MaCICT

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Design of Experiment

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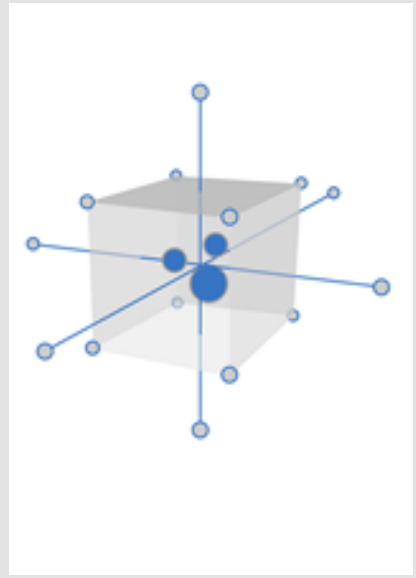

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Objectives

The course will examine how to design experiments, carry them out, and analyze the data they yield.

Students will study

- ✓ the models, methods and principles of experimental design;
- ✓ models and methods of statistical analysis of experimental data,
- ✓ how to apply statistical methods and special software for the learning of systems of various nature and purpose.

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Course Content

- The Basic Concepts of Experimental Design
- Elements of Probability Theory and Mathematical Statistics
- Statistical analysis software tools and Exploratory Data Analysis (EDA)
- ANOVA Elements
- Correlation and Regression Analysis
- Factorial Experiments

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Teaching/ Learning Methodology

Different Learning Methods

- Teaching methods and delivery will include a combination of lectures, discussion, presentations , individual and group tasks.

Theory into Practice

- The teaching methodology is concerned with ingraining theoretical knowledge through practical experience.

Real World Tasks

- Tutorials and case studies are based on real-world applications of experimental design and are drawn from a number of different fields of engineering.

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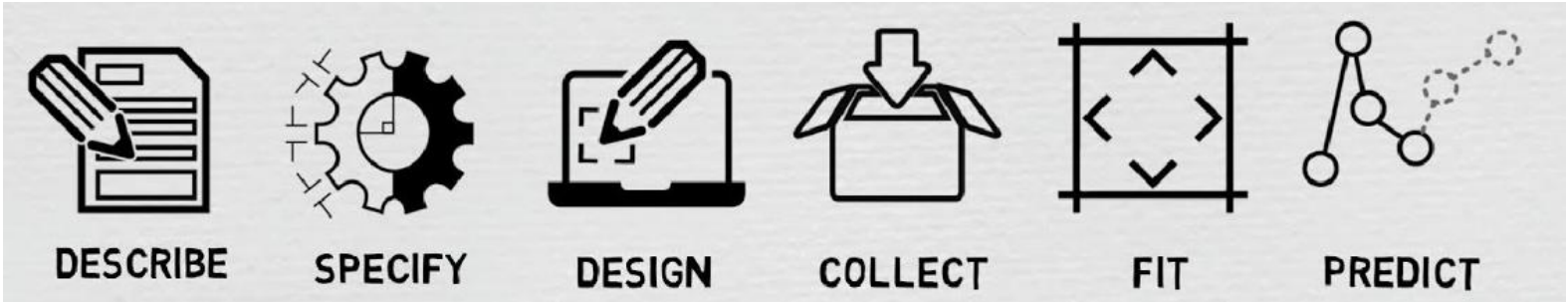
Teamwork

- The **purpose** of the project is to carry out and demonstrate the results of the experimental design process.
- The project allows
  - ✓to apply theoretical knowledge in practice,
  - ✓ to see a holistic picture of the problem being studied,
  - ✓to create "conceptual maps" in the learning process.



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Course Materials

are distributed through **educational portal**

- **Introductory block**, which presents the syllabus for the discipline and methodological recommendations.
- **Theoretical block** containing lecture notes;
- **Practical block**, which presents a set of tasks considered in laboratory classes
- **Knowledge control block,** which includes homework tasks, a list of control activities, requirements for a group project;
- **Auxiliary block** containing instructions for performing some practical exercises using software and report sample.

