

**Istanbul Technical University
Istanbul, Turkey**

International Visiting Team Comparative Report

**Bachelor of Architecture (4 years)
and
Master of Architecture (2 years)**

Compared together to the

Master of Architecture (4+2)
as defined in the United States

The National Architectural Accrediting Board
8-12 November 2004

The National Architectural Accrediting Board (NAAB), established in 1940, is the sole agency authorized to accredit U.S. professional degree programs in architecture. Because most state registration boards in the United States require any applicant for licensure to have graduated from an NAAB-accredited program, obtaining such a degree is an essential aspect of preparing for the professional practice of architecture in the U.S. Reports on schools outside the U.S. are for comparative purposes only and do not entitle the students of those programs to sit for the Architect Registration Examination in the United States.

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I. Summary of Team Findings

1. Team Comments

(These are general comments meant to give context for the report below and to explain any special circumstances.)

This is the first school in another nation to have a full team visit from the National Architectural Accrediting Board (NAAB) for the purpose of comparison of student outcomes. The NAAB has been previously engaged only as consultant to individual schools and to accreditation systems outside the US. The other ongoing NAAB international activity is to review transcripts of individuals educated abroad who wish to achieve licensure in the United States.

The NAAB was invited to Istanbul Technical University (ITU) because one of the specific goals in their institutional mission statement is the evaluation of their programs by internationally experienced accreditation agencies.

The evaluation of the architecture program at ITU began under the 1998/2002 conditions (The program wrote its *Architecture Program Report [APR]* using those guidelines.) and was concluded under the 2004 conditions. (This report from the visiting team is written with respect to the current conditions.)

The programs reviewed at ITU were the 4-year Bachelor of Architecture (B. Arch.) degree and the 2-year Master of Architecture (M. Arch.) degree as one course of study. Even though in Turkey the bachelor's degree is considered a first-professional degree, the two degrees were considered together in this instance and compared with the requirements for a master's degree in the U.S.

2. Similarities and Differences

Professional, Social, and Physical Considerations

Registration happens in Turkey very differently from the way it does in the US and so the two systems are not directly comparable. The Turkish system does, however, have goals similar to those of the US system and produces thoughtful, competent, and ethical professional architects. The definition of leadership was an issue we needed more time to discuss in order to understand cultural differences. Accessibility in building design was not regulated the way it is in the US, and social expectations for accommodation of physical differences also seemed very different.

"Social equity" in our terms is a very different cultural situation in Turkey. The majority of the students in the program are women and leadership positions are obviously available to women. If there are racial and ethnic biases, the team was not aware of them. However, the visit was relatively short, allowing us only a limited experience of the cultural milieu. The organization of personnel and their opportunities for advancement are also different. Using examinations for advancement of faculty is very different from the peer review process common in the U.S. There was also not the emphasis on individual accomplishment often found in U.S. programs but rather a celebration of collaborative efforts.

The department is historically and currently one of the key divisions of the university. It is an active part of the governance system and demonstrates an ongoing interest in the future of the institution. Studio culture does not exhibit any of the problems evidenced in U.S. schools with respect to time management and positive attitudes. The building occupied by the program is well-maintained, handsome, and includes generous amounts of space for studios, offices, and exhibitions. The self-assessment process, even though it was not included in the *APR*, was presented clearly during the visit and is obviously very effective.

The team also felt that the emphasis on, and the financial support of, faculty development showed that the priorities of the school are on the people who make it work and who are the role models for the students.

Academic Outcomes

The work displayed at ITU is similar in many ways to that shown for accreditation visits in the US. All of the fundamental skills are presented convincingly and there are several instances of accomplishments beyond those usually seen in US schools. The students' ability to work in two languages, Turkish and English, is quite impressive. The studio referred to as the "application" studio is a great example of comprehensive design and builds on the students' competencies in all of the technical requirements including site design and the architect's administrative roles. Sustainable design is addressed in many classes and in many creative ways. Also, all of the classes addressing history, theory, and human behavior subject matter are well taught and demonstrate student competencies at a high level of achievement.

Areas of difference occur in the subject matter most dependent on cultural expectations and traditions. Leadership, we believe, is defined much differently by the students at ITU than by students in the US. Likewise, the subjects we call "ethics and professional judgment" are interpreted in light of the history of the development of the country and are not so much defined by an evolving profession as they have been in the US. Also, even though Turkey has laws addressing accessibility different from those in the US, there is often an empathetic response in design work to the issues of human needs. Non-Western traditions in the sense in which our criterion was written is hard to define in a country with an ancient history and a very different geography.

General Program Practices

The department has an impressive range of research agenda and publications. It uses a variety of funding and institutional opportunities to enhance and enlarge its research enterprise. The Housing Research and Education Center, which contains seven research groups, has a distinguished record of collaborative endeavors with other research agencies locally, nationally, and internationally. Its multidisciplinary activities focus on urbanization, migration and housing policies; planning and design of housing areas; housing and the environment; ecology and infrastructure; housing technologies; housing finance and housing costs; housing for the low-income; traditional and vernacular housing; disaster housing; housing and modernism; housing and women; and, housing and environmental quality. Similarly, it regularly organizes and hosts national and international workshops, seminars and conferences. Recently, it hosted and published the proceedings of the first and second international symposia of the International Association for People-Culture and Space in the Built Environment (IAPS-CSBE) Environment Studies network. It also hosted the first international summer school on Housing in Istanbul in August 2001 and the second in June 2004. Moreover, the History of Architecture and Restoration units conduct research on urban history and the rehabilitation of historic sites and the characteristics of traditional building materials to be used in restoration and conservation projects, among others. The Architectural Design unit conducts research on a variety of topics including environmental aesthetics; environmental image and spatial quality; the impact of physical, social, and cultural environments on human behavior; and, virtual reality of architectural and urban space.

