SMIT
SIKKIM MANIPAL UNIVERSITY
SIKKIM MANIPAL INSTITUTE OF TECHNOLOGY

SIKKIM MANIPAL INSTITUTE OF TECHNOLOGY

INFORMATION BOOKLET

2026-2027



- NBA ACCREDITED PROGRAM
- EXCELLENT PLACEMENT OPPORTUNITIES
- RESEARCH & INNOVATION ECOSYSTEM
- VIBRANT CAMPUS & GLOBAL EXPOSURE

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ACADEMIC YEAR
2026

Message From **Director**



I am delighted to welcome you to SMIT, where your academic journey begins in a serene and inspiring environment, ideal for learning and personal growth.

Congratulations on choosing SMIT as the launchpad for your future. You are about to embark on an exciting and transformative chapter of your life. These years will not only shape your career but also help define who you become as a person. I encourage you to remain focused on your goals, progressing steadily and systematically achieve them. We are committed to supporting you by providing a nurturing atmosphere that fosters academic excellence and holistic development.

At SMIT, discipline is a core value, ensuring that our students not only excel academically but also grow as responsible, ethical individuals. We expect you to embrace this discipline and make the most of the opportunities available. From world-class infrastructure to enriching cultural and social experiences, SMIT offers the perfect platform for you to discover your true potential.

We will ensure that you are well-prepared for the challenges ahead and that by the time you graduate, you will be ready to contribute meaningfully to society as a responsible global citizen. This journey will be filled with hard work, but it will also be rewarding and fulfilling. Make every moment count and strive to leave a lasting impact, both here at SMIT and beyond.

Once again, welcome to the SMIT family. We are excited to accompany you on this incredible journey, and we are confident that your time with us will be both memorable and transformative.

Prof. (Dr.) Savitha G. Kini
Director
Sikkim Manipal Institute of Technology

Message From
Associate Director (Academics)



It gives me great pleasure to welcome you to Sikkim Manipal Institute of Technology (SMIT) and congratulate you on joining our vibrant academic community. You are about to begin an exciting phase of learning, growth, and discovery that will shape your academic and professional, journey.

At SMIT, we are committed to providing a learning environment that encourages academic excellence, innovation, critical thinking, and holistic development. Along with a well-structured curriculum and dedicated faculty, you will have an access to state-of-the-art laboratories, research opportunities, industry interactions, and a vibrant campus life.

This Information Booklet has been prepared to help you to become familiar with the academic framework of the programme, including schema of the program and abstract syllabus. It also introduces you to the various facilities and support systems available on campus, such as the Central Library, Health Centre, Marena Sports Complex, the Teacher Guardian Scheme, NSS, NCC, and key offices including the Training & Placement Cell, Entrepreneurship Cell, and International Collaboration Cell.

I encourage you to make the best use of these resources, participate actively in academic and co-curricular activities, and approach your faculty and mentors whenever you need guidance. SMIT will offer numerous opportunities to learn, innovate, and build lasting friendships.

I hope this booklet serves as a useful guide throughout your journey at SMIT. I wish you every success and a rewarding experience in the years ahead.

Welcome to the SMIT family, and best wishes for a bright future.

Associate Director (Academics)
Prof. (Dr.) Sangeeta Jha
Sikkim Manipal Institute of Technology

Ranking

Sl.No	Ranking	SMIT Rank
1.	CAREERS 360-In-dia'sBest Engineering Institutions 2025	✓ AAA+
2.	CSR ENGINEERING COLLEGE / INSTI-TU-TE SURVEY 2026	✓ Rank-9 in Top leading engineering colleges of super excellence ✓ Rank-11 in Top 20 Engineering Colleges Ranked by Placements, USP, Social Responsibility, Networking & Industry Interface
3.	GHRDC MCA IN-STI-TUTES SURVEY – 2025	✓ Overall Rank: 7 Top MCA College in India. ✓ Rank-1 in the State of Sikkim ✓ Rank-1 in the Eastern and Central Region ✓ Rank-4 in Top MCA colleges of Outstanding Excellence
4.	GHRDC ENGI-NEER-ING COLLEGE / IN-STITUTE SUR-VEY 2025	✓ Overall Rank: 7 Top Engg. College in India. ✓ Rank-1 in the state of Sikkim ✓ Rank-1 in Eastern & Central Region ✓ Rank-3 in Top Engg colleges of Super Excellence
5.	IIRF SURVEY 2026 FOR INDIAN ENGI- NEERING COLLEGES	✓ Rank -35 in Best Engineering Colleges in India (Private) ✓ Rank-1 Northeast Zone
6.	THE WEEK – HANSA Research Engineering College Survey 2025	✓ Rank-3 in private Engg. Colleges East Zone ✓ Rank 43- Private Engg Colleges in India ✓ Rank-68 in Engineering Colleges in All India
7.	NIRF (2024)	✓ Overall 151-200
	India Today MDRA Best College ranking 2025	✓ Rank-17 in Top Engineering Pvt College
	OUTLOOK ICARE engineering Colleges Survey 2025	✓ Rank-9 in Top 200 Private Engg Colleges
	Times Engineering Ranking 2025	✓ Rank-112 in Top 175 Engineering Institute

SMIT SIKKIM MANIPAL UNIVERSITY
SIKKIM MANIPAL INSTITUTE OF TECHNOLOGY

VISION

To achieve eminence in the field of quality technological education and research

MISSION

To develop SMIT into an Institution of Excellence capable of producing competent technomanagers who can contribute effectively to the advancement of the society

OBJECTIVES

- To provide wholesome education to meet the intellectual aspirations of the students.
- To equip students with techno-managerial skills to enable them to take their assigned role in the industry.
- To inculcate essential ethics and values to meet the spiritual needs to the students.
- To provide a sound institutional environment nurturing emotional strength, healthy mind, body, and resilience amongst the students.

ACADEMIC CALENDAR FOR ODD SEMESTER: 2026 (ALL COURSES)

15 Jul -17 Jul 2026	Reporting and Orientation of 1st semester of all B.Tech, BBA, BCA, & B.Sc courses
20 Jul- 22 Jul 2026	Commencement of Student Induction and Orientation programme for 1st semester of all B.Tech courses, BCA, BBA and B.Sc courses.
23 July 2026	Commencement of classes of 1st semester of all UG courses.
27 July 2026	***Semester registration, Induction programme and commencement of classes for all higher semester students (Both UG and PG) including rejoining of the subjects/semester (Less 1st semester students)***
28 July 2026	Commencement of classes and induction programme of 1st semester of all M.Tech, MCA, MBA, & M.Sc courses.
03 August 2026	Last date of rejoining in semester.
21 Aug-23 Aug 2026	SMITMUN (Starts from 21st Aug 2026 evening)
24 Aug-31 Aug 2026	Quiz-I
24 Aug-31 Aug 2026	Student Feedback (Phase -I)
09 Sep – 11 Sep 2026	**Student Profiling/DAC meeting/Class Committee Meeting**
11 Sep -13 Sep 2026	***Tech Adrishta (Starts from 11 September 2026 evening)***
15 September 2026	Last date of sending TG reports to the parents after Quiz -I .
21 Sep – 28 Sep 2026	Quiz -II
09 Oct – 16 Oct 2026	Mid Semester Examination
19 Oct – 23 Oct 2026	Mid Semester Break
26 Oct – 30 Oct 2026	Student Feedback (Phase -II)
28 Oct – 30 Oct 2026	**Student Profiling/DAC meeting/Class Committee Meeting**
30 October 2026	Last date of sending TG reports to the parents after Mid Semester Examination.
30 Oct -06 Nov 2026	**Re-Mid Semester Examination**
16 Nov – 20 Nov 2026	**Course Exit Feedback**
16 Nov – 20 Nov 2026	Lab sessional
20 November 2026	Last Instructional Day
23 Nov – 08 Dec 2026	Commencement of Odd Semester (Nov/Dec 2026) Examinations
22 December 2026	**Last date for completing Additional Lab classes/Examination***
24 December 2026	***Publication of Odd Semester Examination Results.***
29 December 2026	***Last date of receipt of application form for Supplementary Examinations (Online/Offline)***
31 December 2026	***Last date to submit SWAYAM NPTEL course completion certificate of Jul-Nov 2026 session.***
04 Jan -15 Jan 2027	***Supplementary Examinations***
05 January 2027	***Even Semester begins.***
05 Jan – 19 Jan 2027	***Slot-I: Major Project Viva (Phase I) (for in-house candidates and external candidates who have completed 16 weeks.)***
25 January 2027	***Publication of Supplementary Examinations Results***
09 Dec 2026 – 01 Jan 2027	***Winter Vacation slot for Faculty members***

*Additional Lab will start from the next day of last semester examination

^^ Modifications can be based on the decision of regulatory body.

ACADEMIC CALENDAR FOR EVEN SEMESTER: 2027 (ALL COURSES)

05 Jan 2027	Even Semester begins. Semester registration for all students (Both UG and PG) including rejoining of the subjects/semester.
06 Jan 2027	Commencement of classes (all courses)
27 Jan 2027	Last date of rejoining in semester
27 Jan - 03 Feb 2027	***Quiz-I***
01 Feb- 05 Feb 2027	Student Feedback (Phase -I)
10 Feb- 12 Feb 2027	Student Profiling/DAC meeting/Class Committee Meeting
10 Feb 2027	Last date of sending TG reports to the parents after Quiz-I.
22 Feb – 01 Mar 2027	Quiz-II
05 Mar- 07 Mar 2027	Kaalrav 2027 (starts from 05 March 2027 evening)
12 Mar- 19 Mar 2027	**Mid Semester Exam**
23 Mar- 29 Mar 2027	***Student Feedback (Phase -II)***
31 Mar 2027	Last date of sending TG reports to the parents after Mid Semester Exam and Quiz -II.
31 Mar - 02 Apr 2027	Student Profiling/DAC meeting/Class Committee Meeting
12 Apr- 20 Apr 2027	Re Mid Semester Exam
23 Apr - 29 Apr 2027	Lab sessional
23 Apr - 29 Apr 2027	Course Exit Feedback
29 Apr 2027	**Last Instructional Day**
30 Apr 2027	Annual Day
03 May – 18 May 2027	**Commencement of Even Semester Examinations**
03 May- 02 June 2027	**Slot-II: Major Project Viva (Phase II) (for in-house candidates and external candidates who have completed 16 weeks.)**
03 May- 02 June 2027	Program Exit Feedback
19 May- 02 June 2027	Additional Lab##
05 June 2027	Publication of Even Semester Examination Results/ Review of student's learning profile.
10 June 2027	Last date of receipt of application form for Supplementary Examinations (Online/Offline)
18 June- 08 July 2027	**Supplementary Examination/Extended Major Project Viva Voce.**
30 June 2027	Last date to submit SWAYAM NPTEL course completion certificate of Jan-May 2027 session.
14 July – 16 July 2027	***Reporting of all UG students (1st Year)***
^^ ***19 July 2027***	***Commencement of 1st Semester of all B.Tech. courses, BCA, BBA, B.Sc. classes***
26 July 2027	***Semester registration (less 1st Semester students).***
27 July 2027	***Commencement of Classes of Higher Semester. Semester Registration for all students (Both UG and PG) including rejoining of the subjects/semester.***
27 July 2027	***Commencement of 1st Semester of all M.Tech. courses, MCA, MBA & M.Sc. classes.***
23 July 2027	***Declaration of Combined Results***
19 May – 02 July 2027	***Summer Vacation slot for Faculty members***
19 May – 02 July 2027	***Summer Vacation slot for Faculty members***

##Additional Lab will start from the next day of last semester examination

^^Modifications can be based on the decision of regulatory body.

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SECTION – 1

GENERAL INFORMATION

1. Introduction

Welcome to Sikkim Manipal Institute of Technology (SMIT). This beautiful campus is located in the most peaceful state of India, Sikkim. The people in Sikkim are warm, polite, and hospitable. We at SMIT try to inculcate among the students the wonderful spirit and culture of Sikkim. The institute guides the students not only in achieving a successful career, but also moulds them to become a better human being.

Sikkim Manipal Institute of Technology (SMIT) is one of the premier Institutes in the country. The Institute focuses on imparting high-quality technical education to the students and prepares them as industry-readyprofessionals. It offers the state-of-the-art facilities, nurturing of entrepreneurial skills and conducive learning and research environment.

The institute is focused at embracing the latest trends and practices of the modern world; it aimes at refining, cultivating, and nourishing these attributes to enrich the student's life. We as mentors facilitate the student in strengthening their belief to excel and guide them to explore their true potential. This information booklet, will act as a guide to the students to understand SMIT and its practices in a better way.

1.1 Facilities

1.1.1 Identity Card: Every student must carry their identity card when moving out of the Hostel or the campus. It helps the administration to identify each student uniquely which in turn would facilitate the organization for the effective monitoring of the individuals. The students are advised to carry the identity cards as an important mode of identification (digital signature) and practice a healthy habit of carrying it in person wherever they go.

1.1.2 Medical Facilities: The Institute has a Health Center with resident Doctors available 24x7 for attending students in need of medical help. In case of further medical assistance, the students are referred to Central Referral Hospital (CRH), a super specialty hospital located in Tadong, Gangtok; so that proper care and treatment can be given to the student under the supervision of medical specialists. Two ambulances are stationed 24x7 at the health center for any referral case(s). Doctor/Nurse will visit individual room only for exceptional medical cases. Essential medicines only are available in the dispensary.

Health Centre: The health centre is located within the campus and is staffed with two doctors and three nurses available 24x7. It also provides ambulance services and emergency medicine facilities.

1.1.3 Library: The library is open from 9:00 AM– 9:00 PM on all working days and the reading hall is open from 9:00 AM to 11:59 PM. Library is also open from 9:00 AM to 4:00 PM on Sundays & Second Saturdays. The students can borrow books from the library using the library card for a period of one month.

1.1.4 Marena (Sports Complex): The modern sports complex, one of its kind in the entire Eastern part of the country, is provided with the latest sports equipment and facilities to encourage the students to excel in extra-curricular activities as well. It comprises a Gymnasium, a Swimming Pool, a Yoga Room, a Meditation Hall, an Aerobics Hall, Squash, Lawn Tennis, Basketball & Badminton courts, Snooker, Table Tennis and Carom. The Marena is also facilitated by Food Court. The Food court offers various cuisines for an empty appetite to take a bite.

1.1.5 Stationery Shop is located inside the campus at F-Block near SBI ATM to cater the need of stationery items.

1.1.6 General Store/ Departmental Store is located inside the campus behind the academic block to cater the need of necessary day to day items.

1.1.7 A Shopping complex is also present just at the entrance of the Institute. The shopping complex consists of a bank, ATMs, a Post Office, a General Store, a Beauty Parlour, a Barber shop and a Telephone exchange. In addition, there are a large number of shops spread across Majitar where the students can buy essential commodities.

1.1.8 Eateries: The Food Court in the Marena and the Canteen located at the back of the main building are the main food outlets inside the campus. In addition, there are a large number of eateries spread across Majitar within a distance of 0.3 km to 1.0 km.

1.1.9 Laundry: Laundry service is arranged where laundry persons visit hostels on regular and scheduled timings. The details can be obtained from the hostel office.

1.1.10 Nearest Town: Rangpo (4 kms towards Siliguri) and **Singtam** (6 kms on the way to Gangtok) are two places in the proximity where the students can buy items apart from Majitar. Students can visit Gangtok, the capital of Sikkim which is located approximately 35kms away from Majitar to enjoy the cool weather, the eateries and for shopping. Shared taxis/buses are available for transportation from the Institute gate located on the highway.

1.2 Important Offices

1.2.1 Training and Placement Cell: The institute takes special care and interest in interacting with reputed companies to ensure proper internships and placements of students. The cell is proactively and continually involved in bringing companies of good repute to the institute. Pre-placement training, soft-skill development courses and allied activities are conducted by the T&P Cell to prepare the students for their placements.

Special Coaching Unit: It is a subunit under the T&P cell which conducts/arranges special coaching classes to help the interested students to clear various competitive examinations.

1.2.2 About E-Cell: The Entrepreneurship Development Cell (E-Cell) at Sikkim Manipal Institute of Technology (SMIT) aims to foster an entrepreneurial mindset among students and promote innovation and startup culture on campus in collaboration with Government of India's Start-up initiative-Atal Incubation Centre which is also in the campus. It provides access to funding, resources, and mentorship for student startups, as well as workshops and seminars to develop necessary skills. E-Cell collaborates with industry experts to provide exposure to the latest industry trends and developments. Its success can be seen in the number of successful startups that have emerged from SMIT in recent years. The E-Cell has constituent units viz., Institution's Innovation Council (IIC, under the aegis of Ministry of Education's Innovation Cell), National Innovation and Startup Policy (NISP), Incubation Centre, Innovation Studio and Skill Development Cell. The E-Cell has played a significant role in promoting entrepreneurship on campus and helping students gain valuable real-world experience and essential skills for today's competitive job market. The ideology follows three important processes of Ideate, Innovate and Create, to achieve the goals. The Incubation Lab at AIC gives the student an opportunity to keep their ideas afloat by helping them to design, develop and implement various business models to become successful entrepreneurs.

1.2.3 International Collaboration Cell: is dedicated to fostering global partnerships with renowned institutes and universities worldwide. This initiative aims to provide faculty and students with invaluable opportunities to engage in international collaborations, enhancing their academic and professional experiences. The cell also provides essential assistance to foreign students enrolled at SMIT, guiding them through the documentation process to ensure a smooth and hassle-free stay. Additionally, the cell supports the following activities:

IAESTE (International Association for the Exchange of Students for Technical Experience): IAESTE is a renowned non-profit, non-governmental student exchange program that offers SMU students to participate in technical paid internships abroad during their studies. As a member university of the IAESTE global network, SMU provides essential support to students in securing these international internships, enriching their technical and professional skills.

AIESEC (International Association of Students in Economic and Commercial Sciences): AIESEC is an international non-profit, non-governmental organization focused on developing leadership potential in young people through global internships, volunteer experiences, and leadership opportunities. The organization empowers youth to make a meaningful social impact, equipping them with the skills needed to drive positive change in their communities and beyond.

Study Abroad Program (SAP): The Study Abroad Program allows SMIT students to earn external credits by studying at foreign universities or institutes with which SMU/SMIT has established MOUs or from other approved universities.

1.2.4 Academics Cell: is responsible for ensuring the smooth and effective delivery of academic programs and courses. It oversees the scheduling of classes, management of academic records, and implementation of curriculum updates to maintain high educational standards. The cell supports faculty and students by addressing academic concerns, facilitating examinations in coordination with the Controller of Examination office, and coordinating with various departments. By ensuring the alignment of academic activities with institutional goals, the Academics Cell plays a crucial role in enhancing the overall learning experience and academic success at SMIT.

Board of studies of department includes experts from academia, industry, university representative and alumni for framing the curriculum.

1.2.5 Alumni Engagement Cell: It serves as a single point of contact and provides a platform to the students for interaction with the alumni members of the institute to assist them in career planning, placement and transitions. Alumni talks for the students are regularly arranged so that they can share their experiences and the latest trends in the industries which will help our students to prepare for the campus placement drive. Our reputed alumni also extend their help in arranging student internships. The cell also extends support to our alumni for their various requirements like issue of documents from the institute, academic credential verification by WES etc.

1.2.6 Research Cell: actively promotes, organizes, and supports technical research and innovation. Students and faculty get access to research, and innovation conducted by their peers and colleagues at Manipal Group universities worldwide. The cell supports faculty and students in pursuing advanced research projects, often in collaboration with industry and academic partners, to address real-world challenges. Technical research is sponsored by both the University and government and semi-government organizations like the Department of Science and Technology, Department of Biotechnology, Defense Research and Development Organization, All India Council of Technical Education, Indian Space Research Organization (ISRO), National Natural Resources Management System, Department of Information and Electronics Technology and the Ministry of Science & Technology etc.

1.2.7 Students Affairs Cell is dedicated to enhancing the overall student experience by addressing their needs and concerns. It organizes various extracurricular activities, fostering a vibrant campus life and promoting holistic development. The cell acts as a bridge between students and the administration, ensuring that student voices are heard, and their well-being is prioritized. Through counseling, mentorship, and support services, the Student Affairs Cell helps students to navigate academic and personal challenges, contributing to a positive and enriching environment at SMIT.

1.2.8 Office of Chief Wardens: Office oversees the overall management of hostel facilities, ensuring a safe and comfortable living environment for students. They coordinate with floor wardens to address student needs, maintain discipline, and handle any issues that arise in the hostels. Each floor in the Hostel has a designated floor warden. Floor Wardens play a crucial role in day-to-day operations, acting as the first point of contact for students and ensuring compliance with hostel rules. Both the Chief Warden and Floor Wardens work collaboratively to create a supportive and secure residential community. Their efforts contribute significantly to the well-being and academic success of students living on campus.

1.2.9 Quality Cell: is committed to ensuring the highest standards of academic and administrative excellence. Cell's practices are designed to ensure continuous quality improvement & alignment with national & international standards in higher education.

It plays a crucial role in monitoring and enhancing the quality of education, focusing on continuous improvment through regular assessments and feedback mechanisms. The cell works closely with faculty and staff to implement best practices, ensuring that the institute's programs align with global standards. By fostering a culture of quality, the Quality Cell contributes to the overall development of students and the institution's reputation for excellence.

1.2.10 Administration and Security Cell: is integral to the smooth functioning of the campus, overseeing administrative operations and ensuring a secure environment for all. The cell manages essential services, coordinates with various departments, and upholds institutional policies to maintain operational efficiency. Security is a top priority, with the cell implementing comprehensive measures like CCTV surveillance and security guards at all strategic points to safeguard the campus community. By streamlining administrative processes and ensuring safety, the Administration and Security Cell contributes to a well-organized and protected campus atmosphere.

1.2.11 Admission Cell: is dedicated to guiding prospective students through a seamless and transparent admission process. The cell also promulgates details about the institute through various outreach activities. It provides comprehensive support, from answering queries to assisting with application procedures and ensuring eligibility criteria are met. The cell plays a vital role in welcoming new students by offering personalized assistance like transport arrangement and timely information. Through its efficient and student-centered approach, the admission cell ensures that the enrollment process is smooth and accessible for all applicants, helping them transition into the SMIT community with ease.

1.2.12 IT Council: focuses on advancing the institute's technological infrastructure and digital capabilities. It manages and oversees IT-related projects, ensuring the efficient operation of computer systems, networks, and software applications across the campus. The council supports both faculty and students by addressing technical issues, implementing new technologies, and enhancing digital resources. Through strategic planning and innovation, the IT Council plays a key role in maintaining a modern and effective technological environment at SMIT. Its activities contribute to the seamless integration of technology in academic and administrative functions.

1.2.13 Universal Human Values Cell at is dedicated to promoting ethical principles and core human values within the academic community. It coordinates the Human Values lectures which are part of the curriculum and also organizes workshops, seminars, and activities focused on fostering integrity, respect, and social responsibility among students and faculty. The cell aims to integrate these values into the educational process, encouraging a holistic approach to personal and professional development. By cultivating a culture of empathy and ethical behavior, the Universal Human Values Cell supports the development of well-rounded individuals who contribute positively to society.

1.2.14 Outreach Cell: focuses on strengthening the institute's engagement with the community and beyond. It organizes initiatives and programs aimed at addressing social issues, promoting sustainability, and fostering community development. The cell facilitates partnerships with local organizations and participates in projects that benefit both students and the wider community. By encouraging active involvement and social responsibility, the SMIT Outreach Cell enhances the institute's impact and builds meaningful connections with various stakeholders. Its efforts contribute to creating a positive and proactive presence both on and off campus.

1.2.15 Office of the Additional Registrar: is responsible for ensuring adherence to regulatory and institutional policies. It manages compliance with accreditation standards, legal requirements, and internal procedures, maintaining the institute's operational integrity. The office works closely with various departments to monitor and enforce adherence to guidelines and standards. Its role is crucial in upholding the institute's reputation.

1.3 Processes

1.3.1 Teacher Guardian: The scheme is aimed at implementing a noble practice where every teacher acts as a guardian to the students under him/her. The TG extends his/her support in all academic and non-academic related activities to the students. The TG also acts as a link between the parent and the Institute, which serves as a primary media for communication during the student's stay at SMIT. It is dedicated for constructing/providing aplatform for making a students' life more comfortable at SMIT. The TG can be approached bythe students anytime to share their problems. As a guardian in the true sense, he/she will try to understand and help the students in case of any issues. Students are encouraged to develop a good communication with the TG by frequent visits and establish personal bonding during their stay at SMIT and beyond.

