

MINOR PROGRAMS AT SNU

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1. Minor in Archaeology

The History Department offers a separate Minor programme in Archaeology. The purpose of this Minor is to enable students to interpret and use material evidence, to learn the field methods that are specific to archaeology, as well as appreciate how archaeological material, after it has been excavated or collected, is dealt with through analyses, curation and display. Students will also be introduced to some of the theories that pertain to archaeology.

Through this programme, students will be able to take several courses in archaeology and in turn, be able to pursue a more specialized graduate programme in Archaeology as well as Museum Studies.

Structure and Requirements

The Minor will also be open to Major students of History. Students will have to obtain 18 credits in order to complete the Archaeology Minor, within a minimum period of three years.

Course Options

The following are the papers for the Minor in Archaeology

I. Core courses (all courses are 3 credits)

- HIS 101/ ARC 101 *Introduction to Archaeology* (3 credits)
- HIS 104/ ARC 104 *Bronze Age Civilizations* (3 credits)
- HIS 201/ ARC 201 *Archaeology of South Asia* (3 credits)
- HIS 207/ ARC 207 *Seeing the Past: Visual Histories and Archaeological Practices* (3 credits)
- HIS 210/ ARC 210 *Histories of Archaeology in South Asia* (3 credits)
- HIS 213/ ARC 213 *Field Methods in Archaeology* (4 credits)

II. Departmental Electives (all courses are 4 credits)

- HIS 301/ ARC 301 *Archaeology of Cities* (4 credits)
- HIS 302/ ARC 302 *Archaeology and Death* (4 credits)
- HIS 305/ ARC 305 *Curating Cultures: Collections, Museums, Practices* (4 credits)

All Core Courses are for 3 credits, while Elective Courses are of 4 credits each. *Field Methods in Archaeology* is the only Core Course of 4 credits due to its strong practical component.

2. Minor in Biotechnology

The department of life sciences is offering a minor degree to students pursuing various major degrees across university. The department has 10 seats reserved for students opting for a minor degree. The criteria for selection of students for a minor will be based on the overall CGPA and followed by an interview by the departmental committee.

For getting a minor degree the students have to complete a minimum of 21 credits in life science department, which includes some compulsory course work and some optional course work. The four compulsory courses have to be completed by each student to receive the minor degree. Apart from these each student is required to take a minimum of three optional courses.

Each student opting for a minor degree has to pass in all the compulsory courses. The compulsory courses are as listed below:

Code	Title	Credits
BIO 201	Cell Biology and Genetics	3
BIO 206	Fundamentals of Molecular Biology	3
BIO 202	Microbiology	3
BIO 204	Biochemistry	3

All courses offered to BSc (Research) in Biotechnology major students in the III, IV, V and VI semesters can be taken as optional courses for the minor degree. For details please see BSc Biotechnology syllabus.

3. Minor in Chemical Engineering

Students not majoring in Chemical Engineering need to complete the following courses to obtain a Minor in Chemical Engineering.

S.No.	Code	Title	L:T:P	Credits
1.	CHD 213	Material and Energy Balance	3:0:0	3
2.	CHD 225	Chemical Reaction Engineering - I	3:0:0	3
3.	CHD 314	Mass Transfer	3:1:2	5
4.	CHD 411	Advanced Transport Phenomenon	3:0:0	3
5.	CHD 211	Chemical Engineering Thermodynamics	3:0:0	3
6.	CHD 324	Process Dynamics and Control	3:0:2	4

4. Minor in Chemistry

Chemistry forms the link between the fundamental principles governing the nature of the universe and the science of life. Chemistry education at SNU provides focus on a variety of inter-disciplinary areas, spanning different scientific disciplines, *e.g.* Materials Science, Bioinformatics, Environmental Sciences, or Chemical Biology, as well as non-traditional areas in the arts and humanities.

A Chemistry Minor provides a broad background in chemical principles, that can serve as a stepping stone to further in-depth study in related areas that build upon this background. The Chemistry Minor curriculum at SNU is divided into two stages: introductory general chemistry, and foundation courses providing breadth across sub-disciplines. Since chemistry is an experimental science, substantial laboratory work is an integral part of almost all our Chemistry courses.

Introductory or General Chemistry: The introductory general chemistry courses provide a common grounding in basic chemical concepts for students with diverse backgrounds, develop basic mathematical and laboratory skills, and prepare students for the foundation courses, allowing for a period for consolidation of chemical concepts, mathematical and laboratory skills. For students pursuing a Chemistry Minor, the introductory chemistry courses provide preparation for the foundation course work, ensuring that students know basic chemical concepts such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics, equilibria, and kinetics. Students also need to be competent in basic laboratory skills such as safe practices, keeping a notebook, use of electronic balances and volumetric glassware, preparation of solutions, chemical measurements using pH.