Faculty members, graduate, and undergraduate students are all actively involved in both basic and applied research. Research is also fully integrated into the curriculum. A major documentation of their work titled *Housing Bibliography of ITU Faculty of Architecture Members: 1946-2003* is in the process of publication by the ITU Press. The department will be hosting the International Union of Architects' (UIA) 2005 Istanbul Congress on *Cities: Grand Bazaar of Architectures*.

3. Practices to Recommend to the Architecture Community in the US

The internship requirement for students at ITU is organized so that students spend half their time in an office setting and half their time on a construction site. The team thought a similar combination of office experience and construction experience would be something the Intern Development Program (IDP) in the US might like to consider adopting.

The team would like to recommend to academic institutions in the US that they use faculty for the design of buildings on campus and that they hire students to work on these projects. The campus of ITU includes several handsome buildings designed and built with the direct participation of faculty and students.

The team agreed that faculty examinations for advancement in rank and salary are an effective way to confirm continuing education and would like to recommend this practice to schools in the US.

The research at ITU done by both faculty and students is very directly connected to pressing real-world problems. They are considered experts on these topics by their colleagues and by their government. Research funding in the US might support these kinds of projects with similar results.

II. Comparison with the NAAB Conditions for Accreditation

1. Program Response to the NAAB Perspectives

Programs must respond to the relevant interests of the five constituencies that make up the NAAB: education (ACSA), members of the practicing profession (AIA), students (AIAS), registration board members (NCARB), and public members.

1.1 Architectural Education and the Academic Context

The program must demonstrate that it both benefits from and contributes to its institutional context.

The Department of Architecture is one of the four oldest departments in the university and one of the oldest in Turkey. Its graduates are highly sought after by the construction industry, the architectural profession (in both the public and private sectors), and other universities internationally. Similarly, its faculty members are regularly called upon to serve as designers of some of the major buildings on the campuses, as consultants to the rector (president), and in the executive arm of the university. For example, the immediate past rector of the university was Professor Dr. Gülsün Sağlamer, currently the head of the department's Housing Research and Education Center. The department also provides service courses to, and actively collaborates on research and consulting with other departments in the university. Furthermore, the department's students, faculty members and administrators contribute to the governance, intellectual and social life of the university as a whole. For example, faculty members participate in key university Senate Committees such as the Accreditation and Education Committees. Consequently, the institutional environment provides the department with superb prospects for collaborative and synergistic consulting, research, teaching, professional practice, and learning.

1.2 Architectural Education and the Students

The program must demonstrate that it provides support and encouragement for students to assume leadership roles during their school years and later in the profession and that it provides an environment that embraces cultural differences.

Evidence of this requirement is based on the department's high admission standards, its outstanding alumni/ae achievements, the presence of one of their faculty as previous Rector of the university, its inclusion of students in program evaluation and the fact that the faculty contributes 2 to 10 percent of its salary for student scholarships.

When asked in a meeting with selected students what they would change about the program, two students gave the same answer without knowledge of the other's answer: They would coordinate their technical courses with their design studio projects and the detailing course instructor would work with them to develop the details for their design projects.

The architecture faculty provides a nurturing environment for the students by encouraging and supporting the students to further their educational experience. Students are encouraged to seek education as exchange students to interact with people of other cultures. An academic priority is giving authority to students to design their own education, and the students enthusiastically agree that this is of importance to them. The majority of students are female (65 percent) and a very small percentage are from other countries (6 percent). The culture of the country mandates that the students cooperate with, assist, and respect students who are of different beliefs. Although the students have excellent role models for leadership behavior they also expressed the idea that they are not necessarily "leaders" and may not wish to be.

1.3 Architectural Education and Registration

The program must demonstrate that it provides students with a sound preparation for the transition to internship and licensure.

The route to registration in Turkey is pursued by graduating with a 4-year bachelor's degree from a Turkish university and then acceptance by the Chamber of Architects. Although this registration gives the entitlement to practice, there are traditions that shelter the young architect until a level of maturity is reached. Most beginning architects work in major firms under the direction of an experienced architect for several years before assuming responsibility for a major project.

As a part of the curriculum, every student must complete an internship that is divided into two areas (building construction and practice in an architectural office). The total length of the internship is a minimum of 72 days equally divided between the two areas. This internship takes place in the summers between the first and second years, the second and third years, and the third and fourth years.

No licensing examination exists, although there are ongoing discussions regarding licensing requirements as part of Turkey's application for membership in the European Union (EU).

Architecture, as a profession, is highly regarded in Turkey. The graduates and the faculty members are well respected for their technical knowledge and design skills. The faculty and the alumni/ae support the architecture programs with financial contributions and are loyal to their ideals.

The students take several classes as introduction to the issues of professional practice.