SMIT takes pride in its TG scheme; it helps the institute to develop an efficient and excellent way of understanding students. SMIT sincerely believes that the students will benefit in all ways through this 'Teacher Guardian Scheme'.

Mentor Mentee: The First-year students would continue to be under the TG scheme. All students of 2nd, 3rd, and 4th years are to be equally distributed among teachers from their respective departments. A teacher would continue to be the mentor/ TG of these students who have been allocated to him/her in the 2nd year throughout their stay in the university. The mentors can allocate long term projects to the students which can continue till final year of the student and take weekly feedback on the progress of the same.

1.3.2: National Service Scheme (NSS): The National Service Scheme (NSS), established by the Government of India under the Ministry of Youth Affairs & Sports in 1969, is a flagship youth development programme that provides students with opportunities to apply their knowledge and skills for the betterment of society while developing leadership, teamwork, communication, and problem-solving abilities beyond the classroom.

Guided by the motto "**Not Me But You,**" SMIT NSS volunteers actively engage in community-focused initiatives such as Computer Education Aid and Digital Literacy Programs for nearby schools, Menstrual Hygiene Awareness Sessions, the All Girls Hackathon, World Environment Day celebrations, including plantation drives and environmental awareness campaigns etc.

Participation in NSS helps engineering and other students gain practical exposure to real-world challenges, enhance project management and interpersonal skills, develop social responsibility, and build a strong foundation for professional and personal growth. These experiences complement technical education and prepare students to become responsible engineers, professionals, and future leaders.

1.3.3: National Cadet Corps (NCC): The Senior Division/Wing NCC (army) at SMIT was raised in the year 2018 under the aegis of 3 Sikkim Bn NCC, Tadong. Since then, more than 50 cadets have successfully qualified in both the NCC 'B' and 'C' Certificate examinations. The cadets take part in ATC/CATC/COC and other training camps organized by the NCC. The cadets are exposed to regimental way of life and develop a flair for sports and adventure through these camps. They participate in different types of drills and activities as part of their institutional training and also during the Camps organized by NCC. These activities include organizing blood donation camps, tree plantation drive, cleanliness drive, drill, physical training, etc. NCC not only prepares and motivates the young students to join the Indian armed forces but also instills within them nationalist feeling, camaraderie, high regard for moral and ethical values, sense of discipline and social responsibility, confidence and leadership skills and thus makes them a valuable citizen for the country. Joining NCC is very beneficial to those students who aspire to make a career in the defense services as there is special entry schemes for NCC C certificate holders. NCC C certificate holders also get bonus marks in other modes of selection in the Armed forces, paramilitary forces, and many renowned private organizations.

1.3.4 Student Council: It is the elected body of the students which is responsible for taking care of the welfare and issues pertaining to the students. The council is focused on addressing the quality of student life in the campus, the food in the mess, the curricular, co-curricular as wellas extra-curricular activities in the institute. The council is constituted of academically bright andpassionate students who help the management to address the student-related issues. AssociateDirector (Student Affairs) looks after all student-related issues including hostels. The office ofthe Associate Director (Student Affairs) can be contacted for any information related to studentcouncil, co-curricular and extra-curricular activities and other hostel issues.

1.3.5 Student Club: With a wide range of student clubs, Cells, associations, and professional societies, SMIT provides endless opportunities for students to pursue their passions, develop new skills, and create unforgettable experiences beyond the classroom. Whether your interests lie in technology, innovation, arts, culture, sports, leadership, public speaking, or social service, there is a platform waiting for you. These clubs foster collaboration, creativity, confidence, and lifelong friendships while helping students discover hidden talents, enhance their leadership abilities and build a strong sense of belonging within the SMIT community. At SMIT, every student is encouraged to learn, lead, innovate, and make their mark. Each department has its own student club or association to promote academic excellence, professional development, technical innovation, and active student engagement within the discipline.

ARTISTI	EDGE GAMING
CHROMATIX	MINDSCAPE
CINEMATES	STUDENT RESEARCH FORUM
NIRVANA	SMITSONIAN EDITORIAL BOARD
UDAAN	IAESTE CI SMU
ILLUSION	INSTITUTION'S INNOVATION COUNCIL
REVERBS	ENTREPRENEURS CELL (E-CELL)
THE FIVE ELEMENTS	ALUMNI ENGAGEMENT CELL
THE CREW	NATIONAL CADET CORPS
INNOVISION	NATIONAL SERVICE SCHEME
SMITMUM	

These clubs play a vital role in creating a dynamic campus culture, providing students with opportunities to learn, lead, innovate, and contribute to society beyond the classroom.

1.3.6 Discipline: Students are expected to uphold the highest standards of discipline, integrity, and respectful conduct in their interactions with faculty members, institute authorities, staff, seniors, and fellow students. A strong sense of discipline and professionalism plays a vital role in personal growth, character development, and academic success. By demonstrating courtesy, responsibility, and mutual respect, students contribute to a positive, inclusive, and harmonious campus environment. Adherence to these values helps foster a culture of excellence and creates an atmosphere that is conducive to learning, collaboration, and holistic development within the institute.

1.3.7 Main Gate Entry: All hostel residents must return to the campus by 9:00 PM and comply with hostel regulations. Students facing genuine emergencies or unavoidable delays should seek prior permission from the Floor Warden or Hostel Authority. Adherence to these rules helps maintain a safe, secure, and disciplined living environment. Non-compliance may invite disciplinary action as per institute regulations.

Day Scholars

Day scholars are requested to leave the campus by 6:00 PM. Students who need to remain on campus beyond this time for academic, sports, or other institute-approved activities are advised to obtain prior permission from the Associate Director (Student Affairs).

1.3.8 Environment & Cleanliness: Taking good care of the environment is a practice to be cultivated by one and all. All students are warmly advised to take initiative to care for mother earth and motivate others in maintaining a clean and a healthy environment. Please stay away from the habit of littering the room, corridor, and premises. Bad habits are easy to develop but hard to do away with, so be wary not to fall prey to bad practices.

1.3.9 Societal Responsibility: To be a good human being is a societal responsibility, therefore each one of us should be more responsible towards the society we live in. Hence learn to develop a good habit of giving at least something back to society which has selflessly given you so much.

1.3.10 Hostel Regulations: The details of the Hostel rules and regulations are available in http://suchana/ which can be accessed through the local intranet of the institute. The students are requested to maintain good ambience in the hostel.

Wishing you all the best for your journey at SMIT.

SECTION – 2
PROGRAMS AND CGPA REGULATIONS

2.1 Background

SMIT is a constituent college of Sikkim Manipal University which offers various Undergraduate & Postgraduate programs, a summary of which is given below. Apart from these regular courses, the Institute also offers Ph.D. programs in various disciplines of Engineering, Science and Management. **The medium of instruction is English.**

2.2 Undergraduate and Post Graduate Programs:

Department	Under Graduate	Post Graduate
Civil Engineering (CE)	B.Tech. in CE	M.Tech in Structural Engineering
		M.Tech Hydrology and Water Resources Engineering
Computer Science and Engineering (CSE)	B.Tech. in CSE with specialization in: a) AI&ML b) Data Science c) Cyber Security	M.Tech. in Computer Science andEngineering
Electrical & Electronics Engineering (EEE)	B.Tech. in EEE	-
Electronics & Communication Engineering (ECE)	B.Tech. in ECE	-
	B.Tech in Electronics Engineering (VLSI Design and Technology)	
Mechanical Engineering(ME)	B.Tech. in ME	-
Management Studies (MS)	Bachelor of Business Administration (BBA)	Master of Business Administration (MBA)
Computer Applications (CA)	Bachelor of Computer Applications (BCA)	Master of Computer Applications(MCA)
Chemistry (CH)	B.Sc in Chemistry	M. Sc. in Chemistry
Mathematics (MA)	B.Sc in Mathematics	M. Sc. in Mathematics
Physics (PH)	B.Sc in Physics	M. Sc. in Physics
Physical Education	Batchelor of Physical Education and Sprots (BPES)	'-
Psychology	B.Sc Applied Psychology	M.Sc Applied Psychology

2.3 Credit requirements and Award of B.Tech Degree

As per the AICTE Approval Process Handbook (2026-27) for undergraduate Degree course in Engineering and Technology, there is a provision to award B.Tech degree for all engineering undergraduate programs as follows:

(a) B.Tech Degree (160 Credits)

- **Total Credits: 160**
- **146 graded credits**
- **14 MLC (Mandatory Learning Courses) credits**

► **Credit Distribution:**

» Program Electives: **21 credits**

» Open Electives: **9 credits (MLC)**

» Capstone Project (8th Semester): **12 credits**

(b) B.Tech Degree with Minor Specialization (180 Credits)

- Students pursuing a Minor will complete regular B.Tech requirements (160 credits), plus 20 additional credits, consisting of:
- Three Minor courses (4 credits each) offered in 5th, 6th, and 7th semesters
- Minor Project: 8 credits

(c) B.Tech (Honours) Degree (180 Credits)

- CGPA $\geq$ 7.5
- Expression of interest after the 4th semester based on academic performance.

Requirements:

20 additional credits, comprising:

- Three PG-level courses (4 credits each) in 5th, 6th, and 7th semesters
- Courses preferably through SWAYAM/NPTEL
- Capstone Project: 20 credits

Additional conditions:

- Capstone project duration: 2 years
- Expected to meet publication criteria (conference presentation and journal submission suggested).
- Students must maintain a CGPA of 7.5 or above until graduation.

(c) B.Tech (Honours) Degree (180 Credits)

- Awarded after completion of **more than 120 credits** at the end of the course duration.

2.4 Highlights of the B.Tech Program

The proposed highlights of the B.Tech program applicable from the Academic Year 2026–27 onwards are as appended below:

a) Minor Specialization / Honors

- Eligible after IV Semester by earning 20 additional credits (No extra duration or financial cost).
- Extra credits appear in the 8th semester grade sheet.
- Honors eligibility: CGPA ≥ 7.5 (must maintain until graduation).
- If a student drops the specialization, earned credits will be listed as additional courses (not counted in GPA/CGPA).

b) Capstone Project Options

- Semester-long Project: 12 credits.
- Year-long Project: 24 credits.
- Honors Capstone Project: Two-year project with publication requirements.
- Conference presentation and journal communications are expected.
- Students opting for a year-long industrial project (Practice School) cannot pursue Honors/Minor.

c) Internship

- Minimum 6 weeks during semester breaks (single or multiple stretches).
- Internship report must include company-issued certificates as proof.

d) Open Elective: Open Elective credits may be secured through:

- MOOC courses on the SWAYAM platform.
- Structured co-curricular / extra-curricular activities (NSS/NCC).
- Institute level courses like (Foreign Language, Indian Knowledge System, etc.)

e) Minor Specialization

- Offered in the in the institute level beyond core domain.
- Choices limited to 8 to match overall strength.

2.5 Promotion Criteria for B.Tech Course

As per the curriculum structure, the promotion criteria for the B.Tech course as given below.

(a) B.Tech Course (04 Years)

Promotion	**Minimum Credits**
1st Year to 2nd Year	21 credits
2nd Year to 3rd Year	65 credits
3rd Year to 4th Year	108 credits
Final Year	160 / 180 credits

(b) Academic Probation Clause

- A student who fails to earn the minimum credits for promotion at the end of an even semester will drop one academic year and be placed on Academic Probation.
- At the end of the probation year, if the student still fails to acquire the required credits for promotion, they will be terminated from the program.

2.6 Code for B. Tech and Open Electives

The generic coding scheme for subjects' post curriculum revision done during May-July 2026 for Academic Year 2026 onwards is as follows:

- The subject codes will be six (06) characters in length.
- The first two (02) characters will be alphabets denoting the department offering the course or generic code as decided for Institute level courses.
- The next four (04) characters will be divided into year, type of course and course numbers respectively.

- The same is exemplified below:

- **Table 1: Generic Example**

AB	**U**	**V**	**WX**
Two-character alphanumeric department code	Year	Type	Two digits for course number

- Each column is explained below:
- **Table 2: Alphanumeric Code – First Two Characters**

Alphanumeric Code (AB)	**Corresponding School/Department/Institute**
CE	Civil Engineering
CS	Computer Science & Engineering
EC	Electronics & Communication Engineering
EE	Electrical & Electronics Engineering
ES	Electrical Sciences
ME	Mechanical Engineering
MA	Mathematics
PH	Physics
CH	Chemistry
MS	Management Studies
OE	Open Elective

- **Table 3: First Digit – Denoting Year and Level**

First Digit (Year)	**Year**	**Level**
1	First Year	4.5

2	Second Year	5
3	Third Year	5.5
4	Fourth Year	6 (UG Exit)
5	Fifth Year (1st Year Master's)	6.5
6	Sixth Year (2nd Year Master's)	7 (PG Exit)

- **Table 4: Type of Course**

Second Digit	Type
0	Occurring in both odd and even semesters.
1	Occurring in odd semester only.
2	Occurring in even semester only.
3	Program Elective
4	Minor Specialization
5-9	Not used presently

- All subjects have been coded using the above process.
- Some course codes have been fixed to facilitate easy maintenance.
- The same are as below:

Coding Schemes for Program Electives

- All Program Electives will have generic codes: AB43WX, where:
  - » AB will be replaced by the Department/School code.
  - » WX will be allotted by the respective Department/School and denote the course number.
  - » E.g. CS4301.

Coding Schemes for Open Electives

- All Open Electives will have generic codes: OE30WX, where:
  - » OE is generic code for Open Electives.
  - » WX will be from the band of numbers allocated by the Office of Associate Director (A) for the Department/School offering the course.
  - » E.g. OE3012.

Coding Schemes for All Projects

- Internship – AB4089.
- Capstone Project (1 year) [7th and 8th Semester] [24 Cr] – AB4099.
- Capstone Project (6 months) [8th Semester] [12 Cr] – AB4299.
- Honours Project [20 Cr] – AB5099:
- Minor Specialization Project [8 Cr] – AB4499
- Note: All AB to be replaced by the Department/School code.

2.7 Massive Open Online Courses (MOOCs) (SWAYAM)

Massive Open Online Courses (MOOCs) online courses available on the SWAYAM, developed by theGov-ern-ment of India as per the UGC/AICTE regulations 2016, (Credit framework for online learning courses through SWAYAM). Course shall be considered as a subject in a semester and students optingfor the same will be con-sidered for credit transfer. The students are only eligible to opt for not more than 40% of the total courses being offered in a particular semester through the SWAYAM platform. The deatils of Standard Operating Procedure (SOP) for SWAYAM/NPTEL is available in https://smtech.in, which can be accessed through the local internet of the institute.

2.8 Student's Entry/Registration Number

- The Entry/Registration No of a student consists of nine numerals: YYYYNNNNN
- First four digits (YYYY) indicate the year/batch of admission. Next five digits (NNNNN) indicate serial number of admissions. For example:
  - Registration Number: 202400123
  - YYYY: 2024, and NNNNN: 00123

2.9 Course Coding System for all courses (Less B.Tech)

The course-coding system for Department/Program/Subject are organized by the short titles of the programs are as mentioned below:

- Civil Engineering (CE)
- Computer Science & Engineering (CS)
- Electronics and Communication Engineering (EC)
- Electrical and Electronics Engineering (EE)
- Mechanical Engineering (ME)
- Electronics Engineering (VLSI Design and Technology) (VT)
- Computer Application (CA)
- Business Administration (BA)
- Mathematics (MA)
- Physics (PH)
- Chemistry (CH)
- Computer Science (BC)
- Physical Education and Sports (PE)
- Economics (EN)
- Psychology (PY)
- General (GN)

The coding structure is as follows:

1. Levels of Courses

1.1 Level-0 (00-99) : Pre requisite courses

1.2 Level-1 (100-199) : Foundation or introductory courses (First Year)

1.3 Level-2 (200-299): Intermediate -level courses (Second Year)

1.4 Level-3 (300-399): Higher level courses (Third Year)

1.5 Level-4 (400-499): Advanced Courses (Fourth Year)

1.6 Level-5 (500-599): Courses at first year master's degree level for a 2 year master's degree program

1.7 Level-6 (600-699): Courses for second year of 2 year master's or 1 year master's degree program

1.8 Level-7 (700-799) & above: Courses limited to doctoral students.

2. Subject Type

1. Core Theory
2. Open Elective/Audit Course (To be offered to the other Dept. students)
3. Program Elective/Dept. specific Elective
4. Practical Subjects/Labs
5. Mini Project/Project based learning.
6. Major Project
7. Seminar/Grand Viva
8. Minor specialization to other department subjects
9. Industrial Training/Summer Internship/Skill Based Vocational Training Skill based vocational training is valid only for the students who will opt for the exit after 1st Yr or 2nd Year.

3. Coding Format

Program code	**Level as per UGC**	**Version**	**Subject Type**
Short name of the program (2 digit Alphabet)	3 digit based on the levels of course given in 1	Revision number – "A"	1 digit (1-9) Core Theory/ Elective Lab/ Project/ Industrial training etc.

For example, coding of B.Sc Computer Science (BC) program:

Code UGC guidelines	**Subject Name**	**Remarks**
BC101A1	Computational Methods	Core Theory/UGC level-1 course
BC201A1	Computer Organization and Architecture	Core Theory/UGC level-2 course
BC302A1	Embedded Systems	Core Theory/UGC level-3 course
BC401A1	IoT Gateways and Edge Computing	Core Theory/UGC level-4 course
BC201A3	R Programming	Program Elective/UGC level-2 course
BC301A2	Wireless Sensor Networks	Open Elective/UGC level-3 course
BC102A4	Digital Electronics Lab	Lab/UGC level-1 course

2.10 CGPA and Credit System

The credit for a particular theory subject is based on the total number of teaching hours and the tutorialclasses conducted per week. Remedial classes are not counted as a part of the credit. Credit assignment for laboratory subjects or workshops is taken as half of the total number of hours assigned to the subject per week.

2.11 Criteria for Minimum passing marks in End Semester Examination for all UG and PG courses for 2024 admitted batch onwards

- For UG courses, Minimum 35% marks to be scored in every theory subject in the End Semester Examination.
- For PG courses, Minimum 40% marks to be scored in every theory subject in the End Semester Examination.
- For UG and PG courses, Minimum 50% marks to be scored in every Non theory subjects like, practical, project, seminar, project-based learning, Industrial training including Internal Assessment and End Semester Practical Examination marks.

2.12 Grading System

Grade determination for a student is based on the total marks scored by the student in the in-semester and end-se-mester examinations. Both examinations are given equal weightage to compute the final score. The grades given to a student are interpreted as follows:

Letter Grade	S	A	B	C	D	E	F	I
Grade Point	10	9	8	7	6	5	0	0

Where F: Fail, I : Incomplete and DT: Detained (due to the shortfall in attendance).

2.12.1 Award of Grade

The relative grading scheme using the mean (μ) and standard deviation (σ) parameters calculated from the group of students who have appeared for a particular subject is used to determine the categories of the grading system. The procedure followed is illustrated below:

- The data is taken only from students who have appeared in both in-semester and end-semester examinations.
- The cut-off for E and S grades is calculated as $\mu - 2\sigma$ and $\mu + 1.5\sigma$ respectively.
- For UG theory subjects, if $\mu - 2\sigma$ is less than 35, the lower cut-off for E grade is taken as 35. In case the value exceeds 35, the lower cut-off for E grade is then taken as 35.
- For UG non-theory subjects If $\mu - 2\sigma$ is less than 50, the lower cut-off for E grade is taken as 50. In case the value exceeds 50, the lower cut-off for E grade is then taken as 50.
- For PG and PhD theory subjects, if $\mu - 2\sigma$ is less than 40, the lower cut-off for E grade is taken as 40. In

case the value exceeds 40, the lower cut-off for E grade is then taken as 40.

- For PG and PhD non-theory subjects If μ - 2σ is less than 50, the lower cut-off for E grade is taken as 50. In case the value exceeds 50, the lower cut-off for E grade is then taken as 50.
- For UG, PG and PhD theory and Non theory subjects, If μ + 1.5 σ is more than 90, the upper cut-off for S grade is considered as 90. If the value is less than 85, the lower cut-off will be fixed at 85. The value μ + 1.5 σ calculated will be rounded to the lower whole number which will be the lower limit of S grade.
- The range between the lower and the upper cut-off as decided by para above will be divided by 5 to get the step size for deciding other grades.
- μ-2σ will be lower limit for E grade as per para described above. Marks below the lower limit of E grade will be F assigned F Grade.
- The lower limit of D, C, B, and A will be obtained by adding multiples of 1, 2, 3 and 4 step sizes to the lower limit as obtained in para above. These limits will be rounded off after adding the step sizes and will be utilized as a cut-off for assigning the respective grades.
- (a) In case the number of students is below 20 in UG theory subjects, the absolute grading scheme will be applied as given below. In case the number of students is more than 20 in UG theory subjects, the relative grading scheme will be applicable.

Grade	S	A	B	C	D	E	F
Marks	>_90	79-89	68-78	57-67	46-56	35-45	<35

- (b) In case the number of students is below 20 in PG and Ph.D. theory subjects, the absolute grading scheme will be applied as given below. In case the number of students is more than 20 in PG and Ph.D. theory sub-jects, the relative grading scheme will be applicable.

Grade	S	A	B	C	D	E	F
Marks	>_90	80-89	70-79	60-69	50-59	40-49	<40

- c) In case the number of students is below 20 in UG, PG and Ph.D. programs of Non theory subjects like, practical, project, seminar, project-based learning, Industrial training, the absolute grading scheme will be applied as given below. In case the number of students is more than 20 in UG, PG and Ph.D. programs of Non theory subjects, the relative grading scheme will be applicable.

Grade	S	A	B	C	D	E	F
Marks	>_90	82-89	74-81	66-73	58-65	50-57	<50

- For backlog subjects, the above grade calculations are applicable.

2.12.2 Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA)

The GPA (Grade Point Average) is used to evaluate the academic performance of a student in a given semester. It is the weighted average of the grade points obtained by a student in all the subjects during the semester. The overall performance of a student is obtained by calculating the CGPA (Cumulative Grade Point Average). It is the weighted average of the grade points obtained in all the subjects studied by the student which is taken into account from his/her date of joining. At the end of every semester, the CGPA will be calculated up to two deci-mal places and will be indicated on the grade report.

GPA and CGPA are calculated by the following equations:

$$GPA_i = \frac{\sum_{j=1}^{n} C_{ij} G_{ij}}{\sum_{j=1}^{n} C_{ij}}, \quad CGPA = \frac{\sum_{i=1}^{n} GPA_i * \sum_{j=1}^{n} C_{ij}}{\sum_{i=1}^{n} (\sum_{j=1}^{n} C_{ij})}$$

Where n = number of subjects in a given semester; N = number of semesters; GPAi = GPA for the ith semester; Cij = number of credits for the jth subject in the ith semester; and Gij = Grade point corresponds to the grades obtained in the jth subject in the ith semester. At the end of each semester the grade report or Grade Card, which reflects the performance of a student in that semester, is issued by the University.

2.13 Credit requirement for promotion to higher semester (less B.Tech)

Undergraduate courses -

1st Year to 2nd Year	-	50% of the total credit in 1st Year
2nd Year to 3rd Year	-	60% of the total credit upto 2nd Year
Final Year	-	100%

Promotion criteria from 3rd year to 4th year for B.Sc & BCA (Honurs) - CGPA 6.5 without any backlog.
Promotion criteria from 3rd year to 4th year for B.Sc & BCA (Honurs with research) - CGPA 7.5 without any backlog.

Post graduate Courses (PG) (02 Years) -

1st Year to 2nd Year	-	55% of the total credit in 1st Year
Final Year	-	100%

* Wherever the credits are in fraction would round off to the lower whole number

2.14 Award of Degree

The degree is awarded on successful completion of the course and fulfillment of all the requirements as prescribed by the University.

