# Course Catalog 2019-20

Habib University

shaping futures

# Disclaimer:

# HU Course Catalog 2019-20

The catalog is not to be considered as a binding contract between Habib University and students, parents, or guardians of students, nor other interested parties. Habib University reserves the right at any time, without advance notice, to change any part, portion or provision of the catalog; no vested rights shall run or be created by the catalog, including the right to notice of any modification, novation, amendment, supplementation, or other change of any term, provision or content of the catalog; such right of the University to enact changes, etc., especially shall include but not be limited to;

(a) Withdrawal or cancellation of classes, courses, and programs;
(b) Changes in fee schedules;
(c) Changes in the academic calendar;
(d) Changes in admission and registration requirements;
(e) Changes in the regulations and requirements governing instruction in and graduation from the University;
(f) Changes of instructors;
(g) Changes of rules and regulations governing the students and student body organizations;
(h) Changes of on-campus facilities, programs, and costs for room and/or board of students;
(I) Changes of extra-curricular student activities, programs, and offerings; and
(j) Changes of any other regulation affecting students, their parents/guardians, or other interested parties.

The official version of the Habib University Course Catalog is updated at the start of every semester and resides on the Habib University website.

See www.habib.edu.pk/admissions/resources/academic-prospectus/

Consult the University website (www.habib.edu.pk) for further information about the University.

Catalog compiled by the Office of the Academic Systems and Registrar; produced by the Office of Marketing and Communications.

# Habib University Course Catalog

2019-2020

# Contents

# Vision

Habib University is envisioned to be a preeminent institution of higher learning, dedicated to enriching individual lives and engaging society through teaching, research and service.

# Mission

Our mission is to:

- Educate promising students from all backgrounds and enable them to become competent, caring and critically-conscious members of society.
- Engage outstanding academics with a passion for teaching, who will work with us to enrich the minds and lives of our students and contribute positively to the larger community.
- Promote creativity, academic freedom and exchange of ideas in an intellectually stimulating environment of mutual respect and collaboration.

# Philosphy

قِيمَةُ كُلِّ امْرِىءٍ مَا يُحسِنُه

EVERY HUMAN BEING'S WORTH IS IN THEIR

YOHSIN

EXCELLENCE . PASSION . RESPECT . BEAUTY . SERVICE

Habib University will provide an indigenous liberal arts education that has, at its heart, the philosophy of Yohsin: a striving for excellence, an appreciation of beauty, passion balanced by awareness of consequences, respect for others and a desire to serve the communities in which we are living in.
A multidimensional concept, Yohsin encompasses a world-view where the worth of a person is measured not just in terms of their technical knowledge or skills but by their interaction with nature and society at large. This involves living in a responsible way and positively impacting the community and the world.

# President's Note

Congratulations on your admission to Habib University! By joining our community, you have become a part of a movement – a movement that aims at innovating and transforming Pakistan's higher education landscape. Your time at Habib University will be nothing short of a life-changing experience.

I encourage you to enroll with an open mind – ready to immerse yourself in an amazing curriculum. Do not be surprised when you witness change within yourself, as you are constantly asked to unlearn and relearn, are exposed to a multiplicity of perspectives, are facilitated with a plethora of resources, and are invited to be part of dynamic discussions. Your journey at Habib University will be one of equipping yourself with invaluable knowledge, exploring critical questions, and engaging in progressive thinking.

Habib University grants you access to a world of infinite knowledge through its distinguished faculty, cutting-edge laboratories and studios, state-of-the-art classrooms, and a wealth of academic and recreational resources, all housed within a student-centered university campus. The university curriculum is innovative, flexible, evolving in the light of science, and at the heart of it, interdisciplinary.

Comparable to the curricula of the great centers of knowledge around the world, our liberal arts and sciences encourage you to engage with the breadth of knowledge of all disciplines and schools of thought. You will learn to establish tolerance, appreciate differences, and recognize the importance of collaboration and cooperation – the perfect blend for the creative mind of a leader.

Our aims at Habib University extend beyond purely academic education as we encourage the development of character. Our graduates are not only creative leaders but engaged citizens, empathetic individuals, and responsible stakeholders of society. We believe learning extends well beyond classrooms. For example, students of Habib University have the opportunity of studying for a semester abroad in leading global institutions, enabled by our international partner universities.

Central to the Habib experience is our philosophy of Yohsin, which measures the worth of a person not only in terms of their excellence, but also their passion, beauty, respect, and the service they bring to society. Yohsin shapes all that we do at Habib University and guides us as an over-arching way of life.

I warmly welcome you to your home away from home for the next four years – the most formative years of your life – and I can promise that you will be thoroughly supported by a community of students, faculty and staff.

Welcome to a new beginning, a new experience, and a turning point towards excellence in your lives.

Welcome to Habib University!

Wasif Rizvi
President

# Habib University – Academic Calendar 2019-20

| FALL 2019 | |
|---|---|
| Faculty Returns | August 1, 2019 |
| Eid-ul-Azha Holiday*+ | August 12 – 14, 2019 |
| Independence Day+ | August 14, 2019 |
| First Year Orientation | August 15 – 23, 2019 |
| Board of Faculty | August 22, 2019 |
| Academic Council | August 23, 2019 |
| First Day of Classes | August 26, 2019 |
| Last Day to ADD Course(s) | September 6, 2019 |
| Ashura Break*+ | September 8 – 10, 2019 |
| Board of Faculty | September 19, 2019 |
| Academic Council | September 20, 2019 |
| Board of Governors Meeting | September 27 -28, 2019 |
| Last Day to DROP Course(s) | September 27, 2019 |
| Arbaeen/Chehlum Imam Hussain*+ | October 20, 2019 |
| Board of Faculty | October 24, 2019 |
| Academic Council | October 25, 2019 |
| Last Day to WITHDRAW from Course(s) | November 1, 2019 |
| 12th Rabi-ul-Awwal*+ | November 10, 2019 |
| Board of Faculty | November 28, 2019 |
| Academic Council | November 29, 2019 |
| Self-Service Enrolment Spring 2020 (Batch-Wise) | November 11 – December 6, 2019 |
| Last Day to Submit Incomplete Grade Request Form | December 6, 2019 |
| Last Day of Classes | December 6, 2019 |
| Reading Days+ | December 7 – 8, 2019 |
| Final Examinations | December 9 – 13 & 16 – 18, 2019 |
| Quaid-e-Azam Day+ | December 25, 2019 |
| Final Grades Due by the Faculty | December 26, 2019 |
| Official Grade Announcement | December 30, 2019 |
| Semester Break (Winter) | December 19, 2019 – January 12, 2020 |
| SPRING 2020 | |
| Faculty Returns | January 8, 2020 |
| First Day of Classes | January 13, 2020 |
| Last Day to ADD Course(s) | January 24, 2020 |
| Board of Faculty | January 30, 2020 |

| | |
|---|---|
| Academic Council | January 31, 2020 |
| Kashmir Day+ | February 5, 2020 |
| Last Day to DROP Course(s) | February 14, 2020 |
| Board of Governors Meeting | February 21 – 22, 2020 |
| Board of Faculty | February 27, 2020 |
| Academic Council | February 28, 2020 |
| Board of Faculty | March 19, 2020 |
| Academic Council | March 20, 2020 |
| Spring Break+ | March 22 - 26, 2020 |
| Pakistan Day+ | March 23, 2020 |
| Last Day to WITHDRAW from Course(s) | March 27, 2020 |
| 1st Ramzan* | April 24, 2020 |
| Board of Faculty | April 29, 2020 |
| Academic Council | April 30, 2020 |
| Last Day of Classes | April 30, 2020 |
| Last Day to Submit Incomplete Grade Request Form | April 30, 2020 |
| Labor Day+ | May 1, 2020 |
| Reading Days | May 1 – 3, 2020 |
| Final Examinations | May 4 – 9 & 11 - 12, 2020 |
| Enrolments - Summer 2020 | May 13, 2020 |
| Final Grades Due by Faculty | May 17, 2020 |
| Official Grade Announcement | May 18, 2020 |
| Eid-ul-Fitr Holidays*+ | May 24 – 26, 2020 |
| Board of Governors Meeting | May 28-29, 2020 |
| Convocation Ceremony 2020 | May 30, 2020 |
| Board of Faculty | June 4, 2020 |
| Academic Council | June 5, 2020 |
| SUMMER 2020 | |
| Last Day to Add / Drop Course(s) | June 5, 2020 |
| First Day of Classes | June 8, 2020 |
| Last Day to Submit Incomplete Grade Request Form | July 31, 2020 |
| Last Day of Classes | July 31, 2020 |
| Final Examinations | August 3 – 4, 2020 |
| Final Grades Due and Official Announcement | August 5, 2020 |

* Subject to sighting of the moon
† No Class(es)

**Note:**
The University's Examination Policy is available in the Academic Policies folder on the Faculty/Staff Portal.

Habib University reserves the right to correct typographical error or to adjust the academic calendar at any time it deems necessary.

# About Habib University

Habib University's liberal arts and sciences framework offers students broad-based knowledge across a variety of disciplines while delving deeply into a specific field. It proves a combination of technical expertise and vital soft skills, qualities that are highly sought in today's professional world.

Passionate and supportive, Habib University's internationally qualified faculty is invested in their students' academic, personal and professional success. As dedicated teachers, respected experts and innovative researchers, they will share their experience with students, involve them in their projects and prime them to embark fearlessly on their academic journey. Habib University provides a meta-curricular learning experience which takes students beyond conventional academics. Student Life activities are a large part of what defines learning at Habib. Through these activities, students will encounter diverse perspectives and find solutions to real-world problems, making their learning experience a truly transformative one. With multipurpose recreational spaces, technology-enabled classrooms, state-of-the-art labs and much more, Habib University's purpose built campus provides students plenty of opportunities to maximize their potential.

Habib University forms a diverse community of learners hailing from a variety of backgrounds, who bring with them a myriad of perspectives and opinions. Encountering such different people and ideas builds an awareness of global perspectives among students.

Global partnerships have been instrumental in the development of Habib University, enabling us to adopt the best practices in higher education. Partnerships with two of the top universities in the US – Texas A&M and Carnegie Mellon – have resulted in mutually enriching and supportive relationships from the early stages of institutional planning through curriculum development to ongoing academic operations and administration. Habib University is also collaborating with leading undergraduate liberal arts colleges – including Harvey Mudd College and Pitzer College, in Claremont, California – on faculty and student exchange, faculty development, co-teaching of courses, and program development.

To expand student opportunities, Habib University has partnered with Stanford University's Summer International Honors Program, a highly competitive program that allows our top students to learn at some of the world's leading universities, University of California, Berkley and University of Michigan-Ann Arbor for study abroad.

# Academic Policies

(Applicable to all Habib University students, faculty, and academic staff)

## Academic Rights and Responsibilities

Habib University is a community of learners founded on the basis of the right to freedom of thought and respectful exchange of ideas. Neither students nor faculty should be disadvantaged on the basis of their political, religious, or other opinions. No member of the Habib University community will behave in any manner that infringes on the rights of any student or faculty to teach, learn, carry out research, or pursue creative or other activities connected to the University.

Students are expected to attend all classes, seminars, and labs and to follow any other reasonable course of study as determined by their instructors, academic advisors, or the Board of Faculty. Classroom assignments and course/degree requirements should be completed as prescribed in order to allow faculty sufficient time for adequate evaluation. Failure to fulfill these responsibilities may adversely affect course grades, cumulative grade point average (CGPA), and/or progress within the student's degree program.

Academic dishonesty shall be considered a serious violation of these responsibilities and will be subject to strict disciplinary action as prescribed by the Habib University's 'Student Code of Conduct and Honor Code'. Academic dishonesty includes, but is not limited to, cheating, plagiarism, and collusion.

Faculty shall evaluate student performance based upon the expectations and the actual content of the class, lab, or another course of study as defined by the faculty member at the outset of the course. Students who feel that they have received a capricious or arbitrary grade can appeal said grade as defined elsewhere in this document.

## University Statement of Anti-Discrimination

Habib University is committed to providing a learning environment free from discrimination and to nurturing a diverse and vibrant University community while respecting the fundamental dignity and worth of all of its members. Supporting this commitment, the University does not tolerate discrimination in any form and provides mechanisms for redress for students who feel they are being discriminated against.

Habib University does not discriminate against any person in the management and administration of its academic and admission policies, scholarship and financial aid programs, and other University-administered programs nor does the University permit the harassment of any student or applicant on the basis of race, color, sex, gender, religion, national origin, creed, disability, marital status, sexual orientation, partnership status, pregnancy, age, military status, or any other legally protected status.

The Office of Student Affairs is responsible for coordinating the University's adherence to this policy and for complaint procedures in regard to discrimination or harassment.

# Catalog Year

Catalog year refers to the setting of course requirements within academic programs as stated in the applicable section of a specific catalog. A student must graduate under the provisions of any academic catalog in effect since the student began continuous enrollment at Habib University, but must do so in a single catalog's entirety.

Continuous enrollment is defined in this policy as being enrolled in classes without a break in semesters/terms, excluding Summer semesters/terms in most instances, or unless covered in other areas of the academic catalog or other student policy document.

# Academic Advising

Academic Advising is a central element of the undergraduate experience at Habib University. It is intended to be a collaborative relationship between a student and their advisor through which students create educational plans consistent with their personal, academic, and career goals. Every student enrolled at Habib University is assigned an academic advisor at the time of enrollment/induction. Students should meet with their advisors at least thrice per semester to discuss their academic progress. Students who are struggling academically should first speak with their academic advisor for guidance. Students who have been placed on Academic Alert or Academic Probation must meet with their academic advisor as described later in this document.

A student's academic advisor is listed in the University's Campus Management System (PeopleSoft) available via the Student Portal at the University's Intranet. Students wishing to change their advisor should make a formal request to the Office of Academic Performance.

# Declaration of a Major

## Dhanani School of Science and Engineering (DSSE)

All first-year students enrolled in DSSE must declare their major by the end of their first-semester by submitting a 'Declaration of Major' form to the Office of the Registrar. Confirmation of a major requires satisfactory performance in the area of study and the fulfillment of any requirements set forth by the respective programs.

## School of Arts, Humanities, and Social Sciences (AHSS)

Students must confirm their major by the end of their second-year by submitting a 'Declaration of Major' form to the Office of the Registrar. Confirmation of a major requires satisfactory performance in the area of study and the fulfillment of any requirements set forth by the respective programs.

# Change of a Major

Students wishing to change their major must submit a 'Change of Major' application form to the Office of the Registrar. A change of major application must be approved by the student's academic advisor, the concerned program director/dean, and the Office of Academic Performance. Once the approval process is complete, a coursework/graduation plan must be submitted by the student to the Office of the Registrar based on the graduation requirements for the most recent catalog year of the new major. This plan must be developed in consultation with the student's academic advisor and the Office of Academic Performance. Students must obtain their parent's/guardian's signature on the application

form. Lastly, the Office of the Registrar will process a change of major and notify the student and all concerned University offices including the Office of Student Finance for any financial adjustments needed that result from this change.

## Declaration of a Minor

Minors provide students at Habib University the opportunity to pursue an area of secondary specialization. A minor consists of a smaller set of classes within a well-defined area as determined by the awarding program and duly approved by the University's Academic Council. Students interested in completing a minor must declare their choice before the end of enrollment of their seventh semester by filing a 'Declaration of Minor Form' and submitting it to the Office of the Registrar.

## Transfers

All transfer requests, including a transfer of credits, will be reviewed on a case-by-case basis.

All incoming students, regardless of their transfer status, must satisfy the University's Liberal Core requirements, spend at least four semesters at the University as full-time students before graduation and fulfill transfer criteria as per the University policy. Students may transfer out from Habib University at any time. Students are advised to begin the transfer process well in advance of the end of the academic year by submitting a transfer of credits request to the Office of the Registrar.

Enrolled students at the University may submit a request for a transfer of credits taken at other recognized institutions (e.g., through the University's learning abroad program) to the Office of the Registrar. On receiving a form that is duly-filled and signed by a student, the Office of the Registrar sends the form along with the necessary documents (as mentioned in the form) to the relevant program director for approval of the Board of Studies (BoS). On receiving an approval of the BoS and the concerned dean of the school, the Office of the Registrar processes the application and notifies the student and all concerned departments/units accordingly.

Courses for which a transfer of credits is approved appear on the student's transcript with a 'TR' (transfer) grade, which is not counted towards a student's semester/cumulative GPA. Further details and procedures are available in the Habib University's Transfer of Credits Policy.

## Attendance Policy

Attendance is mandatory at Habib University. Unless an absence is due to a University-sanctioned event in which a student is officially representing the University, there is no distinction between excused and unexcused absences. Attendance will be taken and absences noted in all classes by the course instructors in the University's Campus Management System (PeopleSoft). All first and second-year students must maintain at least 85% attendance for each class in which they are registered. All third and fourth-year students must maintain at least 75% attendance for each class in which they are registered. Non-compliance with the minimum attendance requirements will result in an automatic failure of the course with an award of an 'F' grade and may require the student to repeat the course when next offered, subject to the University's course repeat policy.

# Grading Scale

| Letter Grade | Scale |
|---|---|
| A+ | 4.00 |
| A | 4.00 |
| A- | 3.67 |
| B+ | 3.33 |
| B | 3.00 |
| B- | 2.67 |
| C+ | 2.33 |
| C | 2.00 |
| C- | 1.67 |
| F | 0.00 |
| AU | Audit |
| W | Withdrawal |
| I | Incomplete |
| TR | Transfer |
| R | Repeat |
| S | Suspended |
| CR | Credit (Pass) |
| NC | Non-Credit (Fail) |

# Grade Point Average (GPA)

At the conclusion of each semester during a student's tenure at the University, grade point average will be reported in two ways:

- Semester GPA (SGPA): GPA for a single semester only;
- Cumulative (CGPA): A cumulative GPA for the duration of the student's enrollment.

Semester and cumulative GPAs are calculated only for courses attended at the University. In some cases, GPAs might be calculated for a school, program, concentration, or major. However, these specialized GPAs will not appear on a transcript.

## Calculating Your GPA

- Grades A+ to F earned in a course shall be counted towards the calculation of SGPA and CGPA.
- Grade F replaced by R or R*, upon repeating a course, shall not be counted towards the calculation of SGPA and CGPA.
- Following grades shall not be counted towards the calculation of SGPA or CGPA: Audit (A), Withdraw (W), Incomplete (I), Transfer (T), Suspended (S), Credit (CR), Non-Credit (NCR).

- In case of a change of major, grades of the following courses earned while pursuing previous major will be transferred to new major and will be counted towards the calculation of CGPA:
    - All Liberal Core Courses irrespective of grade(s) earned
    - Any core courses relevant to the new major irrespective of the grade earned
    - Courses with a passing grade that may be eligible for transfer to new major as electives
- In case of a change of major, the courses and respective grades which are not transferred to the new major will also be listed on the transcript but their grades and credit hours will not be counted towards the calculation of CGPA. All passing grades of the courses not transferred will be recorded as CR and failing grades will be recorded as NCR or R, as per the number of attempts made for a failing course.

The formula for calculating GPA or CGPA is to divide the Total Quality Points (TQPs) earned in all courses by the Total Attempted Credits (TACs).

| | | | | |
|---|---|---|---|---|
| **GPA** | **=** | **Total Quality Points (TQP)** | **/** | **Total Earned Credits** |

Quality Points (QP) for a course equal the course credit hours multiplied by the numeric value of letter grade earned in the course, as per the grading scale. Total Quality Points is the sum of Quality Points of all the courses that are included in the calculation of GPA.

# First Semester Grades

First semester is the transition semester from high school to a university environment for first year students. The transition requires them to learn new skills, adjust to a new environment, understand university expectations, and learn to manage themselves as independent learners. This policy has been developed to allow for an enriching first semester experience, without the pressure of maintaining a high semester grade point average (GPA) required to be in good academic standing.

- Students' aggregate scores in a course will be converted into Credit (CR) for a pass grade and Non-credit (NCR) for a fail grade for all the courses attended in their first semester at Habib University.
- The cut-off for CR will be equivalent to the passing grade as described in the grading scheme of the most recent academic catalog.
- Aggregate scores are awarded for the purpose of determining CR/NCR status. These will not be recorded in the students' transcript or in any other official document.
- CR/NCR will not be included in the calculation of the final Cumulative Grade Point Average (CGPA) that appears on a student's transcript. However, the number of credits earned during the first semester will be counted in the total credits required to graduate.
- Students earning an NCR in one or more first semester course(s) may repeat the same course(s) or equivalent, in subsequent semesters. For such courses, the grading policy of CR/NCR shall apply.

- First semester CR/NCR will be considered in assessing students' academic standing status. First year students receiving one NCR (noncredit grade) or more in the first semester will be placed on 'Academic Warning' as per the University's Academic Standing Policy.

- Habib University's financial commitment to first year students, if any, will not be affected by their first semester grades.

- First year students will be considered eligible for student employment in the second semester of their study at Habib University if they earn CR in all of their first semester courses.

## Incomplete (I) Grade

Students are expected to complete all academic coursework and assignments during a semester in which they were assigned the latest by the last day of classes in a semester. If a student is unable to complete a course due to serious illness or exceptional circumstances beyond their control, and the work completed to date is of passing quality, they may request a grade of 'I' (incomplete) from the instructor, provided that the grade gives no undue advantage to that student. Incomplete grades are not a privilege and are only awarded to students under exceptional circumstances i.e., they cannot be awarded it as part of a course's assessment and grading policy. Incomplete grades should only be awarded on the signed approval of the instructor and the concerned dean of the school. All Incomplete grade requests must be submitted with a duly filled and signed 'Incomplete Agreement Form', which must include the circumstances that have prevented the student from completing the course and must include all necessary details needed to satisfy the requirements of the course and a timeline for completion which shall be no later than the end of the following semester. The instructor must record the permanent grade by the last day of the examination period of the following regular semester or the 'I' will default to an 'F' grade. Incomplete grades are not calculated into a student's grade point average.

The deadline to submit a duly approved 'I' (Incomplete) grade application is the last day of classes in a given semester.

## Change of Grades

Grades awarded at the end of a semester/term for each course, including that of a previously approved 'Incomplete' grade are considered final. Instructors may submit to the Office of the Registrar a 'Change of Grade' form after seeking approval of the concerned dean of the school clearly mentioning the reason for which a change of grade is needed, which can only be due to a calculation or a clerical error. Any change of grade form must be submitted by a course instructor latest by the end of the subsequent semester.

## Course Lettering and Numbering

All courses are designated by a letter prefix denoting the program/subject area in which the course originates. The prefix code is followed by a three number sequence denoting the course level. Levels are designated as follows:

000 – Pre-University and/or noncredit courses offered by the University. This may include some transitional courses.

100 – Courses that are generally taken in the first year.

200 – Courses that are generally taken in the second year.

300 – Courses that are generally taken in the third year.

400 – Courses that are generally taken in the final year of study.

In general, the course level dictates the point at which a student should take a particular course within the sequence of requirements. However, students are encouraged to check all of the course prerequisites to ensure their eligibility to enroll.

Cross-listed courses must be approved by all the participating programs/teaching units through their respective Boards of Studies. Approved cross-listed courses shall have the prefixes of all the participating programs/subjects of studies and shall have the same level.

## Course Repeat Policy

Students are permitted to repeat any course offered by the University, either to improve their original grade or to clear a course in which an 'F', 'W', or 'R' grade was received. A student is permitted to retake a course two (02) times only, for a total of three (03) attempts. All attempts will be recorded on the student's transcript, but only the best-earned grade will be counted towards GPA. Previous attempts will be recorded with an 'R' grade, denoting Repeat.

The University is not obligated to re-offer elective courses, but courses defined as graduation requirements (e.g., Habib Liberal Core or programmatic requirements), must be re-offered or, if the course has been significantly redesigned or discontinued, must have an equivalent course defined by the relevant Board of Studies. The grade(s) earned in the discontinued course will be recorded on the transcript with an 'R*', denoting that the original course has been discontinued and the requirement is met with a new course.

Students failing to clear courses required by their chosen program, especially those that are prerequisite(s) for later courses, may be unable to graduate within eight (08) regular semesters and must seek advice from their academic advisor and the program concerned. The Office of Academic Performance (OAP) shall provide additional advising and academic support in collaboration with the offering program on a per case basis. Students failing a required course after two (02) attempts should give careful consideration to the chosen field of study offered. They are advised to meet with the concerned program director and get approval by the program's Board of Studies, in consultation with the concerned program and OAP. In case of failing a third time, a student will be required to meet with OAP and the concerned program director to develop an 'Academic Success Plan' for the student's new major.

A course repeat fee may be charged for any repeated course, regardless of the reason for a repeat.

## Maximum and Minimum Course Load

Full-time students at Habib University must register for a minimum of twelve (12) credit hours in a semester to maintain full-time status. The maximum allowable course load per semester is twenty (20) credit hours. Students with a cumulative GPA (CGPA) of 3.0 and above who are in their third or final year may submit a request to the Office of the Register to enroll in an additional course beyond the maximum allowable limit. This is subject to the approval of the student's academic advisor, the concerned program director and the Office of Academic Performance.

# Auditing a Course

Students may audit a course for self-enrichment and academic exploration.

An audited course will appear on the transcript with an "AU" (audit) grade. An audited course does not earn a grade or credit, is not included in the calculation of GPA, and does not count toward the minimum course load required for continuous enrollment. Students registering a course for credit have priority over those wishing to audit the course. A student auditing a course may be asked to drop the course during the semester enrollment period if another student wants to enroll in the course for credit.

Audit courses do not fulfill degree requirements, but the credit value of audited courses may be included in the semester load for determining fees and the maximum number of credits carried each semester. An audited course cannot be used to meet the pre- or co-requisite condition of another course. The extent to which a student may or may not be required to participate in the audited course is determined by the instructor prior to enrollment including attendance. For example, the instructor may decide if a student auditing a course will be permitted to take exams, submit homework and have it evaluated. Students choosing to audit a laboratory course may be required to pay the additional lab fee.

The process for registering to audit a course is the same as registering for a course for credit along with the following additional requirements:

- Students wishing to audit a course must obtain approvals from the course instructor and their academic advisor and submit them to the Office of the Registrar using the Add/Drop course form before the end of the enrollment period.

- For courses with a laboratory component, approval from the lab instructor must also be obtained.

- The program that offers the course may have additional requirements. Students wishing to audit the course should contact the concerned program director for information about these requirements.

Changing a course status from audit to credit, or from credit to audit, or dropping an audit course must be done during the semester enrollment period. A student wishing to change from credit to audit status must meet the additional requirements of registering for an audit course.

An additional fee may be applicable for auditing a course if a student exceeds the maximum allowable course load. Students on financial aid should bear in mind that any fee for auditing a course may not be covered in their financial aid package. It is the student's responsibility to resolve all financial matters related to auditing a course by contacting the agency administering the scholarship or the Office of Student Finance.

# Academic Standing, Probation, and Dismissal Policies

Habib University requires that all students maintain good academic standing in order to remain enrolled at the University. Academic standing is determined by academic performance and is measured through a cumulative grade point average (CGPA). Failure to maintain good academic standing may result in an academic warning, first academic probation, final probation, or dismissal. At each stage, below good academic standing students are provided learning support and advice in order for them to achieve good academic standing.

This policy defines good academic standing as well as identifies the circumstances under which a student is placed on academic warning, first academic probation or final probation, and the

consequences of these standings.

## Details of Academic Standing

### Good Academic Standing

Students who maintain a minimum cumulative grade point average (CGPA) as per the University's graduation requirement i.e., 2.33 and a fulltime status by enrolling in minimum 12 credit hours per semester are considered to be in 'Good Academic Standing'.

Students who do not maintain a good academic standing, will not be eligible for the following:

- Apply for the University's learning abroad program;
- To be on Dean's Honors List of the University in a given regular semester;
- Avail student employment opportunities;
- Avail scholarship and/or financial–aid.

### Academic Alert

Following two categories of students while still in 'Good Academic Standing', will be considered to be on 'Academic Alert'.

- Students who maintain a CGPA between 2.33 and 2.67;
- Students who maintain a CGPA above 2.33 but their semester GPA (SGPA) falls below 2.33 in any semester.

An 'Academic Alert' triggers interventions by the Office of Academic Performance (OAP) and concerned academic program(s). It is intended to provide timely academic support to prevent a student from losing their good academic standing. No official letter will be issued to students on Academic Alert.

### Academic Warning

Students will be placed on 'Academic Warning' in one or more of the following situations:

- Students lose their 'Good Academic Standing' by falling below the minimum CGPA of 2.33;
- Freshmen receiving one NCR (non-credit fail grade) or more in the first semester;
- Students failing to maintain a fulltime status.

Students will return to 'Good Academic Standing' if they meet the requisite conditions as defined under Good Academic Standing.