1.4 Architectural Education and the Profession

The program must demonstrate how it prepares students to practice and assume new roles and responsibilities within a context of increasing cultural diversity, changing client and regulatory demands, and an expanding knowledge base.

The team found this to be similar to U.S. standards within the context of this particular country.

Faculty and students of the Department of Architecture at ITU benefit from the enthusiastic engagement of practicing architects in a variety of activities. They serve on design studio and graduation project juries, help to organize conferences and exhibitions, and serve on the Advisory Committee of the school. Local architectural firms also participate in the internships required by the department. Through these contacts with the profession, the ITU students gain awareness of the importance of their studies and a better understanding of the profession to which they aspire. The team visited with alumni/ae of the program, who indicated that graduates of the ITU program were highly competitive in their employment considerations. The team concludes that these relationships and their outcomes are very similar to those found in NAAB-accredited programs.

1.5 Architectural Education and Society

The program must demonstrate that it not only equips students with an informed understanding of social and environmental problems but that it also develops their capacity to help address these problems with sound architecture and urban design decisions.

The ITU Department of Architecture is a prestigious program and is well known by its contributions to the advancement of Turkish society. The school aims to teach students how to address social and environmental problems both formally in their educational program (through the courses and design studios in graduate and undergraduate levels) as well as informally through the role their alumni/ae and faculty play in participating and organizing public events (lectures, exhibitions, etc.) that address these problems. The courses such as Social Psychology, Environmental Controls Studio, and professional practice support the generation of knowledge on environmental and social issues (See *APR* pp. 33-34).

In the discussions with the faculty and the alumni/ae, it was very clear that societal and environmental problems were given high priority. There are significant contributions through the research institutes that are both part of ITU and the department. For example, the Social Science Institute and the Housing Research Institute handle numerous research projects that respond to social and environmental problems and therefore provide another learning environment for students. In this capacity, research assistants work with ITU architecture faculty on projects such as earthquake, real estate, tourism, renovation of legalized illegal construction, and housing to gain experience and develop their capacity to address problems with sound architecture and urban design decisions.

2. Program Self-Assessment Procedures

The school must describe its self-assessment process specifically with regard to ongoing evaluation of the program's mission statement and how it relates to the NAAB Perspectives.

This is a new requirement adopted by the NAAB since the *APR* for ITU was written, so it could not have been included in the original document. At the visit, we received a report written for the European University Association (EUA) as an evaluation of the home institution that clearly described an overall culture of continuous program improvement based on repeated self-evaluation. Evidence was produced that in the recent past, as a result of this activity, student grade-point averages have risen; the number of internal transfers and double-major students has increased; and the graduation rate within the intended length of the degree program has increased.

Within the architecture program there have been regular end-of-semester meetings of administrators, faculty, and students to review the work of the term and to adjust the curriculum. And, rather than relating to the NAAB perspectives, the home institution related to the perspectives of the European community for institutional accreditation, which seemed appropriate given the application of Turkey to join the EU.

3. Public Information

The program must provide clear, complete and accurate information to the public by including in its catalog and promotional literature the exact language found in Appendix A-2, which explains the parameters of an accredited professional degree program.

The report sent to the NAAB provides clear, complete, and accurate information regarding the description of the degree program in architecture. The information is available also through the catalog (in Turkish and English) and promotional literature (in English and Turkish), which explains the parameters of a professional program.

On the official Web site, the Department of Architecture defines the vision and mission of the program. The faculty of architecture prepares a catalog that contains a history of the faculty, presentations of the departments, faculty members, curricula of the departments, regulations for undergraduate studies, and work such as the yearly graduation projects. The catalog is distributed to students and faculty members in the beginning of the fall semester of each year.

A national accreditation system is nonexistent in Turkey, thus eliminating the need to describe the criteria necessary for an accredited degree and the differences between it and other architectural degrees.

In the first page of the 2003-04 catalog, the university included the information for applying to the Accreditation Board for Engineering and Technology (ABET) during the years 2000 and 2002 as a demonstration of its objective to be "a first rank university in the world" (p.1 *ITU 2003-04 Catalog*) and as an example of its efforts to address international standards at the highest level.

4. Social Equity

The program must provide all faculty, students, and staff—irrespective of race, ethnicity, creed, national origin, gender, age, physical ability, or sexual orientation—with equitable access to a caring and supportive educational environment in which to learn, teach, and work.

The Department of Architecture at ITU addresses the issues described in this condition in a somewhat different way because of policies that are promulgated by the Turkish Council of Higher Education. Student admissions are based on a competitive, comprehensive examination,

resulting in students with higher scores being admitted to the more highly ranked universities. ITU has a majority of female students in its architecture department. Faculty are initially appointed as lecturers or research assistants. Those accepted as assistant professors are automatically tenured. Promotion from assistant professor to associate professor is predicated on publication of research in peer-reviewed international journals, a comprehensive examination, and the availability of a position. The team agrees that such an examination for advancement is a practice worthy of recommendation to programs within its purview. It should be noted that numerous faculty and administrative positions are held by women. Students participate in university governance as members of the university Senate and Executive Board and as representatives at faculty, department, and Advisory Committee meetings.

5. Studio Culture

The school is expected to demonstrate a positive and respectful learning environment through the encouragement of the fundamental values of optimism, respect, sharing, engagement, and innovation between and among the members of its faculty, student body, administration, and staff.

