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## **Architectural Education: Global Demands & Local Aspirations (The Case of King Saud University undergraduate program)**

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### **Abstract**

The architectural profession is undergoing tremendous development in order to respond to the new trends in the global arena. By joining the World Trade Organization (WTO), the organizing body dealing with global rules of trade between nations, Saudi Arabia opened the local market to fierce international competition and it gave the local building industry a chance to compete globally. Local architectural education programs need to evolve in order to endure and to respond to the new industry rules and international market standards. It is essential to join forces with and have coordinated efforts between professional bodies, local practitioners and other participants involved in this system of interconnecting relationships.

Since most local undergraduate programs in Saudi Arabia were initially created in the western traditions of architectural education, their requirements follow these traditions and conform to western professional organizations standards such as the National Architectural Accreditation Board (NAAB) in the United States. However, local programs for (the most part) have not kept up with the standards set by these associations and therefore have not developed their programs to serve international markets.

The program at King Saud University-KSU (the oldest architectural program in the region) has recently set clear goals to take part in this evolution. It aspires to lead architectural education in Saudi Arabia and the GCC region. Not only through graduating qualified architects who can effectively shape the built environment and achieve local community aspirations; but also through a research agenda that address local building industry issues and national development objectives; as well as, the development of Saudi professional practice and the encouragement of faculty members to participate at all stages of local projects. To reach these objectives, the program needs to assess its performance; compare it to other internationally renowned programs and the needs of local building industry; and to develop it to compete globally.

This paper documented and assessed the main factors contributing to the current state of architectural education at KSU; it compared these factors to standards set by other comparable international institutions. It suggested methods and tools for its continuous development not only to reach international standards and to compete globally, but also to discuss and suggest the appropriate steps for establishing standards that correspond to local market demands and national and regional development objectives.

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## **Introduction**

University based architectural education is a recent phenomenon in Saudi Arabia. The countries architectural education programs were initiated four decades ago. These programs had some success in developing the general population's social consciousness about the physical environment and in graduating a generation of local architects and built environment professionals. These professionals currently lead the local building industry, help shape the physical environment, and aid legislate and regulate its issues. However, these programs were not as successful in reaching the communities aspirations especially in developing local expertise and limiting expatriate employees participation in the industry; as well as, in advancing built environment research that is geared to local issues. Saudi authorities recent joining of the World Trade Organization (WTO) will change many of the building industry rules and will make the current problems even worse. The globalization trend and the lack of professional protection will make the competition fierce for local practice and it will affect the role of local architectural educational programs. Local programs need to adjust or they will soon become obsolete. They should monitor local community requirements as well as local and global market needs. They have to assess their current programs and compare them to global standards, and they should adjust their programs to accommodate for global change (Clark, D. 2004).

## **literature review**

### **Architectural Education Origins**

Architectural schools started in Europe and the US, outlined a strategy from the beginnings of the late century with clear objectives to qualify architects through a positivistic approach of the transfer of knowledge, skills, and abilities almost exclusively in the classroom in a University setting. They controlled entry into the profession by making full time college based education a must, and by abolishing courses for professional qualification through pupilage or apprenticeship; thereby excluding the tradition of inherited bodies of knowledge and practice and perfecting academic and university level programs. They defined education parameters for the profession, and concentrated on design and included in their curriculum knowledge of building materials, structure, and management (King, S. & colleagues, 2003). In the Islamic world, qualifying architects was primarily through the apprenticeship route until late in the 19th century, when the first architectural program was established in Turkey, which later adopted the more

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technical German model of architectural education. Later, a similar program was established in Egypt which leaned towards the French Ecole des Beaux-Arts model of architectural education.

In general, higher education in the developed world stress somewhat different objectives than the ones in the developing world. In developed countries higher education emphasize global principles of intellectual enlightenment and the students mental, physical and social advancement. On the other hand, higher education goals in developing countries focus on specific national identity and local culture. They select and direct explicit programs to serve each stage of national development. Programs are directed to nationalize specific areas of expertise and to graduate professionals who can serve directly in the work force (Quinn, B. 2003).