Students on Academic Warning must meet with their academic advisor in OAP and their faculty advisor to design an Academic Success Plan. If the student achieves a CGPA of 2.33 by the end of the semester, the student shall be restored to 'Good Academic Standing'.

### First Academic Probation

Students who are already issued an 'Academic Warning' will be placed on 'First Academic Probation'

if they fail to return to 'Good Academic Standing' by the end of the semester in which they were given the 'Academic Warning'. A student will return to 'Good Academic Standing' if they meet the requisite conditions, as defined under 'Good Academic Standing'.

Students on 'First Academic Probation' must meet with their academic advisor in OAP and their faculty advisor to revise the Academic Success Plan. During the probation period, students should expect close academic supervision and must meet with their OAP and faculty advisors as highlighted in the Academic Success Plan.

### Final Academic Probation

Students will be placed on 'Final Academic Probation' if they fail to achieve 'Good Academic Standing' by the end of the semester in which they were placed under 'First Academic Probation'. Students on 'Final Academic Probation' will remain actively enrolled but under the direct supervision of OAP and the relevant program director.

Students on 'Final Academic Probation' will not be allowed to enroll in more than twelve (12) credit hours and in any new course(s) unless their required repeat courses are not available. Students will enroll only in the courses suggested by their faculty advisor and OAP. They will also undergo any additional intervention plan mandated by the Office of Academic Performance and the relevant faculty advisor and program director(s). Students will return to 'Good Academic Standing' if they meet the required conditions, as defined under 'Good Academic Standing'.

Students on 'Final Academic Probation' must meet with their academic advisor in OAP and their faculty advisor to revise their Academic Success Plan. During the 'Final Academic Probation' period, students should expect close academic supervision and must meet with their OAP and faculty advisors as highlighted in the Academic Success Plan. Students on 'Final Academic Probation' must achieve a CGPA of 2.33 to return to the status of 'Academic Warning' for an additional semester.

### Academic Dismissal

Students will be dismissed from the University if they fail to achieve the CGPA required to maintain 'Good Academic Standing' by the end of their 'Final Academic Probation' period. Additionally, students who refuse to follow the mandated course plan during 'Final Academic Probation' may also be dismissed from the University. Students dismissed for academic reasons are not eligible for readmission to the University or a tuition refund.

## Academic Standing of Students Changing Major during Four years

The academic standing of students who change their Major during their four-year study at the University will be determined using the GPA of courses which are relevant to their new Majors.

# Reinstatement Following Suspension

Students on academic suspension may be reinstated if and when the conditions for reinstatement as defined in the terms of suspension have been met. Students must file a formal request following the procedure outlined below:

- Meet with their academic advisor and develop an 'Academic Success' Plan for their first semester back from suspension;
- Meet with their academic or other agreed upon advisor bi-weekly, or as specified in the

academic plan;

- Maintain good academic standing for the duration of the academic plan;
- Fulfill any other requirement specified in the academic plan.

# Withdrawals

Occasionally, it may be necessary for students to withdraw from one or more courses during a semester due to personal reasons. It should be used only when, in consultation with a student's academic advisor, there is no other alternative.

## Self Withdrawal

Students may withdraw from an individual course or from the University, after consultation with the academic advisor and the Office of Academic Performance. This is a one-time facility afforded to the students and they must exercise it with careful consideration in cases of severe need. Application for withdrawal from a course should be submitted latest by the deadline as stated in the University's academic calendar to the Office of the Registrar. The student should notify the Office of Academic Performance in writing within 30 calendar days of the event leading up to the request and be prepared to submit documentation accordingly.

## Administrative/Non-Voluntary Withdrawal

Habib University reserves the right to administratively withdraw a student from classes.

The University may at any time decide to administratively withdraw a student if it finds such action is needed to maintain a campus environment that is conducive to its educational purpose, to maintain order, and/or to protect the rights and safety of its community members. To this end, officials may order the involuntary withdrawal of a student from the University and/or from its residence facilities in accordance with institutional policy.

This policy will cover behaviors as described herein and that occur on University premises or at organizationally sponsored activities, but it also may address off-campus behavior if the University determines that the behavior has otherwise damaged the University, its property, or that of another community member irreparably; likewise, if the continued presence of the student is seen to impair, obstruct, interfere with or adversely affect the mission, process, or functions of the institution; or if they engage or threaten to engage in behavior that poses a danger or physical harm to oneself or others at any time.

## Procedures under This Policy

This policy should not be seen as a substitute for appropriate disciplinary action as outlined in the Code of Conduct and procedures herein may run concurrently with those processes. This procedure may be implemented at any time in consultation with the competent authority, or if the Head of Student Affairs deems it necessary to do so.

Upon receiving a referral or report of an issue involving a student that could fit under this policy, the Head of Student Affairs or their designee will conduct a review of the information provided. If warranted, an immediate meeting with the student may be requested. After the meeting, the appointed official may take one or more of the following actions:

- Determine that the guidelines have not been met for involuntary withdrawal and terminate the process entirely;
- Determine that the guidelines have not been met and refer the case to the student conduct process;
- Require that the student schedule an evaluation by a qualified, licensed, mental health professional outside of the University at the student's cost;
- Invoke an interim suspension pending further investigation and/or the outcome of a student conduct case;
- Impose additional requirements on the student that must be met in order to continue enrollment;
- Allow a student who meets the conditions herein to voluntarily withdraw from the University and waive the right to further procedures under this policy and any privilege to enroll in the University again;
- Proceed with an immediate administrative withdrawal.
- Student's Failure to Comply
- A student may, with an immediate effect, be involuntarily withdrawn and/or disciplined under the policy and forfeits any right to appeal for any of the following conditions:
- Failure to attend any required meeting;
- Failure to schedule and/or appear for any directives as associated with this process;
- Failure to adhere to any conditions placed on the continued privilege to enroll in the institution.

## Interim Withdrawal

Until a particular case of alleged misconduct has reached a final decision, the student shall retain all privileges to attend classes, use campus facilities, and otherwise be present on campus. As an exception to this shall be in cases where, in the view of the competent authority, a threat to the teaching/learning environment at the University, or the safety of community members is at risk. The University will take steps to ensure the protection of University property, and the University may decide to invoke an interim withdrawal of these privileges at any time. When in the opinion of the University an interim withdrawal/suspension is to be imposed, notification to the student may come in either verbal or written form. Within three (3) business days of an interim action, a student should be notified in writing of any formal allegations. The student will be given the opportunity to resolve the issue, either formally or informally, within ten (10) business days according to the policies and procedures contained herein or in any other University publication.

## Appeals

A student may appeal an involuntary withdrawal using the same procedures as outlined in the student conduct process and the grievance policy.

## Family Emergency and Medical Withdrawal

On rare occasions, a student may have an emergency in the family or a medical reason that prevents

them from completing a term. The student or student's family should notify the Office of the Registrar as soon as possible to request a Family Emergency or a Medical Withdrawal. It may be asked that proper documentation is submitted along with a 'Medical Leave of Absence' application.

In cases where the onset of the issue at hand was sudden and/or the student or family were unable to notify the University, the University may grant a retroactive Family Emergency or Medical leave. In such cases, a written request clearly stating the reasons and documentation should be submitted as soon as possible to the Office of the Registrar.

Appropriate documentation for a withdrawal in this category consists of a letter from the student's attending medical provider that specifies the following:

- Date of onset of illness or other issues;
- Dates under professional care;
- General nature of the medical condition or other issue and why/how it has prevented the student from completing coursework;
- Date the student was last able to attend school;
- Date of anticipated return to school.

### Grading after Withdrawal

All withdrawals completed after the course drop period will be noted on the transcript with a 'W' grade. Signed course withdrawal forms must be turned in to the Office of the Registrar before the deadline as stated in the academic calendar for the current year.

## Leave Of Absence

A request for a leave of absence will be granted if a student is not able to register for classes for more than one regular semester. A leave of absence is good for one academic year and may be renewed only once. Failure to file for a leave absence will result in loss of active student status and readmission will be required if the student wishes to return to school. To file for a leave of absence, an Interim Withdrawal/Leave of Absence Request Form may be obtained from the Office of the Registrar and must be signed by the academic advisor and the concerned dean of the school. In the event that the student has not declared a major, the Director of Academic Performance will approve the application.

## Summer Semesters

Summer semesters are offered at Habib University in addition to the regular semesters. The semester dates, course offerings, and enrollment are announced and handled by the Office of the Registrar. Full-time students at Habib University may enroll in courses offered in Summer semesters to:

I. Repeat a course if an 'F', 'R', 'WP', 'WF' or 'W' grade was awarded for that course previously;

II. Improve grade for a previously attended course;

III. Attend any additional courses other than those required to fulfill requirements of a major program offered at Habib University, e.g. to fulfill requirements of a minor.

Students may enroll in a maximum of two (02) courses (or 08 Credit Hours) in a Summer semester at the University. All University academic policies and regulations including the Attendance and Academic Standing policies will apply as in the regular semesters. All financial policies for a Summer semester, including tuition, fees (if applicable) and discounts are announced by the Office of Student Finance.

Further details are available in the University's Summer Semester Policy.

# University Records

Habib University maintains students' educational records and ensures their right to access and privacy of information maintained in these records. The following guidelines provide procedures for maintenance of and access to student educational records held by the University.

## Definitions

For the purpose of these guidelines, the terms used herein are defined as follows:

Education record – any record, document, or material maintained by the University (either directly or through a third party) that contains information directly related to the student which is recorded on any medium including, but not limited to, handwriting, print, audio, video, tapes, or electronic storage.

However, the definition of education record does not include:

- Records that are maintained by school officials in their personal capacity and are not available to others;
- Records established and maintained by campus security;
- Employment records of the students employed by the University;
- Records maintained by the Health and Wellness Center when the records are maintained solely for the purpose of treatment of the student;
- Records that are maintained after the person is no longer a student, such as Alumni records.

Parent – the natural parent, guardian, or an agent nominated by the parent/guardian to act as such.

University official – an individual employed by the University in an administrative, supervisory, academic, research, or support staff position; a member of the Board of Trustees; an individual performing special tasks for the University, such as an attorney, or an auditor; a contractor, consultant, volunteer, or other outside party providing institutional services; and an individual serving on an official University committee, such as the disciplinary committee, or assisting the University in the performance of official tasks.

Personally Identifiable Information – any information linked or linkable to a student that, alone or in combination, would allow an individual of the campus community, who does not personally know the student, to identify the student with reasonable certainty.

Legitimate Educational Interest – an individual has a legitimate educational interest in education records if the information or record is relevant and necessary to the accomplishment of some employment or other institutional tasks, service, or function.

Disclosure – to permit access to, to release, to transfer, or to communicate students' education records, or personally identifiable information contained in those records.

## Procedure to Inspect and Review Academic Records

Current or former students may inspect their education records by making a written request to the Office of the Registrar. The request must precisely identify, as much as possible, the record or records that are sought. On receipt of an application, arrangements will be made for inspection within a maximum of 10 business days.

REFUSAL/DENIAL OF REQUEST FOR INSPECTION AND REVIEW

A student's request for inspection and review of the following records may be refused:

- The financial statement of the student's parents;
- Confidential letters and letters of recommendations for which the student waived the right to access in writing;
- Records excluded from the definition of education records" in this policy.

A student's request for access to records may also be denied due to one or more of the following reasons:

- The student has not cleared all financial obligations to the University;
- There is a pending disciplinary case against the student;
- The authenticity of the academic records or transcripts is in question.

## Disclosure to Parents

The University reserves the right to release educational records to parents of students as per the University's 'Parental Access and Notification' Policy. The University does not require a student's consent to disclose information related to the student's violation of local or federal laws, or the policies of the University, or of any disciplinary action taken against the student.

## Disclosure to Third Party

The University does not disclose information to any third party without written consent of the student or otherwise covered in this policy. Some examples of requests for which the University does not require written consent of the student are listed below:

- If requested by a University office for legitimate educational use;
- If requested by another school where the students seek or intends to enroll, or is already enrolled;
- Under Judicial Order or lawfully issued subpoena in a litigation against the University, or for disciplinary action against the student;

- In connection with the Financial Aid Program as necessary to determine eligibility for amount or conditions of the aid, or to enforce the terms and conditions of the aid;

- Needed for a collection of financial obligations to the University in case of delinquency of payment by the student;

- In case of threat of harm to self or others.

# Student General Grievance Policy and Procedure

Habib University is committed to providing a method of redress for legally impermissible, arbitrary, or discriminatory practices. This procedure is meant to provide students an avenue for addressing their concerns not mentioned in other University policies and/or procedures. If in light of the investigation and resolution an alleged violation of policy, procedure, or law is seen to have occurred, the University reserves the right to adjudicate the alleged violations through the appropriate procedure(s) as are applicable. Where the department or unit in which the violation allegedly occurred has written procedures for student grievances, students should first attempt to resolve the matter through those procedures.

GRIEVANCE RESOLUTION PROCESS

Before filing a formal complaint under this policy, a student should attempt to resolve the matter informally with the person alleged to have committed the violation and/or with the head of the department or unit in which the alleged issue occurred. The student may contact the Office of Student Life for assistance with informal resolution. Attempts to resolve the matter informally should be completed within thirty (30) calendar days from the time at which the student knew or could reasonably be expected to have known of the violation.

If the incident is not resolved at the informal and/or departmental level, the student may file a formal grievance. Any formal grievance must be filed within sixty (60) calendar days of the incident regardless of the progress of the informal and/or department level process.

Student grievances must be in writing and signed by the student. Grievances must contain the ID number, University e-mail address, physical address, and phone number of the person filing the complaint. It is the responsibility of the complainant to update all current contact information in order for it to be used throughout the grievance process. All official communication regarding the complaint will be sent via the University's official means of communication. The complainant should also provide a detailed statement of the specific action being grieved, the approximate date when the action took place, the resulting injury or harm, the specific law, policy, or rule alleged to have been violated, a description of the evidence supporting the claim, whether informal procedures were available and completed, and the remedy or relief requested. All grievances of an academic nature, including but not limited to grade appeals or instructor complaints, should be filed at the Office of the Registrar. Cases originating outside of academics and all cases of discrimination, harassment, or assault, should be filed at the Office of Student Affairs.

Upon receipt of a formal grievance, the Head of Student Affairs or designee shall review the grievance and make an initial determination regarding whether the grievance is complete, timely, within the jurisdiction of the Student Grievance Procedure, and alleges facts that, if true, would constitute a violation of law or University policy and/or law. If the grievance is untimely or deemed outside the jurisdiction, or factually insufficient, the grievance will be dismissed and the complainant will be notified of the decision with a written explanation of the basis for the dismissal within ten (10) calendar days.

If the grievance is accepted in full or in part, the Office of Student Affairs shall initiate an investigation.

At the completion of the investigation, a written determination of the case will be sent to both parties.

Either party may appeal the decision which will be heard by the University Appeals Committee (UAC). The decision of the UAC shall be final and binding on all parties.

For academic-related grievances, the Office of the Registrar shall inform the student in writing of the decision within ten (10) business days. The decision may follow the UAC's recommendation or be a modification upon it. If it is a modification, the file record must show the Office of the Registrar's s reasoning behind the modification.

* If the program director or the concerned dean is the primary faculty disputant, the student shall be permitted to request informal mediation from the Office of Academic Performance.

# Official Communication with Students

Official communication with students will be through the University email.

Students are responsible for checking their University-provided email accounts frequently and consistently and for adhering to deadlines contained in emails from the University and/or its faculty or staff members.

The University will not respond to a student via a non-University email account.

Communication with parents will be through courier, or through the phone. It is the student's responsibility to ensure all contact information is kept current by reporting any changes to the Office of the Registrar.

# Mid-Term and Final Exam Policies

## Final Examinations

Final examinations are given at the end of each semester during the exams weeks designated in the University's academic calendar and are regulated by the University's 'Examination' Policy. The final examination schedule is announced by the Office of the Registrar.

All students registered in a course for which a final exam is given must attempt the exam at the scheduled time unless an exception is approved by the concerned dean of the school.

## Midterm Examinations

The schedule of midterm exams, be they within or outside the scheduled class hours, are announced by the instructor and conducted during the midterm week announced by the Office of the Registrar before the start of each semester. For courses in which more than one midterm exam is administered, one midterm exam will be scheduled during the allocated week for mid-term exams. Examinations are announced in the course syllabus distributed to the class during the first week of classes.

## Missed Examination

All students are expected to complete their exams within the specified time frame and by the dates

indicated in their syllabus. Students may request a make-up exam on the basis of religious obligation, serious illness, or family emergency.

Examinations will not be rescheduled to accommodate travel, family plans, or employment commitments. Generally, a student who misses an exam without a pre-approved alternate arrangement will receive a 'F' grade in that exam. All make-up exams must be given before the official close of the semester.

### Religious Accommodation

Habib University recognizes that the examination schedule may conflict with some religious observations. In such cases, the University will make reasonable efforts to accommodate the affected students by providing alternative times or methods to attempt examinations.

Students should review the syllabus for each of their courses at the beginning of each semester to determine if personal religious observance may conflict with the scheduled exam(s). In the case of a conflict with a midterm examination, the student must submit to the instructor a statement describing the nature of the religious conflict, specifying the dates and times of conflict by the end of the semester enrollment period. If a suitable arrangement cannot be worked out between the student and the instructor, they should consult the concerned dean of the school.

In case of a religious conflict with a final examination, the student must submit a written statement to the instructor, the concerned program director, and to the Office of the Registrar. In such a case, any approved make-up exam may be scheduled after the final exams period. If a student fails to follow this procedure or fails to give a timely notice of conflict and subsequently misses the exam, no make-up exam will be given and the student will receive a grade of zero in that exam.

## Disability Policy

Habib University is committed to ensuring that all students have the opportunity to take part in educational programs and services and that no individual with a disability shall, solely by reason of the disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity. The Office of Student Affairs aims to provide this opportunity in a manner that meets national and international best practices. For more details and application procedure, refer to the Habib University's 'Reasonable Accommodations for Students with Disabilities' Policy.

## Graduation Requirements Policy

A student applying for graduation must satisfy all University requirements regardless of degree or major in which they are enrolled. Besides University requirement, they are required to fulfill program specific requirements identified by their respective programs.

### Curricular Requirements

- University Liberal Core: A student must complete all requirements of the Habib Liberal Core, as described in the Academic Catalog of the induction year.

- Minimum Cumulative Grade Point Average (CGPA): Students must have a minimum cumulative GPA of 2.33 at the time of graduation.

- Minimum Credit Hours Requirement[1]:

| Program / Major | Minimum Credit Hours Requirement |
|---|---|
| **Social Development and Policy** | 124 |
| **Communication Studies and Design** | 124 |
| **Comparative Liberal Studies** | 124 |
| **Computer Science** | 130 |
| **Computer Engineering** | 134 |
| **Electrical Engineering** | 134 |

- Transfer of Credits: All transfer of credits must be processed in accordance with the Habib University Transfer of Credits Policy by the last day of enrollment of in the Spring semester of the fourth year.

## R2G (Road to Graduation) Program Requirements

Students entering their junior/senior year must fulfill the R2G requirements to ensure their readiness for their transition to the job market, graduate schools, or to launch their entrepreneurial venture. R2G requirements can be met by:

- Attending mandatory workshops, events, and activities organized by the Office of Academic Performance and the Office of Career Services;

- Developing the tools essential for their career transition

## Intent to Graduate Submission Deadline

The deadline to submit the 'Intent to Graduate' form is the last day of enrollment in the Fall semester of the fourth year.

## Declaration of Minor(s) Submission Deadline

The deadline to file a Declaration of Minor(s) is the last day of enrollment in the Fall semester of the fourth year together with the 'Intent to Graduate' form.

## Good Standing

In addition to the aforementioned University requirements, a student must be in good academic, conduct, and financial standings:

- Good Academic Standing: All students must be in good Academic Standing as defined in the Academic Standing Policy stated in the Academic Catalog and any subsequent addendums.

- Good Conduct Standing: All students must be in good Conduct Standing as defined in the Conduct Standing Policy.

- Good Financial Standing: All students must be in good Financial Standing as defined by the Financial Standing Policy.



[1]Subject to the requirements of the accreditation bodies, the minimum credit hour requirements may change for specific batches.

### Program-Specific Requirements

For specific program requirements, refer to the graduation requirement grid of the program in the induction year catalog.

## Using Habib University Technology Services

Habib University has on board the top-notch technologies to fulfill the pedagogical, instructional research, administrative and mission development needs alongside an eye on the future to ensure continual improvement.

The use of technology resources (infrastructure and service) is a privilege that is extended to members of the University community. The IT resources mainly include a digital card for access to campus spaces, a unique digital ID (single ID and password for all applications), dedicated Wi-Fi network, local area network, personal computers in labs and the library, unified communication system (skype for business), student portal (gateway to technology systems and collaboration), Oracle PeopleSoft Campus Management Solution (manage academic administration needs), Sakai (virtual learning environment), Turnitin (formative feedback and originality checking system), Koha (library management system), audio/visual equipment, printers/photocopiers, IT policies/guidelines, and a service desk (central point of contact for queries and issues pertaining to facilities provided by the institution).

As a user, students have access to valuable University IT resources, to sensitive data, and to internal and external networks. Consequently, it is important for students to act in a responsible, ethical, and legal manner. In general, acceptable use means respecting the rights of other computer users and the integrity of the physical facilities.

The University encourages the use of electronic communications to share information and knowledge in support of the University's mission of education, research, and public service, and to conduct the University's business. To this end, the University supports and provides interactive electronic communications services and facilities for telecommunications, mail, publishing, and broadcasting. A safe and civil environment is necessary for students to be successful in their educational pursuits.

Cyber-bullying by any member of the HU community toward another individual constitutes conduct that disrupts the educational environment of the University. Examples of cyber-bullying include, but are not limited to, harsh text messages or emails, rumors sent by email or posted on social networking sites, and embarrassing pictures, videos, websites, or fake profiles. Cyber-bullying is prohibited by state law, and jurisdictions throughout the international community and subject to disciplinary action.

In order to make the best use of the IT resources, an IT handbook (available on the Student Portal), and a dedicated webpage are accessible through University website to guide students through the essential IT systems and services which can be used on any device, anywhere at any time to excel beyond the bounds.

# The Habib University Liberal Core

The classic liberal arts model demands that the total undergraduate experience includes exposure to a broad and inclusive range of existing forms of knowledge. Through the Habib University Liberal Core Curriculum, we ensure that all of our students, regardless of major, conform to this high educational aspiration. No well-educated person should remain ignorant of the insight and perspective offered by the humanities and social sciences, or inarticulate about the wonder of scientific and mathematical inquiry.

Habib University has chosen the Liberal Arts and Sciences model of education because of its commitment to the development of leadership as an essential goal. At the core of our institutional identity is our flagship Habib Liberal Core Curriculum that seeks to fulfill our motto of *Yohsin*: 'The worth of all humans is in the measure of their thoughtful self-cultivation.' As students mature, the Habib Liberal Core enables them to reflect on and articulate the most critical aspects of their experience in the world they inherit.

The Core begins with the systematic development of reading, interpretation, analysis, communication, and presentation skills that will continue to be honed throughout the students' undergraduate careers. The humanities and social sciences component of the curriculum is built around a multidisciplinary engagement with the history, structures, and features of the modern world. From colonialism to nationalism and the nation-state, from war to the global political economy, from the growth of modern media to science and technology, our Liberal Core is committed to a rigorous analysis and critical evaluation of modernity in all its complexity. An encompassing historical understanding is essential to a classic liberal education – one that our core curriculum provides with a critical modern edge.

The principle of *Yohsin* tells us that the cultivation of thoughtful self-awareness is an ancient and universal aspiration. What makes Habib University's Liberal Core unique is its simultaneous focus on Pakistan's distinctive intellectual inheritance and the enduring legacy of Western knowledge. To illustrate this commitment, all students are required to complete at least one course in a regional language. A mandatory Liberal Core course, *Jehan-e-Urdu* ('The World of Urdu'), investigates modern Urdu literature and criticism in order to illuminate crucial aspects of our modernity.

Finally, no modern education is complete without engagement with scientific thought. Science and

scientific method pervade all forms of inquiry as well as our everyday lives. The Habib University Liberal Core Curriculum includes mandatory courses in deductive and quantitative reasoning, natural scientific method and analysis, as well as the nature and place of science in modern societies.

The expanse and logic of the Habib Liberal Core are built on the seven *Forms of Thought/Action*. The seven *Forms of Thought/Action* that govern the Habib Liberal Core Curriculum have been adapted from Stanford University's Breadth Governance model to reflect the regional context. Below are brief descriptions and justifications of the *Forms of Thought/Action* that reflect and govern the curricular logic at Habib. All students are required to take a determined minimum of courses under each form of thought/action.

**Historical and Social Thought (02 courses)**

The extraordinary significance of historical and social knowledge in modern times arises from the unprecedented pace of change in modernity, as well as the growing complexity of modern societies. Across the disciplines, Habib University's faculty also demonstrate a remarkably coherent historical approach to both social scientific and humanistic knowledge. All students will be required to take a minimum of two (02) courses in *Historical and Social Thought*.

**Philosophical Thought (02 courses)**

The study of philosophy has traditionally been at the heart of all liberal core curricula. Philosophical thought serves to enhance the reflective powers of the student, which is essential to concept-generation and innovation in all fields. Furthermore, an understanding of the philosophical depth of a tradition is crucial to a shared sense of inheritance. The Habib University faculty also widely share an interest in philosophy/theory. All students will be required to take a minimum of two (02) courses in *Philosophical Thought*.

**Language and Expression (02 courses)**

The development of linguistic and expressive abilities is widely recognized to be a key benefit of a liberal arts education, and language and literature have traditionally been as central to liberal core curricula as philosophy. Communicative power is one key to achieving success in all fields and disciplines. All students will be required to take a minimum of two courses under this rubric.

**Formal Reasoning (01 course)**

Deductive thinking is crucial across fields and disciplines in both science and engineering, as well as the social sciences and humanities, and a deductive reasoning requirement is standard in higher and liberal education. Such a requirement also reflects the strength of our science and engineering faculty at the University. All students will be required to take a minimum of one (01) course in *Formal Reasoning*.

**Quantitative Reasoning (01 course)**

Numbers and quantities are an essential part of modern civilization and its forms of knowledge. Quantitative reasoning is the ability to interpret and contextualize large amounts of data, and is an essential skill in virtually all professions. All students will be required to take a minimum of one (01) course in *Quantitative Reasoning*.

**Natural Scientific Method and Analysis (01 course)**

The development of scientific method and analysis is a fundamental feature of modernity and its forms

of knowledge. A natural science requirement is standard in higher educational and liberal institutions. To ensure the scientific literacy of all our graduates, students will be required to take a minimum of one (01) course in *Natural Scientific Method and Analysis*.

**Creative Practice (01 course)**

Creativity is increasingly recognized as an important indicator of success, and it is often a required feature of the best higher educational curricula. Given the nature of our programs and faculty in both the School of Arts, Humanities, and Social Sciences (AHSS) and the Dhanani School of Science and Engineering (DSSE), we have an excellent opportunity to make creative practice a distinctive feature of the HU experience. All students will be required to take at least one (01) course under this rubric.

The above core requirements are fulfilled through a combination of compulsory and elective courses. Given the University's unique pedagogical mission, we are committed to a common curricular experience for the HU student body. The Habib Liberal Core Curriculum requirements are fulfilled through the following courses.

| Forms of Thought | Courses |
|---|---|
| Historical and Social Thought (2) | CORE 102: What is Modernity?<br><br>CORE 201: Pakistan and Modern South Asia |
| Philosophical Thought (2) | CORE 202: Hikma I<br><br>CORE 301 Hikma II; or any other course designated by the University to fulfill this Form of Thought. |
| Language and Expression (2) | CORE 101: Rhetoric and Communication<br><br>CORE 121: Jehan-e-Urdu |
| Quantitative Reasoning (1) | Approved courses*:<br>SCI 101 Introduction to Sustainability<br>ENVS 101 Climate Change and Us<br>MATH 106 Music and Mathematics<br>SDP 202B Quantitative Research Methods<br>EE 354 Probability and Statistics<br><br>*Or any other course designated by the University to fulfill this Form of Thought. |
| Formal Reasoning (1) | CS 101 Programming Fundamentals<br><br>Or any other course designated by the University to fulfill this Form of Thought. |
| Natural Scientific Method and Analysis (1) | CORE 200: Scientific Methods<br><br>Or any other course designated by the University. |
| Creative Practice (1) | All students are expected to take a University-approved course in Creative Practice. |

## Core Course Descriptions

### CORE 101: Rhetoric and Communication

The command of language and the ability to communicate effectively in speech and writing is essential to leadership. This is why eloquence in the broadest sense is one of the most highly valued benefits of a liberal arts education. The opening course in our Liberal Core is designed to develop the reading and presentation skills that our students will need throughout their lives. Our curriculum nurtures our students' rhetorical abilities throughout their college career, especially through the Liberal Core. *Rhetoric and Communication* is designed to first identify the different aspects of expression and eloquence as distinct and essential abilities, and to develop and improve them through application and practice.

