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ENGINEERING



SIMATS
Saveetha Institute of Medical And Technical Sciences
(Declared as Deemed to be University under Section 3 of UGC Act 1956)

Undergraduate Internship Report

Program: Bachelor of Technology
Department: Artificial Intelligence and
Data Science (AI & DS)
Academic Year: 2022-2026

Internship Duration: 26-08-2025 to 25-10-2025.

Name of Student: TN Navya

Register Number: 192224253

Batch: 2022–2026

Internship Organization: KGT AUTO
PLAST

1. Internship Completion Certificate



KGT AUTO PLAST

Mfrs. INJECTION MOULDED PLASTIC COMPONENTS.

IATF 16949:2016 & SQ MARK CERTIFIED COMPANY.

Date : 28 October 2025

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that **Ms. TN Navya**, student of **B.Tech** in Artificial Intelligence and Data Science from SIMATS Engineering has completed her internship with **KGT AUTO PLAST** from **26 August 2025 to 25 October 2025** as an intern in Data Analytics.

During her tenure with us, she has displayed exceptional dedication, enthusiasm, and proficiency in her assigned tasks. She has performed well during her association with us.

We take the opportunity to wish the very best in her future endeavors.

FOR KGT AUTO PLAST



AUTHORISATION SIGNATURE

📍 61/1A Mettuthangal Road, Thirumazhisal, Chennai - 600124. ☎ 9840251124

✉ ev.kgtautoplast@gmail.com

2. Student Declaration

I, **TN Navya**, a student of **Bachelor of Technology in the Department of Artificial Intelligence and Data Science**, solemnly affirm that the internship experience documented in this report reflects my direct involvement in a formal organizational setting, actively engaged in industry-relevant operations.

During the internship period from **26/08/2025 to 25/10/2025**, I was entrusted with tasks and responsibilities that were integral to the company's ongoing functions. The insights and observations included herein are a true representation of the work culture, technical exposure, and professional interactions I encountered.

This report has been prepared based on actual experiences and contributions during my time with the organization. I have abided by the professional conduct expected of an intern and ensured that the contents of this document are factual, original, and aligned with the intended academic and industrial learning objectives.

A handwritten signature in blue ink, appearing to read 'Navya', is shown on a light-colored, slightly textured background.

Signature of the Student

Date: _____

3. Company Overview

Name of the Company: KGT AUTO PLAST

Nature of Business / Industry Sector: Automotive Manufacturing Injection-Moulded Plastic Components

Brief History & Overview:

KGT AUTO PLAST is a rapidly progressing manufacturing company established in 2019 with the vision to redefine quality and precision in the plastics industry. Originating in Chennai, Tamil Nadu, the company has evolved into a trusted producer of injection-moulded plastic components catering to the automotive and home appliance sectors. Over the years, it has earned a reputation for delivering products that meet global standards of durability, sustainability, and dimensional accuracy.

Since its establishment, KGT AUTO PLAST has consistently expanded its capabilities, starting with just two moulding machines and gradually increasing its production strength with state-of-the-art injection moulding machines ranging from 86T to 650T. The company's growth is strengthened by key national and global certifications, including IATF 16949 (BSI), SQ Mark certification from Hyundai Motors positioning KGT as a benchmark for quality in the plastics manufacturing industry.

The organization's facility is equipped with advanced in-house testing systems such as MFI (Melt Flow Index) analysis, moisture testing, ash content evaluation, and VMS (Visual Measurement System) inspection, ensuring that every component meets rigorous quality specifications. KGT AUTO PLAST is committed to producing zero-defect components that enhance product reliability, minimize industrial downtime, and create long-lasting value for customers. Over the years, KGT AUTO PLAST has partnered with various leading automotive and appliance manufacturers, steadily expanding its client base while enhancing production efficiency and operational excellence. The company continues to strengthen its technological foundation through process innovation, machinery upgrades, and continuous improvement initiatives aligned with global manufacturing standards.

In addition to its industrial contributions, KGT AUTO PLAST emphasizes ethical operations, sustainability, and workforce empowerment. It upholds strong core values such as excellence, innovation, transparency, and customer satisfaction.

With a focus on eco-friendly production practices, workforce development, and timely delivery, the company ensures a safe, growth-oriented, and future-ready operational environment.

Today, KGT AUTO PLAST stands as a reliable and respected manufacturer of injection-moulded plastic components, consistently aiming to deliver precision, innovation, and superior product performance. With continued expansion and technology adoption, the company envisions becoming a globally trusted leader in plastic component manufacturing.