Even though this is a new condition of accreditation in the United States and the school could not have reported on it in its *APR*, the team found the existing situation to be exemplary. There is a very low faculty to student ratio in studios and the students reported that faculty members are supportive, easy to find and are willing to be mentors.

As a new item in the *NAAB 2004 Conditions* this was discussed at the meeting in the Dean's office, and some preliminary information was presented. In the architecture program, at the end of each semester (January and June), there is an open self-assessment of studios that includes issues important to studio culture. This is done together with studio instructors, with or without students and other faculty. It covers problems that are encountered during the semester, course methodology, how to select studio topics, size of the studios, and the like. The discussions lead to a report that is given to the division to look at problematic issues such as the selection of studio sections and faculty by students (now they are done by registration) and implementation of the attendance policy.

During the luncheon meeting, the students expressed a very cordial relationship with the faculty. They can access studio and other faculty frequently (who hold no formal office hours) and can discuss matters related to their course work and practice. The continuation of a positive studio culture is seen in their work together on competition projects and research projects at the institutes with the faculty.

6. Human Resources

The program must demonstrate that it provides adequate human resources for a professional degree program in architecture, including a sufficient faculty complement, an administrative head with enough time for effective administration, administrative and technical support staff, and faculty support staff.

The school has an abundance of faculty and a very low student to faculty ratio (1:11.5 in 2003, not including research assistants). The administrative positions have reasonable expectations for teaching in addition to administrative duties. The support staff for administrators and faculty seems low (2 for 207).

The students who enter the architecture program at ITU have exam scores within the top 2 to 3 percent of all students tested. Approximately 130 enter the program each year and the retention

rate is 70 to 80 percent. For the approximately 700 architecture students at ITU, there is a corresponding teaching staff of more than 100. Advising the students occurs both formally and informally. Each advisor counsels approximately 15 students regarding their course work, but an informal network composed of relationships formed between students and faculty provide the major support for the students.

The teaching staff comes from the four divisions: Architectural Design, Building Technology, Restoration, and History of Architecture.

At state universities, all salaries are determined by the academic hierarchy regardless of the discipline or division.

7. Human Resource Development

Schools must have a clear policy outlining both individual and collective opportunities for faculty and student growth within and outside the program.

The department's investment in its human capital is very impressive indeed. Students are provided with opportunities for professional and intellectual growth through various activities. There are, for example, well-established student exchange programs. This academic year, 2004-05, 17 undergraduate and 20 graduate architecture students are participating in the ERASMUS exchange program with twelve European universities. Last year, 2003-04, the department sent four students to the University of Miami as a part of partnership agreements entered into with universities in the US. During the current academic year, 2004-05, one student is studying at the University of Cincinnati.

Similarly, faculty members are provided with opportunities for individual professional development and academic advancement. They regularly participate in national and international exchange programs and are financially supported to attend conferences and seminars locally, nationally and internationally. Furthermore, the academic appointment and promotion criteria and processes are clear and transparent, there are standardized procedures for reviewing and discussing faculty academic progress, and there are mentoring processes and support mechanisms for the development of the younger faculty members' research, teaching, and scholarship.

8. Physical Resources

The program must provide physical resources that are appropriate for a professional degree program in architecture, including design studio space for the exclusive use of each full-time student; lecture and seminar spaces that accommodate both didactic and interactive learning; office space for the exclusive use of each full-time faculty member; and related instructional support space.

The Architecture Department of ITU is located in a historic structure centrally located in Istanbul. It is very appropriate for a program in architecture and would be envied by most schools of architecture with NAAB accreditation. The building provides adequate studio, classroom, and office space for the program, as well as generous circulation spaces that are used for exhibits and social functions. Its designation as a historic structure places limitations on adaptation of existing spaces for alternative use and its age and historic-structure designation suggest to the team that modifications to make all spaces accessible to the physically disabled would be difficult and expensive. Turkey has no law similar to the U.S. Americans with Disabilities Act (ADA). The building benefits from a large interior courtyard and ample daylight in most spaces. There is adequate access to computers and peripheral equipment for students, faculty, and staff

9. Information Resources

The architecture librarian and, if appropriate, the staff member in charge of visual resource or other non-book collections must prepare a self-assessment demonstrating the adequacy of the architecture library.

In the architecture library collection, there are approximately 180 different cataloged titles in the Library of Congress NA and Dewey 720-29 sections that are available to the faculty and students. However, there appear to be possibly 6,000 to 9,000 titles in total. The Central Library, in conjunction with the dean, has the final authority for the purchase of books. The first time the architecture librarian is aware of a book purchase is when it arrives. Additions to the library each year are approximately 400 volumes across the disciplines. All slide images are in the personal collections of the faculty.

Orders for new books are made by going online to the Central Library. Faculty, students, and staff can order directly and this is taken out of the division budget.

The current library needs to expand but due to historic preservation issues within the building this is a challenge. It is being studied. Within the current space are both individual and group areas accessible for study. Not all areas are barrier free but this will be a consideration for planning new spaces in the expansion and the dean supports this issue.

Environmental controls appropriate for rare books do not exist in this library. Important rare documents and books have been moved to the Central Library for protection.

