# Outcome-based Curriculum of
# Master of Science in Human Settlements

## Architecture Discipline
## Khulna University

## September, 2022

## 01. Title of the Academic Program

Master of Science in Human Settlements

| **Program Overview** | |
|---|---|
| Degree | Master of Science in Human Settlements |
| Abbreviated form of the Degree | MScHS |
| Major (if applicable) | N/A |
| Discipline/Program Offering Entity (POE) | Architecture Discipline |
| School | Science, Engineering, and Technology School |
| Awarding Institution | Khulna University |
| Location | Khulna, Bangladesh |
| Bangladesh National Qualifications Framework (BNQF) Level | 9 |
| International Standard Classification of Education (ISCED) Code | 0731 |
| Mode of Study | Mixed-mode (Dissertation) |
| Language of Study | English |
| Applicable Session | 2022-23 and onwards |

## 02. Name of the University

Khulna University

## 03. Vision of the University

Creation of global leaders who will contribute to make knowledge-based just society through accelerating inclusive and transformative growth of Bangladesh and the world. The university aims to achieve this vision through scholarly enquiry and contribution to the global knowledge pool.

## 04. Mission of the University

| No of UM | Brief of UM |
|---|---|
| **UM1** | Explore human potential to the fullest extent and produce self-motivated, aspiring leaders to work for the betterment of the humankind based on wisdom, freethinking, creativity and unhindered intellectual exercises. |
| **UM2** | Ensure a transformative educational experience that enables creative learning, entrepreneurship and inquisitiveness among the students. |
| **UM3** | Create an inclusive research environment that enables graduates to make demonstrable economic and social impacts through translating knowledge and innovation into practice driven by moral values and professional ethics. |

**UM = University Mission**

## 05. Name of the Discipline/Program Offering Entity (POE)

Architecture Discipline

## 06. Vision of the Discipline/POE

Architecture Discipline, Khulna University (ArchKU) aspires to become a centre of academic excellence in producing graduates who would advocate moral values, context, inquiry and research, problem-solving, synthesis, leadership, and lifelong learning in creating a healthy built environment while addressing the emerging needs and challenges of societies.

## 07. Mission of the Discipline/POE

| No of M | Brief of M |
|---|---|
| **M1** | Contribute to critical discourses, inquiry, and innovation while addressing the emerging needs, challenges, and aspirations of the contingent and changing world. |
| **M2** | Provide education that celebrates contextual knowledge and promotes responsibility and responsiveness in designing healthy, safe, and sustainable buildings and cities. |
| **M3** | Inspire lifelong learning with the necessary ethics, attitudes, skills, and commitment to change. |

**M = Mission of the Discipline/POE**

## 08. Objectives of the Discipline/POE

| No of O | Brief of O |
|---|---|
| **O1** | To enable a thought-provoking learning environment that is founded on critical inquiry, innovation and experimentation, while prioritizing the unique cultural landscape of Bangladesh. |
| **O2** | To educate students with contextual knowledge, responsiveness, professional skills and attitudes in designing buildings and cities that would ensure health, safety and sustainability ascertained by rigorous interdisciplinary exchange between emerging discourses, practices and socio-environmental needs, aspirations and challenges. |
| **O3** | To produce skilled and committed professionals with a solid contextual foundation, who could act as leaders and team players, pioneer diversified career paths, and yield novel design approaches, thinking, and methodologies to tackle the challenges posed by the contingent and changing world. |

**O = Objective of the Discipline/POE**

## 09.Name of the Degree

Master of Science in Human Settlements

## 10.Description of the Program

The Master of Science in Human Settlements (MScHS) program develops professionals who are capable of investigating the human settlements from multiple viewpoints. The program is committed to both professional training and research. By proposing an expanded architecturally-based teaching-learning model, the post-professional program aims to enhance the capacity of professionals to engage in inter-disciplinary practice that negotiates between diverse actors in the development of sustainable human settlements. The key quality of MScHS program is its combined strength of multidisciplinary theory, design studio, workshop, thesis and project. Design studio and projects are approached as design-research exercises, where the program exploits the pedagogic potential of the studio as a form of design-based critical inquiry. It takes advantage of built environment's traditional concerns for spatial experience, functionality, morphology and physical form, while also engaging realms of knowledge associated with disciplines such as urban and rural planning, urban geography, anthropology, archeology, urban ecology, landscape design, environmental science etc.

The program is considered experimental, exploratory, and unorthodox relative to the established canons of the traditional design studio. Grounded in theory, technical and social science research with focused subject matter, the thesis/design-research project culminates with supervised independent research that allows each participant to frame problems relevant to their field of specialization.

Students who graduate successfully from the course will have an opportunity to undertake a research degree, i.e. Master of Philosophy (MPhil) or Doctor of Philosophy (PhD). For those

wishing to pursue a career in academia, possessing such a qualification is generally a prerequisite in most countries.

## 11.Graduate Attributes

| No of GA | Graduate Attributes | Domains |
|---|---|---|
| **GA1** | Deep Discipline Knowledge and Intellectual breadth | Fundamental domain + Thinking domain |
| **GA2** | Digital Capabilities | Fundamental domain |
| **GA3** | Team works and communication skills | Social domain + Personal domain |
| **GA4** | Cultural competency | Social domain |
| **GA5** | Creative and critical thinking and problem-solving | Thinking domain |
| **GA6** | Decision-making and Entrepreneurship | Thinking domain |
| **GA7** | Self-awareness and Ethical competency | Personal domain +Social domain |
| **GA8** | Professionalism and leadership readiness | Personal domain |

**GA = Graduate Attributes**

## 12. Program Educational Objectives (PEOs)

| No of PEO | Brief of PEO | Domains |
|---|---|---|
| **PEO1** | To instill an advanced knowledge of philosophy and principles of the multidimensional aspects of the built environment, and the relationship between humans and the environment. | Fundamental |
| **PEO2** | To frame methodological processes for designing and developing strategies to address complex built-environment issues in order to meet the specific needs with the help of other multi-disciplinary concepts. | Fundamental+ Thinking |
| **PEO3** | To educate the students to disseminate research findings with good communication skills and become successful entrepreneurs. | Thinking+ Personal |
| **PEO4** | To provide knowledge-based services to satisfy the needs of society and the industry by providing hands-on experience in various methods and techniques in the allied fields. | Social |

| | | |
|---|---|---|
| **PEO5** | To undertake progressively managerial, leading, and influential roles in their organizations and communities. | Personal |

**PEO = Program Educational Objective**

## 13. Program Learning Outcomes (PLOs)

After successful completion of the degree, the learner will be able to:

| | |
|---|---|
| **A. Fundamental Skills** | |
| PLO1 | Develop an understanding of philosophy, context, culture, environment, technology and society, and contribute to contemporary concepts, debates and design of human settlements. |
| PLO2 | Ability to gather, organise and use evidence and information from diverse sources, and produce resilient solutions by applying appropriate spatial and digital, quantitative, qualitative and mixed methods/tools. |
| **B. Social Skills** | |
| PLO3 | Communicate, collaborate, consult and negotiate with communities, professionals and stakeholders. |
| PLO4 | Apply reasoning to evaluate societal, cultural, health, safety, legal, political and theoretical issues conforming to contextual knowledge and professional standards. |
| **C. Thinking Skills** | |
| PLO5 | Use critical thinking and inquiry to problematise, analyse, synthesise and interpret data. |
| PLO6 | Develop analytical thinking abilities using interdisciplinary knowledge, methods and professional standards. |
| **D. Personal Skills** | |
| PLO7 | Construct reasoned arguments, identify commonalities and differences, and produce alternative solutions. |
| PLO8 | Advocate context-sensitive approaches and relate these to the operational framework of policies, planning, programming, and design to develop equitable and sustainable human settlements for urban and rural areas. |
| PLO9 | Function effectively as an individual, a member or leader in multidisciplinary teams, and become a lifelong learner in the broader context of technological, socio-cultural, and environmental change. |

**PLO = Program Learning Outcome**

## 14 (A). Mapping Mission of the University with PEOs

| Missions / PEOs | UM1 | UM2 | UM3 |
|---|---|---|---|
| PEO1 | 3 | 2 | 1 |
| PEO2 | 1 | 2 | 3 |
| PEO3 | 2 | 2 | 3 |
| PEO4 | 1 | 3 | 1 |
| PEO5 | 2 | 1 | 3 |

**Level of Association: 3=High, 2=Medium, 1=Low**

## 14(B). Mapping Mission of the Discipline with PEOs

| Missions / PEOs | M1 | M2 | M3 |
|---|---|---|---|
| PEO1 | 3 | 2 | 1 |
| PEO2 | 1 | 1 | 3 |
| PEO3 | 2 | 2 | 3 |
| PEO4 | 1 | 3 | 1 |
| PEO5 | 2 | 1 | 3 |

**Level of Association: 3=High, 2=Medium, 1=Low**

## 15. Mapping PLOs with PEOs

| Program Learning Outcomes (PLOs) | | Program Educational Objectives (PEOs) | | | | |
|---|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 | PEO5 |
| **A. Fundamental Domain** | PLO1 | ● | | | ● | |
| | PLO2 | | ● | ● | | |
| **B. Social Domain** | PLO3 | | | ● | ● | ● |
| | PLO4 | | ● | ● | ● | ● |
| **C. Thinking Domain** | PLO5 | ● | ● | ● | ● | |
| | PLO6 | ● | ● | | | |
| **D. Personal Domain** | PLO7 | | | ● | ● | ● |
| | PLO8 | ● | | | | ● |
| | PLO9 | | | | ● | ● |

## 16. Mapping Courses with PLOs

| Course Code and Course Title | PLOs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Fundamental Domain | | Social Domain | | Thinking Domain | | Personal Domain | | |
| | PLO1 | PLO 2 | PLO 3 | PLO 4 | PLO 5 | PLO 6 | PLO 7 | PLO 8 | PLO 9 |
| **First Year First Term** | | | | | | | | | |
| 0731 01 Arch 6102 Design Communication Workshop | ● | ● | ● | ● | | ● | | | ● |
| 0731 01 Arch 6107 History and Theory of Human Settlements | ● | ● | | | ● | ● | ● | ● | |
| 0319 01 Soc 6153 Research Methodology | ● | ● | ● | ● | ● | ● | | ● | ● |
| *Courses for Elective 1 and Elective II (First Year First Term)* | | | | | | | | | |
| 0731 01 Arch 6115 Disaster Risk Reduction in Cities | ● | ● | ● | ● | ● | ● | ● | | ● |
| 0731 01 Arch 6135 Landscape Ecology and Design | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 0731 01 Arch 6137 Housing Policy and Finance | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 0314 01 Soc 6171 Architectural Anthropology | | ● | ● | ● | ● | ● | ● | | ● |
| 0542 01 Stat 6171 Statistics | ● | ● | ● | | ● | | ● | | ● |
| 0731 01 UD 6185 Theory of Urban Design | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **First Year Second Term** | | | | | | | | | |
| 0731 01 Arch 6200 Dissertation Part-I | | ● | ● | ● | ● | ● | | ● | ● |
| 0731 01 Arch 6202 Design Studio | ● | ● | ● | ● | ● | ● | ● | | |
| *Courses for Elective II1 (First Year Second Term)* | | | | | | | | | |
| 0731 01 Arch 6225 Sustainable Urban Water and Sanitation | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 0731 01 Arch 6231 Regenerative Design | ● | ● | ● | ● | ● | ● | | ● | |
| 0288 01 Arch 6241 Heritage Conservation and Digital Technologies | ● | ● | ● | | | ● | ● | ● | ● |
| 0731 01 URP 6271 Rural-Urban Settlement System | ● | ● | | ● | ● | ● | | | |
| **Second Year First Term** | | | | | | | | | |
| 0731 01 Arch 7100 Dissertation Part-II | | ● | ● | ● | ● | ● | ● | | ● |
| 0731 01 Arch 7108 Thesis Colloquium | | ● | ● | ● | | ● | | ● | ● |
| 0731 01 Arch 7145 Independent Study Module (ISM) | ● | ● | ● | ● | ● | ● | | ● | ● |

## 17. Structure of the Curriculum

| | | |
|---|---|---|
| **a)** Duration of the Program | 1.5 years | 03 terms |
| **b)** Admission Requirements | For admission to this course leading to the degree of MScHS an applicant must possess a three/four/five-year Bachelor degree in Architecture/Planning/Engineering/Social sciences /Landscape / Anthropology/Geography/ Environmental Studies/Art History or in a relevant subject from a recognized university (home and abroad); with 16 years schooling; and a minimum CGPA/ class/ division as per the table no 4 in the ordinance for master's programs-2022.<br><br>Candidates seeking admission into 'Master's by Research' program must have (i) either 'thesis' or similar type of course(s) in Bachelor degree or (ii) publish at least one article in a reputed journal as the first author.<br><br>For international applicants, English Language proficiency certificate should be submitted with minimum IELTS score of 6.0 or equivalent. For candidates in service, if selected for admission, should submit proof of having obtained permission for study from the concerned authority. Students having Appeared Certificate of Bachelor degree may be admitted in the Master's program. But he/she has must submit the original Transcript, Provisional Certificate/Certificate/Migration Certificate within two months of admission. Otherwise, his/her admission will be canceled. | |
| **c1)** Graduating Credits / Total Minimum Credit Requirement to Complete the Program [i] | 42 | |
| **c2)** Available Credits | 48 | |
| **d)** Total Class Weeks in a Term [ii] | 14 | |
| **e)** Minimum CGPA Requirements for Graduation | 2.50 | |
| **f)** Maximum Academic Years of Completion | 3 years | |

| **Program type** | **Min. credit requirement from major area** [i] | | | |
|---|---|---|---|---|
| | **Coursework (Min.)** | **Dissertation (Min.)** | **Dissertation (Max.)** | **Min. from Major Area** |
| **Mixed-mode (Dissertation)** | 22 | 20 | - | - |

| Term Duration[ii] | | | | |
|---|---|---|---|---|
| Teaching and Learning | Preparatory Leave | Term Final Examination | Term Break | Total |
| 14 Weeks | 2 Weeks | 4 Weeks | 2 Weeks | 22 Weeks |

## g1) Area-wise Credit Distribution

| Area | Course Type | Number of Courses | Credits | Total Credits |
|---|---|---|---|---|
| General Education (GED) Courses** | Theory | 03 | 09 | 09 |
| | Sessional | 0 | 0 | |
| Core/Compulsory Courses | Theory | 02 | 06 | 36 |
| | Sessional | 05 | 30 | |
| Optional/Elective Courses | Theory | 04 | 12 | 12 |
| | Sessional | 0 | 0 | |
| Capstone Courses*** | Sessional | 03 | 20 | 20 |
| **Total** | | **11** | **48** | **48** |

** 18.75% from GED courses

***Dissertation, Thesis Colloquium courses

## g2) Category of Courses

| Area | Course Type | Course Title | Credits |
|---|---|---|---|
| General Education (GED) Courses | Theory | 1) Research Methodology<br>2) Statistics<br>3) Architectural Anthropology | 09 |
| Core/ Compulsory Courses | Theory | 1) History and Theory of Human Settlements<br>2) Research Methodology | 06 |
| | Sessional | 1) Design Communication Workshop<br>2) Design Studio<br>3) Dissertation Part-I<br>4) Dissertation Part-II<br>5) Thesis Colloquium | 30 |
| Optional/ Elective Courses | Theory | 1) Elective I<br>2) Elective II<br>3) Elective III<br>4) Independent Study Module (ISM) | 12 |
| | Sessional | - | - |
| Capstone Courses | Sessional | 1) Dissertation Part-I<br>2) Dissertation Part-II<br>3) Thesis Colloquium | 20 |
| **Total** | | | **48** |

