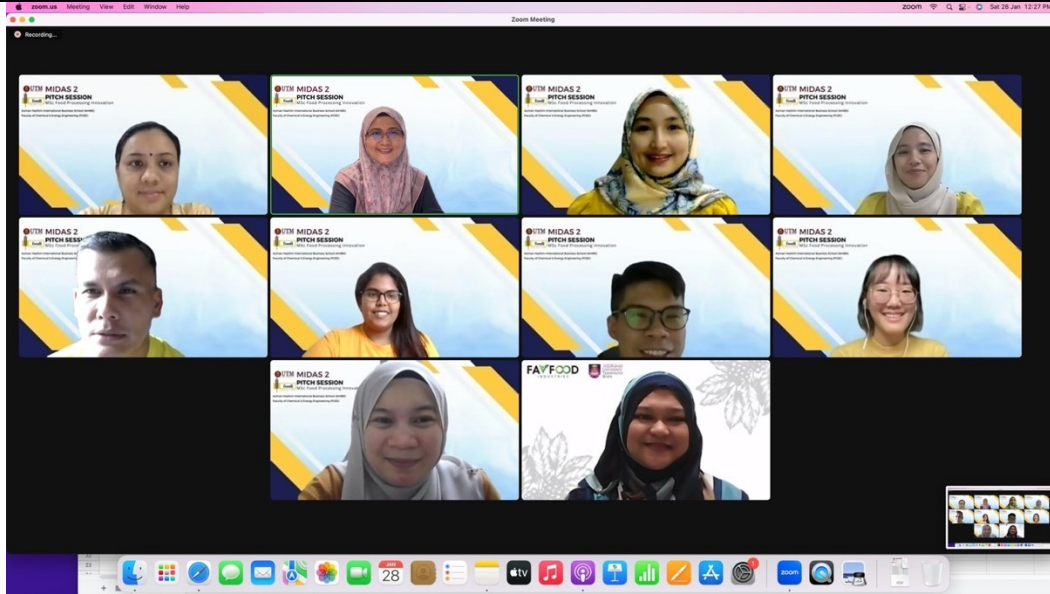
Figure 16 Feedback from the industry and academic supervisor received during the pitching session

As the final evaluation phase approaches, industry partners evaluate the actual impact of the implemented solutions on their companies. They provide insights into how these innovations have influenced processes, efficiency, product quality, and other relevant aspects. This holistic feedback not only informs the students' performance assessment but also provides valuable information for future collaborations and enhancements within the MSc Foodi program.

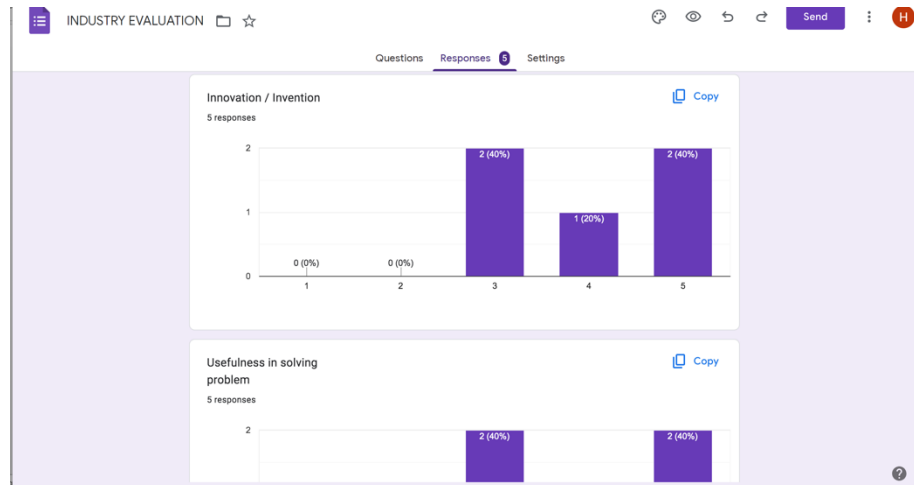*Figure 17 Industry evaluation form*

In summary, industry partners' feedback on innovation and impact serves as a pivotal guide, ensuring that students' ideas are not only innovative but also capable of delivering tangible benefits to the companies they collaborate with. This collaborative feedback loop enriches the learning experience and reinforces the program's commitment to real-world applicability.