Explaining the combination of powers involved in the ancient division of rhetoric into invention, arrangement, style, memory, and delivery, the Roman orator Cicero says in his classic text on rhetoric, De Oratore: "Since all the activity and ability of an orator falls into five divisions, he must first hit upon what to say; then manage and marshal his discoveries, not merely in orderly fashion, but with a discriminating eye for the exact weight as it were of each argument; next go on to array them in the adornments of style; after that keep them guarded in his memory; and in the end deliver them with effect and charm."

The material, classroom experience, and exercises of *Rhetoric and Communication* are designed to cultivate all five of these critical abilities, together with sophisticated reading skills. Class content will focus on compelling and relevant texts that anticipate the themes of the larger Liberal Core, and they are chosen to elicit opinion and encourage discussion and debate. As they develop their powers of reading seminal texts, students will practice and improve communication skills through regular writing assignments as well as presentations. *Rhetoric and Communication* will also feature the ethics of discourse and communication, so that tact and respect for the other become an essential part of students' experience and understanding of rhetorical ability.

### CORE 102: What is Modernity?

No one in the medieval world thought they were 'medieval.' The belief that we live in a distinct period of world history – that of 'modernity' – sets us apart from all pre-modern peoples. It is a defining aspect of who we are, essential to our modern identities. It is thus imperative to the task of understanding ourselves and our world, and it is essential to the task of thoughtful self-cultivation. Habib University's pedagogical charter of *Yohsin* requires us to ask the questions: What is it to be modern? What is modernity?

Our 'modernity' is the very air we breathe. It encompasses, at an ever-gathering pace, all aspects of our lives. This is why the question of modernity has been a central concern across the range of disciplines and fields of the arts, humanities, and social sciences. This course will address the most important elements of our global and regional modernity today. Beginning with an investigation of the emergence of this unique *world-historical identity*, we then turn to the historical formation of key structures and features of the modern in the following domains: political modernity, economic modernity, modernity and ecology, and modernity and religion. By the end of the semester the historical character and specificity of these foundational spheres of our present will be visible.

### CORE 201: Pakistan and Modern South Asia

Nation-states – including that of Pakistan – emerged in the region of South Asia in the middle of the 20th century. How did such a world-historical event come about? What has it meant for the peoples of this region? In short, what is the history of our present – what is the history of our regional modernity?

This question takes on a particular urgency in Pakistan as the region passes through the current period of crisis and change. With a significant focus on the emergence and trajectory of Indo-Muslim nationalism and the creation of Pakistan, this course will be an overview of the modern history of South Asia from the immediate pre-colonial historical scene, through the colonial period, including the rise of anti-colonial nationalism and decolonization, to the Cold War and the contemporary period of transformation and turmoil.

Apart from the main outlines of the history of modern South Asia, students will also learn to place the region's colonial modernity within the larger framework of modern history. Students will learn to identify major features of the colonial economy, politics, and society under which – especially after the Great Rebellion of 1857 – regional religious and other social reform movements emerged, nationalisms formed, and the dramatic transformation of regional languages and traditions took place, processes that continue into the present.

Students will learn to see contemporary conflicts, ideologies, identities, and structures as specific to the modern period rather than as natural cultural expressions, and they will begin to see regional cultures and societies themselves as historical entities.

**CORE 202: Hikma I – History of Islamic Thought**

After the interrogation of modernity in Core 102 and 201 in particular, Core 202 turns to a second meta-theme of the Habib Liberal Core Curriculum: *the question of inheritance*. Ranging across philosophy, literature, history, law, and the arts, *Hikma I* is an encompassing survey of Islamic thought that seeks to give a sense of the historical and philosophical complexity and depth of the tradition, with significant reference to the region of South Asia.

In the module on 'Religion & Modernity' in CORE 102, and subsequently in our historical survey of socio-religious as well as nationalist reform and revivalist movements in the colonial period in CORE 201, students study the dramatic transformation and discursive constitution of 'religion' and 'culture' in the colonial-modern period. Both regionally, as well as in the global modern generally, 'Islam' and its cultures and societies, have also become particularly sensitive and difficult regions of the discursive landscape.

**CORE 121: Jehan-e-Urdu (The World of Urdu)**

This course is designed to fulfill our commitment to the vernacular, as well as to reap the potential of modern Urdu literature and criticism to illuminate decisive aspects of our modernity. Jehan-e-Urdu is a pedagogically dynamic course that will rapidly advance students' appreciation and knowledge of Urdu through engagement with powerful texts of prose and poetry selected to speak to the concerns of the student today, opening up Urdu as a living world of insight and thought.

**CORE 200: Scientific Methods**

How do we make decisions? How do we evaluate information? Should we trust all information? How should we decide which information is trustworthy? How do we recognize the limitations of a claim? These matters are not only for practicing scientists but form an important part of our daily lives. At a time when information is more easily accessible than ever before, how do we intelligently utilize available information in making choices? How should we develop our evidence-based decision making skills? This course builds on the foundations of scientific methods of inquiry and works to apply them to our everyday lives. Utilizing a wide array of examples, it illustrates scientific methods and their applications.

# School of Arts, Humanities, and Social Sciences

# Social Development and Policy

## B.Sc. (Honors) in Social Development and Policy

## Minor in Social Development and Policy

**Faculty Members**

| | |
|---|---|
| Aaron Patrick Mulvany | Associate Professor |
| Aqdas Afzal | Assistant Professor, Interim Program Director |
| Massimo Ramaioli | Assistant Professor |
| Mohammad Moeini Feizabadi | Assistant Professor |
| Mujtaba Ali Isani | Assistant Professor |
| Noman Baig | Assistant Professor |
| Sadia Mehboob | Lecturer |
| Sana Khalil | Lecturer |
| Severine Minot | Assistant Professor |
| Shama Dossa | Associate Professor |
| Tajreen Midhat | Lecturer |

**Adjunct Faculty**

Farhan Anwar
Syed Salman Tariq
Themrise Khan
Zulqurnain Qazi

**Vision**

"Development" has become a principal idea of our times and an object of aspiration for individuals, communities, and governments alike. One of the key questions we grapple with in the program is "How can we examine and engage with development as a multi-faceted process of social, economic, and political transformation while attending to context and ethical practice?" Responding to this key concern, the central vision of the Social Development and Policy (SDP) program at Habib University is to nurture an inter-disciplinary and comprehensive understanding of development and social change — one that is firmly rooted in an ethic of care and grounded in a sense of place. A careful, place-based understanding is deeply connected to the love of knowledge. Moreover, this sensibility is fundamentally tied to Habib University's philosophy of *Yohsin*, the practice of thoughtful self-cultivation.

To fulfill this vision, the undergraduate major in Social Development and Policy combines rigorous classroom training in the social sciences and humanities with reflective, experiential learning through a practicum and practice based courses. The first program of its kind in Pakistan, it aims to give students new ways to approach the challenges of development at home and abroad. Students are exposed to seminal ideas in social and economic thought that will enable them to understand and critique the processes of economic growth, development, and social change. They explore how major development concerns such as poverty, gender inequality, urbanization, and human rights are shaped by historical forces and processes of political power, while also examining the role of states, development institutions, markets, and civil society in shaping human well-being.

The program integrates perspectives and skills drawn from a wide range of disciplines, including anthropology, history, economics, sociology, political science, religious studies, philosophy, literature, and Environmental Studies. In this way, the program equips students with inter-disciplinary thinking and analytical skills that will allow them to understand and tackle a range of problems and challenges in their professional and scholarly careers.

Offering critical insights into the core values of development and progress, the SDP major will train a new generation of social scientists who – like the best development practitioners – incorporate lived experience and vernacular sensibilities into policy design at the national and international levels.

# B.Sc. (Honors) in Social Development and Policy: Requirements for the Major

All students majoring in Social Development and Policy are required to complete a total of 35 course requirements. Students must maintain a minimum grade of C+ (2.33 GPA) in SDP major credit requirements in order to graduate with this degree.

All SDP majors must complete the following six (06) courses:

- SDP 101 Development and Social Change
- SDP 201 Qualitative Research Methods (QRM1)
- SDP 202 Quantitative Research Methods (QRM2)
- SDP 203 Social Theory
- SDP 301 Public Policy
- SDP 303 International Political Economy (Mandatory Elective Choice)

Students must also complete any two upper level SDP electives. In addition to these courses, all SDP students must fulfill a language requirement, a Practicum, and a Major Research Report (MRR) or an Honors Thesis to complete the program requirements.

**Language Requirements**

All students at Habib University must complete CORE 121 *Jehan-e-Urdu*, as part of the Habib University Liberal Core requirements. All SDP majors must also fulfill a vernacular language requirement by successfully completing at least three (03) sequential courses in a single language, for example Sindhi or Punjabi. For full language offerings, refer to the Arzu Program for Languages and Literature.

**Practicum**

All SDP majors are required to complete a Practicum, which is an application of the skills and competencies learned in SDP program. This Practicum must be a minimum of six (06) weeks and can be broadly construed in consultation with an assigned practicum adviser.

**Major Research Report**

All SDP majors must complete a one (01) semester capstone project, called a Major Research Report

(MRR), representing a significant exploration of some aspect of the intersection of society and policy. This project will take the form of an independent study developed under the guidance of a faculty adviser. Understood broadly, this could take the form of a literature review, research prospectus, policy discussion, documentary, interactive informational website, etc. It requires students to demonstrate advanced analytical and critical skills, methods of comparing and contrasting, and other such scientific understanding. Students pursuing this option must declare their intention at the beginning of the semester of choice and choose a faculty supervisor at the same time.

**Honors Thesis**

All SDP majors have the option to earn their degree by writing a year-long Honors Thesis instead of the Major Research Report (MRR). The Honors Thesis is a much more substantial research project in which the student will explore a topic, building on existing knowledge by using qualitative and/or quantitative techniques. Thesis writing is an exercise in developing in-depth research that speaks broadly to the social, cultural, and/or economic issues of contemporary societies. The Honors Thesis must be guided by a committee comprising of at least one (01) faculty member. Students intending to complete an Honors Thesis must declare their intention at the beginning of their final academic year and submit a prospectus at the end of their penultimate semester. Students wishing to pursue the Honors Thesis option must maintain a cumulative GPA of 3.33 or above.

| Course Category | Number of Courses to complete |
|---|---|
| **University Requirements** | |
| University Liberal Core | 10 |
| **Social Development and Policy** | |
| Foundational Theory and Method | 6 |
| Field Practice | 1 |
| Electives (at least 3 upper division) | 6 |
| Honors Thesis<br>Major Research Report with 1 upper division elective* (in lieu of Thesis) | 2 |
| **Other Requirements** | |
| Regional Language Requirement | 3 |
| AHSS Requirement | 2 |
| Free Electives | 4 |
| Overall* | 35 |

* The category of one remaining course will be determined by the relevant Program Board of Studies and Board of Faculty.

# Requirements for the Minor

To earn a minor in SDP, students must successfully complete *Development and Social Change*, *Qualitative Research Methods* (QRM1) or *Quantitative Research Methods* (QRM2), and *Public Policy*. Students must also take two SDP electives, one of which must be an upper level course (300 or 400).

## Course Descriptions

### Mandatory Courses

**SDP 101 Development and Social Change**

This is an introductory course in social development and provides an overview of ideas, theories, and concepts as well as a discussion on critical development challenges. This includes issues of urbanization, food security, migration, intersectionality and gender, as well as wars disasters and conflict. The purpose of this course is to answer key questions about development and social change by introducing students to the history, theory, and the contemporary practice of development. The concept of 'development' will be defined within the broader field of social sciences. We will be shifting the analytic focus from instrumental outcomes of development policies to the meanings, implications, and consequences they have as expressions of societal beliefs and values.

**SDP 201 Qualitative Research Methods (SDP Major)**

Combining theory and hands-on practice, this course will expose students to key approaches and methodologies of qualitative research methods in the social sciences. Students will understand when and how qualitative research methods are used and combined. They will learn and practice a variety of methods and tools including participant-observation, interviews, focus groups, and discourse analysis. Alongside, they will study and debate the ethical complexities of conducting scholarly research and implementing both research and development projects.

**SDP 202 Quantitative Research Methods (SDP Major)**

Quantitative Research Methods will introduce various techniques of quantitative analysis used within social sciences. This is a foundational course to teach basic mathematical and statistical techniques used in social science research. Students will cover several topics including functions, graphs, mathematical relationships, and statistics and probability, among others, to best equip students with analytical methods for use both in the classroom and the field with a specific focus on survey research. This course will also prepare students to take higher level quantitative research methods courses offered in the program.

**SDP 203 Social Theory (SDP Major)**

This course introduces students to foundational concepts and theories in the social sciences. Starting with enlightenment thinking and the emergence of positivism and empiricism, this course tackles this major transition in the way social order is conceptualized and theorized. Students will be exposed to key social theorists, including Marx, Weber, Durkheim, Fanon, and Freire as well as some of their legacies. Students will tackle different levels of analysis, understand structural forces and societal dynamics, and engage in social interaction analysis from a social-psychology perspective in contrast to the grand theory tradition.

**SDP 301 Public Policy (SDP Major)**

The purpose of this course is to introduce students to the world of public policy. The concepts of "public" and "policy" will be critically defined within the broader field of governance. Students will engage in an analysis of the genealogy, conditions of existence, and effects of specific policies in various sectors. Our approach to this course will be anchored on mixed methods, including critical humanist, and positivist approaches. Students will be exposed to reading material from a wide variety of disciplines. We will consider the empirical dimensions of policy building and impact from the perspective of multiple interpretive communities.

*Prerequisites: SDP 101, SDP 201, or SDP 202.*

**International Political Economy (SDP Major)**

Students majoring in SDP will have to fulfil this requirement as a mandatory elective, by completing one third-year elective course, which tackles the dynamics of *International Political Economy*. Various options will be offered yearly to allow students to complete this requirement.

*Prerequisites: SDP 101, SDP 201 or SDP 202.*

## Regional Language Requirements

**LANG 101 Sindhi Sikhiya I**

This introductory course introduces students to the Sindhi language. It covers the fundamentals of Sindhi Language including the basic competencies in reading, writing, and speaking.

**LANG 201 Sindhi Sikhiya II**

This intermediate course enhances students' reading and writing skills in the Sindhi language. Students will be exposed to folklore rhymes, folk songs, fables and tales, and poetry. The course will introduce major Sindhi language Sufi poets and prose writers from 1843-1947. At this level, students will learn to contextualize readings in a larger Sindhi cultural context.

**LANG 301 Sindhi Sikhiya III**

This advanced level course aims to equip students with more in-depth reading and writing skills in Sindhi language. The students will read classical and colonial Sindhi poets and fiction writers, and will develop interpretative tools to understand Sindhi literature and culture.

**LANG 102 Punjabi Rachna I**

*Punjabi Rachna* will enable students to develop a basic understanding of the Punjabi language in the context of Punjabi culture, idioms, linguistics, and literature. This is the first of a three course sequence, with each module being interlinked in a systematic flow starting with an emphasis on linguistics, moving on to literature, and finally to history of the Punjabi language.

**LANG 202 Punjabi Rachna II**

*Punjabi Rachna II* is a continuation of *Punjabi Rachna I*. Students will hone their Punjabi language skills further and be exposed to more complex literary forms.

**LANG 302 Punjabi Rachna III**

*Punjabi Rachna III* is the final course of the required Punjabi language sequence. Students will acquire advanced skill in reading and writing Punjabi. They will be exposed to advanced literary forms and genres.

## Other Program Requirements

**SDP 302 Practicum**

The major purpose of the practicum is to enable students to acquire skills and competencies in their interaction with individuals, communities, development agencies, and organizations. Moreover, students are expected to contextualize their learning as the practicum allows students to select agencies working on a range of thematic areas. Students will complete a specified number of hours and meet other practicum requirements. Although every practicum experience will be different, learning outcomes will include building networks, engaging in advocacy, and working with various stakeholders.

**Research**

Students majoring in SDP will have the choice to complete a Major Research Paper (MRP) plus an additional upper level SDP elective or write an Honors Thesis.

## 2019-20 Offerings

**ANT 101 Introduction to Cultural Anthropology**

The course introduces students to the intricacies of human cultures and highlights the interlacing of cultural patterns with the forces of modernity. For instance, how do gift-exchange practices of local communities help us understand the politics of international aid? How do rituals of magic explain the commodity fetishism of capitalism? Does understanding cultural theories of identity help us rethink notions of the modern developmental subject? Does tribal social organization undergird or conflict with the modern nation-state? Addressing questions like these will provoke students to think critically of culture as an important tool for making sense of patterns of contemporary social development.

**POLI 121 Introduction to Political Philosophy**

This course aims to provide an introduction to some of the key issues about politics as addressed in different philosophical traditions. While also exploring European and western political philosophy, it will do so in the context of a comparative and comprehensive effort to bring in alternative perspectives and schools of thought.

We may think of political philosophy as an ensemble of questions that routinely appear across time and space to which thinkers provide different answers. *Political Philosophy* is thus, at the same time, a truly universal endeavor given the commonality of questions and a highly diverse and specific practice given the variety of answers.

In this light, the course presents a range of authors from vastly different traditions exploring recurrent themes and inquiries in political philosophy. These issues concern the nature of power, the concepts of order, authority, legitimacy, justice, and freedom: How do Kautylia's *Arthashastra* and Thucydides's *Melian Dialogue* talk about politics? What did Machiavelli say about power, and what was instead Ibn Khaldun's or Weber's position? The course will also tackle specific topics of our modern (or postmodern) era: What is a modern state? Is Orwell's *1984* is another version of Hobbes's *Leviathan*? What is democracy? Did Ghandi get it right or else should we look at the Islamist version of Ali Shariati in Iran? How do we understand political violence? What does Fanon say about it in the context of anti-colonialism? And is he taking up Marxian ideas of political revolution or charting new paths?

**DEV 151 Food! Food Security, Urban Farming, and Appropriate Technology (I)**

This course aims to make the connection between politics of environmental conservation, food security,

the market, and the social determinants of health through a hands on practice based pedagogical approach. This course will be taught in workshop format over working Saturdays and will include field visits, designing appropriate technology solutions, composting, making organic pesticides, and sustaining demo plots for urban farming. The course will be a one credit hour with the duration of six months (Oct 2018-Mar/Apr 2019).

**ECON 121 Principles of Macroeconomics**

This is an introductory course in economics, which focuses on teaching basic concepts required to understand the workings of a market based economy. We will focus on markets and what role they play in modern capitalist economies. The role of the government in managing economies will be emphasized. Particularly how money is created and circulated in society (via banks), how the interest rate is determined, where inflation comes from, and how international trade impacts a small-to-medium sized economy like Pakistan. These and other questions will be explored, particularly in the context of Pakistani economy.

**DEV 221 Education and Development**

This course introduces students to major debates on the relationships between education, development, and globalisation, with a distinct view from "the South". Within a historical approach to education for national development from the decolonisation era onward, students will acquire the conceptual, theoretical, and empirical foundations for critical analysis of: how the global governance of education shapes national education policy-making in the South today; and past and present initiatives by the South for the South. Themes discussed will include: structural adjustment & education, the global knowledge economy and lifelong learning, trade in education services, education and conflict, education and religion, adult, non-formal & popular education, international aid to education, South-South cooperation in education & development, and the SDGs and education. The syllabus will be adjusted to students' specific topical interests, case studies, and available guest speakers, and students will be encouraged to relate their coursework to the Pakistani context.

**SOC 221 Women Work and Islam**

This course aims to study the relationship and encounters between women, nation, modernity, religion, and socio-economic factors in Muslim contexts with a specific focus on Pakistan. By the end of the course students should be able to understand: The multiple factors that affect gender and class in Pakistan and the role of development, NGOs, liberal feminism, Islamist women's politics, and class-based struggles and movements by and for women's economic interests.

**SOC 201 Socialization and Cultural Identities**

This is an interdisciplinary course, which combines conceptual and theoretical notions drawn from psychoanalysis, psychology and sociology (social psychology), and the broader foundations of cultural studies and social philosophy. This course is a fundamental course for those interested in understanding the processes that shape our ways of being, thinking, and acting. It looks at the construction of the self, first in clinical terms, and moving on to intellectual, moral, and social terms. Questions such as "Who are we?" and "Why we are the way we are?" are at the core of our inquiry into the formation of the self. The toggle between structure and agency represents the constant negotiation of individuals and collectives in defining themselves according to parameters consisting of socially produced categories, institutional practices, norms, expectations, traditions, ideological discourses, and a complex system of rewards and constraints, produced and experienced in context as the general conditions of one's existence. Those interested in mental health, marginality and "deviance," social roles, power dynamics, relational hygiene, counseling, or "caring" and "healing" work, will find this course useful.

## ECON 301 Marxian Economics

*Marxian Economics* is a comprehensive analytical framework to understand the functioning of capitalist economics and their relations with each other. The framework as such covers all the usual topics that are taught in more standard micro- and macro-economics courses, i.e. price theory, labor economics, firm behavior, technological change, trade, etc. The course aims to develop an understanding of this framework and Marx's critique of capitalist mode of production by closely reading volume one of *Das Kapital*. The course aspires to give students necessary theoretical base in Marxian Economics to enable them to take more advanced courses in the future. Another aim is to stress upon the idea that Marxian economics exist as an alternative framework to understand the workings of an economy. The course will particularly focus on value creation and its distribution during the production process, how prices are determined within the Marxian framework, and how Marx explained the crisis in the capitalist mode of production.

## POLI 301 Political Sociology of Modern Sindh

We live in Sindh but seldom study historical and contemporary dynamics that drive politics of this region inhabited by people of diverse religious, linguistic, and ethnic backgrounds. Our course on politics and society of contemporary Sindh invites you, the student, to study Sindh, its people, institutions, and politics in multi-disciplinary manner to develop critical understanding of the present informed by history. Drawing upon primary and secondary sources of historians, politicians, sociologists, economists, and creative writers our aim is to understand and appreciate complex nature of present day society and politics of Sindh. Such an understanding is vital for engaging with the society as an informed citizen.

Successful completion of the course will enable you to challenge stereotypes that are passed on as 'knowledge' about modern Sindh. Religious, linguistic, class, and ethnic diversity of Sindh and its attendant politics contributes in reinforcing stereotypical image of 'others' living in the same society. One aim of the course is to question these stereotypes on the basis of critical learning that is based on empathy for the 'other'.

## ANT 321 Sacred Geographies

Las Bela remains understudied, despite its pivotal location between Iran, Kalat, and Sindh, and Bela's role as the capital city of a state, which not long ago encompassed Karachi. The recent opening of this region provides a unique opportunity to make academic forays into Bela. This course seeks to expand inter-disciplinary horizons, with the aim of designing a cross-departmental course where students can participate and design various aspects of a field-based study.

## ECON 412 Economic Analysis

Intermediate macroeconomic theory further develops the tools and concepts introduced in principles of macroeconomics. This is primarily a theory course that explores the macro economy using abstract analysis—economic models, graphical analysis, and mathematical analysis—but we will also apply economic theory to real world events and policy decisions. Topics include measurement of aggregate output and income, economic growth, income inequality, aggregate demand, aggregate supply, unemployment, inflation, the Phillips curve, and fiscal and monetary policies.

In this course we will pay careful attention to recent events, such as the widening gap between rich and poor (income inequality), changing nature of work (employment/unemployment), and future of capitalism (sluggish economic growth in recent decades). We will also critically discuss topics such as the role of the state in the globalized world (fiscal and monetary policies), and the culture of consumerism (while discussing aggregate demand).

While emphasizing on history and methodology, we will investigate the claim that the era of standard Keynesian Economics has come to an end (the collapse of Philips Curve); we will also discuss the birth of a new interpretation of Keynesian Economics, namely Post-Keynesianism (financialization of Western economies as well as the recent financial crisis.) The soul and spirit of this course will be Keynesian. But that should not bar us from referring to alternative and competing approaches to macroeconomics, most importantly Marxian and Hayekian ones.

**ANT 412 Anthropology of Trade**

This course explores historical and contemporary trade networks in South and Central Asia, and the Middle East. The course offers insights into how commercial networks have been shaping the cultural and geographical imaginations in the region. The objective of the course is to rethink the ways in which people have been conducting long distance trade. The students will read classic work on bazaar and mercantile networks by Claude Markovits, Stephen Dale, K.N. Chaudhry, Sanjay Subhramaniam, and C.A. Bayly.

**Advanced Topics in Qualitative Research Design: Participation and Intersectionality**

This 400 level course aims to provide students interested in pursuing qualitative research from a critical theory perspective an opportunity to be introduced to methodologies which have participative and intersectional considerations. This includes but is not limited to participatory action research, participatory reflection and action, and feminist research methodologies. Matching methodologies to student research objectives will be of primary importance.

**DEV 1XX Food! Food Security, Urban Farming, and Appropriate Technology (II)**

This course aims to make the connection between politics of environmental conservation food security, the market, and the social determinants of health through a hands on practice based pedagogical approach. This course will be taught in workshop format over working Saturdays and will include field visits designing appropriate technology solutions, composting, making organic pesticides, and sustaining demo plots for urban farming. The course will be a one credit hour with the duration of six months (Oct 2018-Mar/Apr 2019).

**DEV 122 Program Planning and Design**

The course is conceptualized to run as a workshop and will require students through the semester to work in teams to design an actual program/project using an RFP (Request for Proposals) on a specific social development issue. It will take students through the various stages of program design from identifying community needs, to developing a theory of change; identifying program goals and objectives; considering the ethics of intervention, participation and stakeholder engagement; the question of sustainability and scaling up; understanding the role of research in design and planning; developing a logical frame and indicators; building a basic monitoring and evaluation framework; and designing a budget and doing a risk assessment. Students will work in collaborative groups on assignments and are expected to contribute equally to the project development process. At the end of the semester, a half day seminar will be arranged where students will be expected to make presentations of their designed program/project. A panel of experts from the field will be invited to review the proposals.

**ANT 301 Anthropology of Possibilities**

Anthropology has long struggled to be recognized as a science that examines what it is to be a part of human society. Science fiction, on the other hand, is often dismissed as escapist pulp. But

the best science fiction is as descriptive as it is speculative, exploring what it means to be a part of contemporary society by pushing against the boundaries of what society is and what it can be. We will pair anthropological writing with works of science fiction in order to explore how the methods of anthropology can be applied to understanding and addressing contemporary problems. Throughout the semester, students will collapse descriptive ethnography and science fictive speculation while borrowing from the techniques of speculative design to create innovative ethnographic fictions and imagine possible futures. Rather than repeating the old dictum that anthropology should be "objective," this course embraces the notion of a politicized anthropology that must engage with thorny ethical issues in the process of imagining and instigating possible futures.

**Migration Diaspora and Transnationalism**

This courses covers major issues surrounding past and present human migrations and mobility, from nomadism to sedentarism, all the way to modern global population movement. This course covers the legacies of imperialism, colonization and decolonization, and the emergence of modern nation states, as the contexts which largely shape the power relations between various categories of migrants on one hand, and national "host" country populations and governments on the other hand. By identifying different types of migration (forced displacement, asylum, economic and/or political migration, temporary or cyclical migration, legal/illegal, regular/ irregular, among others), important distinctions will be drawn surrounding various forms of privilege or lack thereof, lifestyle, agency, citizenship, transience vs. permanence, etc.

In this course, students will be required to learn the principal tenets of a sociological analysis of migration flows and patterns, accounting for push/pull forces, insider/outsider dynamics, and processes such as acculturation, enculturation, adaptation, segregation, ghettoization, assimilation, integration, cultural appropriation, etc. Students will be expected to demonstrate an understanding of the conditions afforded by regional, continental, and global political economies as structural forces that influence migration flows and migratory experiences. They will explore the effects of migration on receiving and sending countries, as well as the political and legal frameworks that regulate exit, entry, residence, labour conditions, wages, remittance flows, etc.

This course is also concerned with culture and the multifarious processes and outcomes of past and present cross-cultural encounters/interactions. With this in mind, students will be asked to critically analyze practices and the effects of "othering." Key questions raised in this course will revolve around two main axes: 1) power and inequalities - accounting for race, ethnicity, gender, class, and citizenship, among other factor of discrimination, as well as national and international governance; and 2) nationalism and transnationalism, and their identity correlates (including issues of inclusion/ exclusion, community/network (trans)formation.