## 18. Year/Term-wise Distribution of Courses

| First Year First Term | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Course Code** | **Course Title** | **Course Status** | **Contact Hours/Week** | | **Credits** | **Prerequisites** |
| | | | | **Theory** | **Sessional** | | |
| **Core Courses** | 0731 01 Arch 6102 | Design Communication Workshop | Core | - | 6.0 | 4.0 | None |
| | 0731 01 Arch 6107 | History and Theory of Human Settlements | Core | 3.0 | - | 3.0 | None |
| | 0319 01 Soc 6153 | Research Methodology | Core | 3.0 | - | 3.0 | None |
| | **Term Total Core** | | | **6.0** | **6.0** | **10.0** | **-** |
| **Optional Course** | - | Elective I* | Optional | 3.0 | - | 3.0 | None |
| | - | Elective II* | Optional | 3.0 | - | 3.0 | None |
| | **Term Total Optional** | | | **6.0** | **-** | **6.0** | **-** |
| **Total** | Core Courses:03, Optional Courses: 02, Theory Courses: 04, Sessional Courses: 01 | | | 12.0 | 6.0 | **16.0** | **-** |
| | | | | **18.0** | | | |

| First Year Second Term | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Course Code** | **Course Title** | **Course Status** | **Contact Hours/Week** | | **Credits** | **Prerequisites** |
| | | | | **Theory** | **Sessional** | | |
| **Core Courses** | 0731 01 Arch 6200 | Dissertation Part-I | Core | - | 6.0 | 4.0 | None |
| | 0731 01 Arch 6202 | Design Studio | Core | - | 9.0 | 6.0 | Yes |
| | **Term Total Core** | | | **-** | **15.0** | **10.0** | **-** |
| **Optional Course** | - | Elective III* | Optional | 3.0 | - | 3.0 | None |
| | **Term Total Optional** | | | **3.0** | **-** | **3.0** | **-** |
| **Total** | Core Courses:02, Optional Courses: 02, Theory Courses: 04, Sessional Courses: 0 | | | 3.0 | 15.0 | **13.0** | **-** |
| | | | | **18.0** | | | |

| Second Year First Term | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Core Courses** | **Course Code** | **Course Title** | **Course Status** | **Contact Hours/Week** | | **Credits** | **Prerequisites** |
| | | | | **Theory** | **Sessional** | | |
| | 0731 01 Arch 7100 | Dissertation Part-II | Core | - | 18.0 | 12.0 | Yes |
| | 0731 01 Arch 7108 | Thesis Colloquium | Core | - | 6.0 | 4.0 | Yes |
| | **Term Total Core** | | | **-** | **24.0** | **16.0** | **-** |
| **Optional Course** | 0731 01 Arch 7145 | Independent Study Module (ISM)*** | Optional | 3.0 | - | 3.0 | - |
| | **Term Total Optional** | | | **3.0** | **-** | **-** | **-** |
| **Total** | Core Courses:02, Optional Courses: 0, Theory Courses: 0, Sessional Courses: 02 | | | 3.0 | 24.0 | **19.0** | **-** |
| | | | | **27.0** | | | |

*List of offered optional theory courses for Elective I, II*

| Course Code | Course Title |
|---|---|
| 0731 01 Arch 6115 | Disaster Risk Reduction in Cities |
| 0731 01 Arch 6135 | Landscape Ecology and Design |
| 0731 01 Arch 6137 | Housing Policy and Finance |
| 0314 01 Soc 6171 | Architectural Anthropology |
| 0542 01 Stat 6171 | Statistics |
| 0731 01 UD 6185 | Theory of Urban Design |

**List of offered optional theory courses for Elective III*

| Course Code | Course Title |
|---|---|
| 0731 01 Arch 6225 | Sustainable Urban Water and Sanitation |
| 0731 01 Arch 6231 | Regenerative Design |
| 0288 01 Arch 6241 | Heritage Conservation and Digital Technologies |
| 0731 01 URP 6271 | Rural-Urban Settlement System |

***Can be taken from offered theory courses from any specialization stream or Independent Study Module (ISM) without repetition and subject to approval of the adviser.

# 19. Course Description

## First Year First Term

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6102 | **Year:** First | **Term:** First |
| **Course Title:** Design Communication Workshop | | |
| **Course Status:** Core | | |
| **Credit:** 4.0 | | |
| **Prerequisite(s):** None | | |
| **Rationale** | Through hands-on training and practice, the workshop teaches the basic skills and techniques of settlement studies. These are used to show the built-environmental problems of any settlements that are ignored by stakeholders and local users. This sessional course aims to provide an opportunity for students to acquire perceptions and skills relating to settlement development, urban and rural design, urban transformations at different scales, as well as more general skills such as verbal, written and visual presentation, analysis and synthesis. Learning activities are focused on practical sites where multiplicities and challenges of intervention are met with the compounded realities of informality, socio-political, cultural and built environmental constructs. | |
| **Course Objectives** | 1. Develop conceptual background of studying any settlement from the built-environmental perspective.<br>2. Introduce different kinds of data driven scientific method that is helping to represent any built-environmental problem that is not recognized in every day practice.<br>3. Assist students to disseminate every day user's perception about the settlements and develop greater understanding on the question of making things and spaces.<br>4. Broaden the students' abilities of seeing and understanding socio-spatial dynamics of human settlements from different perspectives. | |

| | Course Contents | CLOs |
|---|---|---|
| 1 | Theory, and practice related to in-depth settlement study. | 1 |
| 2 | A variety of design communication methods, covering both traditional and cutting-edge forms of communication. | 2, 3 |
| 3 | Contemporary and sophisticated methodologies of settlement study, visualization and representation approaches, and practical hands-on skills that enable new technology in digital documentation of any settlement's socio-spatial analysis. | 1, 2, 4 |
| 4 | General abilities such as verbal, written, and visual communication, presentation, analysis and synthesis, research, writing, and critical thinking that are required to persuade stakeholders and concerned settlement locals about built-environment concerns. | 3 |

| | | |
|---|---|---|
| 5 | The focus of learning activities is on practical settlements where the complexities and problems of intervention are addressed with the realities of the contemporary world. | 1, 2 |
| 6 | Practicing co-creation strategy during settlement study. Integrate settlement stakeholders and local users in order to co-create any given settlements to redevelop or upgrade. | 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Gain the ability to critically assess the problems that are ignored in the process of settlement development | 1, 3, 6 |
| | CLO2 | Deal with socio-spatial problems and create a desirable mental image for the built environment | 1, 3 |
| | CLO3 | Connect the links between built-environment specialist, every day user/dweller and other related stakeholders to achieve greater benefit of any decision | 3, 4, 9 |
| | CLO4 | Select appropriate techniques to suit the nature of the settlement study for the communicative purpose | 2, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| **CLOs** | **Teaching-Learning Strategy** | **Assessment Strategy** |
|---|---|---|
| CLO1 | Lectures & case study analysis | Desk critiques, studio pin-ups, and mid-term and final reviews |
| CLO2 | Skill-based tutorials & problem-based learning | Desk critiques, studio pin-ups, and mid-term and final reviews |
| CLO3 | Individual & Team Work, Stakeholder workshop | Desk critiques, studio pin-ups, and mid-term and final reviews |
| CLO4 | Hands-on on-site workshop | Desk critiques, studio pin-ups, and mid-term and final reviews |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Mefalopulos, P., & Kamlongera, C. (2004). *Participatory communication strategy design: A handbook*. Food & Agriculture Org.<br>2. Frascara, G., (2004). *Communication Design – Principles, Design and Practice*. Allworth Press.<br>3. Brown, S. A. (2002). *Communication in the design process*. Taylor & Francis.<br>4. Gross, S. R., &Syverud, K. D. (1991). Getting to no: A study of settlement negotiations and the selection of cases for trial. *Mich. L. Rev.*, *90*, 319.<br>5. Lambe, T. W. (1964). Methods of estimating settlement. *Journal of the Soil Mechanics and Foundations Division*, *90*(5), 43-67. |

| | |
|---|---|
| **Supplementary Readings** | 1. Midgley, J., Hall, A., Hardiman, M., &Narine, D. (1986). Community participation, social development and the state. Methuen.<br>2. Albeverio, S., Andrey, D., Giordano, P., &Vancheri, A. (Eds.). (2007). The dynamics of complex urban systems: An interdisciplinary approach. Springer Science & Business Media.<br>3. Koll-Schretzenmayr, M., Keiner, M., &Nussbaumer, G. (Eds.). (2013). The real and virtual worlds of spatial planning. Springer Science & Business Media.<br>4. Steinert, K., Marom, R., Richard, P., Veiga, G., &Witters, L. (2011). Making cities smart and sustainable. The Global innovation index, 2011, 87-95.<br>5. Weidlich, W. (2006). Sociodynamics: A systematic approach to mathematical modelling in the social sciences. Courier Corporation. |

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6107 | **Year:** First | **Term:** First |
| **Course Title:** History and Theory of Human Settlements | | |
| **Course Status:** Core | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | This lecture-based course provides students with a general introduction to the history & theory of human settlements. Being theoretically informed, students attain an advanced level of analytical skill to comprehend the spatio-physical growth process of human settlements. The development of a given society is a complex process & it is best understood by examining both history of & conceptual elements behind the development of its settlements. This course hence offers an opportunity to examine these historical & theoretical components explain the ways human settlements grow & transform, while study materials cover precedence & references across a range of scales from local to global. Through this course students are expected to learn & identify the key factors influencing human settlement development particularly those occurring during post-WWII decades. Course content is composed of materials on the history of human settlements & also on current theories in relation with settlement planning, design, & sustainability. To ensure comprehensiveness, materials are assembled from its allied disciplines, namely sociology, geography, ecology, planning & design, & environment-behaviour studies (EBS). |
| **Objectives** | 1. Develop understanding of the concept & context of "human settlements".<br>2. Critically evaluate the history of settlement (trans)formation.<br>3. Get acquainted with existing scholarly materials from the disciplines of sociology, geography, ecology, planning & design, & environment-behaviour studies (EBS).<br>4. Formulate individual frameworks to comprehend a given settlement (trans)formation. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| **1** | **Concept of 'human settlements':** Setting the tone – 'human' & its 'settlements': why read it?**;** The globalization of cities**;** Urbanization & (settlement)Change: facts & figures; Plan & reality (Chandigarh, Brasilia)**;** Concepts of development, as related to human settlements**;** Definitions of human settlements **;** UN-HABITAT, Doxiadis & others**;** Intro (structure, assessment). | 1, 2 |
| **2** | **A typology of human settlements:** Understanding typology; Outlining a settlement typology; Types of settlements: Colonies, Diasporas, Enclaves, Ghettos; Types of settlements: Formal, Informal, Negotiated; Types of settlements: Nomadic, Sedentary, Transitional (crisis, emergency); Settlements under a regime: Apartheid, Communism, Tyranny; City: the ubiquitous type-Tutorial (one city from one continent); Idea of town & country; Idea | 1, 2 |

| | | |
|---|---|---|
| | of Urban, rural & urban village; Housing: a global type (Guest). | |
| 3 | **Communication: cross cultural evidences:** Reading critically**;** Knowing how to write**;** Fundamentals of presentation; Tutorial. | 2, 3 |
| 4 | **History of settlement (trans)-formation:** Resilient Settlements **(**Risk, Exposure & Vulnerability**;** Adaptation & Mitigation**;** Resilience); Planning, design & religion**;** Tutorial: type according to belief **(**Feng Shui/Yin Yang**,** Vaastu-Shasthra**,** Christianity); Islamic city. | 1, 4 |
| **Section B** | | **CLOs** |
| 1 | **Theory of settlement (trans)-formation:** What is theory?;Relation with history (paradigm)**;** Theory of human settlements; EBS (Guest), Environmental Psychology**;** Theory of human settlements: Planning & design (Guest)**;** Theory of human settlements: Sociology & Geography**;** Theory of human settlements: Political Ecology**;** Theory of human settlements: Political Economy. | 1, 2 |
| 2 | **Interventions in human settlements:** Types of intervention (Strategic Planning; Subdivision; Settlement scale); Drivers, interactions, philosophies & intensions & innovative ideas behind intervention. | 3 |
| 3 | **Representing settlements: tools, techniques & terminologies:** Settlement form, fabric & texture**;** Typo-morphology**;** Cartography; Contemporary techniques (Guest). | 1, 3 |
| 4 | **Reading human settlements: constructing a lens:** Selecting a settlement; Identifying key forces/catalysts; Identifying indicators; Tutorial; Customizing a framework. | 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Gain a clearer understanding of the concept & context of "human settlements". | 1, 2 |
| | CLO2 | Critically evaluate the history of settlement (trans)formation. | 5, 6 |
| | CLO3 | Get acquainted with existing scholarly materials from the disciplines of sociology, geography, ecology, planning & design, & environment-behaviour studies (EBS). | 1, 2, 5 |
| | CLO4 | Formulate individual frameworks to comprehend a given settlement (trans)formation. | 7, 8 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture | Quiz and Class Test |
| CLO2 | Problem-based learning and presentation | Assignment and Final Exam |
| CLO3 | Lecture and group discussion | Assignment and Final Exam |
| CLO4 | Lecture and presentation | Class Test and Final Exam |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Habitat, U. N. (1976). Report of Habitat: United Nations Conference on Human Settlements. United Nations, New York.<br>2. Gordon McGranahan and David Satterthwaite (2014), Urbanisation concepts and trends, International Encyclopedia of Social and Behavioral Science, second edition, edited by James D. Wright<br>3. deMeulder, B. (1998). Mavula: An African Heterotopia in Kwango, 1895–1911. Journal of Architectural Education, 52(1), 20–29. https://doi.org/10.1111/j.1531-314x.1998.tb00252.x<br>4. Roy A. (2003), The Gentleman's City: Urban Informality in the Calcutta of New Communism, Urban informality: transnational perspectives from the Middle East, Latin America, and South Asia (Chapter 6, pp 147-170), Lanham (Md.) : Lexington books<br>5. Steinberg, F. (2007). Housing reconstruction and rehabilitation in Aceh and Nias, Indonesia—Rebuilding lives. Habitat International, 31(1), 150–166. https://doi.org/10.1016/j.habitatint.2006.11.002<br>6. Lu, D. (2006). Remaking Chinese Urban Form: Modernity, Scarcity and Space, 1949–2005. Routledge.<br>7. Smith, D. M. (1996). The Socialist City. Cities After Socialism, 70–99. https://doi.org/10.1002/9780470712733.ch3<br>8. Evan, A. A. Z., Hakim, S. S., &Rana, M. M. P. (2022). Camp-Life and Social Integration: Case of the Displaced Biharisin Khulna, Bangladesh. Journal of Immigrant & Refugee Studies, 1–15. https://doi.org/10.1080/15562948.2022.2032905<br>9. Colombijn, F., & Erdentug, A. (2002). Urban Ethnic Encounters: The Spatial Consequences (Routledge Research in Population and Migration) (1st ed.). Routledge.<br>10. Kostof S. (1945), JUNCTIONS OF TOWN AND COUNTRY, DWELINGS SETTLEMENTS & TRADITION, pp107-133<br>11. Legates, R. T., & Stout, F. (1999). The City Reader (Routledge Urban Reader Series) (2nd ed.). Routledge.<br>12. Gans, H. J. (1962). The Urban Villagers. Group and Class in the Life of Italian-Americans, Etc. New York. |
| **Supplementary Readings** | 1. Mazumdar, S., &Mazumdar, S. (2013). PLANNING, DESIGN, AND RELIGION: AMERICA'S CHANGING URBAN LANDSCAPE. Journal of Architectural and Planning Research, 30(3), 221–243. http://www.jstor.org/stable/43031006<br>2. Warf, B. (2001). Space and Social Theory in Geography. International Encyclopedia of the Social & Behavioral Sciences. pp 14743-14749<br>3. Hillier, B. (2008). Space and spatiality: what the built environment need from social theory. Building Research & Information, 36(3), 216–230. |

https://doi.org/10.1080/09613210801928073

4. Kudva, N. (2009). The Everyday and the Episodic: The Spatial and Political Impacts of Urban Informality. Environment and Planning A: Economy and Space, 41(7), 1614–1628. https://doi.org/10.1068/a41101

