BANGALORE UNIVERSITY

REGULATIONS

GOVERNING THE CHOICE BASED CREDIT SYSTEM 2021 (SEMESTER SYSTEM) FOR THE FOUR-YEAR UNDERGRADUATE B.TECH PROGRAMME UNDER THE NEW NATIONAL EDUCATION POLICY – 2020

UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING
K R Circle, Bengaluru-560 001.

BANGALORE UNIVERSITY

VISION

"To strive for excellence in education for the realization of a vibrant and inclusive society through knowledge creation and dissemination"

MISSION

- Impart quality education to meet national and global standards
- Blend theoretical knowledge with practical skills
- Pursue academic excellence through high quality research and publications
- Provide access to all sections of society to pursue higher education
- Inculcate right values among students while encouraging competitiveness to promote leadership qualities
- Develop Socially responsible, Ethically acceptable citizens
- Improve the process of creating a knowledge based society
- To contribute to nation building
- Holistic and Multi-disciplinary education with enhanced access, equity and quality for all

BANGALORE UNIVERSITY

UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING

K R Circle, Bengaluru – 560 001.

University Visvesvaraya College of Engineering popularly known as UVCE was started as a School of Mechanical Engineering by Bharat Ratna Sir. M Visvesvaraya, in the year 1913, to meet the needs of the State for skilled workers with Shri. S V Setty as its Superintendent. Later, it was converted to a full-fledged Engineering College in the year 1917 and designated as The Government Engineering College (GEC) and was affiliated to the University of Mysore. It is the fifth Engineering College established in the country.

After the carving of Bangalore University in 1964, The GEC metamorphosed as University College of Engineering (UCE) and later as University Visvesvaraya College of Engineering (UVCE) to become one of the leading Constituent Colleges of Bangalore University. This is one of the oldest Institutions in the country imparting technical education leading to B.Tech., M.Tech., B.Arch., M.Sc.(Engineering) by Research, M.Arch. and Ph.D. degrees in various disciplines of Engineering and Architecture. The Institution currently offers 8 Undergraduate and 24 Postgraduate Programmes.

VISION

The vision of UVCE is to strive for excellence in advancing engineering education through path breaking innovations across the frontiers of human knowledge to realize a vibrant, inclusive and humane society.

MISSION

The mission of UVCE is to prepare human resource and global leaders to achieve the above vision through discovery, invention and develop friendly technologies to promote scientific temper for a healthy society. UVCE shapes engineers to respond competently and confidently to the economic, social and organizational challenges arising from globally advancing technical needs.

NATIONAL EDUCATION POLICY (NEP) – 2020

National Education Policy-2020 envisions an education system rooted in Indian ethos that contributes directly to transforming India sustainably into an equitable and vibrant knowledge society by providing high-quality education to all and thereby making India a global knowledge superpower.

In line with the aim and vision of NEP-2020 and its effective implementation in Engineering and Technology, UVCE is proposing a model curriculum framework for Undergraduate program in Engineering and Technology to achieve the intentions of following 12 Graduate Attributes (GA):

GA01: ***A Knowledge Base for Engineering:*** Demonstrated competence in university-level mathematics, natural sciences, engineering fundamentals, and specialized engineering knowledge appropriate to the program.

GA02: ***Problem Analysis:*** An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems to reach substantiated conclusions.

GA03: ***Investigation:*** An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis, and interpretation of data, and synthesis of information in order to reach valid conclusions.

GA04: ***Design:*** An ability to design solutions for complex, open-ended engineering problems and to design systems, components, or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural, and societal considerations.

GA05: ***Use of Engineering Tools:*** An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations.

GA06: ***Individual and Teamwork:*** An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.

GA07: ***Communication Skills:*** An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking, and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.

GA08: ***Professionalism:*** An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.

GA09: ***Impact of Engineering on Society and the Environment:*** An ability to analyze social and

environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.

GA10: ***Ethics and Equity:*** An ability to apply professional ethics, accountability, and equity.

GA11: ***Economics and Project Management:*** An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of engineering and to understand their limitations.

GA12: ***Life-Long Learning:*** An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge.

BANGALORE UNIVERSITY

UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING

K R Circle, Bengaluru – 560 001.

Departments of UVCE, Bangalore University, Bengaluru:

1. Department of Civil Engineering.
2. Department of Mechanical Engineering.
3. Department of Electrical Engineering.
4. Department of Electronics and Communication Engineering.
5. Department of Computer Science and Engineering.
6. Department of Architecture.

DEPARTMENT OF CIVIL ENGINEERING (CV)

Name of programme: B.Tech. in Civil Engineering

Program Educational Objectives (PEOs)

The graduates will be able to:

CVPEO1: Excel in their professional career by practicing factual, analytical, procedural, application in the field of computing and Civil Engineering.

CVPEO2: Perceive higher education in the field of Civil Engineering / Management.

CVPEO3: Apply the principles of sustainable development and global interconnectedness to solve societal and environmental issues.

CVPEO4: Use the techniques, skills, and modern engineering tools necessary for Civil Engineering and work as a team members.

Program Specific Outcomes (PSOs)

The graduate will be able to:

CVPSO1: Analyze soil-structure interaction and design of buildings/structures.

CVPSO2: Plan, analyze and design of transportation and water supply/wastewater systems.

CVPSO3: Analyze and design of irrigation and water resource projects.

DEPARTMENT OF MECHANICAL ENGINEERING (ME)

Name of programme: B.Tech. in Mechanical Engineering

Program Educational Objectives (PEOs)

MEPEO1: Graduates shall have successful career in the field of mechanical and other allied fields of engineering with a thorough knowledge of the fundamentals and applications in Mechanical Engineering, including pursuing of higher studies in Mechanical Engineering and Management.

MEPEO2: Graduates shall be able to solve problems by adopting analytical, numerical, experimental and managerial skills keeping in view of the societal and environmental impact with a focus on research, development and innovation in Design, Manufacturing, Materials and Thermal engineering.

MEPEO3: Graduates shall have effective communication skills and ability to work individually and in team, zeal for entrepreneurship and involve in lifelong learning.

Program Specific Outcomes (PSOs):

The graduates will be able to:

MEPSO1: Design mechanical systems and conduct performance tests by applying the basics and advances in the field of Design and Thermal Engineering.

MEPSO2: Compare the capabilities of different manufacturing processes including latest advancements in applications of computers in Automation and Manufacturing.

MEPSO3: Characterise and compare the different materials for Engineering applications.

DEPARTMENT OF ELECTRICAL ENGINEERING (EE)

Name of programme: B.Tech. in Electrical and Electronics Engineering

Program Educational Objectives (PEOs)

The PEOs have been evolved for the UG course B.Tech in Electrical and Electronics Engineering as follows:

The PEOs of the program are as under:

EEPEO1: Possess successful careers in Electrical and Electronics Engineering and allied areas and pursue higher education with a broad knowledge base in Mathematics and Engineering principles.

EEPEO2: Utilize their technical, analytical, communicative and managerial skills and knowledge for societal progress and enrich them to keep in pace with relevant advancement by engaging themselves in lifelong learning.

EEPEO3: Exhibit professionalism by displaying competence, leadership, dedication and commitment.

PROGRAM SPECIFIC OUTCOMES (PSOs)

The students will have the ability to:

EEPSO1: Develop models, analyze and assess the performance of different types of generation, transmission, distribution and protection mechanisms in power systems.

EEPSO2: Design, develop, analyze and test electrical and integrated electronics systems; deploy control strategies for power electronics related and other applications.

EEPSO3: Measure, analyze, model and control the behaviour of electrical quantities associated with constituents of energy or allied systems.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (EC)

Name of programme: B.Tech. in Electronics and Communication Engineering

Program Educational Objectives (PEOs)

Graduates will be able to:

ECPEO1: Pursue career in the field of Electronics and Communication and allied domains.

ECPEO2: Analyse, model, design and test electronic devices, circuits and systems at nano-scale integration level for applications in Communication and Signal processing.

ECPEO3: Pursue higher education and will exhibit professionalism and demonstrate competence, leadership with effective communication skill.

PROGRAM SPECIFIC OUTCOMES (PSOs)

ECPSO1: Identify and apply the knowledge of basic science subjects and engineering to solve problems of Electronics and Communication Engineering.

ECPSO2: Design, develop, analyze, test and model electronics systems by applying basics and advances in Electronics to multi-disciplinary applications.

