



- I. **Project Name / Event:** *DOST Educational Tour*
- II. **Period / Date:** May 16, 2025 | 9:00 AM – 12:00NN
- III. **Project Objectives:**

The primary objective of this educational plant tour to the DOST-Metals Industry Research and Development Center (DOST-MIRDC) was to provide Computer Engineering students from Emilio Aguinaldo College with an in-depth understanding of advanced manufacturing processes, particularly additive manufacturing. By visiting the Advanced Manufacturing Center (AMCen), students were given a unique opportunity to witness state-of-the-art technologies that are revolutionizing the manufacturing industry in the Philippines and around the world.

Another key objective of the visit was to expose students to real-world applications of computer engineering principles in the context of industrial automation, 3D printing, and product prototyping. The hands-on demonstrations and expert-led discussions allowed students to bridge the gap between classroom learning and industry practices, equipping them with practical knowledge and a clearer vision of career pathways in high-tech manufacturing sectors.

Furthermore, the tour aimed to inspire innovation and foster a deeper appreciation for local advancements in engineering technology. By observing DOST-MIRDC's contributions to national industrial development and technological self-reliance, students were encouraged to pursue projects and research that align with the goals of sustainable and future-ready manufacturing in the country.



IV. Members

1. **Participating Students** – BSCpE 4th year
2. **Faculty Adviser** – Engr. Elizier L. Obamos
3. **Tour Facilitators from DOST-MIRDC**

V. Implemented Program Components



The plant tour began with an orientation session at the DOST-MIRDC headquarters where students were formally welcomed by the AMGen staff and introduced to the agency's role in supporting the country's metals and engineering industries. The orientation included a brief history of the DOST-MIRDC and its mission to promote innovation and technological advancement through its research, development, and specialized services.



After the orientation, the group was led into the Advanced Manufacturing Center (AMCen), where the main focus was on additive manufacturing—commonly known as 3D printing. The facilitators explained that AMCen houses cutting-edge equipment capable of producing high-precision parts and prototypes using various 3D printing technologies. The facility aims to boost local manufacturing capabilities and support industries such as aerospace, automotive, electronics, and biomedical engineering.



Students were introduced to different 3D printing methods, including Fused Deposition Modeling (FDM), which uses thermoplastic materials to build objects layer by layer. The staff demonstrated how FDM printers operate, emphasizing their accessibility for prototyping and educational purposes. They also discussed material properties, common applications, and maintenance tips for this type of printer.



Another highlight was the Selective Laser Melting (SLM) and Direct Metal Laser Sintering (DMLS) technologies used in metal 3D printing. These advanced systems allow the production of complex metal parts with high strength and precision by using a laser to fuse fine metal powders. The facilitators explained how these technologies are used in the manufacturing of functional components for high-performance machinery and tools.



In addition, the tour included a demonstration of 3D scanning technology, which plays a crucial role in reverse engineering and quality inspection. Students observed how an object could be digitally captured using a scanner and then replicated or modified in CAD software before being printed. This workflow showed how additive manufacturing integrates with digital design and modeling.

The program concluded with a Q&A session where students engaged with the DOST-MIRDC engineers and researchers. Topics such as local industry collaboration, research opportunities, and future developments in advanced manufacturing were discussed. The visit provided students with a deeper understanding of how 3D printing is transforming the landscape of manufacturing and engineering, and how they, as future engineers, can contribute to this growing field.