5. Sternberg, E. (2000). An Integrative Theory of Urban Design. Journal of the American Planning Association, 66, 265-278. doi:10.1080/01944360008976106

| | | |
|---|---|---|
| **Course Code:** 0319 01 Soc 6153 | **Year:** First | **Term:** First |
| **Course Title:** Research Methodology | | |
| **Course Status:** Core | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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|---|---|
| **Rationale** | The course instills essential competence for conducting research on various aspects regarding human settlements. This course introduces students to a number of research methods useful for academic and professional investigations of information practices, texts and technologies. By examining applications, strengths and major criticisms of methodologies drawn from both qualitative and quantitative traditions, this course permits an understanding of various decisions and steps involved in crafting (and executing) a research methodology, as well as a critically informed assessment of published research. It will also discuss mixed method approaches, case studies, participatory and user-centered research as well as research involving minors. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | The implication of research | 1 |
| 2 | Philosophy of science: ontology, epistemology and axiology | 1, 3, 4, 7 |
| 3 | Methodology | 4, 5 |
| 4 | Ethics | 6 |
| **Section B** | | **CLOs** |
| 1 | Research in/for/on Human settlement | 1, 3, 4 |
| 2 | Action research methods and techniques | 4, 5 |
| 3 | Fieldwork in/for/on settlement level | 4, 5 |
| 4 | Research communication/presentation | 2, 5, 6 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Appraise the role of research as an essential element of developing knowledge in a field of study | 1, 3, 9 |
| | CLO2 | Conduct independent research for academic inquiry, practice and scholarly writing. | 2, 6, 8 |
| | CLO3 | Posit Scholar articles within and along wider conceptual and theoretical discourses. | 1, 4 |
| | CLO4 | Select and use appropriate methodologies to support research. | 2, 5, 6 |

| | | | |
|---|---|---|---|
| | CLO5 | Understand, collect and analyze data using qualitative, quantitative and mixed methods. | 1, 2, 3 |
| | CLO6 | Present and communicate the research, using visual and written medium. | 3, 4 |
| | CLO7 | Read critically, interpret and evaluate research. | 6 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| **CLOs** | **Teaching-Learning Strategy** | **Assessment Strategy** |
| CLO1 | Lecture<br>Peer group work (interactive) | Group presentation<br>Q&A performance evaluation |
| CLO2 | Lecture<br>Academic writing exercise | Assignment (on design-research proposal writing) |
| CLO3 | Lecture<br>Peer discussion | Peer assessment<br>Final Examination |
| CLO4 | Lecture<br>Peer discussion | Design-research proposal report (on a selected topic)<br>Poster design |
| CLO5 | Lecture<br>Online research | |
| CLO6 | Lecture<br>Peer presentation | |
| CLO7 | Lecture<br>Class reading exercise (peer groups) on reading techniques | Reflective paragraph writing<br>Final examination |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Van Thiel, S. (2014). Research methods in public administration and public management: An introduction. Routledge.<br>2. Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners*. Sage.<br>3. Mishra, S. B., &Alok, S. (2022). Handbook of research methodology.<br>4. Nayak, J. K., & Singh, P. (2021). *Fundamentals of research methodology problems and prospects*. SSDN Publishers & Distributors.<br>5. Misra, R. P. (1989). *Research Methodology: a Hand Book*. Concept Publishing Company.<br>6. Goddard, W., & Melville, S. (2004). *Research methodology: An introduction*. Juta and Company Ltd.<br>7. Riazi, A. M. (2017). *Mixed methods research in language teaching and learning*. Equinox Publishing. |

| | |
|---|---|
| **Supplementary Readings** | 1. Denzin, N. K., & Lincoln, Y. S. (2005). The Sage handbook of qualitative research. *London, Stage Publication*.<br>2. Newman, I., Benz, C. R., & Ridenour, C. S. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. SIU Press.<br>3. Conroy, D. E., Kaye, M. P., &Schantz, L. H. (2008). Quantitative research methodology.<br>4. Yu, C. H. (2006). Philosophical foundations of quantitative research methodology.<br>5. Gregar, J. (1994). Research design (qualitative, quantitative and mixed methods approaches). *Book published by SAGE Publications*, *228*. |

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6115 | **Year:** First | **Term:** First |
| **Course Title:** Disaster Risk Reduction in Cities | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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|---|---|
| **Rationale** | The course intends to identify the collision between urbanization and climate change. With the increasing frequency, intensity, and impacts of extreme events in cities, building resilience is fast becoming one of the most important issues for cities globally. Through this course, students will explore historical and theoretical perspectives on human-dominated ecosystems and resilience; prospects of the study of cities, and how these cities can be resilient to rising urban pressures particularly to climate change and hazards. |
| **Objectives** | 1. Provide a clear understanding of disaster risk reduction context, concepts, and theories.<br>2. Familiarize with different frameworks and their implication for the built environment regarding disaster risk reduction.<br>3. Embed resilience and adaptive thinking into the urban design process.<br>4. Instill knowledge of resilient/adaptive research methods and their application in urban project precedents across the world. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | **Introduction:** Global & local threats of disaster due to climate change and the need for risk-reduction | 1, 2 |
| 2 | **Overview:** Definition, meaning, types of risk-reduction, and its urgency in the urban context. | 1, 3 |
| 3 | **Risks, exposure & vulnerabilities:** Defining and assessing risk, exposure, and vulnerabilities | 1, 4 |
| 4 | **Climate change & cities: mitigation, adaptation & resilience**<br>Examine the concept of and relation between mitigation, adaptation, and resilience. | 1, 3, 4 |
| **Section B** | | **CLOs** |
| 1 | **Framework on risk-reduction:** the study of existing frameworks for building resilience and reducing disaster risks in cities around the world. | 2, 3, 4 |
| 2 | **Resilient urban spaces:** urban resilience, components, practices & methods | 2, 3, 4 |
| 3 | **Nature in the city:** blue and green regeneration opportunities which can be tackled in alignment with community aspirations to address | 3, 4 |

| | | |
|---|---|---|
| | climate change adaptation. | |
| 4 | **Disaster resilient form & infrastructure:** the study of disaster risk reduction techniques from all over the world. | 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Conceptualize various elements of risk and risk reduction measures essential for resilience-thinking and -building. | 5, 6, 7 |
| | CLO2 | Develop an understanding of current risk reduction practices across global, national, and local scales. | 1, 2 |
| | CLO3 | Use various risk reduction tools to design and control the urban metamorphosis following social and environmental hazards. | 4, 7 |
| | CLO4 | Learn about the research process for the urban disaster risk reduction approaches. | 3, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture | Quiz and Class Test |
| CLO2 | Problem-based learning and presentation | Assignment and Final Exam |
| CLO3 | Lecture and group discussion | Assignment and Final Exam |
| CLO4 | Lecture and presentation | Class Test and Final Exam |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Washburn, A. (2013). *The nature of urban design: A New York perspective on resilience* (pp. 1-238). Washington, DC: Island Press.<br>2. Folke, C. (2016). Resilience (republished). *Ecology and Society*, *21*(4).<br>3. Sudmeier-Rieux, K., Nehren, U., Sandholz, S., &Doswald, N. (2019). Disasters and Ecosystems: Resilience in a Changing Climate-Source Book |
| **Supplementary Readings** | 1. Pijawka, K. D. (2015). *Sustainability for the 21st Century: Pathways Programs and Policies*. Kendall Hunt Publishing Company.<br>2. Dhyani, S., Basu, M., Santhanam, H., &Dasgupta, R. (2022): Blue-Green Infrastructure Across Asian Countries, Springer. |

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6135 | **Year:** First | **Term:** First |
| **Course Title:** Landscape Ecology and Design | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | This course will provide students with an understanding of concepts in ecology and landscape ecology that are relevant to planning and landscape architecture at settlement scale. Classes, field trip(s), and assignments will explore six subject areas including: principles of landscape ecology; landforms and hydrology; ecosystems and habitats of the Bengal region; ecological land classification; impacts and social ecological systems; and application of landscape ecology for land use management decisions and design. The assignments will assist in integrating course content in application to site specific and context specific environmental planning and ecological design issues found in planning and landscape architecture professional practice. |
| **Course Objectives** | 1. To obtain knowledge of basic concepts, methods, and applications in landscape ecology.<br>2. To examine and understand the ways in which spatial patterns and spatial processes operate in an ecological context<br>3. To understand the relevance of landscape ecology to human society, and settlements. |

| | **Course Contents** | **CLOs** |
|---|---|---|
| 1 | **Landscape Ecology Overview:**<br>- Introduction and definition of Landscape Ecology<br>- Classification and typology<br>- Ecosystems<br>- Temporal & spatial components of Ecosystems | 1 |
| 2 | **Understanding Context:**<br>- Ecosystems of Bengal<br>- Landforms and Hydrology of Bengal<br>- Ecological land classification systems | 1, 2, 3 |
| 3 | **Towards Sustainability:**<br>- Ecological restoration<br>- Wildlife corridors<br>- Storm-water management<br>- Soils and erosion control<br>- Coastal and riverside dynamics | 2, 3 |

| | | |
|---|---|---|
| 4 | **Design Approaches:**<br>- Merging ecology with design<br>- Novel Ecosystems<br>- Living architecture and settlement<br>- Urban forestry | 2 |

| | | | |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
| | CLO1 | Understand and evaluate current concepts and literature in landscape ecology | 1, 2, 4 |
| | CLO2 | Apply ecological concepts and processes in planning and design problem solving | 3, 6, 7, 8, 9 |
| | CLO3 | Conduct independent research in landscape ecology, including proposal, implementation, oral presentation, and written manuscript | 4, 5, 6, 7, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture and Group Discussion | Assignment, Group Presentation |
| CLO2 | Problem-based Learning and Presentation | Assignment, Poster Submission |
| CLO3 | Lecture (with few guest lectures), Class exercise (peer groups) on reading/writing techniques | Independent write up, Peer critiquing |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Turner, M. G., Gardner, R. H., O'neill, R. V., & O'Neill, R. V. (2001). Landscape ecology in theory and practice (Vol. 401). Springer New York.<br>2. Gergel, S. E., & Turner, M. G. (Eds.). (2017). Learning landscape ecology: a practical guide to concepts and techniques. Springer.<br>3. Farina, A. (1998). Principles and methods in landscape ecology (Vol. 21). London: Chapman & Hall.<br>4. Wu, J., & Hobbs, R. J. (Eds.). (2007). Key topics in landscape ecology. Cambridge University Press.<br>5. Calkins, M. (2012). The sustainable sites handbook: A complete guide to the principles, strategies, and best practices for sustainable landscapes (Vol. 39). John Wiley & Sons.<br>6. Marsh, W. M. (2005). Landscape planning: Environmental applications (Vol. 4). New York, NY: Wiley.<br>7. Huber, J. (2010). Low Impact Development: a design manual for urban areas. Arkansas: Fayetteville. |
| **Supplementary Readings** | 1. Ruzicka, M. (1996). Development trends in landscape ecology. EKOLOGIA(BRATISL.)/ECOLOGIA(BRATISL.), 15(4), 361-367.<br>2. Bradshaw, A. D. (1986). Ecological principles in landscape.<br>3. Turner, M. G. (2010). Disturbance and landscape dynamics in a changing world. Ecology, 91(10), 2833-2849. |

4. Wu, J. (2014). Urban ecology and sustainability: The state-of-the-science and future directions. Landscape and urban planning, 125, 209-221.
5. Turner, M. G. (2005). Landscape ecology: what is the state of the science?. Annual review of ecology, evolution, and systematics, 319-344.
6. Levin, S. A. (1992). The problem of pattern and scale in ecology: the Robert H. MacArthur award lecture. Ecology, 73(6), 1943-1967.
7. Jackson, L. J., Trebitz, A. S., &Cottingham, K. L. (2000). An introduction to the practice of ecological modeling. BioScience, 50(8), 694-706.
8. Palmer, M. A., Ambrose, R. F., &Poff, N. L. (1997). Ecological theory and community restoration ecology. Restoration ecology, 5(4), 291-300.
9. Forman, R. T., &Collinge, S. K. (1997). Nature conserved in changing landscapes with and without spatial planning. Landscape and urban planning, 37(1-2), 129-135.
10. Lindenmayer, D., Hobbs, R. J., Montague-Drake, R., Alexandra, J., Bennett, A., Burgman, M., ...&Zavaleta, E. (2008). A checklist for ecological management of landscapes for conservation. Ecology letters, 11(1), 78-91.

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6137 | **Year:** First | **Term:** First |
| **Course Title:** Housing Policy and Finance | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | This course offers graduate students with a critical review of history, theories and concepts that informs current practices, approaches and crisis in the field of housing. It critically examines housing policies and the role of state and market under different political economies. The course analyzes structures and processes in different national housing systems, housing production process and the role of major actors. The course reviews international shifts in housing policy since 1960s, in light of housing policies of Bangladesh and other developing countries. The course examines housing finance concepts and factors under different socio-economic spectrum with the assessment of housing informality in developing countries. Through extensive set of readings and critical analysis, intention of this course is to open up fresh minds of students for criticism, debate, possibilities, and to enable them to postulate individual strategies for future praxis. |
| **Objectives** | The course intends to:<br>1. Discuss, contrast and compare key ideas, precedents and theoretical discourse in global housing policy and finance.<br>2. Explore the housing informality in Global South and its socio-economic, socio-spatial and political construct.<br>3. Examine the role of different stakeholders in housing provision under different political economy.<br>4. Critically examine current practices and approaches in housing provision and their impacts on society, culture, and environment. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | Concepts: Socio-economic, socio-spatial and socio-political perspectives of housing | 1, 2 |
| 2 | Housing and economic development: historical consequences | 1, 2 |
| 3 | Housing provision system: Role of state and market | 1, 2 |
| 4 | Housing policy: Political economy of housing in global south & global north | 1, 2, 3 |
| 5 | Policy to Practices: Process *vs* Product | 2, 3 |
| 6 | Sustainable housing provision- The indicators | 1, 2, 3 |
| **Section B** | | **CLOs** |
| 1 | Housing finance mechanisms: Practices in global south | 1, 2, 3 |
| 2 | Housing affordability: Measurement and indicators | 2, 3 |

| | | |
|---|---|---|
| 3 | Housing subsidies: Supply side *vs* Demand side | 2, 3 |
| 4 | Housing informality: A way of life | 1, 2, 3 |
| 5 | Pro poor housing indicators- Global south | 2, 3 |
| 6 | Housing intervention in Bangladesh: A critical review | 1, 2, 3 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Identify and critically analyze key theory and practices in housing history, and contemporary discourse. | 2, 5, 6 |
| | CLO2 | Identify and critically analyze the key issues of housing problems in Global South. | 2, 5, 6, 8 |
| | CLO3 | Interpret and evaluate the different housing policies and financial mechanisms of Global South and Global North. | 1, 2, 7 |
| | CLO4 | Develop capacity for critical thinking and ability to formulate pro poor housing strategies for the lower end populace. | 3, 4, 5, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture and Team Teaching | Assignment and Group presentation |
| CLO2 | Problem-based Learning and Presentation | Field survey and Group presentation |
| CLO3 | Field survey and Group Discussion | Assignment and Term paper |
| CLO4 | Field survey and Essay Writing | Term paper |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. NHA. (2016). *National Housing Policy*. National Housing Authority<br>2. Habitat III Policy Papers<br>3. New Urban Agenda<br>4. Hamdi, N. (1995). *Housing without houses: participation, flexibility, enablement*. Intermediate Technology Publications Ltd (ITP).<br>5. Turner, J. F. C. (1972). Housing as a Verb. In J. F. C. Turner & R. Fichter (Eds.), *Freedom to Build: Dweller Control of the Housing Process* (pp. 148-175). The Macmillan Company.<br>6. Davies, M. (2006). Planet of slums. Verso, London.<br>7. Angel, S. (2000). *Housing policy matters: A global analysis*. Oxford University Press. |
| **Supplementary Readings** | 1. AlSayyad, N. (2004). Urban informality as a ‘‘new’’ way of life. In A. Roy & N. Alsayyad (Eds.), *Urban informality: Transnational perspectives from the Middle East, Latin America and South Asia* (pp. 7–30). Lexington Books.<br>2. Cernea, M. M. (2000). The Risks and Reconstruction Model for Resettling Displaced Populations. In S. Guggenheim & M. Koch-Weser (Eds.), *Social Development in the World Bank: Essays in Honor of Michael M. Cernea* (pp. 235-264). Springer.<br>3. Choguill, C. L. (1988). Problems in providing low-income urban housing in Bangladesh. *Habitat International*, 12(3), 29-39.<br>4. Doling, J. (1999). Housing policies and the little tigers: how do they compare with other industrialised countries?. *Housing studies*, *14*(2), 229-250.<br>5. Harris, R., &Arku, G. (2006). Housing and economic development: The |

evolution of an idea since 1945. *Habitat International*, *30*(4), 1007-1017.
6. Keivani, R., &Werna, E. (2001). Refocusing the housing debate in developing countries from a pluralist perspective. *Habitat International*, *25*(2), 191-208.
7. Minnery, J., Argo, T., Winarso, H., Hau, D., Veneracion, C. C., Forbes, D., & Childs, I. (2013). Slum upgrading and urban governance: Case studies in three South East Asian cities. *Habitat International*, 39, 162-169.
8. Mostafa, A. (2017). *Evolution of Participatory and Support Based Approach for Strengthening Tenure Security, Housing and Community Resilience*: UPPR, UNDP.
9. Parvin, A., Hakim, S. S., & Islam, M. A. (2022). Policy, design, and way of life in resettlement projects: The case of Ashrayan, Bangladesh. *International Journal of Disaster Risk Reduction*, 103073.
10. Ward, P. M., & Smith, C. (2015). Housing rehab for consolidated informal settlements: A new policy agenda for 2016 UN-Habitat III. *Habitat International*, 50(2015), 373-384.