Location: No. 61/1A, Mettuthangal Road, Thirumazhisai, Chennai – 600124, Tamil Nadu, India.

Products and Services Offered

KGT AUTO PLAST offers a diverse portfolio of high-precision plastic components designed for performance, reliability, and adherence to industrial standards. In the automotive sector, the company manufactures a wide range of interior, exterior, and functional parts. These include dashboard components, door trims and panels, exterior aesthetic trims, as well as airflow, ventilation, and other functional mechanical components. All parts are engineered to provide high strength, durability, vibration resistance, and safety. These components are designed to ensure long-term reliability, heat resistance, and superior finish, catering to both functional and aesthetic requirements. In addition, the company offers custom industrial plastic solutions, providing tailored injection-moulded components for specialized applications that demand precision, strength, and endurance.

The company's material expertise spans a wide range of engineering-grade plastics, including PP, Nylon (6/66) with glass filling, PET, PBT, ABS, PC, ASA, POM, LDPE, TPO, and composite blends. This expertise allows KGT AUTO PLAST to deliver components that meet stringent global automotive and industrial standards, offering excellent heat resistance, impact strength, and dimensional accuracy.

KGT AUTO PLAST's core services revolve around advanced injection moulding, which enables the large-scale production of high-precision plastic parts.

The process combines modern machinery with skilled technicians and rigorous quality

control to ensure zero-defect manufacturing. The company also specializes in insert moulding, a process that integrates metal inserts with plastic to enhance mechanical strength and dimensional precision. This technique is widely applied in automotive interfaces, appliance structural mountings, and other high-strength industrial units.

From design validation to production and final delivery, KGT AUTO PLAST provides comprehensive manufacturing solutions. This includes prototype development, mass production, rigorous quality checks, and careful packaging for delivery. The company operates an in-house testing laboratory equipped for MFI testing, moisture analysis, ash content testing, and VMS inspection, ensuring all products meet strict quality and compliance benchmarks.

Major Clients / Projects

KGT AUTO PLAST partners with leading automotive and home appliance manufacturers, including:

KGT AUTO PLAST has collaborated with a wide range of leading automotive brands, home appliance manufacturers, and industrial clients, delivering high-precision plastic components that adhere to stringent quality and performance standards. In the automotive sector, the company has supplied interior, exterior, and functional components, including dashboards, door trims, airflow and ventilation systems, and other mechanical parts. Each project emphasizes durability, safety, and compliance with global standards. The company works closely with client design and engineering teams to validate component performance, optimize material usage, and ensure seamless integration into vehicle assemblies.

For home appliance clients, KGT AUTO PLAST has produced structural and functional plastic components for appliances such as washing machines, air conditioners, and kitchen equipment. These components are designed for heat resistance, long-term reliability, and aesthetic appeal, combining functional precision with superior finishing. Custom industrial projects include precision-moulded components for machinery and specialized equipment, where dimensional accuracy, mechanical strength, and endurance are critical.

During these projects, my role as a Data Analyst in Quality and Production involved monitoring, collecting, and analyzing production and quality data to improve

manufacturing outcomes. I worked closely with the production team to track key metrics such as defect rates, cycle times, material utilization, and machine performance. Using statistical tools and data visualization techniques, I identified trends and anomalies, which helped the quality team implement targeted corrective actions and process optimizations. I also contributed to preparing detailed reports for client reviews, highlighting product quality, compliance with specifications, and production efficiency.

By integrating data analytics into daily operations, KGT AUTO PLAST was able to maintain zero-defect standards, optimize production processes, and ensure on-time delivery of high-quality components. My involvement provided insights that supported decision-making, reduced production variability, and enhanced overall product reliability, making a tangible impact on both client satisfaction and operational excellence.

4. Internship Role and Objectives

Internship Title/Designation: Data Analytics Intern

Department/Division Assigned: Quality and Production Division

The internship at KGT AUTO PLAST was structured to provide practical exposure to the manufacturing and production environment, with a focus on quality monitoring and data-driven decision-making. The program aimed to equip interns with analytical, technical, and professional skills aligned with current industry standards in plastic component manufacturing.

One of the primary objectives of the internship was to gain hands-on experience in data collection, analysis, and visualization to monitor production and quality metrics. During the internship, I worked closely with the production and quality teams to track key performance indicators, including defect rates, production cycle times, material utilization, and machine efficiency. Using tools like Excel, Python, and Tableau, I analyzed large datasets to identify trends, patterns, and anomalies in production processes.

