

ECTS COMPUTERIZED MANAGEMENT

Option : Administrator of Local Area Networks

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HIGHER TECHNICIAN DIPLOMA IN COMPUTERIZED MANAGEMENT (BTS / A-level+2)

Head of educational program : Chantal MEDA

A- DEFINITION

The option **Application development** prepares the student for the design (analyse) and development of software which is required in the field of computerized management. The program usually lasts two years (A-level + 2 years) following a General Certificate of Education at advanced level, specialized in science and technology (equivalent to the French baccalaureat S or ES), or following a baccalaureat STI or Pro MRIM.

The selection is based on school files plus eventually a test and an interview. The educational program is completed by professional workplacements with a total duration of 12 to 14 weeks. The students carry out professional activities each week, activities that can be achieved in cooperation with companies.

B- PROFESSIONAL OPENINGS AND POSSIBILITIES

Once the students have obtained the Higher Technician Diploma in Computerized Management (BTS / A-level+2), they will be able to practise their profession within companies providing services of data processing or within industrial or commercial companies (small and average companies as well as within information technology departments of big companies) The program can be pursued with a LUP, MIAGE, IUP or University.

WEEKLY SCHEDULE 1st and 2nd YEAR BTS COMPUTERIZED MANAGEMENT

CODE OF COURSE	COURSE	First year		Number of ECTS credits per year	Second year		Number of ECTS credits per year
		Weekly schedule	Yearly volume (for your information)		Weekly schedule	Yearly volume (for your information)	
		Total (lectures +class work+practicals)			Total (lectures +class work+practicals)		
U1.1	French language	2(2+0)+0	50	6	2(0+2)+0	50	6
U2	Mathematics 1	3(1+2)+0	93	6	3(2+1)+0	87	6
U1.2	Applied English language	3(2+1)+0	93	6	2(0+2+0)	58	6
U3	Economics – Law	5(4+1+0)	155	7	5(4+1+0)	145	7
U4	Computer science and management						
	<i>Hardware architecture of computing systems</i>	3(2+0+1)	93	6	4(1+0+3)	116	8
	<i>Software architecture of computing systems</i>	4(2+0+2)	124	8	6(2+0+4)	174	8
U5	<i>Application development and software engineering</i>	7(4+0+3)	217	10	4(2+0+2)	116	7
	<i>Company management and organization of information systems</i>	3(2+1+0)	93	6	3(2+0+1)	87	5
U6	<i>Professional activities</i>	3(0+3+0)	93	5	4(0+0+4)	116	7
	TOTAL			60			60

COURSE CONTENT

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2 nd year)
UI.I	FRENCH LANGUAGE	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	50	6	6

Tuition language : French

The Erasmus students will be taught French by a teacher specialized in French for foreigners. 25 lessons are provided per semester.

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2 nd year)
U2	MATHEMATICS 1	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	93	6	6

1. SPECIFIC COURSE OBJECTIVES

The study of **economic phenomena**, mathematically described by sequences or functions according to their discrete or continuous nature, form an essential objective in the training of higher technicians studying computer science and management. The students will also solve numeric problems that require the use of **algorithmes** that will have to be created, formed and whose performances will eventually be compared. Besides, some problems will have to be placed in a **random context**.

As a general principle, **the research and the use of algorithmes** have a central place in this subject and will be implemented with proscribed computerized means.