2.14.1 Maximum period of Completion of a program

The maximum duration for completion of Undergraduate (UG) and Postgraduate (PG) programs shall be deter-mined as N*2+1.

i. Where N stands for the normal or minimum duration prescribed for completion of the program.

ii. The +1 represents the additional one-year extension granted only under exceptional circumstances, subject to approval by the Vice Chancellor, SMU

Total duration of the course = Double the normal or minimum duration prescribed for completion of the program

+ Extended one year.

2.15 Attendance Requirement

A minimum of 75% attendance is required for a student to be eligible to appear in the end-semester examination of a particular subject. The detained student will have to repeat the course and fulfill the minimum attendance criteria. In exceptional cases based on medical grounds/circumstances, 10% relaxation in attendance may be accorded only with the consent of the Vice Chancellor of the University.

Attendance criteria for Lab Classes: Students need a minimum attendance of 75% to appear for the lab exam. No attendance relaxation is considered. However, extra lab classes may be conducted by the department for medical cases/special circumstances.

2.16 Assessment and Examination

In-Semester Assessment: Components of In-Semester are illustrated in the table given below:

Quiz I	Quiz II	Mid Semester	Quiz III	Tutorial/ Assignment	Total
5	**5**	**30**	**5**	**5**	**50**

Re-Mid Semester: Students who fail to give their Mid Semester due to a medical reason or any exceptional circumstances, will be allowed to appear in the Re- Mid Semester Examination at a date which will be notified prior to the semester examinations, subjected to validation of proper documents. The entire syllabus will be considered for the examination. The 1st year students will have to submit the relevant documents to Associate Di-rector (Academics) office and the higher semester students should approach their respective HOD's to validate their absence.

Drawing Classes: The drawing classes comprise of 1 hr of theory, 2 hrs of the lab class in a week. The marks distribution is as follows:

Job description	Marks
Class work (12-13 sheets)	25
Assignments (at least 5)	10
Sessional/ mid-term test (one)	15
Total	50

Continuous Assessment of Laboratory comprises of:

Relative Weight				
Logic/Algorithm/ Proce-dure/ Conduct of Lab/ Pro-gram Writing /Experiment set up/ Circuit con-nection etc.	Executions of Ex-periment/ Program	Data collection and Calculations,Pro-gram output /Experimentalresults	Knowledge ofthe student onEx-per-iment/ Program	Total marks
3	**2**	**3**	**2**	**10**

Laboratory Assessment: The components of the laboratory assessment are given below:

Evaluation of Lab Report on daily basis	-	60 Marks
Final Lab Examination	-	40 Marks
Total	-	100 Marks

End Semester Theory Examination: An end semester examination for theory assessment is conducted for a total of 100 marks which further converted to 50 marks. For 3/4 credit courses the exam duration is 3 hour and for 1/2 credit courses the exam duration is 2 hour.

End Semester Lab Examination: An end semester examination for lab assessment is conducted for a total of 40 marks.

2.16.1 Additional Lab Classes:

Additional lab classes will be conducted after the end-semester examination. The eligibility criteria for the students are listed below:

Type I	:	Regular students who have dropped the lab classes of their current semester to attend classes of the lower semester(s) in parallel semester. **For all TYPE –I cases no additional fee is charged.**
Type II	:	1st Year students who have failed in previous semester lab examination, or Higher Semester students who have failed in previous year lab examination. **For all TYPE –II cases a fee of Rs. 4000/- will be charged per lab.**
Type III	:	(i) If a student after having requisite attendance (75%) and above misses labo-ratory examination on medical/ compassionate ground, he or she is permitted to appear for additional lab examination. It is a onetime opportunity for such cases. Such student need to pay Rs. 1000/- for appearing in the lab examination (refer Registrar office 53rd ASM Office order No. 118/SMU/REG/OO/21/2018 dated 11Jul 2018, point No. 1 (a). **For all TYPE –III cases a fee of Rs. 1000/- will be charged per lab.**

Type IV		All malpractice/detained cases are not permitted to join the immediate AdditionalLab of the current semester. The students will be permitted to apply for Additional Labs based on the following guidelines (subject to a maximum of two labs is permitted). (i) First (1st) Year student(s): Student can apply after a gap of one semester. (ii) Second (2nd) Year onwards (Less 8th semester): Student can apply after a gap of one academic year. (iii) Eight (8th) Semester student(s) : Student can apply for both Odd and Even Se-mester Labs at the end of 8th Semester (maximum of two labs only) **For all TYPE-IV cases a fee of Rs. 4000/- will be charged per lab.**
Type V (Special Case)		When a student is not able to attain minimum requirement of 75% attendance in lab(s) because of some medical exigency in between the semester, the student maybe permitted to join/apply for additional lab provided: (i) The student has been advised complete bed rest/hospitalization for more than 03 weeks/ genuine medical cases known or reported to the higher authority by the stu-dent/parent or TG of the student. All such cases will be treated as special case which will be duly endorsed by the concerned HOD and recommended by Associate Direc-tor (Academics) approved by Director. **For all TYPE –V cases a fee of Rs. 4000/- will be charged per lab.**

Regulations for Additional Lab:

(i) From Academic session 2018-19 the conduct of Additional Lab will strictly follow Odd-Odd or Even-Even semester pattern except for Type-IV (i) and (iii) cases.
(ii) Maximum Number of labs which students can drop per semester (to join the lower semester parallel semester subject(s) classes) should not exceed 2 (two) per semester.
(iii) Maximum number of labs permitted to join in the additional lab is 2 (two) only.
(iv) The duration of Additional laboratory class is 3 hrs.
(v) Total number of labs to be conducted is 12 (minimum), (excluding lab examination day), not exceeding 6 (six) labs per week.
(vi) The students need to maintain a minimum 80% attendance in additional lab classes to become eligible for appearing in the final lab examination.
(vii) Students who drop the lab for attending the rejoin theory subject but clears the same in the supplemen-tary exam will not be allowed for lab drop.

2.16.2 Project/ Industrial Training

B.Tech

- ***Mini Project:*** In the VI Semester the students have to carry out a mini project under the supervision of a faculty member based on their area of interest. The project is taken as a part of the VI Semester curricu-lum and is carried out along with other subjects.

- Major Project: Flexibility of final year project duration will be of either six (06) months or one (01) year. The student who will opt for one year internship in academics/Industry will be befitted from this flexibility. The students are encouraged to carry out the major projects in industries.
- A faculty member is assigned as an internal guide to monitor the progress of a student carrying out their projects outside under external supervision.
- In case of in-house projects the monitoring is done on regular basis by the assigned project guide and the department.
- Project Diary/Log Book will be maintained for both the mini and major projects.

M.Tech

- Major Project: In III & IV Semester, the students do their M.Tech Thesis project under the supervision of faculty member(s) either in house or in the industry. If the project is done outside then there will be an external guide who will be attached to the student throughout his/ her project. Daily attendance in mandatory for in house candidate.
- Project Diary/Log Book will be maintained for both the mini and major projects.

BCA

- Project: In VI semester the students have to carry out a project under the supervision of the faculty member based on their area of interest. The project is taken as a part of the VI Semester curriculum and is carried out along with other subjects.
- The monitoring is done on regular basis by the assigned project guide and the department.
- Project Diary/Log Book will be maintained for project.

MCA

- Mini Project: In III Semester the students have to carry out a mini project under the supervision of a fac-ulty member based on their area of interest. The project is taken as a part of the V Semester curriculum and is carried out along with other subjects.
- Major Project: IV semester is focused entirely on major project for a duration of minimum 16 weeks. The students are encouraged to carry out the major projects in industries.
- A faculty member is assigned as an internal guide to monitor the progress of a student carrying out their projects outside under external supervision.
- In case of in-house project, the monitoring is done on regular basis by the assigned project guide and the department.
- Project Diary/Log Book should be maintained for both the mini and major projects.

M.Sc (Chem/Phy/Math)

- Project: M.Sc. students have to carry out a research project under the supervision of a faculty member based on their area of interest. The project is initiated on III semester and completed on IV semester.
- The monitoring is done on regular basis by the assigned project guide and the department.
- Project Diary/Log Book should be maintained for project.

BBA

- Summer Project: Summer project is done during vacation after IV Semester and the final presentation is

made during V Semester. Summer project is done at industries for a duration of 08-10 weeks.

MBA

- Summer Project: Summer project is done during vacation after II Semester and the final presentation is made during III Semester. Summer project is done at industries for a duration of 08-10 weeks.

B.Sc Physical Education and Sports

- The internship takes place in the V semester, while the project involves Comprehensive Student Teaching in School.
- Mini Project: VI semester is focused on Mini Project.

Industrial Training-I: B. Tech Students should have to undergo a summer training of minimum 2 weeksduration after the completion of the 4th semester, during the summer break/ vacation. It is evaluated inthe 5th semester.

Industrial Training-II: B. Tech Students should have to undergo a training of minimum 4 weeks duration after the completion of the 6th semester, during the summer break/ vacation. It is evaluated inthe 7th semester. Industrial Training: (MCA): MCA Students should have to undergo a training of minimum 4 weeks duration after the completion of the 2nd semester, during the summer break/ vacation. It is evaluated in the 3rd semester.

2.16.3 Extension of Mini/Major Projects

- If a student fails to complete the mini project in due time or if the progress is found unsatisfactory and rejected by the Departmental Review Committee, the project may be extended but needs to be evaluated prior to the declaration of the combined result of the end semester examinations. No extra fee will be charged.
- Similarly, the major projects can be extended but have to be submitted at least 30 days prior to the convocation date. No extra fee is applicable.
- Students getting extension in Mini/Major Projects for more than 6 months or declared fail in the project work or incomplete otherwise have to rejoin the project by paying an additional fee as mentioned below:

i) Fee for backlog in Mini Project: Rs 3000/-,

ii) Fee for backlog in Major Project: Rs 10,000/-.

2.16.4 Parallel Semester

- A student is allowed rejoin in parallel semester upto 35 credits (including the credits of current semester) without dropping lab subjects. Moreover, there should not be clash in timetable.
- While opting for lower semester papers, in case of any clash in the routine, one can skip the lab classes of the current semester and may appear for the same during the additional session of lab classes.
- A student rejoining will be treated as a fresh student in the parallel semester course. The previous attendance and internal marks for the subject(s) will not be taken into consideration. Once a student rejoins, he/she will not be allowed to withdraw the subject(s).
- Attendance for students in the rejoined subjects will be counted with effect from the day after the dec-

la-ration of examination results or commencement of parallel semester or whichever is later.

- Students having an internal of more than 18 in 1st year and 21 in higher semester are not allowed for parallel semester.

2.16.5 Supplementary Examination

Supplementary examinations are conducted after the end of the regular odd and even semester examinations, in the months of June/July and Dec/Jan, every academic year. In the June/July examination, students may appear in subjects of both odd and even semester backlogs. However, in Dec/Jan examination one can only appear for the odd semester backlogs. If an examination for the regular end semester coincides with a back-log subject, then the student can appear for the latter providedhe/she fulfills the minimum attendance criteria.

2.17 Change of Branch

- Allotment of a 1st-year student to a course is purely done on merit basis. Changes in their courses are possible only if there is any vacancy available after the completion of admission process.
- In case of branch change after the 2nd semester, the following criteria needs to be fulfilled:
- Students should not have any backlogs and have a CGPA $\geq$ 6.5.
- The branch change will take place subject to the vacancy in the particular branch. The top 10 eligible students are given the first priority.
- A change in course for a student from Sikkim quota is possible only if there is a vacancy in the desired branch/course in the same category. However, if there are no vacancies, the student may join as a general candidate.

2.18 Admission of Students from Other Universities

- The applicant should satisfy all the norms of the University.
- Admission process must be completed within 30 days of commencement of the semester.

2.19 Lateral Entry to Second Year of Engineering

- The eligibility criteria for admission in 2nd year of B.Tech course are as follows:
- Students who have completed 3 years of diploma course with a minimum of 45% marks (40% for SC/ ST/OBC students) related to a specific branch of engineering.
- Students who have completed 3 years of B.Sc. with mathematics (compulsory) with a minimum of 45% marks (40% for SC/ST/OBC students).
- Students should clear the institute entrance exams.

2.20 Handling of Malpractice during Examination: Acts of Malpractice: The following acts on the part of students during examination will be considered as act of malpractice:

2.20.1 Minor acts of Malpractice (Category I offences)

- Having in his possession or having access to any paper, books or notes or chits with content related to the subject of examination.

- Found receiving assistance from others or giving assistance to others.
- Copying from any paper, book or notes.
- Allowing any other candidate to copy from his answer books or found trying to copy from the neighbors.
- Disclosing identity by making peculiar marks in the answer books where the same act is prohibited.
- Found having any written matter on the person (palm, hand, leg, clothes etc.) or on any item in his/her possession (eg. Calculation, scale handkerchief etc.)
- Scribble the points on the question paper and /or pass on the same to some other examinee.
- Write any appeal on the answer book for more marks etc.
- Carrying or using mobile phones in examination hall. Found with mobile phone, smart watch, ear pods or any gadget that is prohibited in the examination hall.

2.20.2 Serious acts of Malpractice (Category II offences)

- Having in his possession or having access to any paper, books or notes or chits with content related to the subject of examination.
- Use of obscene or abusive language during the examination.
- Trying to cause disturbances to the fellow examines and/or proceedings of examinations.
- Tearing off or spoiling the sheets in the answer book.
- Destroying any evidence of malpractice.
- Second instance of minor act of malpractice by a student.

2.20.3 Very serious acts of Malpractice (Category III offences)

- Attempting any act that disturbs the sanctity or confidentiality involved in the examination process.
- Impersonation
- Third instance of category I Act of malpractice by a student
- Second instance of category II Act of malpractice by a student

2.20.4 Guidelines for the award of punishment:

Class Tests/Sessional:

- **Category I:** Scrapping of only paper in which the student is found indulging in malpractice and allowed to appear in Re-sessional.
- **Category II:** Scrapping only paper in which the student is found indulging in malpractice and not allowed to appear in Re-sessional examination.
- **Category III:** Scrapping of the paper in which student indulged in malpractice and will not be permitted to appear for remaining papers/subjects of the examination. Moreover, the student will not be allowed to appear in Re-Sessional Examination and may even lead to suspension for one year or rustication of the student depending upon gravity of offence.

» End Semester Examinations:

- **Category I:** The candidate shall be punished by scrapping of that subject. The students is allowed to appear for that subject in the next immediate exam.

- **Category II:** The candidate shall be punished with scrapping of that subject. He/She shall not be allowed to appear for that subject in the immediate next exam.
- **Category III:** The candidate shall be punished with

2.20.4.1 scrapping of that paper and will not be permitted to appear in the remaining subjects of that ex-am-ination. He or she shall not be eligible to appear in the immediate next exam in any subject of that ex-am-ination.

2.20.4.2 In case of students attempting any act that disturbs the sanctity or confidentiality involved in the ex-amination process or Impersonation, punishment shall be suspension for one year/rustication from the university.

2.21 ACADEMIC BANK OF CREDIT (ABC):

Academic Bank of Credit is a national-level credit-based, student-centric, and highly flexible digital platform for students to store their academic credits.

Academic Bank of Credit is an online repository of academic awards (Degrees, Certificates, Grade sheets/ Mark-sheets, etc.) lodged by the academic Institutions in the digital format.

The "Academic Bank of Credits" (ABC) is an educational digital platform created to facilitate students' seam-less mobility between or within degree-granting.

Students' academic documents into the issued documents section in an electronic form once uploaded through the Digilocker-ABC platform by the Academic Institution. Students enrol themselves on the ABC platform

and submit their APAAR ID.Students to register ABC at https://abc.gov.in/

2.22 TWINNING PROGRAM:

Transnational Education Program Models:

1. 2+2 Model (Undergraduate Program):

Under this program students enrolled with SMU for a four-year bachelor's degree program will undertake their study partly in SMU and partly in a Foreign Partner University, complying with relevant UGC/AICTE regulations. The program will be conducted as per the convenience of both the universities. The student would spend an initial 2 years in SMU and the remaining 2 years in a Foreign Partner University. The maximum credits that would be transferred from the Foreign Partner University will not exceed 30% of the total cred-

its for program regulated UGC and 40% AICTE regulated programs. The remaining required credits will be earned by the student from MOOC courses as approved by SMU. After successful completion of the program the degree will be awarded to students by SMU or jointly by both SMU and the Foreign Partner University.

2. 3+1+1 Model (Undergraduate+ Postgraduate Pathway):

Under this program students enrolled with SMU for a four year bachelor's degree program will undertake their three years of study at SMU complying with relevant UGC regulations and final year in a Foreign Partner University. The program will be conducted for the courses as per the convenience of both the universities

and after successful completion the bachelor's degree will be awarded to the student by SMU. The credits earned by the student will be transferred to SMU as per the SMU rules. The student will continue to study for one more year in the Foreign Partner University to earn his master's degree from the Foreign Partner University.

3. 1+1 Model (Postgraduate program):

Under this program M.Tech/ M.Sc/MBA students will study their first year at SMU and the final year in the foreign partner university. On successful completion the degree will be offered by SMU or jointly by both universities as per the prevailing AICTE/UGC guidelines.

SECTION –3
DESCRIPTION OF COURSES OFFERED

3.1 Schema of B. Tech First Year (Common) Course

PHYSICS GROUP					
B. TECH FIRST SEMESTER			**B. TECH SECOND SEMESTER**		
Sub Code	**Sub Name**	**C**	**Sub Code**	**Sub Name**	**C**
MA1101	Engineering Mathematics–I	4	MA1201	Engineering Mathematics–II	4
CE1001	Elements of Civil Engineering	3	ME 1001	Element of Mechanical Engineering	3
PH1001	Engineering Physics	3	CH1001	Engineering Chemistry	3
EC1001	Basic Electronics	3	EE1001	Element of Electrical engineering	3
BA1001	Communication Skills	2	CS1001	Computer Programming in C	4
ME1011	Engineering Graphics	2	CH1002	Environmental Science	2
ME 1012	Workshop Practice	1	CS1011	Computer Programming Lab	1
PH1011	Engineering Physics Lab	1	CH1011	Engineering Chemistry Lab	1
HS1041	Human Rights and Constitution of India (MLC)*	1	HS1042	Universal Human Values & Professional Ethics (MLC)*	1
Total credits for the Semester:		**20**	Total credits for the Semester:		**22**
*Mandatory Learning Course Note: Self-study course offered in online platform					

CHEMISTRY GROUP					
B. TECH FIRST SEMESTER			**B. TECH SECOND SEMESTER**		
Sub Code	**Sub Name**	**C**	**Sub Code**	**Sub Name**	**C**
MA1101	Engineering Mathematics–I	4	MA1201	Engineering Mathematics–II	4
ME 1001	Element of Mechanical Engineering	3	CE1001	Elements of Civil Engineering	3
CH1001	Engineering Chemistry	3	PH1001	Engineering Physics	3
EE1001	Element of Electrical engineering	3	EC1001	Basic Electronics	3
CS1001	Computer Programming in C	4	BA1001	Communication Skills	2
CH1002	Environmental Science	2	ME1011	Engineering Graphics	2
CS1011	Computer Programming Lab	1	ME 1012	Workshop Practice	1
CH1011	Engineering Chemistry Lab	1	PH1011	Engineering Physics Lab	1
HS1042	Universal Human Values & Professional Ethics (MLC)*	1	HS1041	Human Rights and Constitution of India (MLC)*	1
Total credits for the Semester:		**22**	Total credits for the Semester:		**20**
*Mandatory Learning Course Note: Self-study course offered in online platform					

3.1.1 Abstract Syllabus of B. Tech First Year (Common) Course

B. Tech – Semester I

MA1101: ENGINEERING MATHEMATICS –I, Credit: 4 (L-3, T-1, P-0)

Questions to be set: 05 (All Compulsory)

Course Objectives: This course introduced to develop foundational mathematical knowledge in calculus, multivariable analysis, linear algebra, infinite series and differential equations, enabling students to solve engineering problems and build analytical and problem-solving skills.

Pre-requisites: Basic knowledge on Functions, calculus and Matrice

Course Outcomes (CO): On successful completion of this course, students will be able to:

CO1: Apply the concepts of mean value theorems, indeterminate forms, and Taylor–Maclaurin series to analyze functions and solve mathematical and real-world problems involving single-variable calculus.

CO2: Associate and use the concepts of multi variable differential calculus in various problems.

CO3: Identify and examine the nature of various infinite series

CO4: Apply matrix algebra techniques to analyze and solve mathematical and real-life problems involving linear systems.

CO5: Identify and solve different types of Differential equations

Abstract Syllabus: This course builds a strong foundation in single and multivariable calculus, including limits, mean value theorems, Taylor series, and optimization techniques. It introduces infinite series and their convergence to support analytical problem-solving. The course also develops matrix algebra concepts such as eigenvalues, eigenvectors, and systems of linear equations. Additionally, it covers ordinary differential equations of first and higher order and their applications in engineering contexts.

Suggested Textbooks and References:

1. Erwin Kreyszig: Advanced Engineering Mathematics, Wiley, VIII Ed. ,2008
2. Shanti Narayan: Differential Calculus, S Chand & Company, 2016.
3. G. B. Thomas, Jr. and R. L. Finney: Calculus and Analytical Geometry, Addison Wesley, VI Ed., 1984
4. B. S. Grewal, Engineering Mathematics, Khanna Publisher,35th Ed., 2000.
5. R. K. Jain & S R K Iyengar: Advanced Engineering Mathematics, Narosa, Publs. VI Ed., 2016

ELEMENTS OF CIVIL ENGINEERING

CE1001: ELEMENTS OF CIVIL ENGINEERING, Credit: 3 (L-3, T-0, P-0)

Questions to be set: 05 (All Compulsory)

Course Objectives: To understand the fundamental concepts of mechanics of solids, building materials, soil mechanics, earthquake engineering, and surveying, and to apply these concepts in solving basic Civil engineering problems.

Pre-requisites: Physics & Maths at Class 12th level

Course Outcome: On successful completion of this course, students will be able to

CO 1: Describe the fundamental concepts and significance of mechanics of solids.
CO 2: Identify the applications of building materials in civil engineering works.
CO 3: Interpret the fundamentals of geotechnical engineering and foundation systems.
CO 4: Examine the significance of earthquake engineering and its effects on structures.
CO 5: Demonstrate the importance of surveying in civil engineering projects.

Abstract Syllabus: Resultant of a coplanar concurrent force system; centre of gravity, centroid of area, line of symmetry, location of centroid by direct integration of various sections; Moment of Inertia of plane figure with respect to an axis in its plane and perpendicular to its plane, parallel axis theorem, mass moment of inertia of symmetrical bodies; Cement, sand, stones, bricks, mortars; plain and reinforced concrete, structural steel; Basics of soil mechanics, three - phase system and important relationships in soil mechanics, basics of permeability and seepage, foundations and its types. Plate tectonics, earthquake waves, intensity and magnitude, seismic zones in India, earthquakes in India, causes and effects, earthquake resistant design philosophy; Basic concepts of surveying, levelling and area volume calculation for earthwork.

Suggested Textbooks and References:

1. Soil Mechanics and Foundations by Ashok Kumar Jain and B.C. Punmia
2. Engineering Mechanics by S.P. Timoshenko & D.H. Young
3. Concrete Technology: Theory and Practice by M. S. Shetty
4 Surveying and Levelling by N.N. Basak
5. Surveying Vol. I by B.C. Punmia
6. Earthquake Resistant Design of Structures by S. K. Duggal

PH10001 ENGINEERING PHYSICS, Credit: 3 (L-3, T-0, P-0)
Questions to be set: 05 (All Compulsory)
Course Objectives:

1. The course focuses at developing the basic background in physics that will be required by an engineering student to pursue his B.Tech. course. The fundamental concepts and applications of the laws of physics through real life applications are embodied in the course.
2. The course gives a thorough idea about oscillations, mechanical waves and wave optics required in different branches of engineering.
3. An introduction to the quantum mechanics is given so that the students can understand its application in their advanced courses in higher semesters.
4. The physics of band theory of solid is introduced which forms the backbone of electronics.
5. Overall, the course aims for use of an integrated system where mathematical and scientific skills such as measuring, predicting, formulating explanations, drawing conclusions, and solving problems that are used in technology and its development. Scientific information will be made with real life examples and laboratory experiments where possible.

