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Philadelphia University

Faculty of Information Technology

Department of Computer Science

Undergraduate Programme Handbook
(2011 – 2012)

Date: December 2011

Contents

This handbook, which is also available on the web, contains important general information for students undertaking Undergraduate Degree programme in the Department of Computer Science. It includes information about the Degree Programme in the Department but not descriptions of individual course units (modules). Details of the modules you may take are given in a separate document called Undergraduate Course Catalogue. An electronic version can be consulted on the Department Web site at
www.philadelphia.edu.jo/it-cs.asp.

Your degree program is subject to regulations contained in the **University Students Guide**. This departmental handbook interprets the regulations and your tutors may give advice, but the University Students Guide defines the regulations.

1. GENERAL INFORMATION

1.1 Mission Statement

The mission of Computer Science Department is derived from the over all IT Faculty and University missions. The Computer Science Department at Philadelphia University was founded in 2003 after closing the department of Computer and Computer Information Systems. The Department is committed to provide an opportunity to students with varied entry qualifications to obtain relevant and well rounded education, through the provision of a high quality Degree programme, which is well resourced and is supported by a good quality research. Its mission is to pursue outstanding teaching and to provide high quality learning in pure and applied computer science. The Department has one of the largest and most comprehensive computer science undergraduate programs in Jordan. It intends to produce its graduates as competent computer science practitioners who have a solid foundation of basic and fundamental knowledge and experience in applying the existing IT to contemporary problems. The Department aims to maintain an environment that promotes innovative thinking, values mutual respect and diversity, encourages and supports scholarship, instils ethical behaviour, and engenders life-long learning. The strategies of the Department are set to meet the demands of a rapidly evolving world, and to meet the needs of a developing job market in Information Technology. This program well addresses the analytic skills required by students to develop their abilities in research and to proceed for postgraduate study.
In addition, the Department creates opportunities for students to understand and gain competence as a computer science practitioner.

1.2 Key Academic Staff

Dean of the Faculty
Dr. Khaldoun Batiha kh_batiha@philadelphia.edu.jo

Vice Dean of the Faculty
Dr. Nameer El Emam nemam@philadelphia.edu.jo

Head of Department
Dr. Nameer El Emam nemam@philadelphia.edu.jo

1.3 Tutors

As soon as you are enrolled in the Department, a tutor will be assigned for you. This tutor is one of the academic staff members in the Department who will guide and help you throughout your stay in the Department.

1.4 Registration

Admission criteria are issued by the Higher Education Council, which governs all private universities (60% in the Tawjihi exam, the scientific branch). First year students must attend the University and they will be given a full timetable for the introductory activities. Departmental and University registration must be completed at the time specified in the introductory timetable. Returning students must also register in the times specified during introductory week. You may consult the University calendar at the web page www.philadelphia.edu.jo/arabic/event.asp.

1.5 Timetable

Lectures timetable is published separately from this book and is available on the University web site. Whilst every attempt is made to timetable reasonable combinations of course units (modules), various constraints make some combinations and outside options impossible. If you have a timetable problem, please consult your personal tutor in the first instance.

1.6 Use of Notice Boards

Official notices are posted on the Department notice board and on the Faculty general notice board on the third and fourth floors of the Faculty. Notices are often also posted on the University web site. Electronic mail is also used extensively for communication with the Department and University. Each lecturer provides the students with his/her e-mail at the beginning of the term. Most official information including copies of this handbook, the undergraduate course catalogue, and timetables are available on the Computer Science Web pages www.philadelphia.edu.jo/it-cs.asp. This includes directories of staff and students for internal use, completed with photographs.

1.7 Health and Safety in the University

The University has a Health and Safety Committee, which comprises representatives of all services within the University. It is the responsibility of this committee to investigate complaints and potential hazards, examine the cause of all accidents, and carry out periodic inspections of all areas of the University. At registration you will be required to assent to the University code of behaviour which relates to health and safety in the University buildings as well as the responsible use of Computer equipment as required by the Department of Computer Science.

1.7.1 Buildings

The Department comprises two kinds of buildings: Class Rooms and IT Laboratories. The buildings are generally open between 08.00 and 19.30 (Sunday – Thursday). In accordance with University policy, smoking is prohibited throughout all buildings.

1.7.2 Emergency Evacuation

It is the responsibility of every individual to familiarise themselves with the Faculty's buildings and be aware of the fire exits (which are clearly marked).

- After evacuation of any building please assemble well away from the building and do not block any exit.
- Do not return to any building until authorised to do so.

1.7.3 Fire Action

Fire Action notices and important telephone numbers are located at all floors of the Faculty and all staff and students should make themselves acquainted with this routine.

On hearing the continuous alarm you should evacuate the building immediately by the nearest exit.

1.7.4 Operating the Fire Alarm

The manual fire alarm system can be activated by breaking the glass in the red contact boxes sited at strategic points throughout the premises.

1.7.5 Use of Fire Appliances

Fire appliances are sited at strategic points throughout the Faculty to deal with fires. Fires should only be tackled provided there is no personal danger and after the alarm has been set off.

1.7.6 First Aid

If any thing happened to you, you can get first aid from the health center located near the Nursing Faculty.

1.7.7 Personal Difficulties

Please inform the head of Department or your tutor of any difficulties with which the Department can be of assistance.

2. PROGRAMME OVERVIEW

2.1 Aims and Learning Outcomes of the Programme

The Department offers the degree of BSc Computer Science (in 4 years). The Department, being the first among many Computer Science programs in Jordan, with its excellent teaching quality, provides a very rich learning environment for undergraduates. Sections 2.1.1 and 2.1.2 details the aims and learning outcomes of this programme, respectively.

2.1.1 Aims

Computer Science program at Philadelphia University gives you the opportunity to:

- Enable you to develop your capacity to learn and participate in society as competent professionals;

- Prepare you for the world of work and develop self-confidence and problem solving abilities;
- Develop among students the awareness of the social, organizational, and professional context in which you will be working;
- Be a graduate who will be able to contribute to and take active part in a variety of industrial, commercial, and academic activities;
- Be a graduate who exhibits a range of broad based skills and activities related to Computer Science;
- Be a graduate who can adapt to changing technology and have the ability to recognize technological and human trends;
- Be a graduate who meets the industry standard in Computer Science and have experience in the use of general tools and technologies used in the design and implementation of software;
- Provide different study opportunities, which are comparable with national, and international academic qualifications;
- Engender among students the spirit of research and enquiry through suitable mechanism such as departmental research;
- To develop transferable skills such as verbal and written communication, teamwork leadership, etc.

2.1.2 Learning Outcomes

Learning outcomes describe what you should know and be able to do if you make full use of the opportunities for learning that we provide. All these skills are described in the following areas (A, B, C, and D). In the individual module syllabi, the categories of learning outcomes (A, B, C, and D) and the individual learning outcomes appropriate to the module are identified.

A- Knowledge and Understanding

A1) Know and understand the essential mathematics relevant to Computer Science.

A2) Understand and apply a wide range of principles and tools available to the software developer, such as design methodologies, choice of algorithm, language, software libraries and user interface techniques.

A3) Know and understand the principles of various current applications and research areas of the subject including artificial intelligence, databases, software engineering, net-centric, and distributed systems.

A4) Know and understand a wide range of software and hardware used in development of computer systems.

A5) Recognise the professional and ethical responsibilities of the practising computer professional including understanding the need for quality, security, and computer ethics.

B- Intellectual (thinking) skills - able to

B1) analyse a wide range of problems and provide solutions related to the design and construction of computer systems through suitable algorithms, structures, diagrams, and other appropriate methods.

B2) identify a range of solutions and critically evaluate them and justify proposed design solutions.

B3) design and implement practical software systems.

B4) practice self-learning by using the e-courses.

C- Practical skills - able to

C1) Plan and undertake a major individual / group project in the areas of computer science.

