Visvesvaraya Technological University

Jnana Sangam Machhe, Belagavi-590018, Karnataka India

(Award of Bachelor of Engineering/Technology Degree) Regulations, 2022

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REGISTRAR

Academic Section
Visvesvaraya Technological University
Jnana Sangama, Machhe,
Belagavi-590018, Karnataka
0831-2498112,

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REGULATIONS

PREAMBLE:

The quality of Technical Education depends on many factors but largely on- outcome based socially and industrially relevant curriculum, good quality motivated faculty, teaching learning process, effective industry internship and evaluation of students based on desired outcomes. To regulate, in an orderly manner, the process of admission, registration of students, conduct of classes, teaching –learning, Assessment, Evaluation and Grading processes to award Bachelor of Engineering/ Technology degree in Visvesvaraya Technological University, Belagavi and the Colleges affiliated to it, with due consideration to the NEP-2020 policy, and applicable Regulations of UGC and AICTE, in exercise of the powers conferred under Section 22 of UGC Act 1956 and under Sections [7(2) and 8(1,2, & 4] of the VTU Act 1994, the University hereby makes the following Regulations, namely:-

1. **SHORT TITLE, APPLICATION AND COMMENCEMENT:**

1.1. These Regulations may be called the Visvesvaraya Technological University [Award of Bachelor of Engineering/ Technology Degree] Regulations, 2022.

1.2. These Regulations shall apply to all the B.E./ B.Tech. Programmes conducted at the Visvesvaraya Technological University, its constituent Colleges and all other Colleges affiliated to it.

1.3. They shall come into force with effect from the date of their notification by the Visvesvaraya Technological University, Belagavi.

1.4. These Regulations shall be applicable to the batch of students admitted from the academic year 2022-23 and later and will be in force until revised or withdrawn by a notification.

2. **DEFINITION OF KEY WORDS:**

In these Regulations, unless the context otherwise requires:

2.1. **Academic Bank of Credits (ABC):** The Academic Bank of Credits (ABC), is a National-level facility that will promote the flexibility of the curriculum framework and interdisciplinary/multidisciplinary academic mobility of students across the Higher Educational Institutions in the country with an appropriate "credit transfer" mechanism.

2.2. **Academic Year:** Two consecutive semesters (odd followed by an even), including intervening periods constitute one Academic Year.

2.3. **Act**: The Visvesvaraya Technological University Act 1994 including the amendments thereon.

2.4. **Choice-Based Credit System (CBCS):** The CBCS provides students with choices from the prescribed set of courses viz. Engineering Sciences, Professional core and electives, Professional and Open Electives, Non-Credit Mandatory Courses, Internships and Skill Courses. Under the CBCS, the requirement for awarding a degree or certificate is prescribed in terms of number of credits to be earned by the students.

2.5. **College:** An affiliated College or a constituent College of the University or the University Departments offering different programmes.

2.6. **Constituent College**: An Institution operating under the administrative, academic, and financial control of the University and declared as such under the Notification. It is an institution maintained by the University as such and includes an institution admitted to the privileges of the University as an affiliated College of the University in accordance with provisions of the Act.

2.7. **Course:** Usually referred to as 'subject'/ 'paper' and is a component of a Programme with defined learning objectives, course out comes and number of credits. The course credits vary depending on the required teaching-learning hours to accomplish the learning outcomes, specified in the course syllabus. A Course may be designed to comprise lectures/ tutorials/laboratory work/ fieldwork/outreach activities/ project work/ vocational training/ viva-voce/ seminars/ term papers/ assignments/ presentations/ self-study components etc., or a combination of some of these.

2.8. **Course Code:** An alpha numeric code used to uniquely identify a course in the programmes offered in the University. Three-digit number used as suffix with the Course Code for identifying the level of the course in the University. Digit at hundred's place signifies the semester in which course is offered and the tens place signifies type of course with unit place representing the sequence number in a semester in the Scheme of Teaching and Evaluation.

2.9. **Credit:** A unit or weightage by which the Coursework is measured. It represents the number of hours of instructions prescribed per week. One credit is equivalent to one hour of lecture or two hours of laboratory/practical Courses/ tutorials/ fieldwork etc., per week.

2.10. **Credit Point:** This is the product of grade point and the number of credits for a Course.

2.11. **Credit Representation:** Refers to the Credit Values for different academic activities considered, as per Table 1. Credits for the project phases, project viva–voce and internship shall be as specified in the Scheme of Teaching and Examinations.

Table 1: Credit Values

Theory/Lectures (L) (hours/ week/ Sem)	Tutorials (T) (hours/week/Sem)	Laboratory/ Practical (P) (hours/ week/ Sem)	Credits (L:T:P)	Total Credits
4	0	0	4:0:0	4
3	0	2	3:0:1	4
2	2	2	2:1:1	4
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
0	0	6	0:0:3	3
2	0	0	2:0:0	2
1	0	0	1:0:0	1
0	0	2	0:0:1	1

2.12. **Choice-Based Credit System (CBCS):** The education model refers to customizing the Coursework, Core, Professional Elective, Open Electives, Skill-based ability Enhancement Courses, Non-Credit Mandatory Courses, and Internships to provide the necessary support for the students to achieve their goals.

2.13. **Continuous Internal Evaluation (CIE)(also known as Formative Assessment):** Refers to the evaluation of student's performance in the course during the teaching-learning process. CIE shall be done by the faculty teaching course and evaluation components may include tests, assignments, group discussion, quizzes, course-specific projects, field surveys, seminars, etc., conducted during the semester tenure with a weightage for different activities as specified by the University.

2.14. **Course Evaluation:** This represents the measurement of the impact of the

teaching-learning process and offers an opportunity for improving the quality of learning in courses and teaching performance. Courses evaluation is done by adopting different methods such as tests, quizzes, assignments, etc., during the teaching-learning period at the end of some modules or chapters of syllabus contents and at the end of the semester. While the former part of the evaluation is called the Continuous Internal Evaluation (CIE) and the latter part of the evaluation is called Semester End Evaluation (SEE).

2.15. **Course Registration:** It is a formal registration to Courses of study every semester by every student under the supervision of a Mentor(also called Faculty Advisor, Counselors) in the college to maintain proper records. Registration on the University portal is mandatory.

2.16. **Cumulative Grade Point Average (CGPA):** This is a measure of the cumulative performance of a student of all semesters and is computed from the 2nd semester onwards. It is a measure of the overall cumulative academic performance of a student over the entire span of the academic program. CGPA is not an arithmetic mean a but weighted mean. It is also a number that lies between 0 and 10.

2.17. **Dean:** Dean of the Faculty of Engineering.