Pre-requisites

Students are expected to have a basic understanding of the essential laws of physics, including waves, optics,

electromagnetism, and thermal phenomena, along with introductory knowledge of quantum ideas, atomic structure, and different states of matter. They should also be familiar with fundamental mathematical tools such as algebra, trigonometry, calculus, and differential equations. This background will enable them to grasp the concepts of wave optics, lasers, fiber optics, quantum mechanics, nanoscience, and solid-state physics introduced in the revised syllabus.

Course Outcomes: After the completion of the complete syllabus, the student will be able to:

CO1: Apply the principles of electromagnetic waves, interference, diffraction to analyse and solve wave optics related problems.

CO2: Understand the working principles of lasers and optical fibres and evaluate their practical applications.

CO3: Interpret the fundamental ideas of quantum mechanics and its applications.

CO4: Implement the idea of band theory to classify the electrical properties of different class of materials.

CO5: Understand the physics of nanoscience and its application.

Abstract Syllabus: This Engineering Physics syllabus covers wave optics, including electromagnetic waves, thin-film interference, Newton's rings, diffraction gratings, Bragg's law, and X-ray diffraction; lasers and fibre optics, covering laser characteristics, Einstein's coefficients, population inversion, He-Ne and semiconductor lasers, optical fibre principles, numerical aperture, step-index and graded-index fibres, attenuation, and applications; modern physics, encompassing black body radiation, Planck's hypothesis, the photoelectric effect, wave-particle duality, the uncertainty principle, wave functions, expectation values, the Schrödinger equation, particle-in-a-box, finite potential wells, and quantum tunnelling; solid-state physics, including molecular bonds, free electron theory, band theory, semiconductors, devices, and superconductivity; and an introduction to nanoscience, focusing on surface-area-to-volume ratio, quantum confinement, and top-down and bottom-up preparation techniques.

Suggested Textbooks and References:

1. Jewett & Serway, PHYSICS for Scientists and Engineers with Modern Physics; 7TH edition, Cengage Learning.
2. S. Mani Naidu, Engineering Physics. PEARSON, Ed. (2014)
3. M.N. Avadhanulu, P.G.Kshirsagar, Textbook of Engineering Physics, S Chand Publishing, New Delhi - 2012
4. A Marikani, Engineering Physics, PHI Learning Private Limited, Delhi – (2013)
5. Md.N. Khan and S. Panigrahi, Principles of Engineering Physics, Vol. 1(2016), Vol. 2(2017).
6. S.O. Pillai, and Sivakami, Textbook of Engineering Physics, New age International Publishers. (2013).

EC1001 BASIC ELECTRONICS, Credit: 3 (L-3, T-0, P-0)
Questions to be set: 05 (All Compulsory)

Course Objectives: This course provides the student with the fundamental skills to understand the basic of semiconductor and components like diode and Bipolar Junction Transistor. It will give some idea about the usages and role of electronics in our daily lives. Students will learn basics of digital electronics in this course. Students will be introduced with the basics of a communication system.

Pre-requisites: Basics of Semiconductor Physics

Course Outcomes (CO):

After successful completion of the course, students will be able to:

CO1: Explain the role of basic electronics in smart cities, IoT systems, computers, and modern communication systems using block-level understanding.
CO2: Differentiate between analog, digital, and mixed-signal electronic systems and identify suitable applications in real-world engineering problems.
CO3: Analyze the working principles, characteristics, and applications of semiconductor diodes and transistors used in high-speed, RF, power, and optoelectronic systems.
CO4: Design and analyze basic BJT-based amplifier and OP-AMP circuits for signal conditioning, amplification, and switching applications.
CO5: Apply number systems, Boolean algebra, and basic digital logic concepts to realize simple combinational digital circuits used in electronic systems.

Abstract Syllabus: This course introduces the fundamentals of modern electronic systems and their applications in smart technologies, communication networks, and Industry 4.0. It covers analog, digital, and mixed-signal systems, emphasizing sensing, processing, control, and communication functions. Students learn the operation and applications of semiconductor devices, including PN junction, Zener, Schottky, Varactor, Tunnel, and Avalanche diodes, as well as optoelectronic devices. The course also explores Bipolar Junction Transistors (BJTs), biasing methods, amplifier circuits, and operational amplifiers used in signal conditioning and switching applications. Fundamentals of number systems, Boolean algebra, logic gates, and basic combinational circuits are introduced. The course develops analytical and design skills while providing a strong foundation for advanced studies in electronics, communication systems, embedded systems, IoT, and VLSI design.

Suggested Textbooks and References:

1. Millman and Halkias, Integrated devices & Circuits (2e), PHI, 2017.
2. Robert L. Boylestad, Louis Nashelsky, Electronic Devices & Circuit Theory (11e), PHI 2012.
3. Malvino and Leach, Digital Principles & applications (7e), TMH 2010.
4. David A. Bell, Electronic Instrumentation and Measurements, PHI.
5. M. Morris Mano, Digital Logic and Computer Design, Pearson
6. George Kennedy & Bernard Davis, Electronic Communication Systems, McGraw-Hill
7. https://nptel.ac.in/courses/117103063

BA1001: Communication Skills, Credit: (L-1,T-0,P-2)

Questions to be set: 05 (All Compulsory)

Course Objectives:

- The course is intended to familiarize students with effective communication strategies by improving their verbal and non-verbal communication style.
- The course enhances interpersonal skills of students by focusing on the four macro communication skills LSRW (Listening, Speaking, Reading, and Writing), which makes them job and industry ready.

Pre-requisites: No departmental pre-requisites required

Course Outcomes (CO):

CO 1: To comprehend and apply a variety of communications (verbal/Non – verbal, formal/informal) techniques in the Professional Environment and to overcome the barriers of communication.

CO 2: To develop and expand writing skills through controlled and guided activities on vocabulary and comprehension.

CO 3: To write and draft different kinds of effective business correspondences such as reports, letters, memos,

email and resume with clarity and aptness.
CO 4: To demonstrate the ability to write error free while making an optimum use of correct Business Vocabulary and Grammar.
CO 5: To develop coherence, cohesion and competence in oral discourse through appropriate pronunciation.

Abstract Syllabus: Introduction and Understanding Communication Skills, 7 C's of Communication, Verbal Communication- 3 V's of Communication, Non Verbal Communication, Essay Writing, Expansion of iWdea, Comprehension, Vocab-ulary, Report Writing, Business Correspondence, E-mail Writing. Grammar, Class Room Practice / Language Lab (Not to be included in Question Paper), Oral Communication, Extempore, Group Discussion, Power Point Presentation, Role Play.

Text Books:

- Sen, Leena. Communication Skills. Prentice Hall of India, 20004.
- Raman, Menashi & Sharma, Sangeeta. Technical Communication – Principles and Practice (Oxford)
- Wren, R.C. & Martin, H. English Grammar and Composition (S Chand & Co Ltd)
- NPTEL Courses: Communication Skills, offered by IIT Khanpur. https://nptel.ac.in/courses/109104031

ME1011 ENGINEERING GRAPHICS, Credit: 2 (L-1, T-0, P-3)
Questions to be set: 05 (All Compulsory)
Course Objective: All graphic forms are very important for communication among engineers in all fields of technology. Engineering graphics is the language used by engineers to transfer ideas and information needed for the construction of technical devices and systems. This course is mainly used to develop graphic skills in students for communication of concepts, ideas and design of engineering products. To expose them to existing national standards related to technical drawings. This course introduces students to reading, understanding, and creating engineering drawings. The emphasis is on creating accurate, clear sketches, and drawings based on current professional practices. Standards and conventions are presented and their applications.

Pre-requisites: Basic concepts of dimensions, units and its conversion to other units, Polygons, Various shapes of solid.

Course Outcomes (CO):
On Successful Completion of the course students will be able to:

CO	STATEMENT
CO1	Demonstrate drafting practices, visualization and projection skills useful for conveying ideas, design and production of components and assemblies in engineering applications.
CO2	Analyze and draw the orthographic projections of points and lines.
CO3	Analyze and draw the orthographic projections of planes and solids.
CO4	Generate the sections of various engineering components.
CO5	Develop isometric projection, convert orthographic views to isometric views and vice versa for practical

engineering problems.

Abstract Syllabus: Projections of points and lines in different positions with respect to reference planes, true length and inclination of lines. Projection of planes and solids using change of position method. Sections of solids and related problem solving. Orthographic projection of simple machine parts. Isometric projection of prisms, pyramids, cylinders, cones, and simple engineering components.

Reference books:

1. Machine drawing by N.D.Bhatt, Charotar Publishing House Pvt.Ltd.
2. Engineering drawing and computer graphics by M. B. Shah & B.C.Rana, Pearson Education
3. Engineering Graphics by B. Agarwal & C. M. Agarwal, McGrawHill Publication
4. Textbook on Engineering Drawing by K.L. Narayana & P. Kannaiah, McGrawHill Publication.
5. https://nptel.ac.in/courses/105104148

ME1012- WORKSHOP PRACTICE, Credit:1 (L-0, T-0, P-3)

Carpentry, Plumbing, Fitting, Soldering

PH1011: ENGINEERING PHYSICS LAB, Credit: 1 (L-0, T-0, P-3)

12 labs are to be conducted on the basis of the syllabus of the corresponding theory paper.

(HS1041): HUMAN RIGHTS AND CONSTITUTION OF INDIA, Credit: 1

This course offers a comprehensive understanding of the evolution, framework and contemporary relevance of human rights. It begins by tracing the history and development of human rights and introduces learners to the International Bill of Rights, including the UDHR, ICCPR and ICESCR. The course examines human rights within the Indian context through and exploration of the Constituent Assembly Debates, Fundamental Rights, and the Directive Principles of State Policy. It further highlights key legislations enacted for the protection of human rights and analysis the role of institutional mechanisms such as courts and human rights commissions. India's international obligations towards safeguarding human rights are discussed alongside the significant contributions of civil society. The course concludes with an in-depth study of current human rights issues, encouraging critical reflection and informed engagement with ongoing challenges through case studies.

References:

- Halder, D., & Brahmbhatt, S.S (2021), Advancement of Human Rights in India Contemporary and Emerging Challenges. SAGE Publications Pvt Ltd.
- Ishay, M.R. (2008). The History of Human Rights from Ancient Times to the Globalization Era, University of California Press.
- Juss, S. (2021), Human Rights in India (Routledge Research in Human Rights Law). Routledge.
- Mahoney. J. (2007). The Challenge of Human Rights: Origin, Development and Significance. Wiley-Blackwell.

B. Tech – Semester II

MA102A1: ENGINEERING MATHEMATICS -II, Credit: 4 (L-3, T-1, P-0)

Questions to be set: 05 (All Compulsory)

Course Objectives: To provide students with knowledge of linear algebra, numerical methods, multivariable integration, analytical geometry, and Laplace transforms for developing mathematical modeling, computational, and engineering problem-solving skills.

Pre-requisites: MA1101, Two and Three dimensional Coordinate Geometry

Course Outcomes (CO): On successful completion of this course, students will be able to:

CO1: Apply the concepts to solve problems in linear algebra and its applications.

CO2: Analyze numerical data using finite differences, interpolation techniques, numerical differentiation and integration methods, and error analysis to obtain accurate approximate solutions to mathematical problems.

CO3: Determine roots of algebraic and transcendental equations and solutions of Ordinary Differential Equation by Numerical Methods.

CO4: Apply multi-variable integration techniques—including double and triple integrals, change of variables using Jacobians, and special functions (Beta and Gamma functions)—to solve problems related to area, volume, mass, center of gravity, and moment of inertia.

CO5: Analyze three-dimensional solids and apply Laplace transform techniques—including inverse transforms, step and periodic functions, and the convolution theorem—to solve engineering and mathematical problems.

Abstract Syllabus: This course advances concepts in linear algebra, including vector spaces, linear transformations, and orthogonality. It introduces numerical methods for interpolation, integration, root finding, and solving differential equations with error analysis. The course also covers multivariable integration, special functions, and their applications to physical and engineering problems. Additionally, it includes analytical geometry of three-dimensional solids and Laplace transform techniques for problem-solving.

Suggested Textbooks and References:

1. Erwin Kreyszig: Advanced Engineering Mathematics, Wiley, VIII Ed. ,2008
2. Shanti Narayan: Differential Calculus, S Chand & Company, 2016.
3. G. B. Thomas, Jr. and R. L. Finney: Calculus and Analytical Geometry, Addison Wesley, VI Ed., 1984
4. B. S. Grewal, Engineering Mathematics, Khanna Publisher,35th Ed., 2000.
5. R. K. Jain & S R K Iyengar: Advanced Engineering Mathematics, Narosa, Publs. VI Ed., 2016.
6. S. S. Sastry: Introductory Method Numerical Analysis. PHI.
7. K Hoffman and R Kunze; Linear Algebra; Prentice-Hall of India, Pvt Ltd

ME1001: ELEMENTS OF MECHANICAL ENGINEERING, Credit: 3 (L-3, T-0, P-0)

Questions to be set: 05 (All Compulsory)

Course Objective: The objective of this course is to inculcate the basic concepts and principles of mechanical engineering subjects such as thermodynamics, fluid mechanics, I.C. Engines, power transmission, welding, and machine tools.

Pre-requisites: Knowledge of Physics and Mathematics.

Course Outcome: On successful completion of this course, students will be able to

CO1 Describe the basic concept of Thermodynamics and its application in the field of energy technology.
CO2 Explain the concept of different types of IC engines, working of 2 stroke and 4 stroke petrol and diesel engines.
CO3 Illustrate and understand the behavior of fluid flow.
CO4 Distinguish the application and working of Belt drives, chain drives. Gear drives and gear trains (Simple and compound gear trains).
CO5 To understand the various machine tools and machining process.

Abstract Syllabus: Thermodynamics: Systems, surroundings, properties, processes, heat, work and energy, first and second laws of thermodynamics, steady flow and non-flow energy equations, simple numericals. IC Engines: Classification, Otto and Diesel cycles, SI and CI engines, working of 2-stroke and 4-stroke petrol and diesel engines, efficiency and numericals. Fluid Mechanics: Fluid properties, viscosity, Newton's law of viscosity, Pascal's law, hydrostatic law, fluid kinematics and dynamics, simple numericals. Transmission of Power: Belt drives, velocity ratio, slip in belts, gear drives, spur gears, simple and compound gear trains, simple calculations. Welding & Machine Tools: Welding processes, welding rods and flux. Introduction to machine tools, cutting speed, feed and depth of cut. Lathe and drilling machine operations.

Reference books:

1. Hazra Choudhury & Hazra Choudhury – Elements of Workshop Technology vol. I & II – Media Promoters and Publishers Pvt. Ltd.
2. Gupta – Basic Mechanical Engineering – Dhanpat Rai & Co.
3. Gopalakrishna – Mechanical Engineering Science – Subhash Publications.
4. R. K. Bansal- A Txt Book of Fluid Mechanics and Hydraulic Machine; Laxmi Publications.
5. Roy, Hazra Choudhury & Hazra Choudhury- Elements of Mechanical Engineering; Media Promoters and Publishers Pvt. Ltd.
6. Mathur & Domkundwar - Elements of Mechanical Engineering; Dhanpat Rai & Co.

CH1001: ENGINEERING CHEMISTRY, Credit: 3 (L-3, T-0, P-0)
Questions to be set: 05 (All Compulsory)
Course Objectives: The course will give students fundamental concepts of electrochemistry, corrosion, fuels, polymers and liquid crystal and their applications in various industries
Pre-requisites: Chemistry at Class 12th level
Course Outcome: On successful completion of this course, students will be able to
CO1: Describe the fundamental principles of battery technology, evaluate their limitations and sustainability concerns, and explore the applications and ethical considerations in battery production and usage.
CO2: Describe the microstructure and behaviour of polymers, evaluate high-performance and biodegradable polymers for sustainability, understand polymer processing techniques and emerging applications.
CO3: Assess the properties and synthesis of nanomaterials and explore the principles and innovations in display technologies.

CO4: Understand the classification of materials based on their electrical properties, understand band theory and conductivity, analyse magnetic and optical properties, and evaluate sensors for environmental and medical applications.
CO5: Understand role of materials in engineering field, qualitative and quantitative analysis, Understand potentiometry, conductometry, Beer-Lambert's law and its applications, principles of flame photometry.

Abstract Syllabus: Battery technology: Introduction to batteries, Emerging Battery Technologies, Limitations and Sustainability Concerns etc. Chemistry of Engineering Materials I: Introduction to polymers, Engineering polymers, Functional polymers, Polymers for sustainability etc. Chemistry of Engineering Materials II: Nanomaterials, Liquid Crystal Displays (LCDs) etc. Chemistry of Electronic Materials : Classification of materials , Magnetic properties etc. Analytical methods: Analytical methods etc.

Suggested Textbooks and References:
1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. New Delhi, 2013- 2nd Edition.
2. Engineering Chemistry, Satyaprakash& Manisha Agrawal, Khanna Book Publishing, Delhi
3. A Text Book of Engg. Chemistry, Shashi Chawla, Dhanpat Rai & Co. (P) Ltd.
4. Essentials of Physical Chemistry, Bahl&Tuli, S.Chand Publishing
5. Applied Chemistry, Sunita Rattan, Kataria 5. Engineering Chemistry, Baskar, Wiley

EE1001: ELEMENTS OF ELECTRICAL ENGINEERING, Credit: 3 (L-3, T-0, P-0)
Questions to be set: 05 (All Compulsory)
Course Objectives: To analyse DC and AC circuits under steady and transient operation. To gain basic understanding of electrical machines and power system.
Pre-requisites: Physics & Maths at Class 12th level

Course Outcome:
On successful completion of this course, students will be able to
CO1: Analyse DC circuits using network theorems, mesh and nodal analysis, and transient response of RL, RC, and RLC circuits.
CO2: Analyse single-phase AC circuits using phasor techniques and evaluate power, power factor, and resonance.
CO3: Analyse balanced and unbalanced three-phase circuits and measure power using the two-wattmeter method.
CO4: Explain magnetic circuits, electromagnetic induction, coupled circuits, and basic structure of electrical power systems.
CO5: Explain operation and characteristics of transformers and electrical machines and understand electrical energy measurement.

Abstract Syllabus: DC Circuits including circuit elements, source transformation, network reduction (star–delta), mesh and nodal analysis, network theorems (Superposition, Thevenin's, Maximum Power Transfer), and

transient analysis of RL, RC, and RLC circuits; Single-Phase AC Circuits covering sinusoidal waveforms, RMS and average values, phasor representation, steady-state analysis of RL, RC, RLC circuits, impedance, admittance, power concepts, power factor, and resonance; Three-Phase AC Circuits including generation, phase sequence, star–delta connections, analysis of balanced and unbalanced loads, and power measurement using two-wattmeter method; Magnetic Circuits and Power System Basics including MMF, flux, reluctance, inductance, coupled circuits, and overview of generation, transmission, distribution, and utilization; Transformers and Electrical Machines including transformer operation and phasor diagrams, DC motors, induction motors, applications, and energy measurement using digital energy meters.

Suggested Textbooks and References:

1. Fundamentals of Electric Circuits by Charles K. Alexander & Matthew N.O. Sadiku, 7th Edition, McGraw-Hill, 2022.
2. Fundamental Principles of Electric and Magnetic Circuits by Fred Alan Fish, Legare Street Press, 2022.
3. Engineering Circuit Analysis by William H. Hayt Jr., Jack E. Kemmerly & Steven M. Durbin, 9th Edition, McGraw-Hill, 2020.
4. Electric Machinery and Power System Fundamentals by Stephen Chapman, McGraw-Hill, 2002.
5. https://nptel.ac.in/courses/108105112

CS1001: COMPUTER PROGRAMMING IN C, Credit: 4 (L-3, T-1, P-0)

Questions to be set: 05 (All Compulsory)

Course Objectives: The main aim of the course is to teach basic computer programming concepts and apply them to computer-based problem solving methods, to teach the students problem solving using C and to introduce them to different data structures like stacks, lists, etc.

Pre-requisites: There are no specific prerequisite for this course

Course Outcome:

On successful completion of this course, students will be able to

CO1: Describe the working of hardware and software components necessary for functioning of a computer.

CO2: Describe the fundamentals of programming syntax and its definition by example of C language.

CO3: Explain the concepts of branching, loop construct, functions, pointers and structures of C language.

CO4: Write moderately difficult program for a specific goal.

CO5: Infer the syntax errors prompted by the C compiler and visualize the output of given code.

Abstract Syllabus: The course introduces the fundamentals of C programming, including the basic structure of a C program, programming style, compilation, execution, and sample applications. It covers character sets, tokens, keywords, identifiers, constants, variables, data types, symbolic constants, and storage qualifiers such as const and volatile. Students learn various operators, arithmetic expressions, operator precedence, associativity, type conversion, and mathematical functions, along with formatted and unformatted input/output operations. The syllabus also includes decision-making constructs such as if, if-else, switch, and looping statements including

while, do-while, and for loops. Array concepts, string handling, and standard string manipulation functions are discussed in detail. The course introduces pointers, pointer arithmetic, pointers with arrays and strings, and arrays of pointers. Function-related topics include user-defined functions, recursion, parameter passing, scope and lifetime of variables, function pointers, and preprocessor directives. Advanced data structures such as structures, unions, nested structures and arrays of structures are covered. Finally, students learn file handling techniques, including file input/output operations, error handling, and the integration of structures and pointers in practical programming applications.

Suggested Textbooks and References:

1. Programming in ANSI C by E. Balaguruswamy, 9th Edition, 2023, McGrawHill.
2. Mastering in C by K. Venugopal, 2015, McGrawHill.
3. Programming in C by Byron S. Gottfried, 4th Edition, 2017, Schaum's Outline Series.
4. The C Programming Language by Brian W Kerningham and Dennis Ritchie, 2nd Edition, 1988, PHI.
5. Let Us C by Yashwant Kanetkar, 19th Edition, 2024, BPB Publishers.

CS1002: ENVIRONMENTAL SCIENCE, Credit: 2 (L-1, T-0, P-2)

Questions to be set: 05 (All Compulsory)

Course Objectives: The course exposes students to various types of environmental problems, their mitigation and prevention. It aims to generate awareness and active participation in environment related issues in workplace and society

Pre-requisites: There are no specific prerequisite for this course

Course Outcome:

On successful completion of this course, students will be able to

CO1: Identify different environmental degradation and the underlying reasons.

CO2: Identify different physical components like atmosphere, hydrosphere and Lithosphere.

CO3: Analyse structure and functions of ecosystem.

CO4: Apply formulas of Biochemical Oxygen Demand in real life problem solving.

CO5: Assess global warming & adiabatic lapse rate & stable & unstable atmosphere.

Abstract Syllabus: Fundamentals of Environmental Science: Current environmental issues, socio-economic reasons behind degradation of environment, Environmental Science as an interdisciplinary subject, Difference between Environmental Science and Ecology etc. Atmosphere, Lithosphere and Hydrosphere: Lithosphere and Aesthenosphere. Physico-chemical properties of crust, mantle and core, theory of plate tectonics, Types of rocks, Polarity of water etc. Ecology: Components and functions of Ecosystem, Cybernetics in ecosystem and analysis of Technoecosytem as case study etc. Biochemical Oxygen Demand: Carbonaceous BOD test, BOD formulas & numerical. BOD numerical practice etc. Global Environmental Issue: Simple global temperature, Green-house effect, global warming, Mathematical model of dry adiabatic lapse rate etc.

Suggested Textbooks and References:

1. Introduction to Environmental Engineering and Science by Gilbert M Masters & Wendell P. Ela, 3rd Edition,

PHI Learning Private Limited, 2011.
2. Environmental Science by G. Tyler Miller & Scott E. Spoolman, 14th Edition, Cengage Learning, 2017.
3. Fundamentals of Ecology by Eugene P. Odum & Garry W. Barrett, 5th Edition, Thomson Brooks/Cole, 2011.
4 Environmental Geology by Barbara W. Murck, Brian J. Skinner & Stephen C. Porter, 5th Edition, John Wiley & Sons, INC. 2011
5 Biological Science by D. J. Taylor, N.P.O. Green & G. W. Stout, 3rd Edition, Cambridge University Press, 2012

CS1011, COMPUTER PROGRAMMING LAB Credit: 1 (L-0, T-0, P-3)

12 labs are to be conducted on the basis of the syllabus of the corresponding theory paper.

