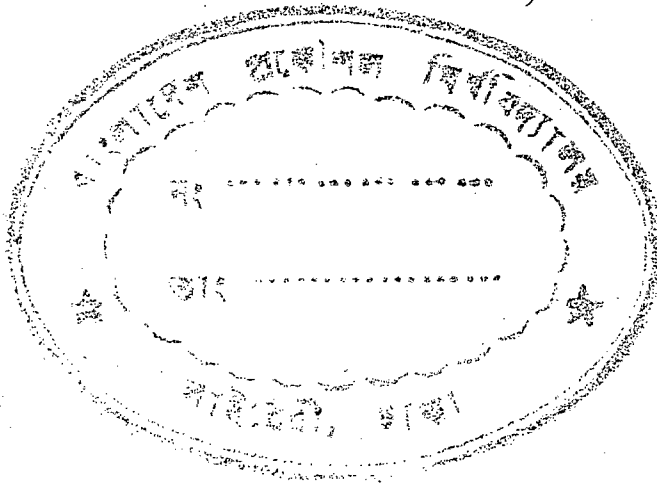


**Bangladesh University of Engineering and
Technology**

**INFORMATION
BOOKLET**

for
Undergraduate and Postgraduate Studies

October, 1996



**Department of Urban and
Regional Planning**

Contact :

The Head, Department of Urban and Regional Planning
Bangladesh University of Engineering and Technology

Dhaka - 1000, Bangladesh

Cable BUET, Dhaka, Bangladesh

Phone : (880)2-500354

Fax : (880)2-863026, (880)2-863046

Published by:

Department of Urban and Regional Planning

Bangladesh University of Engineering and Technology

Dhaka-1000, Bangladesh

Editorial Committee:

Professor Dr. Mir Shahidul Islam

Professor Dr. Golam Rahman

Professor Dr. A.S.M. Abdul Quium

Mr. A.S.M. Mahbub Un Nabi

Dr. Mohammad A. Mohit

Dr. Sarwar Jahan

Computer Compose : Md. Abu Hanif Miah

PREFACE

It is a great pleasure on my part to write few sentences in forwarding the 1st edition of **INFORMATION BOOKLET** for Undergraduate and Postgraduate Studies . Although it was our intention to bring out such Information Booklet of the Department much earlier , I am happy to note that at last it is being published on a very auspicious occasion . The year 1996 is very important for the Department as new undergraduate programme starts this year.

Teaching is the responsibility taken seriously by our faculty both at the post-graduate and under graduate levels. Research is also important, both for its impact on teaching and for its importance to the country. With the introduction of undergraduate programme, the students will have the opportunity to work more closely with the faculty members both in the studios and class rooms.

The details of courses offered to undergraduate and postgraduate students are presented here. The up-to-date rules and regulations of the course system as well as the post-graduate ordinances have been incorporated in this Booklet for information of the students and teachers. We feel publication of this booklet will satisfy the long felt need for such a material in the Department .

Dr. Mir Shahidul Islam
Professor and Head
Department of Urban and Regional Planning
Bangladesh University of Engineering and Technology
Dhaka-1000, Bangladesh

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DEPARTMENT OF URBAN AND REGIONAL PLANNING

INTRODUCTION

Urban and Regional Planning is primarily concerned with the physical arrangement of man-made structures and human activities. Although, the concern is primarily with the physical elements, it is realized that there are social, economic and political elements that shape this environment as well. In this sense urban and regional planning is the art of making decision in advance about the type of development the planner wants to happen taking into consideration the economic, social, political and physical forces that determine the location, form, and effect of development at local, sub regional and regional levels. At a time when rapid changes are taking place in social, economic, technological, and political fields, urban and regional planning seeks to direct and control the nature of the built environment in the interests of the society as a whole."

The importance of urban and regional planning for a country like Bangladesh can hardly be over emphasized. Bangladesh is currently striving to bring about rapid economic progress and has already entered into an era of unprecedented development activities. At present the dominant approach to development is to prepare a macro-level national plan segmented into various sectors such as agriculture, industries, health, education and so on with specific financial allocations. Although centralized planning of this nature has contributed to an increase in agricultural and industrial production and in the GNP at the national level, economic gaps between groups of people as well as between regions have widened. Moreover, due to rapid growth of urban population in the country, the physical environment of most of our small towns and cities has deteriorated significantly in

recent years. Without a shift in emphasis from macro to micro-level planning, mobilization of resources at the local level and participation of people in the planning process, it will be difficult to make any headway in alleviating widespread poverty and reducing economic gaps between areas.

Realizing the weaknesses of the present system of planning, the government is currently giving more emphasis on decentralization of administration and planning. With this end in view steps are being taken to strengthen local level institutions. In fact, many of our urban local bodies like Pauroshavas and city corporations are already making decisions and taking actions involving spatial planning of substantial scale. Many Non-governmental Organizations (NGO's) are also involved in this type of activities. It is expected that in the near-future local government institutions, different nation -building departments and non-governmental organizations will be deeply involved in planning, administering and implementing projects aimed at physical and socio-economic development at the micro-level. This means that the country would be confronted with the need for a large number of urban and regional planners. Realizing this need the Bangladesh University of Engineering and Technology has recently taken a number of steps for increasing the output of planners within the shortest possible time.

THE DEPARTMENT

The Department of Urban and Regional Planning was established in 1962 under the Faculty of Architecture and Planning, for offering Master's Degree in Urban Regional Planning. The academic programme, however, began with the return of three teachers in training from abroad with eight graduate students in 1968. The first batch of seven planners

came out in 1972. With a short gap between 1973 and 1976, the department kept on training graduate planners without interruption and produced a total of 136 planners upto 1996. In view of the need to produce more planners for meeting the growing requirements of the governmental and non-governmental organizations as well as Universities and research institutes, the Bachelor's (BURP) and Ph.D. degree programmes have been introduced in 1996 with approval from the Academic Council and Syndicate of the University.

Graduate Programme

Master's and Ph.D. degrees are offered at the graduate level. The students are trained to specialize in such fields as urban planning, rural development planning, regional planning, transportation planning, municipal and local level planning and development, disaster management planning and housing policy.

The graduate students of the Department come from various background such as engineering, architecture, economics, agricultural economics, geography, sociology, social welfare, statistics, mathematics and public administration. The graduates are trained in planning tools and techniques such as research methodology, evaluation, policy formulation, project and programme formulation and analysis, and computer applications.

Under graduate Programme

The main objective of the BURP (Bachelor of Urban and Regional Planning) programme is to equip students with the wide diversity of skills required for urban and regional planning. At the same time, however, a student may specialize in one of the following fields: (a) Housing and Urban Development (b) Rural and Regional Development, (c)

Environmental Planning and Disaster Management. In designing the courses for the undergraduate programme, current emphases in development have been kept in mind. Sustainability of development is perhaps the most important concern today for planners and policy makers. It has, however, four important dimensions - economic, environmental, social and administrative. The courses have been designed in such a way that the planners acquire knowledge about these dimensions and are capable of applying methods and techniques so as to determine if development projects are economically and administratively viable, environmentally sustainable and socially acceptable. It is expected that the planners graduating from this department would be able to meet the emerging needs of the people in the context of rapid urbanization and unprecedented levels of development activities in the country.

JOB OPPORTUNITIES

On successful completion of the programme (graduate or undergraduate) the planners are expected to serve in public and private sector organizations such as urban development agencies (Urban Development Directorate, RAJUK, Chittagong Development Authority, Khulna Development Authority, Rajshahi Development Authority. etc.), Ministries of Works, Planning, Agriculture, Communication, Local Government and Rural Development, various nation building departments, City Corporations/Municipalities and other local governments, consulting firms, NGOs, and international development agencies. Job opportunities are also available for graduate planners in Universities and research institutes:

Teaching Staff

The list of teachers with their fields of specialization and other staff of the Department are presented below :

STAFF

Teachers

	Designation	Field of Specialization
Golam Rahman MA (Dhaka), MCRP (Oklahoma), PhD (Jahangirnagar)	Professor	Rural Planning & Planning Law and Planning Administration
Mir Shahidul Islam BSc Engg (BUET), MPP (BUET) PhD (J.Nehru U., India)	Professor	Urban/Rural Development Planning
A.S.M. Abdul Quium BSc Engg (BUET), MURP, (BUET) MTD (Liverpool), Dr. Eng. (AIT)	Professor	Transportation Planning Computer Applications in Planning
Mr. A.S.M. Mahbub-Un- Nabi BSc Engg (BUET), MPP (BUET), Dip. in Dev. Plan (London)	Associate Professor	Urban Planning, Housing, Urban Land Policy
Mohammad Abdul Mohit MA (Rajshahi) MURP (BUET-Sheffield), M.Phil (Rajshahi) PhD (Sheffield)	Associate Professor	Regional Planning Rural Development Planning Plan Implementation
Sarwar Jahan MA (Dhaka), MURP (BUET), MA (Waterloo), PhD. (Illinois)	Associate Professor	Urban and Regional Analysis, Development Planning, Modeling
Ms. Razia S Ahmad MA (Dhaka), MCP (Harvard)	Assistant Professor	Regional Planning Rural Development Planning
Ms. Roxana Hafiz BArch (BUET), MURP (BUET) (on leave)	Assistant Professor	Low Income Housing Urban Design
Khandoker Md. Moniruzzaman BArch (BUET), MURP (BUET), M.Eng. (Tokyo) (on leave)	Assistant Professor	Urban Planning

Employees:

Md. Abu Hanif Miah, B.A.
Md. Abul Hossain
Md. Gol Box Bhuyan

Office Assistant
Office Attendant
Sr. Lab Attendant

RULES AND REGULATIONS FOR COURSE SYSTEM

INTRODUCTION

Given below is an extract from the report of the Committee for Framing Recommendations for Implementation and Administration of Course System of instruction at undergraduate level as approved by the Academic Council in its meetings on 30.9.92, 4.10.92, 19.10.92 and revised and approved by the Academic Council in its meetings on 7.9.93 and 13.9.93. Sections of the report included herein are to provide a clear understanding about the Course System which has been implemented from academic session 1990-91. The rules and regulations for administering undergraduate curricula through Course System will be applicable for all students admitted under course system. This system will eventually replace the annual system with failed students of the old system being included in the Course System of Curricula.

THE COURSE SYSTEM

The undergraduate curricula at Bangladesh University of Engineering & Technology (BUET) is based on the course system. The salient features of the Course System are:

- (i) Reduction of the number of theoretical courses and examination papers around five in each term ;
- (ii) The absence of a pass or a fail on an annual basis ;
- (iii) Continuous evaluation of student's performance ;
- (iv) Introduction of Letter Grades and Grade Points instead of numerical grades ;

- (v) Introduction of some additional optional courses and thus enable students to select courses according to his/her interest as far as possible ;
- (vi) Opportunity for students to chose fewer or more courses than the normal course load depending on his/her capabilities and needs ;
- (vii) The flexibility to allow the student to progress at his/her own pace depending on his ability or convenience, subject to the regulations on credit and minimum grade point average (GPA) requirements ; and
- (viii) Promotion of teacher student contact.

The new course system is expected to reduce the work load which accumulates at the end of the semesters in the old annual system demanding extended/long preparatory leave due to the presence of a decisive final examination. The course system will create a continuous, even and consistent work load throughout the term for the students.

In the curriculum for the undergraduate programmes, besides the professional courses pertaining to each discipline, there is a strong emphasis on acquiring a thorough knowledge in the basic sciences of Mathematics, Physics and Chemistry. Due importance is also given to the study of several subjects in Humanities and Social Sciences, which is expected to help the student to interact more positively with the society in which he/she lives. Thus the course contents of the undergraduate programmes provide a harmonious blend of both basic sciences and their applications as well as their social relevance.

The first two terms of bachelor's degree programmes consist of courses in basic sciences, mathematics, humanities and social sciences, basic engineering and architecture subjects. The third and subsequent terms build directly on the knowledge of the basic subjects gained in the first two terms and go on to develop competence in specific disciplines.

STUDENT ADMISSION

Students will be admitted to undergraduate programmes in the Departments of Architecture, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electrical and Electronic Engineering, Mechanical Engineering, Metallurgical Engineering, and Naval Architecture Marine Engineering and Urban and Regional Planning as per existing rules of the university. The Registrar's Office will continue to serve as Admissions Office and will deal with course registration in addition to student admission.

NUMBER OF TERMS IN A YEAR

There will be two Terms (Term I and Term II) in an academic year. In addition to these two regular Terms there may be a Short Term in the intervening period between end of Term II and commencement of Term I. During this term students, depending on their need, may take additional courses either to make up deficiencies in credit and GPA requirements or to fulfill the credit requirements for bachelor's degree spending less time than the normal duration; other students may take vacation during this Short Term.

Duration of Terms

The duration of each of Term I and Term II will be 18 weeks which will be used as follows:

Classes	14 weeks
Recess before Term Final Examination	2 weeks
Term Final Examination	2 weeks

Total : 18 weeks

The duration of a Short Term will be around 8 weeks of which about 7 weeks will be spent for class lectures and one week for Term Final Examination.

COURSE PATTERN AND CREDIT STRUCTURE

The entire undergraduate programme is covered through a set of theoretical and laboratory/ sessional /studio courses.