2.18. **First Attempt:** A student who has studied in a semester and attended any one of the University examinations of that semester after satisfying attendance and CIE requirements of all the prescribed courses of that semester and has registered for SEE. Such an attempt shall be considered the first attempt. Even if the student is absent for all the semester exams after registering for SEE, such an attempt shall also be considered the first attempt.

2.19. **Grade Card:** Refers to the certificate showing the grades earned by a student. A grade card shall be issued to all the registered students after every semester-end examination. The grade card shall have the Program details (Course code, title, number of credits, grades secured, along with the SGPA of that semester and CGPA (except for the first semester) earned till that semester.

2.20. **Grade Point (GP):** Refers to a numerical weightage allotted to each letter grade on a 10-pointscale against a range of percentage of marks secured by students in a course.

2.21. **Institution:** An institution of higher education engaged in teaching and research at the undergraduate, post-graduate or higher levels.

2.22. **Letter Grade:** Course Letter Grade (or simply letter grade or grade) is an index of performance of a student in a said course and refers to a qualitative measure of achievement of a student in each course, based on the percentage range of marks secured in CIE and SEE put together or CIE alone. Grades are denoted by letters O, A+, A, B+, B, C, P and F. The rubrics attached to letter grades are as follows**: O**: Outstanding, **A+**: Excellent, **A**: Very Good, **B+**: Good, **B**: Above Average, **C**: Average, **P**: Pass and **F**: Fail. Additional letter grades used under special circumstances are, **DX:** Attendance below 75%, **AU**: Satisfactory in an Audit course, **AB:** Absent for the Course, **PP:** Passed in Non-credit course, **NP**: Not Passed in Non-credit course, **W**: Dropped/ withdrawn.

2.23. **Non-Credit Mandatory Courses (NMC):** In the case of non-credit mandatory courses, students shall attend the classes during the respective semesters to satisfy the attendance requirements as well as CIE requirements. In case, any student fails to register for the said course/fails to secure the minimum 40% of the prescribed CIE marks, he/she shall be deemed to have not completed the course. In such a case, the student has to fulfill the requirements during subsequent semester/s to appear for CIE. These Courses shall not be considered for CGPA calculation and vertical progression, but completion of the courses shall be mandatory for the award of a degree.

2.24. **Major Degree:** A Major degree will be awarded along with "Honours" distinction if a student completes the specified additional number of credits during the regular programme as per the Regulations governing Honours Degree Programme. A student admitted to the Programme shall be eligible to register to "Honours" programme if he/she fulfils the conditions as per the Regulations.

2.25. **Mentor:** A Faculty Advisor allotted by the principal to guide about 15-20 students about their registration to the courses and progression in the Programme **.**

2.26. **Notification:** A notification issued by the concerned Statutory Officer of the University.

2.27. **Minor Degree:** A Degree along with Minors is awarded in a programme if a student completes the required number of credits of another programme as per the

Regulations governing Minor Degree Programme. A student shall be eligible to register to a Minor programme if he/she fulfills the conditions as per the Regulations

2.28. **Multiple Entry and Multiple Exit (MEME):** The multiple entries and exit points in the academic programmes would remove rigid boundaries and create new possibilities for students. To facilitate flexible learning within the stipulated period (eight years for regular students and 06 years for lateral entry students), multiple-entry and multiple-exit options are offered to needy students.

2.29. **Passing Standards:** Refers to passing a course only when GP is greater than or equal to 04.

2.30. **Principal:** The Head of the College or a Higher Educational Institution (HEI). In the case of programmes offered at University campuses, it shall be the Head/ Chairperson of the Department offering the programme.

2.31. **Programme:** A planned series of events/activities comprising of a combination of courses leading to the award of degree.

2.32. **Semester:** One of the two sessions of an Academic Year, each session being of sixteen weeks duration (with not less than 90 working days). The odd and even semesters shall be as per the University academic calendar.

2.33. **Semester End Examinations (SEE) (also called Summative Assessment):** Also called summative assessment, which refers to the examinations conducted by the University covering the entire course syllabus. For this purpose, syllabi shall be modularized, and SEE questions shall be set from each module as specified by the University.

2.34. **Semester Grade Point Average (SGPA):**It is a measure of academic performance of a student in a semester. It is the weighted average or weighted mean of the grade points obtained by a student in the various courses of any semester. It results in a number that lies between 0 and 10. It shall be expressed up to two decimal places.

2.35. **Teacher:** A member of the regular faculty at the levels of Professor, or Associate Professor or Assistant Professor, and includes adjunct faculty and faculty on a long-term contract of not less than three years.

2.36. **Transcript, Grade Certificate and Grade Card:** Grade card shall be issued to candidates indicating the programme details (Course code, title, number of credits, grade secured and grade points) for all the registered courses after every semester. On successful completion of all courses/earning credits, specified in a semester, the grade certificate is issued indicating the programme details along with SGPA of that semester and CGPA earned till that semester. Transcripts to the successful candidates shall be issued after completion of the programme.

2.37. **University:** Visvesvaraya Technological University (VTU), Belagavi, established under the Karnataka State Act as defined in the University Grants Commission Act, 1956.

REGULATIONS

22OB 1.0. TITLE AND DURATION OF THE PROGRAMME

22OB 1.1: The Programme of study, which is an undergraduate Programme, shall be called the degree of Bachelor of Engineering/Bachelor of Technology, abbreviated as B.E./B.Tech., followed by specialization indicated within brackets.

22OB 1.2: The duration of the Programme for B.E./ B.Tech. degree shall be four academic years, organized in eight semesters, with each semester having duration of 16-18 weeks,having provision for Multiple-Entry-Multiple-Exit and award of Honours degree or Minor degrees.

22OB 1.3: The annual academic calendar of events in respect of the Programme of study approved by the Academic Council, shall be notified at least a month before the commencement of each academic year. It is mandatory for students/ faculty members to strictly adhere to the Academic Calendar for completion of academic activities. Academic Calendar shall be displayed on the Academic Office homepage of the University website.

22OB 2.0. ACADEMIC ELIGIBILITY FOR ADMISSION

The rules specified in the following clauses shall be followed for admission to B.E./ B.Tech. Programmes, but the orders issued from the Government/the regulatory bodies from time to time shall prevail.

22OB 2.1. Admission to 1st year: Eligibility for candidates Passed in second PUC or equivalent,

1) As notified by the Government of Karnataka from time to time.
2) Those students, who have passed a qualifying examination other than the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain an eligibility certificate for seeking admission to I year B.E./B.Tech. Degree Programme from the University.