2. CONTENT ORGANIZATION

The tuition of mathematics is conceived in accordance with the objectives mentioned above; it can be organized around following **six poles** :

- a valorization of the program's **numeric and graphic aspects** and the use of calculators and **computerized means** (spreadsheets, graphs...) for this matter. The students will get accustomed to the research and the implementation of **algorithmes** indicated by the program; theoretical knowledge concerning these algorithmes is not required in mathematics;
- an introduction to the **logical operations** that are appropriate in the tuition of computer science;
- a study of the global and asymptotic behaviour of **common sequences and functions** as well as a development of **differential and integral calculus** in order to solve **numeric problems**.
- an introduction to the methods of **linear algebra** : a certain skill in the use of **geometrical language** should be obtained (vectors, linear applications) as well as in the use of **matrix language**, and a good comprehension while changing from one language to another. The course also aim to achieve a practice of **linear system solutions** (the method Gauss axis) in order to supply efficient tools for the study of economic phenomena;
- an introduction to **probability calculus**, centred around the description of fundamental laws that permit to grasp the importance of random phenomena in economics and in management;
- an introduction to the modelling and the solution of problems thanks to **graphs**, that is to be used in close collaboration with the tuition of computer science and management.

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U1.2	APPLIED ENGLISH LANGUAGE	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	93	6	6

Objectives

English is the common language in computer science as far as science and human contacts are concerned. International exchanges form an essential and natural part in professions of computer science and management and therefore highlight the need of English. The development and the reinforcement of European relations have equally turned the mastery of English language into a requisite skill. Data processing experts have to control the language. It is a part of the specialization but also a way to communicate, especially when it comes to the written language included in their everyday professional activities.

Fundamental skills

- Written understanding of professional documents like brochures and technical notes, documentation of test programs, files of analyses, articles from technical press, messages...
- Verbal understanding of professional information or instructions
- Written expression : writing of notes, summaries, reports, messages...
- Verbal expression : basic techniques of the language, simple conversations, professional or not, including phone calls.

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U3	ECONOMICS AND LAW	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	155	7	7

Tuition language : French

ECONOMICS-LAW

The referential of economics-law includes three parts : general economics, business economics and law.

GENERAL ECONOMICS

The referential includes a content that is methodological and notional at the same time. It associates general elements of economic culture with knowledge specific to the candidate's speciality.

The themes of the referential makes it possible to estimate the candidate's ability :

- to organize his / her knowledge around a problem,
- to mobilize his / her methodological skills

As far as the methodological approach is concerned, the skills must be checked according to the notional context defined by the referential,

METHODOLOGICAL APPROACH

CONTENT	SKILLS
- Economic language	• To master economic vocabulary
- Economic documentation	• To make a research and to draw profit from economic documentation (texts, graphs, tables)
	• To locate the principal ideas of a text, to find the linking between ideas and argumentations
	• To draw up a synthesis
- Analyse of an economic situation	• To pose a problem
	• To create a structured argumentation

BUSINESS ECONOMICS

The referential includes a content that is methodological and notional at the same time. It associates general elements of economic culture with knowledge specific to the candidate's speciality.

The themes of the referential makes it possible to estimate the candidate's ability :

- to organize his / her knowledge around a problem,
- to mobilize his / her methodological skills

METHODOLOGICAL APPROACH

CONTENT	SKILLS
- Economic vocabulary	<ul style="list-style-type: none"> • To master and to use advisedly specific economic vocabulary .
- Economic documentation	<ul style="list-style-type: none"> • To consult and derive profit from economic documentation with business specialization • To make an information research concerning companies • To analyse and handle the company related information • To draw up a synthesis
- Analyse of a company's situation	<ul style="list-style-type: none"> • To analyse a company's situation through different scales of lecture (financial, commercial, organisational, industrial) • To create a structured argumentation
- Analyse of management problem	<ul style="list-style-type: none"> • To underline a problem of management, to locate all of its dimensions, to prepare the tools, techniques and elements of solution • To use a systemic approach and to show the linking between the decisions and the different actions of a company

LAW

The referential includes a content that is methodological and notional at the same time. It associates general elements of juridical culture with knowledge specific to the candidate's speciality.