Foundation Courses: Foundation courses provide breadth and lay the groundwork for more in-depth course work. Elective in-depth courses in areas of the student's interests build upon these foundations and develop critical thinking and problem-solving skills.

Laboratory Experience: The chemistry laboratory experience at SNU includes synthesis of molecules; measurement of chemical properties, structures, and phenomena; hands-on experience with modern analytical instrumentation; and computational data analysis and modelling. All laboratory programs are conducted in a safe environment that includes adherence to national and state regulations regarding hazardous waste management and laboratory safety, including facilities for chemical waste disposal, safety information and reference materials, and personal protective equipment available to all students and faculty. The chemistry laboratories at SNU are equipped with functioning fume hoods, safety showers, eyewashes, first aid kits, and readily available fire extinguishers. Students are trained in modern chemical safety, to understand responsible disposal techniques, understand and comply with safety regulations, understand and use material safety data sheets (MSDS), recognize and minimize potential chemical and physical hazards in the laboratory, and know how to handle laboratory emergencies effectively.

Problem-Solving Skills: As part of the SNU experience, students will be expected to develop the ability to define problems, develop testable hypotheses, design and execute experiments, analyze data using statistical methods, and draw appropriate conclusions. The Chemistry Minor curriculum provides ample opportunities for developing both written and oral communication skills, as well as team skills. Our instructional programs incorporate team experiences in classroom and laboratory components of the chemistry curriculum.

Students at SNU may earn a Minor in Chemistry upon successfully completing the following courses:

Course Code	Course Name	Credits (L:T:P)
CHY101/CHY111	Applied Chemistry/Chemical Principles	3:1:1
CHY112	Structure and Bonding	3:1:1
CHY211	Chemical Equilibrium	3:1:1
CHY213	Chemical Analysis lab	1:0:1
CHY221	Organic Reactions & Mechanisms	3:0:1

Plus one elective from:

- CHY242: Coordination Chemistry (4 credits)
- CHY244: The Nature of Materials (3 credits)
- CHY344: Topics in Nanotechnology (3 credits)
- CHY252: Biochemistry (4 credits)
- CHY351: Macromolecules (3 credits)

Courses from among the above list taken as part of a student's non-Chemistry Major requirement also count towards the Minor in Chemistry.

5. Minor in Civil Engineering

Sl No.	Course Title	Semester	L:T:P	Credits
1	Engineering Mechanics (For non-engineering students)	I	3:1:0	4
2	Strength of material	III	3:0:1	4
3	Elements of Surveying	IV	3:0:1	4
4	Concrete Technology	IV	3:0:1	4
5	Geotechnical Engineering	V	3:0:1	4
6	Students can opt any two subject with their choice out of these five subjects:			
(a)	Building Planning & Drawing	III	2:0:1	3
(b)	Hydraulic Engineering	IV	2:0:1	3
(c)	Transportation Engineering	V	3:0:1	4
(d)	Environmental Engineering	VI	3:0:1	4
(e)	Design of RCC Structures	VI	3:0:0	3

Total Credits: 22-24 (For Engineering Students) & 26-28 (For non-engineering students)

Total No. of Seats: 10

Eligibility: Minimum 6.5 CGPA (up to last semester)

Subsequent admission criteria: Based on personal interaction with departmental committee

Pre Requisite: Physics and Mathematics at +2 level

6. Minor in Communication

The Minor in Communication offered by the Department of Communication is structured in a way that takes the student on the journey a story takes till it manifests itself on screen; from Ideation and Writing, Basic Photography and Sound Recording, understanding the Grammar of Cinema as it developed, Film and Video Production and Post-production where the cinematic vision is fully realized with a foray into the world of Digital Media Art for those so inclined. This is divided between six courses, three compulsory and three optional. The student should complete 18 credits out of a possible 24.

COURSE DESCRIPTIONS

COM 199 — Image and Sound Studio 4 Credits (L=1, T=1, P=2)

Objective — This course is designed to familiarize the student with basic photographic and sound recording skills through hands-on training, short lectures and guided tutorial sessions. This is a Compulsory basic-level course which serves as a pre-requisite to COM-196 and 197.

Methodology — Combination of Lectures and Practical Studio Exercises.