In the recent past, higher education goals in Saudi Arabia have been targeting the needs of the public sector. However, with the saturation of public sector jobs and the new rules of global competition, there is a real need to shift policy to correspond to private sector and international markets needs. Training local expertise in the design and the building construction industries is essential to relieve the national economy from relying on expatriate expertise and to utilize essential local resources for an independent stable local economy and to give small local organizations a chance to compete in the international arena (Alnamee, M. 2002; Alsuwayeh, W. 1985).

### **Saudi Architectural Programs**

In the early 20th century, construction in the Arabian Peninsula depended on master builders trained through an apprentice ranking system. In the middle of the century Saudi architects educated abroad and expatriates started practicing in the country. Architectural education did not take roots in the kingdom until four decades ago, when it spread to five public universities and a few private ones all over the kingdom with many concentrations and areas of study. The first program was initiated at King Saud University with the help of UNESCO, as part of the Engineering School, and later as an independent college. The initial program was modeled after the US system of architectural professional education which was influenced greatly by the German architect Walter Gropius of the Bauhaus school. The professional degree offered by the program requires five years of academic preparation with design courses as the backbone of the curriculum. The program tries to tie design courses with all the other theoretical, technical, management, and professional courses (Almogran, K. 2001). When local programs were started some professional protection was introduced. However, these protections were inadequate and did not offer a healthy environment for practice. Currently, the only

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qualification requirement for practicing architecture in Saudi Arabia is a bachelor degree in architecture (usually five to six year professional programs). To deal with the globalization issue, the Saudi Authorities initiated a new Saudi architectural and engineering organization (The Saudi Engineering Organization). The new organization proposes new qualification requirements involving the licensing of architects and engineers through several requirements. However, these requirements have not taken place until now.

### **Local Programs and Global Standards**

The globalization and the opening up of international trade influence local higher education programs in many ways. It increases the importance of higher education and its role in fostering international economic growth, enhances international cooperation in teaching and research, and gives more significance to educational quality assurance. It also ties program content to national and global market demands, especially relating to students' recruitment, policy development, evaluation, skills development, and transferability of course credits and work based training. To improve the students' competence and readiness for international markets and the new global economy, architectural schools are modifying their curricula, creating new courses and programs, improving methods of delivery, and expanding work-study opportunities (Dicken, P. 1998). Programs in developing countries have adjusted in several ways including conforming to a western based international curriculum, changing methods of educational delivery, and developing strategic relationship with the private sector. The new trend promoted greater competition between professional programs. However, well established programs within western countries fared better than ones in developing countries because the western programs are part of a bigger system with established professional associations who set international standards in accreditation, quality assurance, certification, and licensing of international professional services (Pfammatter, U. 2004).

The KSU architectural program currently has the highest concentration of students of all architectural programs in the Kingdom and the Gulf region. Along with educational and research skills and the development of analytical abilities, the program aims to get students ready for professional practice. The program is a useful case study because its curriculum, and structure are similar to other local programs and its faculty and students are representative of other programs. Even though the program recently went through an evaluation and curriculum

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development review, the assessment process did not regard the globalization trend as a determining force for the near future (KSU program internal reports, 2005). In order for the program to withstand the globalization onslaught, it has to adopt and adjust to global architectural education standards. There are several global standards that can be considered, most useful of which are the standards outlined by the International Union of Architects (UIA), based in Switzerland, which is an association that represents the interests of international architects and protects it through international treaties and organizations. Its members drafted and approved several documents specifying the international standards for architectural professional practice and education in the late 1990's and early years of this decade. These documents specify similar requirements to other professional and educational associations such as the National Architectural Accreditation Board (NAAB) in the US and the professional association for British architects (RIBA) in the UK, which mandate exposure to specific activities that determine performance and professional certification.

The global associations call for architectural schools to serve the following objectives: a decent quality of life for inhabitants of the built environment, application of technology appropriate to the cultural needs and respectful of available ecological resources and which considers initial and life long costs. It specifies a period of not less than five years of full-time studies in a university or an equivalent institution, plus two years of internship in a suitable practice setting, of which one year may be obtained prior to the conclusion of academic studies (UIA, 1998).