C2) Prepare and deliver coherent and structured verbal and written technical reports.

C3) Give technical presentations suitable for the time, place, and audience.

C4) Use the scientific literature effectively and make discriminating use of Web resources.

C5) Design, write, and debug computer programmes in appropriate languages.
C6) Use appropriate computer-based design support tools.

D- Transferable skills - able to

D1) Display an integrated approach to the deployment of communication skills.
D2) Use IT skills and display mature computer literacy.
D3) Work effectively with and for others.
D4) Strike the balance between self-reliance and seeking help when necessary in new situations.
D5) Display personal responsibility by working to multiple deadlines in complex activities.
D6) Employ discrete and continuous mathematical skills as appropriate.

In order to provide students with the "life long learning" attitude, the teaching method is essentially based on self learning (3 hours in class rooms and 6 hours out of class rooms: coursework, practical works, workshops, seminars, etc.)

2.2 Overview of the Programme Structure

The system of study at Philadelphia University is the courses system that depends on the credit hours. Each academic year consists of two semesters and an optional semester (the summer semester). An individual course of lectures is known as a "**course unit**" or a "**module**". Each module has one or more prerequisite modules. The curriculum contains modules that are from University Requirements, Faculty Requirements, Department Requirements, and Supportive Requirements. Each module has 3 credit hours per week. However, some modules are supported by tutorials and some continuous assessment, such as seminars or laboratory work, usually amounting to 1 hour per week.
You are required to successfully complete 46 modules (132 credit hours), summarised as follows:

- 9 modules (University requirements) (27 credit hours) (19.57 %)
- 8 modules (Faculty requirements) (24 credit hours) (17.39 %)
- 18 modules (Departmental Compulsories) (48 credit hours) (39.13 %)
- 2 modules (Departmental Electives) (6 credit hours) (04.35 %)
- 9 modules (Supportive Compulsory modules)(27 credit hours) (19.57 %)

These modules are listed in the following sections. The information given here is extracted from the Programme Specifications for the degree programme. The specifications are published separately, they can be found on the Department web site at www.philadelphia.edu.jo/it-cs.asp
Also, the description of each module can be found in the Undergraduate Course Catalogue on the web site at www.philadelphia.edu.jo/it-cs.asp

2.3 Module Organisation

2.3.1 Credit Rating

In the courses system, there are no pass requirements from one year of study to another. However, the total number of your successfully completed credit hours is only used to classify you in the corresponding year of study as shown below:

First Year	less than 30 credit hours
Second Year	between 30 and 59 credit hours
Third Year	between 60 and 89 credit hours
Fourth Year	between 90 and 132 credit hours

When you register for modules, you should follow the academic guidance plan that the Department arranges for you. In fact, you can register on any module only if you have taken its prerequisite(s) with the exception that you can register on the module and its prerequisite only if you are in the graduation semester.

In each semester, you can register for at least 12 credit hours and at most 18 credit hours, except for the semester in which you are expected to graduate when you can register for 21 hours. The complete four years academic guidance plan is listed in **Appendix A** of this Handbook.

The Department covers the Computer Science programme from the following areas:

1.	Programming (PL)
2.	Algorithms and Computation Theory (ACT)
3.	Computer Architecture and Organisation (ARO)
4.	Networking (NW)
5.	Intelligent Systems (IS)
6.	Information Systems and Applications (ISA)
7.	Statistics and Numerical Analysis (SNA)
9.	Project / Training (PT)

The taught modules in each area are shown in Table (1), where each module is identified by a module number that consists of six digits according to the University numbering scheme. For example, the number of the module "Concepts of Programming Languages" is 750321. The numbering scheme is described in Figure (1).

Figure (1) Module Coding and Numbering Scheme

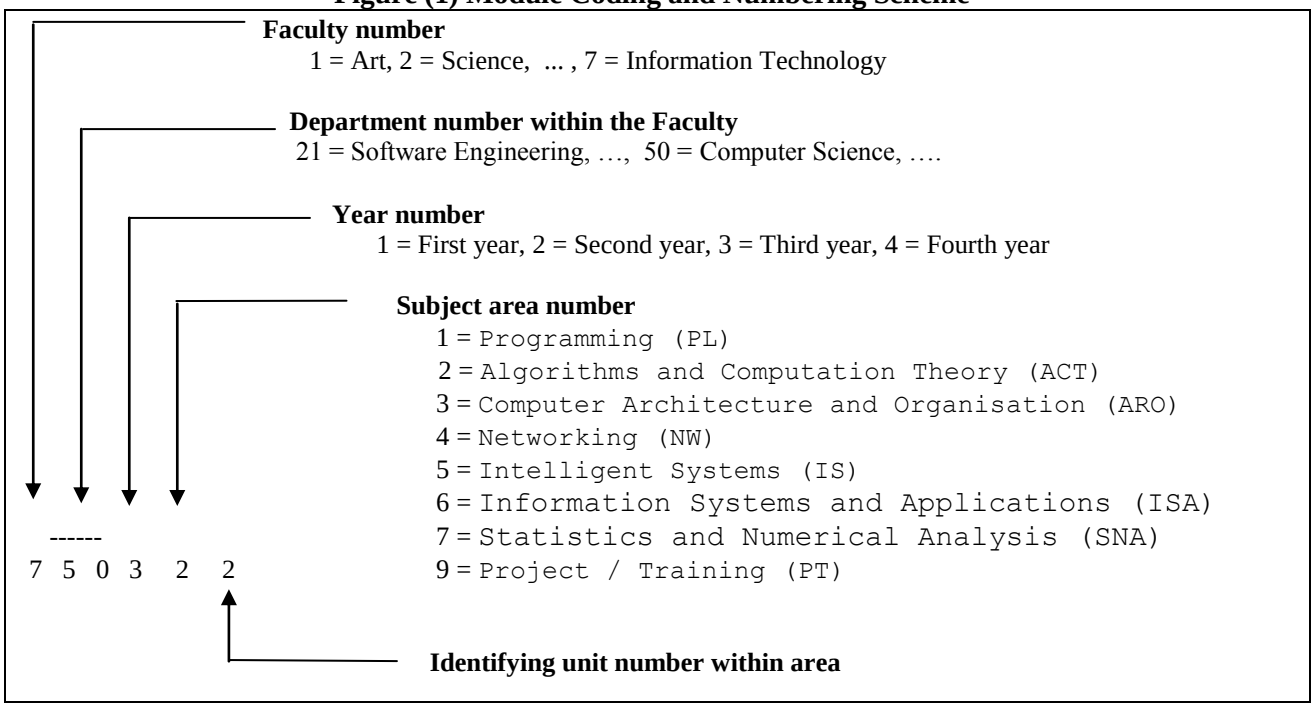


Table (1) Taught Modules in The Different Areas

A – The Compulsory Specialisation Modules		B- The Elective Specialisation Modules	
1. Programming (PL)		*1.* Information Systems and Applications (ISA)	
0750113	Programming Fumdamental(1)	0761430	Information retrieval
0750114	Programming Fumdamental(2)	0761434	Data mining
0761220	Visual Programming	0750460	Special Topics
0731213	Introduction to Web Programming		
0721220	Object Oriented Programming		
0750413	Concurrent and Distributed Programming *		
2. Algorithms and Computation Theory (ACT)		*2.*. Statistics and Numerical Analysis (SNA)	
0750223	Theory of Computation	0750474	Digital Image Processing
0750321	Concepts of programming languages		
0750322	Design and Analysis of Algorithms		
0750324	Compiler construction		
0721221	Object Oriented Data Structures *		
0250104	Discrete Structures		
3. Computer Architecture and Organisation (ARO)			
0750231	Logic Circuits Design		
0750233	Computer Organization and Design		
0750332	Computer Architecture		
0750333	Principles of Operating Systems		
0750434	Advanced Operating Systems		
4. Networking (NW)			
0750444	Information and Computer Networks Security		
0761340	Fundamentals of Computer Networks		
0761441	Wireless and Mobile Computing		
5. Intelligent Systems (IS)			
0750350	Intelligent Systems		
6. Information Systems and Applications (ISA)			
0750362	Database applications programming *		
0761235	Database Fundamentals *		
0731321	Systems Analysis and Design		
0721110	Introduction to Software Engineering		
0721240	Computing Ethics		
0731110	Introduction to Information Systems and Technology		
7. Statistics and Numerical Analysis (SNA)			
0250101	Differentiation and integration(1)		
0250231	Introduction to Statistics and Probabilities		
0750272	Numerical Analysis		
0750472	Modeling and simulation		
9. Project / Training			
0750399	Practical Training		
0750497	Research Project 1 *		
0750498	Research Project 2 *		

2.3.2 Modules Availability

The modules described here and in the Undergraduate Course Catalogue are those modules we expect to offer in the coming year. However modules may be cancelled if they are chosen by too few students or for other necessary reasons. The portfolio of modules is reviewed every year and the availability of a particular module in the coming year is not a guarantee of availability in subsequent years.