CH1011, ENGINEERING CHEMISTRY LAB Credit: 1 (L-0, T-0, P-3)

12 labs are to be conducted on the basis of the syllabus of the corresponding theory paper.

(HS1042): UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS

Significance and Basic Guidelines of Value Education, Types of Human Values, Process of Self Exploration and Natural Acceptance, Basic Human Aspirations, Continuous Happiness and Prosperity. Right Understanding, the Basic Requirements for Fulfilment of Aspirations with their Correct Priorities. Understanding Values in Human Relationships Understanding and Living in Harmony at Various Levels, Understanding the needs of self and body. Meditation and Health, Relevance and Scope of Professional Ethics, Definition of a Professional, Professionalism. Professional Code of Conduct, Professional Attributes, Civic Virtues Professionals as Social Experimenters, Building character in workplace, Responsible Professionalism, Role of Professionals in the Construction of Safe and Progressive Society.

References:

- Human Values and Professional Ethics by RR Gaur, R Sangai, GP Bagaria, Excel Books, New Delhi 2010
- Human Values, A.N. Tripathi, New Age Intl, Publishers, New Delhi 2004.
- Professional Ethics by R. Subramaniam – Oxford Publications, New Delhi, 2017.
- Engineering Ethics by Harris, Pritchard, and Rabins, Cengage Learning, New Delhi 2012.

3.2 Schema of Higher Semester (III to VIII) of all B. Tech Courses: The detailed syllabus is displayed on SMIT Website

3.2.1 B. Tech Civil Engineering (CE)

THIRD SEMESTER				FOURTH SEMESTER			
Year	Sub. Code	Subject Name	**C**	Year	Sub. Code	Subject Name	**C**
II	MA 2101	Engineering Mathematics - III	4	II	CE2201	Numerical Methods and Statistics	4
	CE2101	Strength of Materials	4		CE2202	Highway Engineering	4
	CE2102	Fluid Mechanics & Hydraulics	4		CE2203	Structural Analysis - I	4
	CE2103	Building Materials & Concrete Technology	4		CE2204	Geotechnical Engineering - I	4
	CE2104	Surveying & Geomatics	4		CE2205	Public Health Engineering	4
	CE2121	Planning & CA Drawing of Buildings	1		CE2223	Fluid Mechanics Lab	1
	CE2122	Material Testing & Concrete Lab	1		CE2224	Geotechnical Lab	1
	CE2124	Surveying Lab	1		CE2225	Environmental Engineering Lab	1
		Total	23			Total	23

FIFTH SEMESTER				SIXTH SEMESTER			
Year	Sub. Code	Subject Name	**C**	Year	Sub. Code	Subject Name	**C**
III	CE3101	Construction Planning and Management	3	III	CE3201	Engineering Hydrology	4
	CE3102	Structural Analysis - II	4		CE3202	Estimating, Costing and Valuation	4
	CE3103	Design of RC Structures	4		CE3203	Design of Steel Structures	4
	CE3104	Engineering Geology	4		CE43XX	PROGRAM ELECTIVE – II	3
	CE43XX	PROGRAM ELECTIVE - I	3		CE43XX	PROGRAM ELECTIVE - III	3
	OE30XX	OPEN ELECTIVE – (MLC)***	3		OE30XX	OPEN ELECTIVE – II (MLC)***	3
		Total	21			Total	21

SEVENTH SEMESTER	EIGHTH SEMESTER

Year	Sub. Code	Subject Name	C	Year	Sub. Code	Subject Name	C
IV	CE43XX	PROGRAM ELECTIVE – IV	3	IV	CE4089	INTERNSHIP (MLC)	3
	CE43XX	PROGRAM ELECTIVE – V	3		CE4299	Estimating, Costing & Valuation	4
	CE43XX	PROGRAM ELECTIVE – VI	3				
	CE43XX	PROGRAM ELECTIVE - VII	3				
	CE4099	CAPSTONE PROJECT (One Yr) #					24
	OE30XX	OPEN ELECTIVE – III (MLC)***	3		OE30XX	OPEN ELECTIVE – II (MLC)***	3
					CE34XX/ 50XX	Minor*/ Honours Course 1^	4
					CE34XX/ 50XX	Minor*/ Honours Course 2^	4
					CE34XX/ 50XX	Minor*/ Honours Course 3^	4
					CE4499	Minor Specialisation Project*	8
					CE5099	CAPSTONE PROJECT (Honours)^	20
		Total	15/3#			Total	15/ 27# / 35*^

Appropriate subject code depends on selection of program elective.

**** Industrial Training will be conducted during the summer vacations after IV and VI semester and evaluated in V and VII semester respectively.**

List of Program Elective:

LIST OF PROGRAM ELECTIVES					
PROGRAMME ELECTIVE –I (5th Semester)			PROGRAMME ELECTIVE –II (6th Semester)		
Sub. Code	Subject Name	C	Sub. Code	Subject Name	C
CE4301	Numerical Methods & Statistics	3	CE4321	Advanced Concrete Technology	3
CE4302	Solid waste Management	3	CE4322	Waste Water Engineering	3
CE4303	Air Pollution and Control	3	CE4323	Railways, Airports, And Tunneling Engineering	3
CE4304	Open Channel Flow	3	CE4324	Engineering Seismology	3
PROGRAMME ELECTIVE –III (6th Semester)			PROGRAMME ELECTIVE –IV (7th Semester)		
CE4331	Irrigation Engineering	3	CE4341	Remote Sensing and GIS	3
CE4332	Ground Improvement Techniques	3	CE4342	Advanced Structural Analysis	3
CE4333	Design of Hydraulic Structure	3	CE4343	Structural Dynamics & Earthquake Engineering	3
PROGRAMME ELECTIVE –V (7th Semester)			PROGRAMME ELECTIVE –VI (7th Semester)		
CE4351	Advanced Design of RC Structure	3	CE4361	Finite Element Analysis	3
CE4352	Bridge Engineering	3	CE4362	Disaster Management	3
CE4353	Pre-Stressed Concrete	3	CE4363	Ground Water Engineering	3
CE4354	Maintenance & Repair of Concrete Structures	3	CE4364	Accounting and Finance for Civil Engineers	3
PROGRAMME ELECTIVE –VII (7th Semester)					
CE4371	Optimization Technique	3			
CE4372	Sustainable Transport System	3			
CE 373	Safety in Construction	3			

3.2.2 B. Tech Computer Science and Engineering (CSE)

Year	Semester III			Semester IV		
	Sub. Code	Subject Name	C	Sub. Code	Subject Name	C
II	MA2102	Mathematics for Computer Science - I	4	MA2202	Mathematics for Computer Science-II	4
	CS2101	Data Structures	4	CS2201	Automata Theory & Compiler Design	4
	CS2102	Object Oriented Programming Systems	4	CS2202	Design and Analysis of Algorithms	4
	CS2103	Digital Design & Comp. Org.	4	CS2203	Computer Networks	4
	CS2104	Database Mgmt. Systems	4	CS2204	Operating System	4
	CS2121	Data Structures Lab	1	CS2221	DAA Lab	1
	CS2122	OOPS Lab	1	CS2222	CN Lab	1
	CS2123	DBMS Lab	1	CS2223	OS Lab	1
		TOTAL (29 Hrs. / Week)	23		TOTAL (29 Hrs. / Week)	23

Year	Semester V			Semester VI		
	Sub. Code	Subject Name	C	Sub. Code	Subject Name	C
III	MS3101	Industrial Management	3	CS32XX	PC (Specialization) – 4	4
	CS31XX	PC (Specialization) – 1	4	CS32XX	PC (Specialization) – 5	4
	CS31XX	PC (Specialization) – 2	4	CS32XX	PC (Specialization) – 6	4
	CS31XX	PC (Specialization) – 3	4	CS43XX	PROGRAM ELECTIVE – 2	3
	CS43XX	PROGRAM ELECTIVE – 1	3	CS43XX	PROGRAM ELECTIVE – 3	3
	OE30XX	OPEN ELECTIVE – I (MLC)	3	OE30XX	OPEN ELECTIVE – II (MLC)	3
		TOTAL (29 Hrs. / Week)	21		TOTAL (29 Hrs. / Week)	21

Year	Semester VII			Semester VIII		
	Sub. Code	Subject Name	C	Sub. Code	Subject Name	C
IV	CS43XX	PROGRAM ELECTIVE – 4	3	CS4089	INTERNSHIP (MLC)	3
	CS43XX	PROGRAM ELECTIVE – 5	3	CS4299	CAPSTONE PROJECT (ONE SEM)	12
	CS43XX	PROGRAM ELECTIVE – 6	3			
	CS43XX	PROGRAM ELECTIVE – 7	3			
	CS4099	CAPSTONE PROJECT (1 YEAR) #				24
	OE30XX	OPEN ELECTIVE – II (MLC)	3			
				CS34XX / CS50XX	MINOR*/HONOURS COURSE 1^	4

				CS34XX / CS50XX	MINOR*/HONOURS COURSE 2^	4
				CS34XX / CS50XX	MINOR*/HONOURS COURSE 3^	4
				CS4499	MINOR PROJECT	8
				CS5099	CAPSTONE PROJECT (HONOURS)^	20
		Total	15/3		Total	15/27#/35*^

PROGRAM SPECIALIZATIONS

Artificial Intelligence & Machine Learning

- **CS3101 - Artificial Intelligence**
- **CS3104 - Machine Learning**
- **CS3105 - Natural Language Processing**
- **CS3201 - Deep Learning**
- **CS3203 - Mathematical Foundations for Machine Learning**
- **CS3206 – Generative AI**

Data Science

- **CS3102 - Introduction to Data Science**
- **CS3104 - Machine Learning**
- **CS3106 - Data Privacy & Security**
- **CS3201 - Deep Learning**
- **CS3204 - Big Data Analytics**
- **CS3207 - Text Analytics & Natural Language Processing**

Cyber Security

- **CS3103 - Cryptography & Network Security**
- **CS3104 - Machine Learning**
- **CS3107 - Introduction to Cyber Security**
- **CS3202 - Ethical Hacking**
- **CS3205 - Cyber Forensics & Law**
- **CS3208 - Blockchain Technology**

List of Program Electives:

3rd YEAR (5th & 6th Semesters)			
Code	Subject Name	Code	Subject Name
CS4301	Latest Trends in Computer Science	CS4315	Remote Sensing
CS4302	Computer Vision	CS4316	VLSI System Design
CS4303	ARM controller	CS4317	Internet Technology and Society
CS4304	Remote Sensing and Geographic Information System	CS4318	Computational Geometry
CS4305	Bio Inspired Computing	CS4319	DevOps Engineering
CS4306	Queueing Theory and Modelling	CS4320	Agile

CS4307	Software Quality Management	CS4321	MERN Stack Development
CS4308	Speech and Natural Language Processing	CS4322	Internet of Things
CS4309	Fault Tolerant Computing	CS4323	Artificial Neural Network
CS4310	Parallel and Distributed Algorithm	CS4324	Cloud Computing
CS4311	Ad-hoc Wireless Networks	CS4325	Advanced Computer Network
CS4312	Real Time Systems	CS4326	Wireless Sensor Network
CS4313	Engineering Research Methodology	CS4327	Object Oriented Analysis and Design
CS4314	Web Content Management and Web 3.0	CS4328	Software Engineering

4th YEAR (7th & 8th Semesters)			
Code	Subject Name	Code	Subject Name
CS4350	JAVA Programming	CS4362	Distributed Systems
CS4351	User Interface & User Experience (UI/UX) Design	CS4363	Large Language Models
CS4352	Digital Signal Processing	CS4364	Computational Number Theory
CS4353	Graph Theory	CS4365	High Performance Computing
CS4354	Social Network Analysis	CS4366	Bio-Inspired Computing
CS4355	Cyber-Physical Systems	CS4367	Future Internet Architecture
CS4356	Advanced Computer Architecture	CS4368	Quantum Computing
CS4357	Design Thinking	CS4369	Optimization Techniques
CS4358	Autonomous Mobile Robotics	CS4370	Human Computer Interaction
CS4359	Soft Computing	CS4371	Augmented Reality
CS4360	Advanced Algorithms	CS4372	Pattern Recognition
CS4361	Reinforcement Learning	CS4373	Mobile Computing

3.2.3 B. B. Tech Electronics and Communication Engineering (ECE)

Year	Semester III			Semester IV		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
II	MA2103	Mathematics for Electrical Engineers - I	4	MA2203	Mathematics for Electrical Engineers - II	4
	ES2101	Circuits and Signals	4	ES2201	Digital Signal Processing	4
	ES2102	Analog System Design	4	EC2201	Linear and Digital Control Systems	4
	ES2103	Digital System Design	4	ES2202	Microcontrollers	4
	ES2104	Electromagnetic Theory	4	EC2202	Computer Organization and Architecture	4
	ES2121	Circuits and Signals Lab	1	ES2221	Control Systems Lab	1
	ES2122	Analog System Design Lab	1	ES2222	Microprocessor and Microcontroller Lab	1
	ES2123	Digital System Design Lab	1	ES2223	Digital Signal Processing Lab	1
		TOTAL (29 Hrs. / Week)	23		TOTAL (29 Hrs. / Week)	23
Total Contact Hours (L + T + P) = 29				Total Contact Hours (L + T + P) = 29		

Year	Semester V			Semester VI		
III	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	MS3101	Industrial Management	3		PC (Specialization) – 4	4
		PC (Specialization) – 1	4		PC (Specialization) – 5	4
		PC (Specialization) – 2	4		PC (Specialization) – 6	4
		PC (Specialization) – 3	4	CS43XX	PROGRAM ELECTIVE – 2	3
	CS43XX	PROGRAM ELECTIVE – 1	3	CS43XX	PROGRAM ELECTIVE – 3	3
	OE30XX	OPEN ELECTIVE – I (MLC)	3	OE30XX	OPEN ELECTIVE – II (MLC)	3
		TOTAL (29 Hrs. / Week)	21		TOTAL (29 Hrs. / Week)	21

Year	Semester VII			Semester VIII		
IV	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	EC43XX	PROGRAM ELECTIVE - 4	3	EC4089	Internship (MLC)	3
	EC43XX	PROGRAM ELECTIVE - 5	3	EC4299	CAPSTONE PROJECT (1 Sem)	12
	EC43XX	PROGRAM ELECTIVE - 6	3			
	EC43XX	PROGRAM ELECTIVE - 7	3			
	EC4099	CAPSTONE PROJECT (1 YEAR) #				24
	OE30XX	Open Elective-3 (MLC)		EC34XX/ EC50XX	Minor*/ Honours Course 1^	4
				EC34XX/ EC50XX	Minor*/ Honours Course 2^	4
				EC34XX/ EC50XX	Minor*/ Honours Course 3^	8
				EC50XX	Minor*/ Honours Course 3^	4
				EC4499	Minor Project*	8
				EC5099	CAPSTONE PRO-JECT(Honours)^	20
		Total	15/3		TOTAL (HOURS/WEEK)	15/27#/35^*

List of Program Electives:

Program Electives - 3rd Year		
Subject Code	Subject Name	C
EC4301	Introduction to Complex variables	3
EC4302	Advanced Electronic Devices	3
EC4303	Power Electronics	3
EC4304	Wireless Sensor Network	3

EC4305	Signal Processing for Communication	3
EC4306	Mobile Communication	3
EC4307	Nano Electronic Devices and Materials	3
EC4308	Advance Digital Signal Processing	3
EC4309	Optimization Techniques	3
EC4310	Advanced Digital Communication	3
EC4311	FPGA based System Design	3

Program Electives - 3rd Year		
Subject Code	Subject Name	C
EC4312	Modern Wireless Communication System	3
EC4313	Pattern Recognition	3
EC4314	Speech Processing	3
EC4315	VLSI Fabrication Technology	3
EC4316	Advanced Antenna Design	3
EC4317	Mixed-Signal VLSI Design	3
EC4318	Digital Image Processing	3
EC4319	Coding for MIMO Communication	3
EC4320	Testing and Verification of VLSI Circuits	3
EC4321	Flexible Electronics	3
EC4322	Photonic Material and Devices for Integrated Photonic	3
EC4323	System-on-Chip (SoC) Design	3
EC4324	Applied Optimization For Wireless, Machine Learning, Big Data	3

3.2.4 B. Tech Electronics Engineering (VLSI Design and Technology)

Year	Semester III			Semester IV		
II	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	MA2103	Mathematics for Electrical Engineers - I	4	MA2203	Mathematics for Electronics Engineers - II	4
	ES2101	Circuits and Signals	4	ES2201	Digital Signal Processing	4
	ES2102	Analog System Design	4	EC2201	Linear and Digital Control Systems	4
	ES2103	Digital System Design	4	ES2202	Microcontrollers	4
	ES2104	Electromagnetic Theory	4	EC2202	Computer Organization and Architecture	4
	ES2121	Circuits and Signals Lab	1	ES2221	Control Systems Lab.	1
	ES2122	Analog System Design Lab	1	ES2222	Microcontroller Lab.	1
	ES2123	Digital System Design Lab	1	ES2223	Digital Signal Processing Lab.	1
		TOTAL (29 Hrs. / Week)	23		TOTAL (29 Hrs. / Week)	23
Total Contact Hours (L + T + P) = 29				Total Contact Hours (L + T + P) = 29		

Year	Semester V			Semester VI		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
III	MS3101	Industrial Management	3	VT3201	Semiconductor Materials Synthesis and Characterization	3
	VT3101	Introduction to Micro-Fabrication	3	VT3202	VLSI Verification and Testing	3
	VT202	Physics of Semiconductors	4	EC3203	Microelectronics And VLSI Design	4
	VT3203	Embedded System Design	3	VT43XX	Program Elective - II	3
	VT43XX	Program Elective - I	3	VT43XX	Program Elective - III	3
	VT3121	Embedded System Design Lab.	1	VT3221	Semiconductor Fabrication and Characterization Lab.	1
	VT3122	VLSI Devices and System Lab.	1	VT3222	VLSI / IC Design Lab.	1
	OE30XX	Open Elective -1 (MLC)	3	OE30XX	Open Elective - II (MLC)	3
		TOTAL (25 Hrs. / Week)	21		TOTAL (25 Hrs. / Week)	21

Year	Semester VII			Semester VIII		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
IV	VT43XX	Program Elective - IV	3	VT4089	Internship (MLC)	3
	VT43XX	Program Elective - V	3	VT4299	CAPSTONE PROJECT (1 Sem)	12
	VT43XX	Program Elective - VI	3			
	VT43XX	Program Elective - VII	3			
	EC4099	CAPSTONE PROJECT (1 YEAR) #				24
	OE30XX	Open Elective-3 (MLC)		VT34XX/	Minor*/ Honours Course 1^	4
				VT50XX	Minor*/ Honours Course 2^	4
				VT34XX/	Minor*/ Honours Course 3^	8
				VT4499	Minor Project*	8
				VT5099	CAPSTONE PROJECT(Honours)^	20
		Total	15/3		TOTAL (HOURS/WEEK)	15/27#/35^*

Program Electives - 3rd Year		
Subject Code	Subject Name	C
VT4301	Nano Electronic Devices and Materials	3
VT4302	Semiconductor Device Modelling	3
VT4303	Low Power VLSI Design	3
VT4304	VLSI Fabrication Technology	3

VT4305	Advance VLSI Design and Applications	3
VT4306	Semiconductor Equipment Design and Technology	3
VT4307	Mixed-Signal VLSI Design	3
VT4308	Nano Devices and Nano Sensors	3
VT4309	Fundamental Electronic Packaging Materials	3

Program Electives - 3rd Year		
Subject Code	Subject Name	C
VT4310	Solid State Devices	3
VT4311	Machine Learning for VLSI Design Automation	3
VT4312	Thin Film and Nanostructures	3
VT4313	Spintronics	3
VT4314	Advanced VLSI Technologies (FinFET, 3D IC, NoC)	3
VT4315	Photonic Material and Devices for Integrated Photonic	3
VT4316	Flexible Electronics	3
VT4317	Neuromorphic VLSI Circuits	3
VT4318	Advanced Electronic Devices	3
VT4319	FPGA-based System Design	3
VT4320	System-on-Chip (SoC) Design	3
VT4321	Memory Design and Testing	3

3.2.5 B. Tech Electrical and Electronics Engineering (EEE)

Year	Semester III			Semester IV		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
II	MA2103	Mathematics for Electrical Engineers - I	4	MA2203	Mathematics for Electrical Engineers - II	4
	ES2101	Circuits and Signals	4	ES2201	Digital Signal Processing	4
	ES2102	Analog System Design	4	EE2201	Linear and Digital Control Systems	4
	ES2103	Digital System Design	4	ES2202	Microcontrollers	4
	ES2104	Electromagnetic Theory	4	EE2202	Computer Organization and Architecture	4
	ES2121	Circuits and Signals Lab	1	ES2221	Control Systems Lab	1
	ES2122	Analog System Design Lab	1	ES2222	Microprocessor and Microcontroller Lab	1
	ES2123	Digital System Design Lab	1	ES2223	Digital Signal Processing Lab	1
		TOTAL (29 Hrs. / Week)	23		TOTAL (29 Hrs. / Week)	23
Total Contact Hours (L + T + P) = 29				Total Contact Hours (L + T + P) = 29		

Year	Semester V			Semester VI		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	MS3101	Industrial Management	3	EE3201	Power Electronics	3
	EE3101	Generation, Transmission & Distribution	3	EE3202	Switchgear & Protection	3
	EE3102	Power Systems Analysis	4	EE3203	Electrical Drives	4
	EE3103	Measurements & Instrumentation	3	EE43XX	PROGRAM ELECTIVE - 2	3
III	EE43XX	PROGRAM ELECTIVE – 1	3	EE43XX	PROGRAM ELECTIVE - 3	3
	EE3121	Electrical Machines Lab	1	EE3221	Power Electronics Lab	1
	EE3122	Measurements & Instrumentation lab	1	EE3222	Power System Lab	1
	OE30XX	Open Elective -1 (MLC)	3	OE30XX	Open Elective-2 (MLC)	3
			21			21
		Total Contact Hours (L + T + P) + OE	25		Total Contact Hours (L + T + P) + OE	26

Year	Semester VII			Semester VIII		
	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	EE43XX	PROGRAM ELECTIVE - 4	3	EE4089	Internship (MLC)	3
	EE43XX	PROGRAM ELECTIVE - 5	3	EE4299	CAPSTONE PROJECT (1 Sem)	12
IV	EE43XX	PROGRAM ELECTIVE - 6	3			
	EE43XX	PROGRAM ELECTIVE - 7	3			
		CAPSTONE PROJECT (1 YEAR) #				24
		Open Elective-3 (MLC)		EE34XX/ EE50XX	Minor*/ Honours Course 1^	4
				EE34XX/ EE50XX	Minor*/ Honours Course 2^	4
				EE34XX/ EE50XX	Minor*/ Honours Course 3^	4
				EE4499	Minor Project*	8
		Total	15/3		TOTAL (HOURS/WEEK)	15/27#/35^*

List of Program Electives:

3rd YEAR (5th & 6th Semesters)		4th YEAR (7th & 8th Semesters)	
Code	Subject Name	Code	Subject Name
	Advanced Control Theory		Power Electronics Switching Devices
	Semiconductor Devices and Circuits		Smart Grid
	Power System Stability, Operation & Control		High Voltage Engineering
	Process Control		Modern Power Converters

	Latest Trends in Electrical and Electronics Engineering		Fuzzy Logic and Genetic Algorithms
	Data Communication & Computer Networks		HVDC & FACTS
			Industrial Automation
			Applications of AI in Electrical Engineering
			Electrical Machine Design

3.2.6 Mechanical Engineering

Year	Semester III			Semester IV		
II	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	MA2104	Mathematics for Mechanical Engineers - I	4	MA2204	Mathematics for Mechanical Engineers - II	4
	ME2101	Thermal Engineering	4	ME2201	Strength of Materials	4
	ME2102	Mechanics of Materials	4	ME2202	Kinematics of Machines	4
	ME2103	Manufacturing Process	4	ME2203	Mechatronics	4
	ME2104	Material Science	4	ME2204	Machine Design – I	4
	ME2111	Manufacturing Process Lab	1	ME2211	Strength of Materials Lab	1
	ME2112	CAE Lab	1	ME2212	Computational Lab	1
	ME2113	Automobile Lab	1	ME2213	Thermal Engineering Lab	1
		TOTAL (29 Hrs. / Week)	23		TOTAL (29 Hrs. / Week)	23