ECPSO3: Ability to work in multi-disciplinary teams by possessing effective communication skills.

ECPSO4: Exhibit professional ethics with an ability to promote self-learning and lifelong learning including venturing into entrepreneurship.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (CS)

The Department offers 3 UG Programmes:

(1) Computer Science and Engineering (CS)

(2) Information Science and Engineering (IS)

(3) Artificial Intelligence and Machine Learning (AI)

(1) B.Tech. in Computer Science and Engineering

Program Educational Objectives (PEOs)

Students will be able to:

CSPEO1: Have successful career as Computer Science engineers with a sound knowledge of fundamentals.

CSPEO2: Solve problems by adopting analytical, numerical, experimental and managerial skills keeping in view of societal impact.

CSPEO3: Communicate effectively and work individually and in team.

CSPEO4: Inculcate awareness and commitment to professional ethics, lifelong learning and promoting entrepreneurships.

Program Specific Outcomes (PSOs)

CSPSO1: Identify and apply the knowledge of computer engineering concepts to solve the current IT problems.

CSPSO2: Design, analyze and implement network, mobile, web-based and security applications using the state-of-art technologies, standards and tools.

(2) B.Tech. in Information Science and Engineering

Program Educational Objectives (PEOs)

Students will be able to:

ISPEO1: Excel as Information Science Engineers with adaptive and agile skills in information processing.

ISPEO2: Have successful careers in industry, research organisations and institutions of higher learning.

ISPEO3: Solve problems by adopting analytical, numerical and experimental skills in IT industries.

ISPEO4: Cultivate professional ethics, lifelong learning and effective communication.

Program Specific Outcomes (PSOs)

ISPSO1: Identify and apply the knowledge of basic information science engineering concepts to solve the current IT problems.

ISPSO2: Develop IT based applications using the state -of -art technologies, standards and tools.

(3) B.Tech. in Artificial Intelligence and Machine Learning

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Students will be able to:

AIPEO1: Build next generation highly skilled graduates equipped with a strong knowledge in Artificial intelligence (AI) and Machine Learning (ML) for creating innovative solutions to society's recent challenges.

AIPEO2: Create engineers to address a wide variety of challenges in managing and analyzing different nature of real-world problems and able to develop AI based software systems.

AIPEO3: Demonstrate professionalism in graduates and reflect on personal performance and self-management processes as a means of continued professional development and lifelong learning in areas of emerging technologies.

AIPE04: Cultivate professional ethics, continuous learning and effective communication.

PROGRAM SPECIFIC OUTCOMES (PSOs)

AIPSO1: Identify and apply the knowledge of Artificial Intelligence and Machine Learning concepts to solve problems.

AIPSO2: Design, analyze and implement Artificial Neural Network, Multilayer Neural Network, Classification Algorithms, Segmentation, Object Detection, Security and other Applications using the state-of-art technologies, standards and tools.

CHOICE BASED CREDIT SYSTEM (CBCS) 2021

(As per NEP 2020)

Academic Rules and Regulations 2021

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CHOICE BASED CREDIT SYSTEM (CBCS)
(As per NEP 2020)

Preamble:

The University Grants Commission, New Delhi, in its 12th Plan Guidelines, directed the Universities in the country to implement the Choice Based Credit System (CBCS) to set a benchmark in the University education and fulfil expectations of all the stakeholders.

NEP-2020 is designed to meet the contemporary and futuristic needs of India's large youth population. The policy addresses the changing dynamics of the requirements in terms of quality education, innovation and research. The policy is built on the pillars of access, equity, affordability and accountability which focuses on eliminating the shortage of manpower in science, technology, academics and industry.

1. OBJECTIVES

(i) Promoting student-centric learning practices including active learning, PBL (Problem Based Learning), and service learning pedagogies.

(ii) Student-centric curriculum focusing on problem-solving and critical thinking skills.

(iii) Encouraging a multidisciplinary approach for holistic growth of the students.

(iv) Making education broad-based. Students can earn credits by choosing different combinations.

(v) Help self-paced learning with flexibility.

(vi) Facilitate students to communicate effectively and convince the society to adapt/practice/use the designed solution for the complex problems during their study.

(vii) Students will undergo 2-week mandatory induction program at the beginning of the program itself.

(viii) Students would be exposed to a one-year foundation course in Basic Sciences, Engineering sciences, language capacities, reading and writing, thinking capacities in terms of innovation, research & creativity.

(ix) Short-duration internal Internships will be offered at the end of the first year and second year.

(x) Students would be allowed to study advanced topics from professional core courses, elective courses in emerging fields, multidisciplinary open electives, and ability enhancement courses during the program.

(xi) Students will be allowed to study core courses and electives to gain critical thinking, problem-solving, and learn concepts to obtain the solution for simple problems, and enhance their scientific and innovative thinking during the course of study. Students would be taking six months of Research/Industry Internships at the end of the 6th / 7th Semester.

(xii) Activity points programme as prescribed by AICTE is incorporated in the curriculum.

(xiii) Students would be engaged in experiential learning through community services as per activity points to be earned, prescribed by AICTE. This activity will sensitize the students

to understand societal problems and also allow them to give solutions to the problem faced by the different persons across different social systems.

(xiv) A four-year Bachelor's Degree may be awarded with major and minor stream, if a student earns an additional minimum of 18 credits in various fields of their choice or passion, such as Yoga, Fine Arts, Music, etc., through online / offline courses as prescribed by the university.

(xv) Students who obtain a CGPA ≥ 8.5 and continue to maintain this CGPA with No "F" grades at any point of time will be eligible to obtain an Honors degree if the student earns an additional minimum of 18 credits through online mode as prescribed by the University.

(xvi) Students will have to opt for either a major / Honors and minor degree.

(xvii) In the curriculum design based on the nature of the course offered, some of the topics may be covered through self-study components to enhance their learning.

(xviii) Proposed to have blended mode (offline & online) of teaching and learning. Emphasis on formative assessment which focuses on assessment for learning (University may publish assessment rubrics on all / some of the competencies and skills).

(xix) Integration of Laboratory and Theory courses, wherever appropriate, may be introduced.

(xx) Open-ended experiments as part of laboratory courses may also be introduced.

(xxi) Promoting the use of technology in curriculum delivery and the use of ICT must be considered.

(xxii) It is to enhance specialized post-graduate education in the country, students are permitted to continue their education in various disciplines.

(xxiii) If the student earns an additional 30 to 40 credits will be awarded PG Diploma and further if they earn another 40 credits will be awarded M.Tech. degree (Integrated). This would help to enhance the availability of human resources in the specialization.

(xxiv) It is proposed to start 5-year Dual Degree B.Tech. + MBA program.

2. SHORT TITLE AND COMMENCEMENT

2.1 These Regulations shall be called "Regulations Governing the Choice Based Credit System 2021 (Semester System) for the Four-Year Undergraduate B.Tech Programme under the new National Education Policy – 2020".

2.2 These Regulations shall come into force for award of Degrees from the date of assent of the Chancellor (2021 – 22 batch and onwards).

3. DEFINITIONS

(a) University: Bangalore University, Bengaluru (BUB).

(b) College: University Visvesvaraya College of Engineering (UVCE).

(c) Commission: University Grants Commission (UGC).

(d) Policy: National Education Policy (NEP).

(e) Council: All India Council for Technical Education (AICTE) or Council of Architecture (COA).

(f) Statutes: Bangalore University Statutes.

(g) Programme: An educational Programme leading to award of a Degree, Diploma or Certificate.

(h) Regular Students: Students admitted to B.Tech. or B.Arch. Programmes after PUC (10+2) or equivalent.

(i) Lateral Entry Students: Students admitted to the III semester of engineering (second year) Programme after completing Diploma in the respective discipline.

(j) Degree: B.Tech. / B.Arch. undergraduate Degree.

(k) Branch: Specialization in a Programme, for example, B.Tech. Degree Programme in Civil Engineering or B.Tech. Degree Programme in Mechanical Engineering or B.Tech. Degree Programme in Electrical and Electronics Engineering or B.Tech. Degree Programme in Electronics and Communication Engineering or B.Tech. Degree Programme in Computer Science and Engineering or B.Tech. Degree Programme in Information Science and Engineering or B.Tech. Degree Programme in Artificial Intelligence and Machine Learning and B.Arch. Degree Programme in Architecture.