## **Research objectives**

The KSU architectural program, along with other similar local programs, should not try to survive the new WTO agenda; it should try to benefit from it by widening its perspective and by evolving into a globally competitive program through a rigid system of self-assessment and the fulfillment of international standards. These programs should try to evolve and graduate new architects that can compete globally while responding to local community aspirations and national development objectives.

This paper documented and assessed the main factors contributing to the current state of architectural education at King Saud University, it compared these factors to standards set by other combatable international institutions, and it suggested methods and tools for their continuous development. Not only to reach international standards and to compete globally, but also to discuss and suggest the

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steps for establishing standards that correspond to local market demands and national and regional development objectives.

## **Research Design & analysis**

To achieve the research objectives, data was collected through four main sources:

- Data from previous research that focused on local architectural programs.
- Data from the college of architecture and planning at KSU archives: including various department and college internal memos, various committee reports, internal administrative reports, data collected through students' evaluations, and program internal assessment and evaluation reports.
- Field visits to a number of world renowned architectural programs, professional and accreditation organizations, to document global program reviews and standards.
- In-depth interviews with KSU program faculty members, recent graduates, and current students.

The archival search included data at each level of the KSU program development. The interview methods for all categories of participants were non-systematic. The fieldwork covered visits and reviews of architectural programs in several international institutions of higher learning as well as students, professional, and accreditation organizations in the US and Europe.

## **Research Results**

The literature review has shown that many factors influence the process of architectural education, and it specified five main factors as the primary contributors to the process, namely, the students, faculty members, support staff, curricula, and educational environment. In the following, the KSU program will be presented through a review of these factors and then it will be compared to renowned international standards outlined during the field visits.

### ***The students***

International standards call for an appropriate selection process at the point of entry to allow each teaching institution room to adjust to the number of students according to its teaching capacity, and to select students with suitable aptitudes required for a successful education in architecture (Dutton, T. 1993). Three issues were reviewed for the KSU program, namely, acceptance standards, students input, and recent graduates' perspective. The entry statistics for the KSU program are alarming. A review of the accepted number of students over the last sixteen years

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clearly shows a recent drastic increase in student numbers which can be traced solely to changes in college administrative policy. According to faculty members, this increase has affected the quality of architectural education received by students and it may even reflect on practice at a later stage.

Students are the primary ingredient of any educational program, and the success of a program is directly tied to the type of students accepted and enrolled in it. As in other local programs in Saudi Arabia, the acceptance standards for the KSU program are fairly moderate. They consist of the student's preference for the area of study, the completion of a scientific high school diploma with a pre-specified grade set by the college council (usually a score of 88 out of a 100, this score has consistently gone up over the years), an acceptable score in a national standardized test, and an adequate score in the KSU program skills test. This mechanical method of accepting students has not successfully enrolled the right students into the program. It has not brought in a good number of students who are passionate about design and architecture. A recent study has concluded that all the acceptance criteria including the college set skills test had no correlation with the students later success in the program, and the only criterion that showed clear correlation with the students later success in the program was the student's high school score (Almogran, K. 2001). International standards in many of the renowned architectural educational programs visited do not require a skills test; they rely instead on high school scores, the general equivalency test such as the Scholastics Aptitude Test, personal interviews with the applicants and recommendations from reliable sources. Therefore, the inclusion of an interview with the applicant and recommendation letters from dependable sources, and the development of the current program skills test are essential to the program future success.

Concerning program size, international programs visited average around 450 students per college and the architectural program usually within these colleges average around 200 students for all levels, new students' average around 50 students per year. Comparatively, the college of architecture and planning at KSU has much higher numbers. It accepts 190 students annually, and it currently enrolls 1030 students, two thirds of which are in the architecture department. Although there is always room for improvement, the drop out rate for the department matches the average for comparable departments, an average of 20% in the first two years and then 10% the following years. The college and the program need to review its entry and enrollment standards to improve the quality of architectural education. Faculty members have repeatedly mentioned several factors affecting the new students' success in the program. They mentioned the widening gap between high

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school education and University level education, especially in terms of students self reliance and motivation and passion for learning. They also mentioned that a portion of the new students are not familiar with the architectural profession and that it's somewhat difficult for parents and family members to guide new high school graduates and to match their abilities and skills with the right field and future profession. Hence, it is important for the KSU program as well as others to develop community orientation campaigns that inform new students and their families about the different fields of specialties and to counsel them on the right field for the individual's talents and skills. Another important factor affecting the new students' success in the program is the acceptance policies at the university level. The policy restricts students' enrollment into several colleges including the engineering and computer science schools. Currently, some students use the KSU architectural program as a back door entry into these schools. However, these students are not always successful in transferring out of the program, and since it is not their first preference, they become a burden on the architectural program. As a remedy, faculty members mentioned a mandatory interview before acceptance to match the talents and skills of each applicant with the right program. Others prefer a recruitment campaign in high schools to scout talent before graduation.

