UNITED NATIONS DEVELOPMENT PROGRAMME
REGIONAL BUREAU FOR ARAB STATES

QUALITY ASSESSMENT OF COMPUTER SCIENCE AND BUSINESS ADMINISTRATION EDUCATION IN ARAB UNIVERSITIES

A REGIONAL OVERVIEW REPORT

January 2005

UNDP/RBAS Higher Education Project RAB/01/002
'ENHANCEMENT OF QUALITY ASSURANCE AND INSTITUTIONAL PLANNING IN ARAB UNIVERSITIES'

United Nations Development Programme / Regional Bureau for Arab States

Project RAB/01/002: "Enhancement of Quality Assurance and Institutional Planning at Arab Universities"

Quality Assessment of Computer Science and Business Administration Education in Arab Universities

A Regional Overview Report

Based on detailed internal and external reviews of Computer Science programmes in a group of 15 Arab universities (2002–2003), and of Business Administration programmes in a group of 16 Arab universities (2003–2004)

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FOREWORD

Rima Khalaf Hunaidi

Assistant Secretary-General and Assistant Administrator, Regional Director,

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I am happy to introduce this evidence-based, field-derived report on the current state of Computer Science and Business Administration education in the Arab region. This report is a direct output of the UNDP/ Regional Bureau for Arab States (RBAS) pilot project, '*Enhancement of Quality Assurance and Institutional Planning at Arab Universities*, launched in January 2002 and implemented over a period of 30 months, ending in June 2004. Project implementation was guided by the overarching objective of exploring and illuminating the path towards an Arab knowledge society, where the production, dissemination and application of knowledge are central to all aspects of human endeavour: social organisation, economic enterprise, political participation and private life.

In knowledge-based societies, higher education is interactive and fully accountable to its stakeholders: students, parents, employers, and the public sector. The basic requirements and conceptual framework for initiating this approach are presented comprehensively in the second *Arab Human Development Report 2003: Building a Knowledge Society.*

During the past few decades, Arab higher education experienced a dramatic "horizontal" expansion in terms of the number of universities, programmes and students. In many respects, expansion was both inevitable and necessary for Arab development. Expanding the scope of Arab higher education from the confines of capital cities to outlying areas, made higher education accessible to less privileged sectors of society, and increased women's participation. The positive developments of expansion, however, were not accompanied by a parallel investment in quality enhancing systems and resources of higher education. In real terms, Arab universities have witnessed a decline in the annual expenditure per university student over the last twenty-five years; and very little has been invested in building institutional systems and mechanisms for monitoring, assessing, and improving the quality and impact of higher education. Without such investment, the competitiveness of education and its relevance to job creation, economic growth, markets, and human development remain limited.

The overall goal of the RBAS Higher Education Project is to assist a core group of leading public and private Arab universities to develop and apply the methodologies and benefits of three independent instruments of quality assurance and enhancement. These instruments are intended to enable: (a) internal and peer evaluation of academic programmes; (b) measurement of student performance in international tests; and (c) building a regional statistical database to provide detailed, comparable indicators of programmes, staff and student demographics, as well as cumulative finances of participating universities. Although inter-related, each instru-

ment was developed and implemented as a self-contained project component. Moreover, all work was carried out in close partnership and active collaboration between academic representatives appointed by participating universities and a select group of leading international consultants.

The enclosed report represents the final outcome of the first major component of the project focused on programme evaluation. The component was implemented in two consecutive cycles of academic reviews. The first cycle (2002-2003) involved the evaluation of Computer Science programmes at 15 universities and the second cycle (2003-2004), concerned the evaluation of Business Administration programmes at 16 universities. Each of the cycles was followed by the issuance of confidential review reports to university presidents and programme advisors.

The report attests to significant achievements and areas of strength that together form a foundation on which universities can build. The report, however, also identifies weaknesses ensuing from a lack of independent review mechanisms, insufficient use of outcome based learning, and the need to further ingrain a culture of self-evaluation. It is my hope that the wide range of analysis, findings and recommendations by independent and qualified teams of international experts and their Arab peer reviewers, will be of significant interest and benefit not only to academics and universities that participated in the project, but to the wider academic community in the Arab region.

On completion of the first phase, RBAS commissioned the services of an international expert to conduct an independent evaluation of the project's outcomes and its impact on participating academics and universities. A major finding of the evaluation was the unanimous support among academic representatives and coordinators for the project's training methodologies, regional team collaboration and task implementation. In almost all cases, the findings of the review report were studied and acted upon at the departmental /faculty level. In other cases, follow-up action was taken at the senior university level, and in at least two cases, at the country level. Finally, all of the participating universities voiced unanimous support for the institutionalisation of regional project services, preferably through the establishment of an independent Arab quality assurance agency.

In this regard, an indicator of the project's success is the certification of 40 of the university representatives (from both fields of Computer Science and Business Administration), as having participated successfully in all stages of the respective review cycles: theoretical and practical training; self-evaluation of individual programmes; hosting external review missions; and participating as peer reviewers in missions to other participating universities. This is perhaps the first regional cohort of trained quality evaluators who can be relied upon to support the current effort for disseminating the expertise of quality assurance at both the country and regional levels.

The drive to achieve quality enhancement and academic excellence in Arab higher education is an integral element of our Arab cultural heritage. We can all be inspired by former eras of Arab Islamic 'higher education' motivated by a deeply ingrained social respect for the scholarly pursuit of truth and knowledge through investigations of the philosophical, natural and scientific spheres of human existence.

It is my hope that as we move into the second phase of this project, the methodologies and outcomes will provide the Arab higher education community with a work-

ing model and a precursor for much needed independent regional quality assurance that complements, reinforces and gradually networks the national quality assurance dimension in all Arab countries' educational systems.

Lastly, I wish to express my appreciation to all who participated in this pilot project. I am particularly thankful to Dr. Isam M. Naqib (Project Manager), the distinguished members of the Advisory Committee, the Ministers of Higher Education, University Presidents, and the prominent academics and representatives from the 29 universities in the twelve participating Arab countries – Algeria, Bahrain, Egypt, Jordan, Lebanon, Morocco, Oman, Palestine, Sudan, Syria, the United Arab Emirates, and Yemen. I would also like to thank my colleagues in the Regional Bureau for Arab States and the United Nations Office for Project Services for their vision, commitment, and tireless efforts. I am confident that through their dedication, we have forged solid partnerships that will ensure regional collaboration and joint efforts in support of this ambitious endeavour.

* * * * *

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Contents

PART ONE

Quality Assessment of Computer Science Education in Arab Universities

(2002 – 2003)

PART TWO

Quality Assessment of Business Administration Education in Arab Universities

(2003 – 2004)

EXPLANATORY NOTES

Isam Naqib

Project Manager

Two Cycles of Programme Reviews

This report is an overview of the outcome of two consecutive 15-month cycles of programme reviews: one was carried out in 2002-2003 where 15 Computer Science programmes were reviewed and one in 2003-2004 where 16 Business Administration programmes were reviewed. The total number of universities that participated in the two reviews was 28, a list of which is given elsewhere in the report.

Each cycle consisted of three sequential/ overlapping stages: (i) self- or internal evaluation, (ii) external (peer) review and (iii) final reporting. Each stage was carried out with the full participation of the universities' appointed representatives (Annex 1 of each report), backed by intensive training and advisory support from the project and by valuable organisational and moral backing from their universities.

While each participating university has already received a detailed review report from the RBAS Director on the state of its programme, this overview report portrays the patterns of weaknesses and strengths that emerge across the region. To maintain confidentiality, each university is referred to in this report by number only. The combination of the already received individual reports and this regional report should thus enable each university to reflect on the current state of its programme, with reference to the programme's own aims and adopted benchmarks, but also in comparison with other universities in the region, and abroad.

Model and Adaptations

The project's adopted model of review is based, with some adaptations, on the Academic Subject Review method of the UK Quality Assurance Agency (QAA), a generic discipline-independent method that has been employed by the Agency over more than a decade for reviewing the quality of academic programmes in all UK universities.

A comprehensive Handbook on all aspects and stages of the review process was prepared for the project by its training consultants, in close consultation with the project manager; this was done in two consecutive editions, one coinciding with each review cycle. The Handbook has since been produced in English, Arabic and French.

One modification that was introduced for both cycles is that each main judgment was differentiated into three levels: Unsatisfactory, Satisfactory and Good (or Approved with Commendation); the current UK method allows for two only: Pass or Fail. Another modification was introduced in the Business Administration cycle (the second edition of the Handbook), whereby, in addition to the overall judgment on Academic Standards (AS), separate judgments are now required on each of the four

constituent elements of AS (Intended Learning Outcomes, Curricula, Student Assessment and Student Achievement). Only one aggregate judgment was required for the Computer Science cycle (first edition of the Handbook).

The adaptations to the QAA method were largely informed by the outcome of group discussions and feedback from university representatives followed by close discussions with the training consultants. The changes, which were introduced mainly in the form of added annexes to the Handbook, were intended to enhance the method's applicability and developmental value to Arab universities, while fully maintaining its core concepts, standards of judgment and rigorous criteria.

In the first edition, the Programme Specification template document was expanded in order to allow for and accommodate any variations between the universities with regard to educational systems, curricular structures or standards of deployed resources. Detailed guidance was also provided on the formulation by each provision of its Intended Learning Outcomes document. This is important as the method puts primary responsibility on the universities to specify, in detail, the elements of their programmes and provide the evidence base of factual information and data that is needed for both internal and external evaluation.

In the second edition of the Handbook, which was prepared in time for the second cycle of reviews (Business Administration), additional guidelines on final reporting by the reviewers were introduced (through two new annexes). This was to ensure that each main judgment by the reviewers was accompanied by explicit statements on the main underlying factual evidence and sub-judgments on which the main judgment was based. This was not only to ensure full transparency of reporting, but also to optimise the value of the report to the university as a viable map for improvement and quality enhancement.

Reviewers were also invited to make differentiated recommendations, separating those that were essential for improvement from those that were considered worthy of further consideration.

Judgments and Indicators

An important by-product of these adaptations is that a more detailed semi-quantitative picture of the strengths and weaknesses (Good, Satisfactory or Unsatisfactory) of each assessed programme can now be derived from the review report for that programme. The performance of the programme can thus be summarised not only in terms of the reviewers' main judgments, but also with respect to a number of detailed academic and resource-related aspects of that programme (indicators).

This was done on an experimental basis for the first (Computer Science) cycle of reviews and on a wider scale for the second (Business Administration) cycle. A regional summary of these indicators for Computer Science education is shown in Table 1 of the first part of this report, while that for Business Administration is shown in Figures 1-3 in the second half. A clear message is, thus, sent not just to the academics but also to the managers and decision makers of each university.

Regional Platforms for Capacity Building

Each cycle was structured around three carefully scheduled training / planning workshops that served as very effective regional platforms not just for intensive

training but also for group discussions (and agreement) on model adaptations, implementation plans and definition and scheduling of common project tasks. They also proved to be ideal venues for reviewing project progress and addressing emerging problems and challenges through open discussions and bilateral tutorials.

Intensive advisory support was provided to each university team during the intervals between workshops (when the project tasks were implemented by all teams) through email and when necessary phone exchanges. This combination of proactive modalities of capacity building enabled the university representatives to play the leading role in implementing each stage of the review cycle: model adaptation, program self-evaluation, hosting of an external review mission and participation in an external mission to another university and country. Advanced systems of higher education, like advanced technologies, cannot be borrowed or bought off the shelf, they need to be adapted, modified, customised and eventually owned before they are effectively integrated into their host environment.

The two review cycles were implemented through the intensive participation of tens of Arab academics as shown in the introductory pages of the report. As leading members of their respective departments and faculties, their work with the project was often above and beyond what they were expected to do for their universities. Nonetheless, all tasks were completed, on time and to the intended high standards of implementation. This is mainly owed to the professional capabilities of the representative academics and their commitment to improving the quality and impact of their programmes and also to the invaluable institutional and moral support that was provided by their university presidents, coordinators, departments and faculties.

A Note of Thanks

The project is immensely indebted to the QAA, that fine UK institution, for its generous technical advice and provision of needed documentation and above all, for recommending the names of highly dedicated and experienced consultants who worked closely and most harmoniously with their Arab counterparts through intensive workshop meetings, continuous email dialogue and scores of external review missions.

As would be expected, the organisational and logistical requirements of the project were highly challenging and complex, requiring constant coordination and follow-up with many universities, academics, consultants and UNDP country offices. All this was coordinated with remarkable efficiency, professionalism and dedication by Ms Rima Mulhim, the head of the project's regional coordination office in Jordan and the unit's small team of able project staff. Their effort was enabled by vital administrative / financial support from UNOPS, under the supervision of Mr Gillman Rebello, and from the UNDP country offices in the region.

I wish to especially thank Dr. Rima Khalaf Hunaidi, the RBAS Director, who initiated and launched this pioneering regional project, for her visionary strategic support and guidance at every stage of the project and her unequivocal commitment to the fulfilment of its goals and objectives. I also thank the Director's two able senior advisors, Dr Zahir Jamal and Dr. Maen Nsour, for coordinating and managing the affairs of the project at the UNDP institutional level. The constant support of Dr. Nsour, the project portfolio manager, is highly appreciated.

PART ONE

Quality Assessment of Computer Science Education in Arab Universities

Regional Overview Report

Based on detailed internal and external reviews of Computer Science programmes in a group of 15 Arab universities

Report Summary

1. General

This report is part of the outcome of the first completed phase of the UNDP RAB/01/ 002 project "Enhancement of Quality Assurance and Institutional Planning in Arab Universities" which was launched by the UNDP Regional Bureau for Arab States in January 2002. It provides a regional overview of the quality of Computer Science education in a consortium of fifteen public and private universities in eleven Arab countries: Morocco, Algeria, Egypt, Yemen, Sudan, Syria, Lebanon, Jordan, Palestine, Bahrain and United Arab Emirates. (A list of the names of universities and their representatives is given in Appendix 1).

The process of evaluating the quality of Computer Science programmes in the fifteen participating universities was carried out in stages, between March 2002 and February 2003. The process stages and the method adopted for the internal and external components of the review are outlined in the following section (Introduction). The Introduction also outlines the main aspects that are reviewed in each academic provision and the criteria and ranges of the possible reviewers' judgments on each aspect.

The completed review yielded a detailed review report on each of the participating programmes. Each report, which was sent in confidence by UNDP/ RBAS to the president of the university in question, presented the reviewers analyses, evaluation and judgments in relation to each main aspect of the reviewed provision and identified its main areas of strength and weakness and areas of needed action or reform.

This overview report is a compact synopsis of these individual reports and presents (under four main sections ii, iii, iv, and v) a detailed regional overview of the findings and judgments that were yielded by the 15 individual reviews with respect to each review aspect. Several of the review outcomes and findings are found to be common to many of the participating universities and raise issues that, unless addressed, could seriously hinder the further development of undergraduate programmes in Computer Science and software engineering in the Arab region.

This section presents a summary of the overview report's main findings and recommendations under four headings: Main Review Outcomes (Judgments and Indicators); Common Regional Issues; Recommended Priorities for Strategic Reform, and Building on Strength.

2. Main Review Outcomes (Judgments and Indicators)

The review judgments with respect to each aspect of the review are presented for all universities in Table 1 (where, to maintain confidentiality, each university is denoted by a number). The Table contains, in addition, the review findings, as extracted from the individual reports, with respect to a number of indicators that are defined in the Table. The following outcomes are worth noting:

- *Apart from one exception, the Academic Standards of the reviewed programmes were approved as Satisfactory at all universities. However, none of the programmes achieved the highest rating, "approved with commendation".*

- *The judgments on the standards of the Learning Opportunities that are offered by the universities to their students show wide variations between universities, as do the judgments on the internal arrangements for Quality Assurance and Enhancement. Similar variations can be observed with respect to the set of detailed indicators. Thus, while all universities have to strive to exceed the threshold level of excellence that is represented by the 'Approved with Commendation' judgment, they vary considerably in terms of their detailed state of academic development and organisation. It is hoped that the combination of this overview report and the individual report for each university will assist in informing and guiding the future academic plans of that university in its strive towards academic excellence.*

- *As noted above, the review findings with respect to the nine detailed indicators (Table 1) point to some regional strengths (graduation projects, Mathematics component of the curricula, qualifications of existing academic staff) but also underline some serious weaknesses across the region (lack of sufficient numbers of qualified staff, inadequate library resources and insufficient Intranet and Internet connectivity).*

3. Common Regional Issues

The regional overview and analyses presented by this report with respect to each aspect of the review yields a large number of detailed issues that are shared by many universities across the region:

a. *The aims of many programmes are insufficiently clear. This leads to imprecise intended learning outcomes and poor curriculum definition.*

b. *In many cases only slight reference to or account is taken of external agencies in defining the curriculum and almost none in maintaining academic standards.*

c. *While available information and reports often cite active faculty research teachers at most universities have little or no time to pursue frontier scholarship. The research capability of many staff is therefore a diminishing asset.*

d. *At many universities there is insufficient coverage of the Computer Science core. Parts of the Computer Science curriculum are dated.*

e. *In several cases, faculty requirements have little or no relevance to Computer Science, while university requirements, although sometimes pertinent, are poorly focused.*

f. *There is an appropriately broad range of assessments at most universities with limited but encouraging use of innovative methods.*

g. *Assessments sometimes lack challenge and depth, relying on simplistic questions and those that require only factual recall.*

h. *Individual written feedback is a rarity and individual oral feedback is usually only provided to those students who seek it out.*

i. *While the marking of student work is usually academically sound, the processes surrounding marking are weak, leading to poor written feedback, insufficient information for audit and potential unfairness.*

j. *Only rarely are assignments moderated prior to their being sat by the students.*

k. *Project work is a strength in the region.*

l. *Attrition is high in about 50 per cent of the universities in this sample. Affected universities need to improve the retention rate by recruiting the right students, providing them with adequate academic support, teaching them properly and setting fair assessments.*

m. *Where universities are enlisting a good profile of students, they should consider how to maximise the value added of the programmes for the brightest students.*

n. *More systematic collection and analysis of data on student progression, achievement and employment are widespread priorities.*

o. *Good practice in teaching, learning and assessment needs to be shared more widely within universities and throughout the region.*

p. *Library resources are usually weak. While new libraries continue to be built, this will not address prevalent book and journal stock problems. Financial constraints are a factor, yet poor organisation and purchasing policies exacerbate the situation.*

q. *With a few exceptions, the number and type of personal computers are adequate; however, their organisation needs attention in several cases.*

r. *The provision of software is generally appropriate to student needs.*

s. *The use of networks, the Internet and local Intranets is at best adequate. Universities are not currently taking full advantage of these networks as educational platforms and resources. While many aspects of the Internet are resource driven, others can be achieved in collaboration with students.*

t. *There are several challenges associated with academic staffing.*

- *There are too few staff overall. Those available are not always organised optimally to provide adequate course coverage for the maximum benefit of the students;*
- *In most universities, teachers are overloaded, leading to slippages and limited research;*
- *Full professors are scarce. As a result, academic leadership and influence are often lacking;*
- *Too many staff teach in areas outside their current specialisms;*
- *Scarce, fully qualified, staff are being used to teach elementary courses such as basic computer skills to non-computer scientists and introductory topics. Their specialist knowledge is not called upon in such duties;*
- *Lack of training in new pedagogic techniques, infrequent mentoring, insufficient dissemination of good practice and a general absence of support for junior staff perpetuate weaknesses.*

u. *The reviewers support the common student view that the academic staff are the universities' major asset. They applaud the numerous schemes in which junior staff are supported in undertaking further study. They further believe that support for the academic staff in terms of training and the appointment of qualified assistants to reduce the marking and supervision loads would be an excellent investment.*

v. *Given the worldwide shortage of staff with PhDs in Computer Science, it is possible that the region*

should regard investment in the preparatory education and development of this vital learning resource as a priority. This needs to be combined with a drive to support research and increase the number of M.Sc. places within the region, together with greater use of M.Sc. holders to teach ancillary, introductory and some intermediate level courses. This could alleviate much of the staffing problem, improve the quality of teaching and possibly unlock solutions to other problems

w. *While many universities operate procedures which address aspects of quality assurance, few can be said to manage quality in a unified, systematic and fully documented manner that includes all aspects of university life.*

x. *National accreditation to maintain minimum academic standards is a laudable idea; however, the reports are generally critical of such boards, which appear to have a stultifying effect. It appears that these boards need to revise their approach to accreditation so that they allow the potential richness of the region in Computer Science to be unlocked.*

4. Recommended Priorities for Strategic Reform

This report concludes that there are six priorities of strategic reform that require collaborative approaches between universities, departments and between universities and ministries. A regional initiative to adopt and implement these six steps should be a shared priority for Arab policy-makers in higher education. These are

Academic Programmes and Curricula: The need for proactive and strategic approaches to the design, organisation and delivery of curricula. This requires a new comprehensive approach (demonstrated by the project) to the building and management of academic programmes. While a programme should be clearly defined in terms of its aims, intended learning outcomes, external references and benchmarks, it is essential that the content and organisation of the programme's curricula and courses, the methods of its delivery and the deployment of its resources are periodically reviewed to ensure they match and fulfill the programme aims and intended outcomes.

Accreditation Bodies: The need to re-examine the role of official national accreditation bodies with a view to ensuring that, while universities should be required to meet minimum national standards that are expected from higher education institutions, they are also allowed sufficient freedom with regard to admission policies and the development of their academic programmes and curricula. This can only be achieved within an overall national regulatory framework that avoids centralised control and supports diversity and competitive innovation and endeavor within the sector and relies more on the role of independent professional peer review and quality assessment as the means of measuring and rewarding performance.

Academic Staff: Although all reviewed programmes enjoy high levels of competitive student demand, the lack of sufficient numbers of qualified Computer Science staff is a bottleneck that is seriously affecting programme performance in almost all providers. This requires new short and long term strategies of enhanced investment in this most valuable of academic resources, strategies that embrace levels and fields of needed staff, post-

graduate scholarships, financial and academic incentives (including the recognition of excellence in teaching) and new opportunities for staff professional development and research.

Learning Resources: Other learning resources are deficient and urgent, strategic investment plans are required particularly in libraries, in terms of resources, staff and organisation and with a view to encompassing both the traditional and electronic components of libraries. There appears to be a region-wide deficiency in making use of the new learning resources and opportunities that are created by information and communication technologies. It is important that investment is made in the provision of network infrastructure within and between universities and with the Internet. The planning and sustained maintenance and development of these networks is essential. A key part of any network infrastructure development should be training of university personnel in all aspects of network planning, installation and maintenance.