Number of Seats — 30

COM 198 — Cinema Between the Two World Wars 4 Credits (L=3, T=1, P=0)

Objective — This Optional course is a historical survey of cinema during a time when most of its grammar and syntax developed — a period in which a mechanical invention grew into the most enduring and pervasive art of modern times. In tracing the trends in World Cinema, the course will contextualize certain films that highlight the socio-political events that shaped that era.

Methodology — Combination of Lectures, Film Screenings and Tutorials.

Number of Seats — 30

COM 195 — Screenwriting Workshop 4 Credits (L=2, T=2, P=0)

Objective — The workshop takes a hand-on approach to learning the elements of writing for the screen. A screenplay is to a film what an architect's design is to a building. Any outstanding film starts with a great script. The student will be guided through the process of creating a full-fledged Screenplay. They will get an opportunity to collaborate with students of the Film & TV Production course and see their vision realized on screen. This course is of great value to anyone who may contemplate a career, even part-time, in writing for Feature Films and Television. This is an Optional Course.

Methodology — Combination of Lectures and Tutorials, ending with a final Screenplay Submission.

Number of Seats — 20

COM 194 — Computational Media Art 6 Credits (L=2, T=0, P=4)

Objective — This course takes an Interdisciplinary approach to Multiple Disciplines; Art, Design, Music, Animation and Video. They all come together on the computer which gives

the course its name. The student will learn to integrate concepts from these varied streams, use software tools to create media works of artistic value. This will challenge students to reach further in terms of Creativity and Artistic Excellence. It is Optional and is offered once a year in the Spring Semester.

Methodology — Combination of Lectures and Studio Exercises.

Number of Seats — 15

COM 197 — Sound Design and Digital Post Production 4 Credits (L=2, T=0, P=2)

Objective — This Compulsory course equips the student to use Non-Linear Editing and Digital Audio Workstations to create media. They will learn to use Digital Post-production Techniques to extend their Media Creation Skills. Com-199 is a pre-requisite for this course.

Methodology — Combination of Lectures, Film Screenings and Studio Exercises.

Number of Seats — 15

COM 196 — Basic Film & TV Production 6 Credits (L=2, T=1, P=3)

Objective — This course imparts training in Motion Picture Production. In the contemporary world, video has percolated into every industry as an important aspect of communications. Apart from the mainstream entertainment industry, every manufacturer, retailer or service provider produces a range of videos for Corporate, Training, Internet or Promotional use. A person with these production skills will be a valuable asset to any organization as well as have a much higher market-value. This is a Compulsory course and Com-199 is a pre-requisite.

Methodology — Combination of Lectures, Tutorials, Film Screenings and Studio Exercises.

Number of Seats — 15

NOTE: Each of these courses is available as an independent UWE. Priority will be given to students who register for the Minor in Communications. Admissions to COM 196 & 197 will be based on performance in COM 199.

7. Minor in Computer Science and Engineering

Undergraduate students of Shiv Nadar University who are *not* majoring in Computer Science & Engineering (CSE) have the option to take a Minor in CSE. **This document is effective from the batches starting 2014 academic year.**

Academic Requirements:

Students have to acquire a minimum of 19 credits from the minor courses offered by the Department of CSE. For Non Engineering majors, you have to acquire a minimum of 23 credits. These credits must satisfy the course requirements as mentioned below:

Minors for Non Engineering Majors (Minimum 23 Credits)

1. Introduction to Computing and Programming (3:0:1)
2. Data Structures (3:0:1)
3. Computer Organization (3:1:0)

4. Operating Systems (3:0:1)
5. Software Engineering (3:0:1) **OR** Computer Networks (3:0:1) **OR** Design and Analysis of Computer Algorithms (3:0:1) **OR** Database Systems (3:0:1) **OR** Any 1 Major Elective (3:0:0) **[ANY TWO]**

Minors for Engineering Majors (Mechanical/Civil/Chemical) (Minimum 19 Credits)

1. Data Structures (3:0:1)
2. Computer Organization (3:1:0)
3. Operating Systems (3:0:1)
4. Software Engineering (3:0:1) **OR** Computer Networks (3:0:1) **OR** Design and Analysis of Computer Algorithms (3:0:1) **OR** Database Systems (3:0:1) **OR** Any 1 Major Elective (3:0:0) **[ANY TWO]**

Minors for Engineering Majors (EEE/ECE) (Minimum 19 Credits)

1. Computer Organization (3:1:0)
2. Operating Systems (3:0:1)
3. Software Engineering (3:0:1) **OR** Computer Networks (3:0:1) **OR** Design and Analysis of Computer Algorithms (3:0:1) **OR** Any 1 Major Elective (3:0:0) **OR** Database Systems (3:0:1) **OR** Computer Architecture (3:0:1) **[ANY THREE]**

Note: While opting for these courses, you must use the Computer Science and Engineering prerequisite chart:

<http://snu.edu.in/pdf/COMPUTER-SCIENCE-AND-ENGINEERING-COURSE-PREREQUISITES.pdf>

How to Apply:

1. For the session starting in Monsoon Semester, every year the department will initiate a call for application for CSE minor through the UG-Dean's office.
2. The applicants for the CSE Minor must have 6 CGPA at the time of applying. Additionally, they should meet any other criteria specified by the department every year.
3. Final decision of entry to minor for each student lies with the department.