As to the program graduates, faculty members have indicated that current graduates are less equipped with practical and theoretical knowledge than graduates in previous years, and they feel that graduates overall performance does not reflect the program preset objectives. They blame the worsening performance on many factors including students' indifference, the ineffectiveness of the public education system, and the inefficiency of the acceptance policy, quota, and strategy.

In terms of the preparation for practice, a recent pilot study, which included a sample of graduates and leading practitioners, has indicated that the current KSU program graduate is not prepared well for practice and that it takes the new graduate a training period of up to three years to be an effective employee. Their major complaint was with recent graduates' lack of business, administrative, contract, customer relations, and site skills. They also indicated that recent graduates are not informed about the building code and do not have a strong background in materials specifications and projects bill of quantity. The majority of practitioners, however, are impressed by the program development in computer skills, and they see major benefit in increasing the dose in this activity. Practitioners have also mentioned that the program needs to market its graduates through special events displaying their work.

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## **The faculty**

Since studio teaching is a major part of the learning process, international standards call for teacher/student numbers that reflect the design studio teaching methodology. They call for direct teacher/student dialogue to form the basis of the learning process. The standards also encourage the continuous interaction between practice and education and the encouragement of faculty research.

Internationally renowned programs usually recruit faculty members from different professional and academic backgrounds and allocate approximately 40% of their time to research activities, the current KSU program has 43 full time faculty members, most are Ph.D. holders from reputable diverse institutions, approximately two thirds are Saudi nationals and a third are expatriates. Almost a fourth of the full time faculty are on loan serving in administrative or other posts at the university or national level. The ones currently teaching at the program complain of four main issues, the heavy teaching load, the student to teacher ratio, an increase in administrative tasks, and the unfair university promotion criteria. An earlier pilot study have concluded that three major negative aspects affect the faculty's performance namely, little or no professional practice because of university rules which hinder faculty involvement in professional practice, the modest exposure to formal programs in teaching skills, and the little coordination between the different courses at each level of the program.

Architecture requires an education that involves practitioners as part time faculty. The current program only employ a small number of practitioners, approximately 8% of the total faculty, international standards and other comparable international programs demand a higher percentage of part time practitioners, these programs employ an average of 41% part time practitioners for twelve hours a week. The KSU and other local programs can benefit from an increase in part-time practitioners as faculty members. However, not any practitioner is capable of holding a teaching post. The selection process need to be very diligent with clear criteria that serve the main program objectives, and it needs to attract the right practitioners by offering acceptable incentives program.

As to university promotion criteria, KSU faculty members complain that the current system does not take faculty members services or involvement in administrative tasks into serious consideration. They also argue that professional awards and successful professional participation are not credited in promotion reviews. The program can benefit from removing regulations restricting faculty members' involvement in professional practice, and from a continuing education program that tries to develop their teaching and classroom skills. It can also gain

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from providing faculty members the right work environment and from encouraging research and community involvement. This can be achieved by allowing enough time for these activities and controlling faculty to student ratios ( international standards call for an average of one to twelve ratio while the KSU program has a one to sixteen ratio- and if the faculty members not participating directly in educational activities are excluded the ratio goes up to one to twenty one according to an internal report in 2004).

### ***Support staff***

Contrary to international programs, that usually employ more support staff than faculty members, the number of support staff employed currently at the KSU program is lower than the number of faculty members, they only account for a fourth of the total staff. Faculty members interviewed complain keenly about the decreasing number of support staff. Internal reports indicate that the college lost more than half of its support staff in the last decade coupled with the drastic increase in student numbers and the increase in administrative work load for the current staff which produced an over worked inefficient support staff. Another issue that needs to be addressed for the support staff factor is the type of support staff employed. Most of the current support staff members are recent graduates waiting for scholarships to continue their higher education abroad and they can only serve in their posts less than two years. The program needs to increase the number of full time permanent support staff to match the increase in student numbers and to serve changes in educational and administrative tasks.