Quality Assurance and Enhancement: The need in departments and universities to develop appropriate internal quality assurance processes that build upon existing elements of regulation and reporting, and that such systems pay greater attention to: listening to students, the employing community and other stakeholders. This entails systematic recording and management of data/ information as the means of monitoring and reporting upon good practice, progress and success/ failure. Such reporting should be organised to ensure that the loops of monitoring, action and feedback are closed, effective and conducive to inculcating the culture of continuous improvement and learning.

The language of teaching: More concerted effort and resources are needed for addressing the language of teaching issue. Universities that teach in Arabic need to work together nationally and across the region to produce the minimum amount of up to date Arabic or Arabised texts and other teaching material (in both paper and electronic form) that are urgently needed by students and staff. The demand for these resources, combined with regional collaboration can create a viable regional market for such products. In addition, students in these universities should also be provided with extra training in technical English to enable them to use additional texts and other learning resources in English, especially through the Internet. Universities that teach in English should also ensure that their students are provided with sufficient language training, not just with regard to comprehension of lectures (without resorting to mixed language modes) but also with regard to the ability of students to clearly express their thoughts and ideas in sound scientific writing.

5. Building on Strength

In addressing these challenges, the universities, departments and ministries can build on their present strengths. For, notwithstanding the criticism in this report, it is also established by the review that Computer Science is a vigorous and competitive field of academic study in the region. The best of its graduates demonstrate a high academic standard; they are valued by employers and able to compete internationally. There is visible growth and large potential for much needed improvements, in terms of quality and impact. There is also a dis-

tinct awareness among the participating academics of the need for increased investment in such quality-based development. Other strengths to build upon were established by the review and include:

- *A willingness in the departments reviewed to take up the challenge of evaluating and improving their programmes. Their active involvement in, and important contributions to, all stages of these first independent quality assessments is proof positive of their academic seriousness and commitment.*
- *The region-wide emphasis on invaluable graduate or capstone projects.*
- *A trend towards including an industrial training element in many programmes and stronger links with industry and employers.*
- *High completion and achievement rates in about half of the participating universities.*
- *Clear awareness among academics, decision makers and students of the special importance of effective Computer Science education for national and regional development and job creation.*

Table 1 Summary of Key Indicators

		University 1	University 2	University 3	University 4	University 5	University 6	University 7	University 8	University 9	University 10	University 11	University 12	University 13	University 14	University 15	TOTALS
	Main review judgments																
1	*Academic Standards*	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	A/S	UN	A/S	UN=1;A/S = 14; A/C = 0
2	*Teaching and Learning*	S	G	S	S	G	S	S	S	S	G	G	G	S	S	G	U =0; S =9; G = 6
3	*Student Progression*	S	S	S	S	U	U	S	S	S	G	G	G	S	S	S	U = 2; S = 10; G = 3
4	*Learning Resources*	U	S	U	U	S	S	U	S	S	G	G	S	U	S	S	U = 5; S = 8; G = 2
5	*Quality Assurance & Enhancement*	U	U	U	U	S	U	S	S	S	S	S	S	S	S	S	U = 5; S = 10; G =0
Indicator	Other selected aspects																
1	*Sufficiency of academic staff numbers*	U	S	U	U	U	U	U	U	U	S	S	S	U	S	G	U =9; S = 5; G =1
2	*Academic standards and rank structure of existing staff*	G	G	G	G	U	U	G	U	G	G	G	G	S	U	G	U =4; S = 1; G =10
3	*Mathematics component of curriculum*	S	S	S	S	S	S	S	S	S	S	S	G	G	S	S	U =0; S = 13; G =2
4	*MFT core areas that are covered to 70% or more**	0	1	1,2,5	1,2	1	1,2	1,2,3,5	1	1,2,3,4, 5	1,2,3	1,2,3	1,2	1,2,3,4, 5	1,2	2	Area (Number) =1(14), 2 (11), 3 (5),4(2), 5 (3)
5	*Total % coverage of MFT curriculum***	47	37	78	63	56	74	73	55	82	81	80	84	90	66	59	Average = 71%
6	*Role and organisation of graduation project*	G	G	G	G	G	G	S	G	S	S	S	G	G	G	G	U = 0, S = 4, G = 11
7	*Number and academic quality of books and journals*	U	U	S	U	U	U	U	U	U	G	G	U	U	U	S	U = 11, S = 2, G = 2
8	*Library organisation and space accomodation*	S	U	U	U	S	S	U	S	G	G	G	U	U	G	G	U = 6, S = 4, G = 5
9	*Facilities and arrangements for internet access and use*	U	U	U	U	S	U	U	G	S	S	S	G	G	S	G	U = 6, S = 5, G = 4
10	*Number and Organisation of PCs*	U	U	U	U	G	S	U	U	G	G	G	S	U	G	G	U = 7, S = 2, G = 6
11	*Students copmetence in technical English*	S	S	U	U	S	U	S	U	G	G	G	S	G	S	G	U = 4, S = 6, G = 5

Notes: Abbreviations: For Academic Standards only. UN: Unapproved; A/S Approved /Satisfactory; A/C: Approved with Commendation
For Quality Assurance and Enhancement only: U: Unsatisfactory; S: Satisfactory
For other indicators: U: Unsatisfactory; S: Satisfactory; G: Good

* MFT curriculum core areas: (1) Programming Fundamentals, (2) Software Systems, (3) Computer Organisation and Architecture, (4)Theory and Computational Mathematics, (5) Special Topics. See paragraph 32 of the report.

** See paragraph 32 of the report.

I. Introduction

I.1 The UNDP/ RBAS RAB 01/002 Project

The Project "Enhancement of Quality Assurance and Institutional Planning at Arab Universities" is sponsored and managed by the UNDP Regional Bureau of Arab States in partnership with selected groups (consortiums) of Arab universities. The project's development objective is the introduction of independent systems of quality assessment of programmes in Arab universities with reference to internationally established criteria, procedures and benchmarks. This report is a product of Component A of the project, which is focused on assessing the quality of Computer Science education in Arab universities (during the year 2002). This is to be followed by assessment of the quality of Business Administration programmes in a similar group of universities during 2003.

The project includes two other components that are being implemented in parallel with Component A. Component B aims at assisting participating universities in the development of statistical databases on their main activities and resources in accordance with commonly agreed international data definitions and specifications. Component C aims at assisting participating Computer Science and Business Administration programmes in assessing the performance of their senior year (graduating) students in their major field of study through the administration of international tests.

I.2 Academic Subject Review

The Academic Subject Review Method, customised for use in the Arab universities from the method published by the UK's Quality Assurance Agency for Higher Education (QAA), is prescribed in a Handbook (*Handbook for Academic Review*) that has been prepared by the project, produced in English, Arabic and French and adopted as the basis of both the internal and external stages of the review process.

The method places responsibility on the university to evaluate and report on the quality of learning opportunities and the confidence in academic standards within a framework for review. This framework, described in the *Handbook*, includes the use of both the specific aims of the reviewed provision as well as external reference points to establish and improve the academic standards.

In most Arab states, the academic standards are proscribed and/ or accredited by the Ministry of Higher Education or an equivalent central body. Computer Science curricula are strongly influenced by the specifications of the American Computer Machinery (ACM) authority. In the UK the QAA has published a wide range of materials designed to provide a background against which the reviews can take place, for example subject benchmark statements and a code of practice. Each university was asked to identify its external subject reference points so that its academic standing may be judged.

I.3 The Academic Subject Review process

Subject review is a peer review process. Appointed representatives from all participating institutions were given detailed briefing and guidance, through a series of training workshops and subsequent advisory correspondence on the review process and the conduction of both the self-evaluation and the external review process.

The review starts when institutions evaluate their provision in the subject in a self-evaluation document. This document is submitted to the project for use by a team of external reviewers, composed of experienced specialists in the discipline who are also registered QAA reviewers. Each external review team included a UK team leader (Review Coordinator) and a team member (Review Specialist). In addition, by providing the leading representatives of all participating universities with theoretical and practical training on the external review process, the project was able to include at least one Arabic-speaking review specialist in each review team.

The reviewers read the self-evaluation document and visit the university to gather evidence to enable them to report their judgments on the academic standards, the quality of learning opportunities and the ability of the university to assure and enhance academic standards and quality. Review activities include meeting staff and students; scrutinising students' assessed work, reading relevant documents, class observation and examining learning resources. Full details of the process of subject review can be found in the project's *Handbook* for Academic Review

I.4 Criteria and Ranges of Possible Judgments

The standard framework of evaluation addresses three related questions:

- The degree of confidence in the academic standards of the provision, as manifested in its aims and intended learning outcomes, the curricula of studies, the practiced methods of student assessment and the actual achievements of students.
- The quality and effectiveness of the learning opportunities that the provision offers to current and prospective students in terms of teaching and learning, learning resources and the academic support and guidance that secures the students' academic progress.
- The degree of confidence in the provision's internal arrangements and capacity to assure, maintain and enhance academic standards.

For Academic Standards, reviewers make one of the following judgments on the fitness for purpose of the intended learning outcomes, the curriculum, student assessment and student achievement:

- Approved (with commendation): demonstrates a substantial number of good features outweighing any matters that deserve to be addressed.
- Approved (satisfactory): demonstrates on balance acceptable standards together with the need to address many issues and make substantial improvements.
- Not approved: arrangements are inadequate in any one of the four elements that comprise academic standards and major remedial action is necessary.

For the Quality of Learning opportunities, the reviewers make judgments under each of three elements (teaching and learning, student progression and learning resources) according to the degree of success demonstrated in securing appropriate arrangements. Three graded outcomes are used by the reviewers:

- Good: there is good practice and, although there may also be some issues to be addressed in the spirit of continuing improvement, the reviewers are confident that the university has the capacity and the

commitment to address these successfully.

- Satisfactory: on balance, good features are accompanied by one or more substantial areas for improvement that are not presently fully addressed and that are subject to recommendations for action.
- Unsatisfactory: The arrangements do not match the stated educational aims or support the intended learning outcomes and remedial action is necessary.

For Quality Assurance and Enhancement the outcomes used by the reviewers are expressed in terms of the degree of confidence they have in the institution's ability to assure and enhance quality and academic standards in the subject under review. They make one of the following judgments:

- Satisfactory
- Unsatisfactory

II. Subject Provision and Aims

Subject Provision

1. All but two of the 15 universities under review offered an undergraduate programme in Computer Science. In addition universities offered undergraduate programmes in Software Engineering, Information Systems, Computer Engineering, and General Engineering, five of which were included in the reviews. One university offered a set of three closely related masters programmes for review; these programmes are also closely linked to the undergraduate programme. One university offered only a postgraduate diploma for review. This report addresses all of the programmes under review; however, unless otherwise stated, it refers to either all programmes or an undergraduate degree in Computer Science.

2. The universities involved do not follow a uniform model for their undergraduate programmes. Various programmes are based on the North American, the French or the British system, usually with local variations. This variation is addressed in the report. Similarly, the main language of instruction varies with institutions teaching in French, English and Arabic or more commonly some mixture of either French or English and Arabic. In almost all cases undergraduate programmes consisted of a mixture of university, faculty and specialist courses. Some of the universities segregate male and female students for teaching and all other activities.

3. Undergraduate Computer Science is usually provided by a Computer Science department; however, such departments are found in a variety of faculties/ schools. The location of the provision of Computer Science has a bearing on the fitness for purpose of the curriculum, the learning resources and other supporting systems and facilities. A small number of Computer Science departments have recently been incorporated into IT faculties. Such a move would appear to offer advantages particularly in bringing together other planned or existing programmes in the same broad area, for example, Software Engineering or Information Systems. This issue is addressed under the Intended Learning Outcomes and Curriculum sections.

Overall Aims

Each university was required to state the educational aims for the provision in the self-evaluation document. Additionally, each university prepared a programme specification for each programme under review and these include programme aims. While allowing universities to define their own aims appears, at first sight, to create self-fulfilling situations. it is vital as it allows a diverse range of universities and programmes to be reviewed by the same method and for each university to define the nature of its computing programmes. The aims stated in the self-evaluation document by each university should define what the programme is intended to achieve and therefore provide a basis for assessing its success.

5. Many universities included parts of their mission statement in the self-evaluation. In such cases the provision aims were related to the mission statement. In general the quoted section of the mission statement was considered helpful in providing context and helping to explain the rationale for the 'university required courses'. In every par-

ticipating institution the stated aims were consistent with the mission of the institution and with the programme aims. However, review teams noted some omissions, where the stated aims of the provision were either not comprehensively addressing all aspects of the curriculum offered or they did not line up closely with the stated programme aims. Universities may find it helpful to reconsider sections of their mission statements and provide a starting point for their faculties and departments to define programmes in terms of educational aims together with intended learning outcomes. It could then be a requirement for each new, or modified, programme to be shown to be consistent with the mission statement of the university, informed by the use of external reference points such as state accreditation regulations and relevant internationally recognised professional specifications.

6. The following list contains the most common themes within the complete set of all provision aims, although not all aspects of the quoted theme necessarily appeared together. The figure in brackets identifies the number of times this theme occurs:

- Fitting graduates for employment [12];
- Fitting graduates for further study or research [10];
- To give a sound grounding in the theoretical aspects of the discipline [10];
- To enable all students to achieve a good level of the higher order skills such as critical evaluation and independent learning [10];
- To provide graduates with good software development skills [8];
- Meeting local, national, regional or international needs for graduates in the discipline [8];
- To enable all students to achieve a good level of transferable skills (sometimes presentational skills) [8];
- To enable staff research [7];
- To recruit the best students and enable them to reach their full capacity [6];
- Various aims related to specific aspects of the discipline [6];
- Ensure that students acquire a clear understanding of their economic, professional and ethical responsibilities and of the impact of ICT developments and solutions in the global economic and cultural environment. [6];
- To provide education in modern technologies and their application [5];

7. The stated aims were rarely inappropriate and they generally provided an appropriate basis for undertaking the review. The review teams, however, rarely regarded them as useful in defining the programmes. The majority of statements of aims prepared for the reviews have significant gaps. These omissions include a definition of the discipline or sub-discipline, the breadth and depth of study, the intended entry level to the programme, the intended markets for the graduates, the skills and knowledge which the graduates will possess and the extent to which staff research, current technology and its applications, and scholarship inform the students' work. Where participating institutions offer more than one undergraduate programme, for example a science-focused programme and a more vocational and practical programme, the aims do not provide sufficient differen-

tiation between the programmes. In all references to the higher order of graduate skills, the stated aims deserve closer definition to clarify the range of cognitive, subject specific and transferable skills. There is also little in the stated aims that covers the university and faculty requirements. The stated aims, to be the basis of the design, delivery and review of programmes of study, require a clear identification of these features as well as the broad purposes illustrated in paragraph 6 above. Providing such matters are addressed, the statements of aims can form the basis from which the intended learning outcomes are derived.

With regard to Subject Provision and Overall Aims the reviewers recommend that the universities consider the following:

- Reconsider sections of their mission statement to meet the specific need of providing a starting point for defining programmes in terms of intended learning outcomes. (ILO's).
- The need to reconsider their general and programme aims with the specific intention of providing a set of aims which accurately describe what the programme is intended to achieve, to the point that these may form a sound basis for the derivation of all aspects of the programme through a coherent set of ILO's. The aims and intended learning outcomes should explicitly identify the depth of skills and knowledge that their graduates should possess and relate these to the entrants' qualifications and abilities.
- The need for more explicit definitions of key aspects, in particular vocational relevance and graduate skills.

III. Academic Standards

Review Outcome: *Overall, the review teams concluded that, in all but one case, universities had demonstrated the threshold level of confidence in academic standards in Computer Science. However, it was clear from the reports that the degree of confidence varied greatly. In the best performing universities, the review teams acknowledged good practice in at least one aspect of academic standards, with the curriculum and student achievement featuring as the strongest. However, in cases the reports suggest that the academic standards were considered as just satisfactory. It is disappointing that no provision was judged to have academic standards worthy of commendation. It is encouraging, however, that the level of awareness for the need to upgrade academic standards is high among all universities and that this awareness is combined with a very healthy willingness to welcome critical evaluation and identify areas of needed reform.*

III.1 Aims and Intended Learning Outcomes

8. The participating departments were asked to identify the external reference points that they use to ensure that their academic standards are directly comparable with universities elsewhere. The following list identifies the range of reference points addressed in the self-evaluation documents.

- Local (national) accreditation requirements;
- Regional universities;
- Other universities, commonly those at which the faculty members have studied;
- The Association for Computing Machinery (ACM)/IEEE guidelines for Computer Science, usually 1991 although a few cited the 2001 edition;
- The UK benchmark statement in Computer Science (published by QAA);
- Information about other universities from the Internet.

9. The reviewers suggest that many of these references need to be used with care because they may not be appropriate. For example, many aspiring academics from the region undertake a PhD at a research led university in North America or Europe. Using this as a model may only be appropriate for universities that can recruit first class students, provide the resources to support a large, research-active department and have a mission that includes similar aspirations to the one being used as a model. Clearly, many institutions do not match these criteria and, therefore, an alternative model, or a variant, may be preferable

10. In several of the host countries a national organisation accredits programmes at individual universities, although the rigor of the process varies between those that simply authorise the running of programmes through to those which check the academic content of the programmes concerned, others simply check that the resources are available to run the programmes. In general, the reviewers acknowledge the work of the various national accreditation bodies in maintaining academic standards, although the implementation of accreditation does not always appear to be well managed or equitable to all participants. There are instances when the regulations have the effect of dictating the curricula from the centre

and sometimes, by setting a gold standard of course content and input requirements, have in practice an adverse effect by acting as a constraint on maintaining the currency of the curriculum. One of the clear lessons from the project working across the region is the diversity in approach and differences in the effectiveness of the state accreditation processes. In the course of the project, the Ministry in one country instituted a review of the accreditation arrangements with a review to reforming the process. The roles and regulations of all the respective national accreditation bodies deserve such review and reform. It is possible that a regional body could be formed to accredit the Computer Science programmes. Any such accreditation body, however, whether operating nationally or regionally, should seek a consensus on establishing an enabling framework that enhances the level of confidence in academic standards and allow each university to define its own aims, learning outcomes and curriculum. This would allow a university to define its own model for the curriculum according to local needs and resources. This is the approach now taken by the Accreditation Board for Engineering and Technology (ABET) and the Computer Science Accreditation Board (CSAB) in the USA and therefore will be the model experienced by university staff now undertaking PhDs in North America.

11. The process of defining intended learning outcomes (ILOs) is challenging. It not only provides a precise yet flexible specification that supports quality assurance processes, but also assists academic staff and students to "think learning and outcomes" rather than "inputs and what is to be taught". Many universities acknowledged that they had derived their ILOs from the programmes already in place. Although the pioneering circumstances of the reviews made this pragmatic ('bottom up') approach almost inevitable for this set of reviews, in future reviewers would hope to see the ILO's derived from the aims of the programme. The bottom up approach used throughout the reviews illustrated many pitfalls, such as: faculty and university requirements that did not meet ILOs, numerous omissions and repetitions related to skills, and to a lesser extent knowledge, ill-defined and often ill-judged academic standards and poor curriculum design. The 'top down' approach has many advantages, as the industry has discovered when building software. Among the benefits are: the academic standard of the programme is defined and used to inform the choice and content of courses, only courses that are required to fulfil the ILO's are included, undue overlap between courses is avoided, omissions are avoided, periodical revision and updating of the programme and curriculum is enabled on a systematic rational basis and employers and other stakeholders are consulted and informed about precisely what qualities can be expected from graduates.

12. The project training workshops for the university representatives and the Project Handbook detailed a very helpful template in which each programme could be specified against four headings: Knowledge and understanding, Cognitive skills, Subject specific skills and General transferable skills. Used carefully and in such a way that the whole programme is covered, it is possible to include all of the strengths and avoid the weaknesses outlined in the above paragraph. while a very few either misunderstood the template or perhaps the notion of intended learning outcomes, the majority of

participating universities are reported as having used this template to advantage in this project . Such a template is a valuable tool easily transferable to other disciplines and institutions.

In general, the reports identify problems in mapping between the aims, the external references, the programme ILOs, module ILOs, the course topics and descriptors and the topics chosen for assessing students. In particular, course ILOs were often not well defined, sometimes at odds with practice and not well presented. The reports frequently indicate a communication problem with both staff and students regarding ILOs.

With regard to the Intended Learning Outcomes, the reviewers recommend that the universities consider the following:

- There is a need for universities to state clearly the external organisations against which it judges its academic standards and for these reference points to be appropriate. This action could result in the university choosing to change or modify the model for its curriculum, for example to a smaller more specialised major in Computer Science. Such moves should not be precluded by accreditation if they are justified and academically coherent.
- The need for the universities that were criticised for vague, incomplete or contradictory ILOs to rectify the situation by drawing up ILOs for each programme and each course on the basis, in the first instance, of their current programme specifications.
- The need for all universities to redefine their ILOs in detail on the basis of their aims and then re-examine and to use these as the basis for revalidating their programmes, modifying, replacing and omitting courses as appropriate.
- The need to ensure that the ILOs are clearly and precisely defined and that they are mapped to the programme content and course descriptors.

III.2 Curricula

At undergraduate level the participating universities follow a number of different curricular models varying in the depth and breadth with which Computer Science, and the related programmes, are treated. Similarly, the expected length of programmes varies: programmes intended to lead to the title Engineer for their graduates are five years, while others are normally four years. There is considerable variation in the proportion of the total curricula hours spent on Computer Science or the other main discipline, Mathematics, Science and other topics.

15. The international situation has moved from defining what should be covered within a programme, to defining what abilities graduates in Computer Science should have. In particular what Subject specific skills and knowledge, what skills and knowledge graduates in Science and Engineering based disciplines might be expected to have and also what might reasonably be expected of all graduates. Within the Computer Science and related fields, the work of the most recent ACM/IEEE project (2001) and the UK (QAA) benchmark in Computer Science are probably the most significant in terms of coverage and acceptability. This report draws on these documents, particularly that from the ACM, since many of the participating universities are based on the North American model. Computer Science providers should also assess the depth and breadth of their curricula against those defined by international testing organisations that develop and administer worldwide standardised tests for measuring the performance of senior students in the field of Computer Science (as well as other major fields of undergraduate studies). One well-known example is the Educational Testing Services in the USA.

16. The ACM 2001 argues eloquently that all programmes, regardless of the amount of computing in the curriculum, should demonstrate the following:

- Cover all 280 hours of core material in the Computer Science body of knowledge
- Require sufficient advanced coursework to provide depth in at least one area of Computer Science
- Include an appropriate level of supporting Mathematics
- Offer students exposure to "real world" professional skills such as research experience, teamwork, technical writing and project development if they are to claim to have laid a rigorous foundation for Computer Science. This report attempts to use the above as a benchmark for all of the programmes as regardless of title, each programme specification includes a strong computing component and therefore they could all be expected to demonstrate a Computer Science core.