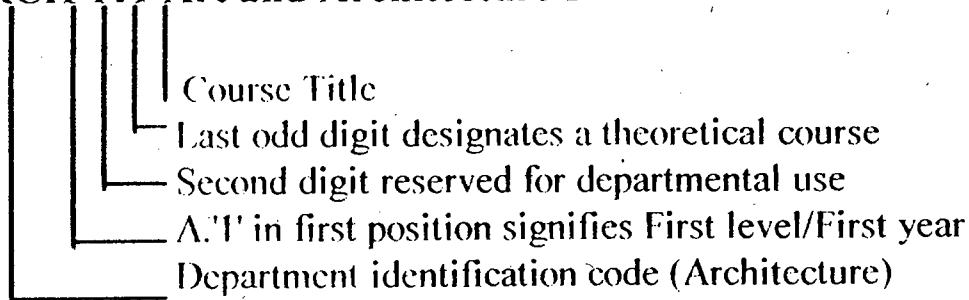
Course Designation and Numbering System

Each course is designated by a two to four letter abbreviation identifying the department which offers it, followed by a three digit number with the following connotation:

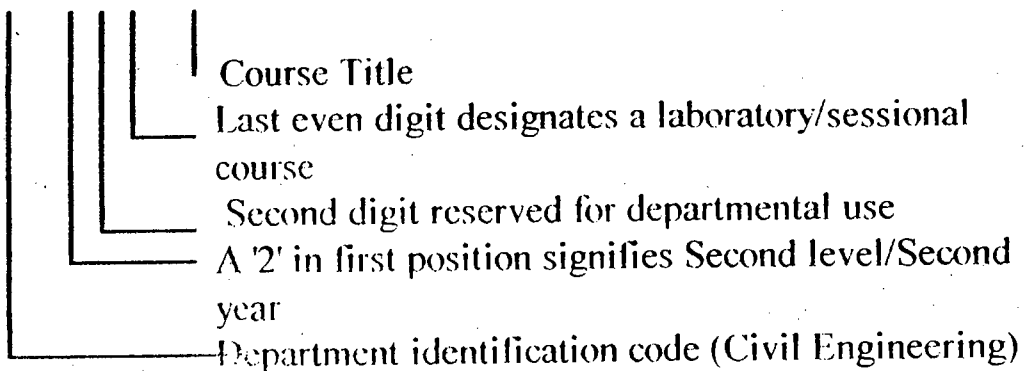
- (a) The first digit will correspond to the year/level in which the course is normally taken by the students.
- (b) The second digit will be assigned by the department, usually to identify different broad areas of specialization within a department.
- (c) The last digit will usually be odd for theoretical and even for laboratory or sessional courses.

The course designation system is illustrated by two examples.

ARCH 111 Art and Architecture I



CE 212 Structural Mechanics and Materials Sessional



Assignment of Credits

- (i) Theoretical Courses: One lecture per week per term will be equivalent to one credit
- (ii) Laboratory/Sessional/Design: Credits for laboratory/sessional or design courses will be half of the class hours per week per term.

Credits are also assigned to project and thesis work taken by students. The amount of credits assigned to such work may vary from discipline to discipline.

The curriculum does not demand the same rate of academic progress from all students for obtaining the degree but only

lays down the pace expected of a normal student. A student whose background or capacity for assimilation is lower will be permitted to complete the programme at a slower pace by studying a lesser number of courses during a given term (subject to minimum course load). He/ She may keep pace with his/her class by taking during the Short Term those courses which he/she had dropped during the Regular Terms, or by covering the entire degree programme over an extended period without any adverse reflection on academic standing.

TYPES OF COURSES

The courses included in undergraduate curricula are divided into several group as follows:

Core Courses

In each discipline a number of courses will be identified as core courses which form the nucleus of the respective bachelor's degree programme. A student has to complete all of the designated core courses for his/her discipline.

Pre-requisite Courses

Some of the core courses are identified as pre-requisite courses. A pre-requisite course is one which is required to be completed before some other course(s) can be taken. Any such course, on which one or more subsequent courses build up, may be offered in each of the two Regular Terms.

Optional Courses

Apart from the core courses, students will have to complete a number of courses which are optional in nature so that students will have some choice to select the required number of courses from a specified group/number of courses.

COURSE OFFERING AND INSTRUCTION

The courses to be offered in a particular term will be announced and published in the Course Catalogue along with a tentative Term Schedule before the end of the previous term. Whether a course is to be offered in any term will be decided by the respective Board of Undergraduate Studies (BUGS). Respective departments may arrange to offer one or more pre-requisite or core courses in any term depending on the number of students who dropped or failed the course in the previous term.

Each course is conducted by a teacher. The course teacher is responsible for maintaining the expected standard of the course and for the assessment of student's performance. Depending on the strength of registered students (i.e. the number of students) enrolled for course, the teacher concerned might have course associates and teaching assistants (TA) to help him/her in teaching and assessment.

For a course strength necessitating two or more parallel classes or sections, one of the course teachers or any other member of the teaching staff of the department be designated as Course Coordinator. He/she has the full responsibility for coordinating the work of the other members of the department involving in the course.

DEPARTMENTAL MONITORING COMMITTEE

Consistent with its resilient policy to keep pace with new developments in the field of science and technology, the university will update its course curriculum at frequent intervals (at least every three years). Such updating aims not only to include the expanding frontiers of knowledge in the various fields but also to accommodate the changing social,

industrial and professional need of the country. This can be done through deletion and modification of some of the courses and also through the introduction of new ones.

BUGS of each department will constitute a Departmental Monitoring Committee with three teachers of the department. This committee will monitor and evaluate the performance of the Course System within the department. In addition to other teachers of the department, the committee may also propose from time to time to the BUGS any changes and modifications needed for upgrading the undergraduate curriculum and the Course System.

TEACHER STUDENT CONTACT

The proposed system encourages students to come in close contact with teachers. For promotion of teacher-student contact, each student is assigned to an Adviser and the student is free to discuss with his adviser all academic matters, especially those related to courses taken and classes being attended by him. Students are also encouraged to meet with other teachers any time for help on academic matters.

STUDENT ADVISER

One Adviser would normally be appointed for a batch of students by the Undergraduate Board of Studies of the concerned department(s) who will advise each student on the courses to be taken by a student. Adviser will discuss with the student his/her academic programme and then decide the number and nature of courses for which he/she can register. However, it is the student's responsibility to keep contacts with his/her adviser who will review and eventually approve the student's specific plan of study and check on subsequent progress. The Adviser should be in the rank of an Assistant Professor or above from the concerned department(s).

For a student of second and subsequent terms, the number and nature of courses for which he/she can register will be decided on the basis of his/her academic performance during the previous term.

The adviser will advise the students to register for the courses during the next term within the framework of the guidelines in respect of minimum/maximum credit hours limits, etc. which are elaborated at appropriate places in this report. He is also authorized to permit the student to drop one or more courses based on his academic performance and the corresponding categorization as prescribed under article, "Registration for the Second and Subsequent Terms".

Special provisions exist for academically weak students with regard to make-up courses as prescribed under article, "Measures for helping Academically weak Students".

REGISTRATION REQUIREMENTS

Any student who makes use of class room or laboratory facilities or faculty time is required to register formally. Being admitted to the university, each student is assigned to a student adviser. The student can register for courses he intends to take during a given term only on the basis of the advice and consent of his adviser.

Registration Procedure

Students must register for each class in which they will participate. Each student will fill up his/her Course **Registration Form** in consultation with and under the guidance of his adviser. The original copy of the Course Registration Form will be submitted to the Registrar's Office, and then the requisite number of photo copies will be made by

the Registrar's Office for distribution. The date, time and venue will be announced in advance by the Registrar's Office. Much counseling and advising are accomplished at registration time. It is absolutely necessary that all students present themselves at the registration desk at the specified time.

Limits on the Credit Hours to be Taken

A student must be enrolled in at least 15 credit hours. he may be allowed to enroll in up to a maximum of 24 credit hours if recommended by his/her Adviser. A student must enroll for the prescribed sessional/laboratory courses in the respective Term within the allowed credit-hour limits.

Pre-condition for Registration

A student will be allowed to register in those courses subject to the capacity constraints and satisfaction of **pre-requisite courses**. If a student fails in a pre-requisite course in any Term, the concerned BUGS may allow him to register for a course which builds on the pre-requisite course provided his attendance and grades in continuous assessment in the said pre-requisite course is found to be satisfactory.

Registration will be done at the beginning of each term. The Registration programme with dates and venue will be announced in advance. Late registration is, however, permitted during the first week on payment of a late registration fee. Students having outstanding dues to university or a hall of residence shall not be permitted to register. All students have, therefore, to clear their dues and get a clearance or no dues certificate, on the production of which, they will be given necessary Course **Registration Forms** and complete the course registration procedure. Registration Forms will normally be available in the Registrar's Office. However, for the First year students, prior department wise enrollment/admission is mandatory. An

orientation programme will be conducted for them at the beginning of the first term when they will be handed over the registration package on producing enrollment slip/proof of admission.

Pre-registration

Pre registration for courses to be offered to the students in a particular term will be done on a specified dates before the end of the previous term. All students in consultation with their course adviser are required to complete the pre-registration formalities, failing which a fine (amount to be decide by the authority) will have to be paid before registration in the next term. Further a student who does not pre-register may not get the courses desired by him subsequently.

Registration Deadline

Student must register for the course to be taken before the commencement of each term and no late registration will be accepted after one week of classes. Late registration after this date will not be accepted unless the student submits a written appeal to the Registrar through the concerned head and can document extenuating circumstances such as medical problems (physically incapacitated and not able to be presented) or some other academic commitments which precluded enrolling prior to the last date of registration.

Penalty for Late Registration

Students who fail to register during the designated dates for registration will be charged a late registration fee (amount to be decided by the authority). This extra fee will not be waived whatever be the reason for late registration.

Course Adjustment Procedure

A student will have some limited options to **add or delete** courses from his/her Registration list. He/she may **add** courses only within the first two weeks of a regular Term and only during the first week of Short Term. In case of dropping a course, a student will be allowed to do so within four weeks after the commencement of a regular Term and two weeks after commencement of a Short Term. Adjustment of initially registered courses in any term can be done by duly completing the Course Adjustment Form. These forms will normally be available in the Registrar's Office. For freshman students such forms can be included in the registration packet at the time of orientation.

Any student willing to add or drop courses will have to fill up a **Course Adjustment Form** in consultation with and under the guidance of his adviser. The original copy of the Course Adjustment Form will be submitted to the Registrar's Office, and then the requisite number of photo copies will be made by the Registrar's Office for distribution to the concerned Adviser, Head, Dean, Controller of Examination and the student.

All changes in courses must be approved by the Adviser and the Head of the department concerned. The Course Adjustment Form will have to be submitted to the Registrar's Office after duly filled in and signed by the concerned persons. **To add/drop** a course respective teacher's consent will be required.

Withdrawal from a Term

If a student is unable to sit for a Term Final Examination due to serious illness or serious accident, he/she may apply to the

Head of the degree awarding department for total withdrawal from the Term within a week after the end of the Term Final Examination. However, he/she may choose not to withdraw any laboratory/sessional/design course if the grade obtained in such a course is 'D' or better. The application must be supported by a medical certificate from the Chief Medical Officer of the university. The Academic Council will take the final decision about such applications.

THE GRADING SYSTEM

The total performance of a student in a given course is based on a scheme of continuous assessment. For theory courses this continuous assessment is made through a set of quizzes/in class evaluation, class participation, homework assignments, and a term final examination. The assessment in laboratory sessional courses is made through observation of the student at work in class, viva-voce during laboratory hours, and quizzes. For architecture students, assessments in design sessionals would be done through evaluation of a number of projects assigned throughout the term. As discussed earlier, each course has a certain number of credits which describe its weightage. A letter grade with a specified number of grade points is awarded in each course for which a student is registered. A student's performance is measured by the number of credits that he/she has completed satisfactorily and the weighted average of the grade points average is required to be maintained for satisfactory progress. Also a minimum number of earned credits should be acquired in order to qualify for the degree as prescribed under article, "Minimum Earned Credit and GPA Requirements for Obtaining Degree"

Letter Grades and the corresponding Grade Points will be awarded in accordance with the provisions shown below.

Numerical grade	Letter Grade	Grade point
80% or above	A ⁺ (A Plus)	4.0
75% to less than 80%	A (A regular)	3.75
70% to less than 75%	A ⁻ (A minus)	3.5
65% to less than 70%	B ⁺ (B plus)	3.25
60% to less than 65%	B (B regular)	3.0
55% to less than 60%	B ⁻ (B minus)	2.75
50% to less than 55%	C ⁺ (C plus)	2.5
45% to less than 50%	C (C regular)	2.25
40% to less than 45%	D	2.0
less than 40%	F	0.0
Continuation for project & thesis/design courses)	X	-

Note: All C⁻ (C minus) grades awarded to students of First Year classes during the last academic year (1990-91) will be considered and recorded as C (C regular) grades with a grade point of 2.25 and D grades will be considered and recorded to have grade point of 2.00.

Distribution of Marks

Thirty percent (30%) of marks shall be allotted for continuous assessment i.e., quizzes and homework assignments, in class evaluation and class participation. The remainder of the marks will be allotted to TERM FINAL examination which will be conducted centrally by the University. There will be internal and external examiners for each course in the term Final Examination of 3 hour duration. The distribution of marks for a given course will be as follows

(i)	Class participation	10%
(ii)	Homework Assignment and Quizzes	20%
(iii)	Final Examination (3 hours)	70%

Total:		100

Basis for awarding marks for class participation and attendance will be as follows

Attendance	Marks
90% and above	10
85% to less than 90%	9
80% to less than 85%	8
75% to less than 80%	7
70% to less than 75%	6
65% to less than 70%	5
60% to less than 65%	4
less than 60%	0

For 2 credit courses 3 best out of 5, for 3 credit courses 4 best out of 6 and for 4 credit courses 5 best out of 7 quizzes may be considered for awarding grade. These may be considered as the minimum recommended number of quizzes for any course. If the number of quizzes administered in a course exceeds these suggested minimum numbers, then two-thirds best of all quizzes may be considered. The scheme of continuous assessment that a teacher proposes to follow for a course will be announced on the first day of class.