**ANT 321 Cultures of Greed**

This course explores discourses on greed and avarice in historical, literary, and anthropological scholarships. The course raises a key question of our time: how the discourse on excess shapes desire (*khuwahish*) for money and wealth. By bringing desire at the heart of the discussion of money and capitalism, we open an existential approach to the study of economics. The debate comes closer to the self, to the visceral and corporeal experience, as well as to the human soul. This line of inquiry demands that students read historical accounts on avarice and greed while asking some key questions. Why was excessive desire for money considered a sin or vice in pre-modern times? When did the epistemological break from 'greed is sin' to 'greed is good' occur? These questions offer students a critical insight into the nature of excessive desire for money, and explains some of the radical causes of human suffering.

**POLI 302 International Political Economy**

This course examines various disciplinary fields comprising *International Political Economy (IPE)*, an area of inquiry where economy, politics, security, and history intersect.

The course seeks first to define the scopes and boundaries of IPE. It addresses issues such as the historical origins of the field, the emergence of globalization, its functioning and main dynamics, the formation of global institutions and their underlying ideologies, as well as topics such as natural resources, and the politics of oil and urbanization. Then, on this basis, the fundamental aim is to ask questions about the nature of the international system as understood from the perspective of IPE. Rather than accepting views and learning notions, we shall try and investigate where those views and notions come from. We may possibly come to a more comprehensive and engaged understanding of the world as citizens who live within it.

The course is reading intense, and it requires a commensurate level of commitment. This syllabus represents the *anticipated* scheduling of lectures and readings. Changes may be made to suit the actual composition, competencies, and interests of the class.

**Development and Conflict**

The course aims to introduce students to key themes and approaches in the study of development and conflict. During the twentieth century, armed conflicts destroyed societies and families, and undermined development prospects in many parts of the world. These “civil wars” and “interstate conflicts” have affected countries, regions, and in some cases have global implications. The concept of ‘new wars’, ‘insurgencies’ and ‘counterinsurgencies’ are all familiar to students but need to be brought in to their knowledge via academic discourse.

Many of the more devastating conflicts (in terms of their social, economic, and human costs) have become entrenched. The course pays particular attention to the perspectives of marginalized actors in the international system (third world states, non-state actors, etc.), and to their interactions with hegemonic actors and structure.

**Economic Growth and Technological Change**

This course explores the tendencies and causes of economic growth in capitalism, with a focus on the role of technology broadly defined. Students will investigate a variety of ways of understanding technology›s relation to economic growth, notable among these being four major paradigms and traditions in economic theory: Neoclassical, Schumpeterian, Endogenous Growth, and Marxian. Examining these theories and various sources of technological change such as R&D, learning-by-doing, and shifts in human capital will inform discussions of the political economy of technology within current economic systems, taking a comparative perspective. The profound social, political, and cultural consequences of these dynamics will also be examined.

# Communication and Design

## B.A. (Honors) in Communication and Design

## Minor in Communication and Design

**Faculty Members**

| | |
|---|---|
| Marco Grosoli | Assistant Professor |
| Muqeem Khan | Associate Professor (Professor of Practice) |
| Saima Zaidi | Assistant Professor (Professor of Practice) |
| Susan H. Pak | Associate Professor, Interim Program Director |
| Zahra Malkani | Assistant Professor (Professor of Practice) |

**Adjunct Faculty**

Adil Siddiqui
Ahsen Ali
Haya Fatima Iqbal
Khurram Khan
Mariam Aziz
Momin Zafar
Rafay Mahmood
Rahma Mian

**Mission**

The program in *Communication and Design* allows students to construct an interdisciplinary major in the arts and humanities that integrates historical investigation, critical analysis, and aesthetic practice. Our faculty are committed to engaging students in a conversation as much about the histories and theories of communication and design as about critical contemporary challenges that will define our future.

Core courses offered by the department will introduce students to a range of texts, movements, theorists, artists, designers, filmmakers, and writers from diverse cultures and historical periods, thereby training them in the close, comparative study of different artistic, cultural, and social forms. Studio work will form an essential component of most courses so that students can learn how to build and shape even as they refine their critical sensibilities. Our graduates will be alive to the transformative capacities of communication and design, and will learn to apply their expertise with deliberate care, purpose, and responsibility.

In short, our mission is to matriculate thoughtful and articulate practitioners, students who can exercise sophisticated critical judgment about the work they produce.

**What is Communication Studies and Design?**

We define both *Communication* and *Design* broadly. *Design* refers to any human practice that requires the thoughtful, methodological, coherent reconstruction or reproduction of our material or mental worlds. *Communication* refers to any process that transmits, produces, reproduces, structures,

embodies, or transforms culture, and that shapes and influences our interpersonal and social behaviors and relationships. Both are fundamentally human activities that bind us to each other and to the societies in which we work and play. And while both emerge from historically grounded expressive practices, these practices, in their most expansive articulation, are mutually interdependent.

Our curriculum embraces inter- and transdisciplinary instruction in the arts and humanities, with a specific focus in communication and design, because we believe no single disciplinary approach makes fully available to thought and practice the rich variety of communication processes and designed worlds we experience, perceive, and inhabit today.

**How will students benefit by enrolling in this program?**

Both communication and design are everywhere. Our cities, our homes, our mobile phones, our furniture, our cars, the books we read, the billboards we drive past, the music we hear, the movies and television programs we watch, the clothes we wear—someone somewhere made a sequence of choices that evolved into these specific products. We are so accustomed, however, to walking through our artificial worlds conversing, communing, texting, arguing, relating, imparting, announcing, reporting, writing, filming, and photographing that more often than not we take the worlds and our actions in them for granted. We are blind and dumb to the very artificialities the serve as foundation and structure for our lives.

In addition to this, both activities (designing, communicating) are interdependent. We rarely separate our perceptions and judgments about design from the meaning these designs provoke. And all good authors, advertisers, filmmakers, journalists, and politicians— to name a few professional communicators— know that effective communication depends crucially on deliberate design.

Students who complete a B.A. (Honors) in Communication and Design will be able to think systematically, critically, and complexly about the processes, methods, and social and cultural effects of both communication and design. These abilities, coupled with the skills developed and refined through studio practice, will teach students how to move methodically from an idea to its material realization.

### Degree Requirements

In order to graduate with a B.A. (Honors) in Communication and Design (C&D), students must complete 36 courses. In addition to the eleven courses that comprise Habib University's Liberal Core, C&D majors must complete programmatic requirements.

## B.A. (Honors) Communication and Design Requirements

To ensure strong foundational knowledge as well as depth within the program, all C&D students must complete the following requirements to complete a degree in the Communication and Design Program.

| Course Category | Number of courses to complete |
|---|---|
| **University Requirements** | |
| University Liberal Core | 10 |
| **Communication and Design (16)** | |
| Communication and Design Core | 6 |
| Communication and Design elective | 8 |

| | |
|---|---|
| Senior Capstone Requirements | 2 |
| **Other Requirements (10)** | |
| Social Development and Policy (SDP) elective | 1 |
| Any AHSS/Non-C&D elective | 2 |
| Arzu Program for Languages & Literature elective | 2 |
| Free elective | 5 |
| Overall | 36 |

**C&D Requirements (14 courses)**

Any one (01) of the following C&D Gateway courses (100-level):

- Communication and Culture
- Shaping Modernity: Art and Thought in the 19th Century
- Forms of Inquiry: Word and Image in the 20th Century

Any one (01) of the following Intermediate Theory courses, or other courses as approved:

- Thinking Media
- Feminist Technologies and Media
- Frankfurt and Beyond

Two (02) progressive studio/practice courses, (01) introductory + (01) intermediate.

Both of the following courses:

- TransDesign Practicum
- Elements of Aesthetics

And eight (08) C&D electives

**Other Elective Requirements (10 Courses)**

To ensure the disciplinary breadth demanded by a liberal education, all C&D students must also complete the following additional requirements:

- Any Social Policy & Development (SDP) elective (1 course)
- Arzu Program for Languages & Literature electives (2 courses)
- Any other AHSS/non-CND electives (2 courses)
- Free electives (5 courses)

**Senior Capstone Requirements (2 Courses)**

- Research Design I: Capstone senior seminar

- Capstone II

The two-semester capstone project requires students to bring together what they have learned during their time as undergraduates through the creation of an original work in any medium. The final submission will consist of the work itself, drafts/sketches/notes, and a critical thesis that situates the work in both an aesthetic and cultural context. Through the written, students have the ability to demonstrate to the faculty a sophisticated understanding of both structures and methods of design, and processes and effects of communication.

**Upper Level Writing Requirement**

All Communication and Design students need to complete an upper level writing requirement. The requirement may be fulfilled through any course, including studio courses. In order to complete the requirement, students must submit an extended research essay on a subject of their choice related to the substance of the course they select. *Research Design I* fulfills this requirement.

# Communication and Design Minor Requirements

Students choosing to pursue the Communication and Design (C&D) minor must complete a minimum of (05) courses totaling at least 15 Credits. All students pursuing the minor must complete any (01) of the following courses:

| Course Code | Course Title | Pre-requisite(s) |
|---|---|---|
| CND 105 | Shaping Modernity | None |
| CND 106 | Forms of Inquiry | None |
| CND 126 | Communication and Culture | None |

Students must also complete any (01) of the following courses:

| Course Code | Course Title | Pre-requisite(s) |
|---|---|---|
| CND 301 | TransDesign Practicum | CND 105/106/126 |
| CND 311 | Elements of Aesthetics | CND 105/106/126 |

The remaining (03) minor requirements are met through C&D program electives. All C&D minors are strongly advised to complete at least (01) studio based course.

## 2019-20 Offerings

*All 300-level core and elective courses are open to second-year students with permission of the instructor.

**CND 105 Shaping Modernity: Art and Thought in the 19th Century**

This course will introduce students to major developments in art, literature, design, and media communication during the long 19th century. While the course focuses on both formal and substantive close readings of individual texts, the essay and research assignments require both comparative and interdisciplinary methodological approaches to the study of cultural production and dissemination. Students investigate how different forms and practices of art 'speak' to one another, how they argue or agree, how they diverge from or conform to normative criteria. In this regard, one of the central

aims of this course is to assess the cultural and technological impact of imperialism in South Asia, and the reciprocal appropriations of South Asian philosophy, culture, and art by Europeans. Themes explored include post-enlightenment reason vs. passion, the emergence of media spectacle as an urban phenomenon, the stylistic shift in European aesthetic practice and production from neoclassical to realist, the establishment of Urdu literary culture, the development of political journalism, the rise of the modern university, the emergence of culture as a differentiated category and the explicit articulation of aesthetic criteria as the basis for judgment and taste, the impact of technologies of reproduction (the gramophone, the camera, the typewriter) on the production of music, fine art, and literature, and the deliberate rethinking and reconfiguration of urban space.

**CND 126 Communication and Culture**

This course will introduce students to important concepts in communication and cultural studies. We will consider various multidisciplinary traditions of communication theory, and examine closely the range of overlapping and opposing insights these frames of thinking provide. We will explore how cultures determine forms of language and patterns of communication and how these in turn shape cultural practices. By doing so we will develop a more complex understanding of the impact of communication on the formation of our ideas of culture and society. We will study rhetoric, semiotics, language, the social construction of knowledge, and non-verbal and visual forms communication, with specific emphasis on how these forms of communicative practices shape how we think, who we are, and how others see us.

**CND 135 Introduction to Film Production**

The course will introduce students to learn the fundamentals of cinematic language including various techniques and processes of film production in preparation for more advanced film courses. The course is organized through a series of exercises which will help students explore a variety of cinematic methods through hands on practice with film equipment including the camera, lights, sound, and editing software.

**CND 226 Thinking Media**

This course is designed for students who have already been introduced to basic concepts of media theory in their first year. It looks at the different stages of media theory as well as its predecessors in philosophy and relates them to the media evolution from language to writing to print to the media situation of today. Students will learn different possibilities of conceptualizing and historicizing media in relation to society. Starting with the broadest possible definition of medium as the difference of loosely/strictly coupled elements, they will be introduced to different media types and concepts, from storage media, to dissemination, to success media. The paradigm of communications i.e. media revolutions will act as a guideline that allows for distinguishing society in different media stages, while always keeping the possibility of alternative chronologies in mind. Starting with the invention of language and its consequences for the evolution of human beings, we will first take a closer look at persons as media, explore the social consequences of writing, as well as the effects of the switch from scriptography to typography, study the idea of media infrastructure in relation to the development of the development of the modern nation-state, and finally try to apply that knowledge to the ongoing digital transformation of society. One important aspect will be the question of media materiality, especially in relation to the trend of 'new materialism.'

**CND 242 Feminist Technology**

According to Judy Wajcman (Feminist Theories of Technology, Cambridge Journal of Economics, January 2010), a feminist perspective shifts and expands our understanding of what technology is and incudes not just artefacts but also the cultures and practices associated with technologies. This

course then attempts to introduce students to feminist theory, where it intersects with technology and the social, political, and cultural implications of those intersections. We will begin by exploring feminist epistemology and philosophy of science and the evolution of feminist theories of technology. In the latter half of the course we will focus on key themes emerging in feminist technologies and media particularly over the last decade. Students will be encouraged to develop multimedia projects that explore these interdisciplinary boundaries particularly around gender power relations.

**CND 225 Frankfurt and Beyond**

This course will study some of the 20th century's most overtly *mistrustful* theoretical reflections on mass media culture, and it will do so by focusing on the most vociferously mistrustful of them all: Frankfurt School. However, on the other hand, this inspection on the Frankfurt School will be close enough to reveal, within the FS body of thought itself, a hypothesis more or less lurking in the ideas of these theorists and between the lines of their texts, namely that mass media culture can harbor a secretly *emancipatory* potential for the masses that needs to be properly unearthed and valorized by critical theory.

This is why the course will not focus on Frankfurt School alone. It will also cover those theoretical reflections on media that variously emerged in FS's wake, such as Media Cultural Studies, Guy Debord's critique of "The Spectacle", and Giorgio Agamben's notion of "Apparatus"; in these and other cases, the original (if somewhat implicit) ambivalence of FS vis-à-vis mass media culture, well-concealed beneath its "apocalyptic" attitude, is properly brought to the fore, highlighting the oppressive and emancipatory potential of mass media culture to be inextricably intertwined.

**CND 232 Film History and Theory II**

This is the second of two *Film History and Theory* courses spread over two consecutive semesters, and will cover the second half of the 20th century as well as the early 21st century. The course will consistently alternate between, and tightly intertwine, *History and Theory*; on the one hand it will introduce a number of theoretical frameworks that emerged in the decades that followed World War II (realist film theories, structuralism, gender theory, psychoanalysis etc.) and that are still essential to reach a full-fledged understanding of cinema, while on the other hand it will describe how, after Hollywood's Golden Age (which peaked arguably in the late 1940s), cinema's main lines of evolution have ventured into previously uncharted territory: European "art cinema", to be sure, but also (and especially) non-Western cinemas, now gaining more and more importance. The scope of the course will thus be accordingly enlarged to encompass as much as possible what is customarily called "World Cinema."

**CND 221 Braver New Worlds**

This course will introduce students to key topics and themes in digital media and networked technologies and examine how technology intersects with cultural, social, and political values. We will investigate digital media production in a cultural, historical, economic, and technological context. By doing so we will be able to situate ourselves in this particular moment in history and take a critical look at the ubiquitous content that we are consuming as well as producing. Along with reading key texts and acquainting ourselves with key thinkers in the areas of cultural production, critical theory, and digital politics, we will be watching a lot of videos and spending a good amount of time on the internet!

**CND 240 Film Editing: Theory and Practice**

This course will introduce students to the history, theory, and practice of film editing. Through analysis of various films and written texts, the students will understand the grammar of film editing. They will get a hands-on practical editing experience through creating and editing individual short films.

**CND 276 Introduction to 3D Animation**

This introductory course focuses on the content creation from a three-dimensional digital environment and camera-based production techniques. The class instructions will introduce the related concepts, such as 3D modeling, lighting, rendering, narrative structure, pacing, and compositing. In this introductory course, students will develop knowledge and skills as they learn about and produce computer-generated 3D elements in the realm of VFX and broadcast animation. A good understanding of motion and timing, as well as a sense of observation will be critical in this class. Students will also develop awareness related to the audiences' perceptual/emotional needs, digital asset management (DAM), and production methodology. The assignments may include ambiguous/unambiguous reconstructions of physical realities, simple 3D visual narratives, and VFX related experimentations.

**CND 301 TransDesign Practicum**

This practicum will provide the intellectual and contextual background for the transdisciplinary practice. The nature and practices of design have been shifting to engage with increasingly complex cultural, technological, and economic forces. Traditional, narrow design disciplines no longer seem adequate to address complexity and the "wicked problems" that challenge a 24/7, global culture. Exploring these changes both historically and critically, this course will contextualize both the pressures to maintain specialization in design and the forces that are currently challenging the disciplines. What does it mean for design to address the immaterial as an outcome? Can experience and social outcomes actually be modeled through design, or are design outcomes simply affordances for existing social practices? This practicum will explore literature and projects that argue that design can play a role in reshaping our cultural practices. We will investigate not only theory, but also design case studies that have had a profound, though at times subtle impact on our changing social dynamics. The main work of the class will be the readings, presentations, and discussions, supplemented by a practice-based intensive and a mid-semester charrette. Each student will be expected to lead course discussions and make presentations in class based on the readings.

**CND 331 DIY City: Design Inquiry**

This course offers students the techniques of place-making- a process of creating spaces for civic engagement. In a rapidly corporatized world, place-making offers a radical tool to reclaim and create new public spaces for our cities in order to encourage community living and participation. The course teaches students some of the key conceptual frameworks of space-making and urban forms. Part of the course requires students to take field trips in various localities of the city, exploring the ways in which public generates their own sense of place. Students will develop prototypes/projects designed by utilizing readily available materials, technologies, and localized manufacturing; these will be placed in the public realm in Karachi for creative interaction. Working at the intersection of design, culture, science, and technology, students will learn innovative, experimental, and playful ways of integrating academic knowledge with public practices, and the abstract with the material.

**CND 404 New Media Art Studio**

This is an introductory course to New Media art practice and the larger field of Screen/Time-based Art. Classes will alternate between theory, studio, and critiques. This course aims to acquaint students with the history of New Media art as a field of contemporary art practice as well as develop their own artistic vocabulary by experimenting with various media. We will consider multiple forms and media from Video Art and Experimental Film, to Sound Art and Net Art; from the more traditional technologies of film, video and photography to newer digital, web and transmission technologies, as well as daily mundane technologies such as video and computer games, surveillance cameras, GPS devices etc. that have been engaged widely in New Media Art practices. We will survey key themes and gestures in New Media art from appropriation to hacktivism, from performance to data visualization, from post/

transhumanism to technologies of war. Students will incorporate these themes into their own practices in four art projects spread out across the semester.

**CND 411 Psyches and Organizations**

Organizations play an important role in today's society. This was not always the case. The European system of estates only included a few organization-like entities: mercantile families like the German Fuggers, the Hanseatic League, mercenary armies, guilds, towns, the Catholic Church. Our contemporary age, in contrast, is characterized by a profusion of this type of social system. In this course, we will examine the impact of these 'inescapabilities' on our psyche from a sociological perspective by first constructing a problem to which organizations can be interpreted as a solution, in order to then take a closer look at the construction of that solution. The central idea is that the modern psyche cannot be understood without reference to this type of social system.

**CND 4XX Design Research**

This class asks students to acquire a critical knowledge of the complicated relationship between concepts and ideas and its transformation into a practice-based research proposal. The course introduces students to the concept of searching for and isolating problems in their physical world. They will be asked to present a technology-based product or process in the form of a research proposal. The instruction in the class facilitates their research proposals, develops an understanding of relevant practice based research, refines research approaches and methods, investigates their hypothesis, and improves their research skills. The goal is to provide an environment for third-year students to explore and develop the research paradigm necessary for the graduating year at Habib University. This course also provides an opportunity to conduct background research related to a specific problem, complete a formal proposal, and present their work. By the end of the semester, students will have a better understanding of their isolated problems/concepts/ ideas in the context of multitier-trans-disciplinary curiosities.

**CND 103 Urban Experience**

This introductory course is designed to open up students to the context in which they live, research, work and play. Through exercises in individual and group-led observation, students will be encouraged to reflect on the diversity of places and communities around them. This course also introduces students to a practice-based, hands-on approach to the elements and principles of design–including point, line and plane, figure and ground, scale, pattern and texture. Students will learn the sensory and perceptual theories in communication and design; this will be complimented by fieldtrips to designated areas of Karachi allowing exposure to the specific dynamics of the city. The course will culminate in a concept and/or a design-based and site-specific visual intervention in the city.

**CND 106 Forms of Inquiry – Word and Image in the 20th Century**

This course provides a conceptual framework for several major developments in the arts and humanities extending from the close of the 19th century to the present. It will introduce students to texts, movements, and thinkers, with a focus on reciprocal influences, appropriations, and resulting hybrid forms that characterize much South Asian, European and American aesthetic work. Traversing between the two halves of the 20th century, this course explores various kinds of modernisms and avant-gardes in design, literature, cinema, and visual arts, and the consequences of World War II on them. In addition, it examines the multiple ways arts have tackled political engagement and propaganda, and taken part in the progressive loss of centrality of the West in the global arena. It focuses on nation-based case studies (Brazil, India, Pakistan, and Japan) as well as on some of Europe's and America's most significant cultural contributions such as Structuralism and Pop Art.

### CND 112 Music as Communication

Victor Hugo once stated: "Music expresses that which cannot be said." But what exactly is the difference between verbal and musical expression? What can be said in language that music cannot express? And why not just be silent? After all, it's silence that illuminates, at least according to Gibran, who obviously could not remain silent about it. Or is silence just another form of communication? This course invites students to reflect on such fundamental questions by comparing the form of communication inscribed into the medium of music to other communication media. It first introduces students to basic communication theories, to then take a closer look at the characteristics of musical communication itself by listening to and talking about a variety of musical pieces from folk to classical to pop.

### CND 1XX Introduction to Drawing

This course will introduce students to the fundamentals of drawing, employing a variety of methods and materials. We will expand upon and develop our visual and observational skills and explore drawing as a way of seeing, investigating and representing form and space. Using primarily black and white media on a variety of surfaces, students will learn fundamental drawing techniques, concepts and vocabulary such as mark-making, line variation, contouring, positive/negative space, linear perspective, and more.

### CND 136 Introduction to Film Production

The course will introduce students to learn the fundamentals of cinematic language including various techniques and processes of film production in preparation for more advanced film courses. The course is organized through a series of exercises which will help students explore a variety of cinematic methods through hands on practice with film equipment including the camera, lights, sound, and editing software.

### CND 132 Film History and Theory: An Extended Introduction I

This year-long course is an in-depth overview of the 20th century's dominant medium of visual communication (and still of tremendous importance today): cinema. It will introduce students to a range of strategies through which filmmakers unlock cinema's aesthetic potential, to film's dominant narrative forms and genres, and to the complex interrelationships between films and the societies and cultures in which they are made. One central premise of this course is that no account of the evolution of cinema makes complex sense without substantial consideration of the different ways scholars and practitioners have framed thinking. In other words, history and theory work together, and will be intertwined throughout the course in what resembles a double-stranded structure that alternates consistently between these two inseparable approaches. We will examine global filmmaking from its origins in the 19th century to WWII.

### CND 273 Feminism and Visual Culture

This course explores key concepts and concerns of Visual Culture studies through the lens of feminist thought, critique and cultural production. With a focus on modern and contemporary art, we explore how feminist theory has engaged questions of gender and representation and how feminist art and visual practices have complicated and challenged constructions of gender, sexuality, space, bodies and technology. This course attempts to center the narratives, writings and work of women to internalize feminist revisions of and interventions upon the fields of Art History, Philosophy, and Cultural Studies. We examine key questions raised by feminist art practice on central concepts of visual culture studies such as: History, The Gaze, The Body, Race, Performance etc. In our readings, we engage with a range of methods and practices in feminist writing, from the theoretical to the poetic, and consider the centrality of writing and the invention of new textual forms and strategies to feminist thought and political praxis.

**CND 273 Typography 1**

Study basic principles of typography, shape/symmetry of letters and the particular vocabulary associated with typographic expression with respect to its intended effect/message. Lectures, presentations, creative projects, discussions and critical assessments will be part of the course outline. Class participation is mandatory. Students will have to research design, produce their own typographical content, do the recommended readings from books and online, present on the subject and shall be tested on their knowledge of the essentials of typography to ensure thorough learning.

**CND 238 Text + Image**

This course will introduce students to text-based art practices, working across different artistic media with experimental and conceptual writing at the center. We will consider textual production in relation to image making, the book form, archives, sound and spoken word practices. We will trace the history of text-based art practice from DADA to the essay film, and examine current art practices that engage with text in a number of ways from textual performance to artists working with indexing, archives and research. Students will propose and complete innovative works that challenge traditional modes of literary production and combine images with language in conceptual and experimental ways ranging from narrative, deconstructive, fictional, poetic, performative etc. We experiment with the sound, materiality, syntax and metaphorics of language and explore especially its role and potentials in contemporary art practices.

**CND 2XX Lighting for Film and Video**

This course will introduce students to the fundamental concepts of lighting used in film and video production through theory, history and practice. Students will learn the nature and physical properties of light and how to use these concepts aesthetically in their narrative exercises while using various lighting strategies and techniques used in studio and on location settings.

**CND 311 Elements of Aesthetics**

Liberal arts education at Habib University, rooted in the philosophy of Yohsin and aesthetics, is one of its five paradigms. This course covers the fundamental principles of aesthetics and appreciation of beauty through the study of identified elements such as line, shape, form, space, colour and light manifested by different media and materials. The course deals with the grammar of the visual thinking, visual language, visual organization, visual relationship and aesthetical creation in the context of creative industry and “Kalakar” – a creative person.

Instructions in this course will ask students to engage in an act of creation and learn to distinguish best from the good that has to encompass both pragmatic and emotional considerations. The goal is to facilitate students by sensitizing their eyes and developing their powers of visual discrimination. The course also initiates the conversation and development of the sensory perception of literal/ ambiguous form, leading to a process of selection and decision-making and its conversion into an actual application. The aim is to provide students an organized approach to the mechanics of design and ability to use this knowledge to a range of situations in developing for self-expression or industrial application. (Open to 2nd year students with permission of the instructor).

**CND 3XX Cinematography**

This course in cinematography will introduce students to strategies and techniques through which to control and manipulate the composition, framing, quality, and effect of moving images by varying frame rates, shutter speeds, and image exposure, changing camera lenses, filters and color temperatures to create different moods, experimenting with camera movement and angles, and establishing points-

of-view. Students learn when, how, and why to break established cinematic conventions, and how to incorporate these effectively in their short visual narratives.

**CND 3XX Representing Reality**

Reality is not something that is given to us, but whatever arises from the alternation between assumptions on the one hand and observations on the other. Our assumptions can be deceptive, our observations can be deceiving, but we have nothing but both, and most of all, the change between the two of them in order to track down what we call reality. In this course we will be thinking about the reality of documentary film as well as making documentary films that think about the representation of reality. The challenge lies in turning reflection on representations of reality in documentary films into documentary practice. By carefully studying the history of documentary film as well as its theories from the first, mostly normative attempts up to the latest, deconstructivist and postmodernist variations, we will develop an awareness for the artificialities as well as for the plausibilities of defining reality as well as for separating documentary filmmaking from other forms of cinema. Our study will be informed by watching a selection of documentaries from the silent movie era up to the present, as well as mockumentaries, docudramas and fiction movies that make use of non-fictional forms.

**CND 376 Advanced Animation**

This course examines three-dimensional digital design, visual aesthetics, and the theoretical underpinning for human perception. The class instructions in this course introduce multiple media, their associated theories, and stages of production. Although technical proficiency is a goal in the class, the primary emphasis is the application of cognitive theories of perception for a harmonized and dynamic visual experience. Students will develop knowledge and skills as they learn about and produce computer-generated 3D elements in the realm of visual effects and interactive and broadcast animation. The class instructions will examine methodological analysis from a semiotic perspective, narrative theory, and topics related to time, space, and cinematographic matchmoving.

**CND 426 Realism – An Overview Across Cinema and Literature**

In what consists the realism of 19th century realist novels? Once this preliminary question is answered, the course will move forward to describe the manifold mutual influences and exchanges between on the one hand the literary realisms of the 19th and 20th centuries, and cinema on the other. While doing so, this course will also explore a number of theories of literary and cinematic realism (Lukacs, Magny, Bazin et al.), and provide a wide range of examples of different kinds of realisms in both arts (hyperrealism, magic realism and so on and so forth). Through this 400-level seminar, students will enrich their knowledge of what “Realism” is by means of a suitable range of examples and case studies, as well as of advanced-level theoretical perspectives on the subject.

**CND 4XX Cultural Production in Karachi**

This course seeks to introduce seniors to the complex and important interplay between culture, capital and their city. Karachi as the financial capital of the country is also the central cultural hub for arts and media. Tying theory to praxis, students will interact with the industry (TV, advertising, music, theatre, arts etc.) and industry leaders via guest lectures and site visits. Through readings and these interactions, students will be able to situate themselves as media consumers and producers in one of the largest megacities in the world and understand how the city is imagined, portrayed and remixed for consumption.