19 Internship Impact

The impact of the internship program within MSc Foodi extends far beyond the confines of the academic setting, fostering a range of positive outcomes that ripple through various dimensions.

Collaboration: The internship program fosters meaningful collaborations between students and industry partners. Through active participation in real-world projects, students contribute their innovative insights while gaining practical experience. This collaboration results in mutually beneficial outcomes, with students contributing fresh perspectives and industry partners offering valuable mentorship.

Publication and Conference: The internship experience often leads to the creation of impactful solutions and innovative approaches. These outcomes have the potential to be documented in publications and shared at conferences, contributing to the broader knowledge base within the food processing and innovation domain. This dissemination of insights enhances the visibility of the MSc Foodi program and its students.

Some of the students presented their project in the Foodi International Conference 2022 and other conferences. Some has submitted their project for journal publication.

Figure 18 One of our students presented his project with the Industry in a conference

Networking: The internship provides students with the opportunity to establish a network of industry connections. Engaging with professionals in the field exposes students to diverse perspectives and opens doors for potential future collaborations, career opportunities, and partnerships.

Awareness of MSc Foodi: The tangible contributions made by MSc Foodi students during their internships serve as living examples of the program's efficacy. These real-world solutions exemplify the impact of the program, thereby raising awareness and attracting prospective students who seek to make a difference in the food industry.

Societal Impact: The internship experience extends its impact to the broader society by addressing industry challenges. Through innovative solutions developed during the internships, students contribute to the enhancement of industry practices, resulting in improved efficiency, sustainability, and product quality. This positive transformation trickles down to benefit consumers, fostering a healthier and more innovative food ecosystem.

20 Conclusion

In essence, the internship program within MSc Foodi transcends academic boundaries, yielding a profound impact on collaboration, knowledge dissemination, networking, program visibility, and societal progress. By actively engaging students in industry challenges, the program generates a win-win scenario that elevates both students' career prospects and the food processing and innovation landscape.

APPENDIX 1 - LIST OF INDUSTRY COLLABORATORS

No.   **Name**

1.   Nestle Manufacturing Sdn. Bhd. Sarawak Branch

2.   MISOTA

3.   Lyly Food Industry Co., Ltd.

4.   CP Foods

5.   Fontera Malaysia

6.   TROPICAL CANNING (THAILAND) PUBLIC COMPANY LIMITED

7.   Sarawak Flour Mill Sarawak Sdn Bhd

8.   Foreign Trade Bank (FTB) Battambang Branch

9.   Kirirom Food Production Co., Ltd.

10.   Food Processing Industry Club, FTI

11.   Mc Donald Malaysia

12.   I-TAIL CORPORATION PUBLIC COMPANY LIMITED

13.   Fezul Foodtech Sdn. Bhd, Sarawak

14.   Battambang Agro Industry (BAI)

15.   Angkor Daily Foods Co., Ltd.

16.   Thai President Foods PLC

17.   Tapai Pulut Sarimah

18.   Pacific Fish Processing (Limited) Company

19.   PAWADA Food Industries Sdn Bhd, Kuching

20.   HUNAN ER-KANG (CAMBODIA) INVESTEMENT CO.,LTD.

21.   Khmer Beverages

22.   Food and Drinks Public Co., Ltd

23.   KILANG MAKANAN MAMEE SDN. BHD

24. MAN A FROZEN FOODS CO., LTD

25. Pepper Marketing Board, Kuching, Sarawak

26. BAITANG Public Limited Company

27. Camfood Enterprise

28. Ajinomoto (Thailand) co.,Ltd.

29. MYCUISINE QUBE SDN BHD

30. CHOTIWAT MANUFACTURING COMPANY LIMITED

31. Flavorista Sdn Bhd

32. Joshafa Sdn Bhd

33. Madani and Co+

34. Mizan Food Industry

35. HA Southern Global Sdn Bhd

36. Felda Venture

37. Farm Fresh

38. MINDEF

39. QSR (KFC etc)

40. MSM

41. LLB

42. Holistic Lab