| **Course Code:** 0314 01 Soc 6171 | **Year:** First | **Term:** First |
|---|---|---|
| **Course Title:** Architectural Anthropology | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | This course covers both theories and methods of architectural anthropology. As an underdeveloped yet potential disciplinary area, it explores theories and methods of anthropology in ways which could benefit the study of the evolution of the built environment and hence understanding of the transformation of human settlements. For having an 'in-depth' nature, this course offers students ample scope to critically investigate the built environment (form and space) in relation with the manifold forces, including natural, social, political, economic and religious/spiritual ones. Different ethnographic and archaeological tools and techniques relevant to the study of built environments are also discussed. |
| **Course Objectives** | 1. Develop an understanding of the elements of culture and their role in the development of settlement and architecture.<br>2. Enable students to conduct research and design exercise based on information from the cultural reading of a society's space-making practices.<br>3. Inquire about influence of generosity and customs on the 'shape' and 'space' of the 'modern' as an abstract, objective, and universal term.<br>4. Familiarize students with alternative but culture-sensitive tools for design investigation and communication. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | The basic concepts of cultural anthropology and its impact on architecture and settlements. | 1, 2, 3 |
| 2 | Human: cultural, societal, or natural construct? | 1, 3 |
| 3 | Self-perceptions of time and space, as well as race and sexuality, and their effects on a settlement | 1, 2, 4 |
| 4 | Conceptualizing socio-political, economic and religious systems | 1, 4 |
| 5 | Critical reflections: concepts-counter concepts, thesis-anti thesis | 1, 3, 4 |
| **Section B** | | |
| 1 | Anthropology in architectural creation | 1, 3 |
| 2 | Culture-sensitive space-making and its effects on settlement architecture. | 1, 5 |
| 3 | Approaches and methods of culture sensitive design | 5 |
| 4 | Emerging cultural issues in the changing issued of contemporary world | 3, 5 |

| | | | |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
| | CLO1 | Recognize, assess, and apply basic principles of cultural anthropology and their relationship to architecture. | 2, 5 |
| | CLO2 | Critically assess conventional academic approaches while uncovering diverse cross-cultural themes. | 3, 4 |
| | CLO3 | Develop frameworks to carry out complex cultural-theoretical analysis of architecture and other forms of space-making for developing a settlement. | 3, 4 |
| | CLO4 | Gain insights on different aspects of anthropology in relation to architectural design (process). | 6, 7 |
| | CLO5 | Use tools to comprehend the role of architecture in shaping, deconstructing, mediating and generating individual and collective human identities, within a dynamic and connected intercultural context. | 3, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture, Guest lecture | Class test, Assignment |
| CLO2 | Class study (peer groups), In-class debates and discussions | Group presentation, Peer assessment |
| CLO3 | Student lecture (on selected topic), Class study (peer groups) | Design-research framework report (on selected topic), Peer assessment |
| CLO4 | Lecture, Online research | Class test |
| CLO5 | Class study (peer groups), Beyond-class field visit | Group presentation, Final examination |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 6. Kottak, C. P. (2011). Cultural anthropology: Appreciating cultural diversity. New York, NY: McGraw-Hill.<br>7. Rapport, N. (2014). Social and cultural anthropology: The key concepts. Routledge.<br>8. Spradley, J. P., & McCurdy, D. W. (2012). Conformity and conflict: Readings in cultural anthropology. Jill Potash.<br>9. Ahmed, R., & Chowdhury, M. (2003). Nribigyaner Prothom Path: Samaj O Sanskriti (Fundamentals of Anthropology: Society and Culture).<br>10. Monaghan, J., & Just, P. (2000). Social and cultural anthropology: A very short |

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| | introduction (Vol. 15). Oxford Paperbacks.<br>11. Bernard, H. R., & Gravlee, C. C. (Eds.). (2014). Handbook of methods in cultural anthropology. Rowman& Littlefield.<br>12. Iqbal, I. (2010). The Bengal Delta: Ecology, state and social change, 1840–1943. Springer.<br>13. Sengupta, N. (2011). Land of two rivers: A history of Bengal from the Mahabharata to Mujib. Penguin UK.<br>14. Rahim, M.A. (2012). BanglerSamajik-O-SangskritikItihash. (Vol. 2) (Social and Cultural History of Bengal). Dhaka: Bangla Academy. |
| **Supplementary Readings** | 1. Anievas, A., & Nişancıoğlu, K. (2015). How the West came to rule. Pluto Press. |

| **Course Code:** 0542 01 Stat 6171 | **Year:** First | **Term:** First |
|---|---|---|
| **Course Title:** Statistics | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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|---|---|
| **Rationale** | This course is designed to introduce students to advance concepts of statistics and applicability in managing collection, presentation, analysis and interpretation of numerical data for the logical analysis in predicting and forecasting statistical models where one can improve the quality of data with the design of experiments and survey sampling. |
| **Objectives** | 1. Introduce advance statistical terms and principles.<br>2.Familiarize with the data collection, classification and measures of central tendency and dispersion.<br>3. Enable to grasp data analysis and how to interpret it in research.<br>4.Explore different data visualization methods. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | **Introduction to Statistics:** Definition of statistics, brief history, strength and weaknesses of statistics. Why should researchers use statistics? Classification of statistics. Statistical data and sources of statistical data. | 1, 2 |
| 2 | **Basic concepts:** Variable and constant/attribute, population and sample, continuous & discontinuous series, survey and experiments, tabulation, frequency distribution. | 2, 3 |
| 3 | **Data types:** Level of measurement, Simple and multivariate data types. | 2 |
| 4 | **Data Sources, Presentation and Visualization:** classification of data, frequency distribution, construction of frequency distribution ; graphical representation- graph types; construction of graphs—frequency distribution graphs, histograms, frequency polygon, derivation of polygon from histogram, frequency curve, ogive, diagrams-simple bar, multiple bars, multidimensional diagrams, pictogram, cartogram-maps; Data Visualization, look at data, make a plot, show the right numbers, graph tables, add labels, make notes, work with models, draw maps. | 3, 4 |
| 5 | **Measure of Central tendency and Dispersion:** Introduction to measure of central tendency; Mean, Mathematical logic of mean, Different kinds of mean; Median, Mathematical logic of median, Mode, Mathematical meaning of mode, Relationship and difference among the central tendencies, Dispersion; Absolute and relative measures of dispersion. calculation of different measures | 1, 3 |

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|---|---|---|
| | of dispersion from grouped & ungrouped data. | |
| 6 | **Distribution of numbers:** Essence of statistical distribution, Relationship with the data types, Conditions and properties of different kinds of numerical distributions, conditions and properties of Normal Distribution, Moments, skewness and kurtosis. | 2, 3 |
| **Section B** | | **CLOs** |
| 1 | **Correlation and Regression:** Types of correlation, computing test statistic, significance test of correlation coefficient; principle of least squares method; assessing the simple and multiple linear regression line and their test of significance; coefficient of determination; uses of correlation and regression analysis in architectural research. | 1, 2 |
| 2 | **Sampling:** Sample and population, Different types of sampling, Sampling for quantitative and qualitative survey, Questionnaire preparation, Different kinds of questionnaire. | 2 |
| 3 | **Sample size determination:** Criteria for good Sample size, Sample size determination (it will be repeated in the Statistics for Planners-II course, in this course basic idea will be given, simple rule of thumb will suffice), Strategies for determining size, Significance of the sample size, effect size, estimated measurement variability, desired statistical power, significance criterion, one- or two-tailed statistical analysis; | 2, 3 |
| 4 | **Index number:** Usages of Index number, Methods of constructing index numbers, Test of perfection, the chain Index numbers, Base shifting, Splicing and deflating the Index number, Consumer Price Index numbers | 3 |
| 5 | **Test of Significance:** Concept and preliminaries, statistical hypothesis-simple and composite hypothesis, test of a statistical hypothesis, null and alternative hypotheses, Type I and Type II error, acceptance and critical region, standard error, test procedures, P-value, level of significance, test of single mean, equality of two mean and equality of several mean, test of significance of variance, equality of two variance and several variances, test of proportions, test for correlation and regression coefficients, test for independence and association of attributes for contingency tables. | 3, 4 |
| 6 | **Time series analysis:** Measurement of trend, seasonal variation-determination, use & importance of time series analysis. | 1, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Recognize, examine, and interpret the basic principles of describing and presenting data. | 1, 2 |
| | CLO2 | Describe and differentiate among different numerical distributions | 1, 2, 5 |
| | CLO3 | Determine data collection process from the field | 2, 3 |

| | | | |
|---|---|---|---|
| | CLO4 | Transform data into meaningful information with data visualization | 3, 7, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture and Problem-based Learning | Presentation or Assignment and Final Exam |
| CLO2 | Lecture and Group Work | Group Work and Presentation |
| CLO3 | Lecture and Group work or problem-based learning | Group Presentation and Final Exam |
| CLO4 | Problem-based learning | Assignment and Presentation |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Salkind, N. (2013). S*tatistics for People Who (Think They) Hate Statistics* (5th ed.). Thousand Oak, California: Sage Publications.<br>2. Field, Andy P. (2013). *Discovering statistics using IBM SPSS statistics*. London, England: SAGE.<br>3. Wild & Seber. (1999). *Chance Encounters: A First Course in Data Analysis and Inference* (1st ed.). Wiley Pub.<br>4. Bruce, P., Bruce, A., & Gedeck, P. (2020). *Practical statistics for data scientists: 50+ essential concepts using R and Python*. O'Reilly Media.<br>5. Wheelan, C. (2013). *Naked statistics: Stripping the dread from the data*. WW Norton & Company.<br>6. Downey, A. (2014). *Think stats: exploratory data analysis*. O'Reilly Media, Inc.<br>7. Berengueres, A. F. J., & Sandell, M. (2019). *Introduction to Data Visualization & Storytelling A Guide for The Data Scientist*.<br>8. Shron, M. (2014). *Thinking with Data: How to Turn Information into Insights*. O'Reilly Media, Inc.<br>9. Stewart, A. (2018). *Basic statistics and epidemiology: a practical guide*. CRC Press.<br>10. Benoit, G. (2019). *Introduction to information visualization: Transforming data into meaningful information*. Rowman& Littlefield.<br>11. Brase, C. H., &Brase, C. P. (2013). *Understanding basic statistics*. Brooks/Cole Cengage Learning.<br>12. Rumsey, D. J. (2010). *Statistics essentials for dummies*. John Wiley & Sons.<br>13. Larson, R., Farber, E., & Farber, E. (2009). *Elementary statistics: Picturing the world*. Pearson Prentice Hall. |
| **Supplementary Readings** | 1. Knaflic, C. N. (2015). *Storytelling with data: A data visualization guide for business professionals*. John Wiley & Sons.<br>2. Healy, K. (2018). *Data visualization: a practical introduction*. Princeton University Press.<br>3. Bertsekas, D., & Tsitsiklis, J. N. (2008). *Introduction to probability* (Vol. 1). Athena Scientific. |

| **Course Code: 0731 01 UD 6185** | **Year:** First | **Term:** First |
|---|---|---|
| **Course Title:** Theory of Urban Design | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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| **Rationale** | This course is intended to provide students with an introduction to urban design theories, concepts, methods and contemporary issues. In this course, urban design is considered as both an approach and methodology. As an evolving area of practice, students will be exposed to various schools of thought, local and international case studies and best practices. Students will also be challenged to research, analyze, develop, explain and debate 'good urban design' practice.<br><br>The basis of the course content will focus on understanding how urban design theory is applied in the design of the physical environment. Moreover, this course will discuss cities at multiple scales and apply our cumulative understanding to local sites and developments. The course is designed to provide a collaborative, interactive, applied and community-based environment for the development of spatial thinking and basic urban design literacy. Lectures and presentations will cover topics ranging from design thinking, spatial memory and creativity to land-use, zoning, design standards and graphic and verbal communication of design work. |
| **Course Objectives** | 1. Provide understanding of the evolution, theories, methodologies and concepts of urban design.<br>2. Introduce contemporary issues affecting urban design and sustainable urbanism.<br>3. To be able to critically and constructively analyze the urban design of places at a range of scales.<br>4. To be able to articulate and present an approach to urban design based on research and best practices. |

| | **Course Contents** | **CLOs** |
|---|---|---|
| 1 | **Urban Design Overview:**<br>- the evolution of urban form, planning and design ideas<br>- urban design as an approach and in practice<br>- the why, where, when and who of urban design<br>- the value of urban design | 1, 2 |
| 2 | **Urban Form and Process:**<br>- urban morphology and typology<br>- schools of thought, methods, approaches | 1, 2, 3 |

| | | |
|---|---|---|
| | - urban design thinking – from region to site scale<br>- analysis tools and techniques | |
| 3 | **Creating Better Places:**<br>- the qualities of 'good' urban form (evolving best practice)<br>- the public realm and its evolution<br>- private development and urban design<br>- 'sense of place' and identity<br>- urban design guidance and review | 1, 3 |

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| **Course Learning Outcomes (CLOs)** | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
| | CLO1 | Apply a critical understanding of urban design theories and principles to analysis and design of the human settlements. | 3, 6, 7, 8, 9 |
| | CLO2 | Understand and describe theories that inform urban place and space design. | 1, 2, 4 |
| | CLO4 | Articulate and communicate complex urban design issues and proposals in oral, drawn and written forms in a professional context. | 4, 5, 6, 7, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Problem-based Learning and Presentation | Assignment, Poster Submission |
| CLO2 | Lecture and Group Discussion | Assignment, Group Presentation |
| CLO3 | Lecture (with few guest lectures), Class exercise (peer groups) on reading/writing techniques | Independent write up, Peer critiquing |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Morris, A. E. J. (2013). History of urban form: Before the industrial revolution. Routledge.<br>2. Mumford, L. (1961). The city in history: Its origins, its transformations, and its prospects (Vol. 67). Houghton Mifflin Harcourt.<br>3. Broadbent, G. (2003). Emerging concepts in urban space design. Taylor & Francis.<br>4. Bacon, E. N., & Walduck, K. (1967). Design of cities.<br>5. Gosling, D., & Maitland, B. (1984). Concepts of urban design.<br>6. Kostof, S., & Castillo, G. (1992). The city assembled: the elements of urban form through history.<br>7. Kostof, S. (1991). The City Shaped: Urban Patterns and Meanings Through History, Thames & Hudson. New York, P52. |