2.4 Programme Structure

The BSc Computer Science programme offers the opportunity for students to choose a study pathway which reflects their own changing and developing interests. It aims to develop strengths in both the principles and practice of Computer Science, and gives the opportunity for extensive practical work.
A graduate of this degree programme should have a good understanding of the architecture of hardware and software systems and the process of system design and will meet all the general aims of programme listed in section 2.1.1.

2.4.1 Module Choices

You may choose a module if you have already taken all its prerequisite modules and your personal tutor must supervise this choice. An initial choice is made before or at Departmental Registration.
You can choose modules according to the level of the modules as follows:

- **First Year**

In the First Year, you are encouraged to take 12 compulsory modules, 6 modules (18 credit hours) in each semester (first and second, the summer term is not taken into account). During each 16 weeks semester, you will normally attend 6 modules. Thus, each teaching week contains 18 hours or more of scheduled work. In addition, each scheduled hour typically requires two extra hours of unscheduled work (e.g. writing up lecture notes, preparing for a tutorial, finishing off a laboratory exercise etc.).
Five of the 12 modules of the first year are from the University requirements (UR), **two** from the Faculty requirements (FR), **three** from the supportive requirements (SR), and **two** from the Department requirements (DR) as shown below:

Year	Semester	Module Number	Module Title	Prerequisites	Type of Requirements
First	**First (18 Credit Hours)**	0110101	Arabic Language Skills (1)	------	(UR)
		0130101	English Language Skills (1)	------	(UR)
		----	University Elective (1)	------	(UR)
		0750113	Programming Fundamentals (1)	------	(FR)
		0250101	Differentiation and integration (1)	------	(SR)
		0731110	Introduction to Information Systems and Technology	------	(FR)
	Second (18 Credit Hours)	0111101	National Education	------	(UR)
		----	University Elective (2)	------	(UR)
		0750114	Programming Fundamentals (2)	0750113	(FR)
		0250104	Discrete Structures	----	(SR)
		0721110	Introduction to Software Engineering	0750113+0731110	(SR)
		0750231	Logic Circuits Design	-------	(DR)

- **Second Year**

In the **Second Year,** the number and size of modules is similar to that of the first year. **One** of the 12 compulsory modules of the second year are from the University requirements, **five** from the Faculty requirements, **one** from the supportive requirements, and **five** from the Department requirements as shown below:

Year	Semester	Module Number	Module Title	Prerequisites	Type of Requirements
Second	First (18 Credit Hours)	0721240	Computing Ethics	0731110	(FR)
		0721220	Object-Oriented Programming	0750114	(FR)
		0731213	Introduction to Web Programming	0750114	(FR)
		0250231	Introduction to Statistics and Probabilities	---	(SR)
		0750223	Theory of Computation	0250104	(DR)
		0750272	Numerical Analysis	0250101+0750114	(DR)
	Second (18 Credit Hours)	0721221	Object Oriented Data Structures	0721220+0250104	(SR)
		0761235	Database Fundamentals	0721220	(SR)
		0750233	Computer Organization and Design	0750231	(DR)
		0130102	English Language Skills (2)	0130101	(FR)
		0761220	Visual Programming	0721220	(FR)
		------	University Elective (3)	-----	(UR)

- **Third Year**

In the Third Year, you should take six modules in the first semester and five modules in the second semester. **Eight** modules are from the compulsory Department Requirements, **one** departmental elective module, **one** module from the University requirements and **one** module form the Faculty requirements. One of the compulsory modules is the **Practical Training module**, which consists of realizing a supervised training in an industrial organization, or using distance online training. You should take this module in the first semester.
Note that the elective modules offered by the Department that you could select during the third and fourth years would help you to choose a particular path of interest to you, e.g. intelligent systems, Computer Networks, etc.

Year	Semester	Module Number	Module Title	Prerequisites	Type of Requirements
Third	First (15 Credit Hours)	0731321	Systems Analysis and Design	0721110	(SR)
		0750321	Concepts of programming languages	0721221	(DR)
		0750322	Design and Analysis of Algorithms	0750272+0721221	(DR)
		0750332	Computer Architecture	0731110+0750233	(DR)
		----	University Elective (4)	-----	(UR)
	Second (15 Credit Hours)	0750350	Intelligent Systems	0721221+0250231	(DR)
		0761340	Fundamentals of Computer Networks	0721221	(SR)
		0750333	Principles of Operating Systems	0750332	(DR)
		0750399	Practical Training	90h	(DR)
		0750362	Database applications programming	0761235	(DR)
		0750324	Compiler construction	0750223	(DR)

- **Fourth Year**

In the **Fourth Year,** you should take nine modules. In the first semester, you must select **one** departmental elective module, the Graduation Project module, and **two** compulsory modules that are all from the Department requirements. In the second semester, you must take **one** University elective module and **four** modules from the compulsory Department Requirements as shown below. The selection of a University elective module (one module) depends upon your choice.

Year	Semester	Module Number	Module Title	Prerequisites	Type of Requirements
Fourth	First (13Credit Hours)	0750434	Advanced Operating Systems	0750333	(DR)
		0750472	Modelling and Simulation	0750272	(DR)
		0750497	Research Project 1	90h	(DR)
		----	Department Elective (1)	--	(DR)
		-----	University Elective (5)	--	(UR)
	Second (17 Credit Hours)	0750413	Concurrent and Distributed Programming	0761220	(DR)
		0761441	Wireless and Mobile Computing	0761340	(SR)
		0111100	Military Sciences(Or UE Non- Jordanians Students)	----	(UR)
		----	Department Elective (2)	----	(DR)
		0750444	Information and Computer Networks Security	0761340	(DR)
		0750498	Research project 2	0750497	(DR)

2.4.2 Modifying Module Choices

After setting your plan and register on modules as described in section 2.4.1, you can make changes on your choices as follows:

- In each semester, one week after lectures start (three days for summer semester), you can add or withdraw modules. Normally, no changes of modules will be permitted after these dates except for the withdrawal mentioned below.

- In the first instance, you should discuss any plan to change modules with your primary tutor. You must check that the new module you wish to take is a valid option for your degree program and find out if there are likely to be any timetable problems. If there are timetable clashes this will probably prevent you from changing module.

2.4.3 Programme Characteristics

The following are the main characteristics of the programme:

- ***Elaboration on Content and Emphasis of Practical Components of Modules.*** Most of the modules contain practical work that makes you use current software tools and computing technologies. Thus, the practical part of modules accounts for at least 25% of the total number of hours. Many laboratory assignments are given during the semester through which you can practice what you have learned from the theoretical part of the module, or develop your skills in using most recent software tools and programming languages. For example, the practical works in "Programing Fundamental (1) and (2)", "Visual Programing", and "Object-Oriented Programing" modules emphasis on problem solving via Visual C++, C#, and Java languages. However, the practical work in Operating System module is concerned with inter-process communication, while in Computer Networking it is concerned with client server applications

and simulation of OSI protocols. Besides the necessary stress on practical components in various modules, you also undergo practical training and undertake Research project (1) and (2). These three combined help you to get the necessary professional exposure required in the industry domain.