Other Information:

1. Once admitted to the Minor in CSE, you will select courses for the Minor in consultation with the Department UG Advisor for CSE or the person assigned by the department.
2. You can sign up for minor at the beginning of Monsoon Semester. Plan your Minor such that you can complete it by the end of your degree.
3. If you fail to complete the Minor during your degree, you may have to spend extra semesters to complete it. If you do so, any scholarship or fee waiver you were granted for

your regular course of study will lapse and you will have to pay full fees for the extra period as per SNU rules.

4. You may enroll for UWE courses offered by the CSE department without being admitted to the Minor. The prerequisite chart of the department [<http://snu.edu.in/pdf/COMPUTER-SCIENCE-AND-ENGINEERING-COURSE-PREREQUISITES.pdf>] for such courses must be followed. The prerequisites will not be waived under any circumstance. If the prerequisites are not followed while registering for these courses, department reserves the right to drop such students from the course.
5. UWEs will get preference after majors, repeating majors, and minors.
6. If a student who is not registered for CSE minor completes the courses as per the above chart, he/she becomes eligible to apply for a minor degree. Such students after completing all the requirements should apply for Minor to the CSE Dept. UG Advisor or the person assigned by the department. Final decision for such students lies with the department.

8. Minor in Dance

DESCRIPTION

The Undergraduate Program in Dance Studies integrates physical and intellectual endeavor to engender knowledge of the self, culture and meaning as manifested in movement. Students grapple with issues such as embodiment, pleasure, meaning; with structural features governing the movement of human bodies in space and time; and with historical, cultural and sociological aspects of dance, such as ritual, patronage, caste, and sexuality. Dance is situated within the broader intellectual, political and artistic movements of the nineteenth, twentieth and twenty-first centuries.

The Minor in Dance, open to all students at SNU, is ideally suited to students with some dance training who seek to advance physical skills while bringing intellectual rigor to their field of study. The program can also accommodate students without prior dance training who want to explore dance as part of a vibrant liberal arts curriculum. The Minor in Dance prepares the student for a graduate program in Dance, Performance Studies, or Education with a view to research, performance or teaching.

STRUCTURE AND REQUIREMENTS

To complete a Minor in Dance students must take a minimum of 19 credits. The break up is as follows.

The following course is mandatory (**3 credits**):

Dance and National Identity

They must choose two of the following courses (**3 credits**):

- a) Writing Bodies
- b) Pedagogy
- c) Body, Performance, Gesture

And two of the following (5 credits)

- a) The Dancer's Body
- b) Movement and Meaning
- c) Odissi Paddhiti I
- d) Odissi Paddhiti II
- e) Bodies, Spaces and Places

9. Minor in Data Analytics

The Big Data Analytics Center (BDAC) offers a Minor in Data Analytics to students pursuing various major degrees across the university. The center has 10 seats reserved for students opting for this Minor. The selection of students will be based on a written test followed by an interview by the committee formed by BDAC.

For getting the Minor students have to complete a minimum of 19 credits, which includes four compulsory courses and two elective courses. Before applying for the Minor in Data Analytics, students should have credited certain pre-requisite courses offered by Department of Computer Science and Engineering and the Department of Mathematics. Below is the list of these courses:

CSD 201 (Data Structures) or MAT 110 (Computing), CSD 202 (Introduction to Database Systems), CSD 302 (Design and Analysis of Algorithms), MAT 260 (Linear Algebra I), MAT 284 (Probability).

For students of BSc (Research) Mathematics and BTech CSE students the non-core prerequisites are:

Mathematics : CSD 202, CSD 302

CSE : MAT 260, MAT 284

Each student opting for a minor degree has to pass in all the compulsory courses. The compulsory courses are as listed below:

Course Code	Course Name	Credits
Compulsory Courses		
MAT 384/ECO 203	Econometrics	4
BDA 650	Mining of Massive Datasets	3
BDA 655	Machine Learning and Knowledge Discovery	3
BDA 689	Big Data Technology	3
Elective Courses		
BDA 672	Advance Database Systems	3
BDA 690	Network Analytics	3
MAT 690	Time Series and Forecasting	3

BDA 656	Game Theory	3
MAT 689	Operations Research	3

The tentative date for appearing in the selection procedure will be first of November every year.