### ***Educational Environment***

Previous research and international standards call for adequate classrooms, studios, library, laboratories, research facilities, administrative and faculty work spaces. The KSU program is currently housed in the college of Engineering building and a new architectural and planning college building is under construction and will be ready soon. According to study participants, the current facilities and the one under construction meet international standards and provide good educational and workspaces for the current program.

To make these facilities serve even better, students and faculty members have suggested the following:

- Provide some form of flexibility and control in design studios to be adjusted according to student numbers and needs and to have control over entry and security to allow for access at night and during weekends and holidays;

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-Furnish each studio, or at least advanced ones, with individual equipped work stations that facilitates students work; and divide the facilities into several zones made up of studios, classrooms and laboratories serving each level of students enrolled in the program.

Faculty members also mentioned that program laboratories should not be exclusively used for activities within certain courses; they should be accessible to students, as they need them, especially in the design studios. Pilot studies have recommended making the lighting, acoustics, thermal, structural, and photographic laboratories as well as model and other workshops more accessible to students through orientation and tutoring programs. More importantly, with the developing role of educational digital tools; and with the continuing expansion of information technology in the field, the program needs to increase the number of spaces for computer laboratories and allow for continuous support and accessibility.

Faculty members and students also called for the improvement of the text and digital library by increasing the number and quality of periodicals and publications, and by increasing and training library staff to support the educational and research process. They also mentioned the importance of empowering the research center with an independent diversified budget and directing its activities towards issues facing local development and community.

### ***The Curriculum***

International associations foresee an architecture discipline that is based on knowledge from the humanities, the social and the physical sciences, technology, environmental sciences, the creative arts and the liberal arts. They direct architectural education towards the student's ability to conceptualize, design, and understand the physical environment within a context of the practice of architecture that balances the needs of society and the individual. They call for program evaluations to be considered through internal and external reviews especially of students projects (NAAB, 1995).

International accreditation organizations usually require students to gain the following skills and knowledge through program curriculum:

-An awareness of responsibilities toward human, social, cultural, urban, architectural, and environmental values, as well as architectural heritage, adequate knowledge of the means of achieving ecologically sustainable design and environmental conservation and rehabilitation,

-Development of a creative competence in building techniques, founded on a comprehensive understanding of the disciplines and construction methods related to

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architecture;

-Adequate knowledge of project financing, project management, cost control and methods of project delivery; and

-Training in research techniques as an inherent part of architectural learning, for both students and teachers (UIA, 1998, AIA, 1995).

The KSU program has achieved some of its original objectives such as the ones concerned with graduating qualified architects, but it still lags behind in the other objectives especially the ones corresponding to local community needs. Since the program was originally based on a western model, even with all the changes that occurred in the past four decades, it still meets most of the international standards mentioned earlier with the exception of the language and professional skills, especially ones relating to the business and site skills. In addition, in a recent survey, students mentioned the importance of reducing the program requirements and allowing flexibility to give them a choice in forming a program that responds to their aspirations. Current university regulations do not provide for elective courses. To provide program flexibility, several new programs were recently proposed and an interior design program was adopted. To provide choice for students, specialty courses were also provided, by which the student can choose from two or more pathways for a flavor of field subspecialty. These new programs and specialty pathways can fulfill certain market needs, match students abilities and skills, revitalize the educational process, control the size of the current architectural program, and enhance the graduate programs at the masters and Ph.D. level.

To provide quality assurances, evaluation and assessment mechanisms need to be placed in the program for continuous monitoring and development. Internationally renowned programs usually evaluate their curriculum through an annual internal and a five-year external review through external examiners or through accreditation organizations such as NAAB or RIBA.