- ***Supervised Work Experience (Practical Training Module).*** This attends to the Practical Training module in year 3. This module adds a new flavour to the coursework you have to go through before earning the degree. In order to ensure that practical training has rigorous implementation that complies with University Code of Practice, we have set up some important regulations to emphasize the educational value of the training. The Department and Faculty Councils approve these regulations**.** You are placed in industry and work two days per week at the work place. Your training is jointly supervised by industry and University supervisors. The supervision is through visits and liaison.

- ***Research Project (1), and Research Project (2) Modules:*** The Final Year Projects are important integrative modules, which invite you to apply your knowledge, skills, and academic ability to a specific problem. The project demands skills in researching materials, verbal and written communications and encourages you to tackle problems, which simulate industrial situations.

3. TEACHING, LEARNING AND ASSESSMENT

3.1 Work and Attendance

The University regulations governing the Work and Attendance of students are given in the Student Guide. Full attendance is required at all lectures, laboratories, and any tutorials, which may be scheduled. Completed laboratory work should be handed in on time. Attendance at laboratories and at many lectures is monitored and attendance registers kept. Please note that the expectation is that you will be required to undertake approximately thirty six hours per week of study i.e. an average of two hours private study will be required for every scheduled hour of lectures, laboratories etc. and some of you may require much more time than this. Being a full time student means that your attendance is mandatory and absence for holidays is not permitted in term-time. The experience of the Department confirms that lack of attendance leads to study problems and if you have problems you should consult your subject tutors or personal tutor. In addition, failure to attend can result ultimately in refusal by the University to allow you to sit in the degree examinations. The duty of the lecturer is to keep continuous review of the work and attendance of the students with whom he/she is concerned. If the rate of your absences in a module is greater than 15% (or 20% for student representing the University in sportive or cultural activities) of the completely accredited hours and you have no acceptable justification, then you are excluded from that module. If the Dean of the Faculty accepts the justifications of absence, then you are mentioned as ***withdrawn*** without refunding the registration fees. A formal process is defined to tackle the problem of any student whose work and attendance appear unsatisfactory. Direct approaches by lecturer to solve the problem are as follows: He/she may choose to issue an "informal" warning, which has a precisely defined format and permits recovery of the situation. If this is unsatisfactory, a "formal" warning is issued. This is again of a precisely defined format. Failure to recover the situation at this stage leads to an exclusion from the course. A copy of this correspondence is held in a student's file.

3.2 Assessment

3.2.1 Examinations

In each semester, there are two 1-hour mid term exams and one final 2-hours exam (at the end of the semester). For the mid term exams, the lecturer returns to you, after one week of the examination time, your corrected answer sheet marked with some feedback for you to check. Whereas the final exam is unseen exam and you can obtain your marks from the Admission and Registration Office or directly from the University web site at most after 72 hours of the examination time.

At the end of each semester, the timetable of the final exam of the next semester is set by the Admission and Registration Office to help and guide you in choosing your modules for the next semester. The two mid term exams are set by the Department and the syllabus of each module contains their timetable. The lecturer of the module will also inform you about this timetable in the first lecture of the semester.

For the research project (2) module, you should submit your final project report to the Department in the fourteenth week of the semester. In the fifteenth week, a committee will assess your project work, report, and presentation.

3.2.2 Role of Internal and External Examiners

For each module, the Department assigns a module coordinator and an internal examiner who is one of the senior staff members. If many lecturers teach the same module concurrently, they should suggest exam questions (for the first, second and final exams) and run the same exam for all sections. The main coordinator of the module will collect these questions from lecturers and select some of them to be in the exam paper. The internal examiner moderates the exam paper.

On the other hand, external examiners validate the standard of degree program. The external examiners are expected to look at the question papers, inspect a selection of scripts and project reports (particularly those on borderlines). They supply an assessment report to the Department.

3.2.3 Criteria for Assessing Examination Work

First class (90 – 100 marks)*:* First class answers demonstrate depth of knowledge or problem solving skills, which is beyond that expected from a careful and conscientious understanding of the lecture material. Answers will show that you

- have a comprehensive knowledge of a topic (often beyond that covered directly in the program) with an absence of misunderstandings;
- are able to apply critical analysis and evaluation;
- can solve unfamiliar problems not drawn directly from lecture material and can adjust problem solving procedures as appropriate to the problem;
- can set out reasoning and explanation in a logical, incisive and literate style.

Upper Second Class (80 – 89 marks)*:* Upper second class answers provide a clear impression of competence and show that you

- have a good knowledge base and understanding of all the principal subject matter in the program;
- can solve familiar problems with ease and can make progress towards the solution of unfamiliar problems;
- can set out reasoning and explanation in a clear and coherent manner.

Lower Second Class (70 – 79 marks): Lower second class answers will address a reasonable part of the question with reasonable competence but may be partially incomplete or incorrect. The answer will provide evidence that you

- have a satisfactory knowledge and understanding of the principal subject matter of the program but limited to lecture material and with some errors and omissions;
- can solve familiar problems through application of standard procedures;
- can set out reasoning and explanation which, whilst lacking in directness and clarity of presentation can nevertheless be followed and readily understood.

Third Class (60 – 69 marks): Third class answers will demonstrate some relevant knowledge but may fail to answer the question directly and/or contain significant omissions or incorrect material. Nevertheless, the answer will provide evidence that you

- have some basic knowledge and a limited understanding of the key aspects of the lecture material;
- can attempt to solve familiar problems albeit inefficiently and with limited success.

Pass (50 – 59 marks). Answers in this category represent the very minimum acceptable standard. Such answers will contain very little appropriate material, major omissions and will be poorly presented lacking in any coherent argument or understanding. However the answer will suggest that you

- have some familiarity with the general subject area;
- whilst unable to solve problems, can at least formulate a problem from information given in a sensible manner.

3.2.4 Appeal Procedures

If you have good reason to question a mark you have been given (in midterm exams or in coursework), you should in the first instance approach the module lecturer. If the problem is not solved, you must submit it to your primary tutor. He/she will find the appropriate solution with administrative structures.
Problems with final examinations are resolved by submitting complaints or appeals in writing (within three days of the announcement of examination results) to the Department. Such requests are forwarded to the Examination Committee of the Faculty. The Department and the examination committee will consider these cases and checks if there is any mistake in the summation of the marks and so on.

3.2.5 Unfair Practices

The University treats attempting to cheat in examinations severely. The penalty is usually more severe than a zero in the paper concerned. More than one student were dismissed from the University because of this. Plagiarism, or copying of course or lab work, is also a serious academic offence as explained in the University guidelines. In Computer Science Department these guidelines apply also to laboratory exercises.

3.2.6 Department Guidelines on Plagiarism

1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.

2. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in

examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.

3. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.
4. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.
5. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.
6. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.
7. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

3.3 Assessment Regulations

Most modules have some continuous assessment, such as assignments, essays, tutorials, laboratory exercises, seminars, and examinations. Assignments and any coursework must be submitted by the due dates and any submission after these dates will not be assessed. The proportions of coursework and examination are set out in the detailed syllabus for each module.

The examination and continuous assessment marks are combined to form a single mark out of 100 for each module. This mark is divided as follows: 60% of the total mark is given for two 1-hour midterm exams, coursework and/or seminars, projects, or essays, and 40% for the final exam that may be a written exam only or a written exam plus final laboratory exam (if applicable), final small project, or seminar presentation. The 40% of the final exam is from the University regulations. The minimum pass mark is 50% for any module.