This practical exposure helped in understanding how data-driven insights can improve operational efficiency and maintain zero-defect manufacturing standards.

Another objective was to understand and participate in the complete production lifecycle, from raw material input to final product delivery. This included learning how production schedules are planned, how quality checks are integrated at multiple stages, and how data is used to monitor compliance with specifications. I observed how the production team utilizes real-time monitoring systems, dashboards, and reports to make decisions, and I contributed by preparing analytical reports that highlighted performance trends, process bottlenecks, and areas for improvement.

A significant part of the internship involved working on live production and quality improvement projects. I analyzed historical production data and quality records to identify recurring defects, optimize workflows, and recommend process improvements. I also contributed to the creation of visual dashboards that helped the management team track daily production performance, monitor defect trends, and ensure adherence to client specifications. By collaborating with engineers, machine operators, and quality inspectors, I gained insights into how data analysis directly impacts operational efficiency and product reliability.

Overall, the internship at KGT AUTO PLAST provided a comprehensive understanding of data analytics in a manufacturing setting. It helped bridge the gap between theoretical learning and practical application, enabling me to develop skills in data collection, analysis, visualization, and reporting. The experience enhanced my ability to support quality and production teams with actionable insights, contributing to process optimization, improved product quality, and on-time delivery of high-performance plastic components.

Tools, Technologies and Software Used:

During my internship at KGT AUTO PLAST, I extensively used tools and software relevant to data analytics and production monitoring. For data collection, cleaning, and analysis, I primarily worked with Microsoft Excel and Python, leveraging libraries such as Pandas and NumPy to process large datasets. For visualization and reporting, I used Tableau to create interactive dashboards that displayed production efficiency, defect trends, and material utilization.

Real-Time Projects Participated In

One of the major projects I participated in involved analyzing production and quality

data for automotive and home appliance components. My responsibilities included extracting historical production records, monitoring defect occurrences, and identifying patterns that could indicate process inefficiencies. I created visualizations in Tableau in key performance metrics such as cycle time, machine utilization, and defect rates. These dashboards were used by supervisors and production managers to make informed decisions aimed at improving efficiency and maintaining zero-defect manufacturing standards.

Another significant project involved monitoring quality trends and implementing predictive analytics to prevent recurring defects. I collected data from in-line inspections and in-house testing laboratories, analyzed root causes, and suggested corrective measures. By combining historical data with real-time production monitoring, I helped the quality team identify bottlenecks and optimize workflows, contributing to more consistent product quality and timely delivery.

Meetings and Interactions Attended

Throughout the internship, I actively participated in daily production briefings and quality review meetings. These sessions provided insights into ongoing manufacturing challenges, allowed discussion of anomalies detected through data analysis, and facilitated the implementation of corrective actions. I also attended weekly review sessions with my supervisor, where we evaluated project progress, discussed data trends, and explored process improvements. These interactions enhanced my understanding of team coordination, workflows in production environments, and the practical application of data analytics to real-world manufacturing scenarios.

Key Responsibilities and Daily Activities

My daily activities involved gathering, cleaning, and analyzing production and quality data to ensure accurate reporting and actionable insights. I regularly monitored key metrics, prepared visual dashboards, and reported findings to supervisors, assisting them in decision-making processes. I performed root-cause analysis on defective components, collaborated with engineers and machine operators to address issues, and helped optimize production workflows based on data insights.

In addition to analysis, I was responsible for maintaining proper documentation, including workflow charts, reports, and observations, which contributed to better

traceability and future reference. I also assisted in improving data accuracy and consistency by validating inputs from different production lines and quality checks. By working on these tasks, I developed critical skills in analytical thinking, problem-solving, and data-driven decision-making within a manufacturing context.

Overall, the internship provided a practical understanding of how data analytics supports quality assurance and production efficiency. It allowed me to apply my technical skills in a real-world setting, enhance process monitoring, and contribute to operational excellence, while gaining valuable experience in reporting, visualization, and collaborative problem-solving.

5.Learning Outcomes

During my internship at KGT AUTO PLAST, I gained extensive exposure to the workings of the manufacturing and production industry, particularly in the context of quality monitoring and data-driven decision-making. Being part of the production and quality team allowed me to understand how large-scale manufacturing operations are managed, how production metrics are tracked, and how data analysis directly influences operational efficiency. Unlike academic exercises, the internship provided hands-on experience with real production data, helping me appreciate the importance of accuracy, reliability, and timely reporting in a professional setting.