# Arzu Program for Languages and Literature

## Minor in English Language and Comparative Literature

**Faculty Members**

Afzal Ahmed Syed, Associate Professor (Professor of Practice)
Asif Aslam, Associate Professor
Sabyn Javeri, Assistant Professor
Inamullah Nadeem, Assistant Professor (Professor of Practice)
Sahar Shah, Associate Professor (Professor of Practice)
Paul Andrew Woolridge, Assistant Professor, Interim Program Director
Nudrat Kamal, Lecturer

**Adjunct Faculty**

Tanveer Anjum
Sheikh Taha Munir
Tazeen Erum
Muhammad Hanif

**Vision**

The study of literature can be a stepping-stone to a lifetime of passionate engagement with authors and texts. It can also form the basis of a lifelong critical engagement with questions of history, culture, philosophy and literary tradition. The Arzu program currently offers a Minor in English and Comparative Literature (ECL) that will enable students to fulfil both these possibilities. We investigate literary texts critically and aesthetically as well as in relation to social and historical formations. Students have the opportunity to familiarize themselves with established areas of literary studies and with new perspectives emerging from postcolonial and non-western sites of knowledge.

Our curriculum will foreground key topics and themes that inform the study of literature in the contemporary moment with an awareness of our regional and cultural context. The curriculum of the minor focuses on how literary representation intersects with theoretical interpretation, imaginative practice, and socio-historical knowledge. The minor is designed to provide opportunities for both broad-based and intensive studies. It will appeal to a range of student interests by offering courses on literary representation, authors, and aesthetic forms as well as on the social meaning and lived experience of literature in the past and in the contemporary moment.

There are two respects in which the undergraduate minor is distinctive. Building on the interdisciplinary nature of AHSS programs and the presence of a growing faculty that teach regional languages, its curriculum has room to evolve a comparative approach to our region's literary traditions. Second, we envisage an important role for creative writing in fulfilling the curricular aims of the program. Creative writing courses, especially if taken in a focused cluster of minor courses, will allow Habib students to explore imaginative forms and techniques of writing, and read for the narrative and rhetorical strategies through which texts become meaningful for readers.

**Areas of Focus:**

- English and Comparative Literature
- Urdu and South Asian Literature
- Literary Criticism and Theory

**Program Learning Outcomes:**

By the end of this course of study, students with an Arzu literature minor will be able to:

- Locate major writers in English, Urdu, and world literature within their respective linguistic, cultural, and historical periods
- Define and discuss the evolution of themes, styles, and techniques across genres and within traditions
- Work comparatively and fluidly with texts in translation and in conversation with their respective linguistic and cultural milieux
- Explain how world literatures have adapted to, and been transformed by, the rise of English as a global medium for literary production
- Analyze texts closely using methods appropriate to literary analysis and translation studies
- Critically assess conceptual problems integral to the nature of literary and aesthetic experience
- Produce a theoretically informed interpretation of several texts and traditions in dialogue
- Read, write, and think critically, creatively, and imaginatively

**Requirements: Six Courses for the Minor or a minimum of 18-20 credit hours**

- In consultation with their faculty advisors, students may design the minor to complement their major or to focus on a theme that cuts across the minor's areas of focus.
- The minor must be declared no later than two (02) semesters before graduation by submitting a Declaration of Minor form to the Office of the Registrar.

**2 Required Courses [6-8 Credits]**

- Introduction to Comparative Literary Studies (To be offered every Fall)
- Introduction to Literary Theory and Criticism or Postcolonial Literary Theory (To be offered every Spring)

**2 Upper Division Arzu Electives within Area of Concentration [6-8 credits]**

- One 300 level course
- One 400 level course or independent study

- Students may choose to do an upper-level independent study. Its topic and plan of study must be drawn up in consultation with the faculty member supervising the project and approved by the program's Board of Studies.

- Independent studies must be approved, and the Office of the Registrar notified by submission of the approved Independent Study form, no later than the end of the enrollment period of the semester, in which the study is to be undertaken.

**2 Open Electives Relevant to Area of Concentration: [6 credits]**

- One Arzu Literature Elective (any level)

- One Arzu Literature Elective or CLS Elective (any level)

- Elective courses relevant to area of concentration may be used to fulfil minor requirements, but at least three of those electives must be Arzu literature courses.

- Students may not count a course towards both the ECL minor and a liberal core requirement, with the exception of Jehan-e-Urdu.

- Students may not count a course towards ECL and another minor. For possible exceptions, please consult the program director.

- Study abroad courses may receive credit in the minor, in consultation with the program director.

- Receiving credit for cross-listed courses will be evaluated on a case by case basis at the discretion of the program director and assistant dean of AHSS.

## 2019-20 Offerings

**LIT 103 Voices from the Margins: History of the Subcontinent through Films/ Moments of conflict**

An elective for all students, this course provides glimpses into the history of the Subcontinent through films in Urdu/Hindi, English and Bengali languages. Each of the selected films focuses on an important historical event in India, Pakistan and/or Bangladesh. Starting from the fall of Oudh in 1856 and covering a number of politically significant events such as War of Independence, Partition of India, formation of Bangladesh, Bhopal tragedy (1984), etc, the course ends on a film about Gujrat massacres (2002); these films explore the complex and problematic predicaments of the politically marginalized and socially victimized groups and thus enable the viewers to probe the contexts that allow such marginalization on one hand and analyze the stories using various theoretical frameworks on the other. Additionally, students can also investigate the aesthetics of the film genre and their pertinence and significance in developing the discourse of the politics of the center and the margins.

**LANG 105 Cultural Production in Contemporary Urdu: Pappu Yaar Tung Na Kar**

This is an introductory course is intended for students who want to improve their reading and writing skills in Urdu, especially those students who will be taking more detailed course work in Urdu later on.

This is a basic level course aimed at enabling students to acquire and strengthen major skills related to language, with specific focus on Urdu writing system, grammar, colloquial conversation and to enable them to develop intermediate level proficiency in listening, speaking, reading, and writing. Students entering the Habib University come with varying proficiency in Urdu language. Nearly all of them speak Urdu at home or with each other. They are more familiar with conversational and spoken Urdu but lag behind in writing. Many of them have studied Urdu in schools but have either not developed or have lagged behind in writing skills. This course is aimed at developing these skills.

**LIT 204 Female Friendship in World Literature**

Female friendships can be rich wells of emotional complexity as well as crucibles where fraught interactions of class, race and ethnicity are played out. In this course, we will consider the ways in which fictional representations of women's relationships with one another are historically and socio-culturally inflected, and assess the ways in which literary depictions of female friendship can provide insight into women's lives as well as articulations of domesticity, intimacy and feminist solidarity. We will be reading authors such as Jane Austen, Ismat Chughtai, Megan Abbott, Elene Ferrante, Quratulain Hyder and Jean Rhys.

**Feminist Fiction of South Asia and Middle East**

This course is an introduction to feminist fiction in the colonial and postcolonial periods, focusing on how South Asian and Middle Eastern writers explore issues of gender, identity and violence through fiction. The course is designed to develop essential aspects of critical thinking and the understanding of creative works through a selection of connected readings in a range of approaches, styles and techniques. Through writing practice, readers' responses and critical reflection, the course explores cultural developments and political narratives in a range of genres, introducing students to issues, techniques and contexts of feminist fiction in the predominantly Muslim world.

**LIT 310 Urdu and Global Voices: Translations of Modern Fiction and Poetry**

Colonialism initiated India's encounter with the Western world and its literatures. The history of Urdu Literature includes moments when masterpieces of fiction and poetry produced in various languages were incorporated into Urdu through extensive translations sometimes from the original languages but most often through English translations. Indisputably these translations influenced Urdu Language and Literature immensely and transformed the sensibility and perspectives of both creative writers and their critics. Any study of Urdu Literature has to trace the history of these translations into Urdu to determine the sources of different literary movements and the development of various genres. This course draws upon the intellectual bond between the creative geniuses of the world and offers a better understanding of Urdu Literature by placing it in a global context while tracing its onward journey into the postmodern and postcolonial global ethics and aesthetics.

**LIT 102 Jawan Hai Mohabbat – The Magic of classic film music**

An essential component of regional cinema is the song (Geet) which has evolved as the most popular poetic and melodic genera. The sound track of any film determines a timeless appeal and longevity of films popularity. Pioneers, performers and path blazers of this field have attained an idolatry status due to striking the right chord with the film going and music listening populace. The course offers an insight into the phenomena of film music and elaborates all its aspects, avenues and forms.

**CORE 121 Jehan-e-Urdu**

Jehan-e-Urdu is based on the premise that Urdu prose and poetry, classical as well as contemporary, is valuable in itself and by focusing on this body of work in terms of its intrinsic value, this course

avoids using the Urdu syllabus for ideological purposes. A dynamic and broad-based view of the Urdu literary tradition forms the basis of this course, deliberately moving away from colonial theories used for categorization and grading of forms and styles. Contemporary literature is particularly focused upon, without avoidance of issues considered to be difficult or controversial.

From the classical to the contemporary, this course is organized around the historical development of Urdu literature in order to provide a framework for an appreciation of the readings with their proper context. It is however, not designed to be a comprehensive survey which takes into consideration all major schools of thought and literary trends. Again, it is also not exhaustive in its coverage of all major writers. It is expected that this course will encourage students to further explore Urdu language and literature on their own and also through courses to be made available later on.

**LIT 205 Kon Sitarey Choo Sakta hai: A study of metaphors appearing in the classical, modern, and contemporary Urdu poetry**

This course is about the tradition of Urdu poetry in general and the history of similes, metaphors and symbols frequently used throughout the centuries in particular. So the point of focus will be the Urdu poetic diction to find evidence for the claim that essence of poetry lies in the language used and in the poet's understanding of the associations of words with each other. The elements of Urdu poetic diction will be traced from as far back as the eighteenth century to the present to show how some words and their associations have persisted and some have been used to create poetry by their deliberate violations.

This course will train the students to appreciate Urdu poetry through interpretation of similes, metaphors and symbols as employed by major classical, modern and contemporary poets. It will also provide a creative impulse to the aspiring Urdu poets among the students.

**LIT/CND 203 Reading Writing and Thinking Literature**

This course will introduce students to key concepts and strategies in literary studies that are of special relevance to the ECL minor. We will think about the concept of literature as it has developed historically and is invoked in current academic and cultural discussions. There will be an overview of the traditional literary genres, and introduction to strategies of reading literature that use history, politics, or social significance as their main criteria of analysis. Attention will be paid to literary theory and criticism, and to creative writing, translation and comparison's potential role in opening up the field of literary studies. Throughout the course, we will focus on how these different literary concepts and strategies sustain, transform or diminish the broader field that we recognize as 'literary'.

**LIT 308 Themes and Patterns in Contemporary Urdu Literature: Harvest of Anger**

This course builds upon and complements 'Jehan-e Urdu' which had provided a panoramic view of the major literary figures, the trends and movements and the various milestones of the development of Urdu literature reaching up to contemporary times. This course covers recent literary trends through a detailed, analytical study of representative literary texts by contemporary writers. It outlines the major themes and patterns emerging from contemporary Urdu literature specially as it bears witness to the shaping events in Pakistan's tumultuous history, and also noting gaps and lacunae. Historic themes, social and class conflicts as well as contradictions emerge from contemporary Urdu poetry and fiction, often not available in current syllabi and leading to a limited understanding of Pakistan's society. Ranging from the continuing influence of classical traditions to modernistic influences from the West to post-modernism and recent theoretical advances, various authors have grappled in their own way with accelerated social changes, political instability, religious extremism, sense of despair and aimlessness in youth, suppression of women's rights and sense of isolation in minorities. Significant in itself, this body of work is often conspicuous in its absence from national academic syllabi and

generally ignored in socio-political analysis about Pakistan, thus leading to a limited understanding of Pakistan's society. This course explores representative examples from writers who deserve to be better known in order to deepen and enrich understanding of the dynamics of Pakistan's society.

**Banned Books: Censorship and Scandal in the Literary World**

This course looks at literature that has been suppressed, censored, banned, condemned and/or engulfed in controversy only to gain literary acclaim later on. Through these books/texts students will develop knowledge of the social and political reasons driving opposition to particular forms of written expression, along with the ways in which scandalous, renegade or "dangerous" literary works have influenced cultural history.

**LIT 322 Indo-Persian Poetics and Ghalib**

This course is an introduction to the Urdu poetry of Mirza Asadullah Khan Ghalib (1797-1869) to the students and explores it both as an individual entity as well within the context of Sabk-e-Hindi, Indo-Persian poetics. It will focus on intensive reading and analysis of Ghalib's Urdu ghazals highlighting various themes, for example love, mysticism, cosmology, human promises and predicaments. It will also introduce some other major poets of the Indo-Persian literary canons to enhance the students understanding of the meanings and cultural legacies of poetic thought and tradition in South Asia.

**Dozakh Namah: Framing Ghalib and Manto in Imagined Conversations**

A contemporary Indian novel places the iconic nineteenth century figure of the poet Ghalib in juxtaposition with the twentieth century figure of Manto as they converse with each other in an imaginary hell, narrating their unique life experience. Ghalib witnessed the cataclysm of 1857 while Manto lived through the trauma of 1947; Ghalib was closely associated with the Mughal court and saw power change hands from the Mughal Emperor to British colonial rule while Manto wrote about his close encounter with the Partition and the shift to post-colonial statehood.

Taking its cue from this novel, the course reads the life and works of both figures in detail moving across their selected works and accounts of their lives. Ghalib's poetry is supplemented with selected letters and Manto's stories by his nonfiction and essays, thus creating a dialogue between two major writers who exemplify different forms of writing and different eras of time.

**Post-Colonial Science Fiction and Fantasy**

The literary tradition of science fiction and fantasy (SFF) has for a long time been very Eurocentric and masculine in its explorations, and has been critiqued with being aligned with the ideologies of imperialism and colonialism. As such, there is an alternative tradition of science fiction that is actively engaged with challenging SFF's complicity with (white, male) Western neocolonial ideology. In this course, we will explore this alternative "postcolonial" science fiction and fantasy tradition, understand its political underpinnings and read literary texts that best exemplify this tradition's concerns in using the genre of SFF to explore issues of gender, race, ethnicity and colonialism. Authors such as Amitav Ghosh, Ursula Le Guin, Nalo Hopkinson, Octavia Butler, Margaret Atwood will be read alongside postcolonial science fiction and fantasy scholars such as Jessica Lange.

**LIT 202 Narratives of Migration**

As a result of global and transnational activities shaped by colonial and neocolonial forces, there has always been a movement of people and cultures across the globe, creating hybrid groups scattered around the world and co-existing and influencing each other in various complex ways. Migration and the movement of people, whether it be for economic, political or social reasons, has been always been

a phenomenon, although the specificities of such movements have always been historically inflected at different stages of time. In this course, we will explore different kinds of narratives of migration and understand the geopolitics that undergird such migrations. We will situate these literary texts historically and socio-politically by reading them along with critical texts exploring colonialism, globalization, race, and national and regional identities. We will be studying literary texts by Chimamanda Ngozi Adichie, Mohsin Hamid, Tayeb Salih and Amitav Ghosh, among others, and critical writings by Edward Said, Gyatari Spivak, Robert Young and more. Through this course, we will understand how narratives of migration are complicated by war, economics and culture.

**Murder They Wrote: Political Murder as a Literary Device in Fiction**

This course explores the use of 'political murder' or 'assassinations' as a literary device to explore the wider themes of colonisation, dictatorship, surveillance, perversion, political modernity and urban violence as well as class and gender inequality within the culture the novels are set in. It also focusses on the idea of genre, in particular crime fiction and political thrillers.

**LIT/CND 302 Writing Short Stories**

This class will focus on the craft of the short story, which we will explore through reading short stories, writers speaking about writing, writing exercises and conducting workshops on original stories and finally- crafting our own stories to a publishable standard. This course is designed for students who want to explore the art of short story writing and of polishing them to a high standard by analyzing them with a focus on narrative technique to understand ways in which different writers have addressed issues of plot, character, place and theme.

Students will gain confidence in their ability to produce short fiction through a combination of practical exercises, examination of technical issues including plot and character, and constructive criticism using the workshop method and peer review. This course is desirable for students who have a keen interest in reading and the experience of writing fiction (for instance through attending an introductory or the 'Ways into Creative Writing' course). Students should be enthusiastic readers and have a portfolio of writings they wish to develop to a publishable standard.

**Research Methods in Literature**

This research seminar is open to students who have taken a previous course or courses in theory (in any major) and who are prepared to participate in an ongoing research theme. The revival of interest in attachment (particularly after Rita Felski's 'The Limits of Critique') as a way of thinking about literature invites us to look again at the related but distinct notions of 'Criticism' 'Critique' and 'Affirmation'. This course will constitute an inquiry along these lines, not restricted to literature, and we will try to make sense of these ideas historically and well as the contribution they make to the broader field of present-day theory.

**The Prose Poem in Urdu**

Urdu prose poem became a significant genre since the early 1970s with the emergence of a group of poets, who embraced the new form as the most suitable to express the crude, fragmented realities of our times. Infused with postmodern sensibility and with an understanding of the complex new poetics devoid of lyricism of rhyme and meter, the clique found its aesthetics initially unacceptable for the literary establishment of Urdu, but the genre soon developed as the mainstream poetic expression and a challenge to the previously existing forms. For the younger poets now, prose poem is aesthetically as much enthralling to be experimented with as the other forms.

This course is an Urdu Literature course with mostly Urdu texts as prescribed readings. However, some

theoretical discussions will require readings of English texts as well. The students will be exposed to the literary masterpieces of Urdu prose poetry and the discussions will entail close readings of the texts as well as the analysis of socio-political and existential issues faced by us every day.

**Interpreter of Maladies: Storytelling, Diseases and Augmented Reality (Arzu, cross listed iSciM and CS)**

This interdisciplinary course explores digital narrative techniques focusing on key areas of disease/ cell biology and empathy through storytelling. It examines the relationship between the afflicted and the caregivers, the reader and the sufferer through a mix of bioscientific knowledge and creative writing. It reconnoitres the rhetoric of empathy and the elucidations of science and art through the modern technology of Augmented Reality and Ren'Py (visual novels) and how that has changed our perceptions in a global, connected world.

**Languages**

We also offer innovative courses in regional languages that highlight the richness of our region's rich linguistic and literary histories and cultures. Students majoring in Social Development and Policy are required to complete a sequence of three regional language courses from the Arzu Program. Currently, the program offers courses in Punjabi and Sindhi. Farsi is offered as a free elective. Credit for language courses do not count towards the ECL Minor.

The work of the Arzu Program of Languages and Literature is connected to the Arzu Centre for Regional Languages and Humanities, which fosters pedagogy, research and scholarship in the various languages from Pakistan.

**LANG 102 Punjabi Rachna I**

"Punjabi Rachna" is an optional course offered to students of Habib University. It aims to enable the students to develop a basic understanding of Punjabi language in context to Punjabi culture, idiom, linguistic and literature. This course initiates a learning module, which will evolve in three semesters; each interlinked in a systematic flow starting with emphasis on linguistics to literature and finally history of Punjabi language. This is the Elementary level of this course.

Contents of the course have been designed to ensure that the students may acquire the following fundamental skills with special emphasis on speaking:

Speaking: Simple language interaction with correct pronunciation, intonation and appropriate expression.

Listening: Familiarities with alphabets, articulation of sounds, correct pronunciation, vowel harmony including phrases and expressions.

Reading: Correct reading for understanding Punjabi language script.

Writing: Short paragraphs, situational dialogues and simple compositions. Inamullah Nadeem

**LANG 202 Punjabi Rachna II**

"Punjabi Rachna" is an optional course offered to students of Habib University. It aims to enable the students to develop a basic understanding of Punjabi language in context to Punjabi culture, idiom, linguistic and literature. This course initiates a learning module, which will evolve in three semesters; each interlinked in a systematic flow starting with emphasis on linguistics to literature and finally

history of Punjabi language. This is the Intermediate level of this course.

Contents of the course have been designed to ensure that the students may acquire the following fundamental skills with special emphasis on speaking:

- Speaking: Simple language interaction with correct pronunciation, intonation and appropriate expression.
- Listening: Familiarities with alphabets, articulation of sounds, correct pronunciation, vowel harmony including phrases and expressions.
- Reading: Correct reading for understanding Punjabi language script.
- Writing: Short paragraphs, situational dialogues and simple compositions.

**LANG 302 Punjabi Rachna III**

"Punjabi Rachna" is an optional course offered to students of Habib University. It aims to enable the students to develop a basic understanding of Punjabi language in context to Punjabi culture, idiom, linguistic and literature. This course initiates a learning module, which will evolve in three semesters; each interlinked in a systematic flow starting with emphasis on linguistics to literature and finally history of Punjabi language. This is the Advanced level of this course.

Contents of the course have been designed to ensure that the students may acquire the following fundamental skills with special emphasis on speaking:

Speaking: Simple language interaction with correct pronunciation, intonation and appropriate expression.

- Listening: Familiarities with alphabets, articulation of sounds, correct pronunciation, vowel harmony including phrases and expressions.
- Reading: Correct reading for understanding Punjabi language script.
- Writing: Short paragraphs, situational dialogues and simple compositions.

**LANG 101 Sindhi Sikhiya I**

This Course will help students to comprehend, read and write Sindhi Language. Learning Sindhi will help students in various fields of work and internship in future. This course is chalked out to help students at different levels of skill in reading and writing through basic Sindhi language, folk rhymes, folk tales, folk songs etc. In addition to the lectures and discussion groups, tutorials will be organized and online tutorials will be used for an additional help to make things more meaningful and interesting. It will facilitate students in reading, comprehending and contextualizing the text on reading list. And, so the students will be able to speak, read and understand basic Sindhi.

**LANG 201 Sindhi Sikhiya II**

This course will help students who have already completed the basic skills in Sindhi language, which they had previously comprehend to learn: listening, speaking, reading and writing skills. Sindhi Sikhiya II course will elaborate to the knowhow of its grammar and translation practices which will help them to familiarize more with the language skills. A selected version of Sindhi poetry and fiction will suffice the course and help students to achieve confidence in interpretation of rhyme and beauty of literary

text. Students will get confidence in interpretation of rhyme, rhythm and beauty of the literary text. Students will get help through viewing Sufi kalams on audio and video. This will facilitate them with more understanding and contextualizing of the text on the reading list and thus students will be able to understand the language more accurately and improve their reading, speaking and writing skills.

**LANG 301 Sindhi Sikhiya III**

Sindhi Sikhiya III – LANG 301 will help students learn more about Sindhi language which they opted to learn and comprehend to read and write. The objective of this course is to help students learn more about the language, which they had previously opted to learn and comprehend to read and write. This course will introduce a galaxy of modern writers of Sindhi language and learn more through a selected version of poets and writes of modern period from: 1947-1997, with a revision of basic concepts of language. There will be a practical part of this course, which enables students to read and understand Sindhi Language through reading daily newspapers like "Kawish" and "Awami Awaz" and making a practical journal of "news cuttings" with a weekly briefing of the current issues. Watching various relevant videos will help students to catch up the course more interestingly. These practices will facilitate students with more understanding and contextualizing of the text on reading list.

The following language courses are offered as free electives

**LANG 103 Amozgar-e-Farsi I**

Farsi is the language of Iran but was also the official and cultural language of South Asia for a long time. As a result, the Farsi language is the repository of cultural, social and religious sources and familiarity with the language is essential for gaining access to such sources. This introductory course is aimed at a basic working knowledge of the Farsi language through conversation, written exercises and reading. This class will meet twice a week for two hours.

**LANG 203 Amozgar-e-Farsi II**

This course is for students interested in learning Farsi, to expose them to its linguistic history and literature for the first time. The course outlines historical and linguistic challenges that need to be confronted to strengthen the contribution to the future development of the language. There is a great deal of focus on the introduction of Farsi into the language curricula at various universities in Pakistan and South Asia. This course attempts to outline the linguistic challenges facing Farsi at the turn of the 21st Century and therefore reconstructs the history of Farsi and identifies opportunities for the further developments of the language to meet the need of a global and a globalizing community.

**LANG 303 Amozgar-e-Farsi III**

Farsi is the language of Iran but was also the official and cultural language of South Asia for a long time. As a result, the Farsi language is the repository of cultural, social and religious sources and familiarity with the language is essential for gaining access to such sources. This course is the third in line, following Amorzgar-e-Farsi I and II, this course is aimed at increasing expertise of students' working knowledge of the language through reading, writing and conversation exercises.

# Comparative Liberal Studies

## B.A. (Honors) in Comparative Liberal Studies

## Minor in History

## Minor in Religious Studies

## Minor in Philosophy

**Faculty Members**

| | |
|---|---|
| Christopher Sherman Taylor | Full Professor |
| Daniyal Ahmed | Lecturer |
| Hasan Ali Khan | Assistant Professor |
| Jeffrey Kaplan | Full Professor |
| Muhammad Haris | Assistant Professor, Interim Program Director |
| Nauman Naqvi | Assistant Professor |
| Nur Anna Helene Sobers-Khan | Associate Professor |
| Sadaf Habib | Lecturer |
| Jessica Louise Radin | Assistant Professor |
| Syed Nomanul Haq | Full Professor |
| Zain Saeed | Lecturer |

**Adjunct Faculty**

Irfan Muhammad
Muhammad Umair Khan

**Program Vision**

Offering powerful transdisciplinary and comparative approaches, including history, philosophy, literature and religious studies, the CLS program empowers its students to engage in the urgent and critical work of deconstructing and repairing the post-colonial reality of modern South Asia, both by grounding them in the rich local and global philosophical, intellectual and cultural traditions and by challenging them to reshape modernity by bridging the theoretical and the practical.

# B.A. (Honors) in Comparative Liberal Studies Requirements

All students majoring in Comparative Liberal Studies are required to complete a total of 34 courses.

| Course Category | Number of Courses to complete |
|---|---|
| **University Requirement** | |
| University Liberal Core | 10 |
| **Comparative Liberal Studies Core Courses** | |
| Historicity and Historical Method | 1 |
| The Making of Modern World Religions | 1 |
| Introduction to Philosophy, or What is Philosophy | 1 |
| Reading, Writing and Thinking Literature or Literary Theory | 1 |
| Interrogating & Repairing the Humanities | 1 |
| **Comparative Liberal Studies Electives & Concentration** | |
| History, Philosophy and Religious Studies Electives | 6 |
| Electives in the discipline of concentration | 4 |
| **Other Requirements** | |
| Language and Literature Elective | 1 |
| Regional Language Requirement | 3 |
| Free Electives | 3 |
| Senior Thesis | 2 |
| Overall | 34 |

**Program Learning Outcomes:**

- Demonstrate skill in close critical reading of primary & core texts.
- Create meaning through multiple interpretive frameworks.
- Demonstrate a historical consciousness that reflects an understanding of both historiography and historicity.
- Demonstrate skill in the praxis of applied humanities (i.e., applying the knowledge gained from humanistic studies to the urgent problems of our contemporary world).
- Demonstrate advanced linguistic ability.

# Requirements For The Minor

**History Minor**

Modernity is a historical machine: it produces history at an ever-accelerating pace. Historical inquiry is thus essential to understanding and surviving our present. Thus the past forty years have witnessed

a broad historical turn across the human sciences, and History enjoys extraordinary prestige in the academy as a field and as a mode of inquiry. At Habib, History is regarded as an essential component of a liberal arts education – it sits at the top of the Habib Liberal Core Forms of Thought – and a broadly historical approach is shared by faculty regardless of disciplinary affiliation, across the majors and minors of our School of Arts, Humanities and Social Sciences. A pronounced and critical historical consciousness and sensibility is, indeed, one of the distinctive marks of a Habib education that a minor in History can further cultivate and hone.

Pedagogically, the aim of the minor is to awaken the student's curiosity about the plurality of pasts that shape our present and to nurture the critical thinking, research, and writing skills that are essential for historical study. The minor will teach students to identify, understand and critically analyze historical change and difference, as well as the legacies, conscious or unconscious, that each generation inherits from its past, and the many perspectives and relations one can have vis-à-vis those legacies.

Specific emphasis will be given to the shaping of South and Central Asia and the greater Muslim world, the impact of European colonization, and the postcolonial legacies to be found across the developing world. In terms of kinds of history, faculty have strengths and offer courses in global history, intellectual history, history of material culture (e.g., architectural and numismatic history), religious history, European history, and history of the postcolonial world.

The cognitive qualities of complexity, rigor, ability to recognise contingency and imagine alternatives, as well as sensitivity to change and transformation in the midst of continuity – all of which are characteristic of the historical approach – make historical study attractive both for graduate school across the human and social sciences, as well as for employers across a range of sectors of the economy.