Training local expertise in the design and the building construction industries is essential to Saudi Arabia to relieve the national economy from relying on expatriate expertise and to utilize essential local resources for an independent stable local economy. To improve the current practical training program, practitioners and faculty members suggested the cooperative option. They have suggested that a six month training period is ideal. Efficiently designed cooperative programs with clear measurable objectives, placement and management procedures, and sufficient time frame that relay on serious training organizations with mentoring programs can be effective tools for improving the current state of practical training (Millar, 2003).

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## **Conclusions**

The KSU program has achieved some of its objectives especially ones concerned with graduating qualified architects, but it still lags behind in the others, especially ones dealing with directing research towards the local community needs. The program still meets most of the international standards set by accreditation bodies, with the acceptance of language and professional skills especially ones relating to the business and site activities. On the hand, the program exceeds other programs in students computer skills.

The current KSU facilities meet international standards and provide good educational and work spaces for the current program.

The program current acceptance and enrollment is much higher than comparable international programs and has negatively impacted the program educational quality. In addition, the program is used by a portion of the students as a back door entry into other programs.

The KSU program has a weak relationship with practice, graduates overall performance does not reflect the program preset objectives and the current curriculum does not reflect the real needs of employers and the local marketplace. It takes new graduates a training period of up to three years to be effective employees. New graduates are lacking in business, administrative, contract, customer relations, and site skills.

Faculty members performance is affected by the little or no professional practice gained, the modest exposure to formal programs in teaching skills, the heavy teaching load, the student to teacher ratio, an increase in administrative tasks, and the unfair university promotion criteria. The program also suffers from a shortage in support staff and part time faculty practioners.

## **Recommendations**

Recommendations can be divided into several main categories, as follows, general recommendations:

- Develop community orientation programs that inform new students and their families about the different fields of specialties and to counsel them on the right field for the individual's talents and skills, and develop courses at the high school level to introduce the architecture field and profession to interested students, and begin a recruitment campaign in high schools to scout talent before graduation.

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- Initiate an evaluation and assessment mechanism through an annual internal assessment and a five year external review that monitors the program through the standards of international accreditation bodies such as NAAB, RIBA, and UIA.
  - Support the initiation of a local professional architectural association that protects the interest of the profession and the health and safety of the community and organizes and serves the needs of professionals.
  - Control program enrollment through strict acceptance policies, that include an interview, recommendation letters, and the improvement of the skills entry test; and that allow for student to faculty ratios that follow international standards. In addition, Provide an exit mechanism such as a two year architectural assistant diploma, to unsuccessful students to avoid the current waste in time and resources spent with repeatedly failing students.
  - To serve the unique instructor-student relationship demanded by architectural education, the program should increase its recruitment and incentive programs for support staff. The number of support staff should be more than the number of faculty members and they should be awarded according to their efficiency and accomplishments.
  - Direct the research center activities towards issues facing the local market community and diversify the centers resources and budget.

*Recommendations relating to curriculum:*

- Review and assessment of the program according to international standards to improve the quality of education offered, to serve global and local practices evolving needs, and to reach national development objectives.
- Improve the current practical training program through replacing it with an efficiently designed cooperative program with clear measurable objectives, placement and management procedures, and sufficient time frame that relay on serious training organizations with mentoring programs.
- Provide students with choices through initiating a diversity of programs that match their abilities and skills and fulfill market needs.

*Recommendations relating to faculty:*

- Encourage faculty research and community involvement through providing the right work environment and through allowing them enough time for these activities, through a continuing education program that tries to develop their teaching and classroom skills, and by removing regulations restricting their

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involvement in professional practice.

- Increase the number of professional practitioners and visiting practitioners in the academic program to raise practical issues and help students gain applied knowledge and involve the industry in the planning, assessment, and development of the program

Recommendations relating to facilities:

- Provide a degree of flexibility and control in design studios to be adjusted according to student numbers and needs, allow more control over entry and security for access at night and during weekends and holidays, and furnish each studio, or at least advanced ones, with individual equipped workstations that facilitates students work.
- Divide the facilities into several zones made up of studios, classrooms and laboratories serving each level of students enrolled in the program, make the laboratories and workshops more accessible to students through orientation and tutoring programs and increase the number of spaces for computer laboratories and allow for continuous support and accessibility.
- Improve the text, digital, and image library by increasing the number and quality of periodicals and publications, tie the system to students work stations, and increase and train library staff to support the educational and research process.

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