22OB 2.2. Admission to 2nd year (Lateral Entry): Eligibility for candidates who have passed a 3-year Diploma in Engineering and B.Sc. Degree shall be,

1) As notified by the Government of Karnataka and the University from time to time for admission in to 3rd semester of B.E./B.Tech. degree programme.
2) Those candidates who have completed an Engineering Diploma from States other than Karnataka shall submit the Equivalence/ Eligibility Certificate issued by the Director of Technical Education, Karnataka.

22OB 2.3. Qualification earned from foreign Countries:

With regard to the qualification earned from foreign countries, an equivalence certificate from the Association of Indian Universities/ University is mandatory for admission to B.E./B.Tech. Programmes. In case of any dispute about the equivalence in qualification earned from foreign countries, the decision of the University in this regard shall be final and binding on all concerned.

22OB 2.3.4 Additional Requirements:

1) All the Diploma and B.Sc. degree holders seeking admission to lateral entry, shall also pass any deficit courses as specified by the University before the completion of the degree.
2) Further, all the Diploma and B.Sc. degree holder applicants shall also be required to register and pass the non-credit mandatory Mathematics bridge course(s) specified by the University, within two year of joining the programme. However, applicants with B.Sc. degree (with Mathematics major) may apply to the Registrar through Principal/ Dean seeking exemption from the bridge course.

22OB 3.0. CURRICULUM FRAMEWORK AND ACADEMIC PROCESSES

22OB 3.1. Semesters – Odd and Even:

The University follows the Choice based credit system and the semester scheme.

There are two regular semesters in an academic year. The semester that begins in August (August to December) is known as the Odd Semester and the semester that begins in January (January to May) is known as the Even Semester.

22OB 3.2. Curriculum:

Every Programme has a prescribed course structure which, in general terms, is known as the Curriculum or the Courses of Study or the Scheme of Teaching and Evaluation. It prescribes all the courses/ laboratory/ other requirements for the degree and sets out the nominal sequence semester wise.

It provides the syllabus and a list of text/ reference books (or other learning material sources) for each course. The Courses of Study details are updated every semester and are made available at the University website: http://vtu.ac.in/BEBTECH/. Curriculum shall also include some Online Courses including SWAYAM and other MOOC courses, approved by the University. However, selection of such courses, if any, shall always be within prescribed guidelines of the relevant regulatory bodies and the University.

22OB 3.2.1. Choice Based Credit System (CBCS):

1) A certain quantum of academic work, measured in terms of credits, is laid down as the requirement for completion of B.E/B.Tech. degree in the different available specialization areas. A student earns credits by satisfactorily completing courses/other academic activities every semester.
2) The credits are distributed semester wise, as prescribed in the Scheme of Teaching and Evaluation for each of the programmes. The courses generally progress in sequences, building competencies as per the course learning outcomes. The positioning of a course indicates certain academic maturity on the part of the students.
3) Some courses do, in addition, may specify a grade/pass/exposure for other courses, offered earlier in the programme, as pre-requisites for the course.
4) Since the University follows the CBCS, the students shall be offered courses as per the Scheme of Teaching and Evaluation, and the students are required to register for the courses of their choice before the beginning of every semester.
5) Students are required to follow the semester wise schedule of courses specified

in Scheme of Teaching and Evaluation; they do, however, have freedom to follow alternative schedules to optimize their academic profile with additional courses, keeping the requirements for each course in mind. For students with backlog courses, such rescheduling may even become necessary. Such departures from suggested schedules need to be done very carefully, and always with guidance from the Mentor.

22OB 3.2.2. Types of Courses:

There will be following types of courses in a B.E./B. Tech. programme, namely:

1) Humanities and Social Sciences (HS), including Management, Skill enhancement and Economics.
2) Basic Sciences (BS) including Mathematics, Physics, Biology and Chemistry.
3) Engineering Sciences (ES) including Workshop, Drawing, Basics of Electrical/ Civil/ Mechanical/ Computer Engineering, Materials, and Instrumentation.
4) Professional Core Courses (PC): These are the courses to be compulsorily studied by a student as a core requirement to complete the requirements of a programme in a said discipline of study.
5) Professional Elective Courses (PE): These are the courses from which a student can choose and study as part of the requirement to complete the programme in a said discipline of study.
6) Open Elective Courses (OE): These courses are supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline/ domain and they are chosen from the pool of courses.
7) Skill development Courses (SD): These courses will be nurturing student proficiency skills. These courses are offered to achieve the programme outcomes not specifically covered by the other courses.
8) Ability Enhancement Courses (AE):These are the generic skill courses which are basic and needed to all to ensure progression across all careers.
9) Non-Credit Mandatory Courses (NM): These are courses on peripheral subjects in a programme, wherein familiarity is considered mandatory.
10) Project work (PW), Mini Project work (MP), and Internship (IS) are also considered as courses in the programme.

22OB 3.2.3. Offering Courses

The above types of courses in a B.E./B. Tech. programme are offered as follows:

1) Humanities and Social Sciences (HS) courses will have 1 to 3 credits per course.
2) Basic Sciences (BS) courses will have 2 to 4 credits per course.
3) Engineering Sciences (ES) courses are common across all disciplines and will have 2 to 4 credits per course.
4) Professional Core Courses (PC) will have 2 to 4 credits per course.
5) Professional Elective Courses (PE) will have 2 to 4 credits per course.
6) Open Elective Courses (OE) may have 2 to 4 credits per course.
7) Skill development Courses (SD) and may have 1 to 3 credits per course.
8) Ability Enhancement Courses (AE)may have 1 to 2 credits per course
9) Non-Credit Mandatory Courses (NM) require only a pass in each of the specified courses to qualify for the award of the Degree.
10) Project work (PW), Mini Project work (MP) and Internship (IS) are offered which may have 10, 3, and 6 credits respectively.

The courses in the above types may be a combination of Lectures, Tutorials and Practical in any combination with suitable credits assigned to them. All the courses registered by a student under any of the above types of courses as required for award of the degree shall be considered as heads of passing which shall be Graded according to his/her performance. However, the Non-Credit Mandatory Courses shall be passed by a student for which Grades are not assigned.

The following procedure shall be used for designing and offering the above courses:

The courses for a programme under the following types from (a) to (l) shall be designed within the framework of UGC and AICTE guidelines by the concerned Board of Studies and approved by the Academic Senate of the University. The number of courses offered in a programme under each of the above types shall be decided as per the curriculum framework specified under clause 22OB 3.4.

The list of different types of theory courses and details of the practical courses used in the programmes are given below respectively from (a) to (i) and (j) to (l).