The themes of the referential makes it possible to estimate the candidate's capacity :

- to organize his / her knowledge around a problem,
- to mobilize his / her methodological skills

As far as the methodological approach is concerned, the skills must be checked according to the notional context defined by the referential,

METHODOLOGICAL APPROACH

CONTENT	SKILLS
- Juridical language	<ul style="list-style-type: none"> • To master specific juridical vocabulary and the characteristic language of law
- Juridical documentation and its specificities	<ul style="list-style-type: none"> • To consult and to use specialized juridical documentation, to easily appeal to a code or a law and to read a judgment
- Analyse of a juridical situation	<ul style="list-style-type: none"> • To analyse a juridical situation
- Formulation of a juridical problem	<ul style="list-style-type: none"> • To pose a problem of law, to create a juridical argumentation in a given practical case

COMPUTER SCIENCE AND MANAGEMENT

GENERAL SKILLS

Described in a detailed manner in the referential of the professional activities and approved by the professional consultative qualified committee, the activities of an **administrator specialized in local area networks** are as follows :

- choice and installation of server and workstation on the network,
- network management,
- network operation,
- choice, implementation and test of connection,
- choice, implementation and test of active electronic,
- choice, implementation of heterogeneous configurations,
- choice, implementation of client-server configurations.

Most of the concerned activities require a permanent dialogue with internal specialists (managers or data processing experts from « central sites ») as well as with external specialists (suppliers of equipment, stock and software or service providers). The activities correspond to interface functions between users, eventual central information technology department, managers and decision makers.

The professional skills of an administrator specialized in local area networks are supported by a set of general abilities :

- A mastery of the French language, written and verbal, for the writing of reports and files, achievement of textual elements of interfaces, management of meetings and discussions, a direct dialogue with users.
- A proper mastery of mathematic concepts allowing a formal approach of computer technology, a justification of computerized models and a formalization of some management solutions.
- Comprehension of principles, internal and external rules of the organization management.
- A proper mastery of English in order to enable the comprehension of technical documentation, instructions and messages written in this language as well as the exchange of technical contents with foreign partners.

These general abilities are supplemented by :

- a solide technical culture,
- an ability to update knowledge and to master technical evolution
- a capacity to adapt and to fit,
- an ability to establish human relations and interpersonal communications.

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U4	HARDWARE ARCHITECTURE OF COMPUTING SYSTEMS	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	93	6	6

Tuition language : French

S1. HARDWARE ARCHITECTURE OF COMPUTING SYSTEMS	
CONTENT	EXPECTED ABILITIES
S11 Component technology Operating processors Storage devices Specialized processors Bus	<ul style="list-style-type: none"> • To characterize and describe a computer's components • <i>To master the information's numeration and codification systems</i> • To identify technologies and normes of a computer's components • <i>To evaluate and compare the technologies and normes of a computer's components.</i>
S12 Computer architecture Operating processors Storage organization and hierarchy Bus organisation and hierarchy Addressing mechanism Advanced architecture : « pipeline », multiprocessor, parallaxic architecture	<ul style="list-style-type: none"> • To describe the structure and the functioning of a computer • To recognize the link between different components of a computer • <i>To install, configure and maintain computer equipment</i> • <i>To describe different addressing mechanisms that are implemented in a computer's architecture</i> • To inventory and classify different types of architecture in computing systems
S13 Peripheral device technology Magnetic and optical medium Screens Printers Security devices	<ul style="list-style-type: none"> • To describe the role and the characteristic, technical and functional principles of peripheral devices • To identify technologies and norms related to peripheral devices • <i>To evaluate and compare technologies and norms related to peripheral devices</i> • To install and configurate a peripheral device • <i>To master the installation procedures and configurate peripheral devices</i>
S14 Communication technology <i>Transmission medium and principles of an electric or optical signal</i> <i>Study of vibratory and sinusoidal phenomenons</i> <i>Coding and conversion of signals</i> <i>Access and control techniques, norms and standards</i> <i>Wiring, connection and active electronics, norms and standards in fact</i>	<ul style="list-style-type: none"> • <i>To inventory different levels of signal representation</i> • <i>To characterize and compare different transmission modes of a signal</i> • <i>To describe the role and the characteristic principle of a network configuration's components</i> • <i>To identify, evaluate and compare technologies and norms related to a network configuration</i>
S15 Network architecture OSI Model (Open System Interconnection) Network typology : Topologies, protocols, interfaces, local area networks and public networks, heterogeneous networks, equipment of network interconnections, high throughput networks Switching, routing and addressing techniques, norms and standards in fact.	<ul style="list-style-type: none"> • To describe the structure and the functioning of a network configuration • To identify and describe the link between different components of a network • <i>To identify and describe the main techniques of network switching, routing and addressing</i> • <i>To locate different network functionalities in the OSI model</i> • To identify different network configurations • <i>To evaluate and compare different network configurations</i> • <i>To identify, evaluate and compare different solutions of information exchange and transfer through long-haul network binding</i>
S16 Installation and configuration techniques of a local area network	<ul style="list-style-type: none"> • <i>To take part in the elaboration of technical contract conditions</i> • <i>To master the installation and configuration procedures of a local area network</i>

