Ali Akbar Alaydrus

Manufacturing Engineering Student concentration in Aerospace

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Professional Summary

Accomplished Manufacturing Engineering student with 5+ years of research experience and multiple international awards. Proven track record in sustainable technology development, academic leadership, and cross-cultural collaboration. Strong expertise in CAD design, life cycle assessment, and innovative problem-solving with demonstrated impact on environmental sustainability and manufacturing optimization.

Education

University of British Columbia (UBC) — **Kelowna, BC, Canada**
Bachelor of Applied Science in Manufacturing Engineering — *Sept. 2022 – Sept. 2026*

- Current Manufacturing Engineering Discipline Representative
- Active in UBC Design Team Competition and Okanagan Engineering Competition

Universitas Diponegoro — **Semarang, Central Java, Indonesia**
Summer Course: Innovative Post-harvest Practices — *Aug. 2024*

SMA Negeri 3 Semarang (High School) — **Semarang, Central Java, Indonesia**
High School Diploma - Science Track — *2019 – 2022*

- Secretary General of Student Organization (OSIS) 2020-2022
- Multiple national and international research competition victories

Working Experience

Manufacturing Engineering Discipline Representative — **April 2025 – Present**
University of British Columbia — *Kelowna, BC, Canada*

- Bridge student-faculty communication gaps, gathering feedback and proposing program improvements to the Dean
- Promote manufacturing programs to first-year students through workshops, demonstrations, and mentorship
- Organize UBC Design Team Competition and coach winning teams for Okanagan Engineering Competition
- Represent student interests in departmental meetings and curriculum development discussions

Head of Standardization and Development Bureau — **Sept. 2023 – Sept. 2024**
Asosiasi Peneliti Muda Indonesia (Indonesian Young Researchers Association) — *Jakarta, Indonesia*

- Oversaw monitoring and evaluation of APMI's annual programs, ensuring compliance with strategic objectives
- Organized and led "Research Hacks" seminars to enhance members' digital research proficiency
- Developed standardized templates for activity reports, meeting minutes, and project proposals
- Managed organizational development initiatives and quality assurance processes

Team Leader - Merchandise Division — **July 2023 – March 2024**
Bloomstar Canada — *Kelowna, BC, Canada*

- Collaborated with management to streamline workflows using Just-in-Time principles, reducing processing time
- Trained and onboarded new employees, ensuring adherence to company procedures and quality standards
- Proactively communicated inventory issues with managers to optimize supply chain efficiency
- Maintained accurate inventory documentation for audits and operational transparency

Orientation Leader — **August 2025**
Student Experience Offfice UBCO — *Kelowna, BC, Canada*

- Led and mentored groups of 15-20 new students through comprehensive orientation programming, facilitating campus tours, team-building activities, and academic transition workshops to ensure successful university integration
- Served as primary campus ambassador and resource liaison, connecting incoming students with essential campus services while answering questions and providing personalized referrals to support their academic and social success

- Collaborated with cross-functional teams to deliver coordinated orientation experiences, supporting presenters during large-scale events and assisting with logistics for social programming that welcomed hundreds of new students to UBCO

Intership Summer Research on Mapping the skills blueprint: Formal education and training must meet the state
- Make research Section in Literature Review Section with Dr. Woulter Bam
- on going Publish in SCopus Q2 Journal
- using forecasting approach, and SPPS to analyze big data

Research Assistant on Smart Materials from PVDF and PU to generate Electricity | *Word,Zotero, Excell*Sept. 2024
- working in NPTL Labs to help find optimize and optimize parameters solvent for PU and PVDF Solutions for building smart materials using PEDOT and Teng Apllications
- working on electrospinning, electrospraying, SEM and FTIR

OK Motosport, Manufacturing Team | *Phyton, QC, Process Optimization* Sept. 2025 – present
- A small team of people that oversees manufacturing process and aids other members in creating the best parts possible. Will include planning, organizing material purchases and shop inventory. Will require weekly time in the school's machine shop.
- during 2 month of work i have accomplised inventory management that integrated RFD to optimize and remind if the inventory is out and we can send a real time automated reminder to the sponsorship/supplier to supply yhe items that we use
- make a Machinning cheatsheet to Accomodate all subteam and helping mamnufactueing to review the drawing, its included the max tollerance did UBCO have, and tell how to accomplish DFMA in the drawing

Research & Engineering Projects

University-Level Projects (2022-2025)

Autonomous Guided Vehicle (AGV) | *SolidWorks, CNC, Machining, Forge, Gantt* Sept. 2024 – April 2025
- Designed and manufactured functional prototype of AGV with advanced material handling capabilities
- Led SolidWorks design and simulation team, ensuring optimal performance and safety parameters
- Developed innovative Scissor-X lift mechanism improving payload stability by 30%
- Achieved 90% accuracy in Geometric Dimensioning and Tolerancing (GD&T) implementation

Self-Starting Jigsaw BLDC Motor System | *SolidWorks, Arduino, 3D Printing, Circuit Design*Jan. 2025 – April 2025
- Optimized Brushless DC motor system achieving 600 RPM, 1.37 HP power, and 19.2 Nm torque
- Integrated 5000 mAh battery system with dynamic magnetic stability control
- Developed precision jigsaw with enhanced cutting accuracy and reduced vibration