Emergency procedures are not written, but a policy of helping students and informing them about the two exits and the availability of fire extinguishers is in place. The culture in Turkey is one of assisting those who need help. Having an emergency procedure does not seem to be as important as being there to help in person.

10. Financial Resources

Programs must have access to institutional support and financial resources comparable to those made available to the other relevant professional programs within the institution.

There are four sources of funding for the university: 1) the state (about 80 percent of the total), 2) student fees and tuition, 3) revolving fund and research and development income, and 4) land and building development. An analysis of the distribution of the state budget by the university rectorate to each college and other financial managing units from 1996 to 2003 reveals that architecture received the third largest share of the total amount available. The College of Civil Engineering had the highest allocation followed by the College of Sciences and Letters. Thus, the annual expenditures per undergraduate and graduate architecture student compares quite favorably with those of other relevant professional programs in the institution. Similarly, a close examination of the institution's finance reveals that the pattern of budgetary allocations to the colleges is in alignment with the institutional mission and vision.

11. Administrative Structure

The program must be a part of, or be, an institution accredited by a regional accrediting agency for higher education. The program must have a degree of autonomy that is both comparable to that afforded to the other relevant professional programs in the institution and sufficient to assure conformance with all the conditions for accreditation.

The Higher Education Council (HEC) is a 22-member corporate public body responsible for the planning, coordination and supervision of higher education in Turkey. The ITU Self-Evaluation Report to the EUA as an application for institutional accreditation reports that

In 1981, the Higher Education Law introduced new concepts which allowed for central planning and transparency over some issues at the expense of losing autonomy in some areas. The educational program of each discipline was accorded standards which enabled student-mobility between different universities and within the university to some degree.

The HEC and two other groups, the Inter-University Council and the Turkish University Rectors' Committee, seem to perform the functions of both governance and accreditation in Turkey at this time.

There appears to be sufficient autonomy comparable with that of other relevant programs to ensure conformance with the NAAB conditions for accreditation, but it is unclear to the team if the former level of support for the program will continue.

The university is under the control of the HEC as are all universities in Turkey. The council decides the number of students entering the program. There is no accrediting agency as in the United States. The administrative structure of the university is very similar to that of a U.S. institution, although the titles seem somewhat different. The administrative structure of the Department of Architecture in the institution shares the same structure as those of the other professional programs in the institution.

12. Professional Degrees and Curriculum

The NAAB only accredits professional programs offering the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture degrees. The curricular requirements for awarding these degrees must include three components—general studies, professional studies, and electives—which respond to the needs of the institution, the architecture profession, and the students respectively.

The combination of credits required for the bachelor's degree and the master's degree exceeds the requirement for 168 credits (15 hours of class time equals 1 credit) including more than 45 credits available for nonarchitecture course content.

Enough elective credits are available at the graduate level for students to pursue their individual interests. Elective choices are available through the courses for the seven master's of science degrees offered in design, history, restoration, project and construction management, environmental control and building technology, information technology, and urban design.

13. Student Performance Criteria

The program must ensure that all its graduates possess the skills and knowledge defined by the performance criteria set out below, which constitute the minimum requirements for meeting the demands of an internship leading to registration for practice

For the purpose of accreditation, graduating students must demonstrate understanding or ability in the following areas:

1. Speaking and Writing Skills

Ability to read, write, listen, and speak effectively

Under the bilingual policy of the university, the students are required to complete 30 percent of their courses in English and 70 percent in Turkish. A review of the course assignments, informal oral interviews with the students, and formal discussions with student representatives show that the students have expertise in writing and speaking in both languages. It is quite remarkable to note that not only are they researching and studying in both languages, but they are also applying their communication skills effectively in the design studios. This criterion is covered exceptionally well in the following required courses, among others: TUR 101 (Turkish I), TUR 102 (Turkish II), ING 101, ING 102, ING 201 (English I, II, and III respectively), MIM 112 (Architectural Design II), MIM 211 (Architectural Design III), MIM 212 (Architectural Design IV), MIM 312 (Architectural Design VI) and MIM 414 (Architectural Design VII).

2. Critical Thinking Skills

Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test them against relevant criteria and standards

This criterion has been meticulously addressed through a variety of lecture courses and design studios. Students' projects show evidence of innovation, of their ability to employ technological changes that influence and enhance the design process, of their capacity to collect data and produce well-structured essays and urban design solutions, of their skill to separate what is worthwhile in the design process from what is not, and of their aptitude to develop as many alternative approaches to a design problem as they can find and to make a suitable choice from these. There seems to be a full integration of critical thinking skills into the curriculum and there are many good examples in MIM 122, MIM 212, MIM 221, MIM 222, MIM 351, MIM 411, and MIM 431 of the students' wherewithal to observe, understand, and document precedent studies and to apply these fittingly to their projects.

3. Graphics Skills

Ability to use appropriate representational media, including freehand drawing and computer technology, to convey essential formal elements at each stage of the programming and design process

The team observed a broad range of outstanding graphic skills at every level of instruction, from basic design in the first year to highly developed computer graphics in graduate student work and competition entries. First-year students' work included freehand sketches and perspectives, paper topographic models, collages using a variety of materials, digital photographs enhanced in Photoshop, and PowerPoint presentations of their works in the studio. In every year, the graphic capabilities of the students improved in sophistication. Competition entries for the International Union of Architects (UIA) World Congress were very professional in quality.

