Company Background

Overview of Biocon Sdn Bhd

Biocon Sdn Bhd is the Malaysian subsidiary if Biocon Biologics, operating Asia's largest integrated insulin manufacturing facility in Johor, Malaysia, and focusing on biosimilar production for global market and also holding YSFDA & EMA.

Nature of the company

Biocon Sdn Bhd is a company that specialize in insulin production using advanced biotechnological processes to ensure high-quality and reliable products.

Importance of the company in the pharmaceutical/biotech industry

Biocon plays a important role in the pharmaceutical and biotech sector, contributing to research, innovation and accesible medicines.

Global and Regional Healthcare Role

Its insulin portfolio helps improve healthcare access for patients both regionally and globally, supporting the treatment of diabetes for millions of people. In addition, the company continuously explores new ways to treat cancer and autoimmune diseases.

GROUP MEMBER

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INDUSTRY VISIT TO BIOCON SDN BHD: INTEGRATING BIOTECHNOLOGY AND COMPUTING SYSTEMS

23 December 2025

Introduction & Company Overview

On 23 December 2025, students from Universiti Teknologi Malaysia (UTM) visited Biocon Sdn. Bhd., departing at 1:45 p.m. and arriving at 2:20 p.m. The students were divided into three groups to observe the insulin production process.

This visit aimed to bridge the gap between theory and practice by exposing students to real-world production, management, and business operations, while providing opportunities to interact with industry experts and learn about current career trends.

The participants were students from Computer Science, Network & Security and Bioinformatics programmes. The visit also highlighted that Biocon Sdn. Bhd. primarily seeks professionals with a Biotechnology background, emphasising the importance of interdisciplinary skills in the industry.

Objectives of the Industry Visit

- Lose-up exposure to biotechnology operations
- Understanding computer-assisted manufacturing
- Observing lab-to-market processes
- Exposure to integration of computing, networking, and biology

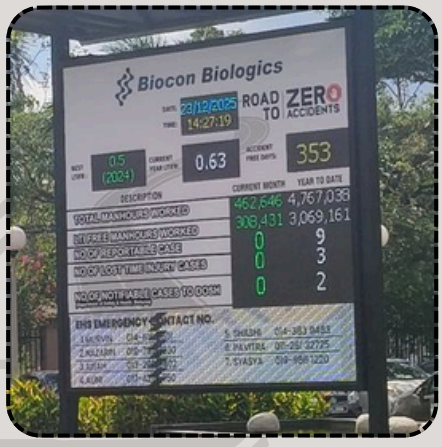
Key Observations & Technical Insights

Biotechnology Operations Observed

Biocon Malaysia has three main departments: Drug Substances, Research and Development, and Drug Products. In the Drug Substances department, the process starts with the upstream, where microorganisms will be developed and optimized into a larger size. Here is where cell culture and fermentation take place. In the downstream process, the drug substances from the upstream will undergo many levels of purification to maintain the product's sterility. Products will be crystallised and sent to the next step. Moving to another department, which is Drug Product. This department has three sections.

First, drug product manufacturing. Product formulation and filling occur at this phase. Next, drug product packaging. At this phase, virtual inspection, pen assemble, and pen packaging will happen. Lastly, quality control and assurance. Here, they will do checking, testing, and documenting.

From all these processes, I strongly believe that Biocon Ltd maintains very well cleanliness. For safety, as the saying “safety comes first”, they also follow the same rules. If any contamination happens, the emergency response team will take quick action and most likely dispose of the product.



Lab-to-Market Translation

This visit made me realize that how a lab research is systematically done. The main process here is Research & Development (R&D). This helps to ensure the consistency and stability of the products.

The importance of validation, testing, and regulatory compliance is the products will meet excellent quality and safety standards. Extra testing is conducted to maintain the purity of product.

Data documentation and traceability is really important to ensure transparency, and enables effective monitoring of production lifecycle

Role of Computing and Information Systems

Computer -assisted manufacturing system This system is used to manage the production process. Besides, this can help the company to maintain the precision and consistency of products. This system is mainly used during fermentation and purification.	**Resource planning systems** This system is used to manage schedule of production. Moreover, for inventory and supply chain activities too.
Quality control systems Biocon company use laboratory information management systems (LIMS). This is used to document test results. This is also to trace the process throughout the production to maintain a standard quality.	**Machine monitoring & maintenance system** This system have to be in use to keep track of production area and to immediately detect errors. Next, this is also to improve the maintenance by having sensors and automated alerts.
Use of databases, sensors, or automation where applicable This systems are used in every processes to get a precise real-time data collection. This is also to connects computing infrastructure and biotechnology very strongly	

Integration of Computing, Networks, and Biology

During this visit, I got to know that computing systems are strongly connected to biological processes. Software systems are used to get data from lab experiments.

·Interaction between laboratory instruments and software systems are really good. For example usage of LIMS.

Networking and efficient data flow are vital in Biocon’s large-scale manufacturing environment. This enables a strong communication between lab and centralized data systems.

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Learning Outcomes, Reflection & Conclusion

Key Learning Outcomes

The industry visit to Biocon really broadened our perspective on how computing systems are strongly related to the biology field. We also gained new information about pharmaceutical products that use automated systems. We get to experience both theoretical and industrial applications We understand how the computing concept works in industrial settings, such as data monitoring, systems, and automation. Additionally, computing ensures accuracy, traceability, and regulatory compliance.Biocon requires close collaboration between IT professionals, biologists and engineers. For bilogists have to focus on processes, engineers manage machinery and system design, and for IT specialists handle software, data dan system integration.

Relevance to Academic Studies & Career

The visit to Biocon established a strong connection between academic coursework and real-world industrial applications.

The visit made me realize the existence of careers involved in biotechnology, and data analytics.

The future generation can try this biotechnology, data analytics or industrial computing filed to secure a good career.

Skills and Knowledge Development

Many technical skills applied in the biotechnology and pharmaceutical industry. For example, automated manufacturing system, quality control technologies, and digital documentation tools.

Moreover, we learned soft skills like communication, teamwork and professionalism. We knew the importance for discipline, responsibility, and ethical practices.

Acknowledgement

We deeply appreciate Biocon Sdn Bhd for their warm hospitality, informative briefing, and guided tour.

We are also deeply indebted to our esteemed lecturers for helping us to contact relevant organisations and facilitate this visit.

We would like to acknowledge the organisers and staff involved for ensuring that the visit was well coordinated and successful.

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Conclusion

This industrial visit was informative and educational, providing valuable exposure to real-world industry processes.

Industry exposure helps make students job-ready by building professional networks, increasing confidence, and clarifying potential career paths.

Through this visit, we learned that personal ability is important, alongside teamwork and effective communication, and that continuous self-improvement is essential.

Credit from (link)
https://www.biocon.com/more/biocon-malaysia/