17. It is clear from the reports that not all of the universities cover the ACM 2001 core, or any closely related core. Weaknesses are reported in the areas of: Theoretical Computer Science, Human Computer Interaction (HCI), professional and ethical issues, and in one programme not strictly Computer Science both Software Engineering and Databases are options). The reviewers strongly suggest that all universities in the region should offer an agreed core for all computing-related undergraduate programmes. Such a core could be agreed within existing regional organisations, or all universities could simply accept that suggest-

ed by the ACM/IEEE 2001.

18. Programming coupled with programming languages forms the largest single section of the core (around 20%). Aside from perennial arguments over how to teach programming, and what language should be used, which are local issues, there is an issue of academic progression that is not always satisfactorily resolved in the participating institutions. One factor operating against appropriate progression is the treatment of programming languages. While it is necessary to teach the syntax of one language, in order that students may test algorithms or design, implement and test software. It is clearly not appropriate to repeat a near identical experience. Curricula which included multiple computer languages were common, and even required, by some accreditation boards, until recently. The reports show that there is a continuing overemphasis on programming syntax in at least 4 universities. The reviewers consider that studying different paradigms is appropriate; however, after studying the syntax of the first language, students should either exercise their individual learning skills or join a training course which is outside of the university curriculum if they are to gain proficiency in multiple computer languages.

19. Another major influence on the design of academic progression in Computer Science curricula is the mixture of introductory, intermediary and advanced courses. Any of these levels can contain core material. All of the participating universities included material at each of the three levels. Intermediary courses are intended to build both a subject and skills foundation for further study and are typically found in the second and third year of a programme. Advanced courses require considerable preparatory work and are usually found in the final year or years. Some universities engage with progression by using a year based model, the aim being that students must pass each year before proceeding to the next year. The remaining universities define a system of pre-requisites; however, not all reports indicate satisfaction with the existing pre-requisites and often feel they should be strengthened, and as reported elsewhere in this report, enforced in order that they meet the requirements specified in paragraph 19.

20. A period of summer training in industry makes a valuable contribution to a number of programmes. In particular this period, usually of two months, often informs the student's graduation project and provides fresh perspectives on industrial and commercial practices and developments and therefore successfully addresses the vocational aims of the programme.

21. Final year, graduation or capstone projects are an integral part of the curricula of the entire reviewed undergraduate programme. The majority of the projects are scheduled to be double courses usually taken over two semesters although this is not universal and one university schedules two separate projects in two courses. Many of these projects are directly related to 'real-world' problems, sometimes arising from periods of training in industry undertaken by the students. Commendably, such projects often require students to work through the whole process of building a complete computer based system required by an external client. In an example of good practice, one institution allows its students to undertake the internship and project in either order. All of

the teams regarded the inclusion of a final year project as a strength and this view is very much in keeping with current international guidelines.

The degree of training for final year projects appears to vary between none and a full research methods course. Project work is always seen as an integral part of the transferable skills curricula and review teams clearly support the notion that students develop not only the core skills, such as presentation and time management, but also the higher order skills such as independent learning and critical analysis. All the review reports are strongly supportive of the inclusion of final-year projects, which contribute greatly to the graduates' employability and is the culmination of the students' independent learning. Providers may wish to consider defining a set of prerequisites which are to be acquired progressively by students, through the main and supporting components of the curriculum, to ensure that all students have the necessary skills to successfully undertake a graduation project.

23. In addition to the Computer Science programme, each university has to define how it proposes to use the remaining curricular space and the bases on which these choices are made. The decision is within the context of curricula that are frequently overcrowded with competing demands on the available time for the students to acquire knowledge and skills. Such choices always include a number of subjects which support the major discipline such as language skills, cultural knowledge and study skills. To a degree they also address how weaknesses inherited from the school system can be addressed. For example, poor written language skills, weak English or French, poor study skills, general weak performance and others.

24. The degree to which Transferable skills and advanced technical language skills are specifically taught, rather than acquired as a result of other activities, varies. The overall message is that they certainly need to be taught to weaker students. One university has included such skills, to the extent of 11 credit hours, in its university requirements. Other universities may wish to consider this idea and replace less relevant courses by professional study skills courses. Such a move could enhance the professionalism of the students' later work and take some pressure off the Computer Science staff who are, in reality, doing this teaching.

25. At present, many universities require Computer Scientists to study Physics, Chemistry, Biology and even Earth Sciences in part because the Computer Science department lies within the faculty of Science which in turn is dominated by Natural and Life Scientists. The reviewers strongly suggest that within the spirit of the Computer Science ILOs, Science should be included in the curriculum only if it contributes to the Computer Science students' education in a meaningful way, perhaps in conjunction with HCI. Any other Science that a university or faculty includes in the curriculum should be justified in terms of its own ILO's. The reviewers suggest that where a university includes such courses they should now expand their ILOs by defining the purpose of the Science in terms of outcomes and then which courses are needed to meet the revised outcomes.

26. The review teams reported that every institution covered appropriate support Mathematics (Basic Calculus and Discrete Mathematics) meeting the general requirements of the core

of Computer Science. Mathematics is a strength in the Computer Science curricula within the region. However, there is some suggestion that the volume and scope of Mathematics is too high at many universities with the universities which follow a broadly French style of curriculum covering the most Mathematics in the 'Classes Preparatoires', and the 'first cycle' in at least one university is run by the department of pure Mathematics. In general, it is up to individual universities to decide how much, and which, additional Mathematics they need to meet their aims and learning outcomes. Subjects such as Geometry, Ordinary Differential Equations, Linear Algebra, and Numerical Analysis should be included in individual programmes only if justified, and each topic may not need to occupy a complete course.

27. Many universities identify a need to maintain the currency of their curriculum while also maintaining a core of material that evolves quite slowly. Balancing these potentially conflicting requirements can be a problem, particularly if universities are to avoid the pitfall of simply following current technology or software packages. The first problem that is encountered by most universities in this regard is shortage of staffing, both in terms of their number and their subject expertise. Secondly, some national or university regulations inhibit an individual university's ability to respond rapidly to changing needs and to maintain the integrity of the programme as well as its currency. Finally, a provider must choose which of a long list of 'modern topics' to include. For example, object-oriented analysis and design, object-oriented databases, interoperability, embedded systems, event driven programming, hypertext and hypermedia, multimedia, software safety, network security, graphical user interfaces, wireless computing, web based applications, sophisticated API's. All feature in up-to-date curricular, but not all in the same curriculum. Most review teams found that the core has been updated recently, for example, object oriented programming is featured in most curricula; however, the reports do not indicate a strong sense of currency, rather there is an indication of some up-to-date topics being included at most universities, sometimes by means of non-specific special topic courses and sometimes by electives.

28. In total, only five undergraduate programmes had titles other than Computer Science and two of these are directly related to Computer Science programmes. Judging by a number of other reports, Information Systems (three courses) is a growth area within the region. Insofar as it is possible to generalise, Information Systems programmes share many of the early courses with Computer Science up to and including the third year. Most of the comments above are as applicable to Information Systems as to Computer Science. The one General Engineering programme is, in the opinion of the review team, misnamed as all of the three specialist streams are in the field of Computer Science. The one Computer Engineering degree shares much of its work, including an extensive list of options, with the parallel Computer Science programme. Finally, there is one Software Engineering and Information Systems programme. The latter shares the first three years with all other courses in the faculty and is too small a sample to support meaningful comment.

29. Two universities offered postgraduate programmes for review. The first offers three closely related M.Sc.s all of which are directly associated with

its undergraduate programme and provide a means of specialising the software oriented general Engineering programme. The taught part of these programmes is reported as appropriate to the level, and each degree leads to a project or a dissertation. The second programme is a two-year postgraduate diploma aimed at converting Scientists and Engineers to a specific range of Computing and Communications disciplines. The latter programme is very broad, as it is intended to be equivalent to a full first degree programme, but nevertheless offers a range of highly specialised topics that are informed by current developments. It places a heavy emphasis on the development of transferable skills. Both programmes require students to undertake 'real world' projects which are related to either industry or research.

30. These post-graduate programmes represent too small a sample of the available Master's provision to make meaningful deductions about the provision in the region as a whole. In view of the strong regional need for more qualified academic staff in Computer Science and the high cost of sending postgraduate missions abroad for further study, there would appear to be a demand for more high quality Masters' programmes in the region. Good quality Master's programmes provide academic staff with opportunities to carry out fruitful research, while well trained M.Sc. graduates can shoulder much of the junior level teaching and provide the needed university-wide instruction in Basic Computing skills. Although the number of providers who offer postgraduate programmes in Computer Science within the region is not known, the present experience suggests that it is limited sometimes for ambiguous reasons. For example one university cannot run an M.Sc. because it is private. Overall, more Masters' programmes would have a virtuous multiplier effect: by investing in increased numbers of qualified and research-active staff the learning resources for teaching the programme will be enhanced together with the provision's capacity to produce well trained M.Sc. holders who in turn enhance the capacity of the provision to teach better at less cost.

31. The need to relate 'real world' experience to the courses is well established for Computer Science and related disciplines. In general, such experience comes from research and advanced scholarship or from industry. In just over half the reviews the team found evidence of staff research, although in only one third were the reports positive of the connection with teaching. Similarly, just over half the reports indicate some connection between the staff and industry, although in no case were they reported to have a positive impact on the curriculum. One report suggests that an industrial liaison committee is to be formed, which would appear to be an important signpost for developing and sustaining links between industry and universities throughout the region.

32. A different view of the curriculum coverage of core Computer Science can be gleaned from a separate analyses carried out for the project by the university representatives and the reviewers, with the aim of establishing the extent to which each reviewed curriculum overlaps with that defined by the Educational Testing Services in the USA for its standard Major Field Test (MFT) in Computer Science. This is a multiple-choice test which is mainly intended for testing the senior (graduating class) students in this field. Similar tests are developed for

other major fields of undergraduate study.

The MFT curriculum provides a detailed list of topics under five core weighted sections: (1) Programming Fundamentals, (2) Software Systems, (3) Computer Organisation and Architecture, (4) Theory and Computational Mathematics and (5) Special Topics).

The main purpose of the analyses (which was carried out using the Spring 2002 version of the MFT curriculum) is to establish the extent to which the senior students of a given programme are eligible, in principle, to be tested in each core section of the test. As shown in the chart of key indicators (Appendix 1) the reviewed curricula cover on average 70% of the overall MFT core curriculum, although individual scores range between 37% and 90%. These figures need to be treated with a degree of caution since, as mentioned earlier, some of the reviewed programmes are not formally undergraduate Computer Science degrees.

The charts of indicators also show which of the five MFT core areas are covered by each reviewed curriculum (to the extent 70% or more). Not surprisingly, only the first MFT two sections (programming fundamentals and software systems) are covered by a majority of reviewed programmes.

With regard to Curricula, the reviewers recommend that the universities consider the following:

- The desirability of defining its programme and the courses within it on the basis of its aims and intended learning outcomes and identify how each course contributes to the achievement of the intended learning outcomes.
- The need to demonstrate how the curriculum meets its aims and that undue overlap with regard to learning outcomes is avoided. In particular it should address the following:
  - Make a clear statement as to how each aspect of the Computer Science core is covered.
  - Re-examine the relevance of Science and Mathematics courses.
  - Re-consider the design of the curricula to ensure they provide appropriate academic progression, and ensure that core and advanced transferable skills are clearly identified within its programmes and teach these skills at a professional level where it is appropriate to do so.
  - Make a specific statement with regard to currency in the curriculum. Such statements might identify specific areas of Computer Science which will form the basis of the advanced and current topics.
  - Consider how advanced 'special topic' courses can be specified. The actual topic of such courses is left open and, therefore, they do not have a syllabus but they do need ILOs one of which specifies the need for currency.
  - Ensure that advanced courses are taught by university staff who are currently experts in the field
  - Develop and formalise links with industry.

III.3 Assessment of Students

33. Providers were asked to prepare programme specifications that defined the ILOs and, importantly, the method by which these are assessed. As with the curriculum this was a bottom-up process as individual course assessments were already in place, and perhaps more significantly, many programmes are constrained by national or university assessment regulations.

34. While a few universities failed to map the ILOs to the assessment effectively, the majority of universities made a good attempt at mapping ILOs to assignments with respect to the knowledge and understanding aspects of the provision and they were quite clear about the role of various examinations. They were also generally clear

with regard to the role of practicals and projects with regard to the acquisition of skills.

35. Most of the universities use a good range of assessment types including: written closed book (and occasionally open book) final examinations, mid-term examinations, homework, quizzes, programming assignments, practical examinations, research exposés, reports, projects, discussions, and presentations. In broad terms the review teams considered the assessment types to be appropriately used; however, staff did not always appear to be quite clear about the purpose of all assessment types and how, or even if, the ILOs should be assessed. For example, the valuable industrial training period is not always formally assessed. The ILOs should define what skills and knowledge have to be assessed for summative (to test that they have been covered) purposes and, therefore, it should be possible to map where each assessment fits in relation to the ILOs. Similarly, it should be possible to map the formative (assessment which is designed to help the student learn rather than test the learning) aspect of assessment into the learning aspect of the ILOs.

36. Course leaders at some universities are constrained by regulations, while others have considerable freedom to decide how to assess their course. Although the latter situation can lead to problems at programme level, since no overview is taken of the balance between different assessment types or whether the overall diet addresses all the ILOs within each course, the assessment strategy can incorporate interesting and relevant activities within a developmental framework. There is also scope for, and some evidence of, the use of innovative technology-based assessment. The experience of some students is constrained by the methods of teaching and some university regulations. For example, some students have little chance to work on significant problems or case studies until their final year project. As a result, the opportunities to use assessment to develop professional, practical, analytical and synthetic skills are restricted and opportunities for formative assessment relating to skills are similarly limited.

37. In general the process of ensuring that examinations and other assessments are fair, of an appropriate standard, provide sufficient differentiation between weak and able students, and test the intended learning outcomes, is weak across the region, although there are pockets of better practice. The few universities that teach males and females separately do ensure that all students take the same examinations at the same time. In a few universities instructors are required to submit a copy of their examination and marking scheme to the department chair in advance. However, this is not the norm and in too many universities there is no independent review of examination papers before they are sat by students. In some cases even staff on different sections of the same programme do not confer.

38. Grading criteria are not commonly used and many staff feel that they are not necessary as there are clearly right or wrong answers, with little room for subjectivity. Review teams are unconvinced by this simplistic view, which would appear to be reinforcing inappropriate testing for a B.Sc. degree and in conflict with the stated aims of the programmes. The reviewers consider that departments should define criteria for each assignment

and for various grades in order that the students' achievement against the ILOs can be measured. This important step will also provide greater openness and transparency in the programmes.

39. At most of the participating universities individual written feedback on student work is the exception rather than the rule. There are also a number of universities, where, although written feedback is required, it does not actually happen across the provision. More commonly, feedback is provided to the group. Feedback to individual students on their work is vital to allow the weak student to learn sufficient to pass and the good student to improve still further and to grow in academic stature. These benefits are rarely achieved by group feedback.

40. In general, few reports indicated that examination and other marks were moderated to ensure fairness across courses at the same level or even multiple sections of common courses. Anonymous marking is rare and double-marking extremely rare. However, at most universities students have the right to appeal against their final grades, in such cases there is usually a rigorous procedure to ensure fairness of treatment.

41. The final grades for all courses are normally approved by the department council or a similar body before they are submitted to the university registrar. These procedures are appropriate.

42. While many of the reports indicate satisfaction with the academic quality of examination papers, this is not universally true. Examples of good practice included the use of questions that require students to make deductions from their knowledge and others that are of different levels of difficulty, and, therefore, enable the differences between able and less able students to be measured. Reports also identify questions that were very simple even at the higher levels, a lack of challenge, even in the final year, an absence of discrimination between different academic levels, questions that were repeated year-on-year, examinations of an inappropriate standard, and questions that tested only factual recall.

43. Projects are widely used throughout the universities for both formative and summative purposes. In general, projects, mid-term or graduation, are undertaken by teams of students who gain considerably in terms of skills, in particular team working and research, as well as exploring new areas of knowledge. Group work is generally assessed with shared marks. There is recognition of the difficulties associated with group work, and some institutions assign marks according to each individual student's contribution. With regard to graduation projects the universities appear to be well aware of this problem and most have sound schemes to ensure that individuals are given full credit for their work.

44. Most graduation projects are assessed by a team of staff with marks being allocated for the written report, the presentation and a question and answer session. Other students are invited to such presentations at some universities. The criteria by which these projects are assessed are not always well defined or documented, although in the best examples they are very well defined. Some practice with regard to mid-term projects is less satisfactory with individual class assistants sometimes being the sole marker. It is essential that the methodologies and skills required for the project mode of learning be progressively

built up throughout the programme and especially through mid-term and in course projects and assignments.

45. Some reports suggest that a standard form or template which identifies the headings under which projects are assessed, the maximum marks to be allocated and the criteria, would be useful. Others identify criteria that are used at individual universities, including: the functionality of the project work, preparation of a bibliography; independence and ability to manage own work; initiative and dynamism; the quality of the written product; presentation skills documentation, and project management.

46. Universities feel that plagiarism is a growing problem and several have put in place policies to deal with it, although these are not always well-documented or communicated to students and staff. At least one university is to be commended for taking steps to raise the awareness of students to the issue of plagiarism and is encouraging a culture that such behavior is unacceptable. Unfortunately it remains a fact that many universities are concerned about their ability to maintain the security and integrity of assessment, particularly with regard to unsupervised work, such as assignments and, in a positive step, have introduced oral examinations to alleviate the problem. Two reports addressed the plagiarism which results from copying material from the Internet or printed documents without proper referencing and the steps being taken in the institutions to counter it.

47. External examiners are, or are planned to be, used at two universities. While accepting that such examiners are uncommon in the region, the reviewers suggest that the appointment of a critical friend from outside the university would be of value in defining the academic standards of the programmes. Critical friends can be drawn from other universities in the region or from outside. They would visit the department as needed and also offer advice by email. They could, for example, advise a department which is reviewing its programmes or setting up new programmes, offer advice to inexperienced departments or those that lack research credibility regarding the academic standard of examinations and other assignments. The reviewers would also recommend that consideration be given to preparing a regional code of practice on assessment and examining which could include the use of external examiners.

48. As noted under curriculum, industrial training is frequently a programme requirement; however, there is no serious assessment of such training or evaluation of the skills students' gain thereby. The declaration of such training as a course with formal assessment would ensure that it appeared on the student's transcript, so that the profile and significance of the training component would be raised.

49. The reports indicate considerable variation in practice with good and bad practice often occurring within the same provision. Overall, the heavy teaching load on staff restricts the provision's ability to maintain proper standards of assessment with negative implications for the level of confidence warranted in academic standards as a whole. Nevertheless, within the available resource base, an investment in rigorous and transparent assessment processes will make a significant contribution to raising the level of confidence in academic standards. There is a need for national and

regional mechanisms for sharing of pedagogical experiences among universities with a view to the dissemination of best practice of assessment.

With regard to Assessment of students, the reviewers recommend that the universities consider the following:

- Ensure greater consistency in the marking of student work, particularly across sections producing a marking scheme for all examination papers and other forms of assessment. Ensure that assessment is in line with the ILOs and tests the full range of ILOs including those related to the higher order skills.
- Ensure a greater fairness and consistency in the marking of student work, that some form of internal moderation or double marking of all marked student work should take place.
- The absence of transparency in the marking process of projects, although the projects are a potential strength.
- Introduce appropriate moderation mechanisms to ensure fairness to students and comparability of standards.
- Revise departmental approach to in-course assessment particularly with a view to providing opportunities for formative feedback to students on their progress throughout the delivery of each course.
- Seek external input to the assessment process to ensure that academic standards are established and maintained.

III.4 Student Achievement

50. The reports appear to indicate a bimodal distribution with regard to progression and graduation. At the top end, a number of universities are reported as having excellent progression and graduations at around 90 per cent each year, confirming that at these universities the overwhelming majority of students achieve the intended learning outcomes. At the other end of the scale the reviewers are concerned about progression and completion rates and suggest that the reasons for such poor rates need to be fully investigated. Pass rates at such universities are around 50 per cent and rates on individual courses are frequently lower.

51. The above figure masks other worrying factors at some universities, in particular: high failure rates in the final year, high rates of student warnings and probation for poor performance (as high as 55% of all students at some universities), carried failures, *that is students who fail their year are allowed to proceed to the next year,* (possibly as high as 70% of all students at some universities) and few students completing in the recommended time. The reviewers are slightly heartened by improving rates at one university and recognition of the problem at others. Nevertheless, the reviewers strongly suggest that these universities should analyse the performance of all students on all courses and that consideration should be given to examining the relationship between entry requirements and progression rates. Given the right entry requirements followed by good teaching, student support and appropriate assessment, there is no reason why the majority of students should not pass. Failures should be an exception, but in too many universities this is not currently the case.

52. The best universities, however, clearly and systematically collect and

analyse student performance data and take action where appropriate. Not all universities, however, have the necessary mechanisms to analyse systematically the mark profiles from courses and more than one review team experienced considerable difficulty in obtaining quantitative information regarding the level of student achievement. In this case, no statistics were provided in the self-evaluation document and it appears that progression data is not systematically collected by this university. Similarly, another university did not systematically collect and evaluate data with regard to carried failures and, hence, found it difficult to take corrective action where a student's performance is considered to be inadequate.

53. The review teams examined substantial samples of student work at all but two universities (where the sample of assessed work was confined to projects). At many universities the general level of achievement shown by this work was commensurate with that expected of such students and there was good evidence that many students are achieving the ILOs at appropriate levels. There are, however, concerns expressed in some reports with respect to the presentation of student work and the level of practical skills. At other universities the teams expressed concerns regarding the level of work which was such that large numbers of students either failed courses or achieved poor grades leading to academic warnings.

54. Graduation projects are frequently described in the reports as significant pieces of work which are often done in collaboration with local industry or with a research active member of faculty: many are very challenging. The reviewers clearly regard graduation projects as a strength in the region. At least one project is reported as being outstanding having won an IEEE regional competition. At many universities teams found good evidence of appropriate literature survey, good modeling of the problem and well-written reports. However, a small number of reports indicate a less favorable situation with poor practice by the students with respect to: report writing, weak conclusions, weak evaluative skills, and failure to observe good Software Engineering practice when building software.

55. Some review teams found evidence that students mature well after school and become independent learners and that the female students are performing better than the males both in formal assessments and in the ability to demonstrate their skills. This was demonstrated by the fact that, unlike males, female students graduate with a GPA that is higher than their secondary school examination GPA.

56. Most reports indicate that employers who attended meetings with the reviewers thought that graduates are able to apply the knowledge and skills they have acquired during their study; however, this is not universally the case. In a few cases, the employers drew the team's attention to shortcomings in the graduates, in particular, inadequate practical skills and low levels of competence in presentation and report writing. The employers' appreciation of the ability of graduates to speak and write English is only mentioned in one report.