4. Research Skills

Ability to gather, assess, record, and apply relevant information in architectural course work

Lecture courses and design projects dealing with the development of research skills begin early in the program and continue throughout the curriculum. The research components of the following courses are very substantial and exceptionally well done: MIM 111, MIM 121, MIM 112, BIL 101E, MIM 211, MIM 212, MIM 261, MIM 351, MIM 312, MIM 411, MIM 431, MTS 505E-M.Arch, and MTZ 503E. The outcomes of these projects demonstrate that the students have acquired the ability to use research expertise to enlighten design decisions. They also show that the students can assemble, evaluate, and apply information suitably in a meticulous way.

5. Formal Ordering Systems

Understanding of the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design

The team observed the projects of the students within the first year and found that formal ordering systems were taught in the first 2 semesters of the design studios and reinforced in later studios.

The work exhibited pertaining to this criterion at the ITU School of Architecture is very similar to that shown in accredited schools of architecture in the United States. It is also well presented in basic and advanced design studios and construction project courses.

6. Fundamental Design Skills

Ability to use basic architectural principles in the design of buildings, interior spaces, and sites

The ability to use basic architectural principles in the design of buildings, interior spaces and sites is similar to the skills found in the U.S. programs.

Based on the student work displayed, it is apparent that students were able to use basic architectural principles in the design of buildings, interiors, and sites in the studios and in the context of an environmental design studio.

7. Collaborative Skills

Ability to recognize the varied talent found in interdisciplinary design project teams in professional practice and work in collaboration with other students as members of a design team

The team observed students working in teams on certain activities in studios. We noted that most projects entered in the UIA competition were done by teams of students or faculty and students. Students are exposed to interdisciplinary design project teams in professional practice during their required internships.

Collaborative skills were also apparent in the presentation of the UIA Competition and the Architecture Survey and Restoration Studio. Collaboration was mainly confined to team work in the design studios in which the research part of the project was handled collaboratively.

8. Western Traditions

Understanding of the Western architectural canons and traditions in architecture, landscape and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them

The curriculum contains a series of well-constructed history courses focused on Western traditions. Evidence from MIM 222, MIM 321, and the design studios indicates that Western traditions are given serious attention both in theory and in practice. In addition to the students' comprehension of Western architectural canons and traditions, their history assignments and design projects reveal that they have a clear insight into various aspects of the visual and cultural interactions between Europe and the Ottoman Empire; into the Western approaches to the Islamic visual culture; and into the multicultural heritage of the eastern Mediterranean.

9. Non-Western Traditions

Understanding of parallel and divergent canons and traditions of architecture and urban design in the non-Western world

Eastern traditions are introduced to the students through such required courses as MIM 122 (Ancient and Byzantine Architecture), MIM 221 (Turkish Architecture), and MIM 321 (Contemporary Architecture).

N.B. In the context of visiting a school outside the U.S., the team found this criterion hard to define.

10. National and Regional Traditions

Understanding of national traditions and the local regional heritage in architecture, landscape design and urban design, including the vernacular tradition

National and regional cultures are well covered in the courses on Turkish architecture and ancient and Byzantine architecture. The studio seminars and lectures include examples of work that demonstrate evidence of detailed knowledge and of contemporary Turkish architecture.

Students benefit from the field trips to sites of vernacular importance and historical heritage since Turkey is so rich in aspects of national and regional cultures, Western and Eastern combined. The student works examined were similar to those found in U.S. architecture schools and were part of the work required in studio seminars and research.

11. Use of Precedents

Ability to incorporate relevant precedents into architecture and urban design projects

Precedent studies are fully integrated into the curriculum. Many high-quality examples of these can be found in the following courses: MIM 111, MIM 121, MIM 112, MIM 211, MIM 212, MIM 312, MIM 341, MIM 411, and MIM 431. They clearly demonstrate that the students understand the importance of precedent studies and how to apply them appropriately to their design projects.

12. Human Behavior

Understanding of the theories and methods of inquiry that seek to clarify the relationship between human behavior and the physical environment

There is ample evidence that there are extensive and intensive explorations of theories of human behavior in elective and core lecture courses that address culture and space studies, environment, and behavior as well as architectural psychology. Clear evidence exists that the students are able to apply these principles appropriately to their projects in the design studios such as MIM 212, MIM 351, and MIM 242 (Environmental Control Studio).

13. Human Diversity

Understanding of the diverse needs, values, behavioral norms, physical ability, and social and spatial patterns that characterize different cultures and individuals and the implication of this diversity for the societal roles and responsibilities of architects

The department addresses the subject of human diversity in several significant ways. These include lecture courses (such as EUT 223, MIM 122, MIM 221, MIM 222/222E, and MIM 321) and commendable international programs (such as ERASMUS, a program that encourages student mobility within the universities of the member countries of the EU). Consequently, students are made conscious of the benefits of learning from other cultural, social, and national perspectives.

14. Accessibility

Ability to design both site and building to accommodate individuals with varying physical abilities

The building codes of Istanbul contain very little regarding barrier-free design, but there is an accessibility standard (advisory) that is addressed in the design studio and other courses, and the ideas are demonstrated in the students' work.

