



**NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF SCIENCES
COMPUTER SCIENCE PROGRAM**

CC472 – SOFTWARE ENGINEERING I

I. GENERAL INFORMATION

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| CODE | : CC472 – Software engineering I |
| SEMESTER | : 8 |
| CREDITS | : 04 |
| HOURS PER WEEK | : 6 (Theory – Laboratory) |
| PREREQUISITES | : CC302 Distributed parallel language oriented to objects |
| CONDITION | : Mandatory |

II. COURSE DESCRIPTION

Familiarize the student with the software processes that are presented in the development of the software life cycle.

Present to the students the different models of process evaluation and the software process metrics.

Students must identify the functional and non-functional requirements of the construction or software.

Guide the students in the modeling of requirements analysis and prototypes of a software. Students must be able to select and apply appropriate design patterns in the construction of a software application.

Apply component design and reuse design in the applications presented by students.

III. LEARNING UNITS

1. Software Processes

I: Software life cycle and process models.

II: Process evaluation models.

III: Software process metrics.

2. Advanced Representation of Knowledge and Reasoning

I: Elicitation of requirements.

II: Modeling techniques of the requirements analysis.

III: Functional and non-functional requirements.

IV: Prototyping.

V: Basic concepts of formal specification techniques.

3. Fundamental Topics in Intelligent Systems

- I: Fundamental concepts of design and principles.
- II: Design patterns.
- III: Software architecture.
- IV: Structural design.
- V: Object-oriented analysis and design.
- VI: Design at component level.
- VII: Design for reuse.

IV. BIBLIOGRAPHY

- Blum, B. I. Software Engineering: A Holistic View. Oxford University Press US, 7th edition., 1992
- Pressman, R. S. Software Engineering: A Practitioner's Approach. McGrawHill, 6th edition. 2004.
- Schach, S. R. Object-Oriented and Classical Software Engineering. McGrawHill. 2004.