EARNED CREDITS

The course in which a student has obtained 'D' or a higher Grade will be counted as credits earned by him/her. Any

course in which a student has obtained 'F' grade will not be counted towards his/her earned credits.

A student who obtains a 'F' grade in any **Core Course**, in any term, he/she will have to repeat the course.

If a student obtains a 'F' grade in an **Optional Course**, he/she may choose to repeat the course or take a substitute course if available.

F grades will not be counted for GPA calculation but will stay permanently on the Grade Sheet and Transcript. When a student will repeat a course in which he/she previously obtained a 'F' grade, he/she will not be eligible to get a grade better than 'C' in such a course.

If a student obtains 'D' grade in course, he/she will be allowed to repeat the course for the purpose of grade improvement by foregoing his/her earlier grade, but he/she will not be eligible to get a grade better than 'C' in such a course.

If a student obtains 'C' or a better grade in a course, he/she will not be allowed to repeat the course for the purpose of grade improvement.

HONOURS

Candidates for Bachelor's degree in engineering, planning and architecture will be awarded the degree with honors if their over all GPA is 3.75 or better.

Deans' List

As a recognition of excellent performance, the names of students obtaining an average GPA of 3.75 or above in two

regular Terms in each academic year may be published in the Dean's List in each faculty. Students who have received F grade in any course during any of the two regular terms will not be considered for Dean's List in that year.

CALCULATION OF GPA

Grade Point Average (GPA) is the weighted average of the grade points obtained in all the course passed/completed by a student. For example, if a student passes/completes five courses in a semester having credits of

$C_1, C_2, C_3, C_4,$ and C_5 and his grade points in these course are $G_1, G_2, G_3, G_4,$ and $G_5,$ respectively then

$$\text{GPA} = \frac{\sum C_i G_i}{\sum C_i}$$

A Numerical Example

Suppose a student has completed five courses in a Term and obtained the following grades:

Course	Credits	Grade	Grade points
CE 203	3	A ⁺	4.0
CE 211	3	B	3.0
CE 205	3	A	3.75
Math 231	3	B ⁺	3.25
Hum 211	2	A ⁻	3.5

Then his GPA for the term will be computed as follows:

$$\text{GPA} = \frac{3(4.0) + 3(3.0) + 3(3.75) + 3(3.25) + 2(3.5)}{3 + 3 + 3 + 3 + 2} = 3.50$$

STUDENT CLASSIFICATION

For a number of reasons it is necessary to have a definite system by which to classify students as **First Year/Freshman**, **Second Year/Sophomore**, **Third Year/Junior** and **Fourth Year/Senior**. At BUET, regular students are classified according to the number of credit hours craned towards a degree. The following classification applies to the students:

Year/Level	Earned Credit Hours		
	Engineering	Architecture	Planning
First Year/Freshman	0 to 36	0 to 35	0 to 36
Second Year/Sophomore	37 to 72	36 to 70	37 to 72
Third Year/Junior	73 to 108	71 to 113	73 to 108
Fourth Year/Senior	109 and above	114 to 154	109 and above
Fifth Year	-	155 and above	-

REGISTRATION FOR THE SECOND AND SUBSEQUENT TERMS

A student is normally required to earn at least 15 credits in a Term. At the end of each term, the students will be classified into the following three categories:

Category 1: Consisting of students who have passed all the courses prescribed for the term and have no backlog of

courses. A student belonging to Category 1 will be eligible to register for courses prescribed for the next term.

Category 2: Consisting of students who have earned at least 15 credits in the term but do not belong to category 1. A student belonging to Category 2 is advised to take at least one course less in the next term subject to the condition that he has to register for such backlog courses as may be prescribed by the adviser.

Category 3: Consisting of students who have failed to earn 15 credits in the term. A student belonging to Category 3 is advised to take at least two courses less subject to registration for a minimum of 15 credits. However he will be required to register for such backlog courses as may be prescribed by the adviser.

PERFORMANCE EVALUATION

The performance of a student will be evaluated in terms of two indices, viz. **Term** grade point average, and **cumulative** grade point average, which is the grade average for all the terms. The term grade point average is computerized dividing the total grade points earned in a term by the number of earned credit hours in that term. The overall or cumulative grade point average (CGPA) is computed dividing the total grade points accumulated up to date by the total credit hours earned. Thus a student who has earned 275 grade points in attempting 100 credit hours of courses would have an overall grade point average of 2.75.

Students will be considered to be making normal progress toward a degree if their cumulative or overall GPA for all work attempted is 2.20 or more. Students who regularly maintain Term GPA of 2.20 or better are making good progress toward their degrees and are in good standing with

the university. Students who fail to maintain this minimum rate of progress will not be in good standing. This can happen when one or more of the following condition exist:

- (i) Term GPA falls bellow 2.20 or
- (ii) Cumulative GPA falls below 2.20
- (iii) Earned credits fall below 15 times the Number of Terms Attended/Studied

All such students can make up deficiencies in GPA and credit requirements by completing courses in next terms(s) and backlog courses, if there be any, with better grades. When GPA and credit requirements are achieved, the student is returned to good standing.

ACADEMIC PROGRESS, PROBATION AND SUSPENSION

Academic Progress: Undergraduate students will be considered to be making normal progress toward a degree if their cumulative or overall GPA for all work attempted is not less than 2.20.

Probation and Suspension : Undergraduate students who regularly maintain Term GPA of 2.20 or better are making good progress toward their degrees and are in good standing with the university. Students who fail to maintain this minimum rate of progress may be placed on academic probation.

The status of **academic probation** is a reminder/warning to the student that satisfactory progress towards graduation is not being made. A student may be placed on academic probation when either of the following conditions exist:

- (i) the Term GPA fall below 2.20 or

- (ii) the cumulative GPA falls below 2.20 students are subject to such restrictions with respect to courses and extra curricular activities as may be imposed by the respective Dean of the faculty.

The minimum period of probation is one term, but the usual period is for one academic year. This allows the student an opportunity to improve the GPA through the completion of additional course work during the period that the student is on probation. The probation is extended for additional terms until the student achieves an overall GPA of 2.20 or better. When that condition is achieved, the student is returned to good standing.

Academic probation is not to be taken lightly, it is a very serious matter. A student on academic probation who fails to maintain a GPA of at least 2.20 during two consecutive academic years may be suspended from this university. A student who has been suspended may petition the Dean of faculty, but this petition will not be considered until the student has been suspended at least one full Term.

Petitions for reinstatement must set forth clearly the reasons for the previous unsatisfactory academic record and it must delineate the new conditions that have been created to prevent the recurrence of such work. Each such petition is considered individually on its own merits.

After consideration of the petition, and perhaps after consultation with the student, the Dean in some cases, reinstates the student if this is the first suspension. However, a second suspension will be regarded as final and absolute.

MEASURES FOR HELPING ACADEMICALLY WEAK STUDENTS

The following provisions will be made as far as possible to help academically weak students to enable them to complete their studies within the maximum period of seven years in engineering and eight years in architecture students, respectively:

- a) All such students whose cumulative grade point average (CGPA) is less than 2.20 at the end of a term may be given a load of not exceeding four courses, in the next term.
- b) For other academic deficiencies, some basic and core courses may be offered during the Short Term in order to enable the student to partial make-up for the reduced load during Regular Terms.

Following criteria will be followed for determining academically weak students:

- a) CGPA falling below 2.20
- b) Term grade point average (TGPA) falling below 2.20 points that of previous term.
- c) Earned credit falling below 15 times the number of terms attended.

SPECIAL COURSES

- a) These courses, which include self-study courses, will be from amongst the regular courses listed in the course catalogue, a special course can be run only in exceptional cases with the approval of the **syndicate**.

- b) Whether a course is to be floated as a special course will be decided by the Head of concerned department in consultation with the teacher/ course coordinator concerned if it is required to be offered in Short Term.
- c) The special course may be offered to any student in his/her last term if it helps him/her to graduate in that term . It will be offered only if the course is not running in that term as a regular course .
- d) Normally no lecture will be delivered for the special course but laboratory/design classes may be held if they form a part of the course. The course coordinator / course teacher will also assign home work , administer quizzes and final examination for giving his or her assessments at the end of the term .
- e) A course of weightage up to 6 credits can be taken as a self-study course.

RULES FOR COURSES OFFERED IN A SHORT TERM

- a) The courses to be run during the Short Term shall be decided on the recommendations of departments on the basis of essential deficiencies to be made up by a group of students. Once floated, other students could be allowed to register in those courses subject to the capacity constraints and satisfaction of prerequisites.
- b) Student will be allowed to register in a maximum of two courses during the Short Term.
- c) A course may be given a weightage up to 6 credits in any Short Term following a graduating/final Term if

he/she is short by a maximum of 6 earned credits only, on a self-study basis with no formal instruction. In a self-study course, there will be a Final Examination, beside the continuous assessment.

- d) A fee for each credit hour to be registered will have to be borne by the students who enroll during Short Term.

MINIMUM EARNED CREDIT AND GPA REQUIREMENTS FOR OBTAINING DEGREE

Minimum credit hour requirements for the award of bachelor's degree in engineering , planning and architecture will be decided by the respective Undergraduate Board of Studies. However, at least 157 credit hours for engineering and 190 credit hours for architecture must be earned to be eligible for graduation, and this must include the specified core courses.

The minimum GPA requirement for obtaining a bachelor's degree in engineering , planning or architecture is 2.20. A student may take additional courses with the consent of his/her Adviser in order to raise GPA, But he/she may take a maximum of 15 such additional credits in engineering and planning and 18 such additional credits in architecture beyond respective credit-hour requirements for bachelor's degree during his/her entire period of study.

Application for Graduation and Award of Degree

A student who has fulfilled all the academic requirements for Bachelor's degree will have to apply to the Controller of Examinations through his/her Adviser for graduation. Provisional degree will be awarded on completion of credit

and GPA requirements. Such provisional degrees will be confirmed by the Academic Council.

INDUSTRIAL/PROFESSIONAL TRAINING REQUIREMENTS

Depending on each department's own requirement a student may have to complete a prescribed number of days of industrial/professional training in addition to minimum credit and other requirements, to the satisfaction of the concerned department.

TIME LIMITS FOR COMPLETION OF BACHELOR'S DEGREE

A students must complete his studies within a maximum period of seven years for engineering and planning and eight years for architecture.

ATTENDANCE, CONDUCT, DISCIPLINE, ETC.

Attendance

All students are expected to attend classes regularly. The university believes that attendance is necessary for effective learning. The first responsibility of a student is to attend classes regularly, and one is required to attend at lest 60% of all classes held in every course.

Conduct and Discipline

A student shall conform to a high standard of discipline, and shall conduct himself, within and outside the precincts of the university in a manner befitting the students of an university of national importance. He shall show due courtesy and consideration to the employees of the university and Hall of

Residence, good neighbourliness to his fellow students and the teachers of the university and pay due attention and courtesy to visitors.

To safeguard its ideals of scholarship, character and personal behaviour, the university reserves the right to require the withdrawal of any student at any time for any reason deemed sufficient.

ABSENCE DURING TERM

A student should not be absent from quizzes, tests, etc. during the Term. Such absence will naturally lead to reduction in points/marks which count towards the final grade. Absence in Term Final Examination will result in 'F' grades.

A student who has been absent for short periods, up to a maximum of three weeks due to illness, should approach the course teachers(s) or the course coordinator(s) for a make - up quizzes or assignments immediately on returning to the classes. Such request should be supported by medical certificate from a university **Medical Officer**. The medical certificate issued by a registered medical practitioners (with the **Registration Number** shown explicitly on the certificates) will also be acceptable only in those case where the student has valid reasons for his absence from the university.

STUDENT ADMISSION

The Registrar's Office will continue to serve as admissions office and will deal with course registration in addition to student admission. However, the teaching departments need to depute teachers to help during registration. Postgraduate students and even senior undergraduate students might also be asked to volunteer and assist in the registration procedure

After registration, courses chosen by each student has to be sorted out course-wise. This can be best done on computers. However, this will not be so much of a problem during the very first one or two terms. Manual sorting will be possible. Necessary efforts should be initiated now to computerise the registration procedure as soon as possible. It is recommended to use the mainframe computer for this purpose because the microcomputers frequently go out of order and files are destroyed.

STUDENT RECORD

The records of students' grades will be kept by the Office of the Controller of Examination. Grade reports will have to be given to the students every term so that they can know their GPA and earned credit hours. The facilities for assessing transcripts of grades should be strengthened and geared up so that transcripts may be delivered in a day or two on request. This will be necessary for determining the course load for the next semester. Moreover, the students whose grades will fall below 2.2 will have to be notified so that necessary remedial measures can be taken by the student in consultation with his adviser. The entire student record keeping system need to be computerized using the mainframe computer at the earliest. Mobilization for this task should start without any delay.

CENTRAL MONITORING COMMITTEE

A central monitoring Committee to oversee the functioning of the course System should be constituted. The committee may, from time to time, suggest necessary measures for smooth functioning and correcting any deficiencies observed in the system.