(a) Humanities and Social Sciences
(b) Basic Sciences
(c) Engineering Sciences
(d) Professional Core Courses
(e) Professional Elective Courses
(f) Open Elective Courses
(g) Skill development Courses
(h) Ability Enhancement Courses
(i) Non-Credit Mandatory Courses

(j) **Project work:**

Based on the ability/abilities of the student/s and recommendations of the mentor, a disciplinary or an inter-disciplinary major project can be assigned to a group having not more than 4 students. The main project work needs to be taken up within the institute/ research laboratory/industry. It is desirable, that the outcome of the project work may be published/patented.

(k) **Mini Project work:**

A Mini Project is a laboratory/ societal/ Industry-oriented work that will provide a platform for students to enhance their practical knowledge and skills through the development of small systems/ applications based on the ability/abilities of the student/s and recommendations of the mentor, a disciplinary or aninter-disciplinary mini-project can be assigned to a group having not more than 4 students.

(l) **Internship:**

The internship is an extended period of work experience undertaken by the students aspiring to supplement their degree with professional development. The students are allowed to prepare themselves for the workplace and develop practical skills.The Internship shall be completed during the period specified in the Scheme of Teaching and Evaluation.

The institution shall encourage students to take up,

(i) an interdisciplinary Research Internship or Industry internship and
(ii) a rural internship, a work-based activity carried out to learn practical experiences in rural areas, for the upliftment of living standards.

With the consent of the internal guide and Principal of the Institution,

students shall be allowed to carry out the internship in their home town (within or outside the state or abroad), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide.

University shall not bear any cost involved in carrying out the internship by students. However, students can receive any financial assistance extended by the College.

22OB 3.2.4. Audit Courses:

A student desirous of additional exposure to a course, without the rigors of obtaining a good grade, 'audits' a course. The minimum requirement of attendance for an 'Audit Course' is 75%, with any additional requirements as set by the instructor such as submission of assignments and minimum performance in some of the in-semester evaluations. Auditing of courses during regular semesters from 3rd semester onwards is permitted under the following conditions:

1) Students with CGPA>6.0 will be permitted to 'Audit' a course. A course can be audited provided the course is offered in the semester as a credit course for others, and there is no slot clash. Prior permission of the Instructor is required.
2) Audit courses would be restricted to a maximum of two (2) courses per student in the entire period of the programme.
3) The Course Teacher would award the 'AU' grade, if the attendance is satisfactory and additional requirements, as set out by the Course Teacher, are met. If the attendance and performance in additional requirements is not satisfactory, the Course Teacher will award 'No Grade'. The grade 'AU' does not carry any grade points and therefore does not figure in SGPA/ CGPA calculations.
4) The course successfully completed in Audit mode will be reflected in the Semester Grade card and the Transcript as Audit Course.

22OB 3.3. Prescribed Number of Credits for the Programme

All courses prescribed by the University, except the Non-credit Mandatory courses,

shall have credits and be considered as a head of passing for vertical progression. The credits fixed for the courses are awarded to the students on passing the courses registered by him.

1) The total number of credits to be earned for the award of B.E./ B.Tech. degree by students admitted to the first semester of the four year B.E./B.Tech. programme shall be **160**.
2) The total number of credits to be earned for the award of B.E./ B.Tech. degree by students admitted under lateral entry scheme to the third semester of the four year B.E./B.Tech. programme shall be **120**.
3) A student shall be awarded B.E./ B.Tech. degree with **Honours or Minor**, if he/she earns a minimum of **additional 18 credits**, satisfying the conditions specified in "VTU (Award of B.E./B.Tech. Honors/ Minors Degree) Regulations, 2022".

22OB 3.4. Curriculum Framework

The structure of UG programme in Engineering shall have essentially the following types of courses with the breakup of credits as shown against them:

Table – 3.4 : Credit Breakup for a Programme

Sl. No.	Category	Credits *	% of total Credits
1	Humanities and Social Sciences including Management courses, including AE	16	10.00
2	Basic Science courses	22	13.75
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer/ PL/ET etc.	24	15.00
4	Professional Core courses relevant to chosen specialization/branch	59	36.88
5	Professional Elective courses relevant to chosen specialization/branch	12	7.50
6	Open subjects – Electives from other technical and /or emerging subjects	12	7.50
7	Project workand internship in industry or elsewhere	15	9.37
8	Mandatory Courses	(non-credit)	0.00

	[Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]		
	Total	**160**	**100.00**

*Minor variation is allowed as per need of the respective disciplines on approval of the University.

22OB 3.5. Scheme of Teaching and Evaluation

1) The Scheme of Teaching and Evaluation shall be framed by distributing the total credits over eight semesters as follows:

Table – 3.5 : Semester-wise Allocation of Credits

	Semester	Credits	Total Credits
I year	1	20	40
	2	20	
II Year	3	20	40
	4	20	
III Year	5	20	40
	6	20	
IV Year	7	20	40
	8	20	
Total:		**160**	

- Lecture(L): one hour/week : 1 credit
- Tutorial(T): Two hours/week: 1 credit
- Practical/ Lab/ Drawing (P): Two hours/ week: 1 credit
- Project, Mini-project, Internship: credits as recommended by the University.
- Credit for the Seminars shall be part of the courses.

2) **Course Load:**

Every student to register for a set of *Courses* in each *Semester,* with the total number of their *Credits* being limited by considering the permissible *weekly Contact Hours (typically: 35 hours/Week);* For this, an average *Course Load* of 18-24 *Credits/Semester* (e.g., 6-7 *Courses*) generally acceptable; to also include 2 or 3 *Units of Non-Credit Mandatory Courses* in some Semesters.

3) **Teaching-Learning Process**

The theory courses shall be designed to have the syllabus spanning over one semester depending on the credits allocated for them. That is, Four-credit theory courses shall

be designed for 55-60 hours of Teaching-Learning process, Three-credit theory courses shall be designed for 40-45 hours of Teaching-Learning process, Two-credit theory courses shall be designed for 25-30 hours of Teaching-Learning process and One credit theory course shall be designed for 15 hours of Teaching-Learning process.

4) The Scheme of Teaching and Evaluation provides the list of courses offered in a semester, their types, course credits in L-T-P format and the contact hours. As per this, detailed syllabus content, hour distribution, Text and reference Books, Assessment and Evaluation procedure shall also be provided for all the semesters by the Board of Studies of the respective programmes. A course may include online references and virtual labs as approved by the University.
5) The composition of courses in the curriculum may be only a theory, a thory with practical or only a practical. These carry separate course codes and each are considered as separate "head of passing".
6) The Syllabus formulated shall be well structured and enable CBCS implementation, provide MEME options and incorporate Outcome Based Education (OBE) framework.
7) The University/Colleges shall provide necessary class rooms, Laborary equipments, Internet and computing laboratories, Library, qualified faculty and other supporting facilities to meet the standards as specified by the University and concerned Statutory bodies to create proper teachng-learning environment for the students.