When you do not sit for the final exam without any excuse, you will either get the "University zero" (i.e. 35%) if your collected mark during the term was less than or equal 35%. Otherwise, you will retain your collected mark. If it is above (50%) then you are passed, otherwise, you have to reenroll in this module and study it again.
On the other hand, if you have a certified excuse approved by the lecturer, the Department Head, and the Faculty Dean, then you can submit a request for "incomplete" that lets you sit for the exam, which is normally held at the first two weeks of the semester that follows.

On the other hand, a committee of three staff members including the supervisor of the project assesses the research project module. The project's assessment includes the supervisor mark (35%)

and the discussion committee mark (65% given as follows: 20% for project presentation, 25% for report writing, and 20% for defendant discussion).

3.4 Supervised Work Experience

This attends to the Practical Training module in year 3. The Department and Faculty Councils approve the regulations for training**.** The Practical Training Committee in the Department has responsibility for industrial placements and advertises any contacts from industry giving opportunities for vacation placements for training. You register for the practical training module as usual module but you have to arrange your timetable to include at least two free days to get your training. You should complete 160 hours in the trainee company. Students placed in industry are jointly supervised by industry and University supervisors. The supervision is through visits and liaison.

For the practical training module there is no 100% mark but only you will get "pass" or "fail" in this module according to the following rules. You should submit a technical report of your training, and a team of academic staff members makes several observations on the trainers' work in their place of training. Then according to the observations and the report, they assess you. For more information on the training, you can consult the Faculty web site www.phildelphi.edu.jo/it.sp

3.5 Awards

The Faculty prize for the graduate student with the first highest grade in the cohort (200 JD).
The Faculty prize for the graduate student with the second highest grade in the cohort (200 JD).
The Faculty prize for the best undergraduate research project in the cohort (250 JD)

4. STUDENT PROGRESSION

4.1 Progression

To pass the degree, you need to successfully complete 46 modules of different requirements; University, Faculty, Department, and supportive. The pass mark of any module is 50%. Your progress in the programme is measured according to the number of credit hours that you have successfully completed. The level (year) in which you are in depends on that number of credit hours. Another thing which is vital for your assessment and progression is the accumulative average that should be at least 60% in each semester. Consequences of unsatisfactory progress may include:

- Failure to progress to the next year,
- Failing to graduate,
- dismissing from the programme

If you failed in some modules, you cannot be considered in the next level. However, this does not prevent you from taking modules of the next level as long as you have taken their prerequisites.

Failing in a compulsory module means that you have to register on this module in the next semester. This can be repeated three times until you pass the module. If you failed to pass the module in the third time, then you have a choice to take an alternative to it only if you are in the graduation

semester. However, if the module that you failed to get 50% was an elective module, then either you register on the same module in the next semester or take another elective to substitute it.

You have to pay attention to your accumulative average that should be not less that 60%. You will be warned if you could not obtain the 60% in each semester. In this case, you are encouraged to repeat studying those modules with low marks in order to increase your accumulated averages. Note that, repeating modules may delay your graduation so you may graduate in more than four years. The maximum allowed period for you to stay in the University is seven years. However, you will be dismissed from the programme if this average is not achieved in the third attempt.

You can graduate and pass the degree if you have successfully completed all Degree requirements and your accumulated average is at lest 60%. Failing to get average of at least 60% in the graduation semester means that you could not be graduated and you have to register in the next semester to repeat some modules with low marks in order to achieve the required average.

The average is graded as follows:

84% - 100%	Excellent
76% - < 84%	Very good
68% - < 76%	Good
60% - < 68%	Fair

4.2 Change, Interrupt, Withdraw, and Transfer from the Programme

4.2.1 Changing Your Choice of Modules

You can change your choice of modules as described in section 2.4.2.

4.2.2 Interruption of Degree Programme

Any interruption (taking at most 2 years) of your degree programme requires special permission from the Faculty. Regulations state that a B.Sc. degree is a continuous 4-year period of study. Permission will only be granted if satisfactory reasons are given. A written case with supporting evidence must be presented to the Faculty. Reasons might include prolonged illness. Consult your tutor for advice.

4.2.3 Withdrawal from Modules

There is a late withdrawal from a module with loosing its fees. If you are contemplating withdrawing from a module, please discuss the situation with your personal tutor at the earliest opportunity. You should follow the following University regulations in this context:

- You can withdraw a module at most during the thirteenth week of the first or second semester and at most during the seventh week of the summer semester.
- The minimal number of modules (which is 9) required in each semester should be followed.

4.2.4 Transfer between Departments

- If you are contemplating any change of Faculty or Department, consult your primary tutor as soon as possible.
- You can change your Department by filling a special form at the beginning of the semester. It is only required that the Tawjihi average imposed in the new faculty or department must be less

than or equal to your Tawjihi average. A specialized committee will decide what courses will be retained from your actual Department.

5. STUDENT SUPPORT AND GUIDANCE

5.1 Deputy Dean Office

The Deputy Dean Office (Room IT 314) is mainly for students advisory services. It deals also with all routine undergraduate enquiries. Problems, which cannot be dealt with by the Deputy Dean, will be referred to an appropriate person in the Department or University.

5.2 Academic Guidance

All new students should have academic (personal) tutors. The new students are grouped into 20 – 30 students groups and each group is assigned to an academic staff member who will be their academic tutor for the four years. The students remain with the same tutor till their graduation. The tutor deals with all routine undergraduate inquiries, advises for academic registration at the beginning of each semester, and any other raised problems. However, problems, which cannot be dealt with by the tutor, will be referred to the Head of the Department, the Dean of the Faculty, or to an appropriate member of academic staff. The academic guidance is available on specified dates in the terms, and any advisory service offered by the Deputy Dean is available daily to all students in the Computer Science Department.

Time: 08:00 AM to 04:00 PM Sunday to Thursday during term,
Venue: Room IT 314 (for all students)

The advisory service offers advice on departmental and University matters and helps with anything that concerns you, whether in your studies, in the Department, in the University, or in your life outside the university. The advisor is available with knowledge of the Department and University and who is willing to listen and help with whatever you bring. Note that

- All visits to the advisory service offices are strictly confidential.
- If you have difficulties with material on particular course units you should normally first approach your tutors (or lecturers/project supervisors). You may also consult your tutors on matters that are more general but you can equally well call in at the Deputy Dean Offices.
- If you have health problems, you are welcome to consult an advisor in the Department but may prefer to go directly to your doctor or to the University Clinic.

Feel free to make use of these services at any time on any matter.

5.3 Students Affair Deanship

Confidential, individual counselling on any matter affecting personal well-being or effectiveness is available at the Philadelphia University Students Affair Deanship. The Deanship sees well over a hundred students a year and gives expert advice on problems such as low motivation, personal decision making, relationships, and anxiety and family difficulties. People there, are willing to help in finding fresh ways of coping with the emotional and personal aspects of problems and seeks to do so in a collaborative, straightforward and empowering way with the individual concerned. Advice is available concerning referral to other services, helping others and dealing with common student problems such as exam anxiety.

The Deanship is open from 8.00 AM to 4.00 PM, from Sunday to Thursday throughout the year and appointments can be made by calling into the office of the Dean of Students affairs. All inquiries will be treated confidentially.

5.4 Tutoring Arrangements

Some of your modules will have tutorials, where you can discuss topics on a module and run through exercises. Usually, the lecturer of the module runs the tutorial. There will be an opportunity for you to ask questions on matters you do not understand.

As you have a personal tutor from the beginning of your University life, your tutor is here to help you in your way through University life. He/she will watch your progress and offer help and advice wherever necessary. If you get into difficulties, you should contact your personal tutor or visit the Deputy Dean at the earliest possible opportunity. Do not let things slide until it is difficult to retrieve the situation, especially if you are getting behind with your work. Your personal tutor will also advise on your choice of modules, on departmental or University procedures and will provide references for jobs and other purposes.