10. Minor in Design

Objective:

In the background of rapidly changing global economy Industrial Design is playing positive role. By introducing Design Minor at SNU for the undergraduate the university will provide excellent opportunity in wider range of placement for the undergraduate students. Design being an interdisciplinary discipline it provides much broader vision and professional exposure. No Indian Universities provides such opportunity to the undergraduate students unless they take admission in the Design Department/ Design Schools. The Design Minor at SNU would allow the students to remain in their respective major branch while simultaneously acquiring professional knowledge in an applied field that would help them with alternative opportunity in placement.

Design Minor (Industrial Design) proposes to offer a set of following five foundation courses-

1. DES101: Elements and Principles of Design, 4 credits (2-0-2)
2. DES121: Introduction to Visual Communication Design, 4 credits (2-0-2)
3. DES111: Introduction to Product Design, 4 credits (2-0-2)
4. DES131: Introduction to Ergonomics, 4 credits (2-0-2)
5. DES201: Color in Design, 4 credits (2-0-2)

11. Minor in Economics

Students wishing to take courses in intermediate/advanced courses in Economics will have to demonstrate suitable preparation in aspects of mathematics (including calculus, algebra and statistics).

The department requires the students to complete six courses successfully to earn a minor degree in Economics.

The course structure is as follows:

- ECO 101 Principles of Microeconomics (O) (4 credits)
- ECO 102 Principles of Macroeconomics (E) (4 credits)
- ECO 301 Intermediate Microeconomics (O) (4 credits)

- ECO 221 Introductory Econometrics (E) (4 credits)
- ECO XXX Elective (3 credits)
- ECO XXX Elective (3 credits)

The courses marked with an **(O)** will *typically* be offered in **odd semesters** whereas those marked with an **(E)** will *typically* be offered in **even semesters**. Electives can be chosen from amongst the courses being offered by the department in any given semester. However only 2nd or higher level courses can be taken as electives.

Intermediate and advanced courses may have pre-requisites and the students should ensure that they satisfy these before taking a course. The students **do not** have to take the courses in the above order. They can complete a course as long as they satisfy the pre-requisites for that course. For example, ECO 232 can be completed before ECO 301. (Please check with the course instructor to see if you satisfy the pre-requisites for the course).

Students should ensure that they can fit the courses in their time table. Unfortunately the department cannot entertain requests to adjust the time table to suit individual students.

There is no registration for obtaining a minor in Economics. Students interested in completing a minor are advised to register in ECO 101 and then ECO 102. They can then progress to completing the other requirements. Given the structure of the program, students are strongly advised to register in ECO 101 no later than their third semester at SNU. After finishing all the six courses required for a minor, the students may hand in a written application to the department (the form may be obtained from the department's Undergraduate Advisor). These names will then be forwarded to the Dean's office for award of a minor in Economics.

12. Minor in Electrical Engineering

FOR CIVIL ENGG. AND MECH ENGG. MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 202	Digital Electronics	3-1-1	5
2	EED 203	Electro mechanics	3-0-1	4
3	EED 204	Analog Electronic Circuits	3-0-1	4
4	EED 304	Power Electronics	3-0-1	4
5	EED 205	Circuit Theory	3-1-0	4
Total credits				21

FOR COMPUTER SCIENCE AND ENGG. MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 203	Electro mechanics	3-0-1	4
2	EED 204	Analog Electronic Circuits	3-0-1	4
3	EED 304	Power Electronics	3-0-1	4
4	EED 205	Circuit Theory	3-1-0	4
5		Transmission and Distribution	3-0-0	3
Total credits				19

FOR ELECTRONICS AND COMMUNICATION ENGG. MAJORS:

21 credits from:

S. No.	Code	Course Title	L:T: P	Credits
1		Transmission and Distribution	3-0-0	3
2		Power System Analysis	3-0-0	3
3		High Voltage Systems	3-0-0	3
4		Protection and Switch Gear	3-0-0	3
1		Measurements and Instrumentation	3-0-0	3
2		Supervisory Control and Data Acquisition Systems	3-1-0	4
3		Process Instrumentation and Control	3-1-1	5

FOR NON-ENGINEERING MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 101	Introduction to Electrical Engineering	3-1-1	5
2	EED 202	Digital Electronics	3-1-1	5
3	EED 203	Electro mechanics	3-0-1	4
4	EED 204	Analog Electronic Circuits	3-0-1	4
5	EED 304	Power Electronics	3-0-1	4
Total credits				22