22OB 3.6. Course Registration

1) It is mandatory for every student to register for the semester to attend various courses/ earn credits, using the prescribed Course Registration Form (CRF), till he completes his programme. The registration is normally done on the last two working days of each semester upon completion of the SEE. In all circumstances, registration shall be completed on or before the prescribed last date for registration announced in the Academic Calendar. The registration of courses in each semester with the University portal is mandatory.
2) **Student Mentoring**

On joining the University or a College, a group of students are assigned a Mentor from the concerned department offering the Programme. Students are advised to consult

the Mentor on any matter relating to their academic performance and the courses they may register in various semesters. Mentor guides the students to complete their courses of study for the required degree in a smooth and satisfactory manner.

3) **Minimum Number of Registrations for Offering a Course:**

There is no restriction on minimum registrations in a professional core course. However, the minimum number of students registered to any Professional Elective Course/Open Elective Course/ Ability Enhancement Course (from 3rd semester onward) offered by the Departments shall not be less than ten. In such cases, if the number of registrants for the elective course is less than 10, the college must seek permission from the Registrar (Evaluation) within 15 days from the date of commencement of the semester as per the academic calendar of the University, if that Professional Elective Course/Open Elective Course/ Ability Enhancement Course is to be offered in that college.

22OB 3.6.1. Course Registration Procedure:

1) The procedure involves the following steps:
   a) A student shall register for required courses each semester with prior permission of the Mentor.
   b) The student can register for courses he intends to take during a given semester on the basis of his plan for each Programme, as given in the Scheme of Teaching and Evaluation and as per the advice of the Mentor.
   c) The students shall decide on the courses to be registered during the ensuing semester immediately after their SEE examinations.
   d) The Mentor is expected to discuss with the student his academic performance during the previous semesters and then decide the number and nature of the courses for which the student can register during the semester within the framework of the Regulations.
   e) The Mentor may advise the student to drop one or more courses/activities based on his academic performance. The Mentor may even advise a reduced load program over several semesters for students with poor performance at the end of the first semester/year.
   f) Every student is permitted to register for the courses to an extent subjected to

the conditions under clause 22OB 3.6.2.

g) Students are not permitted to re-register for a course, which they have already passed.

h) The student shall fill up the CRF online, stating the courses that they propose to complete during the ensuing semester as per the prescribed curriculum.

i) They shall take a printout of the completed CRF, take signature of the Mentor and submit to the Dean/ Principal within the date notified by the University for registration.

j) Students having outstanding dues to the University/ College, or a hostel may not be permitted to register.

k) The registration is deemed to be complete only on approval by the University.

l) Without registration, any academic activity (course/seminar etc.) undergone by a student will not be counted towards the requirements of his/her degree.

m) A student shall exercise the option in respect of a higher semester Professional Elective Course/Open Elective Course/Ability Enhancement Course and register for the same at the end of the previous semester. However, the student may be permitted to opt for a change of Elective Course/s preferably within 15 days from the date of commencement of the semester as per the academic calendar of the University

22OB 3.6.2. Permitted Maximum Credits for Registration:

The student shall be permitted to register in a semester for that number of courses with total credits not exceeding 28. These 28 credits, include Minor/ Honours degree courses, the courses of the regular semester and backlog courses. The registration of these additional credits also includes the courses with a shortage of attendance and the courses with unfulfilled CIE requirements. A student shall pay the prescribed registration fees as notified by the University from time to time.

22OB 3.6.3. Late Registration:

Registration beyond the last date may be permitted only in special cases till the date specified in the Academic Calendar, on payment of a late registration fee.

22OB 3.6.4. Registration for Non-credit Mandatory courses:

1) Formal registration for these courses shall also be done along with other courses, at the beginning of the semesters.
2) Non-credit requirements are assessed as Pass (PP)/ Not Pass (NP) subject to the fulfillment of the minimum requirements of the specified activities and a minimum of 75% attendance. The award of degree is subject to successful completion of these requirements.
3) A student will be awarded PP (Pass) grade for the course he is registered for, in that semester, provided the minimum requirement is met during that semester together with attendance criteria.
4) Not satisfying these requirements will result in a failure grade NP (Not Pass), and the student has to re-register for the course when offered next in the subsequent semesters and pass within two years. The grades shall be submitted to the University before the commencement of the SEE.

22OB 3.6.5. Course substitution:

A student obtaining 'F' grade four times in a course, other than the Professional core courses, is permitted to choose an equivalent course for substitution on approval by the University. The student shall re-register for the new course and complete the course requirements subjected to the conditions of clause 22OB 5.2. A student shall not be permitted to avail this option beyond a maximum of two courses during the programme.

22OB 3.7. Attendance Requirement

1) Every prescribed course shall be considered as a unit for the calculation of attendance. The students are required to attend all the lectures, tutorials, practical, and other prescribed curricular and co-curricular activities, and earn full attendance. However, a student shall obtain a minimum attendance of 85% in each of the courses registered. However, if the attendance is below 85%, the shortage upto a maximum of 10% of the attendance may be condoned by the Vice Chancellor on the specific recommendations of the Dean/ Principal of the college where the candidate is studying. This provision shall be utilised based on medical grounds, participation in NSS/ NCC/ Red cross/ National level Republic Day and Independence Day Parade/ participation in University/

State/ National/ International level sports and cultural activities, seminars, workshops, paper presentation etc., of significant value, supported by valid documents. The Course Teacher may recommend for condoning the shortage of attendance and submit the application with documents through the Dean/ Principal along with his recommendation to the office of the Registrar (Evaluation) before the last day of the semester.

2) The basis for the calculation of attendance shall be the period prescribed by the University by its academic calendar of events and as notified by the Registrar.
3) In case of late admissions, approved by competent authority (KEA/DTE/VTU), for admission to I semester and III semesters (for lateral entry scheme), the attendance shall be reckoned from the date of admission to the Programme.
4) The Principal shall also notify every month, the list of candidates who are falling short of required attendance. The Course Teacher/ Mentor/Class Teacher or the College office shall inform the students as well as their parents/guardians about the attendance requirement and the attendance status every month. Students facing an attendance shortage shall be mentored to make up for the shortage.
5) A student who does not satisfy the attendance requirement in one or more courses (including bridge courses for lateral entry students, if any) shall not be permitted to appear for the Semester End Examinations of those courses. The grade card for such courses shall be marked as DX. The candidate shall repeat those courses whenever offered next. However, the student shall be allowed to appear for the SEE in other courses of the semester.