57. Only one university indicated that its students joined exchange programmes overseas; these are reported as very successful. There are also no reports of exchange programmes within the same country or the region.

58. The reports suggest that post-graduation employment levels and the nature of the employment vary greatly sometimes because of the local political situation. Some reports suggest that as many as 95% of graduates find appropriate employment within one year while others suggest very much lower figures, certainly under 50%. However, only one of the universities formally collects information regarding employment and, therefore, most of the information above is based on anecdotal evidence, some of which was regarded as of doubtful validity.

59. Similarly, information regarding the number of graduates progressing to further study is not systematically collected. However, there is good evidence, partly because of the high rate of employment in their university, that many (the highest figure quoted is 20 per cent but in general 5 per cent is probably more accurate) of graduates proceed to Masters or PhD programmes, frequently overseas.

60. The students were generally able, and sufficiently confident, to tackle the meeting with reviewers in English. This is a testament to the students' resolve to learn the language and to the teaching of English as a second language. At some universities, where English is the main written language, students clearly found it difficult to follow the meetings suggesting that a greater use of English in classes would help them gain command of the spoken language.

With regard to Student Achievement, the reviewers recommend that the universities consider the following:

- Those universities that have high attrition rates should explore the reasons for these poor rates and take appropriate action to improve them.
- The reviewers consider it essential that all universities should systematically collect information regarding the scale and type of employment, or further study, of its graduates.

IV. Quality of Learning Opportunities

IV.1 Teaching and Learning

Review Outcome: *Of the 15 universites, five were graded good, seven satisfactory and only one unsatisfactory for teaching and learning.*

61. While written declarations of teaching and learning strategies are rare, many of the programme specifications indicate how teaching methods relate to various types of courses and activities. Most lecturers rely on lectures as the basic means of delivering information together with a range of student centered activities. Across the universities, laboratory work, student-led and research-led seminars, workshops, tutorials, problem solving classes and case studies were all used, many within the same programme. Students are generally presented with a rich set of learning opportunities.

62. In broad terms the amount of time spent on lectures and student centred work is satisfactory, although the latter often attracts a lower credit hour rate than lectures. At a few institutions the balance of theory and practical classes needs adjusting so that all students have sufficient time to develop their practical skills and also to develop a good understanding of the underlying concepts. Both these imbalances were reported in the reviews, and associated with this was a failure to relate the two aspects to each other and to the real world.

63. Each of the review teams observed a small number of classes of various types. In general such classes appear to have been well prepared. Lectures were largely based around material written on the board, although some use was made of computer-based presentations. In three universities students copy down copious quantities of notes. In such cases reviewers felt that student participation suffered. In other cases the level of student participation was high, and most students appear to be well motivated. Attendance appears to be regularly monitored at most universities.

64. The language of instruction is usually Arabic or some combination of Arabic and English or French, the precise ratio varying by country, university and course. The value of the multilingual aspects of the teaching are well understood in Computer Science, and generally well received, but students at a few universities had some difficulty with the use of oral English. Best practice in the region suggests that departments where much of the teaching is in Arabic should schedule regular technical classes in English to enable students also to use English texts and references, as necessary.

65 There is evidence of a growing use of written, or web based, course guides, although many lecturers continue to write the course outline on the board at the first meeting of the class. At present, many of the printed course guides are sketchy and provide little indication of what is expected of the student, preferring to concentrate on the syllabus content. Where course guides are used they are rarely in a standardised format. The reviewers consider that printed and/ or web based, course guides would ultimately save staff time and help the students to relate their programme of learning and assignments to the curricula and the ILOs.

66. Many courses are based on a set textbook which the student is sometimes expected to buy, while, at other

institutions, because of the cost of books and sometimes their limited availability, large scale photocopying is used to provide handouts. Some lecturers have prepared their own handouts and placed these on the Intranet, some of these being extensive. Very many of these textbooks and related books are written in English. This did not in general create a problem and students appear to cope well with reading technical English. In at least one case, however, poor English comprehension presented a real barrier to student progress. Where textbooks or structured notes are followed, the students have the advantage of being able to concentrate on explanations in class.

67. Extensive use is made of projects throughout the region and is a major strength. The reports suggest that in general the supervision of projects and their assessment is well organised. Projects at some universities are related to staff research and postgraduate projects include some work on research papers. Most of the projects are undertaken in small groups, although one report suggests that 'small' should be more carefully defined because groups of seven students inhibit the contribution of individuals. Projects are rightly seen by departments not only as a means of encouraging independent learning, but also as a valuable means of practicing skills which are needed for employment, such as team work, report writing, presentation, self-reliance, specialised skills, and interaction with outside business and professional organisations. Few universities provide training in the skills needed to produce a project and this omission can be critical where the balance of practical work in the remainder of the programme is low; In-course projects are extremely common and, therefore, virtually all students would have previous experience of undertaking a project before starting their graduation project.

68. Class sizes are usually reasonable, although some exceptions are reported: for example, one problem class of 80 students. The reviewers recommend that, where large classes will continue to be taught, the departments should explore the extensive published literature on the subject in the UK and elsewhere. In the private universities, and some others, class sizes are limited to 40 students. In such cases courses that attract large numbers of students are usually divided into multiple sections each of which is taught separately. While this is commendable, it creates a need for good organisation and is resource intensive. At the best-organised universities a single course leader manages a team and ensures that all students receive a similar experience in terms of teaching, the learning experience and assessment, but this is not always the case. If the universities that have plans to make use of computer-assisted teaching and learning can successfully apply this technology to multi-section courses, the resource savings could be considerable. It could also help overcome the resource implications of teaching male and female students separately.

69. There is evidence that the research and professional activities of staff of six universities informs the teaching. To make up for a shortfall in full-time staff, several universities employ part-time staff, many of whom are in fact full-time staff at other higher education institutions. The reviewers commend the use of visiting part-time staff to import expertise, particularly in current industrial practice, in specific areas.

70. The weekly student workload

varies considerably around the region. In a few cases loading the student heavily is regarded as a pre-requisite for a good education, while others take a more liberal view. Figures as high as 35 hours with 16 hours of lecturers are quoted, although the norm would appear to more like 16-20. A number of reports indicate that the scheduling of assignments, creates problems for students. The reviewers are aware of the problems associated with scheduling assignments but, nevertheless, feel that better organisation and coordination among teaching staff together with improved information for students could alleviate the problem.

71. Four of the universities are reported as offering staff training in pedagogy, although in most cases this is voluntary. New staff are generally expected to know how to teach and, although some departments referred to informal help for new teachers, mentoring is not commonly used. The overall effect is that new lecturers repeat the good, and bad, practice that they experienced as students. Similarly, peer review in which staff sit in on each others classes, which can do so much to highlight pedagogic needs, is as yet a rarity. The picture is, however, improving and three reports indicate that workshops on pedagogy and other aspects of the student's experience have been held and at least one department now has a committee to address these matters. The reviewers consider that there is a need to define and share good practice with regard to all aspects of the organisation of the student learning experience within and among universities.

72. While there are exceptions in individual aspects of teaching and learning, in general the intended learning outcomes are addressed in most programmes and most courses.

With regard to Teaching and Learning, the reviewers recommend that the universities consider the following:

- Ensure that best practice is widely disseminated, within and between universities, and implemented with respect to pedagogy and other aspects of the student experience.
- Make greater use of the email, and the web as a platform to support course management and provide course teaching documents and added resources.
- Review the extensive published literature on the management of large classes and explore ways of creating tutorial support for individual students in such situations.
- Provide additional resources and support to deal with situations where the language of teaching exacerbates problems. For example, extra technical language teaching, extra oral practice in language skills, more texts and notes in the main language, and additional aids such as a simple on line bi-lingual dictionary of common technical computing terms (students could produce this).
- Ensure effective organisation of multi-sectioned courses and their resourcing.

IV. 2 Student Progression

Review Outcome: *Of the 15 universites, three were graded good, two unsatisfactory and the remainder satisfactory for student progression.*

73. The majority of entrants in most countries are school leavers from within the country, most of whom have the local national school leavers certificate. There are some international students, mainly from the region, at some universities and a few students enter with other qualifications, such as the French or International Baccalaureate. As a result of the popularity of Computer Science, entrants to public universities are usually described as being among the best in the country. The entrants to the private universities are usually described as average, although in fact some universities take a number of weaker students.

74. At most public universities, the department plays little part in the selection of its students. Some countries operate national recruitment schemes with the would-be student specifying preferences, for example the geographic region, while in others recruitment is controlled solely by the university or the faculty. The latter schemes often involve a common first year, or years, and students only start Computer Science at a second stage, frequently still not selected by the Computer Science department. Entry to the university, and where appropriate, the department, is almost invariably competitive and as few as 25% of would-be applicants at some universities finally gain places in Com-puter Science. Private universities control their own recruitment, although national accreditation schemes sometimes specify the parameters within which they can work; for example the numbers are constrained by resources and the minimum level of entry qualification is specified. The reviewers support such schemes to avoid excess recruitment of unsuitable students. At one public university there is a two-tier admission system: a highly competitive admission stream for non-paying students and a much less well-qualified stream for fee-paying students. The two groups are combined to form classes of highly polarised abilities. Such actions will almost certainly undermine the stated aims and the academic standards of the programme.

75. A number of reports throw doubt on the effectiveness of recruitment suggesting that it does not always deliver students who have a talent for Computer Science or who have the attributes and maturity needed for university level education. The national admission criteria are in most cases narrowly defined in terms of the average score in the national secondary examination. In addition, national governments periodically introduce large changes in the number of students to be accepted onto a programme without regard to the real capacity of the provision. Such sudden changes can easily double the effective student to staff ratio, overload the resources and lead to the breakdown of other activities such as that for advising students on their academic progress. The effect on academic standards of such ill-judged moves can be catastrophic.

76. The problem of recruiting the right students has led to a number of schemes that attempt to make recruitment more specific and effective. Among the reported problems are declining admission grades, weak English, problems with Mathematics at one university and poor study skills.

One university now uses a general admission test and others various diagnostic tests. A number of universities have identified the problems that students have in the transition from school to university. These universities have various schemes to alleviate this problem, such as using diagnostic testing to identify weaknesses together with adjustments to the programme by providing, for example, different length English language courses. Around half of the universities offer an induction programme, which helps the students to ease into university life. Induction is described as useful by students and has the great advantage of starting a dialogue with students. It could with advantage be more widely used.

77. The few reports that mention documentation to support students are complimentary. It does appear that students welcome good quality handbooks that describe their programme and courses, assessment regulations and related topics. In Western universities much of the documentation is now held on the web and is easily available to all students. The reviewers consider that greater use of university Intranets to hold documentation and to communicate with students would be a sound investment and reduce the workload on staff.

78. Personal support, other than academic, is rare within this group of universities, as is specific support for disabled students. In an example of good practice, one university assigns every student, and every member of staff, to a 'family group' the members of which provide mutual support. Another appoints final year students to mentor entrants. Several universities have a dean of students, or student affairs officer, who assumes responsibility for a number of pastoral matters.

79. Formal academic support is available to students in over half the universities, although it is more commonly organised by level or year than individually. One other university claims to have tried support, but their scheme collapsed because they employed so many part-time staff. It certainly appears that the shortage of available and appropriate advisors limits the effectiveness of many of the individual schemes while adding to the workload of staff. At one institution the ratio of advisors to advisees was 1 : 55, while in two other universities similar schemes are effective and the above ratio is around 1:20. Year or level advisors generally offer a slightly different service and are more concerned with advising on progression than individual academic problems.

80. At most of the universities' staff publish office hours during which they should be available for individual consultations with students regarding academic matters. While the best of such schemes are clearly very effective and well thought of by the students, other appear to be largely inoperative and the students commented to the reviewers that in their experience staff are not usually available at the stated times. The latter problem appears to be very largely related to work loads and it is clear that an individual lecturer cannot make more time available than exists within working hours.

81. One of the major advantages that accrues from formal individual advising is that each student's work and progress is monitored on a regular basis by someone who is knowledgeable about them. The reports indicate that such monitoring is not undertaken at just over half of the universities and that this failure may well be a contributory factor in high attrition rates. Where male and female students are

segregated, access to staff appears to be adequate but could be improved with better organisation.

82. Academic progression through the programme appears to be a problem at several universities that operate level based curricula. In such cases the university regulations frequently allow students to carry failures through the levels, although this is usually constrained in some way, for example no more than three failures in total. The problem lies in the fact that the regulations are frequently written for disciplines with few, if any, pre-requisites and are unsuited to subjects in which the knowledge is progressive. Simple changes to university regulations could overcome such problems and deny weak students the right to continue to higher levels before they are ready to do so. Most universities run summer courses allowing students to re-take failed courses and for the best students to complete in less than the nominal time for the programme.

83. Many universities operate a warning and/or probation scheme in which students who are performing badly, though usually passing, are first warned of the need to improve and then placed on probation or even suspended if they do not do so. Such schemes are effective but by nature are addressing symptoms rather than the problem, which is causing the students to under-perform. At one university approximately 47% of students are on probation at any one time; this is an unsatisfactory situation.

84. Formal career advice is a rarity in the universities; however, there is obviously a large amount of informal support from the academic staff who appear to be well connected with local industry and in some cases international concerns like Microsoft. The reviewers welcome the plans of two universities to start alumni associations and feel that they will not only help the graduates with jobs but also collect much needed information on graduate employment.

Most students are extremely supportive of the academic staff even at universities where they were highly critical of many aspects of university life. Human resources, it appears, are the universities' most valuable asset.

With regard to Student Progression, the reviewers recommend that the universities consider the following:

- Review and improve admission policies to ensure that they are effective in recruiting a manageable number of well-motivated students who have a talent for the subject.
- Find ways to address the difficulties that many students have in making the transition from school to university by enhancing both group and individual screening, and activities.
- Ensure that the academic progress of each student is monitored at the individual level and that problems are rectified as they arise.
- Improve the quality of web based services and documentation for students.
- Address the problem of carried failures at some universities.

IV.3 Learning Resources

Review Outcome: *The reports indicate that six of the review teams found the learning resources to be unsatisfactory and that only two universities were reported as having good learning resources.*

85. Most universities would appear to have plans to maintain their learning resources, although these often appear to be short term and reactive rather than forming a part of a coherent, transparent strategy.

86. Library accommodation is frequently described as poor; however, overall this situation is improving slightly as a small number of universities built new libraries. About half of the universities fail to provide adequate study space for students. This situation is exacerbated at some universities which segregate male and female students as already inadequate space is effectively halved. Two universities have solved this problem by providing two libraries or reading rooms.

87. Access to library facilities is generally described as adequate, although there are significant exceptions with one university failing to provide accessible library facilities. Most universities open for the working day (about 8 hours, although this can fall to 4 hours in a segregated library), but only a few match the opening hours found in universities elsewhere in the world. At a small number of universities students are restricted with regard to borrowing books for a variety of reasons, not all of which appear to be justified.

88. A small number of reports indicate organisational problems with the library and several still have a manual catalogue. On-line access, through an Intranet, to an electronic catalogue is an essential feature of a modern library and needs to become the norm, throughout the region.

89. At 10 of the universities reviewed the book stock is described as deficient. Problems are reported with regard to books include: the total number, their currency, their academic credibility, their academic level being too low, few alternatives to set texts, too many about programming, and inadequate coverage of the theoretical aspects of the subject. Students at such universities complained, in at least one case vociferously, about the book stock. The situation with regard to journals is possibly worse than that for books, although this in general appears to worry the students less, possibly because projects are not always obliging them to execute searches and investigations sufficiently.

90. It is difficult to locate a single cause for poor library stock. While it is clear that finances play a major part in the shortages, poor organisation, availability of books within the region, and purchasing policy also feature. At the best libraries the academic staff play a major part in deciding which books and journals should be held, and the stock is continually updated with the help of staff to reflect current advances in the Computer Science discipline. Some of the libraries appear to have poorly focused objectives. A first class academic library which allows students to study independently in their own time and provides the material to stretch young minds is essential for all universities and absolutely vital to those universities with research oriented missions. At present, too many of the universities fail to meet this stated aim. It is possible that one or more regional centres of excellence, with an inter-library loans scheme, similar to that used by the British library, could

provide facilities to overcome many of the library problems identified, in particular the need for advanced books and journals.

91. While there does not appear to be a general problem with the numbers and specifications of PCs or their software, there are a few universities where the provision is described as inadequate. At best ratios of the order of three students per computer (good by international standards) are reported but at others there is an inadequate ratio of 13:1. However, at a number of universities accessing a PC appears to be a problem for students because of over-scheduling of laboratories for classes, dedicating laboratories to specific tasks or groups of students, software not available on all computers, poor maintenance of computers, staffing difficulties and even locked laboratories (3 universities). Where it is necessary, adequate separate computing laboratories are provided for male and female students. Although many (up to 40% in one university) of students have a computer at home, lack of access continues to disadvantage some students.

92. Access to peripherals, particularly printing, is not good. Printing in laboratories is rare and most universities opt for a central charged printing facility. The reviewers find it strange that simple peripherals, such as scanners, are not more readily available to students given the essentially practical nature of many of the programmes.

93. Most reports indicate that there is a wide range of software available to support the courses, including CASE tool; however, this is not universally true and five universities have insufficient resources to provide all of the required software. Universities use various varieties of Windows on most of their PCs, although some use is made of LINUX, for example to provide a multi-access environment.

94. Internet access is sometimes available to students, although it is frequently constrained: by time (4 hours per week), by the cost to students, by year within the programme (only fourth years), and by supplier, for example university-wide open access. Overall, the reports indicate problems with Internet and Intranet access, although some reports speak of an improving situation. The deficiency is particularly worrying since many universities are suggesting access to the Internet as a solution to library problems and its use in independent learning is frequently cited in the self-evaluation documents. Inadequate access to a local Intranet also implies inadequate email facilities denying the use of this valuable educational tool to facilitate staff /students communication.

95. Appropriately equipped laboratories are available for most Computer-Engineering subjects.

96. The reports appear to be about evenly divided between those that find the accommodation appropriate and those that find it unfit for purpose. In a number of cases, the accommodation is reported as being so poor that it is affecting the ability of the staff and students to maintain standards and affects their lives on a daily basis. In a number of cases there appear to be problems with furniture as well as the fabric of the buildings, in others the problem is simple one of inadequate space. At two universities the location of the buildings used appears to create problems. At the remaining universities accommodation is viewed as fit-for-purpose and suitably equipped, for example, one university has made appropriate arrangements for left-handed students. A number of new

buildings are coming online at various universities addressing some of the problems.

97. The provision of ancillary equipment to support teaching is variable. Most universities provide whiteboards and portable data projection facilities in teaching rooms, while at one university data projectors would not be useful as staff are not provided with PCs or a laptop.

98. While none of the reports finds fault with the quality of the academic staff, 11 of the 15 reports do cite staffing problems. The central problem is that the latter institutions do not have sufficient staff to meet their commitments in full, while providing opportunities for these staff members to pursue their scholarly activities. This shortfall leads to a further problem in that collectively the staff of several universities cannot cover all of the material and staff has to habitually teach outside their specialisms, potentially affecting the academic rigor of the courses. Some measure of this problem can be judged by the fact that at one university the ratio of computer students to staff is over 65 : 1 and this figure does not include students from outside Computing who also take many courses. There are also very few full professors in Computer Science, which hampers strategies to build academic leadership and enhance research activities as well as moves to introduce postgraduate provision.

99. The universities are well aware of the problem of attracting and keeping well-qualified staff given the world-wide shortage in this discipline. Several universities employ their best B.Sc. graduates as teaching assistants, thereby providing a pool of potential lecturers and also reducing the load on the academic staff by running laboratories and workshops and undertaking marking. Such universities select the best teaching assistants for further study, usually abroad. Such staff often gain scholarships to study and return after qualification. In short term, this strategy exacerbates the staff shortages. At several universities considerable use is made of lecturers (holders of M.Sc.s) to supplement the professorial staff. The level and quality of technical support in laboratories is reported as good in all but one case.

100. The staff workload is further exacerbated by the need to teach male and female students separately at some universities and by restrictions on the number of students in classes at others. The result is that many staff teach identical material more than once in each week and can lead to shortened classes for some sections to maintain synchronisation. One report suggests that while officially staff teach each 8 to14 hours per week, the real figure is probably double this. This can arise because some universities quote the number of credit hours taught by staff, for example, teaching six hours per week to two separate groups only counts as 3 hours.

101. While some departments have sophisticated web sites others are clearly only at an early stage of development. At a number of universities students are undertaking projects or summer training in web development. Departments may wish to consider collaborating with students in developing their web sites

With regard to Learning Resources, the reviewers recommend that the universities consider the following:

- Review the objectives and organisation of their library facilities to ensure that they are optimal. Universities may wish to consider introducing service agreements between the library and the academic departments.
- Introduce an on-line electronic catalogue where none is provided and consider the provision of other on-line materials (e-books and journals for example).
- Address issues relating to the quality and number of books and journals as a matter of urgency.
- Examine the organisational and access arrangements with respect to PCs the Internet and a university wide Intranet to ensure that adequate access is available to students.
- Address shortcomings in their PC provision (where it is applicable).
- There is a major shortfall in the number of academic staff. Qualified academic staff are the main resource and unless their teaching load is such that they can undertake the other necessary academic work and also have time for research most other improvements will not succeed.
- Implement more staff development in pedagogy, technology and research

V. Quality Assurance and Enhancement

Review Outcome: *The reports indicate that ten of the review teams found quality assurance and enhancement to be satisfactory and five unsatisfactory.*

102. More than one of the reports noted that the concept of quality assurance, as it is defined by this and similar processes, is new to the university, and probably to several of the participating universities. At least two university presidents are taking a keen interest in the recommendations with regard to quality assurance systems as they feel that their universities need such systems. However, the common absence of a systematic approach to quality assurance does not imply the total absence of quality procedures or that a quality education is not provided for the students. All participating institutions operate a number of the elements that in total comprise a comprehensive process and which form a sound basis for further development.

103. The reviewers suggest that a good quality assurance system enables each of the departments, schools or faculties within a university to manage and enhance its quality for the benefit of the university, and in particular of the students. The overall system has to be hierarchical so that quality data, analysis and synthesis produce useful information, which can be used to improve the overall provision of education and scholarship. This in turn implies the need for all of the bodies which make up the university to be included in a system in which data is routinely collected and analysed, in which there are excellent communications between the bodies and in which quality feedback loops are seen to be closed. Closure implies that needs and problems are identified, action agreed and taken where necessary and the identifying body informed. Such systems need to be well documented in a user-friendly way and accessible for all participants. This implies variants of the documentation being written for different groups of users, for example what does a new professor, have to do and where does this fit into the overall process.

