**SAPIENZA UNIVERSITY OF ROME**

**Faculty in Engineering**

**Department of Mechanical and Aerospace Engineering**

Master of Science in Mechanical Engineering

Safety and Maintenance for Industrial Systems

Prof. Lorenzo Fedele

**Risk Analysis of Luxottica Group Spa**

**Assesment in the Manufacturing Areas**

**Risk and hazards analysis of the mechanical molding line**

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Academic Year 2021-2022

**Summary**

**PART I – THE CASE STUDY**

**1. Introduction to the case study and objectives** **(6-9 CFU)**

**2. The company (6-9 CFU)**

2.1 Organization of the company

2.2 Organization for safety

2.3 Roles and responsibilities

**3. Legal and technical references (6-9 CFU)**

3.1 Legislation

3.2 Technical standards

3.3 Other standards or guidelines

3.4 Statistical references and sector data

**4. Analysis of the processes (6-9 CFU)**

4.1 Main processes

4.2 Supporting processes

**5. Identification and analysis of the areas (9 CFU)**

5.1 General layout

5.2 Factory layout

5.3 Machines layout

**6. Analysis of the technical and manufacturing assets (9 CFU)**

6.1 Manufacturing lines and machines

6.2 Service plants

6.3 Equipment

6.4 Civili buildings

6.5 Industrial buildings

6.6 Green areas

6.7 Road system

**7. Identification of the homogeneous groups of workers (6-9 CFU)**

7.1 Office workers

7.1.1 Typical risks

7.2 Line workers

7.2.1 Typical risks

7.3 Mechanical workers

7.3.1 Typical risks

7.4 Electricl workers

7.4.1 Typical risks

**PART II – THE RISK ANALYSIS**

**8. The risk analysis approach (6-9 CFU)**

8.1 Inductive

8.2 Deductive

**9. The choice of the risk analysis methodologies: where and why (6-9 CFU)**

9.1 Technical, legal or scientific references

**10. Risk assesment (6-9 CFU)**

10.1 Risk analysis of single lines or machines

10.2 Assesment of single areas or sectors

10.3 Risk analysis of the company

**11. Acceptability limits (6-9 CFU)**

11.1 Limits definition criteria

11.2 The limits

**PART III – PLAN OF THE SAFETY MEASURES**

**12. Identification of the findings (6-9 CFU)**

12.1 Identification of the non conformities

12.2 Identification of the observations

12.3 Identification of the weak conditions

**13. The safety measures (6-9 CFU)**

13.1 Identification of the corrective actions

13.2 Identification of the treatments

13.3 Identification of the improvements

**14. The plan of the measures (6-9 CFU)**

14.1 Economical costs of the measures

14.2 Level of priority of the measures

14.3 Safety budget over the time

**15. Presentation of the results (6-9 CFU)**

15.1 Risk analysis tables

15.2 Safety measures plan

15.3 Safety budget tables

**Attachments (9 CFU)**

1. General plant of the factory **(9 CFU)**

2. Building plant of the factory **(9 CFU)**

3. Other technical documents

**References (6-9 CFU)**

[1] M. Provost, The Use of Optimal Estimation Techniques in the Analysis of Gas Turbines, Ph.D. Thesis, Cranfield University: Cranfield, UK, 1994.

[2] Clifton, D.A.; Bannister, P.R.; Tarassenko, L. Application of an Intuitive Novelty Metric for Jet Engine Condition Monitoring, Advances in Applied Artificial Intelligence. In Lecture Notes in Artificial Intelligence; Wang, J. Eds.; Springer-Verlag: Berlin, Heidelberg, 2006, Volume 4031, pp. 1149–1158.

**1. Introduction to the case study and objectives**

Wòlj flwqj flqkjw lqkj ljòlj flkj elfjqlkewjgf (Figure 1) lknclkwlckn lkqhjelhfvlhqvklhqklvchlkq .dcn qwlkfdh jwqhdjh uwskjq kjhshxih



**Figure 1 – Example of a mechanicl system**

AhcjahvscjV ASCJKJsc ljkcjkqC (Table 1) qwdxjhgv xgcx qwidy qlkc qkjckjhqcjk.

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Table 1 – Example of a table