**Learning Outcomes Of The Minor In History:**

Students with a minor in History will be able to:

- Apply methods from transnational, comparative, and global history to appreciate the interconnectedness of histories of various parts of the world
- Demonstrate an understanding of how individuals, societies and events outside Europe have contributed to world history
- Express themselves intelligently about the causal factors behind historical change over time and across different regions of the world
- The ability to sense and be sensitive to, as well as critically analyze, the historically crucial role of conceptual and discursive shifts and transformations across historical mentalities and spaces
- Demonstrate an understanding of the historical roots of contemporary world affairs
- Conduct historical research and craft arguments that resonate with diverse audiences
- Critically approach both primary and secondary sources in European and non-European languages
- Navigate historiographical debates, historical methodologies and interpretive frameworks

**History Minor Requirements**

- Required Introductory Courses
    - Global History: 1500 to the Present
    - Pakistan & Modern South Asia
- Required Intermediate Courses
    - Historical Being, Being Historical: Historicity & Historical Method
- Advanced Courses
    - Any two advanced level (300 or 400 level) history electives

Students may choose to do an upper-level independent study, over one or two semesters. Its topic and plan of studies must be drawn up in consultation with the faculty member supervising the study and approved by the program's Board of Studies. Independent studies must be approved, and the Office of the Registrar notified by submission of the approved Independent Study form, no later than the end of the enrollment period of the semester, in which the study is to be undertaken.

Free electives (but not program required courses) cross-listed as History in the major programs may be used to fulfil minor requirements. Students may count one course towards both the History minor and a liberal core requirement.

**Religious Studies Minor**

'Religion' encompasses vast fields of human experience, aspiration, knowledge, and community that are as essential to our understanding today as ever. Intrinsically transdisciplinary, Religious Studies has been one of the most exciting fields of study in the human sciences over the past forty years, having an impact well beyond its formal boundaries.

At Habib, Religious Studies is regarded as an essential component of a liberal arts education. Intersecting with philosophy in Hikma in the Habib Core – in the latter's pursuit and reading of Islam as what one recent scholar has called a 'philosophical religion' – it sits near the apex of the Habib Liberal Core Forms of Thought under Philosophical Thought, a categorical placement that attempts to revolutionize our approach to the study and teaching of Islam in particular, as well as its relation to its ambient religious traditions.

The minor will feature a range of courses in comparative religion, theory and methods in the study of religion, textual analysis, and specialized topics in religious studies. The aim of the minor is to introduce students to multiple ways of approaching world religious traditions, and the ways in which these traditions have been shaped by historical, political, and social realities. Students will appreciate the plurality and richness of religious expression throughout history, and the modes in which religious traditions continuously interact.

Specific emphasis will be placed on the shaping of the Abrahamic faiths and the religions of South and Central Asia, especially on the myriad of Islamic traditions. Students will explore the ways in which South Asian religions have interfaced with modernity, and the ways in which the forces of modernity have played a part in the construction of 'religion', and vice versa. Courses will cover a range of topics, including notions of religious reform and revival, the impact of colonial governmental technologies, and the fluidity of religious encounters. The courses will further interrogate and problematize well-

entrenched binaries, like lived and textual religion, folk and literary or urban religions traditions, heterodoxy and orthodoxy, and mysticism and legal traditions.

The minor will evolve a truly comparative, interdisciplinary, postcolonial approach to Religious Studies that will make it distinctive. It is an organic outgrowth of Habib University's unique Comparative Liberal Studies program, and reflects its vision and pedagogical approach.

Courses composing the minor ask students to interrogate European-language and non-European-language sources, ranging from theological and juristic texts to hagiographies and colonial sources. Each course challenges students to consider how religious texts, beliefs, and practices have shaped our contemporary world.

Given its intrinsically transdisciplinary nature, Religious Studies bears within itself the potential to exercise and cultivate the entire range of cognitive qualities associated with the human sciences – from complexity, to rigor, to the ability to recognize contingency and imagine alternatives, systematic analysis of social and ideational phenomena, as well as sensitivity to change and transformation in the midst of continuity, to a facility for analogical and philosophical reasoning, critical and synthetic power, as well as the power of conceptual innovation – make Religious Studies compelling for both graduate school across the human and social sciences, as well as for employers across a range of sectors of the economy.

**Learning Outcomes Of The Minor In Religious Studies**

Students with a minor in Religious Studies will be able to:

- apply methods from several key disciplines in the social sciences and the humanities in the study of religion. For instance, they will be able to deploy methods in social history and anthropology to explore conceptions of lived religion;
- question notions of 'mainstream' religion, religious essentialism, and the immutability of religious traditions and their underlying moral frameworks, and even the very conception a "religious domain";
- employ comparative approaches to understand the ways in which world religious traditions have influenced and shaped each other;
- understand the heightened role of religion in identity formation in the modern period.
- trace how belief and practice, and the very category of religion and the religious domain have been refashioned through encounters with 'modernity' and its by-products, like the nation state and the printing press;
- explore the role of religious institutions throughout history, and the dramatic transformations in these roles particularly from the 19th century to present;
- analyze how religion is deployed as a means for political and social mobilization;
- explore the interface between religious, institutions, texts, ideas, and practice;
- critically reflect on the historical roots of contemporary conflicts that are popularly seen to be rooted in religious difference; and
- critically read texts (both primary and secondary sources in European and non-European

languages), conduct anthropological research, and construct cogent arguments that resonate with diverse audiences.

# Religious Studies Minor Requirements

- Required Courses
    - Introduction to World Religions
    - Making of Modern World Religions
    - Hikma I
- Intermediate & Advance Courses
    - Any two intermediate or upper level electives in Religion
- Students may choose to do an upper-level independent study, over one or two semesters. Its topic and plan of studies must be drawn up in consultation with the faculty member supervising the study and approved by the program's Board of Studies. Independent studies must be approved, and the Office of the Registrar notified by submission of the approved Independent Study form, no later than the end of the enrollment period of the semester, in which the study is to be undertaken.

Free electives (but not program required courses) in the major programs may be used to fulfil minor requirements.

Students may count a course towards both the Religious Studies minor and a Habib Liberal Core requirement.

## Philosophy Minor

Philosophy is often held to lie at the origin of all subsequent forms of knowledge, and in its generative passion for truth, continues to enjoy a certain prestige as an essential and foundational form of thought. The study and practice of Philosophy is concerned with the questioning and re-organization of existing patterns of thought, and the generation of new thought and concepts, directed towards the transformation of humans and their worlds. Formal training in Philosophy can thus be quite empowering and liberating.

Philosophy also enjoys essential linkages with the other humanities. The range of crises encountered by the human sciences over the past half century have demanded an engagement with philosophy for the purposes of reflective conceptual innovation and invention across the disciplines. At Habib University, Philosophical Thought has been given its rightful stature in the Habib Liberal Core's seven Forms of Thought, and is a crucial element in the education of our students, as much as in the theoretical orientation of our faculty across the majors and minors. Indeed, multiple recent studies have shown that philosophical study at any and all levels of education (from the primary through the secondary and tertiary) generates copious rewards that ramify across fields of study and practice.

The minor gives students philosophical training that enables them to explore continuities between Philosophy and other aspects of their ongoing curricular, professional, and personal experiences.

Students completing the minor will have sufficient capacity to think and write about universal philosophical themes pertaining to being (ontology), knowledge (epistemology), aesthetics, ethics, and politics.

Given its location in Comparative Liberal Studies, the minor creates options and opportunities for students to examine philosophical practice in specifically postcolonial, South Asian, and Islamic contexts, while also exploring the power of Philosophy to transcend disciplinary boundaries and to address critical issues of global public interest.

The cognitive qualities of analytical, critical and synthetic power, as well as the power of conceptual innovation, that are all associated with the practice of philosophy make philosophical study attractive both for graduate studies, as well as for employers across a range of sectors of the economy.

**Learning Outcomes Of The Minor In Philosophy**

Through extensive reading, writing, and presentation activities in Philosophy courses, students enrich their capacities for the clarification and production of ideas. More specifically, the minor aims to develop capacity as follows:

- Develop the capacity to engage in intellectual inquiry that runs in the circuit of existence, knowledge, conceptions of the human and the subject, and the history of Philosophy.
- Develop the capacity to raise, and to work through ethical questions, including questions in meta-ethics, applied and professional ethics, and questions pertaining to the ethical implications of political thought.
- Develop the capacity to probe questions of philosophical methodology, that is, various forms of logic and dialectic in the history of Philosophy, and the role of mathematical thought in Philosophy.
- Develop the capacity for production and critique of axiomatics – of knowledge production and practice – in the various fields and disciplines of the Arts, Humanities, Social Sciences, and STEM.

## Philosophy Minor Requirements

- Required Introductory Courses
    - What is Philosophy or Introduction to Philosophy.
    - Philosophy in the Liberal Core
    - Hikma 1
    - Logic
- Required Intermediate Courses
    - Either Epistemology or Ontology (if both are taken, one counts as an advanced level elective)
    - Any two advanced level electives in Philosophy

## 2019-20 Offerings

**CORE 102 What is Modernity?**

No one in the medieval world thought they were 'medieval.' The belief that we live in a distinct period of world-history – that of 'modernity' – sets us apart from all pre-modern peoples. It is a defining aspect of who we are, essential to our modern sense of ourselves. It is thus imperative to the task of understanding both ourselves and our world – imperative to the task of thoughtful self-cultivation assigned to us by Habib University's pedagogical charter of yohsin – to ask the question: What is it to be modern? What is modernity?

The interrogation and investigation of modernity is an essential dimension of Habib University's Liberal Core in its pursuance of a strenuously universalist and critical humanities and social sciences curriculum.

Our 'modernity' is the very air we breathe. It encompasses, at an ever-gathering pace, all aspects of our lives. This is why the question of modernity has been a central concern across the range of disciplines and fields of the arts, humanities and social sciences throughout the modern period. This course will address the most critical and essential elements of our global and regional modernity today, modernity in our time and context. Beginning with an investigation of the conditions of emergence of this unique world historical identity, we then turn to the historical emergence and formation of key structures and features of the modern in the following domains: political modernity; economic modernity; modernity and ecology; and modernity and religion. By the end of the semester the historical character and specificity of these foundational spheres of our present will be visible.

**CORE 201 Pakistan and Modern South Asia**

For the first time in its history, nation-states – including that of Pakistan – emerged in the region of South Asia in the middle of the 20th century. How did such a world-historical event come about? What has it meant for the peoples of this region? In short, what is the history of our present – what is the history of our regional modernity?

This question takes on a particular urgency in Pakistan as the region passes through the current period of crisis and change. With a significant focus on the emergence and trajectory of Indo-Muslim nationalism and the creation of Pakistan, this course will be a conspectus of the modern history of South Asia from the immediate pre-colonial historical scene, through the colonial period, including the rise of regional socio-religious reform movements, anti-colonial nationalism and formal decolonization, to the Cold War and the contemporary period of accelerated transformation and turmoil.

Apart from the main outlines of the history of modern South Asia, students will also learn to place the region's colonial modernity within the larger framework of modern history. Students will crucially learn to identify major features of the colonial economy, politics and society under which – especially after the Great Rebellion of 1857 – regional religious and other social reform movements emerged, nationalisms formed, and the dramatic transformation of regional languages and traditions took place, processes that continue into the present.

They will learn to see contemporary conflicts, ideologies, identities and structures as specific to the modern period rather than as natural cultural expressions, and they will begin to see regional cultures and societies themselves as historical entities.

**CORE 301 Hikma I**

anging across philosophy, literature, history, law and the arts, Hikma I is an encompassing survey of Islamicate thought that seeks to give a sense of the historical and philosophical complexity and

depth of the tradition, with significant reference to the region of South Asia. In the module on 'Religion & Modernity' in CORE 102, and subsequently in our historical survey of socio-religious as well as nationalist reform and revivalist movements in the colonial period in CORE 201, we studied the dramatic transformation and discursive constitution of 'religion' and 'culture' in the colonial-modern period. Both regionally, as well as in the global modern generally, 'Islam' and its cultures and societies, have also become particularly sensitive and difficult regions of the discursive landscape.

In recognition of this urgent conceptual difficulty in approaching Islamic phenomena and thought, this course is designed around fourteen key themes, corresponding to core sciences within a typical pre-modern Muslim scholastic syllabus.

The course begins with the medieval spiritual bildungsroman by Ibn Tufayl – Hayy Ibn Yaqzan – that conveys the philosophical depth and passion for knowledge, in all its plurality, that is chartered in the tradition as the means for the thoughtful self-cultivation of the human. Next, students are introduced to the philosophy of education in the pre-modern Muslim world, and the place of various disciplines in the maktab (primary school), madrasa (institution for education in the 'outer' sciences), and khaniqah (institution for advanced education in the 'inner' sciences of the soul) curricula.

**CORE 303 Hikma II**

Whereas Hikma I focused on clearing the epistemological and philosophical ground to approach the history of Islamic thought, Hikma II directly engages primary texts and artefacts from the tradition, especially of a philosophical character.

**HIST 200/REL 200 The Making of Modern World Religions**

As a requirement for the History and Religious Studies minors within CLS, this course provides students with an introduction to five world religions (Christianity, Judaism, Hinduism, Buddhism, Islam) from the perspective of theology, history, and lived religion. Students will explore how the processes of modernity since the 19th century have refashioned these faith traditions.

The course opens with a survey of theories and methods in the study of religion, from the 19th century to the present. Student will interrogate how the categories of religion, belief, and praxis have been approached from the perspective of several key disciplines in the social sciences, theology, and the humanities – ranging from the works of Tyler and Frazer, Eliade, Marx, and Freud to post-colonial theorists. The course further explores, from a historical perspective, the question of how religion interfaces with modernity; questioning the degree to which modernity has played a part in the construction of religion, and vice versa. The course then turns to the politics of comparison, by looking at transformations in the study of comparative religion, as it has emerged from Western European colonial and missionary projects to the present day. Students will consider the evolution of epistemological frameworks for comparative religious inquiry, and their limitations.

**HIST 202/REL 203 Modern Middle East**

This course provides an introduction to the complex political, economic, and social changes that have created and shaped the Middle East from the mid-18th century to present, covering the region from Iran to North Africa. In addition to contextualizing current events, the course also introduces students to historiographic debates and methodology, interpretive frameworks, and critical analysis of primary and secondary sources. Lectures and readings also bring the history of the Middle East in dialogue with surrounding regions.

This course treats both the 'Middle East' and 'modernity' as problematic and contested terms, and problematizes civilizational rise and decline paradigms. Instead, students are encouraged to explore

the possibility of multiple indigenous modernities within the Middle East, and to consider the vast array of internal responses to colonialism and western notions of modernity emerging from this region.

**HIST 203/REL 204 The Intellectual History of Esoteric Traditions in Islam and related Faiths**

This course builds upon the trajectory of Hikma I and Hikma II. It explores the various practitioner methods traditionally used in Oriental and Islamic philosophy and spirituality, which are today mostly lost to us due to Modernity. It will, as opposed to the Hikma courses that dwell on theory and metaphysics, demonstrate to the student the actual methods of attaining the various 'truths' so keenly articulated in the Core. The course will provide the student in-depth knowledge of old esoteric practices, starting from their earliest evolution at the dawn of human civilization, and later as found in medieval texts by known thinkers, including al-Biruni, amongst others. Content will occasionally be complemented by the dying contemporary knowledge of these sciences-components of which have nevertheless persevered in this part of the world. The course will examine the various uses of esoteric sciences in our tradition, including in architecture and medicine. It will help the student to understand and come to terms with the richness and plurality of Islamic spirituality hands on, and to learn to appreciate it as a modern-as opposed to instinctively rejecting it. Our modern rejection of our lost esoteric heritage is one of the reasons youth are driven to revivalist puritanical trends in modern Islam, which eventually lead to militancy.

**HIST 204 Medieval Islamic History**

This course would be a religious studies companion to Prof. Naqvi's "What is Modernity" and would explore the Christian Tradition in its various forms (Catholic and Eastern) before the rise of Modernity. Emphasis will be placed on the roots of Modernity in Protestantism and the effects of Modernity on both Catholicism and Orthodoxy especially the French and Russian revolutions and the responses to these by both churches. Key concepts of the Christian tradition will be addressed as well as the fundamental role Catholicism, Orthodoxy and Protestantism have placed in shaping much of the arts and literature as well as political concepts we are so familiar with today.

**HIST 205 The pre-Islamic History of the Indus Region**

Envisaged as one of two courses that seek to plug the gaps in Pakistani state history, this course will deal in depth with the pre-Islamic history of the region that today comprises Pakistan. The problem of exclusivist modern Islam touted as state ideology is one of the major contributors to religious strife both within the country amongst its populace, and on the global stage. An immersion into the rich pre-Islamic history of the region and associated faiths will open students' minds up to an ancient heritage that is lost upon most Pakistanis, and challenge the myth that the country was founded as a result of the Umayyad Invasion of 712 CE. The course will initially deal with the Indus valley and the Vedic Era, but concentrate more on the later Achaemenid (530-330 BC), Indo-Greek and Buddhist (Gandhara and Kushan), Parthian, and Hindu periods. Guest lecturers will be invited for certain weeks.

**HIST 300/PHIL 301 Urdu Literary Criticism and the Question of Modernity**

In terms of sheer volume, literary criticism enjoys unusual stature in contemporary Urdu discursive production, as is readily verifiable through a cursory review of the catalogues of major Urdu publishers. What explains this remarkable space of criticism in the culture of Urdu? This course posits that literary criticism has been the primary site for the interrogation of the question of modernity in Urdu letters. The major texts and figures discussed in the course include Altaf Hussain Hali and Muhammad Hussain Azad, Firaq Gorakhpuri, Kaleemuddin, Muhammad Hasan Askari and Saleem Ahmad, Sibte Hasan, Shamsur Rahman Faruqi and Nasir Abbas Nayyar.

**HIST 301/REL 301 Sacred Geographies: A Fieldwork based course in Historical Methodologies**

Las Bela, Baluchistan, remains understudied, despite its pivotal location between Iran, Kalat, and Sindh, and Bela's role as the capital city of a state, which not long ago encompassed Karachi. The recent opening of this region provides a unique opportunity to make academic forays into Bela. This course seeks to expand inter-disciplinary horizons, with the aim of designing a cross-departmental course where students can participate and design various aspects of a field-based study.

**HIST 302: Xias [Kung Fu Fighters], their Western Counterparts, and their Global Reinventions**

The course will establish critical dialogues across cultures, disciplines, and historical periods. It will do so by contrasting the xia (kung fu fighter) in classical Chinese literature and historical records to a number of figures: to the knight in Medieval romance, to the anarchist terrorists and revolutionaries in early twentieth-century Europe and China, to the thug in gangster movies, and finally, to the xia reinvented for global kung fu cinema.

**HIST 303 An Intellectual and Cultural History of Muslim Spain**

It is very easy to forget, as we often do, that there existed an Arabo-Islamic state on the continent of Europe for some 800 years, making an enduring impact on European intellectual and cultural life. From the Divine Comedy and Don Quixote to French troubadours, and from art and architecture to philosophy and science, we are the heirs of the manifestations of this impact—impact that is both fascinating and complex. Called "al-Andalus" by its Muslim rulers, the career of this Iberian peninsular state began in 711 CE with Arabo-Berber incursions into southern Spain from the west of Gibralter (a corruption of the Arabic name Jabal al-Tariq), and lasted way until 1492 when Columbus sailed from here to discover the New World. Historians have called Muslim Spain "the ornament of the world" and hailed it as a model of pluralism, a diverse world where several distinct ethnic and religious communities intersected—Muslims, Jews, and Christians; and Arabs, Berbers, Europeans, and others. Our course revisits this lush phase of human history in the context of world culture.

**PHIL 200 What is Philosophy?**

This course is an introduction to some (among the many multiple) forms and articulations of the process and work of philosophy. Philosophy is a radically open, dialectical process that resists all forms of closure, thereby unsettling established definitions and creating ruptures in hierarchies, classifications, and historical continuities. The philosophical process charts the movement of thought from an experience of negativity/nothingness to the affirmation/production of concepts and systems that transform subjectivity, creating the desire for new possibilities, singularities, worlds, and futures. Philosophical thought raises questions about thinking itself, exploring the possibilities that are there in thought to re-organize existing structures of knowledge and language, and to generate, precisely, new thought. The desire to generate new thought - to think difference and to think differently – can be located in philosophical processes and works, in the transformative shifts that occur when philosophers reflect on "problems", for instance, the tensions between: being and existence; identity and difference; structure and subject; transcendence and history; and, universality and cultural particularity. To follow the various trajectories and pathways of philosophical thought is to open oneself up to the dialectic – i.e. thinking that is transformative, self-reflective and non-static, perpetually ongoing – which has profound implications for one's engagement with other spheres of "life". Thus, philosophical thought is inherently rooted in praxis, and has important implications for ethics, politics, love, as well as other practices and sites of new and original thought, such as art, literature, mathematics, natural sciences, social sciences, and the technological fields.

In reading philosophical texts this semester, our focus will be on interpretations that make philosophy come alive and resonate with concrete historical contexts, both personal and collective. Philosophers

under consideration include major historical figures and prominent names in contemporary continental philosophy.

**PHIL 202 Philosophy in the Anthropocene**

We are living in times where Hölderlin's analysis of the relationship between tragedy and nature is strikingly prescient and realistic. Nature is revealing itself as an awe inspiring and destructive force; thus we hear of "record breaking" heat waves, floods of "biblical proportions", rising sea levels, the sixth mass extinction event underway, existential threats to human beings and societies, and a situation of crisis where nature seems to have thrown a wrench into the machinery of progress and modernization. We also hear that this terrifying manifestation or shining forth of nature, in its "original form", is caused by the "anthropos", that is, human beings, and we hear terms such as "anthropogenic climate change", and the application of the idea of the tragic to an unfolding catastrophe that indeed appears to be ironically selfinflicted. Thus, we have the Anthropocene thesis, an ever expanding intellectual framework to describe our historical era, where geological transformations are understood as a product of human action, human history coincides with geological history, and the nature- culture divide disappears. In this course, we will be thinking philosophically about the Anthropocene: working to break through into the whole, understanding the problem in its totality, and seeing how the unfolding geological transformations occur at the nexus of epistemological and political word views that define the present. Therefore, to think about the Anthropocene (as an event, epoch, or discursive formation) is to think about our world, our modernity, and our technological civilization. The course covers a broad terrain of intellectual interventions, all aimed at supplying fresh insight, creating an epistemological break, producing difference, and enabling us to rethink prevailing conceptions of history, humanity, nature, ecology, economics, politics, ethics, and language.

**PHIL 203 Introduction to Islamic Philosophy**

This course is a broad survey of the Islamic philosophical tradition, addressing almost exclusively the discipline called falsafa. It operates in the perspective of the living currents in Western philosophical activity today—thus giving it not only a historical but also a substantive relevance to European philosophy. The course will trace the linkage of Islamic philosophy to the Greeks, Aristotle and Neoplatonists in particular, and—on the other end—its transmission to the Latin West.

**REL 100 Introduction to Buddhism**

This course is an introduction to Buddhism providing the students with the opportunity to explore this rich tradition focusing on the Gandhara period, Tibetan, Chinese and Japanese Buddhism. Special attention will be placed on the role Buddhism has played in the arts.

**REL 101 Learning about "Others": An Introduction to the Academic Study of Religion**

Religion is an inescapable and constant feature of human society – religious and religio-political conflicts are ongoing around the world, often because one tradition views the other as being strange, ridiculous, or even blasphemous. This course will introduce students to both Western and Arabic thinkers who have reflected on the importance and impact of religion in our communities, cultures, and our political development. Students will be exposed to theorists from al-Farabi through Marx, Ataturk through Derrida, and will be challenged to reflect both upon how they define religion itself, and about the challenges of researching their own and other traditions in a critical yet respectful way. Students who complete this class will not only have a sense of the development of Religious Studies as a discipline, they will be well prepared for future classes and independent research projects on topics relating to religious minorities, World Religions, and the relationship between religion and politics.

**REL 202 Introduction to the Aesthetic Traditions of Islam**

The aim of this course is to provide students with an introduction to the aesthetics behind the various artistic traditions of the Islamic world as well as its arts of living. The objective of this course is to introduce students to aesthetic criticism and the ability to engage critically with various forms of art within their context. Essay writing and analytic skills be among the skills acquired by the students during this course. The various artistic traditions that will be presented will include calligraphy, architecture, painting, music, theatre, literature, the arts of the table, fashion, martial arts and the beautification of the body.

**REL 205 Christianity before and after Modernity**

This course would be a religious studies companion to CORE 102 “What is Modernity?” and would explore the Christian Tradition in its various forms (Catholic and Eastern) before the rise of Modernity. Emphasis will be placed on the roots of Modernity in Protestantism and the effects of Modernity on both Catholicism and Orthodoxy especially the French and Russian revolutions and the responses to these by both churches. Key concepts of the Christian tradition will be addressed as well as the fundamental role Catholicism, Orthodoxy and Protestantism have placed in shaping much of the arts and literature as well as political concepts we are so familiar with today.

**REL 400 Translation, Comparative Religion, and Comparative Concepts of Truth and Power**

In the West, translations of the Bible into vernaculars were closely related to the rise of modern nations. Why was this not the case with the translation history of Buddhist scriptures? How does monotheism impact the Christian understanding of language/ interpretation/ translation, and how does the latter in turn produce a Christian mode of imagined community which plays an unstable and ambiguous role in colonialism? To what extent do the Christian concepts of the “sacred,” authenticity, authority, canonization, and civic religion account for the divergence of its translation theory and practice from those of Buddhism? By comparing the two traditions, this project will also draw attention to how the coupling of translatio studii and translatio imperii is a mere historical and cultural contingent.

# Dhanani School of Science and Engineering

# Computer Science

## BS in Computer Science

## Minor in Computer Science

**Faculty Members**

| | |
|---|---|
| Akhlaque Ahmad | Assistant Professor |
| Shah Jamal Alam | Assistant Professor |
| Shahid Hussain | Assistant Professor, Interim Program Director |
| Umair Azfar Khan | Assistant Professor |
| Taj Muhammad Khan | Assistant Professor |
| Musabbir Majeed | Assistant Professor |
| Nadia Nasir | Lecturer |
| Syeda Saleha Raza | Assistant Professor |
| Waqar Saleem | Assistant Professor |
| Abdul Samad | Assistant Professor |

**Vision:**

Computer Science (CS) is the study of computation - what can and cannot be computed, how can computation be made more efficient, how to build machines that can compute, and which spheres of human activity can benefit from computational approaches. It is deeply rooted in logic and mathematics. Theoretical Computer Scientists push the frontiers of computation by inventing new computational approaches. Practical Computer Scientists apply the theory of Computer Science to different application areas like science, finance, medicine, business, transportation, entertainment, education, communication, engineering, art, and the humanities.

Interventions stemming from CS are just beginning to disrupt and reinvent Pakistani society. The CS program provides students the intellectual and technical foundation to assess these interventions and to contribute meaningfully and thoughtfully to the transition of our society to the information age. With an education grounded in the Liberal Arts, our graduates have an unrivalled understanding of our society and the ethical ramifications of technology.

A major with the program educates students in the theory, systems, and applications of CS so that they are able and willing to make impactful contributions to society and are prepared for success in industry, entrepreneurship, and higher education.

## REQUIREMENTS FOR THE MAJOR - Class of 2023

All students majoring in Computer Science (CS) must obtain a minimum grade of C+ in each CS Foundation and Kernel course in order to graduate with this degree.

Students must also meet all other requirements set by Habib University and by Dhanani School of Science and Engineering. Some of these may overlap.

The number of credit hours required to be completed in each category are listed below followed by a list of courses that fulfil each category. Any change in the following will be duly communicated formally to the enrolled students.

| Course Category | Number of Courses to complete+ |
|---|---|
| **University Requirements** | |
| Habib Liberal Core | 10 |
| **School of Science and Engineering Requirements** | |
| Natural Science | 2 |
| Mathematics | 2 |
| Computing | 1 |
| Design | 1 |
| Entrepreneurship | 1 |
| Prerequisite Courses | |
| Math and EE | 4 |
| **Computer Science Requirements** | |
| Foundation | 3 |
| Kernel | 7 |
| Other Requirements | 2 |
| Systems Elective | 1 |
| Elective | 5 |
| Capstone Project (Kaavish) | 2 |
| **Other Graduation Requirements^** | |
| Free Electives | 2 |
| Overall | 43+ |

+ - Courses in the various categories may overlap leading to a different total number of courses.
* - Because of course overlap and depending on the choice of courses, the total number of credit hours may vary.
^ - A minimum of 130 credits are required for graduation. A sufficient number of extra courses must be taken to meet any credit shortfall.
Students are advised to consult their advisor regarding choice of courses.

