Antonio J. de Vicente

SESSION 2

CIRCUITS AND FLOATING POINT ADDITION, MULTIPLICATION, DIVISION AND ROUNDING

OBJETIVES

To know basic hardware circuits for integer addition.

To know how floating point addition is performed.

To know what guard digit are and the rounding techniques most used.

To apply session knowledge to solve exercises

PREVIOUS KNOWLEDGE

Digital electronic, an assembly language, representation systems and operand and addressing modes concepts.

BIBLIOGRAPHY

- Fundamentos de los Computadores. P. De Miguel Anasagasti
  Ed. Thomson-Paraninfo. 9º Edición. 2004

- ESTRUCTURA Y TECNOLOGÍA DE COMPUTADORES. S. Díaz, M. C. Romero, Alberto J. Molina
  Ed McGraw-Hill Computers. 2009

- ARQUITECTURA DE COMPUTADORES. J. A. de Frutos, R. Rico.
  Ed. Universidad de Alcalá. 1995

TASKS

READINGS

FUNDAMENTOS DE LOS COMPUTADORES. (P. De Miguel Anasagasti. Ed. Thomson-Paraninfo. 2004)

1. Chapter 5. The arithmetic unit
   a. Rounding methods and guard digits (5.5 pages 204 to 208)
   b. Multiply and divide operation (5.3.3 pages 187 to 203)

ESTRUCTURA Y DISEÑO DE COMPUTADORES. (D. A. Patterson, J. L. Hennessy. Ed Reverte 2011)

1. Chapter 3. Computers arithmetic
   a. Multiplication (3.3 pages 230 to 235)
   b. Division (3.4 pages 236 to 242)

EXERCISES

Download http://atc2.aut.uah.es/~avicente/asignaturas/eoc/pdf/enunciados_t1.pdf some of them will be solved during the classes. Remaining non-solved exercises must be homework considered.

HOMEWORK ACTIVITY (OPTIONAL DELIVERY)

Choose only one of the following activities

1. Adapt add-shift circuit to multiply complement 2 represented numbers.
2. Adapt add-shift circuit to multiply complement 1 represented numbers.