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U4	SOFTWARE ARCHITECTURE OF COMPUTING SYSTEMS	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	124	8	8

Tuition language : French

CONTENT	EXPECTED ABILITIES
S21 Operating system of a workstation Fundamental principles : Process management Storage device management File management Input and output management Language and interface of command	<ul style="list-style-type: none"> To explain the basic functioning principles of a single-user operating system To use the commands of a single -user operating system To master the graphic interface of a workstation To modify a workstation's configuration To install an operating system
S22 Multiuser and network operating system Process management Resource management User management Command language	<ul style="list-style-type: none"> To explain the basic functioning principles of a multiuser and/or network operating system To implement the commands of a multiuser and/or network operating system To interpret connection scripts
S23 Techniques of network administration <i>Network management, administration of the equipment base, downloading</i> <i>Administration of software and licences, remote distribution</i> <i>Maintenance, supervision, remote diagnosis, remote maintenance</i> <i>Metrology and security, integrity of saved data</i>	<ul style="list-style-type: none"> Local network administration To assure the security of a local area network To assure the administration of equipment and software base To assure the supervision and the maintenance of a local area network To install the operating system of a network
S24 File management system Physical data layout File organization Access mode Index organization Data dispatch	<ul style="list-style-type: none"> To identify, evaluate and compare different organization and layout techniques of data To choose access mode for a file To identify management procedures of an index
S25 Relational database management system Data definition language Restriction definition language Data handling language Relational algebra, interactive SQL and QBE Data dispatch techniques distribution, replication Access right definition language Database management : protection, security, save, restoration, management of concurrent's access, journalization, parametrizing	<ul style="list-style-type: none"> To establish, consult, interrogate, update a relational database To install a system of relational database management To manage an undivided database and assure the security To check off, evaluate, compare existing commercial solutions
S26 Client-server architecture Client-server models Client applications, interface programming, « middleware », applicable services <i>Norms and protocols</i>	<ul style="list-style-type: none"> To identify software components of a client-server architecture To locate the characteristics of client-server applications To characterize norms and protocols that intervene in a client-server solution To install and implement a client-server solution
S27 Office automation tools and software Word processor Spreadsheet program Graph program Computer aided presentation software Communication software for Minitel emulation , electronic messaging, navigation on national and international networks, transfer, conversion, compression, file decompression, remote control Data exchange between software Application merger with database Information sinking	<ul style="list-style-type: none"> To inventory, evaluate and compare office automation software used in the solution of management problems To handle a software guided by technical documentation To use a word processor, spreadsheet program, graph program, computer aided presentation software and a communication software or a integrated software To install a software and put it at the user's or the group of user's disposal To train people in how to use a software To personalize software by parametrizing or by creation of macrocommanded programs To use a remote control program To master the use of principal telecommunication tools