One of the key areas of learning was understanding the workflow of industrial operations. I observed how production schedules are planned, how quality parameters are monitored across different stages, and how performance metrics such as machine utilization, defect rates, and cycle times are tracked and analyzed.

I participated in daily monitoring and reporting activities, gaining practical insights into how small variations in the production process can affect overall output and product quality. This exposure helped me see the direct impact of data analytics on operational decision-making.

I also gained valuable experience in collaborative workflows. Regular team meetings, discussions with supervisors, and interactions with machine operators and quality engineers helped me understand the coordination required between production, quality, and management teams. I learned how reporting and dashboards support real-time decision-making and how actionable insights are derived from raw production data.

These experiences strengthened my understanding of teamwork, communication, and professional accountability in a structured work environment.

Technical Skills

From a technical perspective, I developed strong skills in data analysis and visualization. Using tools such as Microsoft Excel, Python (with Pandas and NumPy), and Tableau, I collected, cleaned, and analyzed production and quality datasets to identify trends, detect anomalies, and predict potential process inefficiencies. I learned how to design interactive dashboards to communicate insights clearly to supervisors and managers, which enhanced decision-making and helped optimize production workflows. Additionally, exposure to quality management systems gave me hands-on experience with industrial data acquisition and reporting practices.

Soft Skills

Alongside technical skills, I also developed critical soft skills. I enhanced my problem-solving abilities by analyzing defective components, investigating root causes, and proposing actionable solutions. Communication skills were strengthened through regular reporting, team discussions, and documentation of findings. Time management and adaptability were cultivated by handling multiple tasks, meeting deadlines, and adjusting analyses based on evolving production priorities. These skills provided a holistic understanding of professional expectations in a manufacturing environment.

Overall, my internship at KGT AUTO PLAST bridged the gap between theoretical learning and practical application. I gained a strong understanding of industrial workflows, applied data analysis to improve quality and production efficiency, and developed both technical and soft skills that are essential for a successful career in data analytics and production management. The experience prepared me to contribute effectively to professional teams, make data-driven decisions, and adapt to the dynamic demands of the manufacturing industry.

6.Outcome

The internship helped me gain a clear understanding of how data is used in quality and production environments. I learned to work with real industrial datasets, clean and organize information, and prepare meaningful reports that supported decision-making.

I became comfortable using Excel for analysis, identifying trends in rejection data, and understanding the flow of manufacturing processes. The experience strengthened my confidence in handling practical data analytics tasks and prepared me for entry-level roles in data analysis, quality analysis, and production-related decision support.

7.Understanding of Industrial Workflows

My internship at **KGT AUTO PLAST** gave me a clear understanding of how industrial production environments operate and how data is used to support quality and efficiency. I gained practical exposure to real-time manufacturing workflows, including:

- **Production workflow principles:** Understanding how raw materials move through moulding, processing, inspection, and final dispatch stages in an automotive component manufacturing unit.
- **Quality inspection flow:** Learning how defects are monitored, recorded, and analysed using quality sheets, tolerance limits, and visual inspection standards.
- **Data collection practices:** Exposure to how production data, cycle time, rejection rates, and shift-wise outputs are systematically recorded for analysis.
- **Documentation standards:** Understanding how daily production reports, quality reports, and rejection logs are prepared and maintained.
- **Use of tools/software:** Gaining familiarity with Excel-based dashboards and internal reporting tools used for tracking production performance and identifying issues.

8.Contribution to Team/Project (with measurable impact)

During my internship, I contributed directly to quality and production-related tasks by analysing data and assisting in process improvements:

- **Quality Data Analysis:** Collected and analysed daily rejection data and categorized defect types, which helped the quality team identify recurring

issues in moulded components.

- **Production Efficiency Tracking:** Assisted in preparing shift-wise output reports and monitored cycle time variations, which helped in identifying machines with lower productivity.
- **Defect Trend Reporting:** Prepared weekly Excel reports highlighting defect trends, enabling the team to take corrective actions and reduce rejections.
- **Process Observation:** Supported the quality supervisor in documenting inspection results and validating measurements during random sampling.
- **Improvement Suggestions:** Suggested formatting and organizing digital logs to make them easier to analyse, which reduced report-preparation time for the team.