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| | 8. Moughtin, C., Cuesta, R., Sarris, C., & Signoretta, P. (2003). Urban design: Method and techniques. Routledge.<br>9. Spreiregen, P. D. (1981). Urban design, The architecture of towns and cities. Krieger Publishing Company.<br>10. Lang, J. (2006). Urban design: A typology of procedures and products. Routledge.<br>11. Lynch, K. (1984). Good city form. MIT press. |
| **Supplementary Readings** | 1. Gehl, J., &Svarre, B. (2013). How to study public life (Vol. 2). Washington, DC: Island press.<br>2. Jacobs, A. B. (1984). Looking at cities. Places, 1(4).<br>3. Lynch, K. (1964). The image of the city. MIT press.<br>4. Elliott, D. L. (2012). A better way to zone: ten principles to create more livable cities. Island Press.<br>5. Appleyard, D. (1980). Livable streets: protected neighborhoods?. The ANNALS of the American Academy of Political and Social Science, 451(1), 106-117.<br>6. Bosselmann, P. (2012). Urban transformation: Understanding city form and design. Island Press.<br>7. Doxiadis, C. A. (1972). Ekistics, the science of human settlements. Ekistics, 237-247.<br>8. Farrelly, L. (2011). Drawing for urban design. Laurence King Publishing.<br>9. Gehl, J. (1987). Life between buildings (Vol. 23). New York: Van Nostrand Reinhold.<br>10. Jacobs, J. (1992). The death and life of great American cities. 1961. New York: Vintage, 321-325.<br>11. Lynch, K. (1995). City sense and city design: writings and projects of Kevin Lynch. MIT press. |

# First Year Second Term

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|---|---|---|
| **Course Code:** 0731 01 Arch 6200 | **Year:** First | **Term:** Second |
| **Course Title:** Dissertation Part-I | | |
| **Course Status:** Core | | |
| **Credit:** 4 | | |
| **Prerequisite(s):** Design Studio | | |

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| **Rationale** | As the terminal course for the degree, the dissertation offers the student to demonstrate competence, expertise, originality and relevance. Being an essential part of the thesis as this course provides the opportunity to undertake an in-depth study of a critical issue within human settlement. In this preparatory phase of the dissertation, the student critically investigates complex question(s) that concerns about the discipline of human settlement. Toward improving his/her understanding of the topic/theme of study, the student looks for available materials and the relationship of their research to the establish knowledge and research works, targeting a specific outcome with implication for larger discourse(s). In this phase, under the guidance of a supervisor and based mostly on secondary sources (with possible pilot fieldwork), the student frames the aim, question(s), objectives and methods and produces propositions regarding the topic/problem, position, relevant scholarly research, and methodology. With this preparation, the student develops the final draft proposal overseen by an assigned supervisor(s) based on comments from a panel of examiners. |
| **Course Objectives** | 1. Provide skills and attitudes to develop a research problem into a comprehensive research proposal diligently<br>2. Instill capacity to design and conduct research independently<br>3. Learn to formulate a robust methodology for research and fieldwork within a fixed timeframe<br>4. Acquaint yourself with essential research/inquiry skills and tools.<br>5. Instill attitude and competence to work closely with/under a supervisor, and a panel of experts. |

| | Course Contents | CLOs |
|---|---|---|
| 1 | **Writing:**<br>Drafting the thesis proposal containing background information, problem statement, research question(s), research objective(s), and scopes and limitation of the specific thesis to contribute the knowledge in the research area. | 1, 3 |
| 2 | **Literature review:**<br>Produce the draft proposal containing related literature based on specific thesis, by holding a deeper understanding of the context, national and international ambit. | 2, 3 |

| | | |
|---|---|---|
| 3 | **Research framework and approach:**<br>Develop research framework and research approach to the thesis based on appropriate epistemology and methodology. | 1, 4 |
| 4 | **Working under supervision:**<br>Finalize and submit the thesis proposal with regular feedback from the Supervisor based on literature review, conceptual understanding, and analysis of relevant data. | 3, 4, 5 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Acquire skills and attitudes to independently develop, design and conduct research adhering to a fixed timeline | 2, 4, 5, 9 |
| | CLO2 | Critically contextualize the research topic within established debates, academic literature(s) and/or practices | 5, 6 |
| | CLO3 | Formulate a research proposal with a sound research framework and methodology | 2, 3, 8, 9 |
| | CLO4 | Improve fundamental research skills and use multiple data collection tools | 3, 6, 8 |
| | CLO5 | Continue to improve research under the close supervision of supervisor(s), and a panel of experts | 3, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Scheduled meeting/presentation with supervisor(s)<br>Regular discussion and feedback | Proposal quality<br>Punctuality and timeliness |
| CLO2 | Scheduled meeting/presentation with supervisor(s)<br>Regular discussion and feedback | Progress monitoring<br>Assessment of the quality and depth of reviewed literature |
| CLO3 | Scheduled meeting/presentation with supervisor(s)<br>Regular discussion and feedback | Progress monitoring<br>Assessment of the methodological quality (including scopes) of draft proposal |
| CLO4 | Scheduled meeting/presentation with supervisor(s)<br>Regular discussion and feedback | Assessment of the quality and appropriateness of research methods and tools selected<br>Presentation quality of pilot fieldwork outcome |
| CLO5 | Scheduled meeting/presentation | Motivation |

| | |
|---|---|
| | with supervisor(s)<br>Regular discussion and feedback |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.<br>2. Krathwohl, D. R., & Smith, N. L. (2005). *How to prepare a dissertation prosposal: Suggestions for students in education & the social and behavioral sciences*. Syracuse University Press.<br>3. Booth, W. C., Booth, W. C., Colomb, G. G., Colomb, G. G., Williams, J. M., & Williams, J. M. (2003). *The craft of research*. University of Chicago press.<br>4. Machi, L. A., &McEvoy, B. T. (2021). The literature review: Six steps to success.<br>5. Woodwell, D. (2013). *Research Foundations: How Do We Know what We Know?*. Sage Publications.<br>6. Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.<br>7. Bolker, J. (1998). *Writing your dissertation in fifteen minutes a day: A guide to starting, revising, and finishing your doctoral thesis*. Holt Paperbacks. |
| **Supplementary Readings** | 1. Stake, R. E. (1995). *The art of case study research*. sage.<br>2. Silvia, P. J. (2007). *How to write a lot: A practical guide to productive academic writing*. American Psychological Association. |

| **Course Code:** 0731 01 Arch 6202 | **Year:** First | **Term:** Second |
|---|---|---|
| **Course Title:** Design Studio | | |
| **Course Status:** Core | | |
| **Credit:** 6.0 | | |
| **Prerequisite(s):** Design Communication Workshop | | |

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| **Rationale** | This course intends to introduce design as a speculative process of inquiry and experimentation. It involves knowledge acquisition and the preliminary development of skills to conceptualize, resolve and present well-reasoned human settlement concepts and ideas through drawing and digital modeling. This is a research-led design studio which allows students to pursue a rigorous professional approach to all spectrums and scales of human settlements. This project-based course aims to provide an opportunity for students to formulate concepts and acquire working skills and abilities relating to real life problems of development, urban design or rural settlement issues at different scales, as well as improve on communication skills such as verbal, written and visual presentation and overall analytical ability. |
| **Course Objectives** | 1. Encourage lateral thinking, problem-solving, creativity, and engagement with settlement design in a self-critical process.<br>2. Address issues as diverse as human survival on the planet and alternative ways of thinking about human settlements and its potential role in contributing to the above.<br>3. Deal with the spatio-technical issues of climate change, disasters, sustainability and resilience regarding communities and the built environment. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| The evolution of settlements has been influenced by environment, culture, society, geography, and economics. To respond to these factors, a settlement professional also needs to employ the limitless possibilities of computation and technology especially in our present times. Attuned to these streams and potentials, this course hence involves a range of ateliers and expertise, which enable students to provide a series of distinct and significant focuses with respect to the future urbanism in a wider cultural and technological context. Students need to pursue one of the following three major ateliers according to their interests. | | |
| 1 | **Computation, visualization and simulation:** With a paradigm shift in the fields of computation and ICTs, and their impacts and potentials to emerge as key tools for decision making and representation, are drastically changing. Their relationship calls for new or adapted concepts, where physical space seamlessly intertwines with digital content, and where the language of digital connections will be explored in appropriating contemporary technological concepts, visualization and communication, and | 1, 3, 4 |

| | | |
|---|---|---|
| | data management. | |
| 2 | **History and Theory:** This stream will pursue advanced design research on the history and theory of human settlements using a variety of historical and critical lenses. It provides methodological and conceptual instruments essential for contemporary design research and offers the opportunity for the in-depth study of a select topic in the history and/or theory of built environments. | 2 |
| 3 | **Environment, Behavior, and Climate:** Global environmental challenges, especially those emanating from climate change facing current and future built environment professionals call for a deeper understanding of the principles and techniques of environmental planning/design, and their effective application into practice. Considering these, students will learn environmental design methods which relate to the various stages of settlement design for healthy, resilient and regenerative built environment. The studio also focuses on the planning of cities towards a sustainable and low-energy future and the exploration of the environmental and social impact of concentrating people and economic activity in cities and urban areas. | 1, 3 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Research, analyze, and synthesize knowledge about a specific settlement (of any scale) in the development of a design response, with particular attention to topography, landscape, users and communities, behavioural information, and climate. | 1, 2, 6 |
| | CLO2 | Work productively in a studio environment and, in turn, develop interpersonal skills, verbal communication, and critical thinking skills through small group discovery activities and formative studio exercises. | 3, 4 |
| | CLO3 | Explore creative processes, generate ideas and demonstrate critical evaluation of these processes in their assessable work. | 7 |
| | CLO4 | Appraise how design can impact, interact with, and improve environments. | 5 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lectures &hands-on workshops | Desk critiques, studio pin-ups, and mid-term and final reviews |
| CLO2 | Skill-based tutorials & problem-based learning | |
| CLO3 | Skill-based tutorials & problem-based learning | |

| | | |
|---|---|---|
| CLO4 | Lectures and hands-on workshops | |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Kuniavsky, M. (2003). *Observing the user experience: a practitioner's guide to user research*. Elsevier.<br>2. Lunenfeld, P. (2003). Design research: Methods and perspectives. MIT press. |
| **Supplementary Readings** | 1. Miller, E. (2012). Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions.<br>2. Tymkow, P., Tassou, S., Kolokotroni, M., & Jouhara, H. (2013). Building services design for energy efficient buildings. Routledge. |

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 6225 | **Year:** First | **Term:** Second |
| **Course Title:** Sustainable Urban Water and Sanitation | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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| **Rationale** | This course provides students with a critical review of improved planning and implementation of sustainable urban water and sanitation services. The aim of the course is to enhance professional capability and skills to ensure access to safe and affordable drinking water and access to adequate and equitable sanitation for all. This course helps to create greater awareness about the urban water and sanitation challenges and the need for integrated approaches for long-term sustainable systems. 'Equity and inclusion', 'innovative sustainable tools' and 'integrated approach' are intimately connected to ensure urban water and sanitation for all and these will enter into classroom dialogue as three principles with special focus on Sustainable Development Goal (SDG) 6. The course will be conducted in interactive format to enable professionals to engage in the process of inclusive water and sanitation service-oriented settlement planning. The course will introduce City Wide Integrated Sanitation (CWIS) focusing on both Faecal Sludge Management (FSM) and Solid Waste Management (SWM). Learning activities are focused on understanding the spatial dimensions of inclusive water and sanitation services in selected urban informal settlement to ensure sustainable urban water and sanitation loop for all. |
| **Course Objectives** | 1. Identify the inequity of urban water and sanitation services for urban 'marginalized' and 'unserved' people through problem mapping.<br>2. Explore knowledge about experiences, principles, processes, methods and innovative tools for planning and implementation of sustainable urban water and sanitation systems.<br>3. Assess the performance of field-level practice of CWIS.<br>4. Design solution mapping of integrated approaches for planning and implementation of urban water and sanitation systems from a people-centric perspective.<br>5. Orient the students about different tools in line with achieving CWIS. |

| | Course Contents | CLOs |
|---|---|---|
| 1 | **Overview and Theories:**<br>- Introduction to water and sanitation development<br>- Basic concept, mechanism and relation with the people of settlement and city<br>- Sources of water and water supply system<br>- Sewage collection systems and types | 1, 3, 6 |

| | | |
|---|---|---|
| | - Sanitation history | |
| 2 | **Contemporary Issues:**<br>- Global water and sanitation condition<br>- Utility's pro-poor approach<br>- Water, sanitation and hygiene-related diseases<br>- Existing services in urban slums and the informal settlements | 2, 4, 5 |
| 3 | **Dealing with sustainability:**<br>- Centralized and decentralized household water treatment and safe storage<br>- Ecological Sanitation; Closed loop Sanitation System<br>- Human feces composting<br>- Inclusive Waste Management<br>- Participatory and multi-disciplinary approaches of water supply and sanitation | 1, 3, 4, 5, 6 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Critically evaluate existing approaches and methods in sustainable urban water and sanitation system. | 1, 2 |
| | CLO2 | Identify the water and sanitation challenges of urban marginalized people in general and women in particular. | 2, 5 |
| | CLO3 | Select and use appropriate methods and techniques to design CWIS. | 4, 6 |
| | CLO4 | Lead the process of participatory inclusive water and sanitation system with a multi-disciplinary approach. | 3, 5, 8 |
| | CLO5 | Communicate planning and design process to multiple stakeholders and actors involved in the sustainable water and sanitation in the urban context of Bangladesh. | 3, 5, 8 |
| | CLO6 | Design, organize, arrange, sustainable water and sanitation related events and activities; and report/document those using multiple media and communication tools. | 7, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| **CLOs** | **Teaching-Learning Strategy** | **Assessment Strategy** |
|---|---|---|
| CLO1 | Lecture and Group Discussion | Assignment, Group Presentation, Spot Test |

| | | |
|---|---|---|
| CLO2 | Lecture and Group Discussion | Assignment, Final Exam |
| CLO3 | Problem-based Learning and Presentation | Assignment, Poster Submission |
| CLO4 | Field Visit, Case Study | Summary Report, Poster Submission |
| CLO5 | Field Visit, Case Study | Summary Report, Poster Submission |
| CLO6 | Lecture (with few guest lectures), Class exercise (peer groups) on reading/writing techniques | Independent write up, Peer critiquing, Final Exam |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. WHO/UNICEF Joint Water Supply, Sanitation Monitoring Programme, World Health Organization, WHO/UNICEF Joint Monitoring Programme for Water Supply, & UNICEF. (2005). Water for life: making it happen. World health organization.<br>2. Water, U. N. (2018). Sustainable Development Goal 6 synthesis report on water and sanitation. Published by the United Nations New York, New York, 10017.<br>3. Mara, D. (1996). Low-cost urban sanitation. John Wiley & Sons.<br>4. Pickford, J. (1995). Low-cost sanitation: a survey of practical experience. Intermediate Technology Publications Ltd (ITP).<br>5. Unicef. (2017). Progress on drinking water, sanitation and hygiene.<br>6. Watkins, K. (2006). Human Development Report 2006-Beyond scarcity: Power, poverty and the global water crisis. UNDP Human Development Reports (2006).<br>7. Unicef. (2004). Meeting the MDG drinking water and sanitation target: a mid-term assessment of progress.<br>8. World Health Organization. (2007). Combating waterborne disease at the household level.<br>9. Mara, D. (2012). Sanitation: What's the real problem?. IDS Bulletin, 43(2), 86-92.<br>10. Paul, S. (1992). Accountability in public services: exit, voice and control. World Development, 20(7), 1047-1060.<br>11. Davis, J. (2004). Corruption in public service delivery: experience from South Asia's water and sanitation sector. World development, 32(1), 53-71.<br>12. Garn, H. (1997). Lessons from large-scale rural water and sanitation projects: Transition and innovation. WSP, Washington DC http://www. wsp. org/pdfs/working_projlesson. pdf.<br>13. Mara, D. (2013). Domestic wastewater treatment in developing countries. Routledge. |
| **Supplementary Readings** | 1. Lenton, R. L., Wright, A. M., & Lewis, K. (2005). Health, dignity and development: what will it take?.Earthscan.<br>2. Abdelghani, A. A. (1983). Environmental Health Engineering in the Tropics, an Introductory Text. The American Journal of Tropical Medicine and Hygiene, 32(6), 1470-1471.<br>3. MacDonald, A., Davies, J., Calow, R., & Chilton, J. (2005). Developing groundwater: a guide for rural water supply. ITDG publishing.<br>4. Connors, G. (2005). When utilities muddle through: pro-poor governance in Bangalore's public water sector. Environment and Urbanization, 17(1), 201-218.<br>5. Howard, G., Bartram, J., Water, S., & World Health Organization. (2003). |

Domestic water quantity, service level and health.