13. Minor in Electronics and Communication Engineering

FOR CIVIL ENGG. AND MECH ENGG. MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 202	Digital Electronics	3-1-1	5
2	EED 201	Signals and Systems	3-1-0	4
3	EED 204	Analog Electronic Circuits	3-0-1	4
4	EED 206	Communication Engineering	3-0-1	4
5	EED 205	Circuit Theory	3-1-0	4
Total credits				21

FOR COMPUTER SCIENCE AND ENGG. MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 204	Analog Electronic Circuits	3-0-1	4
2		Digital Communication	3-0-0	3
3		Wireless and Mobile Communication	3-0-0	3
4	EED 308	VLSI Technology and Design	3-0-1	4
5	EED 201	Digital Signal Processing	3-1-1	5
Total credits				19

FOR ELECTRICAL ENGG. MAJORS:

21 credits from:

S. No.	Course Title	L:T: P	Credits
1	Applied Signal Processing and Computation	2-0-1	3
2	Communication Networks	3-0-0	3
3	Design of Analog ICs I	3-0-0	3
4	Design of Analog ICs II	3-0-0	3
5	Digital Communication	3-0-0	3
6	Digital System Design	3-0-1	4
7	Introduction to Digital Video Processing	3-0-0	3
8	Introduction to Artificial Neural Networks and Fuzzy Logic, Sets and System	3-0-0	3
9	Introduction to Computer Vision & Image Processing	3-0-0	3
10	Introduction to Digital Signal Processing Methods	3-0-0	3
11	Optical Communication OR Satellite Communication	3-0-0	3
12	Semiconductor Devices	3-0-0	3
13	Wireless and Mobile Communication	3-0-0	3

FOR NON-ENGINEERING MAJORS:

S. No.	Course Code	Course Title	L:T: P	Credits
1	EED 101	Introduction to Electrical Engineering	3-1-1	5
2	EED 202	Digital Electronics	3-1-1	5
3	EED 201	Signals and Systems	3-1-0	4
4	EED 204	Analog Electronic Circuits	3-0-1	4
5	EED 206	Communication Engineering	3-0-1	4
Total credits				22

14. Minor in English

The Department of English offers a minor to students who are interested in learning how to engage deeply and widely with literary and cultural texts as a way to better understand the world we live in. Minors can take any of the courses offered by the department and expect the same rigor of instruction and standards of performance as set for the English majors.

Applying for a Minor

There is no minimum GPA requirement. The applicants are required to take one or two English UWEs before applying for the minor. An applicant must have a minimum grade of B or higher in any one English UWE to be accepted as an English minor.

Requirements to complete a Minor in English

- 1) Minors need a minimum of 18 credits from 6 courses
- 2) ENG 104 Academic Writing is a compulsory course
- 3) One 300 level and one 400 level course must be a part of the 6 minimum courses

Please refer to the undergraduate course catalogue to see the courses on offer each semester.

15. Minor in History

The Department of History offers an Undergraduate Minor in History to undergraduate students majoring in other disciplines at SNU, through a selection of courses offered by the Department as University-Wide Electives (UWEs) every semester. The Undergraduate Minor is intended for students who are keen on gaining a deeper methodological understanding of the discipline and in exploring its core issues, its thematic range and analytical approaches.

Structure and Requirements

Students opting for a Minor in History must successfully complete a total of **6 courses** (or a total of **18 course credit hours**) from the two following groups:

- I. Core Courses in History
(*a minimum of 3 courses is mandatory*)
- II. Departmental Electives

Students interested in opting for a Minor in the discipline must do so as early as possible, preferably by the semester 3 or 4, leaving adequate time for planning coursework and fulfilling course requirements.

Course Options

- I. Core courses (all courses are 3 credits)
(*Students must opt for a minimum of 3 Core courses*)
 - HIS 102 *Does History Matter?*
 - HIS 103 *Early Historic South Asia*
 - HIS 202 *Ancient Indian Social History*
 - HIS 203 *Early Medieval South Asia 300 — 1300*
 - HIS 204 *Introducing the 'Early Modern' 1300 — 1761 CE*
 - HIS 206 *Establishment of British Power in South Asia 1757 — 1857*
 - HIS 208 *Social Change in Colonial South Asia c. 1860 — 1940s*
 - HIS 209 *Contemporary India 1947 — 1991*