UNDERGRADUATE PROGRAMME					
STRUCTURE OF THE PROGRAMME					
Term	Course	Title	Contact		
			Hours		
			THEO	SES	CRED

LEVEL 1

T-1	Hum 171	Micro-Economics	3	0	3
	Hum 173	English	3	0	3
	Hum 181	Government	3	0	3
	Math 101	Mathematics-I	2	0	2
	Plan 111	Human Settlements Development	3	0	3
	Arch 106	Basic Design	0	6	3
	Arch 116	Graphics for Planners	0	6	3
		Total:	14	12	20

T-2	Arch 145	Elements of Architecture	2	0	2
	Hum 177	Macro-Economics	3	0	3
	Hum 179	Sociology	3	0	3
	Math 103	Mathematics-II	2	0	2
	Plan 161	Surveying and Cartography	3	0	3
	Plan 162	Surveying and Cartography Workshop	0	6	3
	Plan 192	Programming Techniques and Database Management	0	6	3
		Total:	13	12	19

LEVEL 2

T-1	CE 209	Construction Materials	2	0	2	
	Plan 213	Fundamentals of Planning	3	0	3	
	Plan 217	Site and Area Planning	3	0	3	
	Plan 291	Quantitative Techniques - I	3	0	3	
	Hum 271	Social Psychology	Op	2	0	2
	Plan 205	Urban and Regional Economics	Op	2	0	2

	Plan 208	Communication and Presentation Techniques Studio		0	6	3
	Plan 204	Social Survey and Analysis		0	6	3
		One optional course has to be taken				
		Total:		13	12	19
T-2	Arch 233	Landscape Planning and Design		2	0	2
	Plan 219	Land Economics		3	0	3
	Plan 241	Traffic and Transportation Study		3	0	3
	Plan 293	Quantitative Techniques - II	PR. Pl 291	3	0	3
	Chem 207	Basic Environmental Chemistry	Opl	3	0	3
	Hum 273	Accounting	Opl	3	0	3
	Plan 201	Human Geography	Opl	3	0	3
	Arch 226	Landscape Planning Studio		0	6	3
	Plan 218	Site and Area Planning Studio		0	6	3
		One optional course has to be taken				
		Total:		14	12	20
		LEVEL 3				
T-1	CE 327	Elements of Solid Mechanics		3	0	3
	Plan 311	Urban Planning Techniques		3	0	3
	Plan 321	Housing Policy and Management		3	0	3
	Plan 331	Regional Planning Techniques		3	0	3
	Plan 301	Public Finance	Opl	3	0	3
	Plan 303	Local Government in Bangladesh	Opl	3	0	3
	Plan 312	Urban Planning Studio		0	6	3
	Plan 392	Computer Applications in Planning	PR. Pl 192	0	6	3
		One optional course has to be taken				
		Total:		15	12	21
T-2	CE 329	Elements of Civil Engineering Structures	PR CE 327	3	0	3

	Plan 313	Legal Basis of Planning		3	0	3
	Plan 341	Transportation Policy and Planning		3	0	3
	Plan 351	Environmental Planning and Management		3	0	3
	Arch 355	Urban Design	Opl	3	0	3
	Plan 323	Neighbourhood Planning and Community Development	Opl	3	0	3
	Plan 393	Operations Research and Systems Analysis	Opl	3	0	3
	Plan 332	Regional Planning Studio		0	6	3
	Plan 342	Transportation Planning Workshop		0	6	3
		One optional course has to be taken				
		Total:		15	12	21

LEVEL 4

T-1	Plan 400	Project/Thesis		0	6	3
	Plan 401	Project Evaluation and Management		3	0	3
	Plan 431	Rural Development Planning		3	0	3
	Plan 461	GIS and Remote Sensing		3	0	3
	CE 439	Basic Environmental Engineering	Opl	3	0	3
	Plan 417	Planning of Recreational Facilities	Opl	3	0	3
	Plan 433	Agricultural Development Planning	Opl	3	0	3
	Plan 412	Participatory Local Level Planning Workshop		0	4	2
	Plan 462	GIS Studio		0	6	3
		One optional course has to be taken after selecting the field of specialization				
		Total:		12	16	20

T-2	Plan 400	Project/Thesis (Continued)		0	6	3
	Plan 413	Urban Management		3	0	3
	Plan 405	Development Planning	Opl	3	0	3
	Plan 407	Planning Information System	Opl	3	0	3
	Plan 415	Planning of Utility and Municipal Services	Opl	3	0	3
	Plan 419	Land Development and Management	Opl	3	0	3

Plan 453	Environmental and Resource Economics	Opl	3	0	3
Plan 471	Natural Hazards and Disaster Management	Opl	3	0	3
Plan 402	Project Planning Studio		0	6	3
Plan 432	Rural Planning Studio		0	6	3
Two optional courses have to be taken based on the chosen field of specialization					
Total:			9	18	18

OPTIONAL UNDERGRADUATE COURSES FOR SPECIALIZATION IN LEVEL 4

Housing and Urban Development

Plan 417	Planning of Recreational Facilities	Opl	3	0	3
Plan 415	Planning of Utility and Municipal Services	Opl	3	0	3
Plan 419	Land Development and Management	Opl	3	0	3

Rural and Regional Development

Plan 433	Agricultural Development Planning	Opl	3	0	3
Plan 405	Development Planning	Opl	3	0	3
Plan 407	Planning Information System	Opl	3	0	3

Environmental Planning and Disaster Management

CE 439	Basic Environmental Engineering	Opl	3	0	3
Plan 453	Environmental and Resource Economics	Opl	3	0	3
Plan 471	Natural Hazards and Disaster Management	Opl	3	0	3

Summary

Total Credit Hour Requirement	158
Number of theory courses	37
Number of sessional courses	16
Terminal Project/Thesis	1

Number of courses from URP Dept.	46
Number of courses from Humanities Dept.	7
Number of courses from Architecture Dept.	6
Number of courses from CE Dept.	4
Number of courses from Mathematics Dept.	2
Number of courses from Chemistry Dept.	1
Total:	66

NOTES:

Each course is designated by two to four letters identifying the department which offers it followed by a three digit number. The three digits of the 'Plan' course numbers have the following connotation:

(a) The first digit corresponds to the level in which the course will normally be offered

(b) The second digit identifies broad fields within the Department namely -

0 for Development Planning

1 for Urban Planning

2 for Housing and Community Development

3 for Rural and Regional Planning

4 for Transportation Studies and Planning

5 for Environmental Planning and Management

6 for Surveying, Cartography and GIS

7 for Disaster Planning and Management

8 for Research Methods

9 for Analytical Methods and Computer Applications

(c) The last digit is odd for theoretical and even for sessional or studio courses.

(d) PR- Pre-requisite, Opt- Optional subject, PL- Plan, Theo- Theoretical,

Ses- Sessional, Cred- Credit

OUTLINES OF URP UNDERGRADUATE COURSES

COURSES FROM URP DEPARTMENT

Plan 111: Human Settlements Development

3.0 credits; 3 hours/week

The origin and evolution of ancient human settlements and cities, their relation to resources, trade routes, and transportation; city planning in the ancient, medieval and pre-industrial revolution periods; the emergence of modern cities and their planning concepts.

The concept of urbanization and the nature of urbanization with special emphasis on Bangladesh. Physical, social, political, economic, and technological factors of urban growth and development. Models of rural-urban migration. The effects of urbanization and their policy implications. The growth and development of the towns and cities of Bangladesh.

Plan 161: Surveying and Cartography

3.0 credits; 3 hours/week

Reconnaissance survey; traverse survey; levelling and contouring; land surveying; cartographic surveying; introductions to photogrammetry, remote sensing and global positioning system.

Types of maps; types of maps commonly used in Bangladesh. Measurement scales. Mapping techniques: physical models, photomaps, sketch maps, cartograms. Map analysis and map interpretation. Relative and absolute position methods: Local grids, Geographical grids, Lambert's methods; Universal Transverse Mercator Grid. Land partitioning systems. Map projection techniques: planar, cylindrical, conical, etc.

Plan 162: Surveying and Cartography Workshop**3.0 credits; 6 hours/week**

3 weeks of field and studio works related to course Plan 161.

Plan 192: Programming Techniques and Database Management**3.0 credits; 6 hours/week**

Introduction to computers. Operating systems. Understanding programming techniques. Program development and database management. Data processing and designing database for managing information using application packages.

Plan 213: Fundamentals of Planning**3.0 credits; 3 hours/week**

The basic concepts: definition of planning, dimensions of planning, spatial versus sectoral planning, the variants of spatial and physical planning; relationship of physical/spatial planning to the general theory and wider process of planning. Scope and purpose of urban and regional planning in Bangladesh and its expanding role in general development of the country. The planning concept: contemporary concepts and approaches to plan preparation and types of plans. Planning process in Bangladesh: sectoral and perspective planning at national level, integrated area development planning at regional level and spatial planning at local levels.

Plan 217: Site and Area Planning**3.0 credits; 3 hours/week**

Introduction to site and area planning; types of site development. Site selection and analysis: natural factors, cultural factors, and aesthetic factors; land use and circulation; site drainage, grading and earthwork; alignment of horizontal and vertical curves. Site layout and development for residential, institutional, industrial, shopping, and other types of development. Subdivision planning. Landscape and planting.

Plan 291: Quantitative Techniques - I**3.0 credits; 3 hours/week**

Summarizing data: Frequency distribution and graphical presentations, statistical descriptions - samples and populations. Measures of central tendency - mean, median, mode. Measures of dispersion - range, mean deviation, variance and standard deviation, moments, skewness and kurtosis.

Basic probability theory. Probability distributions: discrete and continuous probability distributions - Binomial, Poisson and Normal distributions. Sampling and sampling distributions.

Decision analysis: statistical inference - estimation and hypothesis testing. Inference about means, standard deviations and proportions. Aggregation and index numbers.

Plan 205: Urban and Regional Economics**2.0 credits; 2 hours/week**

Urban Economics: The economic base of cities; the basic and non-basic concepts; export activities and residentiary activities. City size vs. urban economy. Nature and function of cities. Models of urban growth. Models of intra-urban location decisions. Landuse; housing; transportation; urban poverty, and the urban environment.

Regional economics: Spatial organization of economic activities; regional economy and regional order. Measure and change in regional economic activity; interregional trade and factor movement; regional economic growth.

Plan 208: Communication and Presentation Techniques Studio**3.0 credits; 6 hours/week**

Communication as a process of conveyance; techniques for communicating - reports, meetings, press, educational materials, broadcasting, etc. Mediums of communication. Presentation as a

means of communication. Types of presentation techniques - figures, diagrams, charts, maps, photographic composition, icons. Students will be required to do several presentation exercises to present different planning problems in their studio works.

Plan 204: Social Survey and Analysis.

3.0 credits; 6 hours/week

Purpose of social survey and its implications for planning. Elements of social survey - units, subjects and spatial coverage. Social survey methods. Household survey and questionnaire preparation. Social survey data analysis methods. Students will be required to work on a topic which would involve elements of social survey, i.e., questionnaire design and preparation, coding, data collection and analysis as part of their studio works.

Plan 219: Land Economics

3.0 credits; 3 hours/week

Basic concepts of land economics. Land market. The demand for and supply of land resources. Population pressure and the demand for land. Determination of the requirements of land resources. Economic returns to land resources. The land development process. Locational and institutional factors affecting land use. The value of land and the methods of land valuation.

Land management: Rationale for government intervention. Intervention through land use regulations. Intervention through property taxation and public ownership. Management of land through people's participation.

Plan 241: Traffic and Transportation Study

3.0 credits; 3 hours/week

Elements of transportation system. The land use and transport interaction. Fundamentals of landuse-transport planning. Fundamentals of transport demand and supply analysis. Urban transportation study: defining the study area and the network,

volume study, O-D survey, parking survey, public transport survey, goods traffic survey, employment survey, inventory of physical infrastructure. Characteristics of different modes. Concepts of roadway capacity. Hierarchy of roads. Concept of environmental area; pedestrian traffic. Cross-sectional elements of roadway. Parking. Planning standards for physical facilities. Traffic management.

Plan 293: Quantitative Techniques - II

3.0 credits; 3 hours/week Prerequisite Plan 291

Decision Making: Analysis of variance; Chi-square test. Measurement scales. Nonparametric tests. Simple correlation and linear regression: Least-squares equation, goodness-of-fit criteria, standard errors, significance tests for coefficients. Simple curvilinear regression by variable transformation. Forecasting methods - Time series analysis, causal and probabilistic methods. Population forecasting methods: Arithmetic, geometric, decreasing rate of increase, logistic, ratio and correlation, trend projection and cohort survival.

Plan 201: Human Geography

3.0 credits; 3 hours/week

The spatial analysis of the human population: size and composition, population growth and its components, life expectancy and the life table. Social and economic responses to population growth.

The spatial contexts of decision making - the physical and the human environment. Spatial processes and spatial patterns: Movement and interaction of people, objects and information; networks and nodes - locational implications of communication networks; nodes and their locational arrangements; spatial implications of nodal patterns. The structure of urban and rural land use. The geography of economic development in Bangladesh.

Plan 218: Site and Area Planning Studio**3.0 credits; 6 hours/week**

Studio works related to course Plan 217. Practical and field works relating to site, area and land subdivision planning.

Plan 311: Urban Planning Techniques**3.0 credits; 3 hours/week**

Definition, concept, and scope of urban planning. Urban functions and activities and the major components of urban landuses. Alternative strategies of accommodating new urban growth. Planning tools. The plan making process - approaches to plan-making. Urban planning studies and techniques of analysis: population, employment, housing, shopping, commercial and industrial uses, leisure and recreation. Planning standards for different urban functions and activities. Spatial organisation of landuses. Implementation tools. Development control. Urban planning policy and practice in Bangladesh.

Plan 321: Housing Policy and Management**3.0 credits; 3 hours/week**

The social, economic, political and cultural aspects of housing. Nature of housing problems in Bangladesh. The housing market - demand and supply of housing; affordability levels of different income groups. Typology of housing; housing standards; slum and squatter housing. Financing of housing; mobilization of resources for housing. Housing development and management in both private and public sectors: role of the private formal sector, social programme and public policy for low-income housing. Housing policies in Bangladesh and other developing countries.