Life Cycle Assessment of Kelowna Transit Buses | *OpenLCA, Excel, ReCiPe 2016* Jan. 2025 – April 2025
- Conducted comprehensive LCA using OpenLCA software and ReCiPe 2016 Midpoint methodology
- Compared environmental impacts of diesel, CNG, hydrogen, and electric bus systems
- Provided quantitative sustainability assessment for Kelowna's public transit optimization

Energy Recovery Dryer System | *SolidWorks, OpenLCA, Arduino, 3D Printing* May 2022 – June 2022
- Designed energy-efficient dryer achieving 40% electricity savings compared to conventional systems
- Integrated magnetic door locking system with safety protocols and user-friendly interface
- **Achievement:** Won 1st Place in project competition
- Documentation: UBC Wiki Project Page

Autonomous Bridge Inspection Robot | *SolidWorks, OpenLCA, Arduino, PLC, 3D Printing*May 2022 – June 2022
- building a magnetic wall climbing robot that autonomously navigates steel bridge surfaces, captures high-resolution imagery, and uses computer vision AI to detect and measure structural cracks with high accuracy
- sucessfully go in the Incose Competition and get mentor for on going project

Montney Formation Gas Gathering System Optimization - Northeast British Columbia | *Phyton, Gurobi*september 2
- Evaluated and optimized a gas gathering pipeline network for a Montney development area with 18 horizontal gas wells requiring connection to a central processing facility located 8 km from the field center.
- The project involved designing an optimal pipeline network considering: Well production rates ranging from 2-5 MMscf/day per well, Terrain challenges including river crossings and forested areas, Environmental setbacks from water bodies (100m minimum)

Research Projects

Conversion of Polyethylene Waste to Oil Fuel | *Zotero, Overleaf, Excel* Jan. 2022 – April 2022

- **Publication:** Thammasat International Journal of Science and Technology (Scopus Q3)
- Promoted circular economy principles and household plastic waste reduction

Peeling Back Immunity: Citrus Peel Extract Research | *Mendeley, Zotero* Sept. 2020 – Jan. 2025

- Proposed citrus peel extract as adjuvant therapy for autoimmune diseases
- Supported findings with in-vitro PBMC (Peripheral Blood Mononuclear Cell) assays
- **Publication:** Thammasat International Journal of Science and Technology (Scopus Q3)

Anticancer Potential of Opuntia cochenillifera | *Zotero, Excel, Statistical Analysis* Jan. 2021 – April 2021

- Investigated breast cancer cell apoptosis and cycle arrest for national drug independence
- **Achievement:** 3rd Place in Indonesia National Research Competition
- Contributed to national herbal medicine development initiatives

Course List

Course Ive Taken

First Year – Foundations

1. APSC_O 169 – Fundamentals of Sustainable Engineering Design
2. APSC_O 171 – Engineering Drawing and CAD/CAM
3. APSC_O 172 – Engineering Analysis I
4. APSC_O 173 – Engineering Analysis II
5. APSC_O 176 – Engineering Communication
6. APSC_O 177 – Engineering Computation and Instrumentation
7. APSC_O 178 – Electricity, Magnetism, and Waves
8. APSC_O 179 – Linear Algebra for Engineers
9. APSC_O 180 – Statics
10. APSC_O 181 – Dynamics
11. APSC_O 182 – Matter and Energy I
12. APSC_O 183 – Matter and Energy II

Second Year – Core Engineering

1. APSC_O 201 – Technical Communication
2. APSC_O 246 – System Dynamics
3. APSC_O 248 – Engineering Analysis III
4. APSC_O 252 – Thermodynamics
5. APSC_O 253 – Fluid Mechanics I

6. APSC_O 254 – Instrumentation and Data Analysis
7. APSC_O 255 – Electric Circuits and Power
8. APSC_O 259 – Materials Science I
9. APSC_O 260 – Mechanics of Materials I
10. MANF_O 270 – Production Systems Management I
11. MANF_O 277 – Fundamentals of Design for Manufacturing
12. COSC_O 121 – Computer Programming II

Third Year – Advanced Engineering Concepts

1. ENGR_O 305 – Engineering Economic Analysis
2. ENGR_O 315 – Systems and Control
3. ENGR_O 320 – Electromechanical Devices
4. ENGR_O 376 – Materials Science II
5. ENGR_O 387 – Vibration of Mechanical Systems
6. CMPE_O 301 – Software Systems & Design for Engineers
7. CMPE_O 386 – Industrial Automation
8. MANF_O 330 – Manufacturing Engineering Project I
9. MANF_O 370 – Production Systems Management II
10. MANF_O 377 – Manufacturing Processes
11. MANF_O 378 – Advanced Manufacturing
12. ENGR_O 413 – Law and Ethics for Engineers

Fourth Year – Integration & Specialization

1. MANF_O 450 – Life Cycle Analysis and Sustainability
2. MANF_O 455 – Facility Planning
3. MANF_O 460 – Supply Chain Tactics and Strategies
4. MANF_O 465 – Digital Enterprise
5. MANF_O 470 – Production Systems Management III
6. ENGR_O 499 – Engineering Capstone Design Project
7. ENGR 476 – Mechanics of Materials II
8. ENGR 492 – Finite Element Method

Humanities Electives

1. PSYO_O 111 – Introduction to Psychology: Basic Processes (3)