9.Comparison with Academic Learning

The internship provided a significant contrast to traditional academic learning. While classroom education primarily focused on theoretical knowledge, small-scale coding exercises, and simplified project work, the internship offered hands-on experience with real-world applications. I gained exposure to actual production workflows, teamwork, deadlines, and client-oriented project requirements. It helped bridge the gap between academic concepts and industrial practices, especially in areas like industrial reporting standards, quality documentation, and data driven decision making. This practical exposure allowed me to understand how the concepts learned in classrooms are applied at scale in a professional environment.

Daily Stand-Ups & Progress Reporting

Every day began with a team call or message update where I:

- Reported the tasks completed the previous day.
- Shared the goals for the current day.

- Raised any blockers or requested feedback from mentors. These short sessions helped me stay on track and build discipline in working with clear, time-bound objectives.

10.Challenges Faced and Solutions

During the internship, I encountered several challenges that required analytical thinking and problem-solving. One major challenge was working with large and complex datasets, which initially made it difficult to clean, organize, and extract meaningful insights efficiently. I overcame this by learning advanced data cleaning and transformation techniques using tools like Excel, Python (Pandas), under the guidance of senior analysts. Another challenge involved handling inconsistencies and missing values in datasets. By implementing data validation rules, imputation methods, and cross-checking with multiple data sources, I was able to ensure data accuracy and reliability.

Additionally, I faced challenges in visualizing and presenting data in a clear and insightful manner for stakeholders. To resolve this, I explored visualization tools like Tableau and Matplotlib, learning to choose appropriate charts, create dashboards, and highlight key trends effectively. Managing multiple tasks and meeting deadlines was initially demanding, but adopting task prioritization strategies and using structured task tracking and daily reporting formats helped me organize and track progress efficiently.

11.Summary

- Clear visibility into daily work progress
- Opportunities for guided mentorship
- Technical upskilling and peer learning
- Preparation for a future in team-based environment.

Overall, these sessions helped build my confidence, strengthen communication habits, and deepen my understanding in Data driven quality and production workflow and industry expectations.

Feedback from Supervisor

My supervisor recognized my strong willingness to learn and adapt to challenges. I demonstrated initiative in completing tasks, asked relevant questions, and consistently delivered quality work under guidance. My contributions and collaborative approach were particularly appreciated. Overall, I was acknowledged as a motivated and promising intern with a solid foundation in handling data and a proactive attitude toward learning.

12.Reflection and Conclusion

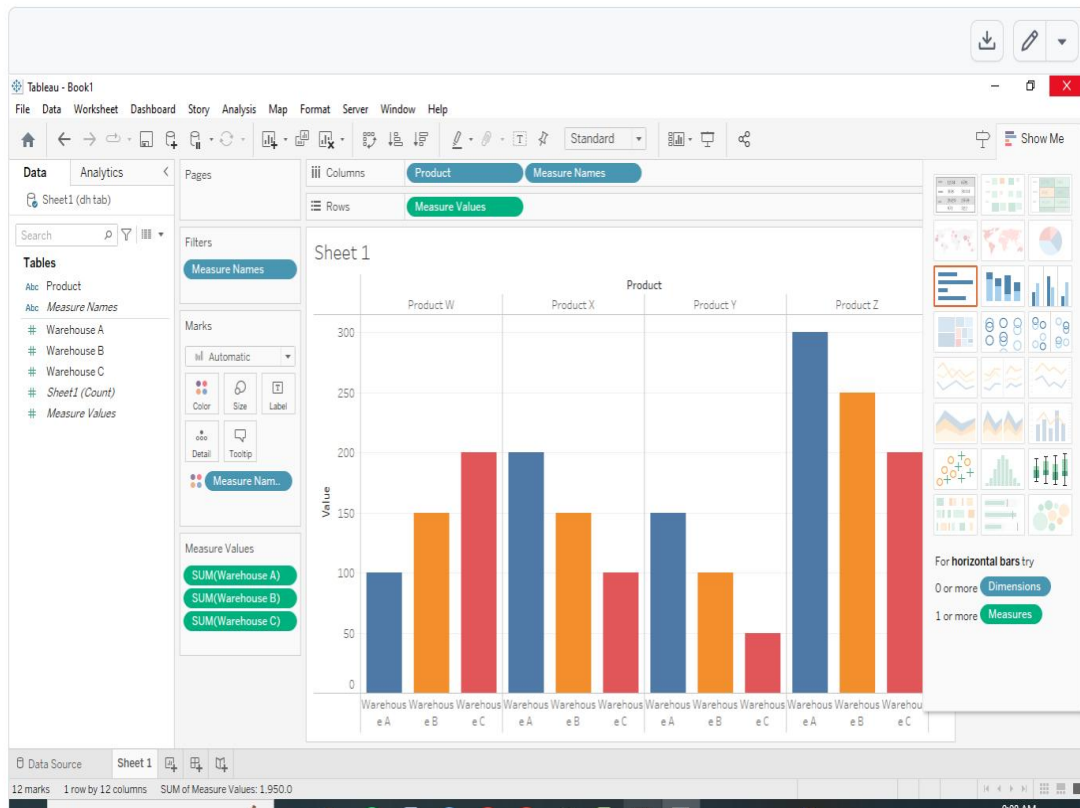
My internship at KGT AUTO PLAST has been an enriching and transformative experience that allowed me to blend academic knowledge with practical industrial exposure. Working within a fast-paced manufacturing environment provided me with a deeper understanding of production workflows, quality inspection methods, and the role of data in improving operational efficiency. The opportunity to observe real-time shop-floor activities, analyse production data, and support the quality team helped me develop a realistic perspective on how automotive components are monitored and optimized for performance.