Plan 331: Regional Planning Techniques**3.0 credits; 3 hours/week**

Definition and types of regions. Regionalization and the delineation of planning regions. Levels of planning - national, regional, sub-regional and local. Need and scope of regional planning. Regional analysis: regional data base; income measures

and regional social accounting; input-output analysis; industrial structure analysis; interregional trade multiplier analysis. Theories and models of regional growth: Aggregate growth models; industrial location theory; central place theory; growth pole theory; agropolitan growth. Regional growth - convergence or divergence. Regional development policies at home and abroad.

Policy issues: Place prosperity vs. people prosperity; economic development vs. regional growth. Regional distribution of public investment - dispersal vs. concentration; balance vs. imbalance; growth vs. welfare; efficiency vs. equity. Policy instruments.

Plan 301: Public Finance

3.0 credits; 3 hours/week

Meaning and scope of public finance. Principles of public expenditure. Types and principles of taxation. Effects of taxation on production, growth and distribution. Public debt-meaning, types and effects on production and distribution. The public budget-balanced, unbalanced budgets. Deficit financing. Fiscal policies and their impacts upon national/regional development. Bangladesh public finance-national finance-taxation structure, nature and types of taxes. National budget-nature of fiscal policies and regional development. Local finance-revenues and expenditures of Zilla, Thana and Union Councils. Municipal financing in Bangladesh-nature, problems and potentials.

Plan 303: Local Government in Bangladesh

3.0 credits; 3 hours/week

Local government system in Bangladesh. Evolution of local government system. Relations between national and local governments. Structure and composition of local government bodies. Functions of local government bodies. Planning at local level. Local government finance and budgeting. Local resource mobilisation. Personnel system in local government. Scope of people's participation in local government affairs. Major

problems and policy issues related to structural change of the local government system in Bangladesh. Local government system in neighbouring and some advanced countries.

Plan 312: Urban Planning Studio

3.0 credits; 6 hours/week

Case studies in urban studies and planning. Studio works related to course Plan 311 - practical and field works on urban planning.

Plan 392: Computer Applications in Planning

3.0 credits; 6 hours/week

Prerequisite Plan 192

Application of analytical methods to solving problems on planning through the use of programming techniques and application softwares.

Plan 313: Legal Basis of Planning

3.0 credits; 3 hours/week

Legal aspects of planning and its importance. Enabling legislation process. Planning laws in different countries. The Development Plan (structure and local) process and need for legislation. Development control-planning permission, development orders, special forms of control. New town development laws. Compensation and betterment problems. Urban renewal practice. Planning laws in Bangladesh. Pourashava Ordinance, Town Improvement Act, East Bengal Building Construction Act, Building Regulations of RAJUK. Land acquisition and compensation rules and regulations. The meaning of development-the control of development including planning permission, development orders, purchase notice, special forms of control, the enforcement of planning controls, compensation and betterment problems with reference to Bangladesh.

Plan 341: Transportation Policy and Planning**3.0 credits; 3 hours/week**

Transportation system in Bangladesh. The key issues in urban and national transport policy and implementation of transport plans and programmes. Policy options in urban transportation; the role of different modes; cost structure. The transportation planning process at national, regional and urban levels. Local area transportation planning. System modelling and strategy development. Planning of transport infrastructure. Planning for urban public transportation. NMT planning and management. Demand management.

Plan 351: Environmental Planning and Management**3.0 credits; 3 hours/week**

Theories of natural systems. Concepts important to environmental planning. The environmental impacts of human actions. The environmental planning procedures: Defining planning area; inventory of environmental resources; assessment of environmental impacts - impact identification, impact measurement and impact evaluation. Mitigation of environmental impacts: impact prevention measures; impact management measures. Case studies in environmental management.

Plan 323: Neighbourhood Planning and Community Development**3.0 credits; 3 hours/week**

Concept of neighbourhood; the physical, spatial, social, economic, political and cultural aspects of neighbourhood planning; neighbourhood functions, service facilities and their standards; upgrading of service facilities; functional and environmental improvement; spatial organisation.

The issues in community development; problems in urban communities of Bangladesh; community based organisations (CBOs); public participation in community development, community revitalization, service management and economic

development in low-income urban communities especially in the slums and squatter settlements.

Plan 393: Operations Research and Systems Analysis

3.0 credits; 3 hours/week

Introduction to operations research. Techniques for analysing interconnected policy decision areas. Optimization techniques in the decision making process; elements of mathematical programming: linear programming, graph theory, network analysis; fundamentals of simulation techniques, queuing theory. Systems approach in planning.

Plan 332: Regional Planning Studio

3.0 credits; 6 hours/week

Individual or group projects involving application of planning techniques for analyzing problems related to regional development planning.

Plan 342: Transportation Planning Workshop

3.0 credits; 6 hours/week

Case studies in transportation studies and planning. Workshops on local area transport planning, vehicular and pedestrian circulation plan for residential area, shopping complex, precinct, and other practical and field works related to courses Plan 241 and 341.

Plan 401: Project Evaluation and Management

3.0 credits; 3 hours/week

Project cycle. Concepts of evaluation: the efficiency versus equity criteria, economic versus financial evaluation; methods of evaluation; the welfare basis of social evaluation: consumers surplus, producers surplus, Pareto optimality, transfer payments, intangible items, shadow pricing, externalities, equity problem; concept of social cost benefit analysis; time value of money; discounting technique; choice of discount rate and social time preference; investment criteria; basic concepts of financial

accounting; dealing with risk and uncertainty. Introduction to other techniques of evaluation. Appraisal requirements by national and international financing agencies. Concept of project management, introduction to different management techniques.

Plan 431: Rural Development Planning

3.0 credits; 3 hours/week

Distinction between urban and rural areas. Analysis of rural settlement patterns. Social and cultural characteristics of rural communities. Meaning of rural development. The concept, nature and scope of integrated rural development. Integration of functional and spatial aspects in the context of rural development. Planning procedures for integrated rural development.

Resources for rural development - land, water, human, forest, livestock etc. Policies for rural resources development. Rural industrialization and rural centre planning. Rural development programmes in Bangladesh - past and present. Governmental and non-governmental organizations involved in rural development activities. Problems and issues in local level rural planning in Bangladesh.

Plan 461: GIS and Remote Sensing

3.0 credits; 3 hours/week

Meaning of GIS and its application in planning. Essential elements of GIS. Data structures-raster data structures, vector data structures. Data acquisition-existing data sets, developing new data sets. Data management. Data manipulation and analysis. Remote sensing and image analysis - processing of remotely sensed digital data. Integration of remote sensing with GIS. Applications of GIS in planning.

Plan 417: Planning of Recreational Facilities

3.0 credits; 3 hours/week

Key concepts in recreation planning. Recreation needs and resources. Functions and classification of open space, parks, and

recreation areas. Analyses of demand, supply and use pattern. Parks and open space standards - approaches to developing standards. Selection of sites. The recreation space master plan and its components. Implementation strategies.

Plan 433: Agricultural Development Planning

3.0 credits; 3 hours/week

Nature and patterns of agriculture. Determinants of agricultural patterns: Physical determinants - the climate, terrain, soil and water; non-physical determinants - technological, demographic, cultural, infrastructural. Regionalization of agricultural patterns: concepts and methods. Field studies and surveys in agriculture: Land use survey, land capability survey, soil appraisal in terms of actual and potential productivity, and land classification.

Agricultural production principles. Analysis of production costs, supply and demand. farm price determination. Farm price and income problems and related policy issues. Role of capital and technology in agriculture. Farm management. Agricultural credit.

Plan 412: Participatory Local Level Planning Workshop

2.0 credits; 4 hours/week

Local level planning and its importance. Contexts of local level planning. Approaches to local level planning. Guidelines for local level planning. People's participation in planning-meaning and types of participation. Approaches to participation-organizational and functional. Problems of participation.

Group projects involving application of participatory approach to planning for the preparation of local level plans.

Plan 462: GIS Studio

3.0 credits; 6 hours/week

Students will be required to undertake individual or group projects to analyze planning problems with the help of GIS techniques.

Plan 400: Project/Thesis**6.0 credits; 6 hours/week/term (for 2 terms)**

Major individual studies on real world topics related to planning, development, implementation or policy issues. The objective is to develop initiative, self reliance, creative ability and some planning experience for the students. The outcomes of the study must be submitted in a comprehensive report following a standard format of presentation acceptable to the Department along with appropriate drawings, maps, charts, etc.

Plan 413: Urban Management**3.0 credits; 3 hours/week**

Important factors influencing urban management. Organizations for urban management: Forms of organizations; principles, tools and methods of management. Functions of urban management organizations: Service functions, regulatory functions, urban planning and development, staff management, financial administration, public relations, and intergovernmental relations. Community participation in urban management.

Urban management in Bangladesh: Types of urban management organizations-local government, urban development agencies, national sectoral agencies, special sectoral agencies. Nature, composition, powers and functions of each type of organization. Inter-agency relationships. Administration and development of municipal functions: Types of functions, problems of planning, administration and development, and future directions. Urban growth management-approaches and techniques. Problems of municipal finance.

Plan 405: Development Planning**3.0 credits; 3 hours/week**

The nature of development planning. The rationale for planning in developing economies. Phases of development plan - the macrophase (national), the middle phase (regional), and the

microphase (microregional). Aims, objectives and procedures of planning at different phases. Relationships among the macro, middle and the microphase.

Formulation of development plans: Use of models in planning - aggregate models, sector models, and inter-sectoral models. Important considerations in choosing particular models. Some problems of development planning: The concept of capital-output ratio; the choice of technique; investment criteria.

Development planning in Bangladesh: Organizations involved in national, regional and local level planning. Types of national plans. The process of approval of plans. Processing of development projects and the use of standard proforma. Political factors in development planning in Bangladesh. Assessment of development plans of Bangladesh.

Plan 407: Planning Information System

3.0 credits; 3 hours/week

Meaning of information and its importance in planning. Spatial and aspatial information. Data base development and framework for data base management. Computerization-data generation and gathering, technological and human elements. Using data for information and intelligence. Intelligence indicators. Problems and potentials. Interfacing spatial and aspatial information through GIS.

Land Information System: Development of national and urban land information systems, applications in urban management and planning.

Plan 415: Planning of Utility and Municipal Services

3.0 credits; 3 hours/week

The systematic approach to planning of basic utility services in urban areas: water supply, sewerage, surface drainage, electric supply, gas, telephone. Planning of utility services for very low-

income urban settlements: need, affordability, level of standard, public policy, delivery mechanisms, management and maintenance. Community participation in management of the utility services. Planning and management of public convenience facilities. Management of urban solid waste. Financing and pricing of services. Rural water supply and low-cost sanitation.

Plan 419: Land Development and Management

3.0 credits; 3 hours/week

Land management in Bangladesh: land records, transfer, taxation, legal aspects. Urban and rural land policies in Bangladesh and other neighbouring countries. Urban land development techniques: land bank, excess condemnation, guided land development, land readjustment. Land subdivision. Land market in Bangladesh. Land Information System (LIS): essential elements, planning and designing an LIS, data acquisition, data management, data manipulation and analysis, applications for planning, development control and management purposes.

Plan 453: Environmental and Resource Economics

3.0 credits; 3 hours/week

An introduction to welfare economics examining basic concepts including consumer surplus, Pareto optimality, externalities and the welfare of future generations. Alternative economic approaches to pollution and congestion control, costing, the role of taxes and subsidies, the sale of pollution rights, the use of environmental standards and pollution control technology. Cost effectiveness analysis. Basic concepts of social cost-benefit analysis. Economic theories relating to resource depletion and conservation.

Plan 471: Natural Hazards and Disaster Management

3.0 credits; 3 hours/week

Meaning of hazard and disaster. Types of hazards. Assessment of hazards: location, intensity, frequency, areal extent, movement, timing, duration etc. Vulnerability analysis. Risk assessment:

delineation of planning area, identification of structures and functions, mapping of risks. Analysis of disaster-related behaviour patterns: people's awareness, perception, and understanding of hazard threats and their response to danger.

Disaster management planning: basic issues. Phases of disaster planning - mitigation or prevention, preparedness, response and recovery. General and specific criteria governing steps in each phase. Links between development planning and disaster management planning. Social considerations and people's participation in disaster management planning. Institutional framework for disaster management.

Plan 402: Project Planning Studio

3.0 credits; 6 hours/week

Case studies in project evaluation. Project formulation practices and approval procedure in Bangladesh. Preparation of project documents: PPs and TAPPs; workshops related to course Plan 401.

Plan 432: Rural Planning Studio

3.0 credits; 6 hours/week

Individual or group projects involving application of planning techniques for analyzing problems related to rural development planning.

COURSES FROM HUMANITIES DEPARTMENT

Hum 171: Micro-Economics

3.0 credits; 3 hours/week

Introduction: Definition of Economics, concept of micro-economics. Utility, Demand and Supply Analysis: elasticity of demand and supply, consumer's surplus. Indifference Curve Analysis: Price line, consumer's equilibrium, marginal analysis. Theory of Production: Law of returns, rational region of production, profit maximisation, small scale production and large scale production, optimisation. Cost Analysis and Cost Curve: Short-run and long-run, fixed cost and variable cost. Concept of market and market structure: Classification of markets. Theory of Distribution: Marginal productivity theory, equity in income distribution.

Hum 173: English

3.0 credits; 3 hours/week

English Grammar: Structure of sentences; Problems with different parts of speeches with special reference to verbs. Miscellaneous errors in usage. Comprehension. Paragraph writing. Applications. Amplification. Precis writing. Report writing. Commercial correspondence. Writing to News papers, magazines and T.V.