(l) Course: A subject either theory or practical, identified by its title and the course code. All courses need not have the same credit. The courses should define learning objectives and learning outcomes. A course may be designed to comprise of Lectures / Tutorials / Laboratory Work / Field Work / Outreach Activities / Project Work / Vocational Training / Viva / Seminars / Term Papers / Assignments / Presentations / Self-Study / Internship / Mini Project etc. or a combination of these.

(m) Course Code: A unique code that identifies the course. The first year course code comprises of 10 -11 characters which includes year (2 characters), course category (2 characters), course title (2 - 3 characters), semester (1 character), and course sequence number (2 characters).

Eg.:			
	Basic Science Theory	Engineering Mathematics-I	21BSEM101
	Engg. Science Laboratory	Programming for Problem Solving Laboratory	21ESPPL114

The course code for higher semesters comprises of 10 -11 characters which includes year (2 characters), branch (2 characters), course category (2 characters), semester (1 character), and course sequence number (2 -3 characters).

Eg.:			
	Professional Core Theory	Design and Analysis of Algorithms	21CSPC404
	Professional Core Laboratory	Design and Analysis of Algorithms Laboratory	21CSPC407L
	Professional Elective	Wireless Networks	21CSPE604A

(n) Semester: A semester shall have a duration of 16 to 20 weeks.

(o) Choice Based Credit System (CBCS): The CBCS provides choice for students to select from different category of courses.

(p) Credit: A unit by which the course work is measured.

(q) Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters S, A, B, C, D, E and F.

(r) Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

(s) Credit Point: It is the product of grade point and number of credits for a course.

(t) Semester Grade Point Average (SGPA): It is a measure of performance of work done in a semester. It is the ratio of total credit points earned by a student in various courses registered

in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

(u) Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

(v) Grade Card: A grade card shall be issued to all the registered students after every semester based on the grades earned. The grade card shall display the course details (Code, Title, Number of Credits, Grade secured) along with SGPA of that semester.

(w) BoS: Board of Studies, the duties and responsibilities are as per prevailing BU statutes.

(x) BoE: Board of Examiners, the duties and responsibilities are as per prevailing BU statutes.

4. NOMENCLATURE OF ACADEMIC PROGRAMS

4.1. The nomenclature and the corresponding abbreviations shown in Table 1, shall be used for the Degree Programmes under the University, as required by the Commission, AICTE and COA:

(i) Bachelor of Technology (B.Tech.)

(ii) Bachelor of Architecture (B. Arch.)

Besides, the Branch / Programme of specialization, if any, shall be indicated in the brackets after the abbreviation. For example, Degree in Mechanical Engineering Programme is abbreviated as B.Tech. (Mechanical Engineering).

4.2. The Undergraduate (UG) Degree Programmes offered by the College are listed in Table 1.

Table 1: UG Programmes and their Abbreviation

Sl. No.	Title of the UG Programme	Abbreviation
1	Civil Engineering	CV
2	Mechanical Engineering	ME
3	Electrical and Electronics Engineering	EE
4	Electronics and Communication Engineering	EC
5	Computer Science and Engineering	CS
6	Information Science and Engineering	IS
7	Artificial Intelligence and Machine Learning	AI
8	Architecture	AR

5. DURATION OF THE ACADEMIC PROGRAMS

As Choice Based Credit System is followed, the Programme duration shall be dictated by the period in which a student earns the prescribed number of credits for the award of Degree.

5.1 Normal Duration

5.1.1 The duration of B.Tech. programme for regular students shall be four years.

5.1.2 The duration of B.Tech. programme for lateral entry students shall be three years.

5.2 Maximum Duration

The maximum duration that a student can take to complete a full time academic Programme shall be twice the normal duration of the Programme, i.e., eight years for regular students and six years for Lateral Entry students.

5.3 Admission of Students

5.3.1 The admission of students to various UG Degree Programmes listed in Table 1 mentioned in clause 4.2 shall be made by following the State / Central Government and / or University Policies / Practices.

5.3.2 The candidates with a Diploma or any other equivalent qualification approved by the Council and the Commission are eligible to join the Degree Programmes at the beginning of the second year (third semester), as per the prevailing practice in the College / University (Lateral Entry).

5.3.3 The students in UVCE can migrate from one branch or specialization to another branch or specialization in the same College at the beginning of the second year (third semester) as per the prevailing AICTE / State Government norms and as amended from time to time. Further, this clause is applicable to migration of students from other colleges and vice versa.

5.3.4 The eligibility criteria for admission of students to UG Degree Programmes shall be the same as those prescribed by the State Government / University / College from time to time.

5.4 Semester Scheme

The semester scheme is adopted for all the B.Tech. programmes.

5.5 Academic Calendar

An academic year consists of 2 regular semesters. The details of which are shown in Table 2.

Table 2: Typical Schedule of the Academic Year

SN	Activity		Description
1	Number of semesters in an academic year		Two regular semesters (Odd and Even)
2	Duration of Regular Semester		20 weeks
3	Academic activities		
	Course Registration / Re-Registration		01 Day
	Course Work including CIE		16 Weeks
	Examination preparation, SEE, Valuation, Re-valuation and Declaration of Results.		04 Weeks
4	Evaluation	a) Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) shall have equal weightage. b) If a student fails to obtain the required CIE marks, he / she shall re-register and obtain CIE through self-study, if attendance ≥ 75 %. c) If a student has attendance < 75 % and required CIE marks, he / she has to re-register and obtain CIE again by attending classes in the subsequent semester(s), when offered. d) If a student fails in SEE, he / she shall pass SEE in subsequent examination(s).	

Note: Re-registration means registering the course(s) for shortage of CIE / Attendance or both as per calendar of events.

6. PROCTOR SYSTEM

6.1 Introduction

The Proctor system makes the students punctual and helps them to complete their studies successfully. The faculty is the Proctor and the student is the Proctee.

6.2 Objective(s)

6.2.1 To guide and fulfil the academic requirements of the students.

6.2.2 To advise the students appropriately from time to time.

Note: The Proctee shall respond positively to fulfil 6.2.1 and 6.2.2.

6.3 Roles and Responsibilities

6.3.1 The proctor shall monitor the student who fails to satisfy minimum attendance (75 %) and internal marks (40 %) requirements in all Courses, as per Regulations.

6.3.2 The Proctor and Proctee shall maintain updated diary, complete in all respects from time to time.

6.3.3 The proctor shall arrange for a meeting with the students fortnightly and submit the proceedings to the respective Chairpersons of the Department.

6.3.4 The proctor shall invite the parents for discussion at least once in every semester to update the academic progress of their ward, in case of non-performing and / or irregular students.

6.3.5 The Proctor shall arrange to send the progress reports to the Parents / Guardian regarding the details of Attendance, Test Marks, Examination results etc.

6.3.6 Proctor shall ensure that the students do not indulge in any sort of ragging / illegal activity inside the campus / hostel.

6.4 Expected Outcome

Results in enhanced performance and holistic development of the students.

7. CREDIT SYSTEM

7.1 General

7.1.1 The Choice Based Credit System (CBCS) as per NEP comes into effect from the academic year 2021 - 2022. The students have the option of choosing from a wide range of electives offered in the Department, cluster of Departments and the Institution. In addition, Value-added Credit Courses are offered as part of extended learning in interdisciplinary and multi-disciplinary domains.

7.1.2 Credit Definition – One credit is assigned in the regular semester (odd / even) for:

Table 3a: Contact Hours Calculation

Teaching Component	No. of Contact Hours / Week
Theory	1
Tutorial	2
Practical class	3
Self-Study	4

7.1.3 One hour of contact means 50 minutes to 60 minutes.

7.1.4 The workload of Teachers shall be calculated as shown in Table 3b.

Table 3b: Workload Computation for Teachers

Teaching Component	No. of Contact Hours	Workload in Hours / Units
Direct Teaching – Theory	1	1
Tutorial	1	1
Practical class	3	2

7.1.5 Course Registration: A student shall register for the Courses to earn credits to meet the requirements of the Degree Programme. Such Courses together with their grades and the credits earned shall be included in the Grade Card issued by the University / College at the end of each semester and it forms the basis for determining student's academic performance in that semester.

7.1.6 Value Added Audit Courses: In addition, a student can register for Courses such as value added Courses for audit only in order to supplement his/her knowledge and / or skills. But, these shall not be taken into account in assessing the students' academic performance in the semester.