Course lecturers are always available to discuss questions or problems with the module material. Each lecturer fixes at least six office hours on his timetable, which is fixed on his office door. You can call at these hours. For any reason, if these lecturers could not see you at these office hours, they may arrange an appointment at another time. It is important that any matter that affects your ability to work is notified to the Department - through your personal tutor, through the Deputy Dean or otherwise. The following are examples of matters that may affect your work: illness, personal or family difficulties (including illness in the family) or financial problems. In assessing your performance, the Department has a policy of trying to compensate for difficulties you have encountered whilst studying. We can only do this if we are notified of difficulties and have some idea of their extent.

5.5 Student Presentation and Feedback

5.5.1 Staff Student Liaison Committee

At each academic year, the Department forms a staff student liaison committee that is composed of student representatives who are elected from different levels and three staff members. The committee meets at least twice each semester and may discuss any matter of concern which cannot be resolved informally. The staff members of the committee are members of the Department and principally are the academic tutors.

Feedback from students on modules and teaching is important to us, particularly for the role it plays in ensuring and enhancing the overall quality of the programme. The objectives of this committee are:

- to provide a unique forum of staff and students for the discussion of new ideas and for solving problems;
- to form the basis for the representation of students' views within the department;
- to take students' opinion on academic matters including degree programme and syllabuses and form part of the Department's quality assurance and enhancement procedures;
- to provide an opportunity for students to learn about and contribute to the development of quality assurance and enhancement procedures in their Department

5.5.2 Module Coordination Committee

Sometimes the number of students enrolled in a module could be large, so this number is divided into more than one section (class) and theses classes could be run be more than one lecturer. Such modules need coordinators to coordinate between different classes. For each class, a student representative is elected by the class students to be a member of the module coordination committee that contains also the lecturer of each class of that module. At the beginning of each semester, the Department issues a list of module coordinators. The module coordination committee meets at least twice per semester to coordinate everything related to that module. The main objectives of this committee are:

- To ensure that all classes have the same syllabus
- To follow the same timetable in delivering the course material
- To unite the examination
- To get feedback from students' representatives and use it to improve the quality of teaching
- To use feedback in module monitoring

5.5.3 Departmental and Deanship Meetings

The meetings, held by the Head of Department and the Dean of the Faculty during term time, has mainly an advisory role, where students may raise their problems that need some concern from these authorized persons. These meetings are held separately for each year students.

5.5.4 Collecting and Analysing Feedback

The Faculty in general and the Department in particular attach great importance to the opinion of students on the quality of the teaching provided. At the thirteenth week of each semester, every student is asked to complete a Module Evaluation Questionnaire for each module. The questionnaires are anonymous. Final Year students are also given another questionnaire on which they can comment on their degree programme as a whole.
The Departmental Quality Assurance and Enhancement Committee which is responsible for the quality of teaching in the Department, usually makes the analysis of these questionnaires and uses the result to monitor the teaching process and the progremme as a whole.

6. FACULTY AND DEPARTMENTAL LEARNING RESOURCES

6.1 Learning Resources Centre

Photocopy facilities are available in the Learning Resource Centre, room 103, Tel. 2453. Reference copies of textbooks are available for consultation. Copies of previous weeks' tutorial solutions are also available. The resource centre holds non-loan copies of undergraduate textbooks. Lending copies of textbooks are available in the University Library.

6.2 Code of Practice for Computer Usage

At registration, you will be required to assent to the following departmental code of behaviour, which relates to the responsible use of Computer equipment. Misuse of the facilities is regarded as serious disciplinary offences.
This code of practice is supplementary to University regulations concerning the use of computing equipment to which you are required to assent at Registration.

1. Every student is allocated one PC in every laboratory session. But for UNIX laboratory, you have been allocated one or more usernames for your own personal use: you must not use other usernames or permit other people to use your username. You must not use computers to which you have not been granted access, or attempt to access information to which you have not been granted access.
2. You must not deliberately hinder or annoy other computer users.
3. You must not use machines belonging to the Department for commercial purposes without the prior written permission of the Head of Department. You must not sell the results of any work you do using Departmental facilities without the prior written permission of the Head of Department.
4. You must not write or knowingly store, on machines belonging to the Department, software that, if executed, could hinder or annoy other users, except with the prior written permission of the Head of Department.
5. You must not make an unauthorized copy, in any form, of copyright software or data.
6. You must not store personal information, except in a manner permitted by the Data Protection.
7. You must follow all rules, regulations and guidelines imposed by the Faculty of IT and the University in addition to the Department's Code of Practice.

Explanatory Notes

The following notes indicate ways in which the Code of Practice applies to undergraduates for use of computers. It is not intended to be a complete list of possible abuses of the equipment. Each note refers to the corresponding paragraph above.

1. Undergraduate students are not normally granted access to the computers in the network, or to other students' files. You should not attempt to use another student's account even if they have not set a password. Of course, it is still important to set a password for your own privacy and security.
2. This will be interpreted very broadly as:
   - Tampering with another user's files.
   - Tampering with another user's screen.
   - Setting up processes which persist after you log out and annoy subsequent users of the machine.
   - Broadcasting of offensive messages.
   - Display or storage of offensive pictures.
   - Abuse of the mail system.
   - Occupying a machine to play games while other students need it to do their laboratory work.
3. Clearly, the Head of Department would have to be convinced that any such use of the machines would not conflict with their primary purpose.
4. Note carefully that this means you are not allowed to write or introduce a virus program, even if it is never executed.
5. Note that this does not prevent your taking copies of your laboratory work home, or making copies of non-copyright material, but does prevent your taking random pieces of software away on a floppy. You should assume that all material is copyright unless it specifically states otherwise. If in doubt, ask.
6. Personal information includes names, addresses, mailing lists, etc. You should contact the Data Protection Officer, Mr. Moh'd Khair Thalji, if you need to store such information.
7. In fact, you agreed to abide by the University and Faculty rules when you registered.

Please direct queries concerning the code of practice to Department Head.

Support for Computer Equipment

Students are encouraged to own their own machines. Please note, however, that you are NOT REQUIRED to own your own computer. The Department has excellent facilities and undergraduate students are allowed to use the facilities provided in the building of the Faculty of Information Technology. Whenever the buildings are open between 08 AM and 07 PM, access is also allowed in this range of time, from Sunday to Thursday during term.

6.3 Other Resources and Facilities

There are many different resources and facilities that you can utilize. These are:

- **Photocopying**
  Out of the library, photocopy may be done at different Bookshops, on an affordable cost.

- **Printing**
  You can take printout (free of charge) in any lab of the Department. Each lab contains at least two printers for this purpose.

- **Administrative Infrastructure**
  It is composed of six offices (Dean, 1 Advisory service, Dean Secretary, and Department's Chair, Department Secretary, and Meeting Room).

- **Academic Infrastructure**
  It is composed of
  - 16 Department classrooms plus some other classrooms shared with other faculties and one lecture theatre are all equipped with support facilities: computer, and data show.
  - 4 laboratories (each contains 20 PCs): Windows XP Laboratories, Internet Laboratories, and SunRay1 UNIX Laboratories. The Department also shares some other laboratories with other departments.
  - 5 staff offices where each staff member is supplied with a PC.
  - 1 room for staff meeting
  - 1 office for the student's guidance and examination committee.
  - 1 Base room.

- **Lecture Support Facilities**
  In the Department, there are 7 data shows used to support modules and seminars presentations.

- **University Computer Centre**
  This centre provides the Department with training and maintenance facilities.

- **Networking Facilities**
  Ethernet*:* The PCs in each laboratory are connected to an Ethernet platform 10/100 Mbps.
  Intranet: All computing facilities of the University are connected to a Gigabit Intranet backbone.
  Internet: The University is connected to the Internet by 40 Mbps lines.

- **Type and Level of Access**
  For communication, computing, or information searching, the Department provides free access to networking facilities at any time for the staff and the students.