## Requirements For The Minor (If Applicable And Approved)

The following details must be included:

- Title: Minor in Computer Science
- The CS minor requires the successful completion of 7 courses as follows.
    - All 3 courses from CS Foundation.
    - Any 2 courses from CS Kernel or approved by the program.
    - Any 2 CS courses of level 300 or above.

Students pursuing a minor are advised to consult the CS program director regarding choice of courses taken in fulfilment of the minor.

## Course Categories

**Habib Liberal Core**

The courses satisfying Habib Liberal Core are described in the section above on Habib Liberal Core.

**Natural Science and Mathematics**

These courses are offered by the program on Integrated Science and Mathematics and are described in the program's section below. Students pursuing a CS major are required to complete any 2 Natural Science courses, at least one of which includes a lab component. They are also required to complete the following 2 Mathematics courses.

- MATH 202 Engineering Mathematics
- MATH 205 Linear Algebra

**Computing**

Students majoring in CS fulfil this requirement through the following course from CS Foundation which is described further below.

- CS 101 Programming Fundamentals

**Design**

This requirement is fulfilled partially by each of the following courses that CS students are required to take. Completing all of these courses fulfils the Design requirement completely. These courses are described further below.

- CS 101 Programming Fundamentals
- CS 224 Object Oriented Programming and Design Methodologies
- CS 353 Software Engineering
- CS 355 Database Systems

**Entrepreneurship**

This requirement is met by the following course which is described further below.

- MGMT 301 Entrepreneurship

**CS Foundation**

CS Foundation prepare students coming out of high school to tackle CS concepts. It comprises the following 3 courses.

- CS 101 Programming Fundamentals

- CS 102 Data Structures and Algorithms
- CS 113 Discrete Mathematics

**CS Kernel**

CS Kernel covers concepts, skills, and techniques that are fundamental to the pursuit of most disciplines and practices within CS. It comprises the following 6 courses.

- CS 201 Data Structures II
- CS 212 Nature of Computation
- CS 224 Object Oriented Programming and Design Methodologies
- CS 232 Operating Systems
- CS 353 Software Engineering
- CS 355 Database Systems
- CS 412 Algorithms: Design and Analysis

**Other CS Requirement**

CS students must complete the following 2 courses.

- CS 100 Computer Science Freshman Seminar
- CS 290 Khidmat

**CS Systems Elective**

Students are required to choose 1 course that further explores aspects pertaining to computing system. Some courses that fulfil this category are:

- CS 132 Elements of Computing Systems
- CS 330 Computer Architecture

**CS Electives**

Students are required to complete five (05) courses that explore various disciplines and practices within CS. Some courses that fulfil this category are (other courses might be added to this list):

- Any CS Systems Elective
- CS 261 Understanding Social Networks
- CS 262 Introduction to Computational Social Science
- CS 311 Introduction to Cryptography

- CS 316 Introduction to Deep Learning
- CS 317 Combinatorial Machine Learning
- CS 336 Introduction to Computer Security
- CS 340 Geometrical Modelling and Analysis
- CS 342 Game Development
- CS 351 Artificial Intelligence
- CS 370 Web and Mobile Development
- CS 415 Computational Complexity Theory
- CS 416 Algorithms for Machine Learning
- CS 421 Compiler Construction
- CS 440 Computer Graphics
- CS 451 Computational Intelligence
- CS 457 Data Science Techniques
- EE 424 Data Communications and Networking
- EE 451 Digital Image Processing
- EE 442 Embedded Systems
- EE 375 Microcontrollers and Interfacing

**Capstone Project**

CS students in their final year undertake a year-long project as the culmination of their studies in the CS major. This is completed as the following 2 courses.

- CS 491 Kaavish I
- CS 492 Kaavish II

**Free Elective**

Any course offered at Habib university can be attempted as a free elective.

2019-20 Offerings

## Required Courses

**CS 100 Computer Science Freshman Seminar**

Credit Hours: 1+0

Fulfils: CS Major Requirement

Prerequisite: None

Provides a broad overview of the theory and practice of Computer Science.

**CS 101 Programming Fundamentals**

Credit Hours: 2+1

Prerequisite: None

Fulfils: CS Foundation, Formal Reasoning

Motivates computer programming as a means to solve problems; introduces the basic components of problem solving: repetition, decision making, data storage and manipulation, input/output, modularity, top-down design; develops expertise in the corresponding constructs – variables, data types, iteration, conditionals, functions, file and console I/O, and recursion – in a high level programming language.

**CS 102 Data Structure and Algorithms**

Credit Hours: 3+1

Prerequisite: CS 101

Fulfils: CS Foundation

Motivates the design of algorithms by exploring various algorithms for a single task: linear search and binary search, bubble sort, insertion sort, selection sort, merge sort, quick sort; introduces techniques to reason about and compare algorithms: asymptotic analysis and notation, Master theorem; introduces frequently used data structures: list, tree, graph, stack, queue; discusses and analyzes basic operations on the data structures: infix, postfix, and prefix traversal, breadth-first and depth-first search, computation of graph properties.

**CS 113 Discrete Mathematics**

Credit Hours: 3+0

Prerequisite: None

Fulfils: CS Foundation, Formal Reasoning

Equips students with essential mathematical tools that will be encountered in future Computer

Science courses; develops a capacity for formal mathematical manipulation and abstract thought; topics include: propositional logic, predicate and quantifiers, sets, functions, sequences, summations, relations, partial orderings, proofs, mathematical induction, pigeonhole principle, permutations and combinations, graphs, graph isomorphism, Euler and Hamiltonian paths, trees.

**CS 201 Data Structures II**

Credit Hours: 3+0

Prerequisite: CS 102 and CS 113

Fulfils: CS Kernel

Imparts proficiency in the use of commonly used data structures; introduces a few higher level data structures; develops critical judgment regarding the choice of data structures for a given situation; topics include: abstract data type, complexity, stack, queue, list, amortized analysis, array-list, linked list and skip list, hashing, binary tree, binary search tree (BST), randomized BST and treap, self-balancing in trees, AVL tree, B-tree, red-black tree, binary heap and meldable heap, Fibonacci heap, graphs and their representations, graph algorithms, trie, inverted index.

**CS 212 Nature of Computation**

Credit Hours: 3+0

Prerequisite: CS 113

Fulfils: CS Kernel

Develops the foundations for theoretical computer science; investigates fundamental challenges at the frontiers of theoretical computer science; provides opportunities to develop rigorous mathematical arguments; engages with classical ideas from theoretical computer science; topics include: proofs, languages, finite automata, grammars and push-down automata, Turing machines and the halting problem, oracles and computability, Gödel's completeness and incompleteness theorems, circuit complexity, polynomial time and its justification, reduction, P, NP, and NP-completeness, Cook-Levin theorem, hardness of the P versus NP problem, randomness, P versus BPP, interactive proofs, zero-knowledge proofs, quantum computing, DNA computing, biological computing, physical limits of computation.

**CS 224 Object Oriented Programming and Design Methodologies**

Credit Hours: 3+1

Fulfils: CS Kernel

Prerequisite: CS 102

Introduces object oriented and related memory concepts; motivates C++ as the language of choice; topics include: pointers and structs, objects, heap allocation, data encapsulation, classes, namespaces, constructors and destructors, virtual functions and destructors, operator overloading and standard input/output, inheritance and polymorphism, templates, standard library containers, and software design using UML 2.0.

**CS 232 Operating Systems**

Credit Hours: 3+1

Fulfils: CS Kernel

Prerequisite: CS 102

The student will be taught principles of modern operating systems. In particular, the course will cover details of concurrent processes, multi-threads, CPU scheduling, memory management, file system, storage subsystem, and input/output management. This will be accomplished by integrating theory and practice through coordinated lecture and lab hours.

**CS 330 Computer Architecture**

Credit Hours: 3+1

Prerequisite: CS 130

Fulfils: CS Systems Elective

Studies the architecture of RISC-V processor that enables general purpose computing; develops hands-on expertise in developing complex logical components; topics include: instruction set architecture, addressing modes, processor design and computer arithmetic, pipelining, memory systems, fetch-execution cycle, processor implementation on FPGA using Verilog HDL.

**CS 353 Software Engineering**

Credit Hours: 3+0

Prerequisite: CS 224 and CS 355

Fulfils: CS Kernel

Approaches software engineering as the study and practice of a collection of concepts, techniques and tools which enable programmers to design, build, and maintain large software systems in a reliable and cost effective way; develops skills and understanding that function as the basis for many of the more advanced analysis and design practices encountered in the industry; topics include: systems development process, stakeholders and their roles, systems development project needs, software process methodologies, spiral and RUP, software analysis and requirement discovery, data modelling, SAD and OOAD, UML, use case diagrams, software project management, project scope, network diagrams and CPM, agile methodologies, XP, Scrum and FDD, class diagrams, realization of use cases, object oriented design, sequence diagrams, activity diagrams, state transition diagrams, user interface design, software testing, software construction and maintenance.

**CS 355 Database Systems**

Credit Hours: 3+1

Prerequisite: CS 102

Fulfils: CS Kernel

Explores in detail the theoretical and practical aspects of Relational Database Management Systems (RDBMS); develops an understanding of database modeling, relational algebra, structured query

language (SQL), components of Database Management System (DBMS), transaction management and concurrency control, database fine-tuning via indexing and partitioning, and database connectivity with front-end applications; discusses administrative aspects of database systems including database security, database management vs data warehousing vs data mining, and big data and its challenges.

**CS 412 Algorithms: Design and Analysis**

Credit Hours: 3+0

Prerequisite: CS 201 and MATH 310

Fulfils: CS Kernel

Develops tools and techniques that aid in designing correct, efficient algorithms for computational problems and analyzing their correctness and running time; some of the discussed techniques are: greedy method, divide-and-conquer, dynamic programming, hashing, randomization, network flows, linear programming, Fast Fourier Transform, and techniques for thinking about solving problems in parallel; analysis tools include: recurrences, probabilistic analysis, amortized analysis, and potential functions.

**CS 491 Kaavish I**

Credit Hours: 0+3

Prerequisite: CS 353

Fulfils: Capstone Project

Self-directed final year project carried out under the supervision of a faculty member; emphasizes solving a real world problem; integrates knowledge and skills accumulated over the entirety of the degree; first of a 2 part sequence.

**CS 492 Kaavish II (0+3)**

Credit Hours: 0+3

Prerequisite: CS 491

Fulfils: Capstone Project

Self-directed final year project carried out under the supervision of a faculty member; emphasizes solving a real world problem; integrates knowledge and skills accumulated over the entirety of the degree; second of a 2 part sequence.

## Elective Courses:

**CS 262 Introduction to Computational Social Sciences**

Credit Hours: 3+0

Prerequisite: None

Fulfils: CS Elective

Computation social science focuses on the synthesis of modeling & simulation, network sciences, computer science and sociology to produce a hybrid methodology that could be an effective tool for understanding and managing complex social systems. This is a cross-disciplinary course. It is intended for students with background and interest in social sciences and application of computational methods in this domain.

**CS 316 Introduction to Deep Learning**

Credit Hours: 3+1

Prerequisite: Math 101, Math 205, and Math 310

Fulfils: CS Elective

The goal of this course is to give learners an understanding of modern neural networks, their applications in different domains such as computer vision, natural language processing, etc. This course aims to provide expertise to develop intelligent systems using deep learning from scratch, using best practices to solve real world problems.

**CS 326 Mathematics for Machine Learning**

Credit Hours: 3+0

Prerequisite: MATH 205 and MATH 310

Fulfils: CS Elective

This course looks at machine learning from a mathematical point of view. It reviews linear algebra, probability, statistics, and optimization in the context of specific machine learning algorithms with emphasis on design and analysis of these algorithms.

**CS 340/Math 321 Geometrical Modelling and Analysis**

Credit Hours: 3+0

Prerequisite: Math 205, Math 202, and CS 224

Fulfils: CS Elective

This course will cover the foundations of geometrical modelling and analysis, with examples from elasticity, electrostatics, and computer science. The course content can broadly be divided into three categories: fundamentals of geometrical modelling, discretizing a partial differential equation, and stability of solutions.

**CS 342 Game Development**

Credit Hours: 3+0

Prerequisite: CS 224

Fulfils: CS Elective

Presents the principles of game design and development; develops programming capability to develop

games; provides hands-on game development experience as part of a team; uses tools for art creation, music and animations and other game assets; explores the use of mathematics and physics in game design; presents the application of artificial intelligence in computer games; highlights porting issues on various platforms.

**CS 351 Artificial Intelligence**

Credit Hours: 3+0

Prerequisite: CS 201 and CS 224

Fulfils: CS Elective

Studies the major areas of artificial intelligence (AI): problem-solving, decision-making, learning, planning, and reasoning; topics include: intelligent search techniques, games and adversarial search using minimax and alpha-beta pruning, supervised learning via decision trees, naive Bayes, artificial neural networks, K-means clustering, reasoning via first-order logic, Bayesian networks, evolutionary algorithms; explores the areas of computer vision, robotics, and deep learning; applies the covered AI techniques to real-world problems.

**CS 370 Web and Mobile Development**

Credit Hours: 2+1

Prerequisite: CS 224 and CS 355

Fulfils: CS Elective

Develops expertise in current web and mobile development tools; topics include: HTML, CSS, Javascript, building an HTML website, animation and effects, Visual Studio and C#, .NET and MVC, views, controllers, models, working with databases, authentication and authorization, security, mobile development, Ionic.

**CS 400 Computer Science Senior Seminar**

Credit Hours: 1+0

Prerequisite: None

Fulfils: CS Elective

Provides insight into a few current research areas in Computer Science; develops skills in reading, understanding, and presenting research papers and presentations in Computer Science.

**CS 421 Compiler Construction**

Credit Hours: 3+0

Prerequisite: CS 212

Fulfils: CS Elective

This course develops a modern-day compiler for a high-level programming language. It discusses

the foundations of formal languages, their theoretical computational models (automata) and their implementation in the design and construction of a compiler. Students are introduced to the different phases in compiler construction, i.e., lexical analysis, syntax analysis, semantic analysis, intermediate code generation, and code generation. Students will develop a programming language followed by a fully functional compiler by implementing the aforementioned compiler design and construction phases.

**CS 440 Computer Graphics**

Credit Hours: 3+0

Prerequisite: CS 224, CS 412, and MATH 205

Fulfils: CS Elective

This course presents some of the basic techniques in Computer Graphics and focuses on two particular rendering approaches: pipeline rendering using a graphics API and realistic rendering using ray tracing.

**CS 451 Computational Intelligence**

Credit Hours: 3+0

Prerequisite: CS 351

Fulfils: CS Elective

Studies different nature-inspired computational methods; provides hands-on experience of applying these techniques to solve complex optimization problems; topics include: evolutionary computation, swarm intelligence, reinforcement learning, fuzzy logic, and artificial neural networks.

**CS 457 Data Science Techniques**

Credit Hours: 3+0

Prerequisite: CS 355 and MATH 310 / EE 354

Fulfils: CS Elective

Develops the skills to leverage statistics and programming to make predictions, optimize outcomes, and help guide business decisions using data; explores techniques for drawing conclusions and predicting outcomes from data; provides hands-on exposure to an ecosystem of powerful tools that apply data science techniques to real data sets; topics include: data manipulation, data visualization, supervised and unsupervised learning, descriptive and inferential statistics, and data visualization.

# Electrical and Computer Engineering

## BS in Electrical Engineering

## BS in Computer Engineering

**Faculty Members**

Shafayat Abrar, Associate Professor
Muhammad Moiz Anis, Assistant Professor
Hasan Baig, Assistant Professor
Saad Baig, Lecturer
Muhammad Farhan, Assistant Professor
Aamir Hasan, Associate Professor, Interim Program Director
Ishtiyaq Ahmed Makda, Assistant Professor
Abdul Basit Memon, Assistant Professor
Junaid Ahmed Memon, Lecturer
Tariq Mumtaz, Lecturer
Mohammad Shahid Shaikh, Associate Professor (Associate Dean of Academic Operations)
Ahmad Usman, Assistant Professor

**About**

The ECE program offers a robust and multidisciplinary curriculum that includes strong theoretical fundamentals and practical problem-solving. The program is recognized for shaping students to become the next leading engineers to integrate in the creative world of evolving technological landscape. The uniqueness of our engineering program hinges on a sound and contextualized liberal arts exposure that provides a mold for a 'great engineer'.

Today, electrical and computer engineering intersects from miniaturized integrated electronics to large-scale power plants; from single-transistor devices to networks comprising a billion nodes. ECE offers a diverse set of exciting sub-disciplines like digital electronics, instrumentation, machine vision, communications, control systems, robotics, wireless devices, embedded controllers, networking, software development, biomedical devices, artificial intelligence, and computer architecture.

**Programs Vision**

To be an agent of positive change in society through excellence in locally contextualized and globally competitive liberal-arts and discipline-specific education and research, and imparting an understanding of contemporary issues and challenges facing the society.

**Program Educational Objectives (linkages with YOHSIN)**

Electrical & Computer Engineering program at Habib University aims to produce competent electrical and computer engineers who:

- Exhibit broad-based technical excellence in their engineering practice and in other professional dealings.
- Are aware of the impact of their work on society and environment.
- Are capable of leading through a pluralistic approach.
- Engage in the lifelong process of an independent and reflective learning.

**Program Learning Outcomes**

Following Program Learning Outcomes (PLO) are designed to prepare graduates to attain the program educational objectives and subsume the PLOs of Pakistan Engineering Council (PEC) and Accreditation Board for Engineering and Technology (ABET). ECE program at Habib University aims to produce electrical and computer engineers who, at the time of graduation, have

- PLO1 Engineering Knowledge: An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- PLO 2 Problem Analysis: An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- PLO 3 Design/Development of Solutions: An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- PLO 4 Investigation: An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.
- PLO 5 Modern Tool Usage: An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations.
- PLO 6 The Engineer and Society: An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.
- PLO 7 Environment and Sustainability: An ability to understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate knowledge of and need for sustainable development.
- PLO 8 Ethics: Apply ethical principles and commit to professional ethics, responsibilities, and norms of engineering practice.
- PLO 9 Individual and Team Work: An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.
- PLO 10 Communication: An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- PLO 11 Project Management: An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

- PLO 12 Lifelong Learning: An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

**The Academic Program**

The first year of the program provides firm grounding in natural sciences, mathematics, computing and electrical engineering. Foundational courses in computer science and electrical & computer engineering will provide students a meaningful introduction to both the disciplines. Students will then take core electrical & computer engineering and mathematics courses that will provide a solid foundation for taking more advanced elective courses. The final year is devoted to a year-long capstone project, technical electives, and supporting courses. Alongside their specialized training, students are required to take courses outside their major to facilitate a broad exposure to knowledge. This includes the mandatory University Liberal Core component and inter disciplinary engineering electives.

# Requirements for the Electrical Engineering Major

A major in Electrical Engineering requires completion of 42 courses with approximately 137 (134-139) credit hours of coursework, with a minimum CGPA of 2.33, as shown in the table below:

| Requirements | Course Category | Number of Courses to complete | Credit Hours |
|---|---|---|---|
| University Liberal Core | University Core | 10 | 30 [1] |
| Other Programs – (10 courses) | Computing | 3 | 11 [2] |
| | Economics, Management & Entrepreneurship | 2 | 4 |
| | Mathematics | 4 | 12 |
| | Natural Sciences | 2 | 7 |
| | | | |
| Electrical Engineering – Foundation (9 courses) | Intro to Electrical & Computer Engineering | 1 | 4 |
| | Circuits and Electronics | 3 | 12 |
| | Probability Concepts | 1 | 3 [3] |
| | Signals & Systems | 1 | 4 |
| | Digital Logic Design | 1 | 4 |
| | Electromagnetic Theory | 1 | 3 |
| | Engineering Workshop | 1 | 1 |
| | | | |

| | | | |
|---|---|---|---|
| Electrical Engineering – Breadth (6 courses) | Electrical Machines | 1 | 4 |
| | Microcontrollers & Interfacing | 1 | 4 |
| | Communications and Control | 2 | 8 |
| | Engineering Design & Innovation | 1 | 3 [4] |
| | Power Distribution, Generation & Transmission | 1 | 4 |
| | Seminar on advanced topics in EE | 1 | 1[5] |
| | | | |
| Electrical Engineering – Depth (5 courses) | Electrical Engineering Electives | 5 | 18 [6] |
| Engineering Breadth (1 course) | Engineering courses outside EE | 1 | 3 |
| Senior Design Project (2 courses) | Capstone Project | 2 | 6 |
| | **Over All** | **42** | **137** |

[1] course credits offering may differ from 30 credits.

[2] course double counted towards meeting University Liberal Core requirements with the form of thought requirement in Formal Reasoning.

[3] course double counted towards meeting University Liberal Core requirements with the form of thought requirement in Quantitative Reasoning

[4] course double counted towards meeting University Liberal Core requirements with the form of thought requirement in Creative Practice

[5] Seminar course on advanced topics in Electrical Engineering - CR/NCR based

[6] EE electives credits could be between 15 – 20 credit hours (3+1/0)

**Electrical Engineering Thrusts**

Electives are offered from the following four domains. Students may optionally specialize by taking appropriate elective courses in consultation with their academic advisor. In the Junior year, a seminar course on advance topics in Electrical Engineering is offered for exposing students to a diverse set of specializations within EE.

- **Automation, Robotics & Controls**

  Automation, Robotics, and Control is a multidisciplinary engineering field that deals with the design, modeling, analysis, and control of predominantly computer-based automated systems or processes. Automated systems typically contain a mixture of equipment, devices, software, hardware, and humans.

- **Electronics and Embedded Systems**

  Modern electronics are ubiquitous in consumer, industrial, automotive, medical, commercial, and military applications. The percentage of electronics in traditionally mechanical systems, such as automobiles, has steadily increased to more than 30% and is expected to increase further. This trend of ‘electronification’ of society, coupled with the availability of inexpensive but powerful embedded

systems, opens up a huge valley of opportunities for well-trained electronic engineers and entrepreneurs.

- **Power and Energy Systems**

  Ready availability of electrical power at a reasonable price is essential for the economic development of a country. In order to come out of the current energy crisis Pakistan needs to launch more power generation projects, upgrade its transmission network and modernize the distribution system in order to reduce distribution losses. All this will be done by electrical engineers who specialize in power systems.

- **Telecommunications & Networks**

  Cellular mobile phone networks, satellite and fiber-optics communication systems, and global positioning systems are playing a fundamental role in increasing the quality of life and improving the efficiency of the service sector. A well-knit telecommunications infrastructure is essential for the economic development of a country. In Pakistan we are witnessing the introduction of 4G LTE and 5G cellular phone systems, proliferation of data networks, and a shift towards electronically facilitated services by both the public and private sector. Telecommunications thrust is intended to sustain the positive growth in this industry by providing adequately trained technical managers, leaders, and entrepreneurs.

# Requirements for the Computer Engineering Major

A major in Computer Engineering requires completion of 42 courses with approximately 137 (134-139) credit hours of coursework, with a minimum CGPA of 2.33, as shown in the table below:

| Requirements | Course Category | Number of Courses to complete | Credit Hours |
|---|---|---|---|
| University Liberal Core | University Core | 10 | 30 [1] |
| Other Programs – (12 courses) | Computing | 3 | 9* |
| | Economics, Management & Entrepreneurship | 2 | 5 |
| | Mathematics | 4 | 12 |
| | Natural Sciences | 2 | 4* |
| | Social Sciences | 2 | 5* |
| | | | |

| | | | |
|---|---|---|---|
| Electrical Engineering – Foundation (10 courses) | Intro to Electrical & Computer Engineering | 1 | 4 |
| | Electric Circuit Analysis | 1 | 4 |
| | Basic Electronics | 1 | 4 |
| | Object Oriented Programming & Design Methodologies | 1 | 4 |
| | Data Structures and Algorithms I | 1 | 4 |
| | Engineering Workshop | 1 | 1 |
| | Probability Concepts | 1 | 3* |
| | Signals & Systems | 1 | 4 |
| | Digital Logic Design | 1 | 4 |
| | Computer Architecture | 1 | 4 |
| | | | |
| Electrical Engineering – Breadth (7 courses) | Data Communication & Networking | 1 | 4 |
| | Microcontrollers and Interfacing | 1 | 4 |
| | Operating Systems | 1 | 4 |
| | Databases | 1 | 4 |
| | Software Engineering | 1 | 3 |
| | Digital Signal Processing | 1 | 4 |
| | Engineering Innovation & Design | 1 | 2* |
| | | | |
| Computer Engineering – Depth (4 courses) | Computer Engineering Electives | 4 | 12 |
| Engineering Breadth (2 courses) | Engineering courses outside EE | 1 | 3 |
| Senior Design Project (2 courses) | Capstone Project | 2 | 6 |
| | **Over All** | **42** | **137** |
| * courses may be double-counted towards meeting University Liberal Core requirements | | | |

**Computer Engineering Thrusts**

Electives would be offered from the following domains. Students may optionally specialize by taking appropriate elective courses in consultation with their academic advisor. In the junior year, a seminar course on advance topics in Computer Engineering is offered for exposing students to a diverse set of specializations within CE.

**Hardware focused thrust areas:**

1. Digital VLSI Circuits
2. Computer Networks

3. Embedded Systems

4. Computer Architecture

**Software focused thrust areas:**

1. Operating Systems

2. Programming Language and Translators

# Electrical and Computer Engineering courses offered:

**EE 101 Introduction to Electrical & Computer Engineering. (2-6). Credit 4.**

This goal of this course is to introduce the foundations of Electrical Engineering to students with little or no prior experience. This is accomplished by having them build a series of exciting projects with increasing autonomy. The course will introduce basic electrical concepts including charge, voltage, current, energy, power, resistance, capacitance, inductance, and Kirchoff's laws. Practical digital and analog electronic systems will also be introduced to illustrate advanced topics that are treated more completely in subsequent electrical engineering courses.

**EE 111 Electric Circuit Analysis. (3-3). Credit 4.**

This course introduces basic DC and AC steady-state linear circuit analysis. Topics discussed in this course include circuit elements, Ohm's law and Kirchhoff's laws, node and mesh analysis, energy storage elements, Thevenin and Norton theorem, Phasors and sinusoidal steady state analysis. Computer applications in circuit simulation and numerical solution is also discussed.

**EE 172 Digital Logic and Design. (3-3). Credit 4.**

Introduction to the design of digital hardware, realization of computation with logic gates; Boolean algebra, design of combinational logic circuits and analysis and design of clocked sequential logic circuits, circuits for arithmetic operations; introduction to hardware description language and its application to logic design. (Cross-listed with CS 130.)

**EE 212 Electric Network Analysis. (3-3). Credit 4.**

This course is a continuation of EE111, Electric Circuit Analysis. The course discusses DC and AC transient analysis, sinusoidal steady state analysis of RC, RL, and RLC circuits, AC circuit power analysis, polyphase circuits and magnetically coupled circuits. The course then introduces the students to s-domain analysis techniques and ends with a discussion of frequency response.

Prerequisite: EE 111.

**EE 213 Basic Electronics. (3-3). Credit 4.**

The course aims to introduce students to semiconductor devices, with emphasis on application of these devices in realizing analog and digital electronic circuits. The course starts with an introduction to semiconductors, energy bands, valence bonds, doping, N-type and P-type semi-conductors, etc. The electronic devices, such as PN junction diode, bipolar junction transistor (BJT) and field-effect transistor (FET), along with their applications are discussed in detail. Biasing circuits, single transistor amplifiers and their frequency are also

discussed. Circuit simulations using PSpice (OrCAD) forms an important bridge between the theory discussed in class and lab experiments.

Prerequisite: EE 111, Engineering Math.

**EE 241 Electromagnetic Theory. (3-0). Credit 3.**

The study of electrostatic and magneto-static fields in free and material spaces; solving boundary-value problems; extension of static fields to time-varying fields and electromagnetic waves; Maxwell's equations; propagation of electromagnetic waves through different types of media (unbounded media and guided structures) and their behavior at the interfaces.

Prerequisite: Engineering Math

**EE 252 Signals and Systems. (3-3). Credit 4.**

Types of signals; unit impulse and unit step functions; linear time invariant (LTI) systems and their properties; convolution sum and convolution integral; Fourier series, Fourier, Laplace and Z transforms; analysis and characterization of LTI systems using various transforms.

Prerequisite: MATH 101.

**EGR 291 Engineering Workshop. (0-3). Credit 1.**

This course aims to introduce the students to hands-on practical engineering skills, necessary for creating their own prototypes. Topics covered in this course include introduction to engineering design process, shop safety, engineering drawing, solid modeling (CAD), 3D printing, effective use of basic hand tools such as saws and files, machining (Lathe, Milling, Drill press), CNC machining, soldering techniques, and PCB design and printing. The course work emphasizes practical skills through lab activities and project. The students will be required to work with different materials including metal, wood, and plastic.