22OB 4.0. ASSESSMENT AND EVALUATION PROCEDURE

Formative, Summative and other Assessments shall be conducted as per the University calendar of events in all the courses of the programme offered to the students, within the framework of Scheme of Teaching and Evaluation approved by the University. The details of Assessment and Evaluation for specific theory and practical courses, including theory question paper setting patterns, as recommended by the Joint Board of Studies and approved by the University are included in Annexure- VI.

22OB 4.1 Assessment and Evaluation Process:

1) CIE and SEE constitute the major evaluations prescribed for each course, with only those students maintaining a minimum standard in CIE are permitted to appear in SEE of the course.
2) In such cases where a laboratory is attached to the course, CIE marks shall be awarded separately for both theory and the laboratory. However, the laboratory may or may not have the SEE component in the evaluation.
3) In such cases where a laboratory carries more credits and is not part of the theory, they are listed separately in the Scheme of Teaching and Evaluation. Hence, they are treated as separate "heads of passing" which are assesed and evaluated independently.
4) CIE and SEE to carry 50% weightage each, to enable the course to be evaluated for a total of 100 marks, irrespective of its credits.
5) The evaluation system of the programme is comprehensive and continuous during the entire period of Semester, by the faculty who is teaching the course. For a course, the evaluation and grading will be on the following parameters:

A	Continuous and Comprehensive Evaluation (CCE)	25 marks
B	Internal Assessment Tests (IAT)	25 marks
	Total of CIE (A+B)	50 marks
C	Semester End Examination (SEE)	50 marks
	Total of CIE and SEE (A + B + C)	100 marks

22OB 4.2. Continuous Internal Evaluation (CIE)

1) The CIE will carry a maximum of 50% weightage of total marks of a course. Before the start of the Academic session of each semester, a faculty may choose for his course **Internal Assessment Test** and a **minimum of two of the following assessment methods** with suitable weightage for each.
   i) Assignments (Individual and/or Group)
   ii) Seminars
   iii) Oral/Online Quizzes
   iv) Group Discussions

v) Case studies/Case lets
vi) Practical orientation on Design Thinking, Creativity & Innovation
vii) Participatory & Industry-integrated learning
viii) Practical activities / problem solving exercises
ix) Class presentations
x) Analysis of Industry/Technical/Business Reports
xi) Reports on Guest Lectures / Webinars / Industrial Visits
xii) Industrial / Social / Rural projects
xiii) Participation in Seminars/ Academic Events/Symposia, etc.
xiv) Any other academic activity

2) The faculty will submit the 'CCE Assessment Plan' to the Principal/Dean/HOD for approval and notify the same along with the course syllabus before the start of semester. The total marks of the above two assessment components shall be scaled down to 25 marks/ 25% of total marks of the respective course.
3) To assess the students in a course under IAT component, two tests shall be conducted in a semester. Each test will be conducted for 25 marks. The average marks obtained in these two tests will be taken as IAT Marks. If a student fails to attend the IAT on the scheduled date, due to valid reasons specified under clause 22OB 3.7.1, an additional test at the end of the semester would be conducted covering the syllabus of the test for which he was absent.
4) The CIE marks awarded to students at different stages during the course shall be displayed on the notice board of the Department concerned to enable the students to point out any discrepancies.
5) The student shall obtain a minimum of 40% of the marks allotted for CIE in each course to be eligible to appear for the SEE in that course.
6) When a laboratory is part of a theory course, the student shall obtain a minimum of 40% marks in CIE of the laboratory to be eligible to appear for SEE in that course. This is in addition to the requirement specified under (5) above. The CIE marks obtained by a student in the laboratory, if it is equal to or greater than 40%, shall be retained until the end of that academic year till he passes the SEE. Otherwise, he shall re-register for the course when offered next.

7) If a student is unable to secure a minimum of 40% in CIE marks in any course, he shall not be eligible to take up SEE/ viva-voce examination in that particular course. It shall be the responsibility of Principal/Dean to scrutinize the list of candidates and permit only the eligible students to take up SEE/ viva-voce. In the event of an ineligible student inadvertently being allowed to appear for the theory/viva voce examination, the result of the concerned student shall be withdrawn forthwith.
8) The list of such students, who have not secured the minimum in CIE marks, shall be sent to the Registrar (Evaluation) along with the submission of CIE marks of the successful students.
9) After the submission of CIE marks to the Registrar (Evaluation) of the University, any request for changes in the marks by the Principal/Dean shall be considered only after due approval of the Vice- Chancellor obtained through the Registrar (Evaluation).
10) The students not obtaining 40% marks in CIE shall re-register for the course during the subsequent semester when ever it is offered.

22OB 4.3. Semester End Examination:

1) The Semester End Examination for all the courses offered during the semester shall be conducted at the end of each semester except when there are no students taking examination for any course as per the Scheme of Teaching and Evaluation.
2) Only those students who satisfy the attendance requirement as per 22OB 3.7 and CIE requirement as per 22OB 4.2 shall be eligible to appear for SEE of that course.
3) University examination for all courses under SEE shall be conducted for a maximum of 100 Marks. The marks secured by the students for100 marks shall be proportionately scaled down to a maximum of 50 marks to add the same with the CIE marks for the award of the letter grade. (except for the project work the total SEE marks are 100)
4) The University examinations for all the Programmes of study shall be conducted at the end of each semester.
5) Students having no backlog courses, may not have more than one examination scheduled on the same day. However, students having backlog course may face a situation where they may have,
   a) Two examinations scheduled at the same time of the day,

b) To take two examinations on the same day, one during the morning session and the other in the afternoon session, and

c) Examinations on consecutive days.

The students shall be prepared to appear for the examinations specified above under (b) and (c) cases. However, the University shall take utmost care to avoid scheduling as specified under(a) as far as possible. But in view of time constraint to complete the examinations and announce results on time, if it becomes unavoidable, the students shall choose to appear for the examination as per the advice of their Mentor. As changing the examination date is not an option, the examination time table shall not be modified/ altered/ adjusted in any of the above three cases.

6) The passing standards in CIE, SEE, a course and a semester for all types of the courses in which grades are awarded shall be as per the clause 22OB 6.3.

7) A student securing an 'F' grade in any courses, shall reappear for that course during the subsequent SEE. The CIE marks awarded to the student at the first attempt in the concerned course shall be carried forward. Revised CIE marks are considered only for courses where grade DX was awarded.

8) For a pass ('P' grade), sum total of CIE and SEE marks must be 40% of the maximum marks prescribed for a course as per the Scheme of Teaching and Evaluation.