This internship aligned strongly with my career goals in data analytics and industrial quality management. It strengthened my ability to handle real-world datasets, sharpened my analytical thinking, and enhanced my understanding of structured documentation, defect analysis, and production reporting. The hands-on guidance from supervisors and the collaborative work environment boosted my confidence and prepared me for future roles in quality analysis, production planning, and data-driven decision-making within industrial sectors.

For future interns, I would recommend approaching the internship with curiosity and a willingness to learn. Gaining familiarity with tools like **Excel**, understanding basic production terminology, and observing workflow patterns can significantly enhance the learning experience. Asking questions, actively participating in discussions, maintaining daily task logs, and paying close attention to quality standards are key practices that help make the internship more meaningful. Overall, this internship has added substantial value to my professional growth and has provided a strong foundation for my journey in the field of data analytics and industrial operations.

13.Appendices

Job_ID	Machine_ID	Operation	Material_U	Processing_Energy	Cor_Machine_A	Scheduled_Scheduled_Actual	Star_Actual_End	Job_Status	Optimization_Category
J001	M01	Grinding	3.17	76	11.42	96	#####	Completed	Moderate Efficiency
J002	M01	Grinding	3.35	79	6.61	84	#####	Delayed	Low Efficiency
J003	M04	Additive	2.29	56	11.11	92	#####	Failed	Low Efficiency
J004	M04	Grinding	1.76	106	12.5	95	#####	Completed	Moderate Efficiency
J005	M01	Lathe	1.9	46	8.13	88	#####	Completed	High Efficiency
J006	M02	Additive	4.86	100	13.83	86	#####	Completed	Moderate Efficiency
J007	M04	Milling	4.67	22	14.2	87	#####	Completed	Moderate Efficiency
J008	M05	Grinding	1.57	79	13.86	91	#####	Completed	Low Efficiency
J009	M02	Drilling	3.49	42	8.97	81	#####	Completed	Moderate Efficiency
J010	M01	Drilling	2.1	27	3.66	97	#####	Delayed	Low Efficiency
J011	M01	Lathe	3.02	65	9.98	90	#####	Completed	Low Efficiency
J012	M03	Grinding	2.71	28	8.08	88	#####	Delayed	Low Efficiency
J013	M03	Lathe	3.1	43	5.55	95	#####	Completed	High Efficiency
J014	M04	Additive	2.33	112	2.01	95	#####	Completed	Optimal Efficiency
J015	M05	Additive	3.92	104	3.67	98	#####	Completed	High Efficiency
J016	M01	Additive	2.09	65	12.29	96	#####	Completed	Low Efficiency
J017	M03	Lathe	4.3	115	9.44	80	#####	Completed	Low Efficiency
J018	M05	Lathe	2.25	55	10.95	94	#####	Completed	Low Efficiency
J019	M02	Milling	4.62	52	3.27	82	#####	Completed	Low Efficiency
J020	M05	Lathe	1.39	42	14.19	91	#####	Completed	Moderate Efficiency



14.Faculty Mentor's Remarks

This is to certify that the internship report submitted by TN Navya has been reviewed, and it is evident that the internship was undertaken at a Bonafide industry or company. The work documented is satisfactory and relevant to the

student's field of study.

Faculty Name & Designation Signature:

Date: