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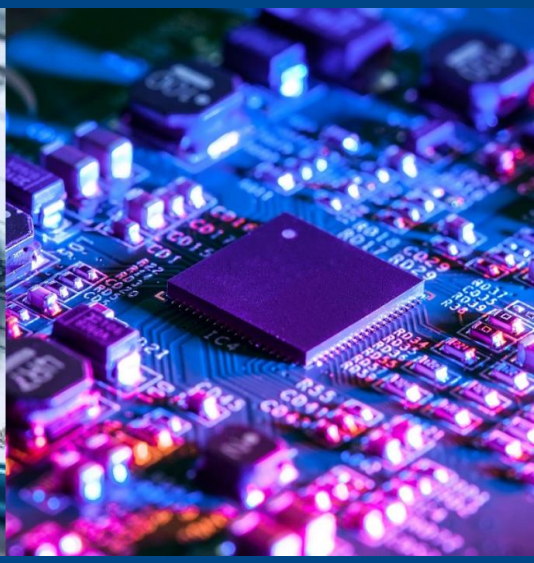

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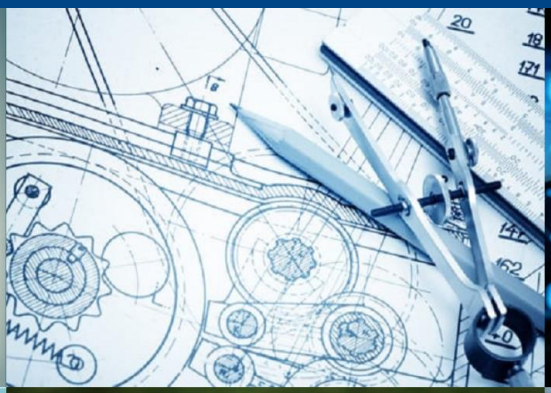

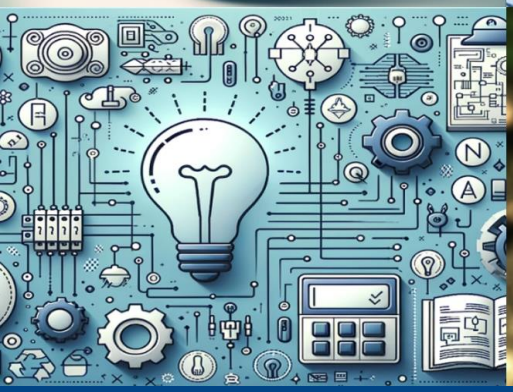

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International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

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A Study on Dangerous Goods Handling in Air India AirPort Services Limited

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ABSTRACT: The Transportation of Dangerous Goods by air requires strict compliance with international safety standards due to the potential risks involved to life, property, and the environment. Air India Airport Services Limited (AIASL), as a key ground handling service provider in India, plays a vital role in ensuring the safe handling, storage, and movement of dangerous goods at airports. This study focuses on examining the existing practices followed by AIASL in the handling of dangerous goods and evaluates the level of awareness, training, and compliance among operational staff.The study concludes by suggesting practical measures to improve compliance, enhance employee awareness, and strengthen overall safety performance in AIASL. This research aims to contribute to better safety management practices and support the organization in maintaining high standards of air cargo safety.

I. INTRODUCTION

Dangerous goods (also called hazardous materials) are substances that can pose a risk to health, safety, property, or the environment during transportation and storage. Dangerous goods are materials that are Flammable, Toxic, Explosive, Corrosive, Radioactive, or Environmentally Harmful. These goods are commonly transported by Road, Rail, Air, and Sea, making logistics safety very important. In AI Airport Services Limited, handling dangerous goods requires strict regulations, proper packaging, trained personnel, and safety measures to prevent accidents.Dangerous Goods (DG) are items or substances that can pose risks to health, safety, property, or the environment during transportation. In air export warehouses, handling DG requires strict compliance with international and national regulations.

OBJECTIVES OF THE STUDY

- To study the existing procedures followed by AIASL in handling dangerous goods at airports.
- To analyse compliance with international safety standards, such as IATA Dangerous Goods Regulations (DGR).
- To evaluate the level of awareness and training among employees involved in dangerous goods handling.
- To examine the effectiveness of labelling, packaging, and documentation of dangerous goods.
- To suggest improvements for enhancing safety, compliance, and operational efficiency.

II. REVIEW OF LITERATURE

John J. Coyle et al. (2017), dangerous goods handling is a critical component of supply chain management. The authors pointed out that effective coordination between shippers, freight forwarders, and carriers minimizes risks associated with hazardous materials.

Martin Christopher (2016) highlighted the importance of risk management in logistics. The research suggested that organizations must adopt proactive strategies such as risk assessment and contingency planning to handle dangerous goods efficiently.

Osha 2021, focused on workplace safety practices, stating that inadequate training and lack of awareness are major contributors to accidents involving dangerous goods. The study recommends continuous employee training and strict supervision.

Paul Rodgers (2019) found that technological advancements such as automated tracking systems and digital documentation improve the efficiency and accuracy of DG handling processes.

David Lowe (2018) revealed that human error is one of the primary causes of DG incidents. The research emphasized

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the need for proper training, awareness programs, and strict adherence to safety protocols.

Sunil Chopra (2019), integrating technology in supply chain operations enhances visibility and control over dangerous goods, reducing risks and improving overall efficiency.

Adelio Shatara Nugraha& Nur Azisah (2025) conducted a systematic review on DG handling in port operations and found that integrated safety management systems significantly reduce accidents and improve operational efficiency.

III. RESEARCH DESIGN

Descriptive Research is a type of research method that focuses on **describing the current situation, practices, and conditions** without manipulating any variables. To describe existing handling procedures and safety standards and is used to understand the current practices of dangerous goods handling.

SOURCES OF DATA

Primary Data is collected directly from employees working in Cargo Ramp in **AIR INDIA AIPORT SERVICESLIMITED.**

SAMPLE SIZE

The sample size of the study consists of **115Respondents of Air India Airport Services Limited.**

TOOLS USED FOR ANALYSIS

Percentage Analysis involves examining data and expressing it in terms of percentages to gain insights into various aspects of a situation.The **Chi-square test** is used to find whether there is a relationship between gender and DG recordsmaintained digitally.

PERCENTAGE ANALYSIS

TABLE 1 -HOW WOULD YOU RATE DG STOCKS INFRASTRUCTURE?

Frequencies for DG Stocks Infrastructure

DG Stocks Infrastructure	Frequency	Percent	Valid Percent	Cumulative Percent
Average	35	30.4	30.4	30.4
Excellent	33	28.7	28.7	59.1
Good	44	38.3	38.3	97.4
Poor	3	2.6	2.6	100.0
Missing	0	0.0		
Total	115	100.0		

INTERPRETATION:

From the above table, most respondents (38.3%) feel the DG stocks infrastructure is good. Around 30.4% think it is average, and 28.7% say it is excellent. Only a small number (2.6%) feel it is poor.

TABLE 2 -OVERALL, DG HANDLING PRACTICES AT AIASL IS?

Overall DG Handling Practice	Frequency	Percent	Valid Percent	Cumulative Percent
Average	38	33.0	33.0	33.0
Excellent	29	25.2	25.2	58.3
Good	43	37.4	37.4	95.7
Poor	5	4.3	4.3	100.0
Missing	0	0.0		
Total	115	100.0		

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INTERPRETATION:

From the above table, most respondents (37.4%) feel the overall DG handling practice is good. About 33.0% say it is average, and 25.2% rate it as excellent. Only a small number (4.3%) think it is poor.

CHI – SQUARE

TABLE 3 -ARE DG RECORDS MAINTAINED DIGITALLY?

Chi-Squared Tests

	Value	df	p
X^2	89.76	2	< .001
Likelihood ratio	90.21	2	< .001
N	3933		

Note. Continuity correction is available only for 2x2 tables.

INTERPRETATION:

The table shows the relationship between Gender and how DG records are maintained digitally. Most respondents fall under the moderate and partly digital categories for both males and females.

The Chi-square test result ($\chi^2 = 89.76$, $p < 0.001$) shows that there is a significant relationship between gender and digital record maintenance.

IV. HYPOTHESIS:

(H_0): There is no significant relationship between gender and DG records maintained digitally.

(H_1): There is a significant relationship between gender and DG records maintained digitally.

V. CONCLUSION

Dangerous Goods Handling is a critical aspect in Export Cargo ground operations. Air India Airport Services Limited must follow National and International Regulations, train staff properly, and continuously monitor operations to ensure the safe movement of hazardous cargo. In conclusion, Dangerous Goods Handling in AIASL is well-structured, but requires ongoing improvements in training, technology, and operational co-ordination. Strengthening these areas will not only ensure regulatory compliance, but also improve overall cargo handling performance and safety standards in the Dangerous Goods Handlings.

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