Year	Semester V			Semester VI		
III	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	ME3101	Industrial Engineering and Management	3	ME3201	Heat Transfer	3
	ME3102	Fluid Mechanics	3	ME3202	Turbomachines	4
	ME3103	Dynamics of Machines	4	ME3203	Measurement and Metrology	3
	ME3104	Machine Design – II	3	ME43XX	Program Elective- 2	3
	ME43XX	Program Elective- 1	3	ME43XX	Program Elective- 3	3
	ME3111	Fluid Mechanics Lab	1	ME3211	Heat Transfer Lab	1
	ME3112	Machine Dynamics Lab	1	ME3212	Metrology Lab	1
	OE30XX	Open Elective- 1 (MLC)	3	OE30XX	Open Elective- 2 (MLC)	3
			21			21

Year	Semester VII			Semester VIII		
IV	Sub. Code	Subject Name	**C**	Sub. Code	Subject Name	**C**
	ME43XX	PROGRAM ELECTIVE – 4	3	ME4089	INTERNSHIP (MLC)	3
	ME43XX	PROGRAM ELECTIVE – 5	3	ME4299	CAPSTONE PROJECT (ONE SEM)	12
	ME43XX	PROGRAM ELECTIVE – 6	3			
	ME43XX	PROGRAM ELECTIVE – 7	3			
	ME4099	CAPSTONE PROJECT (1 YEAR) #				24
	OE30XX	OPEN ELECTIVE – II (MLC)	3			
				ME34XX / ME50XX	MINOR*/HONOURS COURSE 1^	4
				ME34XX / ME50XX	MINOR*/HONOURS COURSE 2^	4
				CS34XX / CS50XX	MINOR*/HONOURS COURSE 3^	4
				CS4499	MINOR PROJECT	8
				CS5099	CAPSTONE PROJECT (HONOURS)^	20
		Total	15/3		Total	15/27#/35*^

List of Program Electives:

3rd YEAR (5th & 6th Semesters)		4th YEAR (7th & 8th Semesters)	
Code	Subject Name	Code	Subject Name
	Automobile Engineering		Refrigeration and Air Conditioning
	Electric Vehicle Fundamentals		Power Plant Engineering
	Foundations of EV & Hybrid Vehicles		
	Alternative Fuels and Lubrications for Engines		Computational Fluid Dynamics
	Automotive Electrical and Electronics Systems		Sustainable Design of Buildings
	Composite Materials		Batteries, Powertrains, and Transmissions for EV
	Internal Combustion Engine		Robotics and Automation
	Automotive Mechanics for Electric Vehicles		Tribology
	Introduction to Nanotechnology and MEMS		EV Charging Infrastructure & Guidelines
	Industrial Robotics: Theories for Implementation		Advanced Manufacturing Processes
	Operation Research		Vehicle Dynamics
	Tool Engineering and Design		Design And Optimization of Energy Systems
	Computer Integrated Manufacturing		Robot Kinematics and Dynamics
	Fatigue and Fracture		Total Quality Management

	Sustainable Engineering Concepts: Economics And Life Cycle Analysis		Flexible Manufacturing System
			Production & Operations Management
			Machine Learning for Manufacturing Applications
			Automotive Repair and Maintenance
			Mechanical Vibration
			Multiphysics based Product Development for BEV and FCEV
			System Engineering Approach to EV Design
			Computer Aided Design and Manufacturing
			Decision Making Techniques
			Finite Element Methods
			Design of Mechanical Systems

Minor Specialisation

A. Department of CSE:
Artificial Intelligence Systems (AIS)

B. Department of Civil Engineering:
Geoinformatics
Environmental Engineering

C. Department of Electronics & Communication Engineering (ECE):
Internet of Things

D. Department of ME:
Sustainable Energy Technologies

E. Department of EEE:
Electric Vehicle Technology (EVT)

F. Department of Maths:
Applied Mathematics

G. Management Studies:
Technology Entrepreneurship

3.3 Bachelor of Computer Application (BCA)

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA****	MATHEMATICS – I	**4**	MA****	Mathematics – II	**4**
CA101A1	HTML and Scripting for Web Page Design	**4**	CA105A1	Database Management System	**4**
CA102A1	C Programming	**4**	CA106A9	WEB Development Using PHP	**4**
BA****	Fundamentals of Business Management	**2**	CA107A3	Universal Human Values	**1**
CA***A2/ CA***A8	Open Elective I/Minor/NCC	**4**	CA***A2/ CA***A8	Open Elective II/Minor/NCC	**4**
CA103A4	HTML and Scripting for WEB Page Design Lab	**1**	CA111A3	Fundamentals Of Environmental Studies	**2**
CA104A4	C Programming Lab	**1**	CA108A4	Database Management System Lab	**1**
			CA109A4	PHP LAB	**1**
			CA110A5	Project Based Learning Lab	**1**
Semester I Total		**20**	**Semester II Total**		**22**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA****	Mathematics -III	**4**	CA206A1	Design & Analysis o f Algorithms (DAA)	**4**
CA201A1	Fundamentals of Data Structures	**4**	CA207A1	JAVA Programming	**4**
CA202A1	Object Oriented Programming Using C++	**4**	CA208A3	Recent Trends in Computer Applications	**4**
CA203A1	Communication Skill	**2**	CA209A1	Data Communication & Networking	**1**
CA***A2/ CA***A8	Open Elective III/Minor/NCC	**4**	CA***A2/ CA***A8	Open Elective IV/MINOR	**4**
CA204A4	Data Structures Lab	**1**	CA210A4	DAA Lab	**1**
CA205A4	C++ LAB	**1**	CA211A4	JAVA Programming Lab	**1**
			CA110A5	Project Based Learning Lab	**1**
Semester III Total		**20**	**Semester IV Total**		**20**

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CA301A1	Operating Systems	**4**	CA306A1	Software Engineering	**4**
CA302A3	IT Law and Practices	**2**	CA307A9	Python Programming	**4**
CA303A9	NET Programming	**4**	CA***A3	Prog. Elective II / Skill Based Courses	**4**
CA***A3	Prog. Elective I / Skill Based Courses	**4**	CA***A2/ CA***A8	Open Elective VI/Minor	**4**
CA***A2/ CA***A8	Open Elective V/Minor	**4**	CA308A4	Software Engineering Lab	**1**
CA304A4	Operating Systems Lab	**1**	CA309A4	Python Programming Lab	**1**
CA305A4	NET Lab	**1**	CA310A5	Minor Project	**2**
Semester V Total		**20**	**Semester VI Total**		**20**

SEVENTH SEMESTER (BCA HONOURS)			EIGTH SEMESTER (BCA HONOURS)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CA401A3	Leadership and Behaviour Management	**2**	CA***A2/ CA***A8	Open Elective VIII/MINOR	**4**
CA***A3	PROG. Elective III	**4**	CA404A6	Industrial Project Phase - II	**16**
CA***A2/ CA***A8	Open Elective VII/Minor	**4**			
CA402A9	Industrial Training	**2**			
CA403A6	Industrial Project Phase – I	**8**			
Semester V Total		**20**	**Semester VI Total**		**20**

SEVENTH SEMESTER (BCA Honours with Research)			EIGTH SEMESTER ((BCA Honours with Research)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CA405A1	Research Methodology	**4**	CA410A6	Research Based Project [Phase II]	**20**
CA406A3	Publication Ethics	**2**			
CA407A4	Prog. Elective III	**4**			
CA408A7	Research Based Seminar I	**2**			
CA409A6	Research Based Project [Phase I]	**8**			
Semester VII Total		**20**	**Semester VIII Total**		**20**

Program Elective Subjects:

Code	Subjects	Credit
CA341A3	Fundamentals of Digital Electronics	**4**
CA342A3	E – Commerce	**4**
CA343A3	WEB Technologies	**4**
CA344A3	C# Programming	**4**
CA345A3	UNIX and Shell Programming	**4**
CA346A3	Mobile Application Development	**4**
CA347A3	Blockchain & Web 3.0	**4**
CA348A3	Full-Stack Software Engineering	**4**
CA441A3	Microservices and Event-Driven Software Architecture (MSA & EDA)	**4**
CA442A3	5G Communication	**4**
CA443A3	Devops and Platform Engineering	**4**
CA444A3	Metaverse	**4**

List of Minor Specialization:

Specialization	Semester	Subject Code	Subject name	C
DATA SCIENCE		CA151A2 / CA151A8	Fundamentals of Data Science	4
		CA152A2 / CA152A8	Statistical Foundations OF Data Science	4
		CA251A2 / CA251A8	Data Warehousing and Data Mining	4
		CA252A2 / CA252A8	Data Analytics Using Python	4
		CA351A2 / CA351A8	Machine Learning	4
		CA352A2 / CA352A8	Security and Privacy for Data Science	4
		CA451A2 / CA451A8	Image Analytics and Visualization	4
		CA452A2 / CA452A8	Natural Language Processing	4

CLOUD TECH-NOLOGY		CA153A2 / CA153A8	Fundamentals of Cloud Computing	4
		CA154A2 / CA154A8	Scheduling in Cloud Computing	4
		CA253A2 / CA253A8	Cloud Architecture and Technology	4
		CA254A2 / CA254A8	Big Data and Its Applications in Cloud	4
		CA353A2 / CA353A8	Distributed System	4
		CA354A2 / CA354A8	Cloud Computing and Security	4
		CA453A2 / CA453A8	Edge and Fog Computing	4
		CA554A2 / CA454A8	Virtualization Concepts	4
NETWORK & INFORMATION SECURITY		CA155A2 / CA155A8	Cryptography Fundamentals	4
		CA156A2 / CA156A8	Network and Information Security	4
		CA255A2 / CA255A8	Internet Security and Privacy	4
		CA256A2 / CA256A8	System and Network Administration	4
		CA355A2 / CA355A8	Blockchain Technology	4
		CA354A2 / CA354A8	Cloud Computing and Security	4
		CA356A2 / CA356A8	IOT Security and Privacy	4
		CA455A2 / CA455A8	Network Security Management	4

ARTIFICIAL INTELLIGENCE		CA157A2 / CA157A8	Fundamentals of Artificial Intelligence	4
		CA158A2 / CA158A8	Fundamentals of Soft Computing	4
		CA257A2 / CA257A8	Machine Learning	4
		CA258A2 / CA258A8	Computer Vision	4
		CA357A2 / CA357A8	Artificial Neural Network	4
		CA358A2 / CA358A8	AI for Medical Image Analysis	4
		CA457A2 / CA457A8	AI &ML in Cyber Security	4
		CA458A2 / CA458A8	Applications of AI in Medicine	4
DIGITAL MARKETING		CA159A2 / CA159A8	Introduction to Marketing Essentials	4
		CA160A2 / CA160A8	Basics of Digital Marketing	4
		CA251A2 / CA251A8	Data Warehousing and Data Mining	4
		CA259A2 / CA259A8	Decision Making with Spreadsheet	4
		CA351A2 / CA351A8	Machine Learning	4
		CA359A2 / CA359A8	Business Analytics for Management Decision	4
		CA459A2 / CA459A8	Social Media Marketing	4
		CA460A2 / CA460A8	Marketing Analytics	4

MACHINE LEARNING		CA161A2 / CA161A8	Machine Learning Fundamentals	4
		CA162A2 / CA162A8	Statistics for Machine Learning	4
		CA261A2 / CA261A8	Python for Machine Learning	4
		CA262A2 / CA262A8	Mathematical Foundations for Machine Learning	4
		CA361A2 / CA361A8	Deep Learning	4
		CA362A2 / CA362A8	Computer Vision	4
		CA457A2 / CA457A8	AI & ML in Cyber Security	4
		CA452A2 / CA452A8	Natural Language Processing	4

3.4 Bachelor of Business Administration (BBA)

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
BA102A1	Principles and Practice of Management	**3**	BA106A1	Human Resources & Organizational Behaviour	**3**
BA103A1	Financial Accounting	**4**	BA107A1	Business Environment	**3**
BA104A1	Business Economics	**3**	BA108A1	Business Statistics	**3**
BA105A1	Business Law	**3**	BA109A1	Business Finance	**3**
BA101A4	MS Application for Business	**1**	BA110A1	Business Communication	**2**
BA101A7/ GN201A1	Research Orientation / UHV	**1**	BA102A7/ /PE108A4	Research Seminar I/ COI/ Yoga, Sports and Fitness	**1**
	Pre-placement Training	**1**		Pre-placement Training	**1**
Open Elective I/ Discipline Specific Elective	Subjects: I/II/III/IV/V/VI	**4**	Open Elective II/ Discipline Specific Elective	Subjects: I/II/III/IV/V/VI	**4**
Total		**20**	**Total**		**20**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
BA201A1	International Business	**3**	BA205A1	Business Policy and Strategy	**3**
BA202A1	Entrepreneurship and Small Business	**3**	BA206A1	Marketing Research	**3**
BA203A1	Accounting for Management	**3**	BA207A1	Marketing of Services	**3**
BA204A1	Marketing Management	**4**	BA208A1	Consumer Behaviour	**2**
BA201A7/ GN301A1	Research Seminar II/ Behaviour Management/ Nepali/ Sanskrit	**2**	BA209A1	Teamwork and Leadership	**2**
	Pre-placement Training	1	BA202A7/	Research-Based Learning I / Foreign Language	**2**
Open Elective III/ Discipline Specific Elective	Subjects: I/II/III/IV/V/VI	4		Pre-placement Training	**1**
			Open Elective IV/ Discipline Specific Elective	Subjects: I/II/III/IV/V/VI	**4**
Total		**20**	**Total**		**20**

Till Second year total Credit: 80; Promotion Criteria: 50% of total credit earned up to 2nd year. i.e 50%*80= 40 credits

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
BA301A7	Research-Based Learning & Seminar I	**3**	BA303A7	Research-Based Learning & Seminar II	**3**
CA****	E-Commerce	**3**	BA304A1	International Marketing Management	**3**
BA301A1	Marketing Communication and Advertising	**3**	BA305A1	Rural Marketing	**3**
BA302A1	Logistics & Supply Chain Management	**4**	BA307A1	Management of Financial Services	**3**
BA303A1	Banking and Insurance	**2**	BA308A1	Taxation	**3**
	Pre-placement Training	1		Pre-placement Training	**1**
Open Elective V/ Discipline Specific Elective	Subjects: I/II/III/IV/V/VI	4		Subjects: I/II/III/IV/V/VI	**4**
Total		**20**	**Total**		**20**

Till Third year total Credit: 120; Promotion Criteria: 100% of total credit earned up to 3rd year. i.e. 100%*120= 120 Credits

List of Minor Specialization/Open Elective:

Specialization	Semester	Subject Code	Subject name	C
Business Analytics & FinTech	**1st**	BA107A2	Fundamentals of Data Analytics	3
		BA102A4	Data Analytics Lab	1
	2nd	BA117A2	Financial Technology Services and Management	4
	3rd	BA127A2	Business Analytics	4
	4th	BA137A2	Decentralized Finance	4
	5th	BA147A2	Fintech Payment Mechanism	3
		BA301A4	Financial Modelling Lab	1
	6th	BA157A2	FinTech in Financial Planning & Analysis	4
			Total	24

Specialization	Semester	Subject Code	Subject name	C
Enterpreneurship	1st	BA102A2	Fundamentals of Entrepreneurship	4
	2nd	BA112A2	Creating and Starting the Venture	4
	3rd	BA122A2	Planning the Business	4
	4th	BA132A2	Growth and Development of Entrepreneurial Ventures	3
	5th	BA141A2	Industrial Relation	4
	6th	BA151A2	Corporate Governance & Business Ethics	4
			Total	**24**
Digital Marketing	1st	BA103A2	Fundamentals of Digital Marketing	4
	2nd	BA113A2	Social Media Marketing	4
	3rd	BA123A2	Search Engine Optimization	4
	4th	BA133A2	Web Analytics	4
	5th	BA143A2	Advertising Tools & Its Optimization	4
	6th	BA153A2	Content Management System	4
			Total	**24**
Banking & Insurance	1st	BA104A2	Indian Banking System	4
	2nd	BA114A2	Fundamentals of Insurance	4
	3rd	BA124A2	Merchant Banking	4
	4th	BA134A2	Agricultural & Rural Insurance	4
	5th	BA144A2	Ethics in Banking	4
	6th	BA154A2	Life Assurance	4
			Total	**24**

Operation and Supply Chain Management	1st	BA105A2	Operation and Research Management	4
	2nd	BA115A2	Logistics Management	4
	3rd	BA125A2	Supply Chain Management	4
	4th	BA135A2	Materials and Store Management	4
	5th	BA145A2	Quality Management	4
	6th	BA155A2	Global Supply Chain Management	4
			Total	**24**
Event Management & PR	1st	BA106A2	Introduction to Event Management and PRIntroduction to Event Management & PR	4
	2nd	BA116A2	Event Management Planning	4
	3rd	BA126A2	Event Production Process	4
	4th	BA136A2	Event Marketing & Sponsorship	4
	5th	BA146A2	Event Hospitality, Law & Permissions	4
	6th	BA156A2	Event Risk Management	4
			Total Credit	**24**

3.5 Schema of B.Sc Courses:

3.5.1 B.Sc Physics

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH101A1	Mathematical Physics I	3	PH104A1	Mathematical Physics II	4
PH102A1	Mechanics	4	PH105A1	Wave and Optics	4
BA101A1	Communication Skill	2	XXXXX	English Literature/Functional English/MIL/Hindi/Foreign Language (SWAYAM/NPTEL) (EL-2)	2
GN201A1	Universal Human Values	3	XXXXX	Constitutions of India/Environmental Sc.	1
	*Chemistry-I (3 CR)/Mathematics-I(3,1,0)-4 CR (EL-1)/Minor Specialization (4 CR)	4	XXXXX	*Chemistry-II (3 CR)/Mathematics-II(3,1,0) 4 CR) (EL-3)	4
BC103A1	Computer Programming (C/C++)	4	XXXXX	Minor Specialization	4
	*Chemistry Lab (EL-1)	1	PH107A4	Wave and Optics Lab	1
BC101A4	Computer Programming (C/C++) Lab	1	XXXXX	*Chemistry-II Lab (EL-3)	1
PH103A4	General Physics Lab	1	PE108A4	Sports, Fitness and Yoga	
Total		**22**	**Total**		**22**
* For Chemistry: Theory 3 CR + Lab 1 CR = 4CR (For Mathematics or Minor Specialization 4 CR			*** For Chemistry: Theory 3 CR + Lab 1 CR = 4CR (for Mathematics 4 Cr)**		

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH201A1	Heat & Thermodynamics	4	PH207A1	Mathematical Physics III	4
PH202A1	Electricity & Magnetism	4	PH208A1	Elements of Modern Physics	4
PH203A1	Analog systems & Applications	4	PH209A1	Digital systems & Applications	4
XXXXX	Leadership and Behaviour Management/Emotional Intelligence/ Alternative English/Nepali/Sanskrit (SWAYAM, NPTEL) EL-4)	2	XXXXX	Minor Elective (EL-6)	4
XXXXX	Minor Elective (EL-5)	4	XXXXX	Community based Participatory Research (FIELD WORK)	2
PH204A4	Heat & Thermodynamics Lab	1	PH210A4	Electronics Lab	1
PH205A4	Electricity, Magnetism Lab	1	PH211A4	Modern Physics/Photonics Lab	1
PH206A5	Project based learning I	1	PH212A5	Project based learning II	1
Total		**21**	**Total**		**21**

Summer internship/Vocational: (2 - 4 CR)
Workshop skills, Carpentry, Plumbing, Web design, Surveying, Electrical Wiring, Financial s/w, digital photography & editing, Video editing for social media, photo-shop, Computer assembling and networking, Research & Technical writing etc.

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH301A1	Quantum Mechanics and Applications	4	PH307A1	Electromagnetic Theory	3
PH302A1	Classical Mechanics & Special Theory of Relativity	4	PH308A1	Statisticsl Mechanics I	4
XXXXX	Interdisciplinary minor/Minor Specialization	4	PH309A1	Solid State Physics	3
PH303A1	Numerical Techniques	3	XXXXX	Open Elective II (EL-11)	4
PH304A4	Numerical Techniques Lab	1	XXXXX	Minor Elective (EL-12)	4
PH306A6	Summer Internship	2	PH310A4	Solid State Physics Lab	1
PH305A5	Project based learning III	1	PH311A5	Mini Project	2
Total		**19**	**Total**		**21**

Summer internship/Vocational: (2 - 4 CR)
Workshop skills, Carpentry, Plumbing, Web design, Surveying, Electrical Wiring, Financial s/w, digital photography & editing, Video editing for social media, photo-shop, Computer assembling and networking, Research & Technical writing etc.

SEVENTH SEMESTER			EIGHTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH401A1/ PH501A1	Mathematical Physics IV	4	PH407A1/ PH511A1	Classical & Relativistic Electrodynamics	4
PH402A1/ PH502A1	Classical Mechanics	4	PH408A1/ PH512A1	Quantum Mechanics II	4
PH403A1/ PH504A1	Quantum Mechanics I	4	PH406A6	Project/Dessertation* (1 year project)	12
PH404A1/ PH512A1	Condensed Matter Physics	4	PH4XX	Paper I (EL-13) (in lieu of project)	4
PH405A4/ PH505A4/ PH506A4	Photonics & Spectroscopy Lab/General Physics Lab (EL-14)	3	PH4XX	Paper II (EL-14) (in lieu of project)	4
PH406A6	Project/Dessertation* (1 year project)		PH4XX	Paper III (EL-15) (in lieu of project)	4
Total		**19**	**Total**		**20**

Students with minimum 7.5 CGPA (75%) at the end of 6th semester are eligible to take project which is the requirement for

BSc (Hons with Research). Students with below 7.5 CGPA (75%) will take 3 theory subjects of 4 credits each for B.Sc(Hons) degree as per UGC guidelines.

List of Discipline Specific Elective:

DSE:	**Discipline Specific Electives**
1	Atomic Molecular Physics
2	Nuclear & Particle Physics
3	Experimental Techniques & Data Analysis
4	Communication Electronics
5	Nanomaterials and Application
6	Thin film Technology
7	Semiconductor and Optoelectronics
8	Low Temperature Physics
9	Introduction to Particle Physics

3.5.2 B.Sc Chemistry

FIRST SEMESTER			**SECOND SEMESTER**		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH103B1	Inorganic Chemistry - I	4	CH105B1	Organic Chemistry-I	4
CH104B1	Physical Chemistry - I	4	CH106B1	Physical Chemistry-II	4
BA101A1	Communication Skill	2	GN121A2	English Literature/Functional English/MIL/Hindi/Foreign Language (SWAYAM/NPTEL) (EL-2)	2
GN201A1	UHV	3	BP101A1 CH107B1	Constitutions of India / Environmental Studies	1
**	Elective-I	3	**	Elective-3	3
**	Elective - I Lab	1	**	Elective-3 Lab	1
BC103A1	Computer Programming (C)	4	CH108B1	Advanced Instrumentation Techniques	4
BC101A4	Computer Programming (C) Lab	1	CH106B4	Organic Chemistry-I Lab	2
			PE108A4	Fitness and Yoga	2
Total Credit in Semester I		**22**	**Total Credit in Semester II**		**23**
Summer internship/Vocational: (2 - 4 CR) (Required for UG Certificate)		Workshop skills, Carpentry, Plumbing, Web design, Surveying, Electrical Wiring, Financial s/w, digital photography & editing, Video editing for social media, photo shop, Computer assembling and network;King, Research & Technical writing etc.			

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH201B1	Inorganic Chemistry-II	4	CH203B1	Inorganic Chemistry-III	4
CH202B1	Organic Chemistry-II	4	CH204B1	Physical Chemistry-III	4
GN301A1	Leadership and Behavior Management/Emotional Intelligence/Alternative English/ Nepali/Sanskrit (SWAYAM, NPTEL) EL-4)	2	**	Minor specialization (EL-6)	4
**	Minor Specialization (EL-5)	4	GN202A1	Community based Participatory Research (FIELD WORK)	2
CH201B4	Inorganic Chemistry-I Lab	2	CH203B4	Inorganic Chemistry-II Lab	2
CH202B4	Organic Chemistry-I Lab	2	CH204B4	Physical Chemistry-II Lab	2
CH201B5	Project based learning I	2	CH202B5	Project based learning II	2
Total Credit in Semester III		**20**	**Total Credit in Semester – IV**		**20**
Summer internship/Vocational: (2 - 4 CR) (Required for UG diploma)		Workshop skills, Carpentry, Plumbing, Web design, Surveying, Electrical Wiring, Financial s/w, digital photography & editing, Video editing for social media, photoshop, Computer assembling and networking, Research & Technical writting etc.			