15. Sustainable Design

Understanding of the principles of sustainability in making architecture and urban design decisions that conserve natural and built resources, including culturally important buildings and sites, and in the creation of healthful buildings and communities

The principles of sustainability are taught and applied in lecture courses and in the studios (for example MIM 242, MIM 351, and MIM 352). Design projects show that students have a good grasp of the need to achieve a sophisticated and delicate balance between the human and natural environment. Issues such as the efficient modification of climate, low energy consumption, and the use of locally available resources are integrated into design projects. Students' work indicates an interest in alternative energy sources such as wind generation.

16. Program Preparation

Ability to prepare a comprehensive program for an architectural project, including assessment of client and user needs, a critical review of appropriate precedents, an

inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and assessment of their implication for the project, and a definition of site selection and design assessment criteria

The architectural design studios from the very first semester teach the student about program preparation. This criterion is demonstrated in the work of the construction project along with other studio work in the graduation project. A critical review of precedents is present in some studio courses, and the analysis of the site and its implication for the project is quite apparent.

17. Site Conditions

Ability to respond to natural and built site characteristics in the development of a program and the design of a project

The ability to respond to natural and built site characteristics in the development of a program and in the design of the project is demonstrated repeatedly in the studio work. All projects indicate topographic elevations, and students are expected to be able to manipulate contours to achieve a buildable design. The ability to form a relationship of building to site is a strength of this program.

18. Structural Systems

Understanding of principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems

The principles of structural behavior are taught in several courses beginning with a statics course which includes the structural behavior of wood and continuing through courses on concrete and steel and how they relate to gravity and lateral forces. Until recently, the fifth semester of design was an application project that has now been shifted to the seventh semester. This project is intended to show the students' ability to use the principles of structural behavior in a building design project. The students are expected to calculate and detail the structural elements of a design from the foundation to the roof. This is demonstrated at a level well beyond the usual expectations for Criterion 18.

19. Environmental Systems

Understanding of the basic principles and appropriate application and performance of environmental systems, including acoustical, lighting, and climate modification systems, and energy use, integrated with the building envelope

The program goes beyond teaching an understanding of the basic principles and appropriate application of environmental systems. In this program, the students demonstrate an ability to use the basic principles of environmental systems and it is apparent in their work.

20. Life Safety

Understanding of the basic principles of life-safety systems with an emphasis on egress

The understanding of the basic principles of life safety such as fire regulations, fire control, organization of rooms, fire stairs, egress, and passive and active fire-safety systems are taught in MIM 242/242E (Environmental Control Studio). These principles are not always demonstrated in the design studio work.

21. Building Envelope Systems

Understanding of the basic principles and appropriate application and performance of building envelope materials and assemblies

This is an area in which the architecture program goes beyond the minimums and rises above the level of understanding to the level of ability to select the appropriate applications and to determine the performance of building envelope materials and assemblies.

22. Building Service Systems

Understanding of the basic principles and appropriate application and performance of plumbing, electrical, vertical transportation, communication, security, and fire protection systems

The detailed drawings and calculations of the plumbing, electrical, and vertical transportation systems in the studio work indicate the students have been given the appropriate information to be able to design these systems. However, communication, security, and fire protection systems were not observed by the team.

23. Building Systems Integration

Ability to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design

The team observed the integration of building systems in much earlier studio work than would be expected in many architecture programs in the United States. The sophistication of systems integration in studio projects showed improvement in each year of the program. Life-safety systems were not as apparent in the work as other systems, perhaps due to widespread use of reinforced concrete structures and minimal impact of building codes.

24. Building Materials and Assemblies

Understanding of the basic principles and appropriate application and performance of construction materials, products, components, and assemblies, including their environmental impact and reuse

The students' work in the design studios and preservation studio confirm that the students have gained the ability to select the appropriate building materials and assemblies. The research the student performs in order to select an assembly is admirable.

25. Construction Cost Control

Understanding of *the fundamentals of building cost, life-cycle cost, and construction estimating*

The fundamentals of building cost, life-cycle cost, and construction estimating are addressed in the required course MIM 332E (Construction Management and Cost Control). Student examinations confirmed that they understand these fundamentals.

26. Technical Documentation

Ability to make technically precise drawings and write outline specifications for a proposed design

There is abundant and credible evidence in the curriculum that the students have the necessary skills to produce technically accurate drawings and compose outline specifications for their design projects. For example, MIM 411, MIM 431, MIM 421, MTZ 501E, MTZ 511, MTZ 513, MTZ 517-M.Arch., MTZ 515-M.Arch., and MTZ 503E thoroughly and diligently address this criterion.

27. Client Role in Architecture

Understanding of the responsibility of the architect to elicit, understand, and resolve the needs of the client, owner, and user

Even though this is a new requirement of the NAAB 2004 Conditions, the program has course work and policies in place that address these issues. Students regularly use actual sites for studio assignments, both in Istanbul and in other cities, and are required to visit those sites for interviews with users and hypothetical clients before beginning their project designs. They also have the opportunity to work with faculty on real building projects for the university.

28. Comprehensive Design

Ability to produce a comprehensive architectural project based on a building program and site that includes development of programmed spaces demonstrating an understanding of structural and environmental systems, building envelope systems, life-safety provisions, wall sections and building assemblies and the principles of sustainability

The students at ITU are very well grounded in all subject areas necessary to create comprehensive design projects. The graduation projects required at the completion of the 4-year undergraduate component include the stated abilities. Additional projects designed in the 2-year master of architecture program were observed to also include these abilities. Some projects in each part of the program did not address the life-safety concerns learned in a required course, MIM 242.