104. The reviewers suggest that the main focus of a quality system should be the student experience. For the student, the first line of quality assurance relates to courses *and* their delivery and the second to programmes. Systematic and regular monitoring of these experiences would provide each part of a university with invaluable information about the quality of its provision, and could be coupled with procedures which manage its quality. For example, if the books and other materials needed for a course are not available in the library, this information should be automatically collected and fed to the library by the system. The library can then investigate the situation and take action, if it is appropriate, and feed this information back to the course team. A quality system should not rely on individual lecturers approaching an individual librarian, although this is not precluded.

105. The students are potentially a major supplier of data that can be used to inform the evaluation process. The reports indicate that at only three universities students are systematically and regularly canvassed by questionnaire regarding their courses or aspects of the provision, and that these are sometimes solely evaluations of the lecturers. At a number of

other universities student opinion is sought by open meetings or representation on course committees. The reviewers consider it essential to know what all students think of all aspects of their courses to provide data for evaluation. While student representation on committees is highly desirable, as are open meetings; both activities tend to focus on high profile problems and do not always address comprehensively more fundamental issues or identify strengths.

106. All but eight of the universities undertake some evaluation of the effectiveness of their courses on a regular basis, although the management, level and purpose of evaluation varies considerably. The evaluations are usually carried out by the head of department and are often evaluations of the individual member of staff who ran the course. Where student feedback has been sought this is input to this evaluation. Such evaluations usually involve a study of the mark profiles for the courses to determine and correct aberrations. While the latter is good practice it does not always appear to lead to corrective action. At a small number of universities staff also report on the success or otherwise of their courses. The reviewers suggest that all departments should systematically collect data from students and incorporate this information into course review reports which address all aspects of the design, delivery, performance and resourcing of the courses. One university is reported as setting up a faculty quality office which will hold course portfolios for each course. These reviews should be considered by the department head, by the departmental council and also by a course committee, which includes students, and looks at a set of related courses (by subject or level). Each of these bodies should instigate action appropriate to itself, document and publish its minutes, and where appropriate summarise information for presentation to other quality management bodies such as the faculty. Each body should systematically check that each of the points that it raised has been dealt with, thereby closing the quality loop.

107. One of the purposes of systematic course review is to provide information for the faculty and university so that they can assure themselves that the courses are healthy. However, it also provides the opportunity for consideration of the course content and is a vehicle for maintaining currency at the first level. Significantly, course monitoring provides the basis for programme monitoring. While the reports suggest that monitoring the performance of programmes is uncommon, there is evidence of regular review of the curriculum and in some cases other aspects of the provision such as resources.

108. The situation with regard to curriculum definition and renewal varies: some departments appear to be able to do whatever they wish, but others are not allowed to alter the curriculum in any way. Many of the reports discuss the role of national bodies which frequently define much of the curriculum, usually, it is reported, to the detriment of the provision. Such bodies are reported as being too slow (one has not allowed changes since 1986) too pedantic, and having a stultifying effect which inhibits variety and results in dated curricula. At a small number of universities there are systems which validate new programmes and require existing programmes to be regularly reviewed, although these rarely involve external specialists (critical friends for example). The reviewers consider that best practice should

be shared across the region and that validation systems which require appropriate external input to the development of new programmes and the regular review of existing programmes based on programme monitoring are essential to all universities. Such a validation scheme could render the clumsy national systems irrelevant and allow the criticisms reported earlier, relating to the currency of the curriculum and its lack of comparability to be addressed. It would also allow the region to evolve a richer variety of Computer Science programmes than currently exists.

109. There is evidence in the reports that the current review process, in particular the act of writing the self-evaluation document and the training workshops, has already had a significant influence on the thinking of some of the universities with regard to quality issues. It is also clear from a number of reviews that, while there was wide participation in the preparation at some universities, at others it had been prepared by just one or two people. In one case the self-evaluation had been prepared by someone outside the department concerned, and the staff of the department did not agree with the views expressed. In other cases this occurred because of the high degree of autonomy granted to staff. The reviewers consider that the provision of good quality appropriate education is too important to be left to the whims of individual staff, and that, while protecting the academic freedom of such staff, every effort should be made to persuade, or if necessary coerce, them into full participation in an effective quality assurance system.

110. As so many organisations have found to their cost, quality assurance only works if everybody involved is an active participant and the system and its information are transparent. It is clear from the reports that a number of universities have some procedures for quality assurance, which are not effective. In such cases, the students feel isolated from the process and powerless to influence the forces that shape their education. One way of ensuring greater participation is good training, and universities could, with advantage, ensure that all staff are kept informed of new quality assurance developments and that they are trained in the use of the procedures.

111. The reports indicate that universities have good informal links with industry, but few have any formal links. Such links can provide valuable external comment, and sometimes resources, for the university. Establishing an employer forum could be a wise and useful move for all universities. As noted under Assessment, there are significant weaknesses in the processes surrounding the setting and checking of examination papers and other assignments and the subsequent marking and moderation of the scripts. Similarly, there are major weaknesses in the provision of learning resources and attrition rates in some cases are far too high. The failure of the quality systems to identify and deal with these issues is indicative of significant shortcomings at a number of the universities.

With regard to Quality Assurance and Enhancement, the reviewers recommend that the universities consider the following:

- Establish a well-documented quality assurance and enhancement system that covers all aspects of university life, that involves the students and ensures that all staff are fully trained in its use.
- Ensure that student opinion is regularly and frequently sought on all matters relating to the delivery, resourcing and monitoring of the educational experience.
- Modify to national accreditation schemes so that they continue to maintain standards while allowing individual departments to offer different Computer Science programmes which are up-to-date.
- Keep the students fully informed and involved with all aspects of university life.
- Establish formal contacts with industry.

Appendix 1 **University Representatives (Computer Science)**

1) University of Sciences and Technology Houari Boumediene (USTHB) – Algeria

Coordinator:	Dr Mihrez Drir, Vice President
Representative A1:	Prof. Mohammed Ahmed Nacer, Department of Informatics
Representative A2:	Prof. Habiba Zerkawi Drias, Chairperson, Department of Informatics

2) Université Mohammed V (Agdal)- Morocco

Coordinator:	Prof. Mohammed Al-Miniar, General Secretary
Representative A1:	Prof. Fakhita Regragui, Department of Physics
Representative A2:	Prof. Awatef Al-Sayah, Department of Mathematics and Informatics

3) Helwan University - Egypt

Coordinator:	Prof. Amr Izzat Salama Vice President for Graduate Studies and Research
Representative A1:	Prof. Ahmed Sharaf Eldin, Chairperson, Department of Information Systems
Representative A2:	Professor Ebada Ahmad Sarhan Dean, Faculty of Computers and Informatics

4) Sana'a University - Yemen

Coordinator:	Professor Hassan Sharaf-Eldin, President's Office
Representative A1:	Professor Hassan Sharafuddin, Department of Economics and Information Systems
Representative A2:	Dr Saeed Abdalla Al-Dobai, Chairperson, Department of Computer Science

5) Damascus University - Syria

Coordinator:	Prof. Mohammad Ali Al-Munajjed, Vice President for Academic Affairs
Representative A1:	Dr Imad Mustafa, Dean, Faculty of Informatics Engineering
Representative A2:	Dr Ammar Khir-Beck, Chairperson, Department of Software Engineering and Information Systems

6) The Lebanese University - Lebanon

Coordinator:	Prof. Philip Nabhan, Director, University Centre for Legal Information
Representative A1:	Dr Nawaf Kayal, Department of Applied Mathematics
Representative A2:	Dr Mohammad Dbouk, Department of Applied Mathematics

7) Sudan University of Science and Technology- Sudan

Coordinator:	Professor Izzeldin Mohammad Othman, former University President
Representative A1:	Mr Amir Abde-Fattah Ahmad Eisa, Chairperson, Department of Computer Science
Representative A2:	Mr Yahia Abdalla Mohammad Hamad, Department of Computer Science

8) Palestine Polytechnic University - Palestine

Coordinator:	Dr Dawoud Al-Zatari, University President
Representative A1:	Dr Mahmoud Al-Saheb, Chairperson, Department of Information Technology
Representative A2:	Mr Ismael Roomi, Department of Information Technology

9) Bahrain University - Bahrain

Coordinator:	Dr Yousif Al-Bastaki, Dean, College of Information Technology
Representative A1:	Dr Yousif Al-Bastaki, Dean, College of Information Technology
Representative A2:	Dr Yacoub Ashir, Chairperson, Department of Computer Science

10) The University of Jordan - Jordan

Coordinator:	Prof. Abdalla Al-Musa, University President
Representative A1:	Dr Ahmad Al-Jaber, Dean, King Abdullah II School for Information Technology
Representative A2:	Dr Ahmad Abdel-Aziz Sharieh, Department of Computer Science

11) Zarka Private University - Jordan

Coordinator:	Dr Abdasalam Ghaith, Dean of Scientific Research
Representative A1:	Dr Imad Abuelrub, Dean, Faculty of Science
Representative A2:	Dr Ahmad Awwad, Department of Computer Science

12) The Islamic University-Gaza - Palestine

Coordinator: Dr Rifat Rustom, Chairperson, Resources Development Center

Representative A1: Dr Hatem El-Aydi, Chairperson, Department of Electrical & Computer Engineering

Representative A2: Mr Ashraf Al-Attar, Department of Computer Science

13) Ajman University of Science & Technology - UAE

Coordinator: Dr Basheer Shehadeh, Vice President for Development Affairs

Representative A1: Dr Hakim Khali, Department of Computer Engineering

Representative A2: Dr Riyad Abdelkader Mahdi, Department of Computer Engineering

14) The University of Science & Technology, Sana'a- Yemen

Coordinator: Dr Abdallah Al-Hamadi, Director, Quality Assurance Department

Representative A1: Dr Taher Saleh Homeed, Department of Computer Science and Informatics

Representative A2: Prof. Abdul Raqeeb Abdua Asa'ad, Dean, Faculty of Science and Engineering

15) Al-Akhawayn University in Ifrane – Morocco

Coordinator: Dr Driss Ouaouicha, Vice President for Academic Affairs

Representative A1: Dr Amine Bensaid, Dean, Faculty of Sciences and Engineering

Representative A2: Dr Kevin Smith, Faculty of Sciences and Engineering

Appendix 2 **Milestones of the Review Process**

January – February 2002:	Identification of university coordinators and representatives. Representatives returned to Project Manager filled questionnaires on programmes to be reviewed. Development of training workshop programmes and material for the project by consultants (Review Handbook)
March 22-24, 2002:	First training and planning workshop (3 days). Participants include A1 and A2 representatives from each university. Topics: framework for academic subject review. Concepts, criteria and implementation of self-assessment
April 3, 2002:	Project Advisory Committee holds one day meeting in Damascus. Project progress is reviewed and work plan for the following phases is reviewed and approved.
April and May, 2002:	Representatives embark on self-assessment process with support from home departments and advisory support (through email) from project.
June 1-3, 2002:	Second training and planning workshop (3 days). Participants include all A1 representatives. Group discussion of progress on self-assessment and identification of common issues. Individual tutorials on progress in each programme are held between the consultants and the programme's representatives.
June 4-6, 2002:	Third and final training and planning workshop (3 days). Participants include all A1 Representatives. Topics: theoretical and practical training on conduction of external reviews.
June 2002:	Representatives continue work on self-assessment.
June 30- 2002:	Representatives submit to project first draft of Self-Evaluation Document (SED).
July 2002:	Training Consultants send feedback comments on each SED draft to respective representatives. Representatives modify SEDs in light of comments.
August 10, 2002:	All representatives submit finalised SED documents.
August 2002:	External review teams are formed from 12 QAA-registered UK reviewers and 15 project-trained Arab reviewers. Relevant SEDs are sent to each team.
August 29, 2002:	Coordination meeting convened by Project Manager for all UK reviewers. Topic: Discussion of review method as outlined in the Review Handbook. Common policies for conduction of reviews. Schedules for report submission and editing.

September 2002:	Review visit schedules are finalised by Project Manager in consultation with UK and Arab reviewers and host universities. Memoranda on host requirements for hosting review visits are communicated to all universities.
September and November, 2002:	September 21 - Nov 1 and December 7-18, 2002 (with a one-month break in between for Ramadan): All fifteen review missions are implemented on schedule.
December 31, 2002:	All review reports are submitted by team coordinators in first draft to Project Manager.
January 6, 2003:	Final coordination meeting convened by Project Manager for all review team coordinators (one day). Topic: editing requirements for individual and overview reports.
February 2003:	Reports are finalised. Each of the final individual reports is sent, in confidence, by the RBAS Director to all university presidents.

PART TWO

Quality Assessment of Business Administration Education in Arab Universites

Regional Overview Report

Based on detailed internal and external reviews of Business Administration programmes in a group of 16 Arab universities

Report Summary

1. General

This report presents a regional overview of the quality of Business Administration education in sixteen public and private universities in twelve Arab countries: Morocco, Algeria, Egypt, Yemen, Sudan, Oman, Syria, Lebanon, Jordan, Palestine, Bahrain and United Arab Emirates. (A list of the names of universities and their representatives is given in Appendix 1). It represents the outcome of the second phase of the UNDP RAB/ 01/002 project "Enhancement of Quality Assurance and Institutional Planning in Arab Universities" which was launched by the UNDP Regional Bureau for Arab States (RBAS) in January 2002. The report presents a synopsis of the individual review reports that were produced by the project on each of the reviewed programmes. It provides up-to-date information and informed judgment on the quality of the reviewed programmes and signals, by virtue of its methodology of implementation, an important stage in the development of the universities' own arrangements to evaluate and improve their undergraduate programmes.

The project is sponsored and funded by the Regional Bureau of Arab States in collaboration with the United Nations Development Programme (UNDP). The project's developmental objective is the introduction in Arab universities of independent systems of quality assessment of programmes with reference to internationally accepted criteria, procedures and benchmarks.

The programme of reviews in 2003-2004 addressing Business Administration education programmes follows a successful pilot project in Computer Science programmes in 2002. Each review resulted in a detailed review report, which was sent in confidence by UNDP/ RBAS to the president of the university in question. This report presented the reviewers' analyses, evaluation and judgements in relation to each main aspect of the reviewed provision and identified main areas of strengths and those areas needing action or reform.

In addition to an individual report on each university's provision, the programme also provided the evidence base for this overview report that identifies regional issues and patterns of strength and weakness, as well as lines of needed reform for the higher education sector in the Arab region. The main text of this overview report presents the aggregated findings that arise across the group of participating universities. It identifies some good practice. However, it also draws attention to issues that may, unless addressed in the schools, by the universities and at regional level, hinder the further development of undergraduate education in Business Administration.

This summary section of the overview report highlights its main findings and recommendations under five sub-sections: The Main Outcomes of the Reviews; Common Regional Issues; Key indicators; Emerging Good Practice; and Recommended Priorities for Strategic Reform. The nine steps of reform, proposed under the last heading, require collaborative approaches between universities, departments and between universities and ministries. This report concludes that a

regional initiative to adopt and implement these nine steps should be a shared priority for Arab policymakers in higher education.

2. Summary of the Main Outcomes of the Reviews

The main outcomes of the review programme are as follows:

- The participating universities are making an important contribution in the region in producing graduates in Business Administration, the best of whom are highly regarded by their employers and by other universities internationally who accept them for further study.
- Academic standards were judged to be good in two of the participating universities and satisfactory in all except four of the others, which were deemed to be unsatisfactory. Students' knowledge and understanding of the more measurable and quantifiable aspects of Business Administration were generally a strength. However, there were weaknesses in areas relating to people-oriented aspects and in the development of higher-level skills such as critical analysis and evaluation.
- Universities show significant variation in the quality of learning opportunities which they make available to their students. In particular, a lack of teaching and learning strategies leads to highly didactic teaching approaches and little development of students' learning skills. Furthermore, in six universities, learning resources were considered and hence unable to adequately support student learning.
- Quality assurance and enhancement were judged to be good in only one university, satisfactory in nine and unsatisfactory in six. This profile indicates that this is the weakest area overall. In particular, there is a general lack of formal systems, including the collection of data, for the monitoring of provision. This has resulted in many situations where individual academics enjoy considerable autonomy with little accountability, and where there are no mechanisms for taking an overview of quality issues.
- Many areas of strength or weakness appear, as expected, to be shared by many of the participating universities.

3. Common Regional Issues

a. Valuable progress has been made in developing Intended Learning Outcomes (ILOs) and programme specifications. However, these have yet to become embedded and to provide the focal point from which content, delivery, learning resources, and student support can be developed and matched to purpose. ILOs are often more developed at course level than at programme level, they are often internally inconsistent and concentrate on knowledge and understanding, whilst failing fully to cover the development of skills.

b. There is little systematic benchmarking of programmes. Hence, universities cannot ensure that their programmes match those offered elsewhere, meet the needs of employers and students, and match accepted international benchmarks.

c. In many cases, constraints imposed centrally (by the university or ministry) on programme design and content needlessly stifle innovation and restrict the ability of programme teams to react to the changing needs

of international business.

d. Curricula generally cover measurable and quantifiable aspects of Business Administration but are less successful in covering people-related areas such as Human Resource Management. Curricula in most universities also lack practical inputs, which could come from, for example, internships and industry based projects.

e. Curricular content is not always well matched to level. In particular, introductory material is often included in final level units. More significantly, content concentrates on technical knowledge and skills and ignores higher-level cognitive skills.

f. Many institutions do not have mechanisms in place to regularly review curricula to ensure currency.

g. Many students are provided with insufficient language inputs to support their studies in the language(s) of delivery, and inadequate access to sufficient texts in the relevant language(s). Further, in those institutions where the language of instruction for a course or the whole programme is not Arabic (such as French or English), the application of that chosen language through the arrangements for language development, teaching, recommended texts, assignments, and assessment is often not consistent.

i. Overall, there is a poor match between methods of student assessment and ILOs. Assessment generally concentrates on the knowledge components of ILOs and fails to address skills requirements. Rigorously followed, rigid, centrally imposed assessment regimes are preventing the appropriate assessment of students. Programme teams are not provided with sufficient flexibility in the design and implementation of assessment. There is too much reliance on closed-book examinations, particularly those based on short answer and multiple-choice questions (which dominate in several cases). Such examinations are often poorly designed, and encourage memory recall at the expense of critical analysis and evaluative writing.

j. Whilst most students receive feedback on assessed work, this is often informal and oral. The lack of formal written feedback means that students do not have a permanent record for future reference.

k. Universities do not have appropriate mechanisms in place for the moderation of assessment; these are needed to ensure fairness to students and comparability of standards. In addition, students are often not provided with clear and transparent assessment criteria.

l. In many universities, the number of students achieving higher grade awards is very low. The reasons for this are not being investigated, and, hence, no action is being taken to address this issue. Reasons for the generally poor showing of students in the ETS Major Field Test*, which has been available to English-based programmes, are also not being investigated by the institutions.

m. In six of the universities, a graduation project provides a good platform for students to demonstrate higher-level skills and an ability to apply them. However, in other universities,

* Under another component of the project the Major Field Test of the Educational Testing Services (ETS) in Business Administration was administered in the Spring of 2003 to the senior students of the reviewed programmes that use English as the teaching language. A translated version of the test was administered in the Spring of 2004 to the students of those reviewed programmes that use Arabic or French as the teaching language. A separate regional overview report on the results of these tests will be published by UNDP/ RBAS.

this opportunity is not available to students or is not being used effectively.

n. Student work is often failing to reveal higher-level skills and to demonstrate abilities to apply technical knowledge and skills to business problems.

o. The universities are not systematically collecting information regarding the scale and type of employment, or further study, of their graduates. They are, therefore, lacking valuable information which would be helpful to current students and in the development of programmes.

p. Universities have not developed teaching and learning strategies aimed at improving students' learning skills in line with ILOs. Current teaching methods encourage students to be passive learners rather than the more active learners they should become if they are to meet the needs of today's employers. Teaching also lacks practical inputs, such as case studies of effective business practice and exposure to simulated and real business problems.

q. There is little provision of processes and opportunities aimed at enhancing teaching and learning, for example, through more targeted staff development and peer observation schemes.

r. The monitoring of progression and completion is poor; as a result, problem areas are not being identified and remedial action taken.

s. Most universities are challenged by their selection of the language of instruction. Those that teach in Arabic have difficulty in providing students with adequate up-to-date learning resources. There is no evidence that a collaborative effort – national or regional - is being mounted to address this problem. Those who teach in English or French often resort to hybrid combinations of these languages with Arabic in order to compensate for the weaknesses of their students (and some of the staff) in these languages. Furthermore, these hybrid approaches on occasions cause confusion and fail to ensure an adequate resource of appropriate texts and students' assessments in the chosen language of instruction.

t. Whilst provision of general academic support for students is satisfactory, targeted specific support, notably in languages and numeracy, is too variable. Universities lack appropriate processes for identifying academic weaknesses in students and providing appropriate support to overcome them. Furthermore, reviewers found that much of the support offered to students is provided in an ad hoc manner, with the consequent risk that problems will be missed.

u. Many universities offer appropriate support for students with special needs, but in a few cases this support is lacking.

v. Universities do not have strategic approaches to resource planning to enable priorities to be agreed in line with curricular needs.

w. In a few universities, difficulties in the allocation of staff resources leads to poor coverage of the curricula, and inadequate opportunities for staff to undertake scholarly activities in support of their teaching.

x. The management of library provision is poor in several universities, and fails to ensure that students have appropriate access, useful borrowing rights and study facilities. In many cases, library book-stocks are inadequate and out-of-date. In several cases, students were using outdated and misleading texts. In addition, stu-

dents generally do not have access to specialist software, and development of intranet support for students has been slow.

y. Systems for the annual monitoring of programmes are often poor, with little use of data on key aspects of provision. Such systems are often being viewed simply as compliance with centrally imposed requirements, rather than as means for enhancement. Periodic major reviews of programmes are not being used and, hence, there is limited control to ensure that the programmes are and remain current and relevant.

z. External parties are rarely involved systematically in the review or development of the programmes. This must change. Key stakeholder groups have a significant part to play in ensuring quality and academic standards. The pool of trained academic reviewers resulting from this project, should be seen as a valuable resource for this purpose and as a nucleus for the development of a significant group of "critical friends" throughout the region.

aa. The processes for gathering student views are inconsistent and often unsystematic, they are also lacking in transparency and responsiveness in many cases.

4. Key Indicators

A summary chart of the main judgments and other key indicators that are based on the outcomes of the individual reviews (reports) is given in Figure 1. The first eight indicators represent the formal subject review judgments as stated in the individual reports. Of the remaining fifteen indicators eight have been defined to represent selected academic aspects of the reviewed provisions, and seven to represent selected aspects of the provided learning resources and facilities. The distribution of the last two groups of key indicators is shown in Figure 1.a and Figure 1.b. The chart is not intended to be a league table but to quantify the regional profiles of the review outcomes.