- II. Departmental Electives (all courses are 4 credits)
 - HIS 303 *Resources, Conflict and the State*
 - HIS 304 *Pastoral Nomads and the State*
 - HIS 306 *Histories of Writing*
 - HIS 307 *Orientalism, Culture and Imperialism*
 - HIS 308 *Crime and Punishment in the Modern World*
 - HIS 309 *The Age of Pandemics: Disease and the Modern World*
 - HIS 310 *Diagnosing Difference: Imperial Histories of Medicine in South Asia and Africa*

16. Minor in Management

The objectives of the program are detailed below:

- a) The Minor in Management would give undergraduate students an opportunity to get **exposure to "Management"** as a field of study
- b) Students would be better equipped to **handle their first job**, in terms of understanding organizational and managerial issues
- c) Those who are preparing for careers in other fields, and may not join an MBA program, would get a an exposure to courses in Management to help them in their **career progression**

- d) Students interested in pursuing an MBA would get an edge in getting **admission to reputed business schools**

Entry Criteria for a Minor Program in Management

- A student may apply for a Minor Program in Management at the beginning of Monsoon term of every academic year provided s/he satisfies the following criteria: (1) the applicant is at the beginning of his/her *3rd semester*; (2) has an *overall CGPA of 6.5 or above* in his/her last academic UG transcript available at the time of application
- Simply fulfilling the criterion of *6.5 CGPA would not guarantee admission* to the program
- The SME would admit a *maximum of 45 students* in its Minor Program in Management every academic year; students being admitted in order of *academic merit*

Program Structure of Minor in Management

A student may apply for a Minor Program in Management at the beginning of 3rd Semester. If the student is offered admission to the program, s/he would be required to complete 18 credits:

- An incoming student from the academic year 2016-17 has to complete a total of 18 credits of UG UWEs (irrespective of whether it is core/elective for Bachelor of Management Studies)
- For an existing Minor student (admitted before 2016-17 academic year), a total of 18 credits have to be completed, and s/he cannot take a 3-credit course if s/he has already completed its corresponding 2-credit version earlier

Requirements for the award of Minor in Management

UG students majoring in Engineering, Natural Sciences or Humanities need to fulfill the following criteria to be eligible for a Minor in Management:

- ***Applied, and admitted*** to Minor Program in Management;
- Completed the ***18-credit*** requirement; AND
- has an average ***CGPA of 6.5 or above*** in the courses offered to fulfill the requirements of Minor in Management

If a student takes 18 credits, yet does ***not fulfill the 6.5 CGPA*** requirement as above, his courses would reflect in his ***transcript as UWEs***, but s/he would ***not*** be conferred the award of ***'Minor in Management'***

A student may be permitted to drop out of the Minor Program in the Monsoon Semester of any academic year

17. Minor in Mathematics

Undergraduate students of the university who are *not* majoring in Mathematics have the option to take a **Minor in Mathematics**. A Minor in Mathematics can serve two distinct functions (apart from enjoying the beauty of the subject!):

1. Acquiring the academic background for higher studies in mathematics.
2. Acquiring modelling and computational skills for applications of mathematics in other disciplines or in industry.

Academic Requirements:

You have to acquire a minimum of **18 credits as University Wide Electives (UWE)** from the courses offered by the Department of Mathematics. These credits must satisfy the following minimum requirements:

1. At least 8 credits from the following: MAT 101 (Calculus I), MAT 102 (Calculus II), MAT 220 (Real Analysis I), MAT 240 (Algebra I), MAT 260 (Linear Algebra I), MAT 280 (Numerical Analysis I), MAT 284 (Probability)
2. At least 8 credits from MAT courses numbered 300 or above.
3. A course cannot count towards both Major and Minor requirements. For example, B.Tech. students cannot count MAT 201 towards the Minor because it is a compulsory course in their Major.
4. Certain course combinations are not allowed. If you have already credited a course with significant overlap with a certain MAT course, or a more advanced course than the MAT course, you may not earn credit for the Minor from that MAT course. A list of such banned combinations will be published before each semester's course registration.

The Undergraduate Advisor for Mathematics will help you work out an appropriate choice of courses depending on your interests and background.

How to Apply and Select Courses:

1. You have to register for the Minor – the first step is to obtain permission from the UG Advisor of the Department of Mathematics.
2. You will select courses for the Minor in consultation with the UG Advisor for Mathematics.
3. You must sign up for the Minor before the deadline announced by the university. However, it is advisable to do so earlier so that there is sufficient time to plan your courses.
4. Please note that you must register for the Minor as described here. It is not enough to merely take adequate credits on your own. Registration is also subject to availability

of slots.