Hum 181: Government

3.0 credits; 3 hours/week

Government, state and society. Functions of the state. Forms of government, constitution, political parties and public opinion. The political systems of U.K., U.S.A. and Bangladesh. Urban and rural power structure in Bangladesh. Centre-Periphery relationship. Administration - geopolitics and governance.

Constitution of Bangladesh. Fundamental principles of state policy and its relation with National Development Plans, Sectoral

Development Programmes, Development Projects (PCP, PP, TAPP).

Development Planning Institutions of Bangladesh - Planning Commission, NEC, ECNEC, Ministry, Agency, Project Authority, IMED, Auditing.

Hum 177: Macro-Economics

3.0 credits; 3 hours/week

Introduction: The concept of macro-economics, savings, investment and employment, national income. Theory of Employment: Classical and modern theory of employment. Inflation: Concept of inflation, measures for controlling inflation. Determinants of income and employment: consumption function. Investment function: Types of investment, marginal efficiency of capital. Unemployment and full employment: types of unemployment, unemployment and inflation. Multiplier and Accelerator. Money and Interest: The demand for money - supply of money - alternative theories of demand for money.

Hum 179: Sociology

3.0 credits; 3 hours/week

Scope. Some basic Concepts. Social Evolution and Technique of Production. Culture and Civilization. Social Structure of Bangladesh. Population and Resources. Oriental and Occidental Societies. Industrial

Revolution. Family - urbanization and industrialization. Urban Ecology. Rural Sociology. Sociology of Development and Underdevelopment. Socialisation: Process of social learning; Socialisation and family structure.

Hum 271: Social Psychology

2.0 credits; 2 hours/week

Introduction to Social Psychology. The Nature of Social Psychology. Social factors in perceptual cognitive processes:

Social perception; person perception. Social attitudes: The nature of attitude; the formation of attitude; the change of attitude. Process of social learning; Socialisation and family structure. Emerging norms and conformity. Leadership.

Youths and drugs: youths in Bangladesh; Sources of frustration among youths, drugs as a menace to the society and individuals.

Hum 273: Accounting

3.0 credits; 3 hours/week

Introduction to Accounting; Elements of Accounting; Accounting Equation; Principles of Accounting; Basis of Accounting; Procedure of Accounting; Double Entry Mechanism; Finalisation of Accounts - entries for provisions and reserves-provision for depreciation and bad debts; Cash Book: Different kinds of cash books; Banking Transaction; Cost; Volume; Profit analysis and Break-even point.

Taxation and fiscal structure in Bangladesh: types of taxes; income tax - its significance to the national economy; investment tax credit and tax rebate, corporate tax, tax holiday for industrial undertaking, VAT, customs duty.

COURSES FROM ARCHITECTURE DEPARTMENT

Arch 106: Basic Design

3.0 credits; 6 hours/week

Forms in nature, their understanding and evolution; two dimensional composition, points, straight lines and curves, and geometric shapes; understanding and use of composition elements like balance, proportion, scale, harmony, movement, etc.

Arch 116: Graphics for Planners

3.0 credits; 6 hours/week

Lettering; mechanical and freehand drawings; use of scale and instruments; sectional and isometric views of solid geometric figures: plan, elevation, and section.

One and two point perspectives; shade and shadow of different projection drawings.

Arch 145: Elements of Architecture

2.0 credits; 2 hours/week

Introduction to Architecture and Architectural Design. Elements of composition: balance, scale, proportion, etc. Understanding of different architectural historical periods: Ancient, Classical, Roman, Gothic Renaissance, Baroque, Rococo. Different art movements and their impact. The cultural history of human development in different regions of the world as depicted in architecture. Environmental and regional influences on architecture. Trend of architecture in Bangladesh.

Arch 226: Landscape Planning Studio

3.0 credits; 6 hours/week

Application of design and planning principles and techniques of landscape developments. Site analysis and study of landscape elements. Application of landscape conservation principles and strategies on regional level development process.

Arch 233: Landscape Planning and Design**2.0 credits; 2 hours/week**

Introduction to landscape planning and its scope. Historical references landscape planning and design. Basic design methods and approaches. Ecological systems and climatic elements. Landscape conservation in macro and regional level. Landscape planning in urban scale for residential, recreational and commercial environments. Site development objectives and design principles. Plantation and plantation design.

Arch 355: Urban Design**3.0 credits; 3 hours/week**

Historical overview of urban design - from tree dwelling to Renaissance. Definition of urban design, its aims and objectives. Elements of design - unity and space, proportion and scale, balance, uniformity and contrast, etc. and their application in urban design. Urban aesthetics. Urban spaces and their types and perception. City planning and design according to artistic principles, approaches and levels of analysis.

COURSES FROM CIVIL ENGINEERING DEPARTMENT

CE 209 : Construction Materials

2.0 credits; 2 hours/week

Types, preparation, properties and uses of materials - such as stone, brick, cement, sand, concrete, timber, soil, ferrous and non-ferrous metals and plastics. Specifications and quality control.

CE 327: Elements of Solid Mechanics

3.0 credits; 3 hours/week

Force, resultant and components, moments and parallel coplanar forces, centroids, moment of inertia. Fundamental concepts of stress and strain.

Mechanical properties of materials: stress and strain in members subject to tensile, compressive and shear forces; bending moment and shear force diagrams for statically determinate structures.

CE 329 : Elements of Civil Engineering Structures

3.0 credits; 3 hours/week

Prerequisite CE 327

Structural forms and systems for buildings, bridges, communication and transmission structures; loads on structures; types of foundation, concept of bearing capacity and settlement.

Introduction to design in reinforced and prestressed concrete; design codes.

CE 439 : Basic Environmental Engineering**3.0 credits; 3 hours/week**

Water Supply: objectives and basic elements of water supply system; water requirements; water requirements; population prediction and water demand assessment; fire demand; planning of water supply systems - sources, abstraction, transmission, treatment and distribution.

Sanitation: urban and rural sanitation; low-cost sanitation technologies; elements of a conventional water borne system - collection, transportation, treatment and disposal; planning of sanitation systems.

Environmental pollution - air, water and soil, and noise pollution.

COURSES FROM MATHEMATICS DEPARTMENT

Math 101: Mathematics - I

2.0 credits; 2 hours/week

Algebra and Geometry:

Algebra in system description. Graphs and Coordinate Geometry; linear equations, interpretation of linear inequalities, graphical solution of equations. Functions; definition, implicit and inverse functions, the standard functions, the power function, the logarithmic function, the exponential function, trigonometric function, polynomial and rational functions, the hyperbolic function, the logistic function.

Matrix Algebra

Definition of a matrix, algebra of matrices, multiplication of matrices, transpose of a matrix and inverse of matrix, rank and elementary transformation of matrices, solution of linear equations.

Math 102: Mathematics - II

2.0 credits; 2 hours/week

Differential Calculus:

Limit, continuity and differentiability, successive differentiation, maxima and minima of functions of single variable.

Integral calculus:

Integration by substitution and by parts, standard integrals, definite integrals, area under plane curves.

Differential Equation:

Solution of 1st order differential equation by various methods, solutions of general linear equations of 2nd and higher order.

COURSE FROM CHEMISTRY DEPARTMENT**Chem 207: Basic Environmental Chemistry****3.0 Credits; 3 hours/week**

Introduction to environmental science and its scope.

Radioactivity and radioactive particles; atomic structure. The periodic table; chemical bonds; acids and bases; concentration of solutions.

Organic Compounds, organic families and functional groups. Introduction to polymers.

Environment, environmental segments, lithosphere, hydrosphere, biosphere and atmosphere. Composition of atmosphere. Chemical species and particulates present in earth. Industrial hazards, air and water pollutants. Sources and different kinds of pollutants. Toxicity of pollutants. Discussion on the properties of water and waste water. Characteristics of waste water, concepts and measurement of DO, BOD, COD, etc. Transformation processes of pollutants.

POSTGRADUATE

Rules relating to conduct of examinations for postgraduate courses in M.Sc. Engg. M. Arch. M. URP, M.Phil, and Ph.D.

Conduct of
Examination

i) For Masters and M.Phil degrees:

For all postgraduate degrees in Engineering, Architecture, Urban & Regional Planning and Physics and Chemistry, in addition to test, assignments and/or examinations during the semester as may be given by the teacher (s) concerned, there shall be a written examination and/or other test for each of the subjects offered in a semester at the end of that semester. The dates of which shall be announced by the Daen of the respective faculties at least two weeks before the commencement of the examination. The final grade in a subject shall be based on the performance in all test, assignments and/or examinations.

Final grades for courses shall be recorded as follows:

Grading System

Grade Merit description	Grade points	Numerical markings
A ⁺ Excellent	4.0	90% and above
A Very good	3.5	80% to below 90%
B ⁺ Good	3.0	70% to below 80%
B Average	2.5	60% to below 70%
C Pass	2.0	50% to below 60%
F* Failure	-	below 50%
I** Incomplete	-	-
S or U Satisfactory or Unsatisfactory (for non-credit course)	-	-
W Withdrawn from course	-	-

* Subject in which the student gets F grades shall not be counted towards credit hour requirements and for the calculation of Grade Point Average (G.P.A.).

** Given only when a student is unable to complete the course because of circumstances beyond his control, it must be made up by the close of next two semesters or the incomplete grade becomes a failure. He may, however, be allowed to register without further payment of tuition fees for that course.

Qualifying Requirements

The qualifying requirement for graduation is that a student must earn the minimum grade point of

2.65 based on the weighted averaged in his course work.

The C grades, upto a maximum of two subjects may be ignored for calculation of grade point average (GPA) at the written request of the student, provided the student has completed the total credit hour requirement with a minimum weighted GPA of 2.65 in the remaining subjects. No subject shall be repeated unless it is a compulsory requirement for the degree as determined by the Board of Postgraduate Studies. Performance in all the subjects shall be reflected in the transcript.

If the cumulative number of F grades obtained by the students is three or more he shall not be allowed to continue in the programme.

If at the end of the second or any subsequent semesters, the cumulative GPA falls below 2.5 (considering all grades including F grades), he shall not be allowed to continue in the programme.

Thesis/Project

In addition to successful completion of course works every student shall submit a thesis/project on his research work,

fulfilling the requirements as detailed below.

Every candidate submitting a thesis/project in partial fulfillment of the requirements of a degree, shall be required to appear at an oral examination, on a date or dates fixed by the Head of the department and must satisfy the examiners that he is capable of intelligently applying the results of this research to the solution of problems, of undertaking independent work, and also afford evidence of satisfactory knowledge related to the theory and technique used in his research work.

(ii) For Ph.D. degree.

Conduct of
Examination

As in (i) above for Masters and M.Phil degrees.

Qualifying
Requirements

To qualify for the degree a student must earn a minimum grade of 2.65 based on the weighted average in his course work.

Comprehensive
Examination

The date and time of the comprehensive examination shall be fixed by the Doctoral Committee on the request of the supervisor. Comprehensive Examination shall ordinarily be

held after the completion of the course work by the student.

The comprehensive examination shall comprise a written examination and/or an oral examination to test the knowledge of the student in his field of study. The Doctoral Committee shall conduct the comprehensive examination. If a student fails to qualify in a comprehensive examination he shall be given one more chance to appear in the examination as scheduled by the Doctoral Committee.

Research work for a thesis shall be carried out in this University or at a place(s) approved by the doctoral committee in consultation with the supervisor.

Thesis

At the end of the student's research work the student shall submit a thesis which must be an original contribution to engineering/sciences and worthy of publication. At least five type written copies of the thesis in the final form must be submitted to the Head of the department through the supervisor in the approved format.

In case a student fails to satisfy the Board of Examiners in thesis and/or oral examination, the student shall be given one more chance to resubmit the thesis and/or appear in oral examination as recommended by the Board.

A student who has been transferred to the Ph.D Programme from the M.Sc. Engg/M.Phil. programme may be awarded an M.Sc. Engg/M. Phil. degree on recommendation of the supervisor, if the student fails to qualify for the award of the Ph.D. Degree.

POST-GRADUATE PROGRAMME

The three numbers in the last column are (a) lecture hour per week (b) studio or sessional hours per week and (c) number of credits respectively.

COURSE NO	SUBJECT TITLE	HOURS PER WEEK & CREDIT
Plan 6000	Thesis	18 credits
Plan 6001	Human Settlement and Land Economics	(2-0-2)
Plan 6002	Economics for Planners	(2-0-2)
Plan 6003	Planning process and Theories	(2-0-2)
Plan 6004	Urban Planning -I	(2-0-2)
Plan 6005	Rural Development Planning-I	(2-0-2)
Plan 6006	Regional Planning	(2-0-2)
Plan 6007	Quantitative Techniques in Planning Analysis - I	(2-0-2)
Plan 6008	Transportation Planning	(2-0-2)
Plan 6009	Housing and Community development	(2-0-2)
Plan 6010	Planning Administration Implementation and Management Process - I	(2-0-2)
Plan 6011	Project Evaluation and Management techniques	(1-3-2)
Plan 6012	Seminar on Special Problems in Planning and development - I	(2-0-2)
Plan 6501	Graphic Representation and Surveying Techniques (Non credit prerequisite courses)	
Plan 6020	Project	(6 credits)
Division - I: Urban Planning and Housing		
Plan 6101	Urban Planning - II	(2-0-2)

Plan 6102	Urban Design	(2-0-2)
Plan 6103	Housing and Site Planning	(2-0-2)
Plan 6104	Physical Infrastructure Planning (Urban & Rural)	(2-0-2)
Plan 6105	Planning Administration implementation and Management Process II	(2-0-2)
Plan 6106	Low-Income Housing and Settlement	(2-0-2)
Plan 6108	System Analysis in Urban and Regional Planning	(2-0-2)
Plan 6109	Quantitative Technique in Planning Analysis II	(0-6-2)
Plan 6110	Special Studies	(2-0-2)
Plan 6113	Studio: Urban Planning Technique	(0-6-2)
Plan 6114	Studio : Housing and Area Planning	(0-6-2)
Division -II: Regional and Rural Planning		
Plan 6120	Regional Development Planning and Resource Use	(2-0-2)
Plan 6121	Rural Development Planning II	(2-0-2)
Plan 6122	Economics of Population Growth	(2-0-2)
Plan 6123	Studio: Regional Planning Technique	(0-6-2)
Plan 6124	Studio: Rural Planning Technique	(0-6-2)
Division -III: Development Planning		
Plan 6130	Urban and Regional Economics	(2-0-2)
Plan 6131	Public Finance in Underdeveloped Countries	(2-0-2)
Plan 6132	Rural/Agricultural Development	(2-0-2)
Plan 6133	Agriculture in Economic Development	(2-0-2)
Plan 6134	Economic Development	(2-0-2)

Plan 6000 : Thesis 18 credits

Independent study supplemented by frequent conferences with staff members.