7.2 Credit Structure

7.2.1 A typical Credit Structure for Course work (Hour / Week in a Semester in B. Tech. Programme is shown in Table 4.

Table 4: Credit Structure

Course	No. of hours / week				Credits
	L	T	P	S	
EFG	2	2	0	0	3
ABC	0	0	3	0	1
XYZ	3	0	3	0	4
PQR	3	0	3	4	5
LMN	3	2	0	4	5
HIJ	2	0	3	0	3

L – Lecture, T – Tutorial, P – Practical, S – Self-Study

8. REGULAR SEMESTER(S)

8.1 The number of credits offered in a semester can vary from 16 to 24.

8.2 In the first two semesters, the prescribed Course load per semester is fixed and as specified in the Scheme of Teaching for I / II Semester B.Tech. Withdrawal/dropping of Courses in I Semester and II Semester shall not be allowed.

8.3 From III semester onwards, the applicable course load per semester may vary from a minimum of 16 credits to a maximum of 32 credits, including the credits of courses re-registered. The variation in CGPA depends on the credits registered. This flexibility enables students to cope-up with the course work and helps in improving their academic performance and optimizing the learning outcome.

8.4 A student may be permitted to register for additional Courses (subject to a maximum of 20 credits) from III semester onwards. This is subject to the following conditions:

a) The student shall have secured a CGPA $\geq$ 8.5.

b) The student shall not have any backlogs from the previous semesters.

c) The student shall ensure that there is no overlapping of class in time table.

d) It is the responsibility of the student to ensure that all the above conditions are fulfilled for registering additional Courses over and above the prescribed credits in a semester by seeking the approval from the concerned Chairperson of the Department. Otherwise, the registrations for the additional Courses shall deemed to be cancelled.

8.5 Degree Requirements

A) B.Tech. Degree:

The Degree requirement of a student for the B.Tech. programme are as follows:

i) Minimum Earned Credit Requirement for Degree (Table 5)

ii) Satisfactory completion of all Mandatory Learning courses

iii) No extra credits earned on core/elective courses can be allowed in lieu of credits earmarked for major/minor project / Internship.

Table 5: Credits required for the Award of Degree

Programme	Normal Duration		Total Number of Credits to be Earned
	Years	Semester	
B.Tech.	4	8	160
B.Tech. Lateral Entry	3	6	126

B) B.Tech. (Honors) Degree:

Students who obtain a CGPA ≥ 8.5 and continue to maintain this CGPA with No 'F' grades at any point of time will be eligible to obtain an Honors degree. The student has to earn an additional minimum of 18 credits through online / offline mode as prescribed by the University / College / Department which are not credited from 3rd semester onwards and before the commencement of 8th semester examinations, with the approval of the Department. The certificates for having earned the additional credits shall be submitted to the University through the concerned Department Chairperson.

B.Tech. Degree once awarded, shall not be upgraded to B.Tech. (Honors), under any circumstances.

C) B.Tech. Degree and Minor Degree:

A four-year Bachelor's degree shall be awarded with major and minor stream, if a student earns an additional minimum of 18 credits in various courses of their field of choice before the commencement of 8th semester examinations, such as Fine Arts, Music, Technology, Yoga, Social Sciences, Commerce, Sciences, etc through offline / online courses as prescribed by the University and with the approval of the Department. The certificates for having earned the specified credits shall be submitted to the University through the concerned Department.

D) B.Tech (Honors) Degree and Minor Degree:

A student who fulfils the requirements in B and C shall be awarded B.Tech (Honors) and Minor Degree.

E) Five-Year Dual Degree: B.Tech + MBA Degree

It is proposed to start Five-Year Dual Degree programme leading to B.Tech + MBA Degree.

F) B.Tech Dual Degree:

It is proposed to encourage multi-disciplinary learning by offering dual degree courses.

G) B.Sc. (Honors) Degree:

It is proposed to encourage multi-disciplinary learning by offering science based courses.

8.6 Graduation Requirements and Convocation

1) A student shall be declared to be eligible for the award of the degree if he / she has
   i) Fulfilled Degree Requirements.
   ii) No Dues to the College, Departments, Hostels, Library, Central Computer Centre and any other centres of the institution.
   iii) No disciplinary action pending against him / her.
2) The award of the degree must be recommended by the University.
3) 100 Activity points as per AICTE notification for regular students and 75 points for lateral entry students.

9. CURRICULUM FRAMEWORK

9.1 Contact Hours: The maximum number of contact hours for the students is set at 35 Hrs / Week. This helps the students in getting enough time and opportunity to develop their creative talents and abilities, benefitting from add-on Courses, in addition to the ones prescribed for credit under a Programme and preparing them for challenging and exciting careers.

9.2 Curriculum framework is important in setting the right direction for a Degree Programme, as it takes into account the type and quantum of knowledge necessary to be acquired by a student to qualify for award of a Degree in his/her chosen branch.

9.3 NEP 2020 aims for holistic and multi-disciplinary approaches in the UG education where arts stream shall be integrated with STEM (Science, Technology, Engineering and Mathematics), and the same may be called STEAM. Such practice will bring positive change and increases creativity and innovation, problem solving abilities, higher order thinking, communication skills, team work, social and moral awareness and in-depth knowledge.

9.4 Besides, the curriculum framework helps in assigning the credits for each Course, sequencing the Courses semester-wise and finally arriving at the total number of Courses to be studied and the total number of credits to be earned by a student to fulfil the requirements for conferring the B.Tech. Degree.

9.5 Table 6 shows a typical Curriculum framework for B.Tech. Degree Programme. The average numbers of credits are only indicative.

9.5.1 **Humanities and Social Science including Management Courses (HS):** The Humanities and Social Sciences are the studies of Human behaviour and interaction in social, cultural, environmental, economic and political contexts. These courses

include technical English, courses on regional / state languages, Management, Constitution of India, Professional Ethics, Cyber Law, Environmental Studies, etc. Students will develop the ability to question, think critically, solve problems, communicate effectively, make decisions and adapt to change.

9.5.2 **Basic Science Courses (BS):** They cover courses in Mathematics, Physics and Chemistry and these subjects will focus on the fundamental concepts required for the various engineering streams.

Table 6: Curriculum Framework for B.Tech.

SN	Subject Area and Code	Average No. of Credits
1	Humanities and Social Science including Management Courses	10
2	Basic Science Courses (Physics, Chemistry and Mathematics)	23
3	Engineering Science Courses including Workshop, Engineering Graphics and Design, Basics of Electrical / Electronics / Mechanical / Computer / Civil, Problem Solving etc.	20
4	Professional Core Courses	49
5	Professional Elective Courses relevant to chosen Specialization / Branch	14
6	Open Subjects – Electives from other technical, emerging, arts, commerce and NCC / NSS subjects / Ability Enhancement Courses	11
7	Mini and Major Project work / Seminar / Summer Internship and Research / Industrial Internship	29
8	Mandatory Courses such as Environmental Sciences, Induction Program**,** Indian Constitution, Universal Human Values, Kannada.	04
	Total	**160**

9.5.3 **Engineering Science Courses (ES):** These are the courses on basics related to core engineering branches required for all the engineering students across all the branches.

9.5.4 **Professional Core Courses (PC):** They constitute the core of the programme of study and are mandatory for a given programme. These courses cover fundamental concepts, in-depth study in the selected stream and field applications.

9.5.5 **Professional Elective Courses (PE):** They offer a choice of advanced or specialized courses related to the programme of study. They enable students to specialize in a domain of their interest or tune their learning to suit their career needs and current trends. They are programme-specific courses offered by the parent department.

9.5.6 **Open Subjects:** These courses promote multi-disciplinary approach in engineering education. They are offered by any department to students of any department including the parent department. There shall not be any prerequisite for open subjects. Open subjects can be any of the following:

(i) Open Elective (OE): Subjects from advanced topics in emerging fields. These courses should cover the fundamental concepts only.

(ii) Ability Enhancement Course (AE): These courses are based upon the contents that lead to knowledge enhancement.

9.5.7 **Induction Program:**

An Induction program of one-week duration to be conducted immediately after the admission to I semester B.Tech. programme. Attendance is mandatory but no credit awarded.

9.5.8 **Projects, Seminar and Internships:**

A) Projects:

(i) Mini Project Work (MP) / Open-Ended Experiments – To promote project based / experiential learning in single discipline or multidiscipline. It can be assigned to an individual student or a group having not more than 4 students. The mini-project may be a single discipline in nature or interdisciplinary.