- **Library Infrastructure**

  This structure includes the University Main Library, which provides students and staff members with the required recent text and references books, journals, and CD ROMs. According to its collaboration and co-ordination program, it has relations with more than 120 universities and scientific organisations. It opens from 08:00 AM to 07:00 PM. It includes:

  - ***Conventional Library,*** which contains books and journals. The books hall contains more than 2226 different English titles in computing, where more than 11% are edited in years 2005-2006 and few are published in 2007. The room of journals contains 30 computing journals that are useful for research and teaching.

  - ***Electronic Library,*** which contains 2000 CD ROMs and 220 floppy disks for the taught programming languages courses and module support tools, such as self-study packages. It has access to approximately 800 universities electronic libraries via the World University Library that is endorsed by the United Nation University. The World University Library has six databases that contain more than 4674 periodicals available online. The online resources in the electronic library include sites that list more than 50000 online books and access to online libraries and encyclopaedias and other databases on the Internet.

  - ***Internet Access Service,*** available in a room containing 20 PCs.

- **Bookshops:** contain books, exercises with solutions, solutions to previous examinations and so on.

- **Self Study Facilities**

  The self study facilities include the following:
  - The Faculty Learning Resource Centre, as mentioned before.
  - The Electronic Library as mentioned before.
  - The Department Web/Intranet provides you with all relevant information such as:
    - Undergraduate Handbook (this handbook)
    - Programme Specifications
    - Lectures and course notes.
    - Bulletin board for messages and general use.

    This provides you with a rich "one stop" learning environment.
  - Distance learning has been implemented through agreement with Phoenix International and through a project financed by UNESCO.
  - Disabled students' facilities. The University has appointed an equal opportunity officer to help and assess the needs of any physically disabled student.

- **Training Facilities**
  - The University has signed an agreement with Phoenix International for distance learning, which is used as a support for the practical training module.
  - The University has signed a licensed grant with Microsoft allowing the University to use Microsoft software. In addition, the agreement allows one person to be trained on Microsoft products.
  - The University is an ICDL Accreditation Test Centre (UNESCO International Computer Driving License).
  - The University is in the process to sign an agreement under the program "SUN Academic Initiative (SAI)" to provide supporting educational and training materials.
  - The University is in the process of establishing a training centre for awarding Microsoft certifications.
  - The University is in the process of establishing virtual labs that can be used for training.

- **Incubator Lab**
  This lab is a result of feedback from students and staff. The main purpose of the lab is to encourage a focus for new ideas, industrial applications etc. so that the staff, students and Industry can have a common forum and facility. Two projects were commenced in this context.

- **Special Help Tutorial Room**
  Students having problems in some modules may meet specialist lecturers in this room. Specific and directed tutorials may help them.

- **Careers Advisory Service**
  This service provides information for students and graduates of the University.

- **Extracurricular Activities**
  The University provides some entertainment for the students to enrich their talents in their free time. This includes

  - **A Deanship of Student Affairs** that organises the social, cultural, and sport activities for the students in the University. It has also an alumnae office that keeps track of the graduate's information and news.
  - Several spaces for different sports.
  - Several spaces for cultural activities.
  - Several common rooms for meetings, snacks, and cafeterias.
  - Four Internet cafes each one containing 10 PCs.
  - One Students Club.

6.4 Communications

- **Electronic Mail**
  Electronic mail is used widely for administrative purposes within the Department. It is frequently useful for communicating between individuals and small groups (e.g. between a tutor and his/her tutorial group), and occasionally for broadcasting important messages to wider groups. It is important that you know how to use email. It will be covered in the introductory laboratory sessions. The code of practice for computer usage covers electronic mail, please note the points below.

- **Obscene or Offensive Mail**
  DO NOT SEND OBSCENE OR OFFENSIVE MAIL. If you receive mail, which you regard as offensive or obscene, you may wish to complain to a member of staff so that appropriate disciplinary action can be taken against the offender.

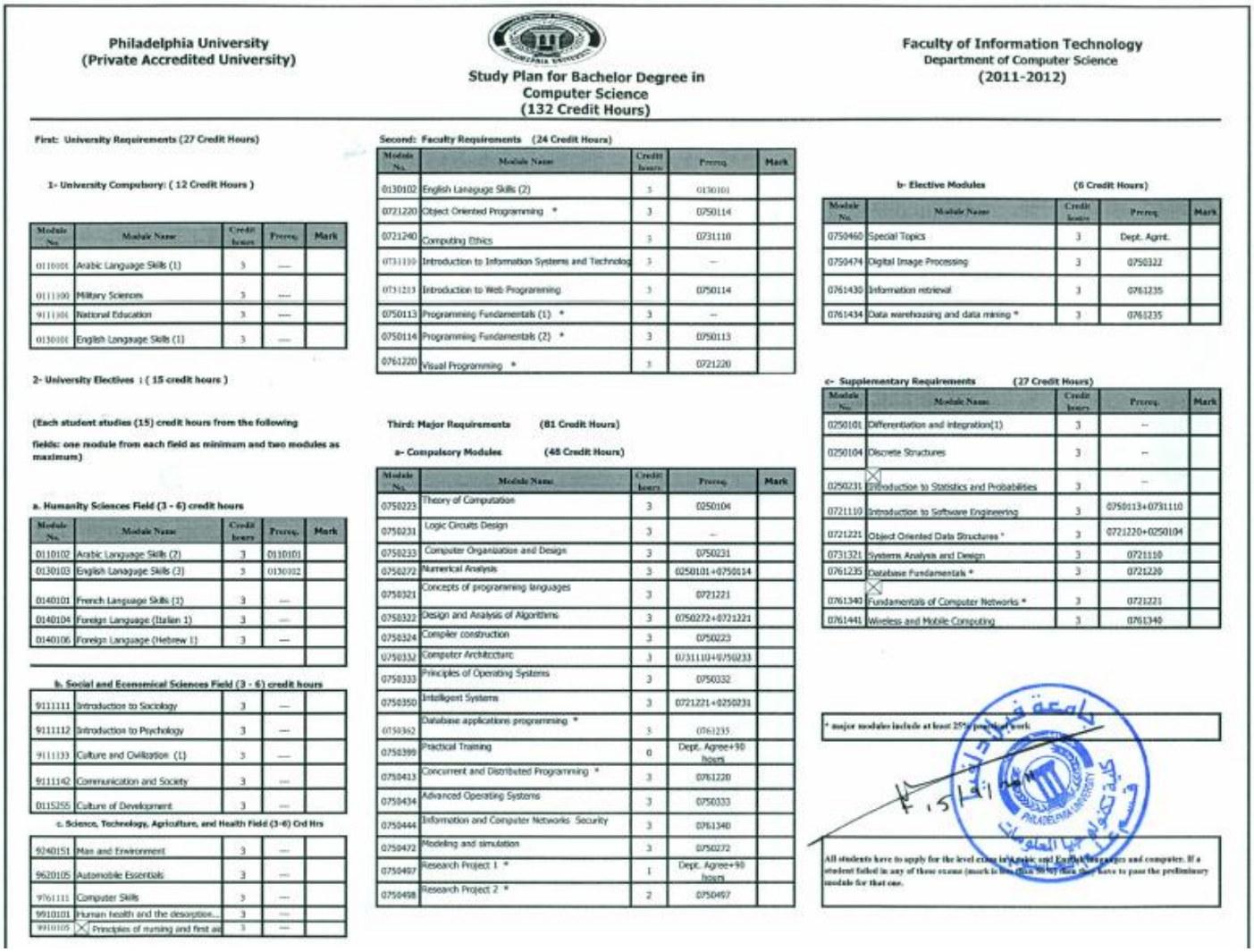
- **Group Mailing**
  You are strongly discouraged from sending email to groups of people. The newsgroups should be used for this purpose.