**EE 331 Electrical Machines. (3-3). Credit 4.**

This is the first course on DC and AC electromechanical systems. Specific topics include single-phase and three-phase transformers, general structure and physical principles underlying electric drive systems, brushless, stepper and switched reluctance DC motors, DC generators, Induction and Synchronous AC motors and generators, torque-speed characteristics of motor drives. Mathematical modeling and speed control of electrical machines will also be discussed.

Prerequisite: PHY 102, EE 212.

**EE 322 Analog and Digital Communication. (3-3). Credit 4.**

Introduction to fundamental principles underlying the analysis, design and optimization of analog and digital communication systems; modulation techniques for analog and digital communication; effects of interference and noise and their suppression.

Prerequisite: EE 252.

**EE 353 Digital Signal Processing. (3-3). Credit 4.**

Introduction to digital signal representations in time and frequency domains; signal manipulations via filters and resampling; signal creation and capture and processing with real-time computing machinery.

Prerequisite: EE 252.

**EE 354 Probability and Random Variables. (3-0). Credit 3.**

Set theory and counting principles, axiomatic definition of probability, independence and conditional probability, Bayes' theorem; random variables (RVs) and their cumulative distribution function, probability mass functions, probability density functions and moments; joint RVs; limits theorems; introduction to stochastic processes; applications.

Prerequisite: MATH 102.

**EE 361 Principles of Feedback Control. (3-3). Credit 4.**

Topics include: Models of dynamic systems, linear time-invariant (LTI) and transfer function models; impulse, step, transient and steady-state response; root locus technique, Bodé plots, Nyquist criterion; gain and phase margins, Nichols charts, lead, lag compensation; state-space techniques; simulation and controller design using Matlab and Simulink.

Prerequisite: EE 252.

**EE 373 Microcontrollers and Interfacing. (3-3). Credit 4.**

Microcontrollers play a central role in modern life, controlling everything from the engine of a car, to domestic and office machinery. Microcontroller fundamentals including architecture, assembly language programming, and interfacing. Applications of industry-standard microcontrollers in embedded systems. Employs software design tools, simulators, and hardware trainers. Will focus on interfacing the ARM RISC processor to motors, actuators and sensors.

Prerequisite: EE 172.

**EE 391 Engineering Innovation and Design (1-6). Credit 3.**

This course introduces the students to user oriented collaborative design, engineering solution development strategies, and communication techniques by having them apply their acquired skills on an actual project. The three stages - conceptual design, preliminary design, and detailed design of the engineering design process area also discussed. Some of the tools introduced in this course include user interviews, personas, pairwise comparison charts, and constructing objectives, constraints, functions tables.

**EE 335 Power Generation, Transmission, and Distribution. (3-3). Credit 4.**

The development of electrical power systems has immensely contributed to the technological advances of the humankind over the past century. Electrical power provides clean and convenient energy to the modern society, which is necessary for the realization of the luxuries we are enjoying in this world today. In summary, the modern world and society does not exist without the availability of electricity. The purpose of this course is to provide the students with a complete flavor of the full-spectrum of electric power generation, transmission, and distribution systems.

**ECON 302 Engineering Economics. (2-0). Credit 2.**

Topics include: Application of economic principles to engineering solutions, time value of money, cash flow analysis, quantization of profitability, methods of evaluating investments, comparison of alternative investments, inflation, depreciation, resource depletion, economic analysis of projects, economic management of engineering projects.

**MGMT 301 Technology Management and Entrepreneurship. (2-0). Credit 2.**

Topics include: managing technological transitions, intellectual property, creating and managing an innovative organization, managing research and development, organizational learning, economist and sociologist views of entrepreneurship, the process and management of entrepreneurship, the importance of innovation, teamwork, financial and marketing aspects, product quality; study will be supplemented with case studies.

**EE 491. Capstone Project I. (0-9). Credit 3.**

**EE 492. Capstone Project II. (0-9). Credit 3.**

This year-long sequence represents the culmination of study towards the BS degree. Students work individually or in small teams on a project in which they utilize the knowledge acquired during the first three years of education. Each project is closely supervised by a faculty member and each team produces a comprehensive report at the end of the project.

Prerequisite: Passing of EE foundation and core courses and approval of EE faculty capstone committee.

# Integrated Sciences and Mathematics

## Minor in Mathematics

## Minor in Physics

**Faculty Members:**

Sameena Shah Zaman, Assistant Professor of Physics, Director iSciM
Anzar Khaliq, Assistant Professor of Physics (Assistant Dean, DSSE, Director, Playground)
Babar Qureshi, Associate Professor of Physics
Humaira Qureshi, Assistant Professor of Microbiology
Hassaan Furqan Khan, Assistant Professor of Environmental Sciences
Humaira Jamshed, Assistant Professor of Biology
Abdullah Khalid, Assistant Professor of Physics
Yousuf Kerai, Lecturer of Mathematics
Shahbaz Ahmed Alvi, Lecturer of Physics/Mathematics
Carina Dreyer, Lecturer of Mathematics
Rameez Raghib, Lecturer of Mathematics

**Adjunct faculty**

Sajal Sohail Rana
Program Coordinator: Nida Naeem
Research Assistants:
Javeria Samad (Biology)
Sidra Sikandar (Chemistry)
Muhammad Raza Rizvi (Physics)

**Vision:**

Integrated Sciences and Mathematics (iSciM) at Habib University offers a diverse range of rigorous foundational and research-based courses that allow students from all disciplines to broaden their understanding of natural science and mathematics. Our interdisciplinary offerings profiting from various forms of design and community-based projects allow students to develop essential hard and soft skills required to understand and address complex problems. Key thrust areas for the program include Energy, Environment, Climate Change, Bio Sciences, Theoretical Physics and Applied Mathematics. The program currently offers two academic minors in Physics and Mathematics.

**Educational Objectives**

Through iSciM, based on their course selection, the graduating Habib students will:

• Understand the foundations and the applications of the scientific method;

- Understand the fundamentals of energy, environment, and global warming and learn key skills to address issues of present times;

- Develop experimental skills in physics, chemistry, and biology; develop a strong foundation in physics, chemistry, bio-sciences, environmental science, energy, and mathematics;
- Develop strong skills in data analysis with an ability to use various software tools;
- Develop a strong grasp on scientific writing;
- Develop the ability to understand current research in various fields of science;
- Read selected classical scientific literature.

**Physics Minor:**

The Physics minor is designed to open the opportunity for students with a significant interest in physics to deepen their understanding of the subject. This will provide a foundation for a broader range of technical fields, enhancing their ability to keep abreast of an ever-changing technological world.

Minimum Credit Hour Requirements: 20

Students can obtain a minor in Physics by satisfying the following requirements:

- Students must take all the foundational courses specified in Table 1 to qualify for the Physics minor.

| Foundational Courses | Credit Hours | Prerequisite(s) |
|---|---|---|
| Mechanics and Thermodynamics | 3 | None |
| E&M or EMT | 3 | Calculus I |
| Modern Physics | 3 | Mechanics and Thermodynamics, E&M or EMT |
| Quantum Mechanics I | 3 | Modern Physics |
| Mechanics Lab | 1 | Mechanics and Thermodynamics |
| Advanced Physics Lab | 1 | E&M or EMT |

Table 1: Foundational courses for the Physics Minor

- Students are required to take a minimum of three additional 300+ level courses.
- Students must earn a minimum of 20 credits.
- Students must earn a C grade or higher in all mandatory courses to continue with the minor.

A minimum of seven (07) students is required to offer a course. In case fewer students enroll, individual study courses may be offered by the program subject to the availability of relevant faculty.

**Electives offered by the program that can fulfil the minor requirements:**

- Classical Mechanics
- Quantum Mechanics II
- Mathematical Methods for Physics (also valid for Mathematics Minor)
- Statistical Mechanics
- Solid State Physics

- Cosmology
- Introduction to Nanotechnology

Please note that the offering of electives is subjected to the availability of faculty and is contingent on the number of students enrolled.

**Mathematics Minor:**

The Mathematics minor at Habib University offers an opportunity to students from all disciplines with a significant interest in mathematics to develop strong foundations in key areas of mathematics. This optional field of study is designed to provide a foundation in Calculus, Linear Algebra, and basic modelling techniques using differential equations. Convergent thinking is also developed through the analysis of quantitative problems directed towards the right procedure for the right outcomes. The choice of courses available within the minor allows the students to take either a pure mathematics track, an applied mathematics track or a mix of the two.

Students can obtain a minor in mathematics by satisfying the following requirements:

- Students must take all the foundational courses specified in Table 2 to qualify for the Mathematics minor:

| Foundational Courses | Credit Hours | Prerequisite(s) |
|---|---|---|
| Calculus II | 3 | Calculus I |
| Engineering Mathematics | 3 | Calculus I |
| Linear Algebra | 3 | Engineering Mathematics |
| Probability and Statistics | 3 | None |

Table 2: Foundational courses for the Mathematics Minor

- Students are required to take three (03) additional courses with at least two of them of 300 or higher level.
- Students must earn a minimum of 20 credits.
- Students must earn a C grade or higher in all mandatory courses to continue with the minor.

Note:

Math 0xx level courses cannot be taken to satisfy the minor.

DSSE students have a mandatory requirement of MATH 101 but it can't be double counted towards the minor.

AHSS students can count MATH 101 towards the minor.

Students are free to choose electives either from Pure Mathematics or Applied Mathematics or both. Depending on the availability of the faculty, a variety of courses can be offered within Pure and Applied Mathematics. Please check with the program at the start of the academic year for the latest list of elective offerings.

A minimum of seven (07) students is required to offer a course. In case fewer students enroll, individual study courses may be offered by the program subject to the availability of relevant faculty.

# Electives offered by the program that can fulfil the minor requirements:

Any one of these

- Music and Mathematics (100 level)
- History of Mathematics (100 level)
- The Art of Mathematics (100 level)

2019-20 Offerings

## Natural Science:

**PHY 101: Mechanics and Thermodynamics**

Credit Hours: 3

Fulfils: Natural Science Requirement – Mandatory for EE

Prerequisite: None

Mechanics and Thermodynamics Topics include: Units and physical quantities, vectors, motion in 1-dimension, motion in more than 1-dimension, Newton's laws of motion and their applications, work and energy, potential energy and conservation law of energy, momentum and impulse, rotation of rigid bodies, dynamics of rigid bodies, gravitation, thermal properties of matter, laws of thermodynamics.

**PHY 101L Mechanics and Thermodynamics Lab**

Credit Hours: 1

Fulfils: Natural Science Requirement – Mandatory for EE

Prerequisite: PHY 101

Experiments include: simple harmonic motion observed through webcam, waves and oscillations, standing waves, resonance, moment of inertia of a tennis ball, rotational mechanics, rotational inertia, rotational friction, conservation of energy, latent heat of liquid nitrogen, heat capacity of solids, determined from boil-off of liquid nitrogen, conservation of momentum - elastic and inelastic collision, rotational motion, mass on a spring, basics of uncertainty analysis, Maxwell's wheel, light polarization, heat transfer, conduction, convection, Newton's law of cooling, temperature oscillations, Fourier analysis.

**PHY 102 Electricity and Magnetism:**

Credit Hours: 3

Fulfils: Physics Minor Foundational Course

Prerequisite: PHY 101

Electricity & Magnetism Topics include: Electromagnetism and electrostatics, electric charge, Coulomb's law, electric field, Gauss's law, electrostatic potential, magnetic fields, Biot-Savart law and Ampere's law, magnetic

materials, time-varying fields and Faraday's law of induction, Hall effect, displacement current and Maxwell's equations.

**PHY 102L Advanced Physics Lab**

Credit Hours: 1

Fulfils: Physics Minor Foundational Course

Prerequisite: PHY 102

Experiments include: determination of Curie point of a Ferro-magnet by controlled electric heating, observing Hall effect in semiconductors, magnetic moment of a conductor loop in a magnetic field, determining Verdet's constant, Frank-Hertz Meter, determination of Planck's constant from the spectrum of a tungsten light bulb, optical activity of a chiral (sugar) solution, imaging electron trajectories using a magic eye, image analysis, Lenz's Law, band gap measurement of pure Ge, magnetic pendulum, exploring phase portraits, chaos, bifurcations, Spectral Lines of different gasses.

**PHY 201 Modern Physics**

Credit Hours: 3

Fulfils: Physics Minor Foundational Course

Prerequisite: PHY 101, PHY 102, MATH 102, MATH 201/203

Topics include: Review of basic mechanics, introduction to special relativity, relativity and Physics, Planck's radiation law, photo electric effect, Compton scattering, pair production, Bohr's theory of Hydrogen atom, basics in quantum mechanics, Schrodinger's equation and its applications, ideal gas equation, Maxwell's distributions, Boltzmann's distributions, Identical particles.

**PHY 202 Quantum Mechanics**

Credit Hours: 3

Fulfils: Physics Minor Foundational Course

Prerequisite: PHY 101, PHY 201, MATH 201/203

Topics include: Particle aspects of radiation, wave aspects of particles, quantum systems and indeterminacy, quantization rules, wave packets, mathematical tools of quantum mechanics, postulates of quantum mechanics, one-dimensional problems in quantum mechanics, angular momentum, more than 1-dimensional problems, rotations and addition of angular momenta, time dependent and independent approximation methods in quantum mechanics, scattering theory.

**PHY 301 Classical Mechanics**

Credit Hours: 3

Fulfils: Physics Minor Elective Requirement

Prerequisite: PHY 101, MATH 201/203

Topics covered: Survey of elementary particles, variational principles and Lagrange's equations, 94 central

force problem, kinematics of rigid body motion, the rigid body equations of motion, oscillations, the Hamilton's equations of motion, canonical transformations, and continuous classical systems.

**PHY 302 Mathematical Methods for Physics**

Credit Hours: 3

Fulfils: Physics or Math Minor Elective Requirement

Prerequisite: MATH 201/203

Topics include: Tensors and their role in Physics, complex variable theory, linear integral equations, green's functions, and introduction to group theory.

**PHY 401 Quantum Mechanics II**

Credit Hours: 3

Fulfils: Physics Minor Elective Requirement

Prerequisite: PHY 202, PHY 301, PHY 302

Topics include: Recapitulation of classical field theory, path integrals in quantum mechanics, relativistic scattering theory, Quantum Mechanics and relativity, Klein Gordon equation, Dirac equation and representations of its solutions, (discrete) symmetries, and a basic understanding of interactions in quantum field theory.

**BIO 101+BIO 101 L Cell Biology & Public Health**

Credit Hours: 3+1

Fulfils: Natural Science Requirement

Prerequisite: None

This course provides an introduction to cellular and molecular biology and builds its connection with human biological processes; there will be a prime focus on developing skills to communicate biological concepts to laymen. Topics include: Prokaryotic and eukaryotic cells, structure and function of cellular organelles, cells tissues and organ systems, movement across cell membranes, cellular reproduction, DNA replication, transcription and translation, Mendelian genetics, blood groups, introduction to the immune system and vaccines, dengue viral infection, and cancer development. Workshops on communication design in public health will be integrated

**BIO 102+BIO 102 L The Secret World of Microbes**

Credit Hours: 3+1

Fulfils: Natural Science Requirement

Prerequisites: None

This course explores the vast realm of tiny, clever little beings that are present everywhere but are easily ignored as they are not visible to the naked eye. Microbes are microscopic living organisms that were the first to colonize earth. They are present everywhere; in the soil, air, water, food, even on our bodies. In fact, you can find more microbes on your hand than there are people on the entire planet. Albeit tiny, their role is so much

more important. Without them, we couldn't digest our food, garbage wouldn't decay, our ecosystems would collapse. Even NASA has a team researching on the microbial life that can survive in space. Understanding microbes is essential to understanding the past and the future of ourselves and our planet. The reason bacteria serve as a valuable model system is because: a) they are easy and relatively cheaper to maintain, b) they take just 20-30 minutes to divide so generations can be studied in a short amount of time and c) they possess simpler biological systems reflective of complex organisms.

The lab component of this course is meant to be easy and fun! Discover how many microbes reside on your cell phone, laptop, bean bags of student lounge, or in the cafeteria food! Test which hand sanitizer or detergent works best, or who provides the most hygienic 'gola ganda' (ice candy) in town!

**BIO/LIT 201 Digitally Yours Visual Novels About Diseases**

Credit Hours: 3

Fulfils: Natural Science Requirement

Prerequisite: None

This interdisciplinary course explores digital narrative techniques focusing on key areas of disease/cell biology and empathy through storytelling. It examines the relationship between the afflicted and the caregivers, the reader and the sufferer through a mix of bioscientific knowledge and creative writing. The bio component of the course focuses on molecular and cellular functions during infectious and non-infectious diseases of contextual relevance. The course reconnoiters the rhetoric of empathy and the elucidations of science and art through the modern technology of Augmented Reality and Ren'Py (visual novels) and how that has changed our perceptions in a global, connected world.

**ENV 200 Water is Fighting over**

Credit Hours: 3

Fulfils: Quantitative Reasoning and Natural Science requirement

Prerequisite: Basic Math

This course will expose students to important concepts in water resources policy and management. It is designed to help students majoring outside of science and engineering develop an informed perspective on 21st century water challenges, and by extension, natural resource allocation problems. No pre-requisites are needed for this course.

**BTEC 101 Introduction to Biotechnology**

Credit Hours: 3

Fulfils: Natural Science Requirement

Prerequisite: School / college level Biology or chemistry or permission of instructor

This course provides an introduction to the fundamentals of biotechnology and its applications. Topics include: an overview of biotechnology and its current importance in society, rapid growth of biotechnology in agriculture, environment, industry, and medicines, antibiotics/antibodies biotech. Emphasis will be placed on DNA manipulation sciences including genetic engineering, gene cloning, plasmids as cloning vectors, restriction enzymes, DNA ligase, PCR, biotransformation, E. coli host as model system, mutagenesis, manipulation of expression of desired DNA, strategies of protein purification, stem cell biotech, and ethics of biotechnology.

**BTEC 101L Biotech Laboratory Practices**

Credit Hours: 3

Fulfils: Natural Science Requirement

Corequisite: BTEC 101

This laboratory course provides practical insights into the role of DNA sciences in achieving and improving the technological applications to develop products to improve quality of life. Topics include: basic operations used in biotech labs, DNA extraction from living organisms, DNA cut and clone, making lots of copies of DNA, overproduction of protein, purification, plasmid isolation, DNA manipulation by PCR, transformation of E. coli with a recombinant plasmid, DNA purification and quantification, calorimetric detection of DNA, visualizing of DNA on gel electrophoresis and DNA fingerprinting.

# Mathematics

**MATH 012 Pre-Calculus**

Credit Hours: 3

Prerequisite: High school mathematics of any level.

Topics include: A revision of the number systems and relations, functions, and polynomials with symbolic and graphic representations. These topics will cover a wide range of subtopics to bridge the gaps in high school mathematics, like rational functions, inverse functions, logarithmic and exponential Functions followed by trigonometric Functions with an extensive treatment in the course. As a learning outcome students are expected to be able to analyze functions and their behaviors symbolically, numerically and graphically.

**MATH 101 Calculus I**

Credit Hours: 3

Fulfils: Mandatory Math requirement for all DSSE students

Prerequisite: None

Topics include: An overview of functions and their behavior in terms of rates of change, average vs. instantaneous rates of change, the derivative and shortcuts to differentiation, optimization (finding relative extrema / critical points), related rates, area under a curve, Riemann sums and the definite integral, the general antiderivative, approximation of definite integrals, techniques of integration and improper integrals.

**MATH 102 Calculus II**

Credit Hours: 3

Fulfils: Mandatory Math requirement for all DSSE students

Prerequisite: MATH 101

Topics include: A look at finding volumes of revolution using a Riemann Sums approach to integration, an introduction to first order differential equations and slope fields, parametric equations and graphs and finding area and arc length of parametric curves, polar coordinates and polar functions with areas and arc length

of polar curves, functions of severable variables, partial derivatives and the equation of a tangent plane to a surface, basic vector algebra with dot and cross product derivations, directional derivatives, optimization and the second derivative test for functions of two variables, optimization with Lagrange multipliers, integrating functions of several variables with double and triple integrals evaluated in Cartesian, cylindrical and spherical coordinates, parametrization of lines and curves in 3-space, vector fields, line integrals, and the fundamental theorem of calculus for line integrals.

**MATH 105 The Art of Mathematics**

Credit Hours: 3

Fulfils: Elective for Math Minor and fulfils Quantitative Reasoning requirement for AHSS students

Prerequisite: None

This course will explore multiple theorems, arguments, and quantities that have been relevant to a variety of fields through history, such as art, architecture, astronomy, and the physical sciences. Tracing the birth of geometric reasoning from the time of Euclid to looking at the birth of trigonometry as a tool for astronomical calculations and models, students will be introduced to geometry, algebra, and topology through various contexts. Students will be expected to use these concepts to create culminating projects using design and mathematical software.

Note: This course will also fulfil one (01) of the math requirements for the students pursuing a Communication and Design major.

**MATH 106 Music and Mathematics**

Credit Hours: 3

Fulfils: Elective for Math Minor and fulfils Quantitative Reasoning requirement for AHSS students Prerequisite: None

This course will introduce the rudiments of Western and South Asian musical theory, with a focus on the mathematics incorporated in their development and overall structure. The course will explore the properties of the twelve-tone scale, the historical evolution of tuning and temperament, the idea of combinational tones and consonance, and the physics behind the construction of musical 96 instruments. Looking primarily at South Asian and Western musical genres, students will also analyze the mathematics involved in music composition, for both melody and rhythm.

**MATH 202 Engineering Mathematics**

Credit Hours: 3

Fulfils: Mandatory Math requirement for all DSSE students

Prerequisite: MATH 102

Topics include: Vector Calculus (vector functions, line and surface integrals). Elementary methods for solving first order ODEs (direct integration and substitution) with geometric interpretation and classification, separable ODEs, method of integrating factors. Vector algebra (including matrix algebra, eigenvalues and eigenvectors, quadric surfaces). Dynamical systems (linear systems of ODEs, stability and phase portraits of dynamical systems). Second, order ODEs - elementary methods including their classification, reduction of order techniques, linear second order ODEs with constant coefficients, and finding particular solutions. Orthogonal functions and Fourier series solutions (generalized and trigonometric methods), convergence in the mean

and pointwise convergence, odd and even expansions, half-range expansions. Partial differential equations (PDEs) (wave, heat and Laplace equations), solutions using Fourier series and Laplace transforms, and Schr dinger equation.

**MATH 203 Advanced Differential Equations**

Credit Hours: 3

Fulfils: Math Minor Elective

Prerequisite: MATH 201 for CS and EE students. MATH 102 with min 70% score for non-engineering students in MATH Minor.

Topics include: A brief revision of first- and second-order ordinary differential equations (ODEs) with constant coefficients. Differential operators, Wronskian and linear independence. Numerical solution methods for ODEs: Euler method, Taylor series solution up to 2nd order, Runge-Kutta methods up to 2nd order; Cauchy-Euler equations; Power series and Frobenius' methods including Ordinary points, singular points, regular points, analytic functions, indicial equation. Bessel function and Bessel's equation, Legendre equations. Boundary value problems for homogeneous linear 2nd order ODEs: Boundary values, Sturm-Liouville problem, eigen functions and corresponding eigenvalues, Fourier Bessel series. Inner products and norms of functions. Self-adjoint operators, and Schro dinger equation.

**MATH 205 Linear Algebra**

Credit Hours: 3

Fulfils: Mandatory Math requirement for all DSSE students

Prerequisite: MATH 201

Topics covered: A brief revision of vector algebra including lines and planes in 3D and matrices, Determinants, Symmetric matrices, and quadratic forms; Elementary row and column operations of a matrix; Systems of linear equations and their solutions, existence, and uniqueness of solutions; Vector spaces; Inner products and ortho-normalisation; Orthogonal transformations and rotations; Linear transformations, orthogonality, QR factorization, Hermitian and Unitary transformations; Least squares analysis and approximations; Singular value decomposition; Direct sum decomposition; and Caley-Hamilton Theorem.

**MATH 305 Complex Analysis**

Crredit Hours: 3

Fulfils: Math Minor Elective

Prerequisite: Calculus 1 (Math 101) , Calculus 2 (Math 102)

Specific topics covered in this course are: Complex Algebra and the Complex Plane and its Motivation, Polar Form, Complex Exponential, deMoivre's Theorem, Powers and Roots, Sets of Points, Complex Functions and Linear Mappings ,Limits and Continuity for Real and Complex Functions, Differentiability and Analyticity, Cauchy-Riemann Equations, Harmonic Functions, Elementary functions (Exponential, Trigonometric and Logarithmic Functions and Complex Powers), Line & Contour Integrals, Complex Integration, Cauchy's Integral Formulas, Sequences and Series , Taylor Series, Power Series, Convergence, Laurent Series, Zeros and Poles, Newton's Method and Fractals, Residues and Residue Theorem

**EE 354/MATH 310 Introduction to Probability and Random Variables:**

Credit Hours: 3

Fulfils: This course meets program requirements for EE & CS Majors & Quantitative Reasoning (QR) forms of thought for EE & CS Majors.

Prerequisites: Math 102, Basic knowledge of MATLAB or some other programming language, Rudimentary linear algebra

In the present world, we encounter situations where we have to make decisions on the basis of incomplete or imperfect information. The theory of probability helps provide a formal mechanism for understanding, quantifying, and dealing with uncertainty, which is ever present in our lives, pure science, or engineering applications. Simply, by uncertainty we mean the condition when outcomes or future are not completely determined or can be captured by a deterministic function; they depend on a number of factors and perhaps just on pure chance. A lot of our present day technologies will not be possible without an understanding of how to make decisions in presence of uncertainty. These technologies include all forms of wireless communication, servers, speech processing systems, network systems and so many more. Equipping yourself with tools to deal with uncertainty will help you with whatever you wish to pursue in life.

This course will cover the foundations of probability, random variables and statistics, with a plethora of examples from electrical engineering, computer engineering, computer science, and everyday life. The course content can broadly be divided into three categories: -

1. Fundamentals of probability,

2. Common probability models,

3. Inferences & statistics.

**CS3XX/EE3XX Geometrical Modelling and Analysis**

Credit Hours:3

Fulfils: This course meets requirements for EE and CS majors, and MATH minor

Prerequisite: Math 205 (linear algebra), Math 202 (engineering mathematics), CS 224 (object oriented programming and design methodologies)

This course will cover the foundations of geometrical modelling and analysis, with examples from elasticity, electrostatics and computer science. The course content can broadly be divided into three categories – fundamentals of geometrical modelling, discretising a partial differential equation, and stability of solutions. We'll be working towards the following objectives in this course:

• Gaining an appreciation for generating curves and surfaces on a computer

• Recognizing the need for solving PDEs numerically; and

• Challenges associated with numerically solving the differential equations

# Core Courses:

**Core 200 Scientific Methods:**

Credit Hours: 3

Fulfils: This course is a part of the Habib Liberal Core

Prerequisite: None

What is Science? What is the meaning of Scientific Inquiry? How is it conducted? How does it impact us and our lives? What part does it play in decision making? How do we evaluate information? Should we trust all information? How should we decide which information is trustworthy? How do we recognize the limitations of a claim? These matters are not only for practicing scientists but form an important part of our daily lives. At a time when information is more easily accessible than ever before, how do we intelligently utilize available information in making choices? How should we develop our evidence-based decision-making skills? This course builds on the foundations of scientific methods of inquiry, looks at their development through a historical lens, focusses on modern methodologies of conducting science and works to apply them to our everyday lives. Utilizing a wide array of examples, readings, case studies, it illustrates scientific methods and their applications.

**Core 203 Scientific Methods: A Biology Perspective**

Credit Hours: 3

Fulfils: This course is a part of the Habib Liberal Core

Prerequisite: None

This course cultivates a step by step understanding of the scientific methods approach predominantly from a natural science perspective. The steps include goals, models, data/evidence, interpretation, conclusion/revision. They help us understand the overall objective of any study (goal), the approach taken to achieve the objective (model), the representative data present in the nature to support that study (data), comparing and analyzing the data with the model (interpretation), and changing the model if it does not fulfill the need (revision).

We need to understand nature and in order to do so we need to observe nature, then sort through the evidence in a methodical fashion to come to a rational, best possible, conclusion posing the least bit of uncertainty. This approach is called scientific decision making for the natural world and this is what the course aims to teach.


HABIB UNIVERSITY UNIVERSITY AVENUE, OFF SHAHRAH-E-FAISAL, GULISTAN-E-JAUHAR, KARACHI

www.habib.edu.pk +92 21 11 10 HABIB (42242) info@habib.edu.pk

HabibUniversity @HabibUniversity HabibUniversity HabibUniversity