29. Architect's Administrative Roles

Understanding of obtaining commissions and negotiating contracts, managing personnel and selecting consultants, recommending project delivery methods, and forms of service contracts

[Note to the Board: This commentary was lost and needs to be reconstructed before the report is delivered or published.]

30. Architectural Practice

Understanding of the basic principles and legal aspects of practice organization, financial management, business planning, time and project management, risk mitigation, and mediation and arbitration as well as an understanding of trends that affect practice, such as globalization, outsourcing, project delivery, expanding practice settings, diversity, and others

ITU Department of Architecture graduates are highly qualified for architecture positions in leading architecture offices in Istanbul and in Europe in general. One very apparent reason is that they are expert in the principles of practice and demonstrate an ability to integrate them into their design projects, site planning, construction planning, and detailing as exhibited in Professional Internship and in Arch Design V-Construction Project (MIM 351). Aspects of practice organization, financial management, business planning, time and project management, risk mitigation, and mediation and arbitration are mastered through required and elective courses such as Construction Management and Economy (MIM 332), Professional Practice (MIM515), Economics (ECO 201), and Management and Organization (PYY502E), Computer Applications in Architecture (MTZ503E). Most of these courses include office practices in Turkey, but some also include foreign office practices. Architecture students are very much aware of the ongoing debate about Turkey's becoming a candidate to join the EU and that it will impact the profession in terms of outsourcing as well as expanding work opportunities in Turkey. The EU requires that the environmental and building codes be revised within a year or two and students are well prepared to adjust and, because of the project topics they chose, they are well prepared to cope with global issues.

31. Professional Development

Understanding of the role of internship in obtaining licensure and registration and the mutual rights and responsibilities of interns and employers

The internship system is different from the one practiced in the United States. Students are required to have 3 summer semesters or 72 hours of internship experience in an architecture office and construction site before graduation. (See the APR, p. 31. Exposure of Students to Internship Requirements). A major difference is that the licensure is obtained upon receiving a B. Arch. professional degree. The internship is very well documented with visual and written material and with drawings in an internship notebook. The requirements are specified by the department. Every component of the internship has to be approved by the team, either by the office or the construction team, and graded by the principal architect or the construction manager including the team members' assessments.

32. Leadership

Understanding of the need for architects to provide leadership in the building design and construction process and on issues of growth, development, and aesthetics in their communities

A group of students discussed leadership with the team and were reluctant to say that they were leaders in any sense or that they aspired to leadership roles. This particular group had apparently been chosen because they had studied in another nation during their educational experience. They did not recognize that taking the risk of such study was a form of

leadership by our definition, i.e., setting an example for others. The team cited the example of an architect, Gulsun Saglamer, rector of ITU who through her leadership increased the stature of the institution. Another example we would cite is ITU alumnus Can Elgiz who is developing, designing, and building a high-rise building in a suburb of Istanbul in order to control the quality of its design and construction. Both are examples of the need for architects to provide leadership in the building design and construction process and on issues of growth, development, and aesthetics in their communities.

33. Legal Responsibilities

Understanding of the architect's responsibility as determined by registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, historic preservation laws, and accessibility laws

ITU architecture graduates are recognized as architects upon graduation and acceptance into the Chamber of Architects, whereas a 3-year internship and registration examination are required in the U.S. before one can be called an architect or practice as an architect. Turkish building regulations and professional service contracts are obviously different, as are various zoning, environmental, historic preservation, and accessibility laws.

34. Ethics and Professional Judgment

Understanding of the ethical issues involved in the formation of professional judgment in architectural design and practice

Understanding of ethics and professional judgment is covered in regulations pertaining to building construction under the topics of unethical conduct and under historic preservation laws. These issues are demonstrated in the Construction Project (MIM311), Conservation of Historic Buildings and Sites (MIM322), Architectural Survey and Restoration Studio (MIM 421), summer internship, and in Professional Practice (MIM515) courses. Graduates from the Department of Architecture are very much aware of ethical professional conduct and this is demonstrated by laws, rules, and regulations and specifications applied in the projects exhibited. Cultural and socially expected norms also have an impact on people's behavior in Turkey. Some of these ethical issues are covered in the course Ataturk's Principles and History of Revolution (ATA 102). Mustafa Kemal Ataturk, the first president of the Turkish Republic, outlined these as part of the reform, including business ethics, secular laws, and women's rights.

[Note to the Board: the following will be added when the draft is approved]

III. Appendices

Appendix A: Program Information

- 1. History and Description of the Institution**
The following text is taken from the (institution name) Architecture Program Report:

- 2. Institutional Mission**

The following text is taken from the (institution name) Architecture Program Report:

3. Program History

The following text is taken from the (institution name) Architecture Program Report:

4. Program Mission

The following text is taken from the (institution name) Architecture Program Report:

5. Program Self-Assessment

The following text is taken from the (institution name) Architecture Program Report:

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Appendix B: The Visiting Team

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Appendix C: The Visit Agenda

(From Team Chair)

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IV. Report Signatures

Respectfully Submitted,

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Team Chair**

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