22OB 4.4. Makeup Examination:

1) The makeup examination facility shall be available to those students who have appeared and failed in the SEE in one or more courses in a semester. However, the students passing in the makeup examination shall lose their eligibility to be considered for the award of Ranks.
2) If a student has satisfactory attendance in a course and has secured a minimum of 40% in CIE but could not appear in SEE for valid and convincing reasons as specified under 22OB 3.7.1 , shall be eligible to appear for the makeup examination, after due recommendation by the Principal/ Dean and approval from the University.
3) Following may be considered as other valid reasons for semester end makeup examination:

a) Serious Illness/ personal accident in the case of the student himself.

b) Serious illness/ Accident/ Death of parent /guardian.

4) Students claiming semester end makeup examination on the above reasons are required to apply to the Principal/ Dean, on or before the prescribed last date for registration for such makeup examination announced in the Academic Calendar, along with proper medical certificate issued by a competent Authority. In the event of death and/ or serious illness/ accident of parent or guardian, the application should be supported by adequate evidence of the same/ appropriate documents. Decision of the Vice Chancellor is final in these matters.

5) The Makeup Examinations for both the semesters shall be conducted once in a year at the end of the even semester.

22OB 4.5. Maintenance of Examination Records

1) The candidate shall write tests, assignments/unit-tests /written quizzes in Blue Books, which shall be preserved by the Principal/ Head of the Department for at least 3 years after the announcement of University results and shall be made available for verification as per the direction of the Registrar (Evaluation).

2) Any corrections or overwriting of CIE marks on the blue book/drawing sheet laboratory record etc., where CIE marks are awarded, shall bear the signature(s) of the concerned Teacher(s) and the Head of the Department.

3) CIE marks shall reach the University before the commencement of examinations as per the notification from the office of the Registrar(Evaluation) from time to time. After submission of CIE marks to the University, any request under any circumstances for a change of CIE marks shall not be considered.

4) CIE marks of those students, who come under 22OB 4.6(4) and (5), shall also be sent to the Registrar (Evaluation) along with other course CIE Marks.

5) The final list, incorporating corrections (if any), of CIE marks awarded to the students in the Theory/Practical/Internship/ Mini – Project Work/Major-Project Work shall be displayed on the notice board of the college much before the closure of the semester.

6) The college/Department shall enter the CIE marks of each on the University's online CIE marks portal and submit a certified copy of the same to the University Examination Section within the stipulated date notified by University. Every page of the CIE marks sheet (hardcopy) shall bear the signatures of the concerned Teacher/Teachers, Head of the Department, and the Principal/ Dean.

22OB 4.6. Review Committee for CIE

1) Review of assessment is an organized procedure that ensures the use of valid assessment methods and consistent application of criteria, to provide fair academic judgment and reliable outcomes in the form of marks or grades. It assures appropriate designing and implementation of assessment activities along with the generation of valid and reliable results.
2) After each test, the Principal/ Dean shall ensure that the evaluation is fair in each of the courses, scheme of valuation is uniformly followed and that the award of marks in the courses follow a normal distribution curve. If there are any lapses or the marks distribution is either left skewed or right skewed, corrective measures shall be taken and the Report to be submitted to the University.
3) If the review exercise is done solely for the purpose of unduly favouring the students, the University reserves its right to take punitive action on the concerned.
4) There shall be a Review Committee for Internal Assessments in every Department, which shall be chaired by the Head of Department and two senior faculty members nominated by the Principal/Dean. This Committee shall be responsible for the entire process of Internal Assessment in the Department, including redressal of grievances, if any.
5) **Guideline for the Review Committee:**

   Review may be conducted after each test or after the tests in case there is a large number of failures or high marks, or when large numbers of students have received the same marks, or when there are wide discrepancies between marks allocated to individual students in different courses,

   a) Split-up of marks used for each of the different types of assessment in the course may be checked.

b) Checking of the questions to find whether it maps to course outcomes.

c) Checking the difficulty level of questions paper i.e is the difficulty level on the high extreme, very easy or otherwise.

d) Whether the assessment modes are used to cover the entire syllabus or not.

e) Checking the manner of awarding the marks, i.e has correction been at the extremes, liberal or tough?

f) Moderation should not be restricted to just assessment but also includes the assessment design (scheme of evaluation).

g) Each college shall submit the moderation committee report to Registrar (Evaluation) along with the CIE marks.

22OB 4.7. Rejection of Result

1) A student is permitted to reject the total performance of a semester (including CIE marks) or reject only the result of his/her performance in University examinations(SEE) of a semester. The rejection is permitted only once during the entire Programme of study.

2) Students who desire to reject the SEE results of a semester shall reject the total performance(irrespective of the earned course grades) in all the courses of the semester either rejecting or retaining the CIE marks. However, rejection of the performance of the VIII semester project shall not be permitted.

3) Students who desire to reject the total SEE performance of an odd or even semester including CIE marks, have to repeat that odd or even semester of the prevailing scheme by taking readmission during the subsequent academic year/s, governed by clauses 22OB 5.3 and 22OB 5.2.

   a) If the rejection of SEE results excluding CIE marks is of the odd semester, students shall be allowed to take admission to the immediate next even semester.

   b) If the rejection of SEE results excluding CIE marks is of an even semester, then students shall be allowed to take admission to the next odd semester.

   c) Readmission to odd/even semesters shall not be considered as fresh admission and therefore students shall continue to have the same University Seat

Number, which was allotted earlier. The maximum duration of the Program shall be counted with reference to the University Seat Number (USN).

d) Applications for rejection of results excluding CIE and approval to reappear for University examinations shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results, with prescribed fee as notified by the University from time to time. Late submission of applications shall not be accepted for any reason.

e) Application for rejection of results including CIE and approval for readmission shall be sent to the Registrar through the Principal of the College within 30 days from the date of the announcement of the results with prescribed fee as notified by the university from time to time. Late submission of application shall not be accepted for any reason.

4) Registration for SEE is compulsory if the student/s has satisfied the attendance and CIE requirement of ODD /EVEN semester.

In case, the students fail to register for SEE of the odd semester after satisfying the attendance and CIE requirements of the semester, they shall be permitted to move to an even semester of that academic year.

However, such students have to register for odd semester examinations conducted at the end of the academic year for all the semesters and registration shall be considered for the first attempt.

In case, students fail to register for the odd semester SEE after completing successfully the even semester, they shall not be permitted to move to the higher odd semester of the subsequent academic year. Irrespective of a student appearing for SEE, he/she has to register for SEE for odd and even semesters before completing the academic year.

5) Students who opt for rejection of results of the University examination shall be eligible for the award of the Degree and Minor Degree but not for the award of ranks and Honors Degree.