5. Emerging Good Practice

In presenting the full range of evaluations together with many findings and recommendations, an overall pattern of the strengths and weaknesses of the quality and academic standards of Business Administration programmes in the region is emerging. Notwithstanding the criticisms in the report, it is also established that Business Administration is a vigorous and competitive field of academic study in the region. Demand is strong (requiring, in some cases, more stringent admission policies) and the programmes attract highly qualified students. Top graduates are valued by employers and many are able to compete internationally, particularly when going on to further study. There is visible growth and large potential for much needed improvements, in terms of quality and impact. In working towards this goal, the departments, the universities and the region can build on the present strengths which also include:

- A willingness in the universities and departments reviewed to take up the challenge of evaluating and improving their programmes, not least, through their active involvement in, and important contributions to, all stages of this project. The group of trained academic reviewers from the participating institutions represents a valuable potential resource.
- In almost all of the universities, the curricula provide students with an appropriate breadth of coverage.
- The emerging willingness of some

departments to bring practical features into their programmes, through, for example, internships, visiting practitioners and field trips, is worthy of wider dissemination.

- Almost half of the universities have developed a range of approaches to students' assessment to try and address the complexities of programmes in Business Administration.
- Where used, graduation projects often demonstrate appropriate higher-level skills.
- Completion rates are high in many of the participating universities.
- Overall academic support for students is at least satisfactory in most universities.

6. Recommended Priorities for Strategic Reform

Nine key steps are identified for raising the quality of Business Administration programmes across the region. They have significance for the region, for national ministries of higher education and for the universities and their stakeholders. These are:

Academic Programmes and Curricula: There is a need for proactive and strategic approaches to the reform, design, organisation and delivery of the programmes. Intended learning outcomes (ILOs) have to date been developed in isolation, often by a small core team of staff. They must now be refined to reflect international requirements in the field, and then disseminated, accepted and owned by programme teams. Once this is achieved, there is a need for the fundamental review of programmes to ensure that curricula, their delivery and assessment fully reflect the ILOs.

Academic freedom and control: Whilst appreciating that programmes should meet minimum standards for ensuring academic rigour and confidence, there is a need to ensure that academic staff have sufficient freedom to develop practices which meet the needs of students and potential employers. Some controls imposed centrally, either by higher education ministries or central university policy, are unnecessarily rigid and are preventing the programmes from providing students with opportunities to develop and demonstrate necessary skills and to meet the changing needs of international business. However, such delegated authority should be accompanied by a clear responsibility upon the universities and their schools, faculties and departments to have systems and procedures for quality assurance in place that are open, transparent and responsive to external comment.

External Reference Points and Inputs: All of the universities reviewed need to improve their willingness to seek external inputs into their programmes. Although many have some external benchmarks against which to judge their curricula, these are often informal. Most rely on the experience of staff in other institutions, often on Masters or Doctoral programmes. These are of limited value for benchmarking undergraduate programmes. There are some limited attempts to gauge the views of employers, but these are not properly linked to a systematic review of curricula and student assessment as well as confirmation of students' achievements. As a result of this project, there is now a pool of trained and experienced aca-

demic reviewers in the region. This represents a valuable resource both for offering external inputs but also for developing this role in other academics. There needs to be a major change in attitudes, so that external consultation and commentary is seen not as an infringement on the academic freedom of individual teachers, but as a positive contributor to programme development. There needs to be greater willingness to share good practice. In addition, references to international benchmarks, such as those developed by QAA and the ETS Major Field Test coverage, should be systematically built into review processes.

Cognitive Skills development: The development of students' higher-level skills, such as those involving evaluation and critical analysis, is a weakness in almost all of the universities visited. Such skills are often included in ILOs and in some curricular documentation. However, they rarely feature in the actual content of programmes, they are not encouraged by the predominant teaching methods used and are not properly assessed. Given the requirements of modern international business, this weakness needs urgent consideration.

Teaching, Learning and Assessment: Universities need to adopt a more strategic approach to the development of teaching and learning as well as to assessment. Teaching needs to become less didactic, with the emphasis on moving towards encouraging students to become independent learners, in line with declared missions. There should be less reliance on single texts for courses, and assessment must become more varied and designed to require students to analyse and evaluate topics in a real business setting. To achieve this, centrally imposed teaching and assessment rules will have to be reconsidered and made more flexible. The current lack of support for staff development relating to good practice in teaching and learning as well as in assessment must be addressed.

Student Support: The provision of general academic support in most universities is satisfactory or good. However, the provision of targeted specific support, notably in numeracy, information and communications technology (ICT), and language needs to be improved. A more systematic approach is needed to ensure that problem areas are not overlooked. Better monitoring of student performance and progression would help to identify support needs and address those areas which cause most difficulties for students. Furthermore, all universities should adopt the good practice of the many in supporting students with special needs.

Learning Resources: There was little evidence within most of the universities of considered resourcing strategies informed by ILOs or an analysis of the curricula. Library provision, in terms of both organisation and holdings, needs significant improvement in many of the institutions, and needs to feature more prominently in the learning strategies, if it is to support the development of appropriate independent learning skills amongst students. The number of qualified academic staff is 'satisfactory' in most universities, but was not found to be 'good' in any of the

universities. This reduces the ability of the institutions to offer research-informed teaching, and to give sufficient attention to course and programme development. Whilst teaching accommodation is generally satisfactory, there was little evidence of teaching aids such as projectors and data show equipment being used, hence reinforcing the over-didactic teaching approaches seen.

Quality Assurance and Enhancement: The universities have responded positively to the opportunity presented by this project to specify and self-evaluate their educational programmes. They now need to develop appropriate internal quality assurance processes that build upon existing elements of regulation and reporting. Annual monitoring and reporting need to improve, there is in particular an urgent requirement to improve the systematic recording and management of data/ information for monitoring and reporting upon good practice, progress and success/ failure. Such reporting should be organised to ensure that the loops of monitoring, action and feedback are closed and effective. A culture of continuous improvement and learning needs to be fostered. A regular cycle for the full review of programmes, say every five years, should be established as normal practice. This is necessary to ensure that programmes stay current and reflect the changing requirements of students and potential employers. In half of the universities, canvassing of students' views on such matters as teaching, learning resources and assessment needs to be improved.

The language of teaching: More concerted effort and resources are essential for addressing the issue of the language of instruction. Universities that teach in Arabic need to work together nationally and across the region to ensure that texts and other teaching material (in both paper and electronic form) are available to students and staff. In addition, students in these universities should be provided with extra training in technical English to enable them to use additional texts and other learning resources in English, especially through the Internet. Universities that teach wholly or partly in English or French should ensure that their students are provided with sufficient language training, not just with regard to comprehension of lectures (without resorting to mixed language modes), but also with regard to the ability of students to clearly express their thoughts and ideas in sound academic writing and in their own words. The approach to the language issue should be addressed by the university and the school in a strategic plan. It should further be periodically reviewed and informed by regular monitoring of the students' and graduates' proficiency in the relevant foreign language or their performance in international tests, such as the MFT (ETS).

I. Introduction

Academic Subject Review

The project, "Enhancement of Quality Assurance and Institutional Planning in Arab Universities" is sponsored and funded by the Regional Bureau of Arab States (RBAS) in collaboration with the United Nations Development Programme (UNDP). The project's development objective is the introduction in Arab universities of independent systems of quality assessment of programmes with reference to internationally accepted criteria, procedures and benchmarks.

The programme of reviews in 2003-2004 addressing Business Administration education programmes follows a successful pilot project in Computer Science programmes in 2002. Sixteen universities in twelve countries participated in the 2003-4 programme. In addition to an individual report on each university's provision, the programme also leads to an overview report that highlights areas of regional strength, weakness and needed reform for the higher education sector in the Arab region.

The method used for review is a modified version of Academic Subject Review as developed for implementation in 2000 by the Quality Assurance Agency for Higher Education (QAA) in the United Kingdom. This method is itself a direct development of the earlier Subject Review methods used to review academic disciplines at UK universities over the period 1992 to 2001. Full details of the process of subject review can be found in the project's *Handbook for Academic Review*. A summary follows. The project included workshops for representatives of participating universities and reviewers recruited from the Arab states and the UK.

Academic subject review takes place according to the published *Handbook*. It places responsibility on the university to evaluate and report on the academic standards of its programmes of study and the quality of learning opportunities. This evaluation takes place within the agreed framework for review. This framework, described in the *Handbook*, includes the use of external reference points to establish and improve the academic standards. In most Arab states, the academic standards are prescribed and /or accredited by the ministry of higher education or an equivalent central body. In the UK, the QAA has published a wide range of materials designed to provide a background against which the reviews can take place, for example subject benchmark statements, a framework for Higher Education Qualifications and a code of practice. With regard to the reviews carried out in the context of this project, each university was asked to identify its external subject reference points so that its academic standing may be judged. Participating universities were also invited to take part in Major Field Tests of their final year students conducted by the Educational Testing Service (ETS) based in the USA.

The Academic Subject Review Process

Subject review is a peer review process. It starts when institutions evaluate their provision in a subject in a self-evaluation document and prepare a programme specification for each named award-bearing programme. The self-evaluation and the programme specifications are submit-

ted to the project for use by a team of reviewers. The reviewers are academics and practitioners experienced in external scrutiny and review processes, drawn from the Arab region and the UK. They read the document and visit the university to gather evidence to enable them to report their judgements on the academic standards, the quality of learning opportunities and the ability of the university to assure and enhance academic standards and quality. Review activities include meeting staff and students; scrutinising students' assessed work, reading relevant documents, and examining learning resources. The team gives an oral summary report to the university at the end of the review visit and prepares the written academic subject review report.

Judgements on Academic Standards

Reviewers make one of the following judgements on academic standards:

- Good
- Satisfactory
- Unsatisfactory

To reach this judgement, reviewers evaluate:

- intended learning outcomes
- the curriculum
- student assessment and
- student achievement.

A programme may be judged satisfactory where on balance it demonstrates the need to address many issues and make substantial improvements, or good where it demonstrates a substantial number of good features outweighing any matters that deserve to be addressed. If the arrangements are judged to be inadequate in any one of the four elements that comprise the section of academic standards, the overall threshold judgement on academic standards is unsatisfactory.

Judgements on the Quality of Learning Opportunities

Reviewers make one of the following judgements for each of the three aspects of learning opportunities:

- Good
- Satisfactory
- Unsatisfactory.

The three aspects of quality of learning opportunities are:

- teaching and learning
- student progression
- learning resources.

Judgements on the Quality Assurance and Enhancement

Reviewers also report the degree of confidence they have in the institution's ability to assure and enhance quality and academic standards in the subject under review. They make one of the following judgements:

- Good
- Satisfactory
- Unsatisfactory.

II. Subject Provision

Participating Universities

1. Business Administration programmes in sixteen universities in twelve Arab states were reviewed in 2003-04. The purposes of this overview report are to present the main findings, highlight common areas of regional strength, and report patterns of weakness as well as issues that need to be addressed as part of the reform programme for the higher education sector. In addition to this overview report, there is a review report for each of the participating universities.

2. This project provided the participating universities in the region with a rare opportunity to undertake a comprehensive review of their Business Administration programmes, receive a site visit from external reviewers together with an oral feedback report and at a later stage, a written review report.

3. For the majority of the universities, such a review process with internal and external elements was a new experience. Feedback received from the universities in the course of the review programme indicates that all the participating universities and the external reviewers viewed the review process positively. The qualitative information reported in this overview report, in conjunction with the separate review reports, is expected to inform the continuing development of systems that form elements of the project and also to provide valuable insights into the quality and academic standards of higher education. Although there are difficulties extrapolating into other institutions and discipline areas without evidence, readers of this overview report may well find evaluations arising from the Business Administration review programme of some relevance and value in considering the wider issues of improving academic standards and the quality of the learning opportunities more generally in other disciplines and across the region.

Subject Provision

4. Fifteen of the reviews were of Bachelor degrees. Twelve were designated as Bachelor degrees in Business Administration; one was a Bachelor degree in Accounting, one a Bachelor degree in Business Management and one a Bachelor degree in Business Science. The other review was of an MBA programme.

5. The universities involved do not follow a uniform model for their undergraduate programmes. Various programmes are based on the French, or the American credit hours systems, usually with local variations. Similarly, the main language of instruction varies, with institutions teaching in Arabic, French or English, or more commonly, some mixture of either French or English and Arabic. In almost all cases, undergraduate programmes consist of a mixture of university, faculty and specialist courses.

III. Academic Standards

Review Outcome: *Overall, the review teams concluded that academic standards were good in two universities, satisfactory in ten and unsatisfactory in four. In the best performing universities the review teams acknowledged good practice in at least two aspects of academic standards, with curricula and student achievement featuring as the strongest aspects, with four universities achieving a grade of good in both cases. None of the universities were considered to merit a grade of good for assessment. Those universities judged to have unsatisfactory academic standards, were acknowledged to be unsatisfactory in at least one aspect of academic standards, in one case all aspects were judged to be unsatisfactory and in two cases two aspects were judged to be unsatisfactory.*

III.1 Intended Learning Outcomes

Intended learning Outcomes (ILOs) were judged to be good in one university, satisfactory in twelve and unsatisfactory in three.

6. The concepts of ILOs and programme specifications are new to most of the institutions, and in almost all of them, involvement in the UNDP project was the spur to their development. All of the universities had made useful progress in producing ILOs, and this is welcome. In most cases, the ILOs have been developed from existing documentation and represent a fresh articulation of intended outcomes for existing programmes. They have not yet been used to inform the development and design of programmes. Reviewers concluded that ILOs are not yet embedded in programmes and are not reflected in assessment, delivery (including the organisation of appropriate learning resources) or student support practices.

7. In most cases, ILOs have been developed for both individual courses and programmes. However, in four universities, there has been a concentration on course level ILOs and limited development of programme-wide ILOs. Furthermore, in four universities, whilst ILOs covered knowledge and understanding, they failed adequately to cover aspects of skills development. In particular, whilst the broad aims of the programmes included the development in students of higher-level skills, these were not addressed in ILOs, which only referred to Knowledge and Understanding.

8. In most cases, ILOs are articulated to students, particularly at course level. Good practice includes standardised course documentation outlining ILOs, content and assessment practices, and well-written, informative student handbooks. In three institutions, there was no articulation of ILOs, as student handbooks and other written guidance were not provided. In two other cases, practice is not consistent across the programme, whilst in another, information is very limited and has to be purchased by students.

9. Many staff show a good understanding of ILOs, particularly for those courses they teach. In three cases, this understanding and acceptance is not universal. For example, in one university, the development and articulation of ILOs was all carried out in English, a language with which the majority of staff are not familiar. In another case, ILOs were stated in a very general and perfunctory manner, indicating limited understanding and commitment among staff.

10. Benchmarking of ILOs and other aspects of programme design are not generally formally acknowledged.

Most institutions have made use of some external reference points, largely resulting from staff experience in other universities, often in Europe or the USA. Because such benchmarking is unsystematic, there is no way of ensuring that it is relevant to the programmes concerned, nor tested against the legitimate views of the full range of stakeholder groups. The experience in other universities, for many staff, is as Doctoral or Masters students, and therefore, in this respect, of limited relevance to the needs of Bachelor programmes.

11. Some universities acknowledged the use of other benchmarks, including QAA subject benchmark statements and the ETS Major Field Test core areas. These should be used with caution in some subjects such as the social and legal environment as well as finance, as aspects of these are culturally, nationally or regionally specific. There is a need for a more considered approach to benchmarking, to ensure that programmes reflect international standards, whilst also reflecting the specific requirements of Business Administration graduates in the Region.

12. In several countries, ILOs and curricula are significantly constrained by centrally imposed requirements, often emanating from the ministries of higher education. Given that many of the universities are relatively young institutions, such control has helped to ensure that minimum standards have been met. There is evidence that some of this central control is being relaxed. This is welcome, as such control, whilst initially valuable, stifles innovation and restricts institutional ability to react to the quickly changing needs of international and regional business.

13. Government and university regulations often require students to undertake courses which are not directly related to their chosen field of study. Such studies are of value in widening student experiences and putting their studies into a cultural and ethical context. However, in a few cases, reviewers concluded that these requirements, when taken to excess, reduce the time available for specialist studies below a necessary level.

With regard to the Intended Learning Outcomes, the reviewers recommend that the universities consider the following:

- It is important that the valuable progress made on developing ILOs and programme specifications is maintained. As institutions review and modify their programmes, ILOs need to become more embedded and to provide the focal point from which content, delivery (including learning resources) and student support can be developed and matched to purpose.
- All universities should ensure that ILOs are developed at both programme and course levels, are internally consistent and fully cover skills development as well as knowledge and understanding.
- Benchmarking of programmmes needs to improve. Universities should ensure that their programmes match those offered elsewhere, meet the needs of employers and other stakeholder groups, and meet accepted international benchmarks. In so doing, they must ensure that such benchmarks are used in a way which reflects the specific needs of the region.
- Centrally imposed constraints on programme design need to be relaxed to ensure that they do not stifle innovation and restrict the ability of programme teams to react to the changing needs of international business.

III.2 Curricula

Curricula were judged to be good in four universities, satisfactory in ten and unsatisfactory in two.

14. Core business topics covered in the programmes include Accounting, Marketing, Statistics, Computing, Law, Management, Economics, Finance, Human Resource Management and Business Organisation. In all but three of the universities, the overall coverage is appropriate to the award being reviewed. In two universities, the curricula are lacking in coverage of people-focused aspects of business such as Human Resource Management, whilst this is also considered to be a weak area in two other institutions. In another university, curricula are weak in Statistics and Finance. Very few universities had used the ETS Major Field Test to inform curricular design, but overall content showed a broad match to the test coverage.

15. There is considerable emphasis on knowledge and theory within curricula. There are few practical inputs, a point often commented on by students and employers. There have been some useful attempts to address this issue. For example, work placements or internships feature in the curricula of eight of the universities, although this is optional and limited in three of these. The arrangements for work placement at Abdelmalek Essaadi University in Morocco represent particularly good practice. Students go for three periods of placement, which provide a progressive and valuable experience culminating in a project report.

16. There is good flexibility in the curricula of many of the universities. For example, some programmes allow for various entry and exit points, many permit students to change specialism part way through their studies, whilst others allow students to speed-up or slow-down their progression to suit their circumstances. In almost all cases, this flexibility is coupled with a system of pre-requisites to ensure that the curricula are progressive. However, in a few cases, the positioning of courses within the programmes is less than satisfactory. For example, a lack of grounding in some subjects leads to inappropriate introductory material being taught and assessed at final level. In one case, university-based courses, including Islamic Culture, scheduled for the first year, were taught in the fourth year. Furthermore, students reported that the content of these units did not represent any progression from their studies at school.

17. Curricula are generally very theoretical with a strong emphasis within the programmes on technical content and skills. This is rarely supported by any requirement to apply technical solutions to practical problems or to consider their limitations. Whilst many of the ILOs refer to the higher level skills of critical analysis and evaluation, scrutiny of schemes of work and assessments show that these are seldom addressed in the curricula as delivered.

18. There are few mechanisms in place for the formal review of curricula to ensure currency. The detailed content is generally determined by the teacher concerned. Some degree of currency is provided through the use of current editions of textbooks. However, this is itself a problem, as there is frequently an over-reliance on a single text to the exclusion of others. Students are not developing skills relating to critical analysis and the synthesis of material from multiple

sources. Business Administration is a complex area of study with many approaches and views. One textbook is unlikely to encompass this diversity. Lack of currency is evident in seven of the universities; in others, the treatment of current theories, models and practice in business was satisfactory but was not assured through any systematic review process. It is rare for the universities systematically to seek the views of employers, practitioners or alumni to ensure currency or relevance of content.

19. Some of the universities teach programmes exclusively in Arabic, some in French and some In English. Others teach in a combination of languages. Where students are taught in Arabic, it is not clear whether students have access to sufficient texts at higher levels. In such cases, students will need to access texts in French or English. Reviewers found that students are often not being provided with sufficient language inputs to develop their language abilities to the necessary level. This was often also the case in courses taught wholly or partly in French or English; in these courses there is also some inconsistency between the chosen language of instruction, the recommended texts, the assignments, and assessments. Many employers and students stated that there is a particular need for more English language provision, given its importance in international business.

With regard to Curricula, the reviewers recommend that the universities consider the following:

- Ensure that overall curricular coverage matches the needs of business, including people-focused areas such as Human Resource Management.
- Increase practical inputs into the curricula, through such measures as internships and industry based projects.
- Ensure, in those institutions criticised, that material is appropriately matched to level. In particular, introductory material should not be included in final level units.
- Ensure that actual content does not concentrate solely on technical knowledge and skills but should also addresses higher-level cognitive skills.
- Review curricula regularly to ensure currency and relevance.
- Ensure that students are provided with sufficient language inputs to support their studies in the language(s) of delivery, and access to sufficient texts in the relevant language(s).

III.3 Assessment of Students

Assessment was judged to be satisfactory in fourteen universities and unsatisfactory in two. None was judged as good.

20. The aim of assessment should be to judge, in a fair and transparent manner, the extent to which students demonstrate achievement of intended learning outcomes. A sufficient and appropriate variety of opportunities must be provided to enable students to demonstrate the knowledge, understanding and skills relevant to their current level. Furthermore, assessment should, wherever possible, support student learning through the provision of constructive feedback on their performance.

21. In six of the universities, there is a good match between assessment and

ILOs, however, in two of these, there is a need for a more formal mapping of the two. The six universities employ a range of assessment methods including, examinations, case-studies, project work and assignments, which ensures that ILOs relating to Knowledge and Understanding, as well as to Transferable, Intellectual and Subject-specific skills are assessed. The other institutions have significant shortcomings in their arrangements for assessing students' achievements. The scope and methods of assessment do not match the stated ILOs. These institutions (the majority) tend to concentrate assessment on the knowledge elements of ILOs and fail to assess the skills elements satisfactorily.

22. In many of the universities, assessment regimes are centrally imposed. Typically, some 80 or 90% of marks available have to come from examinations, with the final examination for each course contributing 50%. These regulations are generally rigorously followed, and this severely limits opportunities to assess higher-level skills. It is not clear how much flexibility is actually available within these regulations, and there was uncertainty within institutions. For example, some teachers believe that case study based examinations can be used, whereas others believe that this is not so.

23. In eight of the universities, there is too much reliance on formal closed-book examinations. Furthermore the form of the examinations is often inappropriate, particularly at the later stages of programmes. Five institutions were criticised by reviewers for the preponderance of short-answer and multiple-choice question papers which rely almost entirely on memory recall from limited sources. Such papers fail to develop or test students' critical abilities or their writing skills and erroneously support the notion that the effective application of knowledge and skills to problems in Business Administration depends on closed, safe, and unchallenged solutions. In several cases, final level project units play a valuable part in the assessment of a range of attributes. However, in two universities only the most able students are allowed to take this unit, thus severely limiting its impact. In other universities, there is no final project unit and a valuable opportunity for students to demonstrate their critical and evaluative abilities is missed.