(ii) Major Project Work (PW) – It brings the real-life context and technology to the curriculum. The students are encouraged to become independent workers, critical thinkers, and lifelong learners. This activity makes the students to work together, take responsibility for their learning and apply their desired skills such as research.

B) Seminar (SE): To enhance the technical knowledge in the field of specialization, every student shall select a topic, individually, in the emerging areas and present before the committee formed by the respective departments.

C) Internships (IN):

(i) Summer Internship I – Offered at Institute Level / Companies to be carried out during the vacation of II semester for a duration of 2 to 4 weeks. A University examination shall be conducted during the III semester and the prescribed credit shall be included in the III semester.

(ii) Summer Internship II – To be carried out during the vacation of IV semester for a duration of 4 to 8 weeks. Students are permitted to take research internships at Centre of Excellences / Studies established in the same institute and / or out of the institute including companies. A University examination shall be conducted during the V semester and the prescribed credit shall be included in the V semester.

(iii) Placement Internship – To be carried out during the VI semester offered by the Training and Placement Office (TPO) UVCE. On successful completion students will be awarded 20 activity points.

(iv) Industry Internship – Students are permitted to take up industry internship at industries / Government Organizations / NGO / MSME etc. All the students shall undergo a mandatory internship of 20 to 24 weeks after the VI semester examinations and during the VII or VIII semesters. A University examination shall be conducted during the VII / VIII semester and the prescribed credits shall be included in the VIII semester.

(v) Research Internship – Students are permitted to take up Research activity in the Department instead of industry internship and produce Research output which can be considered as Research Internship.

9.5.9 **Mandatory Courses:** The UG Degree Programmes require the inclusion of certain Courses like Induction Program, Kannada, Constitution of India, Environmental

Science, Cyber Law, Professional Ethics and additional courses suggested by respective BOS for the completion of the Programme as Mandatory Courses. Mandatory Courses shall carry credits except Induction Program.

The Lateral entry students shall compulsorily pass two Bridge Courses in Mathematics (offered in III and IV Semesters) of 3 credits each before the completion of the Degree Programme.

9.6 **Activity Points:**

Students should have excellent soft skills, leadership qualities, and team spirit apart from technical knowledge and skills, to be successful as professionals. They should have entrepreneurial capabilities and societal commitment. Every regular student, who is admitted to the 4 years Degree program, is required to earn 100 Activity Points in addition to the required academic grades. Lateral entry students are required to earn 75 Activity Points, in addition to the academic grades.

The community service and allied activities will be coordinated by the NSS / NCC / Sports Coordinator or Technical / Cultural clubs of the Institute. The student will be provided a certificate from the concerned coordinator and Institutional Head. Every student is required to prepare a file containing documentary proofs of activities, done by him/ her. This file will be duly verified by the concerned evaluator. The student should earn the required activity points before he / she appears for his / her Final Examinations. The points students have earned will be reflected on the student's transcript. However, there will not be either grades / marks for these activity points nor will there be any effect on CGPA, etc.

9.7 **Electives**

9.7.1 A candidate shall register for electives in each semester from 2 or 3 groups of electives, commencing from VI semester. A minimum of 3 electives will be listed in each group and one elective shall be chosen from each group.

9.7.2 The minimum number of students to be registered for any Elective offered shall not be less 25 % of the class strength.

9.7.3 A candidate shall opt for his/her choice of electives and register for the same at the beginning of each of VI, VII / VIII semesters. The candidate is permitted to opt for change of elective within 15 days from the date of commencement of the semester as per the academic calendar.

9.7.4 A candidate shall opt an open elective course for which the student has not earned credits.

10. ASSESSMENT

The Assessment Rules are as follows:

10.1 Performance Evaluation

The assessment of student's performance during and /or at the conclusion of an academic semester has to be done by conducting Examinations. In general, Examination may have different goals like understanding a concept, problem solving, creativity testing and endurance testing.

Typically, these goals can be tested by two methods:

A) Continuous Internal Evaluation (CIE): CIE shall be conducted by the Faculty in-charge of the course throughout the semester. The CIE includes, but not limited to,

Home-Works / Assignments, Group Discussions, Quizzes, Class Room Problem Solving, Seminars, Mini-Projects, Tests and Alternative Assessment Tool (AAT). These activities are designed in such a way that the Faculty and the concerned proctor will understand the shortcomings of the student that can be corrected during the interaction between the student and proctor.

B) Semester End Examination (SEE): SEE shall be conducted at the end of each semester to evaluate the performance of the student covering the entire syllabus of the Course. The dates are fixed by the College/University and includes a written Examination for Theory Courses. Practical / Internship / Design Examination for the Laboratory / Internship / Design Course and Project work examination.

C) CIE : SEE Weightage: CIE and SEE shall have equal (50:50) weightage. Students performance in a Course shall be decided by taking into account the performance in CIE and SEE individually and taken together.

D) Online / On-Demand and Open-Book Examination: Examination may be conducted using various modes such as *offline*, *online*, *on-demand* and *open-book*.

10.2 Question Papers

10.2.1 It is necessary for the Course Syllabus to be well drafted, be defect-free and be modularized to enable the setting of good question papers covering the whole syllabus, and in compliance with Outcome Based Education (OBE) including action verbs of Blooms Taxonomy. These aspects have to be addressed by the Board of Studies (BoS).

10.2.2 **Question Paper Planning:** Question paper should cover the entire syllabus, with a provision for the students to compulsorily answer questions from the full syllabus. As the students need to be given choice in the questions, it is preferred for the question paper at SEE, in particular, to have built-in choice. The Board of Examiners (BoE) shall take note of choice in paper setting, while planning for the question papers as per the scheme of Examination.

10.2.3 **Question Paper Pattern:** For an effective evaluation of a student in a Course, balanced question paper needs to be used as the major tool. This makes it necessary for the question papers, used at CIE and SEE, to be in conformity with Outcome Based Education to:

i) Cover all Units of the course syllabus uniformly.

ii) Be unambiguous and free from any defects/errors.

iii) Have clear and complete instructions to the candidates.

iv) Emphasize knowledge testing, qualitative analysis, design and problem solving.

10.2.4 **Typical Question Paper:** The questions to be included in the question papers at CIE and SEE can be of two types:

(i) **Multiple Choice Questions:** To be answered by marking the correct answer/s from the choices (commonly four) given against it; such questions should be useful in testing the knowledge, analysis, evaluation, skills, application, and the depth of understanding of the students.

(ii) **Comprehensive Questions:** To be answered in detail, are useful in testing the depth of understanding of the subject. These questions shall be related to

Theoretical / Practical Knowledge, Problem Solving, Derivations, Applications and Quantitative Evaluation at all levels.

10.3 Examinations / Assessment – CIE

10.3.1 Continuous Internal Evaluation (CIE): The CIE shall be conducted by the Course Faculty. It is the responsibility of the faculty handling a Course to state the Teaching/Assessment pattern of the CIE such as Test, Quiz, Assignment, Seminar, Term Paper, Open Ended Experiments, Mini Projects, Two Minute Videos, Massive Open Online Courses (MOOCs) etc. The necessary *Rubrics* for CIE be provided to students in advance. The Faculty shall maintain transparency and announce the CIE results on time.

10.3.2 Components in a Course: Each Course consists of three components namely, Theory (Lecture and Tutorial), Practical and Self-Study. A given Course shall be classified based on the combination of one or more of these components.

10.3.3 Types of Courses:

(i) Regular / Normal Course: Course that has only one component, i.e., Theory or Practical.

(ii) Integrated Course: Course that has both Theory and Practical components.

(iii) Comprehensive Course: Course that has three components, i.e., Theory, Practical and Self-Study. Self-Study component refers to studying of advanced topics relevant to the course, proposed by the concerned faculty and / or by the students.

10.3.4 Alternative Assessment: In order to encourage innovative methods while delivering a Course, the faculty members are encouraged to use Alternative Assessment Tool (AAT). The AAT enables faculty to employ innovative methods and design his/her own assessment patterns during CIE. However, the usage of AAT is optional. The AAT enhances the autonomy (freedom and flexibility) of individual faculty and enables them to create innovative pedagogical practices. If properly applied, the AAT converts the classroom into an effective learning space. The AAT includes *Quiz, Seminar, Assignments, Term Paper, Open Ended Experiments, Mini-Projects, Two-Minute Videos, MOOCs* etc.