6. World Health Organization, & WHO. (2004). Guidelines for drinking-water quality (Vol. 1). world health organization.
7. Davis, J., Gosh, A., Martin, P., Taimur, S., Tankha, S., Zia, B., &Prunier, G. (2001). Good governance the water and sanitation sector: experience from South Asia. unpublished report, UNDP-World Bank Water and Sanitation Program, South Asia Regional Office.
8. Harleman, D., &Murcott, S. (2001). An innovative approach to urban wastewater treatment in the developing world. WATER 21, 44-48.

| **Course Code:** 0731 01 Arch 6231 | **Year:** First | **Term:** Second |
|---|---|---|
| **Course Title:** Regenerative Design | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | The course intends to explore the key principles of regenerative design and its application. The term "Regenerative Design" describes the processes that restore, renew and revitalize the sources of energy and materials, thereby creating sustainable systems that integrate the needs of society with the integrity of nature. Since Sustainability itself is not good enough to repair environmental disasters, regenerative design and development demand that the architects take an active part in the healing process of the earth, and not simply minimize the impact of the actions. |
| **Course Objectives** | 1. Equip the students with fundamental knowledge of regenerative design principles, strategies and framework<br>2. Introduce the concept of design and planning with nature, including biophilic design, and ecological planning and design<br>3. Discuss and criticize the process of regenerative-adaptive design and adaptation planning for a settlement. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | **Introduction:** Ecological and economic challenges, and built environment; modern history of sustainable architecture | 1 |
| 2 | **Definitions and paradigm shift:** Negative impact reduction via increased efficiency; positive impact via increased regenerative effectiveness | 1 |
| 3 | **Design principles of regenerative design:** The selection of a construction system, defining the design elements and their performance, improving air quality and human health, conserving energy, producing renewable energy, managing water, integrating design with nature, and selecting regenerative materials are some of the guiding principles, the framework for regenerative design, and strategies for designing regenerative buildings and settlements. | 1, 2, 3, 4 |
| **Section B** | | **CLOs** |
| 1 | **Indicators and metrics of regenerative design:** Life cycle standards and system boundary; functional unit, year, tools and indicators; life cycle inventory. | 1, 2 |

| | | |
|---|---|---|
| 2 | **Interconnections between people and their natural environments:** Innate affiliation with nature; biophilic design and patterns; A preliminary regenerative perspective: Informal settlement upgrading. | 1, 2 |
| 3 | **Design and planning with nature:** History of planning and design that considers the environment; back to nature; design and planning with nature; ecological planning and design; process of place; design for human settlements. | 1, 2, 3, 4 |
| 4 | **Co-evolutionary Regenerative design concept:** Regenerative-adaptive design; regenerative design fundamentals – regeneration, place, patterns, the generative code and regenerative design; Adaptive design fundamentals; the regenerative-adaptive design model – adaptation planning, regenerative-adaptive system of processes | 1, 2, 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Understand the main issues, challenges and opportunities for designed environments in relation to regenerative design for medium and large-scale projects. | 1, 8 |
| | CLO2 | Discuss regenerative designed settings in relation to cutting-edge concerns and technologies in a critical manner. | 1, 2, 5 |
| | CLO3 | Create a philosophical viewpoint and attitude on sustainable and regeneratively created environments. | 1, 2, 4, 5, 6 |
| | CLO4 | Use the proper representational media to communicate the most important research findings and design conclusions with reference to environmentally sustainable and regenerative built settings. | 3, 4, 6 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture and Group Discussion | Class Test, Assignment and Final Exam |
| CLO2 | Problem-based Learning and Presentation | Assignment and Final Exam |
| CLO3 | Problem-based Learning and Group Discussion | Presentation, Assignment and Final Exam |
| CLO4 | Problem-based Learning and Discussion | Presentation, Exhibition and Final Exam |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Roos, P.B., 2021. Regenerative-Adaptive Design for Sustainable Development – A Pattern Language Approach. Springer Nature.<br>2. Attia S., 2018. Regenerative and Positive Impact Architecture –Learning from Case Studies. Springer Nature. |

| | |
|---|---|
| | 3. Mang, P., & Reed, B. (2020). Regenerative development and design. Sustainable Built Environments, 115-141. |
| **Supplementary Readings** | 1. Venter, A., Marais, L., & Morgan, H. (2019). Informal settlement upgrading in South Africa: A preliminary regenerative perspective. Sustainability, 11(9), 2685.<br>2. Perera, E. D. J. (2018). Co-evolutionary design concept for urban sustainability based on 'Regenerative'design principles: a case study in Salford, United King-dom. Bhumi, The Planning Research Journal, 6(2). |

| **Course Code:** 0288 01 Arch 6241 | **Year:** First | **Term:** Second |
|---|---|---|
| **Course Title:** Heritage Conservation and Digital Technologies | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

| | |
|---|---|
| **Rationale** | Knowledge of the state-of-the-art tools and methods of digital documentation and advanced visualization is inevitable for a concerned Built environment specialist. Students will learn about the theory behind digital heritage conservation and the actual applications of cutting-edge new technologies in this course, preparing them to challenge existing difficulties with historic buildings that are connected to settlement studies. While the emergence of new digital media and techniques (AR/VR/XR) has caused a profound change in how people perceive and understand traditional built environment and heritage management disciplines. The benefits of digital technologies are being applied to advanced interpretation, virtual tourism, and the creation of digital twins in addition to digital recording, study, and conservation. |
| **Course Objectives** | 1. Introduce various methods and tools of digital documentation of Cultural Heritage (CH) sites and artefacts.<br>2. Demonstrate standard methods of data acquisition, storage, management, and interpretation of heritage.<br>3. Attain practical grounding and skills in developing Augmented Reality/Virtual Reality/Mixed Reality environments suitable for story telling of a heritage site.<br>4. Conceptualize, design, and build an interactive digital heritage project (mock-up or prototype). |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| **1** | International charters, guidelines and principles of digital heritage | 1 |
| **2** | Methods and tools of digital documentation. Aspects of 3D data acquisition, storage, management and long-term preservation. IPR (intellectual property rights), ethics of digitization, protection against elicit traffic and authentication of CH artefacts | 1, 2 |
| **3** | Inter-operability between formats. International initiatives from Europeana Digital Library, UNESCO World Heritage sites programs works etc. Charter on the Preservation of the Digital Heritage, UNESCO 2003 | 1 |
| 4. | 3D model viewers and repositories. | 3 |
| **Section B** | | **CLOs** |
| 1. | Photogrammetry and the 3D modelling | 1, 3 |
| 2. | Heritage building information modelling (HBIM)(Autodesk Revit) | 1, 2, 3 |
| 3. | Computer based environments (AR/VR/MR), their applications, | 3, 4 |

| | | |
|---|---|---|
| | development methods and tools (360-degree panorama, VRML, Game Engine) Agi-soft Photo scan, Autodesk Re-Cap and Autodesk Revit) | |
| 4. | Photographs to 3D acquisition hands on with the Agi-soft Photo scan/Autodesk Re-Cap/ Reality Capture Pro. the documentation of 3Dhistorical buildings (HB) | 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Conceptualize the various methods and aspects Heritage conservation applying emerging digital media/tools/ technologies. | 1, 2 |
| | CLO2 | Use specific state-of-the-art digital tools and technologies for heritage conservation in terms of their implication in settlement level. | 2, 6 |
| | CLO 3 | Develop skill to execute the real-world problems of conservation through performing digital media/tools/apps/techniques. | 3, 8 |
| | CLO 3 | Identify the correlation between historic buildings and settlements and their significant impacts on built environment. | 7, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture & Group discussion | Quiz/Class Test and Final Exam |
| CLO2 | Problem-based learning and presentation | Assignment and Final Exam |
| CLO3 | Hand-on exercise and presentation | Assignment and Viva-voca/ Quiz |
| CLO4 | Lecture and group discussion | Assignment, Class Test and Final Exam |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Champion, E.M. (2021). *Virtual Heritage: A Guide. London*. Ubiquity Press. DOI: https://doi.org/10.5334/bck Folke, C. (2016).<br>2. Remondino, F. (2011). Heritage recording and 3D modeling with photogrammetry and 3D scanning. *Remote sensing*, *3*(6), 1104-1138.<br>3. R $ uuther, H. (1998). Photogrammetry in Architecture, Archaeology and Urban Conservation. *The Photogrammetric Record*, *16*(92), 347-348.<br>4. Hassani, F. (2015). Documentation of cultural heritage techniques, potentials and constraints. Int. Arch. Photogrammetry. *Remote Sens. Spat. Inf. Sci.-ISPRS Arch.*, *40*, 207–214. |
| **Supplementary Readings** | 1. Renfrew, C., & Paul, B. (2005). *Archaeology: The Key Concepts.*Routledge.<br>2. Champion, E., &Rahaman, H. (2020). Survey of 3D digital heritage repositories and platforms. *Virtual Archaeology Review*, *11*(23), 1-15.<br>3. UNESCO. (2003) Digital Heritage. Available online: https://en.unesco.org/themes/information-preservation/digital-heritage |

| **Course Code:** 0731 01 URP 6271 | **Year:** First | **Term:** Second |
|---|---|---|
| **Course Title:** Rural-Urban Settlement System | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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| **Rationale** | Rural and urban are inseparable categories particularly in the socio-cultural-economic-spatial realities of the developing nations. Whereas cities in these nations assume qualities of rural areas in many ways, the opposite is also frequent. In the interest of architecture and planning, this course therefore offers theories, ideas and empirical examples that help students to understand this interconnected nature of these two apparently opposite spatial categories. The key intension of this course is to outline a possible framework, that include a systematic understanding of this settlement system in the light of theories, and formulation of methods applicable for the architectural design and planning of and within such settlements. |
| **Course Objectives** | The objectives of this course are to<br>1. Acquaint with the concept of 'Settlements' as a more ecological perspective of the built environment, going beyond the traditional 'rural' and 'urban' classification.<br>2. Illustrate, theoretically, about various spatial and non-spatial forms of rural and urban coexistence.<br>3. Learn about the conditions of rural and urban settlement, focusing particularly on contemporary perspectives.<br>4. Illustrate comprehension and application of theoretical and analytical methods to the study of rural-urban areas and materialities. |

| **Course Contents** | | **CLOs** |
|---|---|---|
| **Section A** | | |
| 1 | **'Settlement' perspective and rural-urban interaction** | 1 |
| 2 | **Rural in urban spatial form: tale of two cities**<br>(Siena, Louang Prabang) | 2 |
| 3 | **Key debates in rural-urban linkage studies:**<br>Dichotomy/continuum/flow, Dispersal, Desakota, Agropolitan (Networked model) | 2, 3 |
| 4 | **Rural-urban spatial encounters:**<br>Ruralopolises, Desakota, Urban villages, urban agriculture, fringe belts, peri urban, agropolises, ethnic encounters/migration | 3, 4 |
| **Section B** | | **CLOs** |
| 1 | **Rural-urban struggles: role of modern/modernity**<br>(Mexico, Chandigarh) | 3, 4 |
| 2 | **Planning/designing rural in urban** | 3 |

| | | |
|---|---|---|
| | (Modular City, Linear City, Garden City, Broadacre City, Rurban, Regional Planning) | |
| 3 | **Theories:**<br>(Dependency, Systems, Centre-periphery, Central Place theory) | 3, 4 |
| 4 | **Studying settlements:**<br>(Settlement system analysis, typo-morphology) | 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Familiarize with the 'Settlements' perspective of the built environment, by questioning 'rural' and 'urban' as discrete categories | 1 |
| | CLO2 | Examine the various social, cultural, economic, geographical, and environmental ways rural and urban areas interact, while addressing major issues. | 1, 5 |
| | CLO3 | Identify, analyze and explain the ideological, political, economic, aesthetic and socio-cultural conditions of rural-urban design, focusing primarily on contemporary perspectives | 1, 4, 6 |
| | CLO4 | Apply theoretical and analytical tools to study rural-urban spaces and materialities | 2 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture | Final Exam<br>Class Test |
| CLO2 | Lecture<br>Class Reading | Assignment (issue based)<br>Presentation |
| CLO3 | Lecture<br>Group Discussion | Final Exam<br>Class Test |
| CLO4 | Lecture with tutorial<br>Field trips/excursions | Poster Presentation |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Afsar, R. (1999). Rural-urban dichotomy and convergence: emerging realities in Bangladesh. Environment and Urbanization, 11(1), 235-246.<br>2. Bourdier J.-P. and N. AlSayyad (eds.) 1989. Dwellings, Settlements, and Tradition: Cross-cultural Perspectives. University Press of America Peter Saunders 1981. Social Theory and the Urban Question (2nd Ed.), Routledge<br>3. Gebre T. and B. Gebremedhin 2019. The mutual benefits of promoting rural-urban interdependence through linked ecosystem services. Global Ecology and Conservation. Volume 20(e00707). |

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|---|---|
| | https://doi.org/10.1016/j.gecco.2019.e00707<br>4. Moravánszky A. 2017. Peripheral Modernism: Charles Polónyi and the lessons of the village, The Journal of Architecture, 22:4, 662-688, DOI: 10.1080/13602365.2016.1204076<br>5. Qadeer, M. A. 2000. Ruralopolises : The Spatial Organisation and Residential Land Economy of High-density Rural Regions in South Asia. Urban Studies, 37(9), 1583-1603. https://doi.org/10.1080/00420980020080271<br>6. Sarin, M. (1982). Urban Planning in the Third World: The Chandigarh Experience (1st ed.). Routledge. https://doi.org/10.4324/9780429343254 |
| **Supplementary Readings** | 1. Bowen, W. M., & Gleeson, R. E. (2018). The evolution of human settlements: From Pleistocene origins to Anthropocene prospects. Springer.<br>2. Champion, T., & Hugo, G. (2017). Introduction: Moving beyond the urban-rural dichotomy. In New forms of urbanization (pp. 3-24). Routledge. |

# Second Year First Term

| | | |
|---|---|---|
| **Course Code:**0731 01 Arch 7100 | **Year:** Second | **Term:** First |
| **Course Title:** Dissertation Part-II | | |
| **Course Status:** Core | | |
| **Credit:**12 | | |
| **Prerequisite(s):** Dissertation Part-I | | |