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Assessment Process

Formative assessment (*Assessment for Learning*)

- Performance of classroom tasks, one-minute papers
- Think-Pair-Share
- Puzzle exercises
- Concept Mapping

Summative assessment (*Assessment of Learning*)

- Attendance and participation 10%
- Homework 20%
- Tests and Unit Quizzes 30%
- Teams Project 40%

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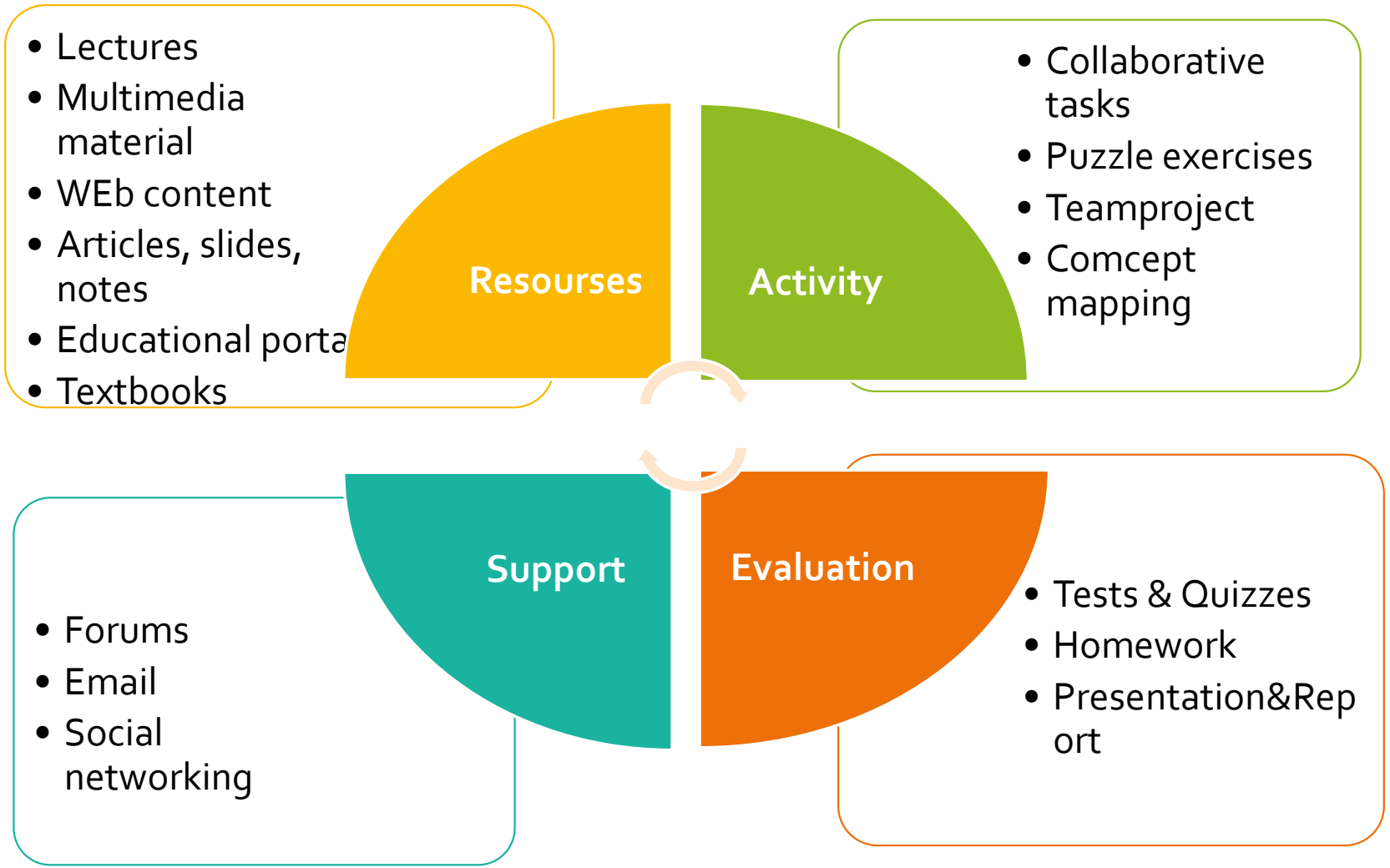
Pedagogical Model



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Thank you for attention!