Teaching induction machine laboratory using ProjectX

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Abstract

In electrical engineering computer simulation tends to replace almost entirely the classic experimental laboratories for different reasons: easier to be used by students and teachers, wide possibility of experiments, possibility of seeing a very quick response to fault situations, etc. In this context, the University of Pitesti, from Romania, enrolled in the Leonardo da Vinci Transfer of Innovation 'One Teacher and One Student working with ProjectX', along with other six European VET educational institutions in order to develop a practical methodology that could apply in all of them. The purpose of the project is to create a common platform that has the purpose to help teachers work especially with students with different study paths due to their particularities.

Introduction

• Technical universities loose contact with daily activity required in regular engineering jobs. Computer simulation is used in almost every field of education, and engineering education is not an exception.

• The University of Pitesti enrolled in the Leonardo da Vinci Transfer of Innovation 'One Teacher and One Student working with **ProjectX**', along with other six European VET educational institutions in order to develop a practical methodology that could be applied in all of them.

• The participant institutions are from six European countries: ES, RO, FI, FR, UK and TR.

The induction machine

• The induction machine is the most used electric machine in industry.
• Induction machines could be found in very simple applications and very advanced applications.
• It is very likely that maintenance specialists will encounter it in their working experience.
• These professionals have to have a common base regarding the use of this machine: electric connection to the voltage supply, basic functionality principles, ways of starting and braking, etc.

ProjectX – starting the induction machine
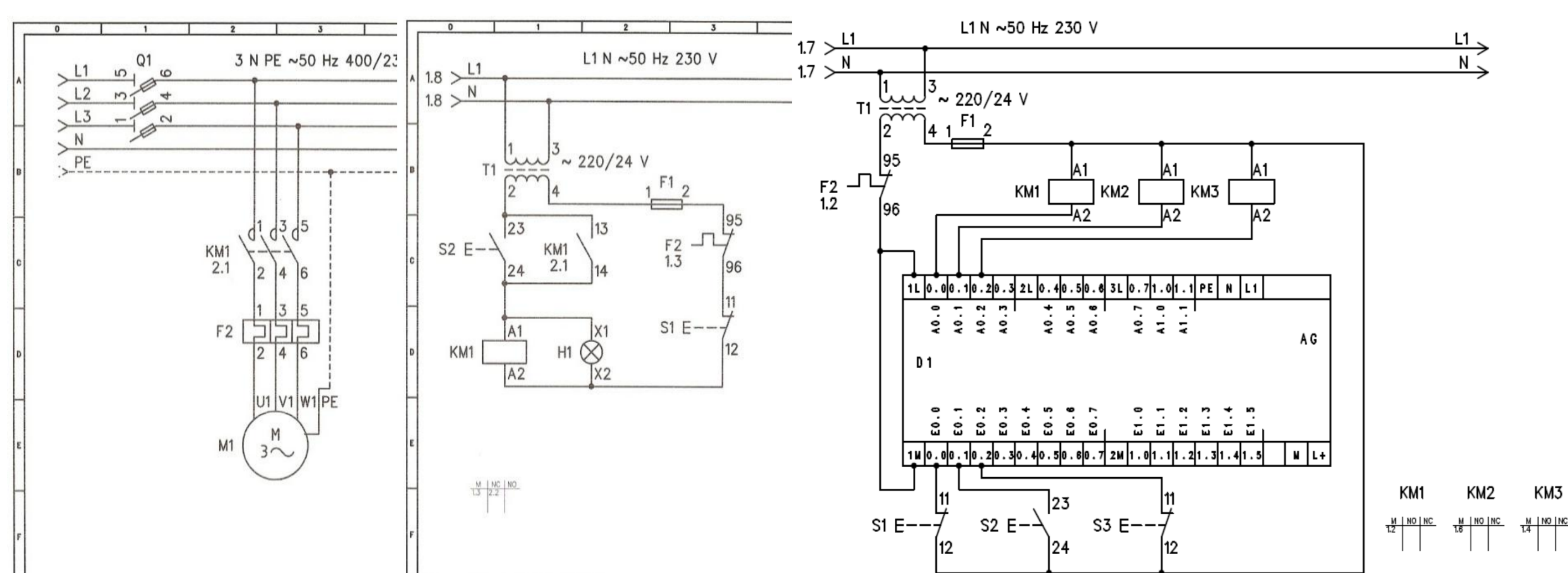
KM1 = (S2 **AND (NOT** S1)) OR (KM1 AND (NOT S1))

Learning outcomes of the projects

Learning outcomes of the practice with ProjectX

• **Knowledge**

• **Skills**

• **Competences**

Learning Outcome 1	Analyze the electric schematic for starting an induction machine
Learning Outcome 2	Perform electrical installations and electrical maintenance for industrial premises
Learning Outcome 3	Install programmable automated systems
Learning Outcome 4	Write simple PLC program for sequential control systems

At the end of using this ProjectX, the students will have more knowledge about implementing an electrical schematic to start induction machines in different ways, specific skills and competences.

Conclusion

• This paper presented a way of teaching the starting of the induction machine in different ways: both classic as advance methods.

• The fact that this method is developed at the same time in different educational institutions in Europe is setting basis for student and teacher exchange.

The students will be able to:
• Read technical schematic
• Implement an electric schematic using classic apparatus and PLC
• Develop self-esteem in students as they have independence in laboratory practice

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Disclaimer

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