Appendix A
The Academic Guidance Plan

Philadelphia University **Guidance Plan for the Computer Science 2011 / 2012** **Faculty of Information Technology**

Year	Semester	Module Number	Module Title	Prerequisites	Type of Requirements
First	First (18 Credit Hours)	0110101	Arabic Language Skills (1)	------	(UR)
		0130101	English Language Skills (1)	------	(UR)
		----	University Elective (1)	------	(UR)
		0750113	Programming Fundamentals (1)	------	(FR)
		0250101	Differentiation and integration (1)	------	(SR)
		0731110	Introduction to Information Systems and Technology	------	(FR)
	Second (18 Credit Hours)	0111101	National Education	------	(UR)
		----	University Elective (2)	------	(UR)
		0750114	Programming Fundamentals (2)	0750113	(FR)
		0250104	Discrete Structures	----	(SR)
		0721110	Introduction to Software Engineering	0750113+0731110	(SR)
		0750231	Logic Circuits Design	-------	(DR)
Second	First (18 Credit Hours)	0721240	Computing Ethics	0731110	(FR)
		0721220	Object-Oriented Programming	0750114	(FR)
		0731213	Introduction to Web Programming	0750114	(FR)
		0250231	Introduction to Statistics and Probabilities	---	(SR)
		0750223	Theory of Computation	0250104	(DR)
		0750272	Numerical Analysis	0250101+0750114	(DR)
	Second (18 Credit Hours)	0721221	Object Oriented Data Structures	0721220+0250104	(SR)
		0761235	Database Fundamentals	0721220	(SR)
		0750233	Computer Organization and Design	0750231	(DR)
		0130102	English Language Skills (2)	0130101	(FR)
		0761220	Visual Programming	0721220	(FR)
		------	University Elective (3)	-----	(UR)
Third	First (15 Credit Hours)	0731321	Systems Analysis and Design	0721110	(SR)
		0750321	Concepts of programming languages	0721221	(DR)
		0750322	Design and Analysis of Algorithms	0750272+0721221	(DR)
		0750332	Computer Architecture	0731110+0750233	(DR)
		----	University Elective (4)	-----	(UR)
	Second (15 Credit Hours)	0750350	Intelligent Systems	0721221+0250231	(DR)
		0761340	Fundamentals of Computer Networks	0721221	(SR)
		0750333	Principles of Operating Systems	0750332	(DR)
		0750399	Practical Training	90h	(DR)
		0750362	Database applications programming	0761235	(DR)
		0750324	Compiler construction	0750223	(DR)
Fourth	First (13Credit Hours)	0750434	Advanced Operating Systems	0750333	(DR)
		0750472	Modelling and Simulation	0750272	(DR)
		0750497	Research Project 1	90h	(DR)
		----	Department Elective (1)	--	(DR)
		-----	University Elective (5)	--	(UR)
	Second (17 Credit Hours)	0750413	Concurrent and Distributed Programming	0761220	(DR)
		0761441	Wireless and Mobile Computing	0761340	(SR)
		0111100	Military Sciences(Or UE Non- Jordanians Students)	----	(UR)
		----	Department Elective (2)	----	(DR)
		0750444	Information and Computer Networks Security	0761340	(DR)
		0750498	Research project 2	0750497	(DR)

(UR) University Req. **(FR) Faculty Req.** **(DR) Dept. Req.**
(SR) Supporting Req.



Philadelphia University
(Private Accredited University)

Faculty of Information Technology
Department of Computer Science
(2011-2012)

Study Plan for Bachelor Degree in Computer Science (132 Credit Hours)

First: University Requirements (27 Credit Hours)

1- University Compulsory: (12 Credit Hours)

Module No.	Module Name	Credit hours	Prereq.	Mark
0110101	Arabic Language Skills (1)	3	---	
0111100	Military Sciences	3	---	
9111101	National Education	3	---	
0130101	English Language Skills (1)	3	---	

2- University Electives : (15 credit hours)

(Each student studies (15) credit hours from the following fields: one module from each field as minimum and two modules as maximum)

a. Humanity Sciences Field (3 - 6) credit hours

Module No.	Module Name	Credit hours	Prereq.	Mark
0110102	Arabic Language Skills (2)	3	0130101	
0130103	English Lanagage Skills (3)	3	0130102	
0140101	French Language Skills (1)	3	---	
0140104	Foreign Language (Italian 1)	3	---	
0140106	Foreign Language (Hebrew 1)	3	---	

b. Social and Economical Sciences Field (3 - 6) credit hours

9111111	Introduction to Sociology	3	---	
9111112	Introduction to Psychology	3	---	
9111133	Culture and Civilization (1)	3	---	
9111142	Communication and Society	3	---	
0115255	Culture of Development	3	---	

c. Science, Technology, Agriculture, and Health Field (3-6) Crd Hrs

9240151	Man and Environment	3	---	
9620105	Automobile Essentials	3	---	
9761111	Computer Skills	3	---	
9910101	Human health and the desorption...	3	---	
9910105	Principles of nursing and first aid	3	---	

Second: Faculty Requirements (24 Credit Hours)

Module No.	Module Name	Credit hours	Prereq.	Mark
0130102	English Lanagage Skills (2)	3	0130101	
0721220	Object Oriented Programming *	3	0750114	
0721240	Computing Ethics	3	0731110	
0731110	Introduction to Information Systems and Technolog	3	--	
0731213	Introduction to Web Programming	3	0750114	
0750113	Programming Fundamentals (1) *	3	--	
0750114	Programming Fundamentals (2) *	3	0750113	
0761220	Visual Programming *	3	0721220	

Third: Major Requirements (81 Credit Hours)

a- Compulsory Modules (48 Credit Hours)

Module No.	Module Name	Credit hours	Prereq.	Mark
0750223	Theory of Computation	3	0250104	
0750231	Logic Circuits Design	3	--	
0750233	Computer Organization and Design	3	0750231	
0750272	Numerical Analysis	3	0250101+0750114	
0750321	Concepts of programming languages	3	0721221	
0750322	Design and Analysis of Algorithms	3	0750272+0721221	
0750324	Compiler construction	3	0750223	
0750332	Computer Architecture	3	0731110+0750233	
0750333	Principles of Operating Systems	3	0750332	
0750350	Intelligent Systems	3	0721221+0250231	
0750362	Database applications programming *	3	0761235	
0750399	Practical Training	0	Dept. Agree+90 hours	
0750413	Concurrent and Distributed Programming *	3	0761220	
0750434	Advanced Operating Systems	3	0750333	
0750444	Information and Computer Networks Security	3	0761340	
0750472	Modeling and simulation	3	0750272	
0750497	Research Project 1 *	1	Dept. Agree+90 hours	
0750498	Research Project 2 *	2	0750497	

b- Elective Modules (6 Credit Hours)

Module No.	Module Name	Credit hours	Prereq.	Mark
0750460	Special Topics	3	Dept. Agrnt.	
0750474	Digital Image Processing	3	0750322	
0761430	Information retrieval	3	0761235	
0761434	Data warehousing and data mining *	3	0761235	

c- Supplementary Requirements (27 Credit Hours)

Module No.	Module Name	Credit hours	Prereq.	Mark
0250101	Differentiation and integration(1)	3	--	
0250104	Discrete Structures	3	--	
0250231	Introduction to Statistics and Probabilities	3	--	
0721110	Introduction to Software Engineering	3	0750113+0731110	
0721221	Object Oriented Data Structures *	3	0721220+0250104	
0731321	Systems Analysis and Design	3	0721110	
0761235	Database Fundamentals *	3	0721220	
0761340	Fundamentals of Computer Networks *	3	0721221	
0761441	Wireless and Mobile Computing	3	0761340	

* major modules include at least 25% practical work

All students have to apply for the level exam in Arabic and English languages and computer. If a student failed in any of these exams (mark is less than 50) then s/he have to pass the preliminary module for that one.