10.3.5 Assessment Pattern

10.3.5.1 Assessment Pattern for Regular / Normal Courses: The weightage of various components of CIE for Regular / Normal Courses considering weightage of 20% to AAT i.e., 10 out of 50 marks is as shown in the Table 7. SEE shall be conducted for 100 marks and the marks obtained shall be scaled down to 50 marks.

Table 7: Assessment Pattern for Regular / Normal Courses

(i) Theory

Component	Theory		Total Marks	Total Marks for Awarding Letter Grade
Type of Assessment	Test *	AAT	**50**	**100**
Max. CIE Marks	40	10		
Max. SEE Marks	-	-	**50 ****	

(ii) Practical

Component	Practical			Total Marks	Total Marks for Awarding Letter Grade
Type of Assessment	Records & Performance	Lab Test	Viva-Voce / AAT	**50**	**100**
Max. CIE Marks	20	20	10		
Max. SEE Marks	-	-	-	**50 ****	

Note:

* There shall be two tests for theory courses and the sum of two tests shall be considered for the final assessment. The third test may be conducted for the students who are absent in any one of the tests for valid reasons. The third test may also be conducted for other students in consultation with concerned Faculty and the Chairperson of the respective Department. There shall be only one test for Practical courses to award CIE marks.

The concerned teacher shall prescribe the pattern of assessment of AAT prior to the commencement of the classes.

** SEE shall be conducted for 100 marks each for theory and practical courses and the marks obtained in each case shall be scale down to 50 Marks.

10.3.5.2 Assessment Pattern for Integrated Courses: The weightage of various components of CIE for Integrated Courses considering weightage of 20% to AAT i.e., 10 out of 50 Marks is as shown in the Table 8.

Table 8: Assessment Pattern for Integrated Courses

Component	Theory		Practical			Total Marks	Total Marks for Awarding Letter Grade
Types of Assessment	Test *	AAT	Records & Performance	Lab Test	Viva-Voce / AAT	50	100
Max. CIE Marks	40	10	20	20	10		
Max. SEE Marks	100 **		-			50	

Note:

* There shall be two tests for theory component of Integrated Courses and the sum of two tests shall be considered for final assessment. The third test may be conducted for the students who are absent in any one of the tests for valid reason. The third test may also be conducted for other students in consultation with concerned Faculty and the Chairperson of the respective Department. There shall be only one test for Practical component of Integrated Courses to award CIE marks. The total marks obtained in the theory and practical components of CIE shall be scaled down to 50 marks.

** SEE shall be conducted for 100 marks for theory component and the marks obtained shall be scale down to 50 Marks.

If AAT is employed, the concerned teacher shall prescribe the pattern of assessment prior to the commencement of the classes.

10.3.5.3 Assessment Pattern for Comprehensive Courses: The weightage of various components of CIE for Comprehensive Courses considering weightage of 20% to AAT i.e., 10 out of 50 Marks is as shown in the Table 9.

SEE shall be conducted for 100 marks for theory component and the marks obtained shall be scale down to 50 Marks.

Table 9: Assessment Pattern for Comprehensive Courses

Component	Theory		Practical			Self Study	Total Marks	Total Marks for Awarding Letter Grade
Types of Assessment	Test *	AAT	Records & Performance	Lab Test	Viva-Voce / AAT		50	100
Max. CIE Marks	40	10	15	15	10	10		
Max. SEE Marks	100 **		-			-	50	

Note:

* There shall be two tests for theory component of Comprehensive Courses and the sum of two tests shall be considered for final assessment. The third test may be conducted for the students who are absent in any one of the tests for valid reasons. The third test may also be conducted for other students in consultation with Faculty and the Chairperson of the respective Department. There shall be only one test for Practical component of Comprehensive Courses to award CIE marks. The total marks obtained in the theory and practical components of CIE shall be scale down to 50 marks.

As AAT is employed, the concerned teacher shall prescribe the pattern of assessment prior to the commencement of the classes.

** SEE shall be conducted for 100 marks for theory component and the marks obtained shall be scale down to 50 Marks.

10.4 Semester End Examination (SEE)

The SEE shall be conducted by the Institution. The Internal / External Examiners, appointed by the respective Board of Examinations, are associated with the work of Question Paper Setting/Evaluation/Moderation/Lab Examination /Project Evaluation and others.

10.4.1 **SEE Answer Scripts:** The answer scripts of SEE are evaluated/ moderated by the Course Faculty / External Examiner. A committee of the College may oversee and ensure the quality and standard of evaluation and of the grades awarded in all cases.

10.4.2 **External Review of SEE:** The Board of Examiners (BoE) shall meet and scrutinize the question papers for SEE. An external review of question papers set shall be done by the Board of Examiners (BoE) of the College by having a panel of subject experts from outside the College. To achieve quality in the review of SEE operation, a minimum of 20% of answer scripts shall be reviewed and then

Results / Grades shall be declared. This facilitates in enhancing the confidence level on transparency and fairness of the evaluation system.

10.4.3 Gracing rules shall be adopted for SEE component in accordance with the prevailing Bangalore University Regulations.

10.4.4 There shall be a provision for providing photocopy of the answer books to students for a prescribed fee.

10.4.5 There shall be a provision for revaluation of answer scripts of SEE and Make-up Examination, for a prescribed fee. The revaluation is a single valuation carried out by an examiner who has not valued / moderated the script in regular valuation. If the difference between valuation and revaluation exceeds 15 % of the maximum marks, it shall be referred to examination adjudication committee whose assessment is final. Examination adjudication committee is chaired by concerned chairperson (BoS) and consists of Chairperson (BoE) and a subject expert as member.

10.5 Passing Standards

The absolute linear grading method is employed for the determination of passing standards. The minimum marks for passing in respect of CIE and SEE for each Course is as shown in Table 10.

Table 10: Passing Marks using Absolute Linear Grading

Evaluation Method	Passing Marks for Registered course
CIE	≥ 40%
SEE	≥ 40%

In case of integrated and comprehensive courses, a student must secure a minimum of 40 % marks and 75 % attendance in both theory and practical components. In addition, the overall CIE marks including theory, practical and self study components shall not be less than 40 %.

10.6 Make-up Examination:

Students who have obtained ‘I’ and ‘F’ grades in the SEE are eligible to take up Make-up examination. The standard of the Make-up Examination shall be the same as that of regular SEE for the courses. The Make-up Examination may be held after II, IV, VI and VIII semesters as per dates notified in the Academic Calendar. The grades obtained in the Make-up Examination (S, A, B, C, D, E) shall be reduced to the next lower grade (A, B, C, D, E, E).

10.7 No Make-up Examination

There shall be NO Make-up Examination for any Course(s) in the credit system for Students who have:

a) Absented themselves from attending CIE or SEE, without valid reasons; or,

b) Failed to satisfy minimum attendance; or,

c) Obtained Grade ‘W’ in a course and shall be required to Re-Register for the course(s) and go through CIE and SEE again.

10.8 Project Work Evaluation

The CIE of the project work shall be assessed by the Project Supervisor periodically. Project Demonstration/Presentation, Seminar, Submission of Project Report and Final Oral Examination shall be conducted by a panel of an Internal and External Examiner appointed by the respective BoE.

10.9 Successive Failures

A student who has not been able to obtain eligibility for third semester even after three academic years can re-join B.Tech. Programme in the College as a fresh student to the First Year.

11. ATTENDANCE REQUIREMENT

11.1 All students shall maintain a minimum attendance of 75% in each Course registered. Any student failing to meet the above standard of attendance in any Course(s) registered shall not be allowed to appear for SEE of such Course(s).

11.2 Student against whom disciplinary action by the College is pending may not be permitted to attend SEE in that Semester.

11.3 The basis for the computation of the attendance shall be the period prescribed by the College by its calendar of events. For the first semester students, the same is reckoned from the Date of Admission to the Course.

11.4 The students shall take note of his/her attendance status periodically from the respective faculty and strive to make up for the shortage. The Departments shall periodically announce the attendance status of the students. Non-receipt of such information from the College, the student shall not consider it as a valid reason for exemption from the attendance requirements.

11.5 If a student does not satisfy the attendance requirements in any Course, then he / she shall not be permitted to attend the SEE in that Course and is deemed to have been declared “U” (Unsatisfactory) in that Course. In such a case, student has to Re-Register for the course in the subsequent regular semester.