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH301B1	Organic Chemistry-III	4	CH303B1	Organic Chemistry-IV	4
CH302B1	Inorganic Chemistry-IV	4	CH304B1	Physical Chemistry-IV	4
**	DSE I (EL-7)	4	**	DSE II (EL-9)	4
**	Minor specialization (EL-8)	4	**	Minor specialization (EL-10)	4
CH301B4	Organic Chemistry-II Lab	2	CH303B5	Mini Project	4
CH301A5	Summer Internship	2			
Total Credit in Semester V		**20**	**Total Credit in Semester – VI**		**20**

SEVENTH SEMESTER			EIGHTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH401B1	Principles of Inorganic Chemistry	4	CH405B1	Modern Spectroscopic Technique	4
CH402B1	Principles of Organic Chemistry	4	CH406B1	Organic Reactions and Mechanisms	4
CH403A1	Chemical Thermodynamics	4	CH401B6	Project/Dissertation* (1 year project)	8
CH404B1	Analytical Chemistry	4	CH407B1	Biochemistry	4
CH403B4	Physical Chemistry Lab	3	CH408B1	Quantum Chemistry- I	4
CH404B4	Analytical Chemistry Lab	3	CH402B6	Dissertation (6 Months)	4
* In place of Project, students with honours will take 3 theory subjects of 12 credit					
Total Credit in Semester VII		**22**	**Total Credit in Semester – VIII**		**20**

List of Elective:
Interdisciplinary/Minor

Sub Code	**1st Semester**	**C**	**Sub Code**	**2nd Semester**	**C**
MA107A1	Mathematics-I (Theory+Tutorial)	4	MA108A1	Mathematics-II	4
CH101B2	Ecology and Environment-I	3	CH103B2	Ecology and Environment II	3
CH104B4	Ecology and Environment-I Lab	1	CH108B4	Ecology and Environment II Lab	1
CH102B2	Chemistry-I	3	CH104B2	Chemistry-II	3
CH105B4	Chemistry-I Lab	1	CH109B4	Chemistry-II Lab	1
PY102A1	Fundamentals of Psychology	4			
Note: In case of Mathematics as Elective, the total credit will be 4 which includes both Theory and Tutorial. In case of other Electives, student has to take respective lab.					
3rd Semester			**4th Semester**		
CH201B2	Environmental Science-I	4	CH202B2	Environmental Science-II	4
5th Semester			**6th Semester**		
CH301B3	Application of Computers in Chemistry	4	CH302B3	Novel Inorganic Solids	4
CH301B2	Environmental Science- III	4	CH302B2	Environmental Science-IV	4

Note: If students complete 24 credits of minor paper from same pull of subjects, minor degree will also be awarded along with the main degree.

For example, if a student choose Ecology & Environment in 1st and 2nd semester and Environmental Science - I, II, III & IV in remaining semesters (Total 24 CR), after completion of 4 years, degree will be awarded as B.Sc. Chemistry (Honours) with Minor in Environmental Science.

*Elective may be added depending on the availability of subject.

3.5.3 B.Sc Mathematics / M.Sc Mathematics

3 years B.Sc. Program /4 Years B.Sc. in Mathematics(Honors/ Honors with research)/2 years M.Sc. in Mathematics with minor specialization in Data Science

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA131A1	Foundation Course in Mathematics	4	MA133A1	Solid Geometry & Vector Calculus	4
MA132A1	Single Variable Calculus	4	MA134A1	Discrete Mathematics	4
BA10101A	English	2	MA135A1	Linear Algebra	4
GN201A1	Universal Human Values	3	******	English Literature/ Functional English/ MIL/ Hindi/ Foreign Language/ Elective-II/MOOC	2
******	Elective-I/MOOC	4	CH107A1/ BP101A1	Environmental Studies/ Constitution of India	1
******	C-Programming	3	******	Elective-III/MOOC	4
******	C-Programming Lab	1	PE108A4	Fitness and Yoga	2
Total Credit in Semester I		**21**	**Total Credit in Semester II**		**21**

Summer internship/Vocational (2 - 4 CR): Workshop skills, Carpentry, Plumbing, Web design,

Surveying, Electrical Wiring, Financial s/w, digital photography & editing, Video editing for social

media, Computer assembling and networking, Research & Technical writing etc.

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA231A1	Algebra I: Group Theory	4	MA233A1	Algebra II: Ring Theory	4
MA232A1	Elementary Number Theory	4	MA234A1	Multivariable Calculus	4
MA231A8	Probability Theory	4	MA235A1	Ordinary Differential Equations	4
*****	Elective-IV	4	MA232A8	Statistical Methods	4
*****	Leadership and Behavior Management/ Emotional Intelligence/ Alternative English/ Nepali/ Sanskrit/ MOOC/ Elective-V	2	*****	Elective-VI/ MOOC	4
MA231A9	Summer Internship/ Vocational	2	MA232A9	Community based participatory research(Field work)	2
Total Credit		**20**	**Total Credit**		**22**

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA331A1	Complex Analysis	4	MA333A1	Metric Spaces	4
MA332A1	Numerical Analysis	4	MA334A1	Classical Mechanics	4
MA331A8	Dynamics	4	MA333A8	Theory of Computation	4
MA332A8	Introduction to Machine Learning	4	******	Elective-VIII/ MOOC	4
******	Elective-VII/ MOOC	4	MA331A7	Seminar-I	3
Total Credit in Semester V		**20**	**Total Credit in Semester VI**		**19**
Total Credits after three years		123			

Seventh Semester (B.Sc.)/Semester-I(2 Years M.Sc. Program)			Eighth Semester (B.Sc.)/Semester-II(2 Years M.Sc. Program)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA431A1/ MA541A1	Real Analysis	4	MA435A1/ MA545A1	Measure and Integration	4
MA432A1/ MA542A1	Abstract Algebra	4	MA436A1/ MA546A1	Graph Theory	4
MA433A1/ MA543A1	Ordinary and Partial Differential Equations	4	MA437A1/ MA547A1	Topology (in lieu of Project)	4
MA434A1/ MA544A1	Advanced Linear Algebra	4	MA438A1/ MA548A1	Advance Complex Analysis(in lieu of Project)	4
MA431A8/ MA541A8	Basics of Financial Mathematics	4	MA4**A3/ MA5**A3	Elective-IX/MOOC(in lieu of Project)	4
MA431A4/ MA541A4	Computational Laboratory	2	MA431A6	Project/Dissertation	12
Total Credit in Semester VII		**22**	**Total Credit in Semester VIII**		**20**
Total Credits after 4 years		165			

Semester-III(2 Years M.Sc. Program)			Semester-IV(2 Years M.Sc. Program)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA641A1	Stochastic Processes	4	MA644A1	Variational Calculus	4
MA642A2	Functional Analysis-I	4	MA645A1	Functional Analysis-II	4
MA643A1	Integral Equations and Transforms	4	MA6**A3	Elective-XI (in lieu of Project)	4
MA641A8	Number Theory and Cryptography	4	MA6**A3	Elective-XII (in lieu of Project)	4

MA6***A3	Elective-X/ MOOC	4	MA6**A3	Elective-XIII (in lieu of project)/Mooc	4
			MA641A6	MAJOR PROJECT	12
Total Credit		**20**	**Total Credit**		**20**
Total Credits after four years		165			

List of Elective:

Elective I			Elective III		
1	CH10201A, CH10419A	Chemistry-I, Chemistry Lab - I	1	PH1XXA1, PH1XXA4	Physics-I, Physics Lab-I
2	BA10106A	Business Economics	2	MA132A3	Data Structures
3	MA131A3	Classical Algebra	3		
Elective IV			**Elective VI**		
1	MA231A3	Linear Programming & Game Theory	1	MA232A3	Object Oriented Programming
2	BA10116A	Accounting for Management	2	MA231A4	Object Oriented Programming-Lab
2			3	XXXXA1, XXXXA4	Python Programming, Python Programming Lab
Elective VII			**Elective IX**		
1	MA331A3	Artificial Intelligence	1	MA431A3/ MA541A3	Advance Numerical Analysis
			2	MA432A3/ MA542A3	Artifical Neural Network
Elective X			**Elective XI-XII**		
1	MA641A3	Design and Analysis of Algo-rithms	1	MA644A3	Plasma Dynamics
2	MA642A3	Fluid Mechanics	2	MA645A3	Algebraic Topology
3	MA643A3	Field and Galois Theory	3	MA646A3	Dynamical Systems
Elective XIII			4	MA647A3	Wavelet Analysis and Signal Processing

1	MA650A3	Queuing Theory and Modeling	5	MA648A3	Representation Theory
2	MA651A3	Optimization Techniques	6	MA649A3	Algebraic Graph Theory
3	MA652A3	Mathematical Finance			

3.5.4 B.Sc Applied Psychology:

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY110A1	Introduction to Biopsychology	4	PY114A1	Cognitive Psychology	4
PY111A1	Fundamentals of Psychology-I	4	PY113A1	Fundamentals of Psychology-II	4
XXXX	Open Elective I (University Basket)/NCC	4	PY105A4	Practicum-II	1
PY121A7	Seminar / Research Writing	1	XXXX	Open Elective II (University Basket)//NCC	4
PY112A1	Behaviour Management and Leadership	3	PY116A1	Emotional Intelligence	2
XXXX	Communication Skills	2	PY115A1	Introduction to Social Psychology	4
PY103A4	Practicum-I	2	XXXX	Constitution of India	1
Total		**20**	**Total**		**20**
				FIRST YEAR TOTAL	**40**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY210A1	Developmental Psychology-I	4	PY213A1	Developmental Psychology-II	4
PY202A1	Statistical Methods for Psychological Research	4	XXXX	Open Elective III (University Basket)//NCC	4
PY211A1	Clinical Psychology I	4	PY207A1	Clinical Psychology II	4
PY204A4	Practicum-III	1	PY208A1	Introduction to quantittative and qualitative research	4
XXXX	Open Elective III (University Basket)//NCC	4	PY206A4	Community Based Research	1
PY205A4	SPSS for Data Analysis	2	PY201A9	Summer Internship*	2
PY221A7	Seminar / Research Writing	1	PY223A7	Seminar/Research Writing	1
Total		**20**	**Total**		**20**
				SECOND YEAR TOTAL	**40**

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY311A1	Introduction to Organizational Psychology	4	PY312A1	Psychological Assessment	4
PY310A1	Counselling & Guidance	4	PY308A1	Educational Psychology	4
XXXX	DSE (Social/Health/Media)	4+4	XXXX	DSE (Social/Health/Media)	4+4
PY306A7	Seminar	1	PY311A5	Field based learning/Group Project**	4
PY305A4	Practicum-IV	2			
XXXX	Soft Skills Training	1			
	Total	**20**		**SEM TOTAL CREDITS**	**20**
				THIRD YEAR TOTAL	**40**
				TOTAL CREDITS OF THREE YEARS	**120**

SEVENTH SEMESTER			EIGHTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY401A1	DSE*(I/II/III)	4	PY404A6	Major Research Project Dissertation (Final Phase) or DSE I+II+III	12
PY402A1	DSE*(I/II/III)	4	XXXX	DSE/MOOC*	4
PY403A1	DSE*(I/II/III)	4	XXXX	DSE/MOOC*	4
PY404A6	Major Research Project (Phase-I)	8			
	Total	20		**SEM TOTAL CREDITS**	**20**
				FOURTH YEAR TOTAL	**40**
			SEM I+SEM II+SEM III+SEM IV+SEM V+SEM VI+ SEM VII+SEM VII+ SEM VIII		**160**

***Field visit to NGO/Old age home/Orphanage/Rehabilitation centre/mental health centres evaluated through a report writing and presentation**

****Summer Internship will be carried out in the summer break after IV Sem and will be evaluated in V semester.**

**** In place of Major Project, students may choose 3 theory subjects of 12 credit for honours requirement.**

*****DSE-III courses can be opted as offline or MOOC based courses which will be decided and evaluated by the department in house**

Open Elective/Minor specialization				
Minor Specialization	**Semester**	**Subject Code**	**Subject name**	**C**
MediaPsychology	V	PY257A2/A8	Introduction to Media Psychology	4
	V	PY258A2/A8	Developmental Issues in Media Psychology	4
	VI	PY357A2/A8	Media Effects and Behavioral Issues	4
	VI	PY358A2/A8	Technology, Cognition and Neuro-science	4
Social Psychology	V	PY253A2/A8	Psychology of Relationships	4
	V	PY254A2/A8	Group and Intergroup Processes	4
	VI	PY353A2/A8	Social Cognition and Behaviour	4
	VI	PY354A2/A8	Cross-cultural Psychology	4
Health Psychology	V	PY255A2/A8	Psychology of Health and Wellbeing	4
	V	PY256A2/A8	Psychobiology of Stress, Emotion and Health	4
	VI	PY355A2/A8	Occupational Health Psychology	4
	VI	PY356A2/A8	Psychology of Aging Health	4

Discipline Specific Electives				
Minor Specialization	**Semester**	**Subject Code**	**Subject name**	**C**
	8th	PY431A3	Media Psychology	4
	8th	PY432A3	Forensic Psychology	4
	8th	PY433A3	Environmental Psychology	4
			or	
	8th	XXXX	Dissertation	12

Department Open Electives				
Semester	**Subject Code**	**Subject name**	**Category**	**C**
I	PY151A2	Fundamentals of Psychology-I	For Non- Psychology	4
II	PY152A2	Fundamentals of Psychology-II	For Non-Psychology	4
III	PY253A2	Youth Gender and Identity	For Non-Psychology	4
IV	PY254A2	Emotional Intelligence	For Non-Psychology	4

3.5.5 Batchelor of Physical Education and Sports

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PE101A1	Introduction and History of Physical Education	4	PE103A1	Anatomy and Physiology	4
PE109A4	Football	2	PE113A4	**Volleyball**	2
XXX	**Elective I (OE/MS)**	4	PE114A4	**Cricket**	2
GN201A1	UHV	3	XXXX	Constitution ofIndia/Environmental Science	2
PE110A4	Basketball	2	XXXX	**Elective 2 (OE/MS)**	4
PE111A4	Netball	2	PE108A4	Fitness and Yoga	4
PF109A4	Fundamentals of Computer Lab	1	PE106A4	Gym Training	1
BA101A1	Communication Skills	2	PE115A7	Seminar	1
PE112A7	Seminar/Project based learning	1			
Total		**21**	**Total**		**20**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PE201A1	Kinesiology and Biomechanics	4	PE208A1	Sports Training	4
PE202A1	Test, Measurement and Evaluation	4	PE209A1	Fundamentals of Statistics for Physical Education	2
PE203A1	Basics of Research	4	PE217A4	Kho-Kho	2
PE215A5	Badminton	2	PE213A4	Weightlifting	2
XXXXX	**Elective 3(OE/MS)**	4	XXXX	**Elective 4 (OE/MS)**	4
PE221A4	SPSS for Data Analysis (Lab)	1	PE218A9	Summer Internship (Teaching Practices/ Internship Teaching (4- week School) Teaching Lesson Plans for Racket Sport/ Team Games/Indigenous Sports (out of 10 lessons 5 internal and 5 externals at practicing school)	4
PE216A7	Seminar	1	PE219A4	Tennis	1
			PE220A7	Seminar	1
Total		**20**	**Total**		**20**

FIFTH SEMESTER			SIXTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PE301A1	Principles of Officiating	4	PE310A1	Organization and Administration in Physical Education	4
PE302A1	Physical Fitness and Skills: HRF Exercises	4	XXXX	**Elective 6 (OE/MS)**	4
XXXX	**Elective 5 (DSE/OE/MS)**	4	XXXX	DSE II Any two	4
PE316A4	Table Tennis	2	XXXX	Weightlifting	4
PE317A4	Handball	2	PE315A5	Field Based Learning/Group Project**	2
PE318A4	Kabaddi	2	PE314A4	Game Specialization -II Skill Test	2
PE319A4	Swimming	2			
Total		**20**	**Total**		**20**

***A student must choose a 4-credit subject offered by another department or through a MOOC.**
In place of project student may choose 03 theory subjects of 12 credit for honours requirement.

SEVENTH SEMESTER			EIGHTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PE401A1	The Olympic Values Education	4	PE407A6	Major Research Project/Dissertation (Final Phase)/**DSE	12
PE312A3	Personality Development	4	XXXX	DSE III (Any two) ***/MOOC	4
PE402A6	Systematic Review of Literature (Seminar)	2			
PE403A5	Physical Activity (PA) Analysis	2			
PE404A4	Mass Demonstration Activities -March Past/Wands/Hoop/Umbrella	4			
PE405A5	Research Paper Writing for Publication	2			
PE406A6	Research Proposal/Synopsis	2			
Total		**20**	**Total**		**20**

Pool of Discipline Specific (DSE) -I			Pool of Discipline Specific (DSE) -II		
Sub. Code	**Subject Name**	**C**	**Sub. Code**	**Subject Name**	**C**
PE204A3	Track and Field (Sprint and Middle Distance)	4	PE210A3	Track and Field (Long Distance)	4
PE207A3	Health Education	4	PE313A3	Track and Field (Jumps)	4
PE302A1	Physical Fitness and Skills: HRF Exercises	4	PE309A3	Education Technology and Methods in Physical Education	4
Pool of Discipline Specific (DSE)-III					
PE305A3	Track and Field (Shot-Put and Discuss)	4			
PE304A3	Athletic Care and Rehabilitation	4			
PE104A1	Psychology in Physical Education and Sports	4			

List of Minor Specialization /Open Elective:

Specialization	Semester	Subject Code	Subject name	C
Physical Education Foundation and Practice	I	PE101A1	Introduction and History of Physical Education	4
	II	PE138A4	Foundation of Yoga	4
	III	PE202A1	Test, Measurement and Evaluation	4
	IV	PE208A1	Sports Training	4
	V	PE302A1	Physical Fitness and Skills HRF Exercises	4
	VI	PE310A1	Organization and Administration in Physical Education	4
			Total	**24**

3.6 M.Tech

3.6.1 M.Tech Structural Engineering

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA505A1	Advanced Engineering Mathematics and Optimization	3	CE503A1	Advanced Concrete Technology	3
CE501A1	Structural Dynamics	3	CE504A1	Finite Element Method	3
CE502A1	Advanced Structural Analysis	3	CE505A1	Applied Elasticity for Engineers	3
CE501A3	Program Elective I/ Adv. Design of RC Struc.	3	CE510A3	Program Elective III/ Adv. Foundation Engg.	3
CE507A3	Program Elective II/ Engg. Seismology	3	CE513A3	Program Elective IV/ Adv. Design of Steel str.	3
CE501A4	Concrete and material testing Lab	1.5	CE503A4	Finite Element Analysis Lab	1.5
CE502A4	CAD Lab	1.5	CE504A4	Programming Lab (C/ MATLAB)	1.5
CE501A5	Project Based Learning-I	2	CE502A5	Project Based Learning-II	2
Total		**20**	Total		**20**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CE501A6	Dissertation- Phase-I	15	CE502A6	Dissertation- Phase-II	25
Total		**15**	Total		**25**

List of Program Electives

Sub.Code	Sub. Name
CE501A3	Advanced Design of RC Structures
CE502A3	Design of Masonry Structure
CE503A3	Design of Bridges
CE504A3	Design of Pre-Stress Concrete Structure
CE505A3	Advanced Strength of Materials
CE506A3	Soil Structure Interactions
CE507A3	Engineering Seismology
CE508A3	Composite Materials
CE509A3	Earthquake Resistant Design of Structures
CE510A3	Advanced foundation Engineering
CE511A3	Ground Improvement Techniques
CE512A3	Sustainable Materials and Green Building
CE513A3	Advanced Design of Steel Structures
CE514A3	Structural Health Monitoring
CE515A3	Theory of Plates and Shells
CE516A3	Retrofitting and Rehabilitation of Structures
***MOOC courses as decided by the Department**	

3.6.2 M.Tech Hydrology and Water Resources Engineering

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA-2****A	Advanced Engineering Mathematics and Optimization	3	CE-2****A	Hydrogeology and Geohydrology	3
CE-2****A	Advanced Engineering Hydrology	3	CE-2****A	Irrigation Engineering and Drainage Systems	3
CE-2****A	OPEN CHANNEL FLOW AND SEDIMENT TRANSPORT	3	CE-2****A	WATER RESOURCES PLANNING AND MANAGEMENT	3
CE-2****A	PROGRAM ELECTIVE I	3	CE-203**A	PROGRAM ELECTIVE III	3
CE-2****A	PROGRAM ELECTIVE II	3	CE-203**A	PROGRAM ELECTIVE IV	3
CE-2****A	Hydrology and Hydraulics Lab	1.5	CE-2****A	Modelling Lab (Hydrology/ Hydraulics Software)	1.5
CE-2****A	GIS and Remote Sensing Lab	1.5	CE-2****A	Python/ MATLAB for Water Resources	1.5
CE-2****A	Project Based Learning-I	2	CE-2****A	Project Based Learning-II	2
Total		**20**	Total		**20**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CS601A6	Dissertation- Phase-I	15	CS602A6	Dissertation- Phase-II	25
Total		**15**	Total		**25**

List of Program Electives

Sub.Code	Sub. Name
CE-2****A	Watershed Management and Modelling
CE-2****A	Environmental Hydraulics
CE-2****A	River Engineering and Sediment Transport
CE-2****A	Stochastic Hydrology
CE-2****A	Groundwater Modelling and Management
CE-2****A	Flood Modelling and Management
CE-2****A	Advanced Irrigation Systems
CE-2****A	Water Quality and Pollution Control
CE-2****A	Remote Sensing and GIS Applications
CE-2****A	Urban Hydrology and Stormwater Management
CE-2****A	Dams and Reservoir Engineering
CE-2****A	Coastal and Estuarine Hydraulics
CE-2****A	Decision Support Systems in Water Engineering
CE-2****A	Hydro power Engineering
***MOOC courses as decided by the Department**	

3.6.3 M.Tech Computer Science and Engineering

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CS501A1	Advanced Algorithms	3	CS502A1	THEORY OF COMPUTATION	3
CS5**A3	Elective-I	3	CS5**A3	Elective-V	3
CS5**A3	Elective-II	3	CS5**A3	Elective-VI	3
CS5**A3	Elective-III	3	CS5**A3	Elective-VII	3
CS5**A3	Elective-IV	3	CS5**A3	Elective-VIII	3
CS501A4	MACHINE LEARNING LAB	1.5	CS503A4	ADVANCED PROGRAMMING LAB	1.5
CS502A4	Advanced Algorithms Lab	1.5	CS504A4	Software And Data Analysis Lab	1.5
CS501A5	Project Based Learning- I	2	CS502A5	Project Based Learning- Ii	2
Total		**20**	Total		**20**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CS601A6	Dissertation- Phase-I	15	CS602A6	Dissertation- Phase-II	25
Total		**15**	Total		**25**

LIST OF ELECTIVES (SEMESTER I)

Sub.Code	Sub. Name
CS501A3	Advanced Computer Architecture
CS502A3	Advanced Database System
CS503A3	Bioinformatics
CS504A3	Digital Image Processing
CS505A3	Graph Theory For Computer Engineering Applications
CS506A3	Linux Internals
CS507A3	Real Time Systems
CS508A3	Remote Sensing
CS509A3	System Simulation And Modeling
CS510A3	Advanced Computer Networks
CS511A3	Advanced Software Engineering
CS512A3	Advanced Soft Computing
CS513A3	Object Oriented Analysis And Design Using Uml