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
	COMPUTER APPLICATION DEVELOPMENT AND SOFTWARE ENGINEERING	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	217 1°	10	7

Tuition language : French

CONTENT	EXPECTED ABILITIES
<p>S32 Analyse and design of software systems : methods and tools Levels of abstraction Design methods standard structures and models methods and languages tools medium Communication modelling actor-flow model, context model data-flow diagram Data modelling data dictionary entity-association model relational model connection normalization <i>Processing modelling</i> <i>organizational models</i> Software engineering workshop for design</p>	<ul style="list-style-type: none"> To identify different representation levels of information systems To represent the communication and the data of information system To <i>interpret an organizational model of processing or a model of technical architecture</i> To identify different implementation stages of design and interpret the results
<p>S33 Breadboarding design of computer applications and event programming Man-machine interfaces (IHM) Presentation norms, ergonomics Event programming Functionality of the tools of application generation</p>	<ul style="list-style-type: none"> To create graphical interfaces with rapid development tools
<p>S34 Design and development of client-server applications Methods and tools</p>	<ul style="list-style-type: none"> To develop applications with a generator
<p>S35 Application design and development with a procedural programming language Algorithmic elementary actions and objects type notion control structures modules, procedures, functions tables, writings, files dynamic data structures Programming study of procedural language types elementary instructions input-output management control structures data structures subprograms parameter passage global and local variables Method and tools of development structured analyse and programming methods editor, compiler, debugger function library Breadboarding generator of screen and state</p>	<ul style="list-style-type: none"> To analyse the logic of an algorithm and/or a program To master the basic instructions of a procedural programming language To identify and describe the role of different components in a development environment

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U5	COMPANY MANAGEMENT AND ORGANIZATION OF INFORMATION SYSTEMS	FORMAL COURSES, CLASS WORK AND PRACTICALS	CONTINUOUS TESTS	93	5	7

Tuition language : French

CONTENT	EXPECTED ABILITIES
<p>S41 Management systems Accounting information system Management information system Cost and performance Decision-making assistance</p>	<p>Expected abilities concerning the implementation of common management software package.</p> <ul style="list-style-type: none"> To characterize the engineering and functioning logic of an accounting information system To identify the essential components of synthesized accounting documents To characterize the engineering and functioning logic of a company's management system To identify the objectives and restrictions of following application fields : accountancy and finance, commercial. To identify the users of a management system and the nature of their needs To analyse and evaluate the functionality of the main types of management software packages To calculate the cost of a product, a service, a function, an activity etc, and estimate the relevance of the reserved calculation method To measure the performance of a responsibility center To establish a service's budget To take part in the design of a company's performance indicators and interpret them To evaluate a product's or an activity's estimated profitability To evaluate an investment's profitability To compare the various methods of investment financing To establish a project's financing program
<p>S42 Company and technology organization of associated information Organization structures and new technologies Electronic data Interchange (EDI), electronic message server, electronic management of documents, message handling, value-added network (RVA), « data highways », multimedia</p>	<ul style="list-style-type: none"> To characterize new technologies of information, identify the user's activity fields of these technologies and the type of need to satisfy To identify organizational characteristics of a company and evaluate the implemented information technologies' equivalence
<p>S43 Methods and tools of management Project management and planning Implementation of method, respect of restrictions, quality control Management of computerization process Quality management Information and documentation Monitoring of technological evolution</p>	<p>Expected abilities involve implementation of common management software packages.</p> <ul style="list-style-type: none"> To identify and characterize different stages of computerized project management To elaborate a diagram and/or a tracking graph To control the progress of a computerization project (time-limit, cost, quality) To identify objectives and restrictions concerning the management of a computer base (equipment, software, office requisites and consumables), take part in this management To identify, evaluate and compare different computerization methods of a function, a service To determine objectives and restrictions when it comes to quality policy of data processing To propose and measure quality criteria (technical and functional) To measure the impact of quality and non-quality, in particular when it comes to costs To collect, choose and operate information from different medias To implement a management tool for documentation
<p>S44 Computer security device Objectives and stakes Typology of computer risks Main techniques of security</p>	<ul style="list-style-type: none"> To implement an « antivirus » software To evaluate all or parts of a computer system's security and implement security systems To take part in the creation of a contingency plan To locate security problems due to the access to electronic data interchange networks