Plan 6001: Human Settlement & Land Economics (2-0-2)

Factors determining the nature, form and character of human settlements in different historical periods. Human ecological process. Basic concepts and theories of Urban ecology; ecology and changing spatial pattern, theories of urban growth, structure and land use pattern. The rural urban fringe. The size, distribution, spacing and historical orders of urban settlements. Economics of urbanization.

Space and the context of land and land economics; components of urban and rural land use; physical, economic and institutional characteristics of urban land. Urban land-income, value and price. Determinants of urban land value and use. Imperfections in urban land market and planning policies. Rural land use market, pricing and use.

Plan 6002 : Economics for Planners (2-0-2)

Concern of economics, e.g. resources and wants, economics for planners, the need, nature and type of economic analysis viz., market mechanism, micro vs macro economics. Theory of consumer's demand. Theory of production, scale of production, internal/external economies/diseconomies, production function, returns to scale, efficiency of resource allocation and product pricing under different market situations. Nature of cost and cost curves. Theory of distribution, e.g. rent for land, wages for labour, interest for capital and profit. Macro-economics, national income, theory of income and employment. Welfare economics, economics of environment externality; international trade, public finance, budget, and municipal finance.

Plan 6003 : Planning Process and Theories (2-0-2)

Fundamental aspects of planning as a general human endeavour - planning as a subject of study and as professional activity; considerations of the need for planning and possible scope of planning activity; The role of urban and regional planning and its relationship with the general theory and process of planning; Urban and regional planning at the local and strategic levels; Practical limitations and typical practice dilemmas, their causes and possible resolutions; Gradual development of ideas and concepts towards a standard body of planning knowledge and doctrine.

Contemporary conceptions, methods and technique use in plan preparation, policy formulation and implementation in view of the requirements of planning as a continuous process; The plan making process; planning process and Decision Theory.

Plan 6004 : Urban Planning -I (2-0-2)

The shape, size and spatial structure of cities and towns. Component of urban land uses, residential, commercial, industrial recreational, institutional, urban periphery and circulation system, spatial organisation of residential, commercial industrial and recreational areas, planning and design considerations for development and redevelopment of Town centre, Neighborhood, open space and Industrial Estates.

Plan 6005: Rural Development Planning-I (2-0-2)

The meaning of rural development. Rural development and structural transformation-theory. The rural development in the Fifties-in Indian subcontinent: Bangladesh, India, Nepal. Srilanka. The rural development programs and projects in Sixties and seventies-including international experiences. Rural development in Bangladesh context: co-operatives

Comilla Model, Gram Sarker, Shownivar Movement etc. The role of planning Commission, Ministry of LGRD, IRDP, BADC, Jatiya Samabaya Bank, International Agencies. Development of rural infrastructure, institutions and services. Development of rural communities. Process of rural planning-issues and strategies.

Plan 6006 : Regional Planning (2-0-2)

Definition of region and regionalism. The nature of regions. The factors determining a region. The influence of natural and cultural elements. on regional development; climate, topographical and geographical conditions, population, land use, agriculture, industry, power and transportation, resource and soil conditions, City and region; urban and rural settlements; trends and characteristics of development. Regional economy and regional order. Economic Development vs. regional growth. Regional distribution of public investment - dispersal vs. concentration; balance vs. imbalance; growth vs. welfare. Examination of resource endowment and regional growth. Export activities and residentiary activities. The economic base of cities; the basic and non-basic concept.

Plan 6007 : Quantitative Techniques in Planning Analysis - I (2-0-2)

Statistical data collection; presentation of data: Measures of central tendency and dispersion; Graphical representation of statistical facts: Elementary Probability; Probability density function and distribution. The Binomial Distribution. The Normal Distribution, The Chi-Square Distribution, Student's Distribution; Elements of sampling theory: Statistical Decision theory for large and small samples: Simple linear regression and correlation: Population project; Forecasting Techniques.

Introduction to multivariate analysis; Introduction to digital computation Fortran programming; Introduction of packages for planning analysis.

Plan 6008 : Transportation Planning (2-0-2)

Functional requirement and interrelationship of all means for the movement of people and goods as they affect the physical pattern of the community Characteristics of the different modes of transportation---road, rail, water and air; choice of mode of transportation; Modes of transportation in Bangladesh and scope of their future development; The problems of public transportation at national, regional and local levels (in Bangladesh) and considerations for their development; The transport planning process at urban and national level; Roadway capacity; Traffic management techniques;

Plan 6009 : Housing & Community Development (2-0-2)

Definition of housing, - its influence on man, society and environment. Factors influencing housing situation. Evaluation of housing problems. General problems of housing in Bangladesh, - specific problems of private enterprise, government and consumer; evaluation of social, economic, design, administrative and political problems. Housing policies in developed and developing countries, --- policy goals, policy methods, strategies and policy instruments. Housing standards, house ownership, land values, taxation on house procreate. Finance for housing, --- financing problems, sources of finance, mobilisation of resource for housing. The role of housing in promoting social integration; social programming of housing in urban areas.

Plan 6010 : Planning Administration, Implementation and Management Process - I (2-0-2)

The organization and function of planning agencies at different levels of Government. The complex questions of inter-sectoral co-ordination both in planning and implementation. Aspects of implementation and institutional capability, - legal, financial, manpower and other. Legal aspects of planning.

Plan 6011: Project Evaluation and Management techniques (1-3-2)

Preparation of projects; Purpose of Project evaluation, Economic versus Financial evaluation; Private versus social costs and benefits, - concept of cost-benefit Analysis; Problems of identification, categorisation, quantification and evaluation of costs and benefits; The welfare basis of cost-benefit Analysis; Consumers surplus, Producers surplus, Pareto criterion, transfer payments, shadow pricing, equity problem, Basis of project selection-Financial criteria, Discounter Cash Flow Techniques. Choice of discount rate and social time preference; selection criteria; ranking rules, deferment criteria, Dealing with risk and uncertainty; Treatment of income distribution and inequalities; Workshop on project evaluation. Introduction to Critical Path Analysis Techniques.

Plan 6012 : Seminar on Special Problems in Planning and Development - I (2-0-2)

Plan 6020 : Project (6 credits)

Individual student will select a problem on a particular aspect of urban and regional planning.

Plan 6101 : Urban Planning - II**(2-0-2)**

Hierarchy of urban circulation system; concept of environmental areas and planning of environmental areas free from traffic nuisance. The urban renewal process; methods of urban renewal and central area redevelopment, planning of industrial estates, townships, satellite town, new town and town expansion. Theories dealing with current planning problems, - problems characteristics of the large city including traffic, transportation, redevelopment, recreation and problem arising in sub-urban areas adjacent to cities and arterial highways.

Plan 6102 : Aesthetic Component & Urban Design (2-0-2)

The role of plan organisation; spatial relations, symbol, scale, view, movement, panorama, light, colour, shade and details; composition, scale proportion, harmony and contrast in the creation of urban space, building groups and building facades.

Principles and techniques for the design of the city environment, with special attention to its perceptual form, Development of the form of urban environment, ---influence of utopian and ideal concepts. The relation between city form and community objectives, the visual plan as part of the total planning process. Basic design principles of space, and circulation applied to the physical pattern of cities.

Plan 6103 : Housing and Site Planning**(2-0-2)**

Cost components of housing; potential areas for housing cost reduction. Housing density, - building height and land saving relationship. Basics of housing management. Estimating housing needs. Principles of housing design and layout. Building codes; building regulations. Problems emphasizing physical development of specific sites involving population

densities, public utilities, traffic, building grouping, land use, circulation planning and site engineering.

Plan 6104 : Physical Infrastructure Planning (Urban & Rural) (2-0-2)

The systematic approach to planning of basic utilities, water systems, sewerage and land drainage, and roads. The urban and regional road pattern; The various types of road and structures, - their alignment, width, gradient, construction and layout. Road capacities; The planning & design of road and road junctions; Derivation of design standards from traffic considerations, parking standards, systems, policies and control.

Rural and urban water supply sewerage disposal and land drainage, other utilities such as electricity, gas and their relationship with general development.

Plan 6105 : Planning Administration, Implementation and Management Process II (2-0-2)

Enabling legislation; Eminent Domain; Police Power, Planning administration and laws in U.K. and other advanced countries. Development plans. The meaning of development. The control of development including planning permission, development orders, special forms of control. The enforcement of planning controls. Purchase notices. New towns development. Compensation and betterment problems including compensations for restriction on urban development and urban renewal practice.

Plan 6106 : Low-Income Housing and Settlement (2-0-2)

Structure and functional analysis of low-income settlement. The basic problem factors of Low-income housing. Limitation of current development policies. Myths of high rise. Low

income housing policy. The sites and services scheme, - its planning, design and implications.

Plan 6108 : System Analysis in Urban and Regional Planning (2-0-2)

Introduction to system approach; society as a system; Urban, Rural and Regional system; Need for systems analysis in Planning; Planning goal and systems structure; The systemic planning process. Planning in the control of complex systems; system simulation - modeling; system guidance, control, and review.

Plan 6109 : Quantitative Technique in Planning Analysis II (0-6-2)

Demographic rate and ratio: population theories and projection and census study. Sampling Techniques; Random and stratified sampling. Estimation of mean, proportion, their standard errors. Urban and Rural Demographic pattern in Bangladesh. General ideas about different stages of survey operation. Extraction of data from different official records and publications; preparation of forms for recording data. Acquaintance with contents of important statistical publications of Bangladesh and of the United Nations. Introduction to different types of mathematical curves and areas under curves in Cartesian and polar co-ordinates.

Plan 6110 : Special Studies (2-0-2)

Individual studies on special topics related to the area of specialisation.

Plan 6113 : Studio: Urban Planning Technique (0-6-2)

Survey, analysis and design methods and practices in comprehensive Planning; Land use, circulation and other components of the city or metropolitan General Plan;

relationship of planning to implementation techniques, zoning, urban renewal etc.

Plan 6114 : Studio : Housing and Area Planning (0-6-2)

Practical application of theoretical principles for the development of housing projects. Problems emphasizing physical development of specific sites involving population densities, public utilities, street patterns, building grouping, land use, site engineering, architectural forms, gardening and landscaping. Problems dealing with neighborhood structure, community facilities and urban renewal.

Plan 6120 : Regional Development Planning and Resource Use (2-0-2)

Theories and principles of the resource use and their limitation in regional development. Human and non-human resources. Movable and immovable resources. Changes in the concept of resources and their uses. Problems of resource allocation and efficient distribution of activities. Review of resource use policy in the U.S.A., U.K. and some developing countries with special emphasis on Bangladesh.

Plan 6121 : Rural Development Planning II (2-0-2)

Part-I: Political Economy of Rural Development : The political system as they relate to the development planning of rural areas, special attention will be paid to political constraints. Will explore the purpose and methods of introducing change.

Part-II : Decision Making for Rural Economic Development

Emphasis on the application of decision making technique to the evaluation of alternative investment projects and the design of broad sectoral policies. Discussion on the theory of

cost benefit analysis, project appraisal and related decision making tools; primary focus on a series of case studies which will require students to derive necessary parameters from a body of data representative of Bangladesh context which allow for the evaluation of investment opportunities.

Plan 6122 : Economics of Population Growth (2-0-2)

Economic approach to population policy. Emphasis on effects of population growth on problems of underdeveloped countries. The welfare economics of population growth and economic variables (e.g. population growth and consumption, savings, investment, employment and economic growth and its distributive effect). Population growth and urbanization. The concept of urbanization and its process of development. Rural urban problem of migration and settlement management.

Plan 6123 : Studio : Regional Planning Techniques (0-6-2)

Group projects regarding the planning of the region. Work will include field research, design analysis, and presentation of workable recommendation as to appropriate objectives and actions for solutions.

Plan 6124 : Studio: Rural Planning Technique (0-6-2)

Practical application of theoretical principles for the development of rural communities. Planning and development of urban villages.

Plan 6130 : Urban and Regional Economics (2-0-2)

Use of tool of urban and regional economics to analyze a number of urban problems, including housing, transportation, poverty and public finance, Determinants of regional and metropolitan growth, theories of urban spatial structure, and the location of firms and households within urban areas.

Plan 6131: Public Finance in Underdeveloped Countries
(2-0-2)

The role of public sector in developing countries, with emphasis on resource allocation, income redistribution, capital formation, and the control of inflation. Analysis of means of financing economic development, including capital imports, domestic saving, inflation, deficit financing and taxation.