CS514A3	Artificial Intelligence
CS515A3	Internet Of Things
CS516A3	Intellectual Property Rights
CS517A3	Machine Learning: Theory And Methods
CS518A3	Advanced Operating Systems
CS519A3	Queuing Theory And Modeling
CS520A3	Computer Vision
CS521A3	Block Chain Coding
CS522A3	Cyber Security
CS523A3	Communication Skills
CS524A3	Social Network Analysis
CS525A3	Parall el And Distributed Algorithms
CS526A3	Quantum Computing
CS527A3	Applications Of Web Technology
CS528A3	Programming In Java
CS529A3	Artificial Neural Network & Applications
CS530A3	User Interface & User Experience

LIST OF ELECTIVE SUBJECTS (SEMESTER II)

Sub.Code	Sub. Name
CS530A3	Advanced Cryptography And Network Security
CS531A3	Big Data
CS532A3	Ad Hoc Wireless Networks
CS533A3	Cloud Computing
CS534A3	Data Warehousing And Data Mining
CS535A3	Geographical Information System
CS536A3	Engineering Research Methodology
CS537A3	Mobile Robotics And Intelligent Systems
CS538A3	Network Security
CS539A3	Optimization Techniques
CS540A3	Vlsi Design
CS541A3	Wireless Sensor Networks
CS542A3	Data Analytics
CS543A3	Distributed Systems
CS544A3	Object Oriented Systems
CS545A3	Software Quality Management
CS546A3	Speech And Natural Language Processing
CS547A3	Deep Learning
CS548A3	Distributed Database Systems
CS549A3	Mobile Computing

CS550A3	High Performance Computing
CS551A3	Human Computer Interaction
CS552A3	Agile Methodology
CS553A3	Security & Ethical Hacking
CS554A3	Soft Skills In Industry
CS555A3	Introduction To Embedded System
CS556A3	Advanced Python Programming
CS557A3	Design Thinking For Engineering

3.7 Master of Computer Applications (MCA)

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
MA506A1	MATHEMATICAL FOUNDATIONS FOR COMPUTING	3	MA502A1	QUANTITATIVE ANALYSIS FOR COMPUTER APPLICATIONS	3
CA501A1	LATEST TRENDS IN COMPUTER APPLICATION	3	CA509A1	UNIX/LINUX INTERNAL	3
CA502A1	DATABASE MANAGEMENT SYSTEM	3	CA510A1	.NET FRAMEWORK	3
CA503A1	OPERATING SYSTEMS	3	CA511A1	COMPUTER NETWORK	3
CA504A1	JAVA PROGRAMMING	3	CA***A3	ELECTIVE –I	3
BA000A1	ACCOUNTING AND MANAGERIAL ECONOMICS	3	CA***A3	ELECTIVE- II	3
CA505A4	OPERATING SYSTEMS LAB	1	CA512A4	UNIX/LINUX INTERNAL LAB	1
CA506A4	JAVA PROGRAMMING LAB	1	CA513A4	COMPUTER NETWORK LAB	1
CA507A4	DATABASE MANAGEMENT SYSTEM LAB	1	CA514A4	.NET LAB	1
Total		**21**	Total		**21**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CA601A1	DESIGN & ANALYSIS OF ALGORITHMS	3	CA607A6	MAJOR PROJ-ECT	16
CA602A1	SOFTWARE ENGINEERING AND UNIFIED MODELLING LANGUAGE	3			
CA***A3	ELECTIVE-III	3			
CA***A3	ELECTIVE-IV	3			
CA607A1	FORMAL LANGUAGES AND AUTOMATA THEORY	3			
CA603A4	SOFTWARE ENGINEERING AND UML LAB	1			
CA604A4	DESIGN & ANALYSIS OF ALGORITHMS LAB	1			
CA605A5	MINOR PROJECT	6			
CA606A9	INDUSTRIAL TRAINING / COURSEWORK	1			
Total		**24**	Total		**16**

List of Electives:

ELECTIVES I

Subject Code	Subject name
CA551A3	BIOINFORMATICS
CA552A3	DIGITAL IMAGE PROCESSING
CA553A3	MANAGEMENT INFORMATION SYSTEM
CA554A3	OPTIMIZATION TECHNIQUE
CA555A3	MOBILE APPLICATION DEVELOPMENT
CA556A3	ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM
CA557A3	IT LAW AND PRACTICES
CA558A3	COMPUTER ORGANIZATION AND ARCHITECTURE
CA559A3	PYTHON PROGRAMMING
CA560A3	ANGULAR JS, REACT JS AND VUE JS

ELECTIVES II

Specialization	Subject Code	Subject name
DATA SCIENCE	CA561A3	DATA SCIENCE
CLOUD TECHNOLOGY	CA562A3	CLOUD COMPUTING
CYBER SECURITY	CA563A3	PRINCIPLES OF CYBER SECURITY

ELECTIVES III & IV		
DATA SCIENCE	CA651A3	STATISTICAL FOUNDATIONS OF DATA SCIENCE
	CA652A3	DATA WAREHOUSING AND DATA MINING
	CA653A3	DATA ANALYTICS USING PYTHON
	CA654A3	MACHINE LEARNING
	CA655A3	SECURITY AND PRIVACY FOR DATA SCIENCE
	CA656A3	IMAGE ANALYTICS AND VISUALIZATION
	CA657A3	DEEP LEARNING
	CA658A3	NATURAL LANGUAGE PROCESSING
	CA659A3	BIG DATA ANALYTICS
	CA660A3	BUSINESS INTELLIGENCE AND ANALYTICS
CLOUD TECHNOLOGY	CA661A3	SCHEDULING IN CLOUD COMPUTING
	CA662A3	CLOUD ARCHITECTURE AND TECHNOLOGY
	CA663A3	BIG DATA AND ITS APPLICATIONS IN CLOUD
	CA664A3	DISTRIBUTED SYSTEM
	CA665A3	CLOUD COMPUTING AND SECURITY
	CA666A3	EDGE AND FOG COMPUTING
	CA667A3	VIRTUALIZATION CONCEPTS
	CA668A3	CLOUD APPLICATION DEVELOPMENT
	CA669A3	CLOUD ANALYTICS
	CA670A3	PRIVATE CLOUD DEPLOYMENT AND MANAGEMENT

CYBER SECURITY	CA671A3	CRYPTOGRAPHY
	CA672A3	PRIVACY AND SECURITY IN WEB APPLICATION
	CA673A3	NETWORK AND INFORMATION SECURITY
	CA674A3	COMPUTATIONAL NUMBER THEORY & CRYPTOGRAPHY
	CA675A3	INTERNET SECURITY AND PRIVACY
	CA676A3	IOT SECURITY AND PRIVACY
	CA677A3	CLOUD COMPUTING AND SECURITY
	CA678A3	BLOCKCHAIN TECHNOLOGY
	CA679A3	EMBEDDED AND CYBER PHYSICAL SYSTEMS SECURITY
	CA680A3	GAME THEORY

3.8 Master of Business Administration (MBA)

FIRST SEMESTER			**SECOND SEMESTER**		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
BA501A1	Principles of Management and Organizational Behavior	3	MA503A1	Quantitative Methods in Management	4
BA502A1	Marketing Management	3	MA504A1	Research Methodology and Statistical Techniques	4
BA503A1	Accounting for Managers	3	BA507A1	Human Resource Management	3
BA504A1	Business Economics	3	BA508A1	Financial Management	3
BA505A1	Business Communication	2	BA509A1	Productions and Operations Management	3
	Computer Applications in Management	3	BA510A1	Global Economic Environment and Policy	3
BA506A1	Legal Aspects in Business	3		Management Information Systems	3
BA501A7	Research Seminar I	1	BA503A4	SPSS - LAB	2
BA501A4	Managerial Skills and Personality Development- LAB	2			
BA502A4	MS-Office – LAB	2			
Total		**25**	Total		**21**

THIRD SEMESTER			FOURTH SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
BA601A9	Project Management	2	BA605A1	Banking and Insurance Management	3
BA601A1	Research Seminar II	1	BA602A7	Research Trends in Management (Grand Viva Voce)	3
BA601A7	Business strategy	3	BA606A1	Market Research	4
BA602A1	Summer Internship Project *(8-10 weeks)	6	BA607A1	Service Marketing and Global Marketing	4
BA603A1	Consumer Behaviour & Advertisement and Brand Management	4			
BA604A1	Retail and Distribution Management & Supply Chain Management	4			
BA601A4	MS Project Management and Tally- Lab	2			
Specialization (4+4)		8	**Specialization (4+4)**		8
Total		**30**	**Total**		**22**

List of Specialization:

Out of the following eight Specializations I/II/III/IV/V/VI/VII/VIII,

anyone must be opted for in Semester-III and Semester-IV

Specialization	Semester	Subject Code	Subject name	C
Specialization-I (Finance)	**3rd**	BA601A3	Security Analysis and Portfolio Management & Derivative Market	4
		BA602A3	Taxation	4
Specialization-II (Human Resource)		BA603A3	Industrial Relation	4
		BA604A3	Competency Mapping & Performance Management	4
Specialization-III (Digital Marketing)		BA605A3	An Overview of Digital Marketing	4
		BA606A3	Social Media Marketing	4
Specialization-IV (Banking & Insurance)		BA607A3	Rural Banking	4
		BA608A3	CRM in Banking and Insurance	4
Specialization-V (Operations & Supply Chain Management)		BA609A3	Total Quality Management for Business Excellence	4
		BA610A3	Service Operations Management	4
Specialization-VI (Event Management & PR)		BA611A3	Principles of Event Management	4
		BA612A3	Event Management and Resource Management	4
Specialization-VII (System)		BA613A3	Object Oriented Programming System & Open Source System	4
		BA614A3	Database Management Systems	4
Specialization-VIII (Business Analytics)		BA615A3	Introduction to Business Analytics	4
		BA616A3	Introduction to R	4

Specialization I (Finance)	**4TH**	BA619A3	Multinational Finance & Risk Exposure Management	4
		BA620A3	Marketing of Financial Services & Mergers and Acquisitions	4
Specialization II (Human Resource)		BA621A3	Organization Development & Human Resource Development	4
		BA622A3	Compensation Management & International Human Resource Management	4
Specialization-III (Digital Marketing)		BA623A3	Advance Search Engine Optimization	4
		BA624A3	Web Analytics	4
Specialization-IV (Banking & Insurance)		BA625A3	International Banking and Finance	4
		BA626A3	Insurance Claim Management	4
Specialization-V (Operations & Supply Chain Management)		BA627A3	Operations Strategy	4
		BA628A3	Sustainable Operations Management	4
Specialization-VI (Event Management & PR)		BA629A3	Event Risk Management	4
		BA630A3	Legal Aspects of Event Management	4
Specialization-VII (System)		BA631A3	E-Commerce	4
		BA632A3	Technology Management and Strategy	4
Specialization-VIII (Business Analytics)		BA633A3	Data Analytics using R	4
		BA634A3	Data Warehousing & Data Mining	4
# Minimum 10 students are required to be enrolled in order to run a specialization.				

List of Open Elective

Sub Code	Sub Name	C
BA10201A	Entrepreneurship for Engineers (In collaboration with Atal Incubation Centre)	3

3.9 Schema of all M.Sc. courses

3.9.1 Schema of M.Sc. (Physics)

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH501A1	MATHEMATICAL PHYSICS	4	PH511A1	CLASSICAL AND RELATIVISTIC ELECTRODYNAMICS	4
PH502A1	FUNDAMENTALS OF ELECTRONICS	4	PH512A1	CONDENSED MATTER PHYSICS	4
PH503A1	CLASSICAL MECHANICS	4	PH513A1	COMPUTATIONAL PHYSICS - I	3
PH504A1	QUANTUM MECHANICS I	4	PH514A1	QUANTUM MECHANICS II	3
PH505A4	PHYSICS LAB I (GEN. PHYSICS)	3	PH515A4	PHYSICS LABORATORY III (ELECTRONICS)	3
PH506A4	PHYSICS LAB II (PHOTONICS & SPECTROSCOPY)	3	PH516A4	PHYSICS LABORATORY IV (COMPUTATIONAL PHYSICS LAB - I)	3
			PH517A5	PROJECT BASED LEARNING – I	3
			PH511A1	CLASSICAL AND RELATIVISTIC ELECTRODYNAMICS	2
Total		**22**	Total		**22**

THIRD SEMESTER GROUP A (THEORY)			FOURTH SEMESTER GROUP A (THEORY)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH601A1	STATISTICAL MECHANICS	4	PH611A1	ATOMIC & MOLECULAR PHYSICS	4
PH602A1	NUCLEAR & PARTICLE PHYSICS	4	PH612A4	COMPUTATIONAL PHYSICS LAB II	3
PH603A1	COMPUTATIONAL PHYSICS - II	3	PH614A3	ELECTIVE-I: PARTICLE PHYSICS II	4
PH604A3	ELECTIVE-I: PARTICLE PHYSICS I	4	PH615A3	ELECTIVE-I: PLASMA PHYSICS II	4
PH605A3	ELECTIVE-I: PLASMA PHYSICS I	4	PH618A6	*(DISSERTATION/ PROJECT)	5
PH608A5	PROJECT BASED LEARNING – II	2			
Total		**22**	Total		**20**

THIRD SEMESTER GROUP B (EXPERIMENTAL)			FOURTH SEMESTER GROUP B (EXPERIMENTAL)		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PH601A1	STATISTICAL MECHANICS	4	PH611A1	ATOMIC & MOLECULAR PHYSICS	4
PH602A1	NUCLEAR & PARTICLE PHYSICS	4	PH612A4	COMPUTATIONAL PHYSICS LAB II	3
PH603A1	COMPUTATIONAL PHYSICS - II	3	PH616A3	ELECTIVE-II: ELECTRONICS - II	4
PH606A3	ELECTIVE-II: ELECTRONICS - I	4	PH617A3	ELECTIVE-II: ELECTRONICS LAB - II	4
PH607A3	ELECTIVE-II: ELECTRONICS LAB - I	4	PH618A6	*(DISSERTATION/ PROJECT)	5
PH608A5	PROJECT BASED LEARNING – II	2			
Total		**21**	Total		**20**

3.9.2 Schema of M.Sc. (Chemistry) [Two Year]					
FIRST SEMESTER			**SECOND SEMESTER**		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH501B1	Principles of Inorganic Chemistry	4	CH505B1	Modern Spectroscopic Technique	4
CH502B1	Principles of Organic Chemistry	4	CH506B1	Organic Reactions and Mechanisms	4
CH503B1	Chemical Thermodynamics	4	CH507B1	Biochemistry	4
CH504B1	Analytical Chemistry	4	CH508B1	Quantum Chemistry- I	4
CH501B4	Physical Chemistry Lab	3	CH505B6	Dissertation (6 months)	4
CH502B4	Analytical Chemistry Lab	3			
Total		**22**	**Total**		**20**

THIRD SEMESTER			**FOURTH SEMESTER**		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
CH601B1	Advanced Coordination Chemistry & Inorganic Reaction Mechanism	4	CH604B1	Bio-inorganic Chemistry	3
CH602B1	Concepts in Organic Synthesis	4	CH605B1	Solid State Chemistry and Interface Science	3
CH603B1	Chemical Dynamics and Electrochemistry	4	CH606B1	Group Theory – A Chemist Approach	3
EL-I	Elective I (special paper)	4	CH607B1	Quantum Chemistry-II	3
CH601B4	Inorganic Chemistry Lab	3	EL-II	Elective II (Special Paper)	4
CH602B4	Organic Chemistry Lab	3	CH602B6	Research Project Work	4
CH601B5	Project Based Learning	1			
Total		**23**	Total		**20**
				Total	**85**

List of Electives					
Elective-I			**Elective-II**		
Sub. Code	**Subject Name**	**C**	**Sub. Code**	**Subject Name**	**C**
CH601B3	Photoinorganic Chemistry	4	CH604B3	Chemistry of Nanomaterials	4
CH602B3	Synthetic Organic Chemistry	4	CH605B3	Supramolecular Chemistry	4
CH603B3	Advanced Physical Chemistry	4	CH606B3	Medicinal Chemistry	4

3.9.3 M.Sc. APPLIED PSYCHOLOGY :

FIRST SEMESTER			SECOND SEMESTER		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY501A1	Advanced Physiological Psychology	4	PY506A1	Positive Psychology	4
PY502A1	Advanced Cognitive Psychology	4	PY507A1	Indian Psychology	4
PY503A1	Research Methods & Statistics	4	PY508A1	Psychological Assessment	4
PY504A2	Psychology of Individual Differences	4	PY509A2	Health Psychology	4
PY501A4	Psychological Assessment Lab	2	PY501A9	Summer Internship	4
PY505A1	Artificial Intelligence in Psychology	2	PY511A1	Professional Ethics and Universal Human Values	3
PY510A1	Cybersecurity	2			
Total		22	Total		23
			FIRST YEAR TOTAL		45
THIRD SEMESTER			**FORTH SEMESTER**		
Sub Code	**Subject Name**	**C**	**Sub Code**	**Subject Name**	**C**
PY601A1	Qualitative Research	4	PY607A1	Cross-Cultural Psychology	4
PY602A1	Environmental Psychology	4	PY602A6	Dissertation	8
PY601A6	Dissertation (Phase I)	4			
	Total + Elective	20		Total + Elective	20

	Semester	**Subject Code**	**Subject name**	**C**
Clinical Psychology	3rd	PY603A3	Psychopathology and Behaviour Dysfunction	4
	3rd	PY604A3	Clinical Neuropsychology	4
Social Psychology	3rd	PY605A3	Social Cognition & Behaviour	4
	3rd	PY606A3	Social Relationship & Technology	4
Clinical Psychology	4th	PY608A3	Neurocognitive and Neurodevelopmental Disorders	4
	4th	PY609A3	Psychotherapeutic Interventions	4
Social Psychology	4th	PY610A3	Group Dynamics and Interpersonal Processes	4
	4th	PY611A3	Applied Social Psychology	4

3.10 Skill Based Courses				
SKILL BASED COURSES				
S/No	**Title in SWAYAM Plus**	**Semester**	**NCrF**	**Hours**
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)				
01.	Mastering Gen AI	6th Sem	6.0	100 hrs
02.	Cyber Security	6th Sem	6.5	60 hrs
DEPARTMENT OF CIVIL ENGINEERING (CE)				
01.	Fundamentals of Engineering Project Management	6th Sem	4.5	30 hrs
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (CSE) & MATHEMATICS				
01.	Application of Deep Learning and Neural Networks	6th Sem	6.0	90 hrs
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (ECE)				
01.	Embedded Systems	4th Sem	6.0	60 hrs
02.	Applied Industrial IoT	5th Sem	6.0	24 hrs
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING (EEE) & MECHANICAL ENGINEERING (ME)				
01.	Robotics and Digitalization in Manufacturing	6th Sem	4.5	35 hrs
DEPARTMENT OF INFORMATION TECHNOLOGY (IT)				
01	Cyber Security	4th Sem	6.5	60 hrs
02	Cyber Security Analyst	5th Sem	5	80 hrs
DEPARTMENT OF COMPUTER APPLICATIONS (CA)				
01.	Backend Development (Java Spring Boot) (PE-I)	5th Sem	5.5	90 hrs
02.	Cyber Security Analyst (PE-II)	6th Sem	5	90 hrs
DEPARTMENT OF MANAGEMENT STUDIES (MGT STUDIES)				
01.	Principles of Investment	5th Sem	5.5	60 hrs
DEPARTMENT OF MANAGEMENT STUDIES (MGT STUDIES)				
01.	Principles of Investment	5th Sem	5.5	60 hrs
DEPARTMENT OF PSYCHOLOGY AND COMPUTER APPLICATIONS				
01.	Soft Skills and Employability	6th Sem	5.0	45 hrs
DEPARTMENT OF MATHEMATICS				
01.	Data Science	6th Sem	6.5	60 hrs
DEPARTMENT OF PHYSICS				
01.	Quantum Computing Fundamentals	5th Sem	5.5	60 hrs
DEPARTMENT OF CHEMISTRY				
01.	Advanced Instrumentation Techniques	2nd Sem	4.5	45 hrs

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6	Dr. Anirban Sengupta	Deputy Registrar (Academics)	8910356430	dyregistrar.acad@smit.smu.edu.in	C-107	224

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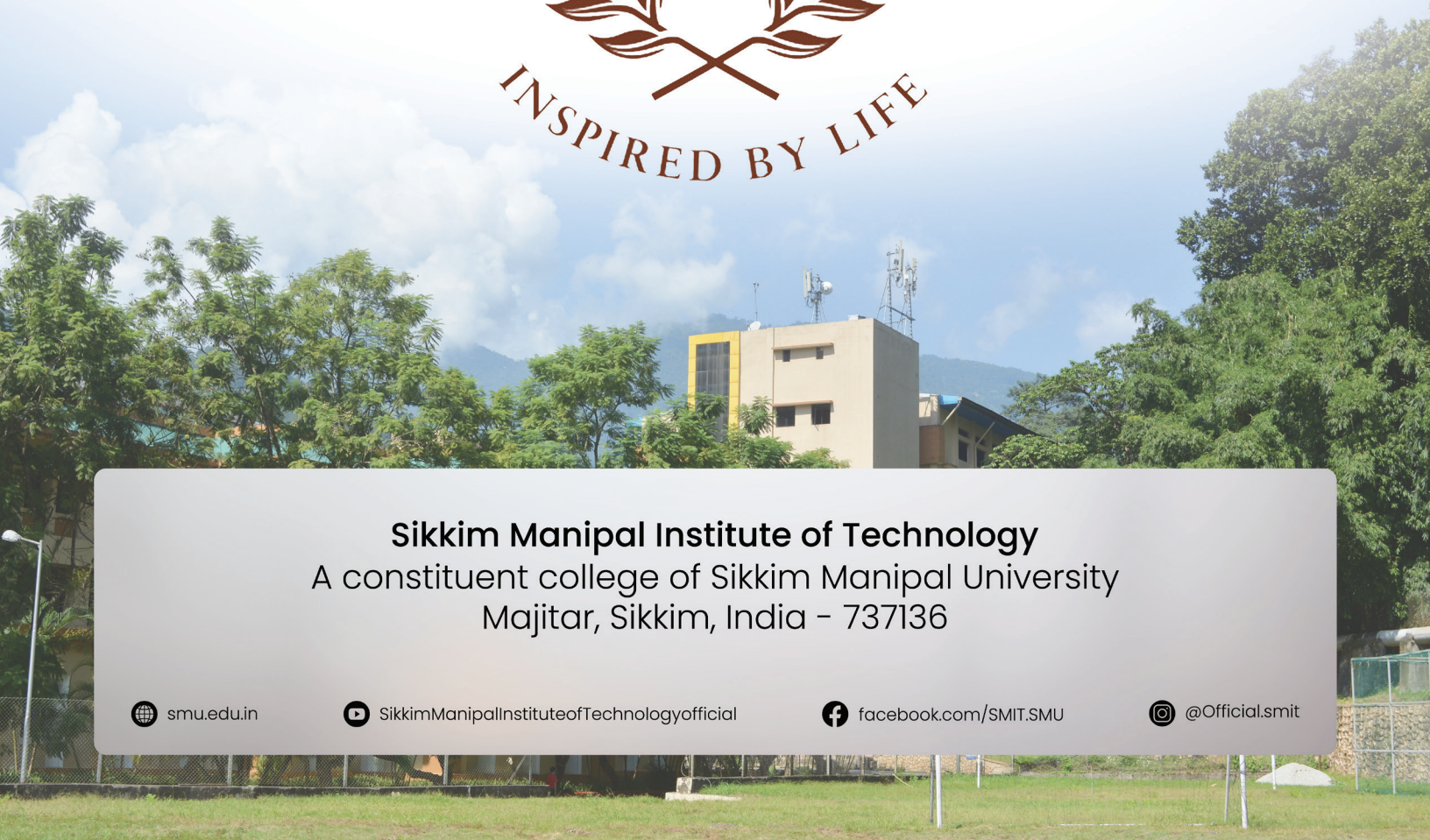
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2	Fire Brigade	East Sikkim	101 / (+91 3592) 233722 / (+91 3592) 202022			
3	Natural Calamities Dept.	East Sikkim	(+91 3592) 202371 / 202001			

विद्या ददाति विनयं विनयाद्याति पात्रताम् ।
पात्रत्वाद्धनमाप्नोति धनाद्धर्मं ततः सुखम् ॥

"Knowledge gives discipline,
from discipline comes worthiness,
from worthiness one gets wealth,
from wealth one does good deeds,
from that comes the happiness."

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