11.6 In respect of Integrated / Comprehensive Courses 75% of attendance shall be maintained in theory as well as in practical component of the Course. If he / she fails to maintain the 75 % attendance in any one component, the student shall not be permitted to take up SEE in that Course and is deemed to have been declared “U” (Unsatisfactory) in that Course. In such a case, student has to Re-Register for the course in the subsequent regular semester.

11.7 Exemption in attendance shall be given only to a student if he/she represents, with prior permission, the University/Institution at the State level / National level / International level Technical/Cultural/Sports events.

12. GRADING

12.1 General

12.1.1 The grading system has replaced the evaluation of student's performance in a Course based on absolute marks. This is to ensure uniformity in the grading practice at different autonomous Colleges to facilitate the migration of students or transfer of credits among Autonomous Colleges under the Universities.

12.1.2 **Letter Grades:** The letter grade is basically a qualitative measure (an alphabet / letter) to assess the performance of a student by awarding the following Grades:

(i) Outstanding (S)

(ii) Excellent (A)

(iii) Very Good (B)

(iv) Good (C)

(v) Average (D)

(vi) Pass (E)

(vii) Fail (F)

The Grades are based on the absolute marks (as in conventional practice) obtained by the student. This is usually arrived at after the student's performance is assessed in a Course that includes both CIE and SEE. To begin with, absolute marks for the total are awarded, followed by grouping of all the students in a Course under different grading levels, as in Table 11.

12.1.3 **Absolute Grading:** The College / University has adopted the absolute grading system.

12.2 Grade Points and Transitional Grades

12.2.1 The College follows the 10-point grading system, as shown in Table 11.

Table 11: Grade Points Scale (Absolute Grading)

Level	Outstanding	Excellent	Very Good	Good	Average	Pass	Fail
Grade	S	A	B	C	D	E	F
Grade Points	10	09	08	07	05	04	00
Marks Range (%)	≤ 100 & ≥ 90	< 90 & ≥ 80	< 80 & ≥ 70	< 70 & ≥ 60	< 60 & ≥ 45	< 45 & ≥ 40	< 40

12.2.2 The grade points given in Table 11 help in the computation of credit points earned by the student in a Course. The credit points are equal to the number of credits assigned to the Course multiplied by the grade points awarded to the student in that Course. This shall be used in arriving at the credit index of the student for that semester. The credit index is the sum total of all the credit points earned by the student for all the Courses registered in that semester.

12.2.3 **Earning of the Credits:** A student shall be considered to have completed a Course successfully and earned the credits if he/she secures an acceptable letter grade (S, A, B, C, D, E). Letter grade F in any Course implies failure of the student in that Course and with no credits earned.

12.2.4 **Transitional Grades:** The transitional grades, such as 'I' and 'W' shall be awarded to a student in the following cases.

- **Grade 'I':** Grade 'I' is awarded to a student having satisfactory attendance at classes and meeting the passing standard at CIE in a Course, but has had remained absent from SEE for valid and convincing reasons acceptable to the College, under the following circumstances:

  (a) Accident or severe illness leading to hospitalization that disables the student from attending Semester End Examination (SEE).

(b) A calamity in the family at the time of SEE that requires the student to be away from the College.

(c) Student represents, with prior permission, the University/Institution at the State level / National level / International level Technical / Cultural / Sports Events.

(d) In the event of (a) or (b) or (c) above, it is the responsibility of the Student/Parent/Guardian to inform the College authorities (Proctor/Chairperson/Principal) immediately. The information shall be in the form of either written communication, personal communication by Parent/ Guardian/ Peer or any Electronic Messages. The candidate needs to submit all the relevant documents (hospital reports, police reports, certificates from competent authorities).

(e) The student who has earned 'I' grade shall be provided with an opportunity to appear for the Make-up Examination when offered.

- **Grade 'W':** Grade 'W' is awarded to a student having satisfactory attendance and has withdrawn from that Course before the prescribed date in a semester on the request of the student and the recommendation of the faculty. The student shall re-register for the said Course in the regular semesters only. All the 'W' grades awarded to the students shall be eligible for conversion to the appropriate letter grades only after the concerned students re-register for these Courses in regular semesters (Odd / Even) and fulfil the passing standards.

These transitional grades shall be converted into any one of the letter grades (S to F) after the student completes his/her Course requirements, including the Examination.

12.2.5 **Grade 'Au':** A student is awarded grade 'Au' in a course if the student has registered for that course for audit only, provided that the student satisfies the attendance requirements as stipulated in Section 11. This grade would carry no grade points and is not used in the computation of SGPA or CGPA.

12.2.6 **Grade Card:** Each student shall be issued a Grade Card at the end of each semester. This shall have a list of all Courses registered by a student in the semester along with the credits. In addition to the letter grades with grade points, the grade card shall contain 'I', 'W' and 'Au' that does not carry any grade points. Hence, only the Courses registered for credit and having grade points shall be included in the computation of SGPA and CGPA. The grade card of a semester shall contain the total credits registered and earned till that semester.

12.3 Grade Point Averages

12.3.1 **SGPA and CGPA:** The credit index is used for computing the Semester Grade Point Average (SGPA) and the Cumulative Grade Point Average (CGPA). SGPA is equal to the credit index for a semester divided by the total number of credits registered by the student in that semester. CGPA is the sum total of credit indices of all the previous semesters, including the current semester, divided by the total number of credits registered in all these semesters.

The SGPA and CGPA shall be computed as shown below:

Semester Grade Point Average (SGPA)

The SGPA is the ratio of sum of the product of the number of credits with the corresponding grade points scored by a student in all the courses taken by a student **to** the sum of the number of credits of all the courses undergone by the student in that semester, i.e.,

$$\frac{\sum [(\text{Course credits}) \times (\text{Grade points})]}{\sum [(\text{Course credits})]}$$

(for all Courses in the current semester including F grade and excluding transitional grades)

Cumulative Grade Point Average (CGPA)

The CGPA is also calculated in the same manner as that of SGPA taking into account all the courses undergone by a student over all the completed semesters of a Programme including the current semester, i.e.,

$$\frac{\sum [(\text{Course credits}) \times (\text{Grade points})]}{\sum [(\text{Course credits})]}$$

(for all Courses including F grade and excluding transitional grades upto the end of current semester)

SGPA facilitates the declaration of academic performance of a student, at the end of a semester. CGPA is calculated at the end of VIII semester only and it facilitates the declaration of class for award of the degree. SGPA and CGPA shall be normally calculated up to the second decimal position, so that the CGPA, in particular, can be made use of in ranking the students in a class. If two students get the same CGPA, the tie should be resolved by considering the number of times a student has obtained higher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B etc., shall be taken into account in ranking the students in a class.

12.3.2 An illustrative example given in Table 12 indicates the computation of SGPA and CGPA as in Section 12.3:

Table 12: Calculation of SGPA/CGPA – An example

Semester	Course No.	Credits	Grade	Grade Points	Credit Points	SGPA
I	101	3	S	10	30	**6.5 (65 / 10)**
I	102	3	F	0	0	
I	103	3	A	9	27	
I	104	3	W	-	-	
I	105	1	B	8	8	
I	106	2	I	-	-	
	Total	**10 (7 *)**			**65**	

Semester	Course No.	Credits	Grade	Grade Points	Credit Points	SGPA
II	201	3	B	8	24	6.31 (82 / 13)
II	107	3	C	7	21	
II	108	3	F	0	0	
II	109	3	A	9	27	
II	110	2	W	-	-	
II	111	1	S	10	10	
Total		**13 (10 *)**			**65**	

Supplementary:

Semester	Course No.	Credits	Grade	Grade Points	Credit Points	SGPA
I	102	3	B	8	24	5.63 (45 / 8)
I	104	3	C	7	21	
I	106	2	F	0	0	
Total		**8 (6 *)**			**45**	

Make-up:

Semester	Course No.	Credits	Grade	Grade Points	Credit Points	SGPA
I	106	2	B (A**)	8	16	7.86 (55 / 7)
II	108	3	C (B**)	7	21	
II	110	2	A (S**)	9	18	
Total		**7**			**55**	

* Total number of credits excluding those with 'F' and Transitional Grades. This is to keep track of the number of credits earned by a student upto a semester under consideration.

** Grade reduced to Lower Grade in Make-Up Exam.

12.4 Vertical Progression

Minimum score for SGPA along with the minimum number of credits are prescribed for the vertical progression of students to higher odd semesters. This also facilitates the mobility of students from one College to another. The vertical progression of students is applied between two academic years only and all students progress to next even semesters automatically.