24. Students generally receive feedback on at least some of their assessed work. On many of the programmes they can discuss their work with their tutors, whilst many teachers work through solutions to tasks in class and discuss major areas of difficulty. However, in ten universities, feedback is largely oral and informal and there is a need for the provision of formal written feedback. This will ensure that students have a permanent record of the feedback for future reference. In one university, the lack of formal mechanisms to provide students with feedback often means that none is given and hence an opportunity to support student learning is lost.

25. Assessment is generally rigorous, but there is limited internal or external moderation of assessment. Some good practice was seen at the Lebanese University which operates a system of anonymous double marking of assessment. Reviewers recommend that all universities put in place some form of moderation such that examination papers and other forms of assessment are reviewed before being given to students. Such a review should be focused on ensuring

that assessments are of appropriate standard, reflect ILOs and are clearly worded. Once assessments have been marked, there should also be some form of sample double marking, either internal or external, to ensure rigor, consistency and fairness. There are some developing practices which can be built upon to attain these aims.

26. Fairness can also be enhanced by the provision of clear and transparent assessment criteria to students. Six universities provide well-considered and helpful assessment criteria, which inform students of grade distributions, mark allocations between different elements and the requirements for each grade. In other cases, there is little or no articulation of criteria, leading to a lack of transparency in assessment processes. For example, in two universities, marks can be added or deducted from a student's overall grade on the basis of a tutor's view of their participation in class. However, the basis for such decisions is unclear. In another university, the marks allocated to each question on an examination paper are rarely shown and do not even appear to be used when the paper is marked.

With Regard to Assessment of Students, the reviewers recommend that the universities consider the following:

- There is generally a poor match between assessment and ILOs. Assessment must address skills requirements as well as the knowledge components of ILOs.
- Rigorously followed, rigid, centrally imposed assessment regimes are preventing the appropriate assessment of students. Programme teams must be provided with greater flexibility in the design and implementation of assessment.
- Reliance on closed-book examinations, particularly those based on short answer and multiple-choice questions (which dominate in several cases), must be reduced. Such examinations are often poorly designed, and encourage memory recall at the expense of critical analysis and evaluative writing.
- Whilst most students receive feedback on assessed work, this is often informal and oral. There is a need for more formal written feedback to provide students with a permanent record for future reference.
- There is a need for appropriate moderation mechanisms to ensure fairness to students and comparability of standards.
- Students should be provided with clear and transparent information on such matters as assessment criteria, mark allocations between elements of assessment and grade distributions.
- The need for external input to the assessment process to ensure that academic standards are established and maintained.

II.4 Student Achievement

Student achievement was graded as good in four universities, satisfactory in ten and unsatisfactory in two.

27. Demand for these programmes is generally high. As a result, most of the universities recruit highly qualified students. These students have good grades in their high school examinations and often have to pass additional entrance examinations. In several cases, there are two streams of entry, some students enter through a competitive process with very high grades, whilst others, of whom some pay higher fees, enter through a parallel process and require lower grades. Even so,

these latter students still tend to have good grades. The ministry of education is responsible for university admissions in several countries; in these cases, the universities have no control over admissions and the students only have a limited say in the course they enter.

28. In almost all of the universities, the overall achievement of the target award is at least satisfactory and often good. However, in many cases where final awards are graded, the number of students achieving the higher grades is disappointingly low. This indicates that either assessment is inadequately discriminating between students of differing abilities, or that better students are not being sufficiently prepared to demonstrate their full abilities. In such cases, institutions need to identify the causes of this problem and to consider ways of ensuring that the best students achieve to their potential.

29. During the visits, reviewers saw a range of student work, including projects, case study analyses, reports and examination scripts of various types. In six of the universities, reviewers concluded that student achievement in final level projects was good and was the main vehicle whereby students demonstrated higher level skills such as synthesis of diverse material, critical analysis and evaluation of alternative courses of action. Given these findings, it is recommended that other universities consider introducing such project-based courses, with appropriate assessment criteria.

30. Other work seen by reviewers was of mixed quality. In four of the universities, reviewers commended the standard of work seen and confirmed that the best work demonstrated achievement of ILOs. In five others, work was found to demonstrate good levels of technical knowledge and skills. However, in these and the other universities, there was rarely any demonstration of higher-level intellectual skills. Furthermore, reviewers confirmed the views of many employers, that the work does not demonstrate the students' ability to apply their technical knowledge and skills to practical problems. Such weaknesses tend to be more of a reflection of the nature of the assessment and content of the programmes rather than of student ability per se. In one university, for example, reviewers found that students were articulate and analytical when questioned, but they were not being required to demonstrate these skills in assessment.

31. Graduating students from eight of the universities undertook the English language based ETS Major Field Test in June 2003, under the auspices of the UNDP. Students from Al Akhawayn University in Morocco, achieved a mean score of 157.30 compared to the international mean score of 152.70. Students from the other seven universities achieved significantly below the international average. Overall the average for the eight universities was 140.85. Insofar as the tests are a measure of graduates' comparative abilities, the institutions may wish to investigate the particular areas of weakness which led to this outcome.

32. More than half of the universities teach all or a large part of their programmes in English. In four of these, students' proficiency in English was praised by review-

ers, whilst in the others, the English language skills of students were considered to be satisfactory overall. However, in one case, the preponderance of short answer questions in examinations and the lack of a graduation project, means that students are not being required to write sufficiently and some are failing to develop adequate language skills. The language of tuition in the other universities is Arabic or French, or in some cases, Arabic with limited teaching in English. It is important that, whatever the main language of instruction, students are given adequate support to develop sufficient proficiency in the business use of the language and that adequate learning resources are provided in that language. It is not sufficient that only one of these two requirements is met. In one university, students' limited proficiency in French prevents an effective use of texts and other resources, and also restricts progression in those courses taught in French. Many students and employers recognise the role of English as the international language of business. They therefore welcome any opportunities to develop the students' English language proficiency.

33. There is no consistent picture of the development of general transferable skills or of any structured programmes to develop them. Generally, students develop good numeracy skills, whilst IT competence is well developed in six of the universities. Most students access the Internet to obtain information, but generally are not sufficiently discriminating or evaluative in its use. In fact, students in many institutions show a lack of critical awareness when accessing either printed or electronic sources. Good practice in citing sources, together with the use of standard referencing, is also rare.

34. The universities do not generally keep formal records of student destinations or links to employers. However, other evidence, including interviews with graduates and employers, written testimonies from employers and repeat recruitment of graduates, indicated that students enter relevant employment or progress to postgraduate studies, often abroad. Some of the universities have good links with institutions in the USA, Canada and Europe. The fact that several universities and employers return to recruit graduates on a regular basis, testifies to their general suitability for employment and further study. However, the universities should investigate improving their arrangements for obtaining evidence regarding the destinations and subsequent performance of graduates. Such evidence can be valuable in informing the continuing development of the programmes.

With regard to Student Achievement, the reviewers recommend that the universities consider the following:

- Investigate the reasons for the low numbers of students achieving higher-grade awards in many universities, with a view to taking corrective action.
- Consider introducing a graduation project unit with appropriate assessment criteria (given its value in several universities as a platform for students to demonstrate higher-level skills).
- Student work is often failing to demonstrate higher-level skills and to demonstrate abilities to apply technical knowledge and skills to business problems.
- Investigate the reasons for the generally poor showing of students in the ETS Major Field Test .
- Systematically collect information regarding the scale and type of employment, or further study, of graduates.

IV. Quality of Learning Opportunities

IV.1 Teaching and Learning

Teaching and learning was judged to be good in four of the universities, satisfactory in nine and unsatisfactory in three.

35. Only one university had a clear teaching and learning strategy aimed at helping students achieve ILOs. In general, teaching approaches are either left to individual teachers, with little or no guidance, or are dictated by circumstances. For example, one institution has such large numbers of students, that only large group teaching is feasible. Institutions need to consider developing articulated strategies aimed at developing students' learning skills in line with ILOs.

36. In six of the universities, there is an appropriate range of teaching approaches. These include lectures, workshops, practical classes, role-plays, student presentations and tutorials. In several cases, the smaller more student-centred types of session become more prevalent in later stages of programmes, as students' learning skills develop. In the majority of the universities, however, the range of teaching methods is too limited. Lectures predominate, with limited support from other types of activity. Students are therefore passive rather than active learners. Prescribed textbooks often determine teaching programmes, encouraging an over-reliance on a single reference source. Use of teaching aids such as overhead projectors and computerised presentations are not common. In some cases, this is because of a lack of facilities, in others, it is because of a lack of relevant skills or willingness on the part of the teachers.

37. There are some valuable attempts to introduce practical inputs into teaching. In five of the universities, staff bring their research, consultancy and practical experiences into their teaching. In others, visiting/ guest speakers provide valuable inputs, sometimes supported by fieldtrips. Students value these aspects of the programmes. Staff in other universities have valuable research, consultancy and practical experiences, but fail to capitalise on these in their teaching, which is a lost opportunity. Many of the universities are making attempts

to improve links to employers and graduates. This will provide a valuable opportunity to increase the use of guest speakers and field trips and, hence, provide students with a helpful context for their studies.

38. There is a need for greater encouragement of independent learning in eleven of the universities. The highly didactic approaches to teaching and over-reliance on a single textbook do not develop good learning skills in students. Whilst most of the universities have at least satisfactory library provision, students are often not encouraged to use it or Internet facilities to develop learning. When they do use such sources, they do not have the necessary skills to use them critically and in a discriminatory fashion.

39. There are a few examples of good practice of students' learning skills being developed in line with ILOs. This is demonstrated, for example, in learning achieved through internships and the development by teachers of their own website to support students, as at the University of Jordan. The Centre for Academic Development at Al Akhawayn University has played a key role in helping students to develop as independent learners through the development of compulsory introductory study skills modules and the provision of drop-in Writing and Study Centres.

40. The language of teaching varies across the region. In some cases where a combination of languages is employed, different teaching approaches are used in the different languages, leading to inconsistencies. In several universities where English is the predominant or only language of instruction, students' language skills are insufficient for dealing with complex issues, the teachers then revert to Arabic, which is not helpful in the long-term. In one university where Arabic is the main language of instruction, one unit per year is taught in French. Performance in these units is considerably poorer than that in other units.

41. There is a general lack of strategies for the enhancement of teaching and learning. Staff development activities relating to teaching and learning are very limited. Several institutions have induction and mentoring arrangements for staff new to teaching, but established staff have few opportunities provided. In one case, external short courses and training programmes overseas provide appropriate opportunities, whilst in a few others, a weakness in this area has been identified and processes are being introduced. Peer observation of teaching and other means of sharing good practice are not a feature of the provision. However, several universities have introduced student evaluation of teaching on courses, which provides some feedback to teachers and managers to enable some weaknesses to be addressed. This represents emerging good practice worthy of wider adoption. Overall, there is a need for considerable improvement in the provision of processes and opportunities aimed at enhancing teaching and learning. There is also a need for increased awareness amongst teachers of the importance of enhancement in this aspect of their work. A shift in emphasis is needed in teaching away from simply "purveying knowledge " towards "developing students as learners", in line with declared university missions.

With regard to Teaching and Learning, the reviewers recommend that the universities consider the following:

- Develop teaching and learning strategies aimed at developing students' learning skills in line with ILOs.
- Develop teaching methods need to develop so that students become more active learners rather than the passive learners most are currently encouraged to be.
- Introduce more practical inputs into teaching.
- Improve the provision of processes and opportunities aimed at enhancing teaching and learning, for example, through more targeted staff development and peer observation schemes

IV. 2 Student Progression

Student progression was judged to be good in four universities, satisfactory in nine and unsatisfactory in three.

42. The programmes enjoy healthy recruitment. Six of the universities have good admissions processes which provide helpful and clear advice to applicants. This advice not only provides information on joining procedures, but also on programme structure and option choices. In several universities, admissions procedures involve testing of basic language and numeracy skills, on the basis of which students are required to take specified courses to bring them up to acceptable levels. In one university, admissions are organised centrally by the government, and in another case, the government sets the admissions criteria.

43. Many of the universities provide induction or orientation programmes for new students, and in one case for returning students. Such programmes are usually supported by written material in the form of handbooks and guides. Five universities were criticised by reviewers for inadequate or non-existent induction arrangements. It is important that students are provided with early guidance on such matters as use of library facilities, assessment practices, codes of practice for citing references and against plagiarism, tutor support and study skills. This helps them to function effectively from the start of their studies. Such guidance should include written material, so that students can refer back to it when necessary.

44. Progression and completion rates have been at least satisfactory, and often good. In seven universities, 80% or more of a cohort consistently complete the named award. In many other cases, the rates are difficult to compute, usually because inadequate data is available. However, this problem is often compounded because of the flexibility inherent in many of the institutions, which enables students to move between programmes at various stages without detailed records of the individual student's progression.

45. Specific problems relating to progression were seen in several universities. Low overall progression and completion was only identified as an issue in one university. However, problems of delayed progression because of difficulties in particular subject areas were identified in four universities. In another case, progression rates amongst evening students were problematic. It is important that the universities improve monitoring of progression and completion. It is only in this way that they can identify problem areas and take remedial action.

46. Overall academic support is a

strength in most of the universities. Six institutions assign academic advisors to students. Their main role is to meet with each student, usually once per semester, to advise on and approve the student's choice of courses for the following semester. The role is generally well understood and valued by students. In one university, each advisor is allocated 80 students and it is difficult for the role to be properly carried out in such circumstances. Furthermore, a new on-line system has been introduced so that students can register their course choices without recourse to their advisor. This was reported to have led to inappropriate choices being made.

47. Reviewers considered that other processes of academic support are effective in eleven of the universities. General support is usually provided through a system, whereby staff indicate office hours during which they are available for consultation by students. This system is generally effective. In a few cases, whilst academic support is satisfactory, it is ad hoc and could be improved by being made more formal. In one university, students can only obtain academic support by seeking out staff willing to provide it, in two others, little or no support is available. In another, responsibility for academic support lies with one member of staff; given that the Department has 1,000 students this is a totally inadequate arrangement.

48. Identification of, and provision for, specific academic support needs is more variable and generally less satisfactory. Several institutions have additional support in English or French and in one case for Mathematics. However, in nine universities, there is a need for improvement in the processes for identifying academic weaknesses in students and providing appropriate support to overcome them. Such weaknesses are often in the areas of language and numeracy.

49. In nine of the universities, students expressed satisfaction with pastoral/ welfare support. This often includes counselling and advisory services, and guidance relating to seeking and gaining employment. Support covers help with CV writing, interview techniques and job seeking. Examples of good practice include the embedding of these skills within the core curriculum, and the distribution, to potential employers, of a booklet containing the CVs of all graduating students. These arrangements are sometimes informal and ad hoc, with subject specialist staff providing guidance and links to potential employers. In other cases, there are specialist centres within universities which provide these services.

50. Provision for students with special needs is inconsistent. Several institutions have well-considered policies and have specialist facilities to support students with disabilities. Other institutions have given little or no thought to the matter. This issue needs addressing, as it is important that all students are given the opportunity to achieve to their potential.

With regard to Student Progression, the reviewers recommend that the universities consider the following:

- Improve the monitoring of progression and completion, so that problem areas can be identified and remedial action taken.
- Whilst provision of general support for students is good, or at least satisfactory, targeted specific support, notably in languages and numeracy, is too variable. Universities need to have in place processes for identifying academic weaknesses in students and providing appropriate support to overcome them.
- Make support arrangements for students more formal to reduce the risks that problems are missed as reviewers found that much of the support offered to students is provided in an ad hoc manner.
- Ensure that, wherever possible, they make adequate arrangements to support students with special needs.
- Address the problem of carried failures at some universities.

IV.3 Learning Resources

Learning resources were judged to be good in four universities, satisfactory in six and unsatisfactory in six.

51. Academic staff are appropriately qualified for the programmes in thirteen of the universities, although in one of these there is poor coverage of Strategic Management. Most staff have doctoral qualifications and many are active in research and or consultancy. In two of these twelve universities, high staff turnover has impacted on stability, whilst in two others high teaching loads mean that teachers have little time for other scholarly activities. In many cases, some involvement of part-time teachers with current commercial experience enhances the provision. There is no consistent provision of staff development relating to teaching, learning and assessment. Academic and technical support staffing levels are generally appropriate. In two of the universities, there are considerable weaknesses in the quality of staffing. In particular, a small full-time staff base relative to student numbers means that both use an extensive number of part-time teachers. This adversely affects both the quality of teaching and the currency of the material delivered.

52. Library provision is of extremely variable quality. In three of the universities, it was considered to be good, with book, journal and e-journal resources offering good support to the programmes. In addition, the libraries provide an appropriate environment for study. In many other cases, library provision had strengths, notably in the availability of journals and e-journals, but also had weaknesses, usually in the book-stock. Books were often limited in number and outdated, with evidence of students making use of outdated material. In such cases, not only is there a need for the acquisition of more up-to-date texts, but also the need to rid the library shelves of outdated material, which is often misleading to students.

53. In six of the universities, library provision is totally inadequate. There is insufficient material of all forms available, often poor or no borrowing rights for students, restricted opening hours and no study facilities. Given the need to develop independent learning skills in students, the situa-

tion in these universities needs immediate and urgent attention. Furthermore, in one of these universities, staff asserted that there is no culture of using libraries amongst their students. If this is the case, such attitudes need to be vigorously challenged, not used as a justification for poor library provision. In one case, government policy, which forbids payment for goods in advance, affects the university's ability to subscribe to journals.

54. Most of the universities have or are developing appropriate ICT resources. Many have extensive modern facilities with good access for students. There is also good technical support for both hardware and software. In only three of the institutions the facilities are considered to be totally inadequate. In others, there are some weaknesses, notably in the absence of specialist software and of Internet access for students. A few universities are developing an intranet to support student learning and this development needs wider encouragement.

55. The universities are generally housed on pleasant campuses, with a good range of social and leisure facilities. In most cases, teaching accommodation is appropriate, and in some is of high quality. One university has very poor classroom accommodation, with insufficient seating for the number of students on the programme, which clearly impacts on the quality of the student experience. In two other institutions, there is no staff accommodation; as a result, staff are not able to provide consultation opportunities to students on campus. In two others, there is sufficient accommodation, but it is inflexible, with fixed seating which makes it unsuitable for certain types of teaching. Whilst, new, purpose-built teaching accommodation in another university consists solely of large lecture rooms, with no provision for smaller seminar/ tutorial classes.

56. Teaching aids, such as overhead projectors and data-show equipment, are available in most of the universities, although there is a serious lack of such facilities in three cases. Even where such equipment is available, many staff are reluctant to use it, relying instead on traditional "chalk and talk" and dictation as methods of delivery. Training in the use of these facilities, for both staff and students, would enhance the learning experience, and provide students with exposure to valuable presentational skills.

57. Whilst there was evidence in several universities of resourcing priorities being identified, there was little evidence of strategic resource planning. There is a need for this to be addressed, so that resourcing needs can be identified and priorities set. Such priorities should reflect ILOs and the needs of the curricula, and delivery and assessment methods.

With regard to Learning Resources, the reviewers recommend that the universities consider the following:

- Consider aspects of staffing In a few universities to ensure adequate coverage of the curricula, and adequate opportunities for staff to undertake scholarly activities in support of their teaching.
- Introduce targeted staff development opportunities.
- Improve the management of library provision in several universities, to ensure that students have appropriate access, useful borrowing rights and study facilities.
- Replenish in many cases, library book-stocks and remove dated stock from the shelves.
- Students need to be provided with access to specialist software and universities should speed up development of intranet support for students.
- Develop a more strategic approach to resource planning, so that priorities can be agreed in line with curricular needs.

V. Quality Assurance and Enhancement

Quality assurance and enhancement were judged to be good in only one university, satisfactory in nine and unsatisfactory in six. This profile indicates that this is the weakest area overall. In particular, there is a general lack of formal systems, including the collection of data, for the monitoring of provision. Individual academics enjoy considerable autonomy with little accountability, and there are no mechanisms for taking an overview of quality issues.

58. Almost all of the universities have some elements of quality assurance processes in place. In some cases, this is through a clearly defined formal structure, but often the processes are ad hoc and unsystematic. Whilst informal arrangements can be effective, particularly in smaller institutions, they have clear weaknesses. In particular, lack of proper structures increases the likelihood that problems will not be identified and/ or appropriately addressed. In those institutions with the more effective systems, quality assurance processes are based on clearly defined responsibilities and operated through well-considered committee structures, as at An Najah and Yarmouk universities. In other cases, less structured and formal systems nonetheless enable issues to be identified and appropriate actions taken.

59. In some universities, quality systems are clearly articulated, transparent, and understood and accepted by staff. In many cases, however, there is little documentation available and systems lack transparency. As a result, there is little ownership and acceptance of processes.

60. Annual monitoring of programmes is very variable. It occurs in some form in almost all of the universities. The more formal systems usually result in the preparation of an annual report which is channelled from the programme team or department, up to faculty and then often to university committees. However, even in these cases, compliance is the prevailing motive, and there is little evidence of the procedures leading to enhancement of the provision. In eight of the universities, the monitoring of the programmes is ad hoc and lacking in consistency and transparency. In none of the universities, is quantitative data being compiled and used for the mon-

itoring and enhancement of programmes. There is a need for the collection and analysis of data on, for example, such areas as success rates, withdrawal rates and student performance. When systematically incorporated into the regular monitoring of programmes, such data is very useful for indicating areas for further investigation and possible remedial action.

61. Periodic strategic reviews of programmes are even less established than annual monitoring and reporting. In a few universities, there was evidence of programmes being reviewed and of changes being made in response to identified needs. However, such reviews are nearly always ad hoc in nature and not instigated as part of an established review programme. In order that the universities can be assured that the programmes are current and relevant, there needs to be a set cycle of regular programme review, say every five years. Without such a cycle, educational programmes risk becoming increasingly dated and ill matched to the needs of business and students.

62. None of the universities has convincing arrangements for routinely obtaining opinions and inputs from external parties. It is acknowledged that many staff have experience outside of their own institutions and these can provide useful reference points. However, there is a need for institutions to establish better formal external links to help ensure that programmes remain current, that standards are appropriate and that stakeholders retain a high level of confidence in the graduates. Regular inputs from practitioners and employers will help to ensure that programmes continue to meet the needs of business, whilst inputs from academics in other institutions will help to ensure that standards are maintained in line with those applying elsewhere.

63. This project has involved the training of many Arab reviewers, who now have practical experience of academic review. These reviewers constitute a valuable pool of expertise to be called upon to advise on issues of standards and also to help others to undertake this role. There needs to be a much greater willingness, not only to be prepared to learn from others, but also to share and disseminate good practice.