5. If you fail to complete the Minor during your regular tenure at SNU, you may have to spend an extra semester to complete it. If you do so, any scholarship or fee waiver you were granted for your regular course of study will lapse and you will have to pay the full fees for the extra period.

18. Minor in Mechanical Engineering

Prerequisites: Minor in Mechanical Engineering would be offered to those Students who have cleared the Physics, and Maths courses from the Basic Sciences and Engineering Graphics, Engineering Mechanics/Static and Dynamics and Manufacturing Processes from Engineering Sciences categories.

Structure: All students doing the Minor in Mechanical Engineering will have to do three compulsory courses along with any three electives from the list given below:

Compulsory Courses:

Course Code	Course Name	Credits	Prerequisites	Semester
MED205	Engineering Thermodynamics	3-0-0	None	Even
MED211	Mechanics of Fluids*	3-0-1	None	Odd
MED306	Fluid Machinery	2-0-1	None	Even

Elective Courses:

Course Code	Course Name	Credits	Prerequisites	Semester
MED208	Manufacturing Science	3-0-1	Manufacturing Processes	Odd
MED303	Heat & Mass Transfer	3-0-1	Engineering Thermodynamics	Odd
MED309	Operations Research	2-0-0	None	Odd
MED206	Kinematics & Dynamics of Machines	3-0-1	Statics & Dynamics/ Engg. Mechanics	Even
MED311	Non Conventional Energy Resources	3-0-0	Engineering Thermodynamics	Odd
MED210	Principles of Industrial Engineering	2-0-0	None	Even
MED315	I.C.Engines & Automobiles	3-0-1	Engineering Thermodynamics	Even

* Civil Engineering students have to do one extra elective course in lieu of MED211 Mechanics of Fluids from the above list.

19. Minor in Physics

The physics department offers undergraduate students at SNU an opportunity of obtaining a minor in physics. A minor in physics has two aspects to it. First, it ensures that a student is well versed with the central core of physics, and secondly it will allow the student to learn more advanced aspects of the subject according to his or her interests. A minor in physics will equip a student to engage in challenging multi-disciplinary problems. It will be equally valuable for students seeking employment in industry or finance, where physicist skills of making quantitative models of complex situations are welcomed.

The course requirements for minor in Physics are as follows:

For Engineering majors:

Required credits: 15 credits (compulsory courses) + 7 credits (elective).

Total credit: 22 credits

[Excluding pre-requisites PHY101 (4 credits) and PHY102 (5 credits) which are major core courses for all engineering students]

The compulsory courses are:

- PHY 201 - Fundamentals of Thermal Physics; Credit 4 (3:1:0)
- PHY 202 - Introduction to Quantum Mechanics; Credit 4 (3:1:0)
- PHY 207 - Abridged course for Minor students; Credit 4 (3:1:0)
- PHY 208 - Advanced Experimental Physics I; Credit 3 (1:0:2)

For non-Engineering majors:

Required credits: 11 credits (compulsory courses) + 7 credits (elective).

Total credit: 18 credits

[Excluding pre-requisites PHY103 (5 credits) and PHY104 (5 credits) which are major courses for Chemistry]

The compulsory courses are:

- PHY 201 - Fundamentals of Thermal Physics; Credit 4 (3:1:0)
- PHY 202 - Introduction to Quantum Mechanics; Credit 4 (3:1:0)
- PHY 208 - Advanced Experimental Physics I; Credit 3 (1:0:2)

Eligibility for Physics minor program:

- The eligibility criterion for minor in Physics is minimum 7.0 CGPA (on a 10 point scale) which can be relaxed for exceptionally motivated students.

20. Minor in Sociology

Undergraduate students majoring in other disciplines at SNU are invited to explore the fields of sociology and social anthropology through a selection of courses offered as University-Wide Electives (UWEs) by the Department every semester. Students who would like to gain a deeper introduction to and understanding of the discipline, its core themes, analytical approaches, and methods are encouraged to pursue a Minor in Sociology.

Students wishing to take a Minor in Sociology must successfully complete 6 courses of which at least 3 courses must be from the set of courses that constitute the *Core Themes in Sociology* that the Department offers.

The Core Themes in Sociology courses are of 3 credits each and are listed below:

- SOC 101: Society and Relatedness
- SOC 103: Culture(s) in Context
- SOC 201: Gift, Commodity, Debt
- SOC 203: Religion, Science, Society
- SOC 204: State, Citizenship, Bureaucracy
- SOC 303: Kinship, Relatedness, Networks
- SOC 301: Land, Ecology and Society
- SOC 302: Work, Labour, Industry
- SOC 202: Visuality, Materiality, Information