Plan 6132 : Rural/Agricultural Development (2-0-2)

Rural development and structural transformation: Theory and critical review of theoretical approaches to the role of agriculture in the development process. Process of rural planning: Issues and strategies: Agriculture modernization and the rural poor, industrial growth, Rural growth linkages, Planning and strategy for growth.

Plan 6133 : Agriculture in Economic Development (2-0-2)

The Course will present a framework for evaluating rural and agriculture development strategies within the context of national development goals.

Will examine sources of agricultural productivity, with particular attention to resource allocation of farms and within technology development institutions and other agricultural services. Will explore the roles, farm size, land reform, and price policy, as well as the process of technology adoption by peasant and non-peasant farms. Concludes with an evaluation of various agricultural strategies and policies with respect to development policy goals.

Plan 6134 : Economic Development**(2-0-2)**

Continuation of Economic Development-I, with special emphasis on some of the major policy issues facing today's less developed nations, - saving, aid, and foreign investment, the role of entrepreneurship, role of multi-nation firms and technical change; the efficiency and location of investment; the role of government planning and private enterprise; economic growth and the distribution of income, wealth and political power.

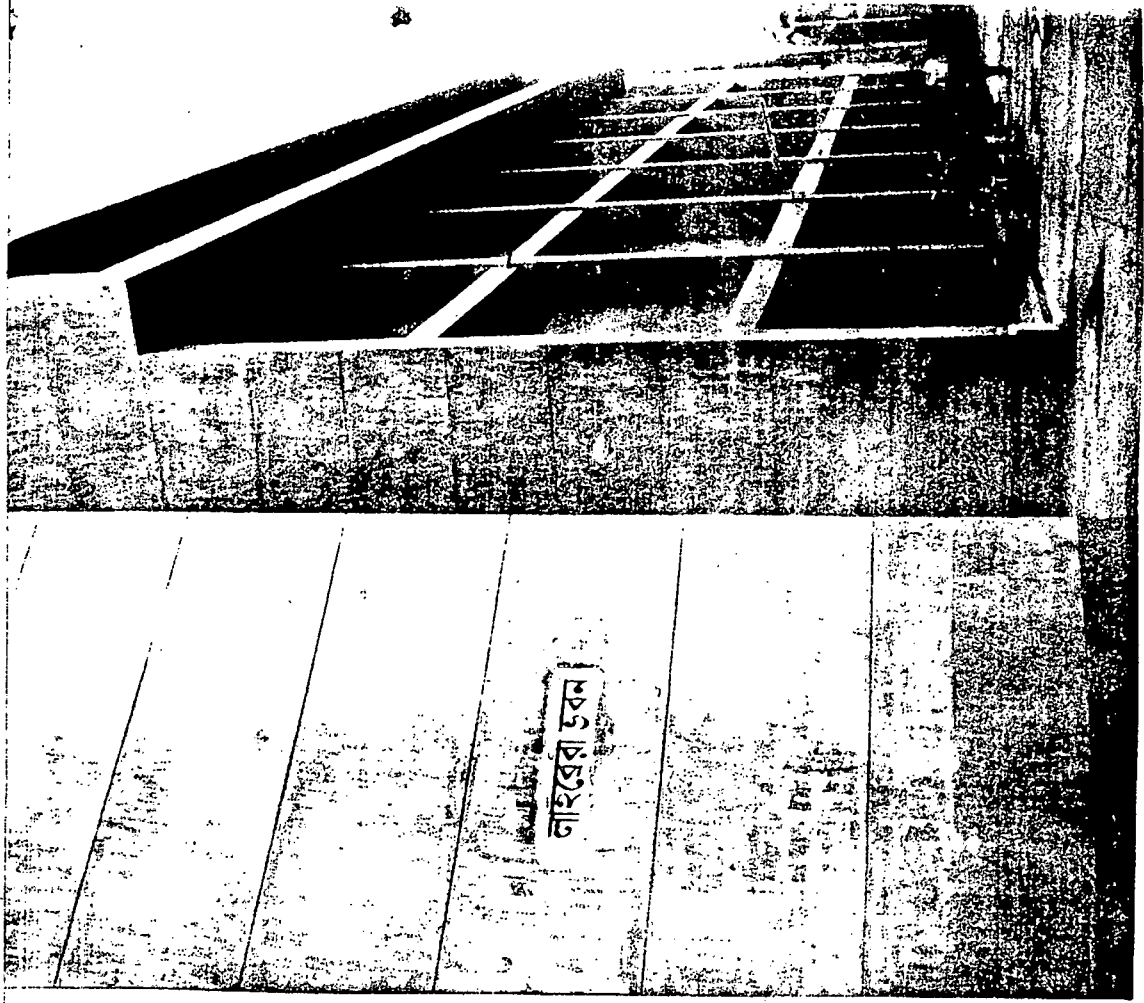
OTHER ACTIVITIES

The teachers of the Department take up research projects in collaboration with national as well as international organizations. Some of the teachers also render advisory services in the preparation of national reports both at policy and implementation levels. Most of the teachers of the department are also contributing as members of the many high level committees in the Government. All teachers of the department present technical papers at national and international conferences regularly and their work are published in national and international journals and proceedings.

Though the department has started as a post-graduate institute the students are quite sports minded. Some of them had the distinction of being University Blues, fastest man etc. besides being regular members in sports and games at the University. With the starting of Undergraduate programme, it is expected that the students can contribute more and more in extra-curriculum activities.

DISCLAIMER

The Department of Urban and Regional Planning and the Bangladesh University of Engineering and Technology reserve the right to make, at anytime without notice, changes in and addition to programs, courses, regulations, conditions governing the conduct of students, requirements for degree, fees and any other information or statements contained in this booklet. No responsibility will be accepted by the University or the Department of Urban and Regional Planning for hardship or expenses encountered by its students or any other person or persons because of such changes.



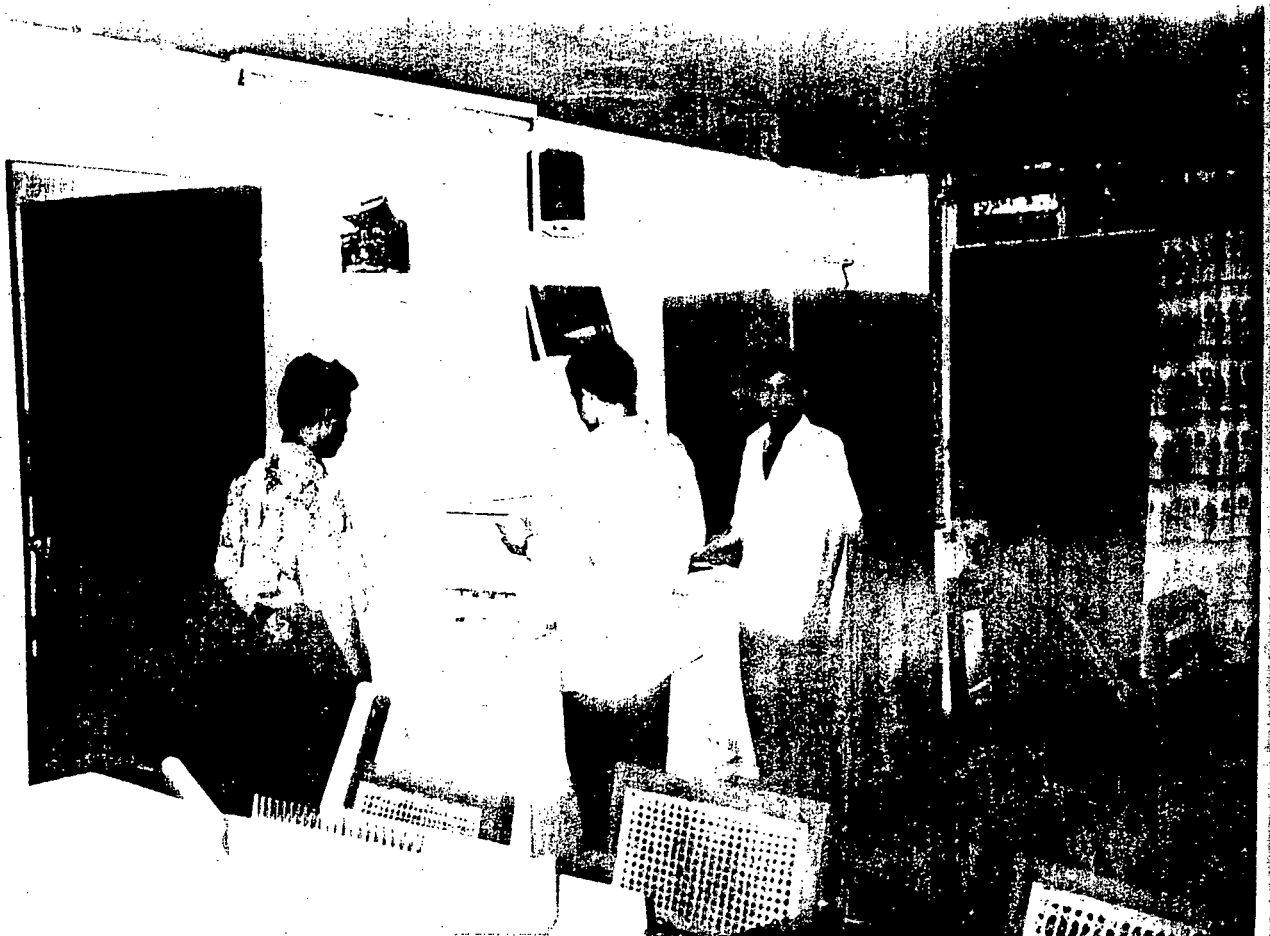
Central Library



Students at work



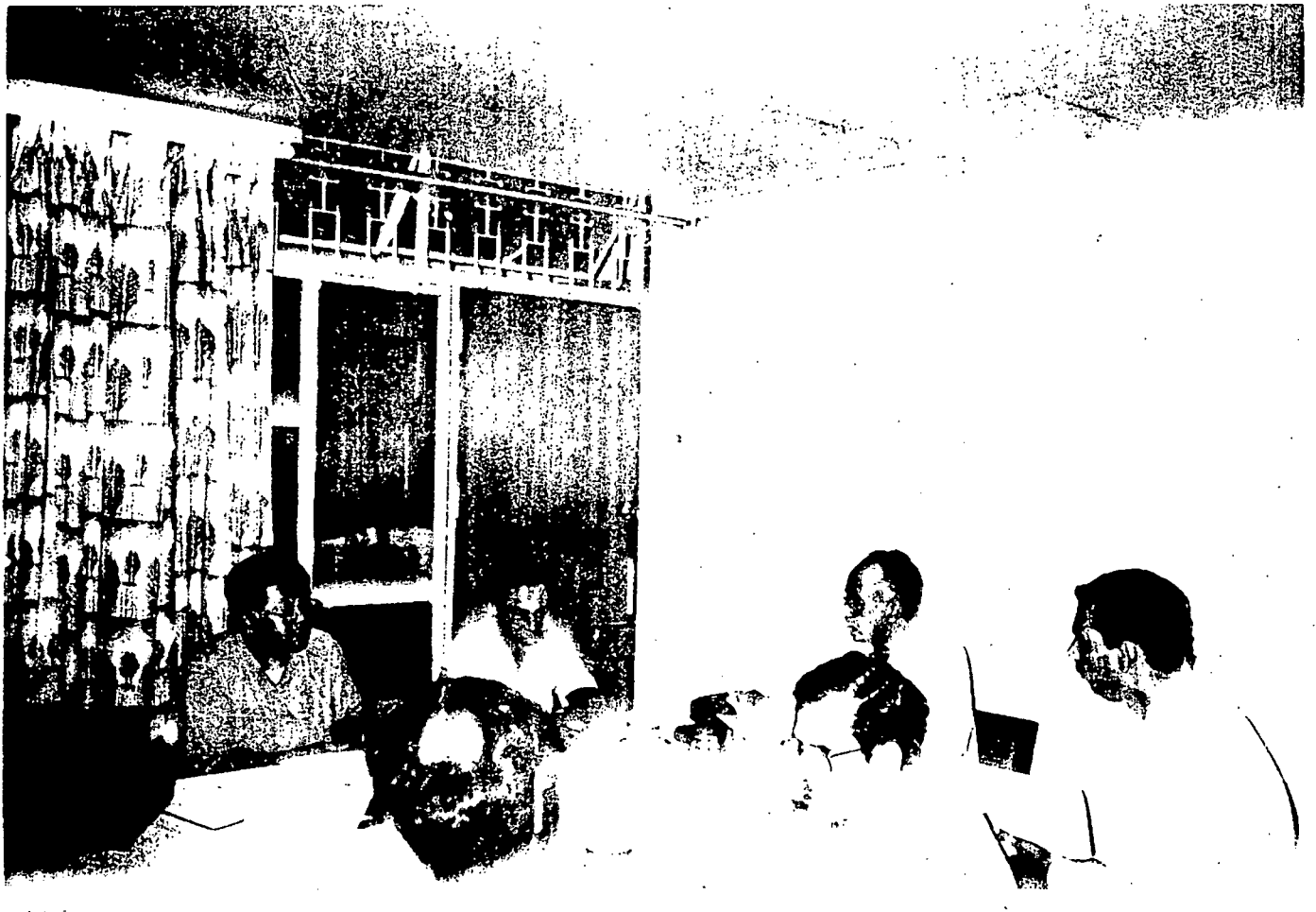
• Seminar Class in Progress



Staff at Work



GIS Laboratory of the Department



Group for al-Sayid Research Project Meeting