64. Universities attempt to obtain the views of students mainly through questionnaire surveys and, in a few cases, through student membership of committees. Students also often use informal channels to make their views known. Reviewers found that in five of the universities, there is clear evidence that student opinion is effectively canvassed, taken seriously and acted upon if appropriate. In three other cases, evidence is less convincing; nonetheless, reviewers feel that students have appropriate channels for making their views known. In seven cases, there is little evidence of students' views being routinely sought or of them impacting on the provision. However, three of these universities are aware of this weakness and are in the process of introducing mechanisms to address the issue.

65. Questionnaire surveys are used to obtain student perceptions in six universities, but their impact varies. In some universities, for example, there are formal processes whereby the outcomes of the surveys are reported and followed up to ensure that any necessary action has been taken. On the other hand, the surveys are considered to be ineffective in two institutions where they are not subject to any dissemination or discussion. For example, in one institution, the ques-

tionnaire responses are confidential to the tutor concerned, and students reported that they are reluctant to be critical in case their grades are adversely affected.

66. The universities generally have good arrangements in place for supporting the academic development of teaching staff. Masters and doctoral level study is routinely supported, often in universities in Europe, Canada and the USA. There is, however, a lack of awareness of the need for staff development to help teachers to develop their skills in the areas of teaching, learning and assessment. Given the widespread weaknesses in these areas, this is a priority area for improvement. It is also an area where institutions would probably benefit from country and region wide consultation and collaboration and from looking outside for such development expertise, to supplement that available internally.

With regard to Quality Assurance and Enhancement, the reviewers recommend that the universities consider the following:

- Systems for the monitoring of programmes need to be made more formal, to involve better use of accurate data on key aspects of provision and to be used to enhance quality rather than simply being viewed as compliance with centrally imposed requirements.
- Periodic major reviews of programmes must be established to ensure that the programmes are and remain current and relevant.
- External parties are rarely involved formally in the review or development of the programmes. This should be addressed. The pool of trained academic reviewers resulting from this project should be seen as a valuable resource for this purpose and as a nucleus for the development of a significant group of “critical friends” throughout the region.
- The processes for gathering student views have to be generally improved, for ensuring that issues arising from them are identified and, if necessary, action is taken. Such processes need to be seen to be responsive and transparent if they are to be of value in enhancing provision.

Fig. 1: **Judgements on Academic Standards and its Four Components**

Fig 1.a: Graded Judgements

University	*ILO*	*Curricula*	*Assessment*	*Student achievement*	*Overall academic standards**
U-1	G	S	S	S	S
U-2	S	G	S	G	G
U-3	S	S	S	S	S
U-4	U	S	U	S	U
U-5	S	S	S	U	U
U-6	U	U	U	U	U
U-7	S	S	S	S	S
U-8	S	G	S	S	S
U-9	S	S	S	S	S
U-10	S	G	S	G	G
U-11	U	U	S	S	U
U-12	S	S	S	S	S
U-13	S	S	S	S	S
U-14	S	S	S	S	S
U-15	S	S	S	S	S
U-16	S	S	S	G	S
	G = 1 S= 12 U = 3	G = 3, S = 11, U = 2	G = 0, S = 14, U = 2	G = 3, S = 11, U = 2	G = 2, S = 10, U = 4

* If any of the four aspects of academic standards is rated unsatisfactory, then the overall academic standards are rated unsatisfactory

Fig. 1.b: Distribution of Graded Judgements

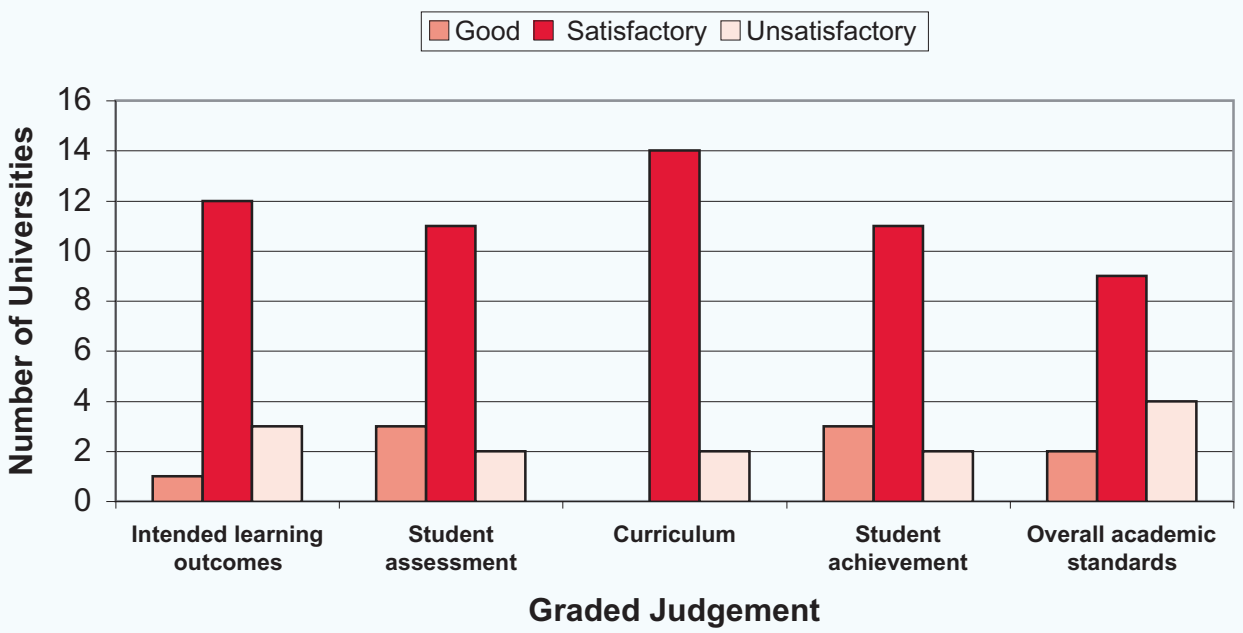


Fig. 2: **Academic Indicators**

Fig. 2. a: Values of Indicators (Academic)

University	Work placement / Internship	Coverage of MFT curriculum*	Strategies of independent learning	Effectiveness of graduation project	Competence in relevant foreign language **	Internal / external moderation of assessment	Impact of staff research on teaching	Evidence of critical thinking
U-1	G	S	S	G	S	U	U	S
U-2	U	G	S	U	G	U	S	G
U-3	U	G	S	G	S	S	S	S
U-4	U	U	U	U	S	U	S	U
U-5	U	U	U	U	U	S	U	U
U-6	U	U	U	U	S	U	U	U
U-7	U	S	S	U	G	S	S	S
U-8	U	S	S	S	G	U	S	S
U-9	U	S	S	U	S	U	S	S
U-10	G	S	S	U	G	S	S	S
U-11	G	U	S	G	U	S	U	U
U-12	S	S	S	G	U	S	S	S
U-13	U	S	U	U	S	U	U	U
U-14	S	S	S	U	G	U	G	S
U-15	S	S	G	G	G	U	S	G
U-16	G	S	S	S	G	U	S	G
	G = 4, S = 3, U = 9	G = 2, S = 10, U = 4	G = 1, S = 11, U = 4	G = 4, S = 3, U = 9	G = 7, S = 6, U = 3	G = 0, S = 6, U = 10	G = 1 . S = 10, U = 5	G = 3, S = 8, U = 5

* Based on % overlap between curriculum and detailed syllabus of the Major Field Test (ETS) in Business Administration.

** The relevant foreign language could be either the primary language of teaching (if teaching is in English or French), or the main support language of teaching (if the primary language of teaching is Arabic).

Fig. 2.b: Distribution of Indicator Values (Academic)

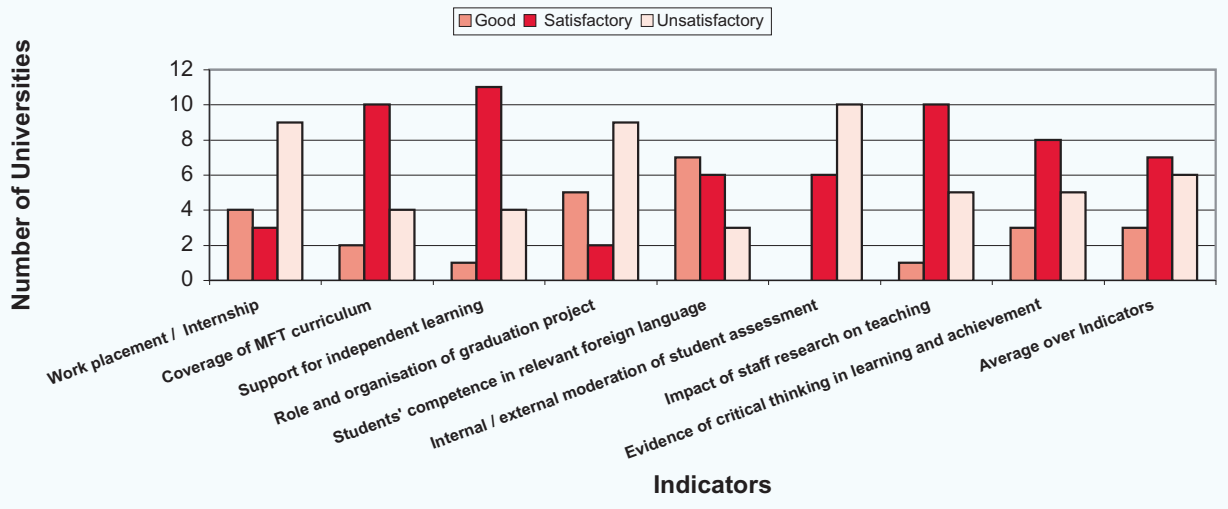
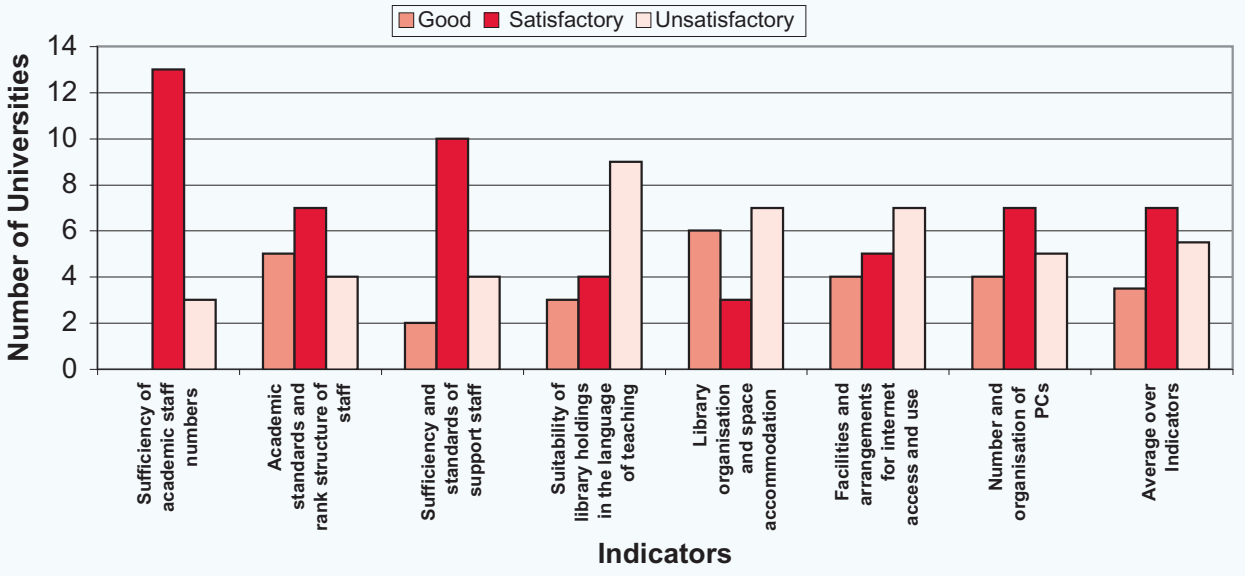


Fig. 3: **Learning Resourses Indicators**

Fig. 3.a: Values of Indicators (Learning Resources)

University	Sufficiency of academic staff numbers	Academic standards and rank structure of existing staff	Sufficiency and standards of support staff	Relevant library holdings in language of teaching	Library organisation and space accomodation	Facilities and arrangements for Internet access and use	Number and Organisation of PCs
U-1	S	G	U	U	U	U	S
U-2	S	S	S	G	G	G	S
U-3	S	S	G	S	G	G	S
U-4	U	S	S	U	U	U	U
U-5	S	U	S	U	U	U	U
U-6	U	U	U	U	U	U	U
U-7	S	S	S	U	S	S	S
U-8	U	S	S	U	G	S	G
U-9	S	G	S	G	G	S	G
U-10	S	G	S	S	G	G	G
U-11	S	U	U	U	U	U	S
U-12	S	G	S	U	U	U	U
U-13	S	U	S	S	U	S	S
U-14	S	S	S	U	S	U	U
U-15	S	G	G	G	G	G	G
U-16	S	S	U	S	S	S	S
	G = 0, S = 14 , U = 2	G = 5, S = 7 , U = 4	G = 2, S = 10 , U = 4	G = 3, S = 4, U = 9	G = 6, S = 3, U = 7	G = 4, S = 5, U = 7	G = 4, S = 7, U = 5

Fig. 3.b: Distribution of Indicator Values (Learning Resources)



Appendix 1 **University Representatives (Business Administration)**

1) Oran Es-Senia University, Oran - Algeria

Coordinator:	Prof. Abd Elkader Derbal, University President
Representative A1:	Prof. Boukaabar Boudjelal, Department of Commercial Sciences
Representative A2:	Dr Mohammed Kheir Eddine Dellil, Vice-Rector for Planning, Department of Commercial Sciences

2) University of Bahrain, Manama - Bahrain

Coordinator:	Dr Amin Al-Agha, Dean, Faculty of Business
Representative A1:	Dr Nadhem Al-Saleh, Chairperson, Department of Economics and Finance
Representative A2:	Dr Jawaher Shaheen Al-Mudhahki, Chairperson, Department of Accounting

3) University of Cairo - Egypt

Coordinator:	Prof. Ahmed Farghally Hassan, Dean, Faculty of Commerce
Representative A1:	Prof. Ahmed Farghally Hassan, Dean, Faculty of Commerce
Representative A2:	Dr Galal Abdu El-Halim, Chairperson, Department of Mathematics and Insurance

4) Arab Academy for Science & Technology and Maritime Transport, Alexandria - Egypt

Coordinator:	Prof. Mohamad Nabil Fahmy, Dean, Faculty of Management & Technology
Representative A1:	Dr M. Asaad Elnidani, Chairperson, Department of Business Administration
Representative A2:	Prof. Mohamad Nabil Fahmy, Dean, Faculty of Management & Technology

5) University of Jordan, Amman - Jordan

Coordinator:	Prof. Abdalla Al-Musa, University President
Representative A1:	Dr Rifat Shannak, Chairperson, Department of Business Administration
Representative A2:	Prof. Mamoun M. Al-Debi'e, Associate Dean, Faculty of Business Administration

6) Yarmouk University – Jordan

Coordinator:	Prof. Hisham Gharaibeh, Vice President for Academic Affairs
Representative A1:	Dr Jamal Daoud Abu-Doleh, Chairperson, Department of Business Administration
Representative A2:	Dr Loay Salieh, Department of Business Administration

7) University of Balamand - Lebanon

Coordinator:	Prof. Nadim Karam, Vice President for Development
Representative A1:	Dr Haissam Haidar, Acting Dean, Faculty of Business Administration
Representative A2:	Dr Marwan Owaygen, Faculty of Business Administration

8) The Lebanese University, Beirut - Lebanon

Coordinator:	Prof. Philip Nabhan, Director, University Centre for Legal Information
Representative A1:	Dr Hassan Saleh, Director, Faculty of Economic Sciences & Business Administration
Representative A2:	Dr Wadad Saad, Department of Business Administration

9) Jinan University - Lebanon

Coordinator:	Dr Bassam Hijazi, University Vice-President
Representative A1:	Dr Mohamad Alameddine, Department of Marketing
Representative A2:	Mr Ammar Yakan, Faculty of Business Administration

10) Abdel Malek Al-Saadi University - Morocco

Coordinator:	Prof. Ahmed El Moussaoui, in charge of University Cooperation & Research
Representative A1:	Prof Houdaifa Ameziane, Dean, School of Management
Representative A2:	Prof Khalid Chafik, Department of Management

11) Al-Akhawayn University, Ifrane - Morocco

Coordinator:	Prof. Driss Ouaouicha, Vice President for Academic Affairs
Representative A1:	Prof. Mohamed Derrabi, Associate Dean, Department of Business Administration
Representative A2:	Prof. Assane Diagne, Assistant Professor, School of Business Administration

12) Sultan Qaboos University, Muskat - Oman

Coordinator:	Dr Darwish Al-Moharby, Assistant Dean, Faculty of Commerce and Economics

Representative A1: Dr Darwish Al-Moharby, Assistant Dean, Faculty of Commerce and Economics

Representative A2: Dr Fahim Al-Marhubi, Chairperson, Department of Economics and Finance

13) An-Najah National University, Nablus - Palestine

Coordinator: Prof. Maher Natsheh, Vice President for Academic Affairs

Representative A1: Dr Mohammad Hisham Jabr, Department of Business Administration

Representative A2: Dr Maher Natsheh, Vice President, Academic Affairs

14) Al-Azhar University, Gaza - Palestine*

Coordinator: Prof. Abdel Kareem Najem, Vice President for Academic Affairs

Representative A1: Dr Nihaya El-Tebani, Deputy Head, Department of Business Administration

Representative A2: Mr Wael Thabet, Department of Business Administration

15) University of Khartoum - Sudan

Coordinator: Dr Mohammed Osman M. Hamza, Dean, School of Management Studies

Representative A1: Dr Mohammed Osman M. Hamza, Dean, School of Management Studies

Representative A2: Mr Abubker Osman Abuidris, Department of Accounting & Financial Managment

16) Aleppo University - Syria

Coordinator: Prof. Mohammad Nizar Akeel, University President

Representative A1: Dr Said Al-Amoum, Faculty of Economics

Representative A2: Prof. Maher Badawi, Faculty of Economics

17) Aden University - Yemen

Coordinator: Dr Saeed Abdo-Gabali, Vice President for Academic Affairs

Representative A1: Dr Awad Mohammed, Department of Business Administration

Representative A2: Dr Abdul Rahman Salem, Department of Business Administration

*The final stage of the review of the Business Administration program at Al-Azhar University was nor completed due to the inability of the external review team, to enter Gaza. The city was closed-off by the occupation army on March 21, 2004, shortly after it had carried out one of its assassination raids inside the city.

Appndix 2 **Milestones of the Review Cycle**

May – June 2003	Identification of university coordinators and representatives. Project questionnaires on participating programmes filled and returned by representatives. Workshop material developed by consultants and distributed. UK external reviewers for the Business Administration cycle are nominated on the recommendation of QAA and contacted by the project.
July 14- 17, 2003 (Tunis)	First training and planning workshop (4 working days). Participants include A1 and A2 representatives from each university. Attended by each university's two appointed representatives. Topics: framework for academic subject review. Concepts, criteria and implementation of self-assessment.
August 2003	Representatives embark on the long process of internally evaluating their programmes and on the preparation of self-evaluation docu ments (SED) with support from home departments and advisory support (through email) from project.
August - November 2003	Contractual agreements with terms of reference signed by UK reviewers. A second edition of the training handbook that includes new adaptations is developed by the training consultants in close consultation with the Project Manager.
October 18, 2003	Project Advisory Committee holds its annual meeting in Amman. Project progress is reviewed and work plan for the following phase is reviewed and approved.
November 2003	Preliminary drafts for the self-evaluation document (SED) for each programme prepared by representatives and reviewed and commented upon by training consultants.
November 6, 2003	One-day coordination meeting convened in London by the Project Manager for the selected UK reviewers and attended by the projects' training consultants and QAA advisor.
November 30 – December 3, 2003	Second training and planning workshop (3 days) held in Amman for university representatives. Group discussions held for university representatives. Group discussions and individual tutorials organised to review progress of SED preparation and to identify and address remaining issues. A plan for final submission of SED agreed.

December 4 – 8, 2003	Third and final training and planning workshop (5 days) held in Amman for university representatives. Interactive theoretical and practical training (with simulations and role-playing) on the conduct of external reviews. Final schedule of review missions to participating universities are agreed. A detailed plan for hosting missions by each programme is agreed.
January 31, 2004	Final drafts of SEDs submitted to project and copies forwarded to appointed review teams.
February – May 2004	External review missions carried out on16 of the 17 participating universities, apart from Al-Azhar University in Gaza. The review mission to Al-Azhar University was not carried out due to travel restrictions by the occupation army.
April – May 2004	First draft of review reports submitted to project by mission coordinators and for review by the project editing team.
June 2004	Final drafts of the (16) review reports are produced. A complete draft of the overview report is also produced.

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In January 2002, the project "Enhancement of Quality Assurance and Institutional Planning in Arab Universities" was launched by UNDP/ RBAS. Over the next 30 months, representative academics from 28 leading Arab universities, backed by training and advisory support from the project, carried out thorough internal and external evaluations of the quality of their education in two selected fields of study: Computer Science and Business Administration.

The outcomes of each review were presented to the university concerned in a detailed review report while this report depicts the picture that emerges across the region. With the detailed state of education revealed, agendas of improvement and reform are brought to the fore, addressing every major aspect of the provided education: aims and intended learning outcomes of the programme, the design, depth and breadth of curricula, the range and effectiveness of the methods of teaching, learning and student assessment, the state of human and physical learning resources, the internal mechanisms for quality maintenance and enhancement and, importantly how the programme compares with similar programmes in the region and abroad.

The project required each university team to focus its effort on evaluating and improving its own programme, but the added values of regional team work, informed and guided by commonly adopted concepts, criteria, terminologies and time schedules, were invaluable. It is truely encouraging that a sizeable consortium of leading Arab universities mounted such a concerted collaborative effort for acquiring the knowledge and skills of quality assurance and using that knowledge to address an area of development that is of strategic importance to the whole higher education sector.

With its working model of regional team work proof-tested and established, the project is moving into a second phase of activities. A workshop that launched a third cycle of reviews targeting programmes in the field of Education was held in July 2005, raising the number of participating universities to 35 in 14 countries. This is to be followed, in due course, by another cycle in the field of Law, which is expected to raise the number of universities to the project's target of about 40 and to bring the remaining Arab countries into this regional enterprise.

Although evaluation of programmes was the project's flagship component, two other independent instruments of quality assurance were also adopted, developed and applied by the participating universities: One involved measuring the performance of the senior students of the evaluated programmes through administration of international tests. The other resulted in the development of a pilot regional statistical database for 15 of the participating universities. The outcomes of these components will be the subject of other regional reports that will be published in the near future.