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|---|---|
| **Rationale** | A dissertation in Master of Science in Human settlement is made of words, as this second phase of thesis focuses on the actual writing of the dissertation. Moving forward, the student further analyses collected literature and keep improving the methodology from the first phase, resulting in the final structuring and writing up of the manuscript. Research, fieldwork and analytical methods may similarly be drawn from across the full breadth of disciplinary, interdisciplinary or transdisciplinary sources. With regular comments/inputs/critique from a parallel colloquium course, findings/results are expected to be a set of coherent arguments with clear conclusions. The dissertation must to be well written (proofread), rationally presented, ethically sound, and strictly adhered to the standard conventions of citing and referencing. |
| **Course Objectives** | 1. Provide skills of writing/presenting research outcome(s) in the form of a concise essay that scientifically discusses/documents the development of the entire work.<br>2. Appraise writing as a powerful medium for crystallizing theoretical and critical arguments in the form of texts and narratives, supported by visual and numerical figures and graphics.<br>3. Familiarize with the standard structure and format of a thesis report, similar to professional level reports and public documents.<br>4. Use various data collection and analytical tools (visual, qualitative and quantitative) in addressing the research question(s). |

| | Course Contents | CLOs |
|---|---|---|
| 1 | **Fieldwork and research**:<br>Carry out necessary literature review and fieldworks to collect additional data (followed by supplementary data collection activities to compensate for missing data). | 2, 3 |
| 2 | **Continuous improvement**:<br>Keep improving the thesis rationale, refining questions and objectives based on constructive feedback and comments from thesis supervisor and the examiner/reviewer panel. | 1, 2 |
| 3 | **Writing-up**:<br>Writing up the thesis report, while maintaining right orientation to the | 1, 3 |

| | | |
|---|---|---|
| | research objectives and questions right though. | |

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|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
| | CLO1 | Write academic reports, complying with scientific writing standards and norms | 2, 3, 6, 7, 9 |
| | CLO2 | Learn about, and be able to use standard scientific structure/format of academic essays/reports | 4, 5, 6, 7 |
| | CLO3 | Collect and source research materials and data from fieldwork using appropriate tools and methods | 2, 3, 4, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Individual work progress monitoring under close supervision<br>Assessment of the adequacy of the methodology | Progress assessment<br>Colloquium<br>Defense |
| CLO2 | Discussion<br>Comments and feedback from supervisor | Progress assessment<br>Draft (chapter) submission |
| CLO3 | Fieldwork<br>Assessment of the appropriateness of research methods/tools/techniques<br>Analysis and synthesis of primary and secondary data | Colloquium |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.<br>2. Krathwohl, D. R., & Smith, N. L. (2005). *How to prepare a dissertation prosposal: Suggestions for students in education & the social and behavioral sciences*. Syracuse University Press.<br>3. Booth, W. C., Booth, W. C., Colomb, G. G., Colomb, G. G., Williams, J. M., & Williams, J. M. (2003). *The craft of research*. University of Chicago press.<br>4. Machi, L. A., &McEvoy, B. T. (2021). The literature review: Six steps to success.<br>5. Woodwell, D. (2013). *Research Foundations: How Do We Know what We Know?*. Sage Publications.<br>6. Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.<br>7. Bolker, J. (1998). *Writing your dissertation in fifteen minutes a day: A guide to starting, revising, and finishing your doctoral thesis*. Holt Paperbacks.<br>8. Katerina, R. (2006). *The Dissertation: An Architecture Student's* |

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|---|---|
| | *Handbook*. Taylor & Francis. |
| **Supplementary Readings** | 1. Stake, R. E. (1995). *The art of case study research*. sage.<br>2. Silvia, P. J. (2007). *How to write a lot: A practical guide to productive academic writing*. American Psychological Association. |

| | | |
|---|---|---|
| **Course Code:** 0731 01 Arch 7108 | **Year:** Second | **Term:** First |
| **Course Title:** Thesis Colloquium | | |
| **Course Status:** Core | | |
| **Credit:** 4 | | |
| **Prerequisite(s):** Dissertation Part-I | | |

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|---|---|
| **Rationale** | The seminar based sessional course is integrated with Thesis Dissertation course, which enables students to conduct research work on human settlement issues. The course includes research activities such as research seminar, proposal defense and research dialogue etc. as prescribed by the concern body. The student participates in several sharing/discussion sessions to gain constructive comments and instructions on many aspects of the research process from their supervisor(s), examiners, and graduate students. Key activities include presenting several phases/parts of their dissertation, including the research problem, research question(s), and objectives, literature mapping, methodology, fieldwork findings, and writing, with prior clearance from the thesis supervisor. The critical feedback aids in the continual improvement of the dissertation structure and methodology. As the most fundamental supplementary course to the dissertation, it assists in sharpening the entire research design, including the design problem, refining research question(s) and objectives, selecting relevant literature, selecting appropriate methods, and reporting findings. |
| **Course Objectives** | 1. Develop the ability to demonstrate various stages of the dissertation to supervisor(s), examiners, and other specialists.<br>2. Impart advanced abilities in public speaking on various settlements related issues through the use of audio-visual, and spoken means.<br>3. Enhance attitudes toward continuing development through regular peer feedback on sharpening the research problem, refining research question(s) and objectives, identifying relevant literature, and selecting the best approach and reporting findings. |

| | **Course Contents** | **CLOs** |
|---|---|---|
| 1 | Formulation of research question(s) where an individual student can apply his/her research competencies to be qualified for Masters of Science in Human Settlement degree. | 1 |
| 2 | Develop justifications of the thesis rationale based on constructive feedback and comments from thesis supervisor and additional reviewer panel. | 1, 2 |

| | | |
|---|---|---|
| 3 | Discussion, defense, explanation and communication through presentation of the thesis. | 2, 3 |
| 4 | Prepare the thesis for a public and academic sharing session and discuss the overall thesis to develop a basic understanding. | 3, 4 |

| | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | CLO1 | Gain skills and attitudes to systematically develop a research problem/question(s) through expert and peer feedback. | 2, 4, 8 |
| | CLO2 | Improve attitudes toward the constructive role of the peer process in academic research in terms of exposure to internal and external experts. | 6, 9 |
| | CLO3 | Acquire skills of public defense | 3 |
| | CLO4 | Communicate works in a well-structured manner, using architectural and non-architectural techniques. | 3, 4 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Presentation before Supervisor(s) and Examiners<br>Collect feedback and present evidence of suggested amendments | Presentation quality in Colloquium<br>Presentation quality in Defense<br>Confidence |
| CLO2 | Engage enthusiastically in constructive Q&A sessions | |
| CLO3 | Engage in regular presentation sessions with experts and peers | |
| CLO4 | Make presentations using state of the art visual and non-visual techniques | |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | 1. Gurumani, N. (2019). Scientific thesis writing and paper presentation. MJP Publisher.<br>2. Benn, K., & Benn, C. (2006). Professional thesis presentation: A step-by-step guide to preparing your thesis in Microsoft Word. Pearson Education New Zealand.<br>3. Brinton, W. C. (1939). Graphic presentation. РиполКлассик.<br>4. Roberts, C. M. (2010). The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation. Corwin Press.<br>5. Bolker, J. (1998). Writing your dissertation in fifteen minutes a day: A guide to starting, revising, and finishing your doctoral thesis. Holt Paperbacks. |

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| | 6. Silvia, P. J. (2007). How to write a lot: A practical guide to productive academic writing. American Psychological Association.<br>7. Cone, J. D., & Foster, S. L. (1993). Dissertations and theses from start to finish: Psychology and related fields. American Psychological Association. |
| **Supplementary Readings** | 1. Lucas, S., &Stob, P. (2004). The art of public speaking (p. 382). New York: McGraw-Hill.<br>2. Syracuse university libraries. (2022), Architecture: Thesis Preparation<br>3. https://researchguides.library.syr.edu/c.php?g=978052&p=7075240 |

| | | |
|---|---|---|
| **Course Code:** 0031 01 Arch 7145 | **Year:** Second | **Term:** First |
| **Course Title:** Independent Study Module (ISM) | | |
| **Course Status:** Optional | | |
| **Credit:** 3.0 | | |
| **Prerequisite(s):** None | | |

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|---|---|
| **Rationale** | Independent research plays an important role in graduate education. The Independent Study Module (ISM) is designed to enable students to explore an approved topic in Human Settlements and Built Environment in depth. Students may propose to undertake an individual study module relevant to their program in place of a taught Optional Module in Year 01 Term II, if they wish to undertake an academic study of a topic that is not otherwise represented in the student's program.<br>A formal, written agreement is to be drawn up giving a clear account of the topic, program of study, assignments, evaluation, and other pertinent details. The Head's and/or supervisor's approval for written agreement is required. Regular meetings and reports are expected. Evaluation is based on 100% continuous assessment and must be worked out between concerned students and teacher prior to seeking departmental approval. |
| **Course Objectives** | 1. Support students in designing and executing a small-scale research project that is of interest to them, and in writing a report of their study.<br>2. Undertake an in-depth appraisal of a topic related to student professional discipline and produce an assignment that will demonstrate an increased knowledge base in the subject.<br>3. Identify an area of student's professional practice/area of employment that student would like to develop in terms of a deeper understanding, service improvement or evidence base.<br>4. Review and evaluate current theory/practice or report a recent change in practice. |

| | **Course Contents** | **CLOs** |
|---|---|---|
| 1 | The student should approach a supervisor to work out an agreed topic, readings, and assignments for the module. The student will receive brief feedback from the supervisor (who will have consulted with the Programme Leader/ Head). The student may be invited to submit a full proposal. The proposal should expand on the outline to turn it into a brief (1000 words max) but clear statement of- | |
| | The rationale and aims for the particular Individual Study proposed | 1 |
| | The general area of focus and scope of the field on which the study and the associated written report will be based | 2 |
| | The methods by which material and information will be accessed. | 3 |

| | | |
|---|---|---|
| | The list of the references. | 4 |

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|---|---|---|---|
| **Course Learning Outcomes (CLOs)** | Upon completion of this course the students will be able to: | | **Mapping with PLOs** |
| | CLO1 | Gain critical knowledge and understanding of the topic student has chosen related to Human Settlements. | 1, 2, 3, 4 |
| | CLO2 | Critically reflect on current and/or important issues and debates in the topic related to human settlements, be they theoretical or practical. | 6, 9 |
| | CLO3 | Reflect on and evaluate relationships between theory, research and scholarship, policy and practice, bringing research evidence to bear in informing discussion. | 5, 6 |
| | CLO4 | Access, interpret and critically evaluate the literature in the field, both in the substantive area and concerning methodological aspects. | 8, 9 |

**Mapping CLOs with the Teaching-Learning and Assessment Strategy**

| CLOs | Teaching-Learning Strategy | Assessment Strategy |
|---|---|---|
| CLO1 | Lecture and Problem-based Learning and Presentation | Assignment and Group presentation |
| CLO2 | Literature review and Field survey | Field survey and presentation |
| CLO3 | Literature review and Field survey | Field survey and presentation |
| CLO4 | Essay writing | Term paper (min. 3000 words) |

| **Learning Materials** | |
|---|---|
| **Recommended Readings** | The students will develop the list of the references with the help of their supervisor. |
| **Supplementary Readings** | The students will develop the list of the references with the help of their supervisor. |

# 20. Grading and Evaluation

## 20.1.1 Grading Scale

Letter Grades and corresponding Grade Points will be awarded following provisions shown below:

| Numerical Grade | Letter Grade | Grade Point |
|---|---|---|
| 80% or above | A+ (A plus) | 4.00 |
| 75 to less than 80% | A (A regular) | 3.75 |
| 70 to less than 75% | A- (A minus) | 3.50 |
| 65 to less than 70% | B+ (B plus) | 3.25 |
| 60 to less than 65% | B (B regular) | 3.00 |
| 55 to less than 60% | B- (B minus) | 2.75 |
| 50 to less than 55% | C+ (C plus) | 2.50 |
| 45 to less than 50% | C (regular) | 2.25 |
| 40 to less than 45% | D | 2.00 |
| Less than 40% | F | 00 |
| Incomplete | I | |
| Withdrawn | W | |
| Continuation (for project, thesis design, etc. course) | X | |

## 20.1.2 Cumulative Grade Point Average (CGPA)

GPA will be calculated as per the standard practices at the undergraduate level of Khulna University. A student's performance will be evaluated in terms of three indices, viz. Term Grade Point Average (TGPA), Yearly Grade Point Average (YGPA), and Cumulative Grade Point Average (CGPA). The TGPA is computed by dividing the total points earned in a Term by the number of credits taken in the Term. The YGPA is computed by dividing the total grade points earned in two Terms in a year by dividing the number of credits taken in that year. The CGPA is computed by dividing the total grade points accumulated up to date by the total completed credits. Thus a student who has earned 275 grade points in attempting 100 credits of courses would have an overall CGPA of 2.75. The students will be awarded the Degree with Distinction, if their CGPA is 3.75 or above.

## 20.1.3 Evaluation of Theory Courses

All theory courses will be evaluated out of 100 marks. The marks will be distributed as follows:

| | |
|---|---|
| Attendance: | 10 Marks |
| Continuous Assessments: | 30-40 Marks |
| Term Final: | 50-60 Marks |
| **Total:** | **100 Marks** |

## 20.1.4 Evaluation of Sessional Courses

All sessional courses will be evaluated out of 100 marks. The marks will be distributed as follows:

| | |
|---|---|
| Attendance: | 10 Marks |
| Sessional Assessments: | 60 Marks |
| Viva voce: | 30 Marks |
| **Total:** | **100 Marks** |

(a) For both theory and sessional courses, attendance shall carry 10 marks and the basis for awarding marks will be as follows:

| Attendance (%) | Marks |
|---|---|
| ≥ 90 | 10 |
| 85 to < 90 | 9 |
| 80 to < 85 | 8 |
| 75 to < 80 | 7 |
| 70 to < 75 | 6 |
| 65 to < 70 | 5 |
| 60 to < 65 | 4 |
| < 60 | 0 |

(b) The continuous assessments (30 to 40 marks) for theory courses may be conducted in the form of written class examinations, assignments, home-works, presentations, quizzes, viva voce, mid-term, etc. For any theoretical course, there shall be at least four assessments. Section best (A & B) assessments shall be counted. A mid-term Examination may be taken if a Discipline/POE opts for it. The concerned Discipline will allocate marks for mid-term and continuous other evaluations in such a case. The course teachers must submit the continuous assessment and sessional assessment mark sheets to the Chair of the Examination Committee before the starting of the Term final examination.

(c) The remaining 50 to 60 marks will be allocated for the term final examination.

(d) A student who fails in any course(s) in the Term final examinations or who registered for the course(s) but did not sit for the examination, the concerned course(s) will be considered as retake course(s).

(e) A student retaking theory course(s) for clearing/passing or improvement must appear at the mid-term (if any) and Term final examinations. A student may attend continuous assessments also on the written approval of the Discipline Head; otherwise, the marks of continuous assessments will be maintained from the student's previous records. The marks of attendance will be carried forward from earlier Term. The obtained grade will be downgraded in case of retaking course(s).

(f) Examination procedure related other guidelines of the latest 'Ordinance for Undergraduate Examination' of Khulna University will generally be applicable for the Master's programs, if not conflicting with this Ordinance.

## 20.1.5 Evaluation of Viva Voce

A Discipline may include Viva Voce of 01/02 credit(s) at the end of each Term. The concerned Examination committee of that Term will conduct the viva and assess the students out of 100 marks.

### 20.1.6 Dissertation under Mixed-mode

i) There will be two components of the Dissertation, namely Dissertation Part-I in one Term for proposal development, and Dissertation Part-II in another term for completing the Dissertation. The total credit for the Dissertation will be between 15 to 20 credits. The credit allocation for proposal development and dissertation parts will be 3-5 credits and 12-15 credits, respectively.

ii) A Dissertation (both proposal and Dissertation) will be evaluated out of 100 marks.