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)	CREDITS PER YEAR (2nd year)
U6	PROFESSIONAL ACTIVITIES	PRACTICALS		93	5	7

Tuition language : French

OBJECTIVES

The professional activities are mainly based on needs recorded by the professional environment which is linked to the training, and therefore form a preferential framework for the professionalization. The activities provide skills with regard to actual restrictions. On the one hand they allow a joint between theoretical provision and practical achievements, and on the other hand integration of knowledge and know-how specific for each training in concrete, coherent and significative activities of the concerned employment.

CODE OF COURSE	TITLE	TYPE OF TUITION	EVALUATION	HOURS OF COURSES PER YEAR	CREDITS PER YEAR (1st year)		CREDITS PER YEAR (2nd year)
	PROFESSIONAL WORKPLACEMENT or PROJECT	FIELD WORK PROJECT WORK	WORKPLACEMENT EVALUATION WRITTEN WORK	9 weeks X 35 = 315 h	1 st semester 4	2 nd semester 8	3 weeks in January 12

OBJECTIVES

The professional workplacements should allow the student to :

- apprehend the realities of a company and to perceive the diversity
- implement, skills of communication, analyse, organization and management, in the company's activity framework,
- acquire, operational skills within the field of computerized management in general, and more specifically, skills listed in the chosen option's system of reference, by simulating a real situation,.

PRACTICAL DETAILS

A – Practical details

The workplacements take place within companies or other organizations (trading, financial, industrial, public or private companies, liberal professions, associations, civil service, etc), in France or abroad, in units where the activity concern computerized management or require it's services.

The workplacements are supervised by the academic authorities related to the candidate and, when it comes to workplacements abroad, the department of the French culture counsellor of the host country.

B – Duration of professional workplacements

Normal duration	12 weeks
Minimal required duration in case of a décision de positionnement	8 weeks⁽¹⁾

ECTS CREDITS PER YEAR

(1st and 2nd YEAR COMPUTERIZED MANAGEMENT BTS)

NUMBER OF COURSES	COURSE	NUMBER OF HOURS		NUMBER OF ECTS CREDITS ASSIGNED PER COURSE PER YEAR 1 ST YEAR			NUMBER OF ECTS CREDITS ASSIGNED PER COURSE PER YEAR 2 ND YEAR
		Course/ week TP and TD (a) / week	Course (number of hours in a year)		Total (courses+TP and TD a week)	Course (number of hours in a year)	
U1	FRENCH LANGUAGE	3 (1+2)	88	4	2(0+2)+0	42	3
U2	MATHEMATICS	3 (1+2)+0	88	4	3 (2+1)+0	63	4
U 1.2	APPLIED ENGLISH LANGUAGE	3 (2+1)	88	4	2 (0+2+0)	42	3
U3	ECONOMICS LAW	5 (4+1+0)	140	7	5 (4+1+0)	105	7
U4	COMPUTER SCIENCE AND MANAGEMENT :						
	Hardware architecture of computing systems	3 (2+0+1)	88	5	4(1+0+3)	84	5
	Software architecture of computing systems	4 (2+0+2)	112	6	6 (2+0+4)	126	8
	Application development and software engineering	7 (4+0+3)	196	11	4 (2+0+2)	84	5
	Company management and organization of information systems	3 (2+1+0)	88	5	3 (2+0+1)	63	4
U6	Professional activities		3 88	4	4 (0+0+4)	84	5
	Internship		210	10		320	16
TOTAL NUMBER OF ECTS				60			60

(a) TP : Practicals
TD : Class work