

Second Cycle

Year 4

14.8X Nantes

ORGANISATION AND INFORMATION SYSTEM

Targeted professions

Research and Development engineer (specialising in networks, databases, ...) / Methods engineer / Production systems engineer / PMA engineer (project management assistant) / Consultancy and expertise in information Systems.

Organisation & Basic IS Topic

Competencies to be acquired :

In the framework of IS operation linked to the improvement of production organisation, the student will be able to :

Physical flows	Analyse and model the flows.
Supply Chain	Set up indicators to identify Quality, Cost, Time and Human Resources (QCTH).
Organisation / IS (ERP, CAPM...)	Identify the connections in the relationships between : <ul style="list-style-type: none"> • Supplier/stock: stock management, purchasing policy. • Production/packaging: MRPII, JAT, OPT. • Order Preparation/Distribution: Logistics.
Continuous improvement	<ul style="list-style-type: none"> • Suggest a linked approach around Lean Management tools (5S, SMED, TPM, Kanban...). • Calculate the profit made and evaluate continuing with the approach.
Database	<ul style="list-style-type: none"> • Create a database and question it to extract information. • Use SQL language to create a DB and build it up (CRUD). • Generate meaningful reports thanks to SQL language (use of set theory) and format them (creation of interface or Excel imports(Workbench, CSV). • Use the entity-association model. • Use queries (unary, binary, ternary, n-ary, ... selection, action).
Excel	<ul style="list-style-type: none"> • Use Excel as a decision-making tool. • Use the relationship types between the cells. • Use the matrix calculation (graph, linear system, non relational DB) according to the contexts. • Generate graphs. • Develop an application in VBA.
XML	Use XML to allow dialogue between heterogeneous applications in an industrial context Use DTD for validation of XML documents Gradually build up a set of XML structures usable in PHP. Use XSL formatting to format data structured in XML.

Organisation

<p>Lectures / Tutorials</p>	<p>Presentation of the topic (linking of Lectures, Tutorials, Practical exercises, Project, Assessment, Independent Work)</p> <p>Reviews of IN35 and IN36</p> <ul style="list-style-type: none"> • Identify them on a curve. • General remarks on IS (IS in its context). • Notion of organisation (business, workshop) – Bottom-up study. • Review of the notions of modelling, implementation in terms of relational databases, Web and object oriented programming.
<p>Talks</p>	<p>For the Production Organisation section, eight 2h talks by engineers from manufacturing industries working in the following services : Purchases, Research Department, Methods, Logistics, Production, Quality, Sequencing, Maintenance.</p> <p>For each talk : presentation of the company, presentation of the duties of the engineer speaking, practical illustration of setting up teaching, questions and discussion.</p> <p>For the IS section,</p> <p>"Benefit of an information system in production organisation" - IS and piloting, IS and process improvement, connection of IS to decision-making and executive systems – MANITOU.</p> <p>"Information flows within the company" - What is ascending and descending information, exchange formats, reporting ... Information storage – SIGMA TLE centre (Transportation Logistics Energy).</p> <p>"IS and change management" - Impact of IS on practice of company players. Important concepts linked to IS and change management – SIGMA.</p>
<p>Practical Exercises</p>	<p>Ex 1 : Model a relational DB, implement it, then create dynamic tables with the help of queries (selection and action) using SQL language.</p> <p>Ex 2 : Use Excel as a decision-making tool (graph, non relational DB, VBA development ...).</p> <p>Ex 3 : LEAN Management.</p> <p>Ex 4 : LEAN Management.</p>
<p>Project</p>	<p>24 hrs scheduled in the timetable.</p> <p>About 90 hrs of independent work by student.</p> <p>Groups of 10 to 12 students.</p> <p>Subject suggested by a business.</p> <p>Assessment : report and oral viva.</p>
<p>Extended Organisation & IS Topic</p>	<p>Lectures/ Tutorials/ Talks</p> <p>Two 3h talks conducted by industrial site directors, centred on the strategy and its application in production organisations</p> <p>"Interoperability between heterogeneous applications" – SIGMA.</p> <p>Practical Exercises</p> <p>Using XML. XML allows the structuring of information to pass on information between heterogeneous applications (that do not have any direct link). The practical exercise involves building an XML model, implementing it and operating it in the context of sending and receiving PHP data.</p> <p>Project</p> <p>Planning and ciphering for the application of the proposed improvements in the project introduced in the core topic.</p> <p>16h scheduled in the timetable.About 60h of independent work by student. Assessment: report and oral viva.</p>