The following are the prescribed scores and other rules for vertical progression:

a) Minimum Score for SGPA = 5.0

b) Total number of, 'I', 'W', 'U' and 'F' Grades that can be carried forward at the end of any academic year is four.

c) To move to V Semester, a student shall achieve passing standards of all courses up to and including II Semester and to move to VII Semester, a student shall achieve passing standards of all courses up to and including IV Semester.

d) The maximum number of withdrawals at any given time shall not exceed two courses subject to maintaining the minimum registration requirements.

However, failure to secure a minimum SGPA = 5.0 at the end of any semester for the first time, shall attract a warning before allowing the student to continue in the next semester.

12.5 Award of Class and Degree:

The class shall be awarded after the student earns a total of 160 credits. Table 13 shows the mapping of the range of percentage marks, the range of Grade Point Average and the award of class.

Table 13: Award of Class

Percentage of Marks	Range of Grade Point Average (SGPA or CGPA)	Class
≥ 40 and < 50	≥ 5.00 and < 5.75	Pass Class (PC)
≥ 50 and < 60	≥ 5.75 and < 6.75	Second Class (SC)
≥ 60 and < 70	≥ 6.75 and < 7.75	First Class (FC)
≥ 70	≥ 7.75	First Class with Distinction (FCD)

Note: The percentage of marks for a given SGPA/CGPA can be computed using the formula: % Marks Scored = [CGPA – 0.75] X 10

12.5.1 The First Class with Distinction is awarded in a semester only if passing standard is achieved in all the courses in FIRST attempt only.

12.5.2 The Class awarded for the entire programme is based on CGPA obtained in the VIII semester and the same shall be reflected in the degree certificate.

12.6 Graduation Ceremony

12.6.1 The college / University will organize annual Graduation Day ceremony for the award of Degrees to students completing the prescribed academic requirements.

12.6.2 The College / University may award Ranks and Medals to the meritorious students during the Graduation Day Ceremony to encourage the students to strive for excellence.

13. OTHER ACADEMIC MATTERS

13.1 **Academic Schedules**

The Academic Calendar is published before the commencement of every academic year to assist the students and faculty. The Calendar of events includes, dates for registration of Courses, dropping of Courses, withdrawal from Courses, etc. This enables the students to minimize their chances of failure in CIE and/or SEE and take full advantage of the flexibility provided by the CBCS as per NEP 2020.

13.2 **Registration of Courses**

Each student shall have to register for Course work at the beginning of a semester as prescribed in the academic calendar. The student has to compulsorily register for all the stipulated credits in the first year of the Programme. From third semester onwards the registrations shall be within the limits of minimum (≥ 16) and maximum (≤ 24) credits. The students may seek faculty advice and discuss with the proctor/faculty prior to registration of Courses.

13.3 **Dropping of Courses**

A specific period in the middle of a semester is fixed for this purpose and to help review the student's performance in CIE by the faculty advisors (proctors). The students having poor performance have the option to drop the identified Course(s) up to the minimum credits specified for the semester. The dropped courses shall not be mentioned in the Grade Card. Such Courses have to be re-registered by these students in the regular semesters at a later time. However, the students are not allowed to drop any courses in first and second semester.

13.4 **Withdrawal from Courses**

A specific period is identified towards the end of a semester to help review the student's performance in CIE by the Proctor. The Proctor shall advise the students having poor performance to withdraw from identified Course(s) (up to the minimum credits specified for the semester) with a mention in the Grade Card 'W'. Such Courses have to be re-registered by these students in the main/regular semesters at a later time, as and when offered.

(i) When to withdraw?

A student is allowed to withdraw from a Course(s) before one week counted from the last date of the second internal test (CIE) or as mentioned in the Academic Calendar of Events.

(ii) Separate circular/notification is not issued in this regard. It is the responsibility of the student to withdraw from the Courses within the stipulated time failing which the student shall continue with the Course and fulfil the academic requirements.

13.5 **Temporary Withdrawal from Programme**

(i) A student may withdraw temporarily from the Programme on grounds like, prolonged illness, grave calamity in the family or any other serious circumstances. The withdrawal shall be for periods which are integral multiples of a semester, provided that:

13.5.1 The student shall apply to the College within six weeks from the commencement of the semester or the date he/she last attended the classes, (whichever is later) stating fully the reasons for such a withdrawal, together with supporting documents and endorsement of his/her parent/guardian.

13.5.2 The College is satisfied about the genuineness of the case and by taking into account the expected period of withdrawal, the student has the option to complete the Programme requirements within the time limits specified by the College/University.

13.5.3 The student does not have any dues or demands at the College/University including tuition fee, hostel, library, laboratory and other dues.

(ii) A student availing of temporary withdrawal from the College under the above provision shall be required to pay such fees and/or charges as may be fixed by the College until such time as his/her name appears on the Student's Roll List. However, it may be noted that the fees/charges once paid shall not be refunded under any circumstances.

(iii) Normally, a student shall be entitled to avail the temporary withdrawal facility only once during his/her studentship of the Programme. However, any other concession,

including multiple withdrawals, for the concerned student, shall have to be approved by the Academic Council of the College on the recommendation of the Principal.

13.6 **Termination from the Programme**

A student shall be terminated from the Programme and leave the College on the following grounds:

(i) Failure (getting F Grade) in any Course in spite of five attempts.

(ii) Failure to secure a CGPA ≥ 5.00 on three consecutive occasions (However, failure to secure a CGPA ≥ 5.00 at the end of any semester for the first time attracts warning before approval of the student to continue in the following semester).

(iii) Absence from classes for Two consecutive semesters (Odd and Even) at a time without leave of absence being granted by competent authorities.

(iv) Failure to meet the standards of discipline as prescribed by the College / University from time to time.

(v) Successive Failures: A student who has not been able to obtain eligibility for third semester even after three academic years shall be terminated from the program. However, such a student can re-join the B.Tech. Programme in the College as a fresh student to the First year.

13.7 **Student's Feedback**

(i) The College shall obtain feedback from the students on their Course Work and various academic activities. The feedback is obtained from the students at regular intervals, as decided by the College/University, maintaining confidentiality.

(ii) The feedback received from the students shall be reviewed by a committee constituted for the said purpose and necessary corrective measures shall be initiated.

13.8 Suitable assessment tools and processes shall be incorporated for evaluation of course outcomes, program outcomes and program specific outcomes through direct and indirect methods required for accreditation of programmes by NBA.

13.9 To facilitate industry interaction, guest lectures from industry, R & D organizations may be arranged in every semester.

14. TRANSITION FROM CBCS (2018) SCHEME TO CBCS (2021) SCHEME

Students who are not eligible to register for higher semesters under CBCS (2018) scheme shall be given the benefit of full carryover for higher semesters, as and when CBCS (2021) scheme becomes operational for lower semester/s.

15. INTERPRETATION

15.1 Any question that arises as to the interpretation of these rules and regulations shall be decided by the College / University, whose decision shall be final and binding on the student in the matter. The College / University shall also have the power to issue clarifications to remove any doubt, difficulty or anomaly, which may arise with regard to the implementation of these regulations.

15.2 In the absence of any provision in CBCS Regulations 2021, the prevailing Regulations of Bangalore University shall be followed.

15.3 CBCS Regulations 2021 may be altered/changed from time to time by the Academic Council of the College / University.

15.4 Failure to read and understand CBCS Regulations 2021 is not an excuse (Ignorantia juris non excusat).

16. POWER TO REMOVE DIFFICULTIES

If any difficulty arises in giving effect to the provisions of these regulations, the Vice-Chancellor may by order make such provisions not inconsistent with the Act, Statutes, Ordinances or other Regulations, as appears to be necessary or expedient to remove the difficulty. Every order made under this rule shall be subject to ratification by the appropriate University authorities.

17. MODIFICATIONS TO THE REGULATIONS

Notwithstanding the foregoing, any amendments / modifications issued or notified by the University Grants Commission / All India Council for Technical Education / Higher Education Commission of India and its verticals such as National Higher Education Regulatory Council, General Education Council or the State Government, from time to time, shall be deemed to have been incorporated into these Regulations and shall constitute an integral part of these Regulations.

18. REPEAL AND SAVINGS

The existing Regulations governing four-years B.Tech. Degree Programmes shall stand repealed. However, the existing CBCS 2018 Regulations shall continue to be in force for the students who have been admitted to the course before the enforcement of these Regulations.

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