Marks distribution of Dissertation Part-I will be as follows:

| | | |
|---|---|---|
| a) | Assessment of Supervisor | 30 marks |
| b) | Proposal Presentation | 70 marks |

Marks distribution for Dissertation Part-II will be as follows:

| | | |
|---|---|---|
| a) | Assessment of Supervisor | 20 marks |
| b) | Dissertation Evaluation | 50 marks |
| c) | Defense (Oral examination) | 30 marks |

iii) Dissertation Part-I will usually commence in the Master's first-year second-term and Dissertation Part-II in the second-year first-term (final Term).

iv) The final evaluation of the Dissertation Part-II will be made at the end of the final Term. However, the evaluation of the Dissertation Part-I will be done in the corresponding Term.

v) A student registered for Dissertation will undertake research work under the guidance of a supervisor and a co-supervisor (if necessary).

vi) The research needs to be carried out in this University or at the appropriate place(s) approved by the Supervisor in consultation with the Discipline Head.

vii) There shall generally be one Supervisor for each student, but a co-supervisor may also be appointed if needed. A teacher not below the rank of Assistant Professor will act as supervisor/co-supervisor. However, a Lecturer with MPhil/ Master's by Research/ Ph.D. degree is eligible to supervise/co-supervise a student. Co-supervision may also be allowed from other Disciplines of Khulna University/other universities or research institutes.

viii) If a student has any grievance about a Supervisor, or if a Supervisor has any complaint against a student, s/he may inform the Discipline Head about the issue in writing. The Discipline will decide such matters.

ix) Pursuant to the leave rules of Khulna University, a Supervisor can remain absent from Khulna University (not more than six months) while continuing as a Supervisor. The online defense may be arranged in such cases if deemed necessary. Otherwise, the Co-supervisor (if any) or any other competent person will act as the Supervisor as per the guideline of the concerned Examination Committee. This will be applicable for projects and internships also.

x) Every student submitting a dissertation in partial fulfillment of the requirements of a degree will be required to appear at proposal presentation for Dissertation Part-I and defense board

of Dissertation Part-II respectively on the dates fixed by the Discipline Head in consultation with the Supervisor(s). Such presentation and defense may be arranged online if deemed necessary to the concerned authority. A student must satisfy the examiners that s/he is capable of undertaking independent work and affording evidence of satisfactory knowledge related to the theory and techniques used in his/her research work.

xi) A student must submit the required number of printed and soft copies of Dissertation Part-II in the approved format through the Supervisors to the Discipline Head by a date to be fixed by the Discipline. The Dissertation will not usually be considered for evaluation if the plagiarism detection system yields a similarity index of more than 25% (excluding bibliography/references, quotes, and small sources with source exclusion threshold of ten-word counts). This will be applicable to the dissertations written in English. The curriculum of the concerned program will provide a specific guideline on this issue.

xii) Each student shall certify that the research work is his/her own and that the work was not submitted elsewhere for any other degree or diploma - the entire work has not been published as a monograph or a book before the Degree is awarded.

xiii) If any change is required in the title/supervisor/co-supervisor/examiner/etc., the Discipline Head will send it to the BOAS through EC.

## 20.1.7 Credit Requirement and Duration of the Program

The required credits and duration for Master's Programs are mentioned below.

| Program type | Credit Requirement | | | | Program Duration | | | |
|---|---|---|---|---|---|---|---|---|
| | Coursework (Min.) | Dissertation (Min.) | Dissertation (Max.) | Total (Min.) | Term (Min.) | Year (Min.) | Term (Max.) | Year (Max.) |
| Mixed-mode (Dissertation) | 20 | 15 | 20 | 40 | 03 | 1.5 | 06 | 3.0 |

The details of each Term Duration will be as follows:

| Item | Duration |
|---|---|
| Teaching and continuous assessment/ Contact with Supervisor | 14 weeks |
| Preparatory leave before: Final Examination/ Seminar/ Defense | 02 weeks |
| Final Examination/ Seminar/ Defense | (Maximum) 04 weeks |
| Term Break | 02 weeks |
| **Total** | **22 weeks** |

## 20.1.8 Course Types

The courses included in the Master's curriculum may be divided into three groups as follows:

(i) **Core Courses:** Core courses are obligatory for a degree.

(ii) **Optional Courses:** Any other courses students may undertake to earn the Degree.

(iii) **Major Courses:** A Discipline may offer courses from one or more major areas (if any), and after completing a certain number of credits from that area (as reported in the following table), a student can achieve a Master's degree with a major in a specified field, and that will be mentioned in the Transcript, e.g., MS in Agrotechnology (Horticulture). The curriculum of the concerned program will provide a detailed description of such cases.

**Credit Requirements for Offering Major**

| Program type | Min. credit requirement from major area* | | | |
|---|---|---|---|---|
| | Coursework (Min.) | Dissertation (Min.) | Dissertation (Max.) | Min. from Major Area |
| **Mixed-mode (Dissertation)** | 9 | 15 | 20 | 20 |

* For achieving a Master's degree with a major in a specified field under a mixed-mode or 'Master's by Research' scheme, the concerned dissertation must be directly linked with the 'major area' under consideration.

(iv) **Viva Voce:** A Discipline may include Viva Voce of 01/02 credit(s) at the end of each Term. The concerned Examination committee of that Term will conduct the viva and assess the students out of 100 marks.

(v) **Assignment of Credit:**

**Theory Courses:** For theory courses, one-hour face-to-face learning (e.g., lecture, tutorial, seminar) per week will be equivalent to one credit.

**Sessional Courses:** For sessional courses, 1.5-hour face-to-face learning (e.g., lab work, studio, fieldwork, or clinical work) per week is equivalent to 1.0 credit. For industrial/ workplace learning, 2-hour learning per week is equivalent to 1.0 credit.

In addition to face-to-face and other means of learning, online teaching-learning might be exercised if deemed necessary to the Discipline/POE.

## 20.1.9 Course Registration

(i) Each student will get oneself registered with the University. S/he will fill in the course registration form in consultation with the Program Coordinator under the guidance of the Discipline Head. The Program Coordinator will verify the form and submit it to the Discipline Head for forwarding it to the Registrar's office. Such submission might be made online, when and where applicable. The Registrar's office will be responsible for its distribution to relevant authorities (Disciplines and the Controller of Examinations). Course registration will be permitted within five working days at the beginning of each Term. Late registration will be permitted up to the next five working days on payment of a late fee. Student(s) having outstanding dues to the University shall not be permitted to register.

(ii) A student has to register for the backlog/retake/re-retake core courses first followed by the fresh courses offered by the Discipline for the term s/he is going to enroll subject to the compliance with: (i) completion of prerequisite courses (if any) and (ii) maximum credit registration limit per Term. However, s/he may not choose to register the optional backlog/retake/re-retake courses first.

(iii) A student may be allowed to register for advance course(s) in a term subject to: (i) his/her all backlog/retake/re-retake and offered core courses are either clear or registered, (ii) his/her current terms offered all core courses are registered, (iii) completion of corresponding prerequisite courses (if any), (iv) compliance with maximum credit registration limit per Term, and (v) the desired advance courses are offered by the Discipline/POE in the current Term. However, such an advance course registration option will not be applicable for capstone courses like Thesis/ Project/ Internship/ and so on.

(iv) A student retaking/re-retaking the course will be awarded the immediate lower grade he/she obtains, and this grade will be shown and maintained on the Transcript.

(v) A Discipline/POE will not continue an optional course if less than 30 percent of students (of total seats for that batch) register for that course within ten working days from the

beginning of classes. The situation will be solved by dropping that optional course through applying article 10.3 of MS Ordinance by the next five working days. The Coordinator will maintain such records and act accordingly. However, the concerned Discipline/POE might relax this clause for only final term/year optional courses if it is deemed necessary (for example, the studentship will be toward termination or the student will have to wait for additional term/year if the considered optional course(s) are not offered).

### 20.1.10 Limits on the Credits to be taken in a Term

Discipline Head may allow a student to register up to a maximum of 25 credits if recommended by the Program Coordinator. However, there is no minimum credit limit per Term in Master's level study.

### 20.1.11 Course Adjustment Procedure

A student will have the option to add or drop course(s) from his/her registration list within fifteen working days from the beginning of classes. This can be done with the advice of the concerned Program Coordinator and consent of the Discipline Head. Adjustment of initially registered courses in any Term can be made by duly filling in the Adjustment Form. The Registrar's office will do the needful.

### 20.1.12 Withdrawal from a Term

If any student cannot complete the Term Final Examination due to severe illness or serious accident, he/she may apply to the Dean through the Head for total withdrawal from the Term within eight working days after the end of the Term Final Examination. However, s/he may choose not to withdraw from any sessional courses if the grade obtained in such a course is 'C' or better. A medical certificate endorsed by the Chief Medical Officer of the University must support the application. The Dean of the concerned school will decide on such an application and inform the Registrar. If a student is allowed to withdraw from a Term, he/she will have to register as fresh for the Term he/she has withdrawn. However, he/she may be allowed to register for backlog courses, if offered.

### 20.1.13 Absence in a Term

A student may be absent from continuous assessments (quizzes/class test/field works, etc.) during the Term. Such absences will naturally reduce points/marks, which count towards the final grade. Absence in the Mid Term (if any) and the Term Final Examination will result in 'F' grade. A student who has been absent for short periods, up to a maximum of three weeks due to illness, should request the Course Teacher or Program Coordinator to makeup continuous assessments immediately on returning to the class. A medical certificate should support such request from the Chief Medical Officer of Khulna University. The medical certificate issued by registered medical practitioners (with the registration number shown explicitly on the certificates) and endorsed by the Chief Medical officer of the University will also be acceptable only in those cases where the student has valid reasons for his absence from the University.

### 20.1.14 Special Term

Students having any retake/re-retake course(s) may apply for a special Term to complete the total required course (maximum 09 credits) in that Term. The special Term will be offered for the final term students who have retake/re-retake courses. The examination will start four (04) weeks after publication of the result and will continue not more than 2 (two) weeks. The marks of both attendance and continuous assessments will be carried over from the previous record.

### 20.1.15 Registration for Improvement

If any student gets a 'D' to 'C+' grade in any course, s/he may be allowed to repeat that course to improve the grade. The previous grade will be replaced from the grade sheet in such a case.

### 20.1.16 Backlog

If a student obtains an 'F' grade in any Core course in any term, this 'F' grade will not be counted for Grade Point Average (GPA) but will be shown on the grade sheet, and in such case, he/she will have to retake the course to complete the Degree. If a student does not register for an offered Theory or Sessional course in his/her applicable Term (for example, '0541 12 Math 5101' course in his/her Master's first year first term, '0541 12 Math 5203' course in his/her Master's first year second term, '0541 12 Math 6104' course in his/her Master's second year first term), that course will be considered as a 'Backlog' course for that student in the subsequent terms. If a student gets an 'F' grade in an Optional course, he/she may, subject to availability, choose to take an optional substitute course. In such a case, that substitute course will be deemed as a fresh course. In case of registering for a Backlog Theory or Sessional course, a student has to face/appear/attend 100 marks evaluation, like a fresh course.

### 20.1.17 Credit Transfer/ Credit Waiver

This ordinance permits credit transfer to facilitate educational mobility. That transfer of credit(s) may be inward or outward. In the case of outward credit transfer, a student of Khulna University has to apply to the Registrar through the Head of the Discipline/POE for getting a credit transfer certificate. The application must be supported by necessary documents, including a copy of the grade sheet(s). Accordingly, the Registrar will issue a credit transfer certificate mentioning the number of credits already completed at Khulna University.

In case of inward credit transfer, students from other Universities/ Institutions may apply to the Registrar of Khulna University for credit transfer. The application must be supported by necessary documents, including a copy of grade sheet(s) and curriculum. The Registrar's office will forward the application to the concerned Discipline/POE. A three-member committee headed by the Discipline Head and two senior most teachers will assess the application and recommend for approval to the Registrar. The maximum limit of credit transfer from other Universities/ Institutions will be less than or equal to 50 percent of the total credits required to complete the concerned Degree. The final transcript of such students will show only the number of credits transferred.

The same process may be applied for handling the credit waiver related applications. However, the maximum limit of inward credit waiver from other Universities/ Institutions should be less than or equal to 20 percent of the total credits required to complete the concerned Degree.

## 20.2 Grades

Grade related issues are reported in section 20.1.

## 20.3 Grade Point Average (GPA)and Cumulative Grade Point Average (CGPA)

**a)** Grade Point Average (GPA) is the weighted average of Grade Points obtained in all the courses passed/completed by a student. For example, if a student has passed/completed five courses in a term having credits of C1, C2, C3, C4, and C5 and his/her points in these courses are G1, G2, G3, G4, and G5, respectively, then,

GPA = ∑CiGi/∑Ci

**b)** A Numerical Example: Suppose a student has completed five courses in a term and obtained the following grades:

| COURSE | CREDIT | GRADE | GRADE POINT |
|---|---|---|---|
| A | 3 | A+ | 4.00 |
| B | 3 | C+ | 3.00 |
| C | 3 | A | 3.75 |
| D | 2 | B | 3.25 |
| E | 1 | B+ | 3.50 |

Then his/her GPA for the term will be computed as follows:
GPA= 3(4.0) + 3(3.0) + 3(3.75) + 2(3.25) + 1(3.5) / (3 + 3 + 3 + 2 + 1) = 3.52

**c)** A student's performance will be evaluated in terms of three indices- Term Grade Point Average (TGPA), Yearly Grade Point Average (YGPA), and Cumulative Grade Point Average (CGPA). The TGPA is computed by dividing the total points earned in a Term by the number of credits taken in the Term. The YGPA is computed by dividing the total grade points earned in two Terms in a year by dividing the number of credits taken in that year. The CGPA is computed by dividing the total grade points accumulated till date by the total completed credits. Thus a student who has earned 275 grad points in attempting 100 credits of courses would have an overall CGPA of 2.75.

### 20.4 Course Withdrawal

**a)** 'W' is the corresponding grade for withdrawn of a course, as mentioned in section 20.1.1.

**b)** If any student cannot complete the Term Final Examination due to severe illness or serious accident, he/she may apply to the Dean through the Head of the concerned Discipline for total withdrawal from the Term within eight working days after the Term Final Examination. However, he/she may choose not to withdraw from any sessional course if the grade obtained in such a course is C or better. A medical certificate endorsed by the Chief Medical Officer of the University must support the application. The Dean of the concerned School will decide on such an application and inform the Academic Council. If a student is allowed to withdraw from a Term, he/she will have to register as fresh from the Term he/she has withdrawn. However, he/she may be allowed to register for backlog courses, if offered.

## 20.5 Incomplete (I) Courses

'I' is the corresponding grade for an incomplete course, as mentioned in section 20.1.1.

## 20.6 Retake

Retake related issues are reported in section 20.1.

## 20.7 Grade Improvement

Grade improvement related issues are reported in section 20.1.

## 20.8 Dropout/Cancellation of Studentship

Dropout/Studentship cancellation related guidelines of the latest 'Ordinance for Undergraduate Examination' of Khulna University will generally be applicable for the Master's programs, if not conflicting with this Ordinance.

## 20.9 Publication of Results

(i) The Controller of Examinations will publish the result and preserve all the records for one year after the Degree is awarded. The result will be published subject to completing the

required number of credits and fulfilling other requirements (for example, article/paper for 'Master's by Research' mode students) within the stipulated time limit, as applicable.

(ii) A student can have his/her results re-examined by applying to the Controller of Examinations within 30 working days from the date of publication of results. However, s/he has to pay a re-examination fee fixed by the concerned authorities. The Controller of Examinations will take necessary measures regarding the matter in consultation with the Chairman of the Examination Committee. Answer script re-scrutiny and result re-examination related rules of the latest 'Ordinance for Undergraduate Examination' of Khulna University will generally be applicable for the Master's programs also.

## 20.10 Subsequent Ordinances

For related/relevant issues, which are not covered (or not cleared) here, provisions of the latest 'Ordinance for Undergraduate Program' and 'Ordinance for Undergraduate Examination' of Khulna University may be consulted and applied, if not conflicting with this Ordinance.

| Approval Records | |
|---|---|
| Approving Authority | Date of Approval |
| Curriculum Committee of the Discipline | 08. 09. 2022 |
| Executive Committee of the School | 11. 09. 2022 |
| BOAS (if applicable) | 22. 09. 2022 |
| Academic Council | |
| Syndicate (if applicable) | |

| **Concerned Committee of the Discipline/POE** (if applicable) | | | |
|---|---|---|---|
| Serial No. | Name and Address | Designation in Committee | Remarks |
| 01 | Dr. A.T.M Masood Reza, Associate Professor | Chairman | |
| 02 | Dr. Sifat Sarwar, Assistant Professor | Member | |
| 03 | Md. Azharul Islam, Assistant Professor | Member | |
| | Rumana Asad, Associate Professor | Member Secretary | |

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