22OB 4.8. Academic Malpractice

Academic malpractices shall be seriously viewed, and appropriate action taken. In case of malpractice during any of the internal examinations like assignments, quizzes, and

tests, the Course Teacher/Invigilator shall report the matter to the Principal/ Dean for penal action. If the Principal/ Dean finds that the offence is serious enough or the candidate appeals in writing to the University, then the matter shall be further refered to the Academic Malpractice Committee of the University. However, any malpractice in the SEE shall be reported to the University irrespective of the seriousness of the malpractice.

22OB 5.0. MAXIMUM DURATION FOR PROGRAMME COMPLETION

22OB 5.1: Multiple-Entry-Multiple-Exit Options

While earning credits towards their B.E./B.Tech degree, the students may judiciously use the options provided to them through CBCS and MEME clauses in the Regulations, to obtain additional certificate and a B.Sc. degree. However, they shall earn the required credits for the award of the degree within the maximum specified duration.

The following distinctions are awarded under MEME options:

1) Certificate in Respective Programmes of Engineering

A student who exit at the end of II year of the programme shall be awarded a certificate, if he/she successfully passes the registered courses and earns:

(i) Atleast 50% of the credit requirements of B.E./B.Tech. programme. (i.e. 80 credits) However, it is 25% for lateral admission candidates (i.e. 40 credits).

(ii) Atleast 50% of the programme professional core courses (some specific courses may be specified, so the leaving student has decent skills), and

(iii) A minimum CGPA of 5.0.

2) B.Sc. in Respective Programmes of Engineering

A student who exit the end of III year of the programme shall be awarded a B.Sc. degree, if he/she successfully passes the registered courses and earns:

(i) Atleast 75% of the credit requirements of B.E./B.Tech. programme (i.e. 120 credits); and completed atleast 3 years (80 credits and 2 years respectively for lateral admission candidates) in the programme.

(ii) 100% of programme professional core courses

(iii) A minimum CGPA of 5.0.

With B.Sc., the student is eligible for entry into programmes which take

B.Sc. as admission eligibility criteria.

3) Re-entry to complete the programme

A student exiting with a certificate or B.Sc. should be entitled to re-enrol in the programme. All the credits will be transferred, if the student enrols back within a limited period of 3 years of exiting. In case a student enrols after that, then the transfer of credits should be examined by looking at the change in the curriculum from what the student did. Exits are permitted by the University within 15 days of announcement of II year and III year University results, on written request for the award of certificate and B.Sc. degree by a student when he/she is eligible. Corresponding to these two exits, a maximum of two re-entries are permitted with the condition that he/she complete the programme within the maximum specified duration.

4) Programme Completion in another Institution

The University permits a student to earn a certificate/B.Sc. in one institution and complete the degree programme in another. This will enhance the value of certificates and the B.Sc. Degree.

22OB 5.2. Maximum Duration for Programme Completion

The minimum duration of the program is four academic years for regular students and three years for lateral entry students. Students admitted to first-semester B.E./B. Tech., shall complete the programme within eight academic years from the year of the first admission, failing which they will not be eligible for the award of a degree. Students admitted to third semester B.E./ B.Tech., under the lateral entry category shall complete the programme within six academic years from the year of the first admission, failing which they will not be eligible for the award of degree.

22OB 5.3. Readmission

1) Students who are temporarily discontinuing the programme and getting readmitted to the eligible semester are permitted subjected to the clause 22OB 5.2.
2) The permission for readmission is only on request through the Principal and is not treated as a matter of right. Such students shall not claim any benefits based on the readmission.

3) Students who take re-admission to any semester of the existing scheme from another scheme, as a repeater/fresher because of various reasons, shall attend and complete all the remaining semesters of the programme adhering to the Regulations of the prevailing scheme and shall complete additional courses, if any, as per the decision of equivalence committee in concurrence with concerned Board of Studies on establishing the equivalence between two schemes. Such a candidate shall not be eligible for the award of rank.
4) Readmission to odd/even semester shall not be considered as fresh admission and therefore students shall continue to have the same University Seat Number (USN), which was allotted at the time of his/her admission to the programme. The maximum duration of the programme shall be counted with reference to the USN allotted during his/her first admission to the programme.
5) A student who has not obtained the eligibility for III semester even after three academic years from the date of admission to I semester shall discontinue the programme or get readmitted to I semester of first year B.E./B.Tech., with a new University Seat Number (USN) but retaining the same year of admission.
6) The candidates who have temporarily discontinued the programme of study or changed the scheme of study from one to another because of various reasons or transferred with credits from the autonomous college of the University/other University to non-autonomous constituent/affiliated college of the University, shall be eligible for the award of degree provided the total credits earned at that stage are equal to or greater than the credits prescribed by the University under clause 22OB 3.3. and satisfy all other conditions of this Regulations.
7) In case, the forecasted or estimated credits are going to be less than that of the credits prescribed by the University on the completion of all the semesters of the programme under the prevailing scheme, the candidate shall register for a course or courses not studied earlier and make up the credits which are equal to or greater than the University prescribed credits.
8) In case of any difficulty, Vice-Chancellor shall decide on individual cases, which shall be final.

22OB 6.0. GRADING AND VERTICAL PROGRESSION

22OB 6.1. Award of Grades:

1) The University adopts absolute grading system wherein the marks are converted to grades, and every semester result will be declared with semester grade point average (SGPA) on successful completion of all courses of that semester.
2) The total marks obtained by the student in CIE and SEE of a course is expressed as a percentage to compute the grade points and the letter grade is awarded as indicated in the table below:

Letter Grade and corresponding Grade Points on a typical 10 – Point scale								
Letter Grade	O	A+	A	B+	B	C	P	F
	Outstanding	Excellent	Very Good	Good	Above Average	Average	Pass	Fail
Grade Point	10	9	8	7	6	5	4	0
% of Marks Secured	90-100	80-89	70-79	60-69	55-59	50-54	40-49	0-39

3) If there is no SEE for a course, then the CIE marks alone will be the basis for the determination of letter grade.

22OB 6.2. Other Letter Grades:

The letter grades specified in 22OB 6.1 are used as student performance measures in all kinds of assessments. However, the following letter grades are also awarded under thecircumstances defined below (Letter Grade: Grade Point - Circumstances).

1) DX: 0 - Credits are not included in CGPA, Attendance below 75%, hence Repeat the course (In case of electives, course change is permitted)
2) AU: 0 - Satisfactory in an Audit course
3) AB: Absent for the Course
4) PP: 0 – Passed in Non-credit course
5) NP: 0 - Not Passed in Non-credit course
6) IC: No credits - Incomplete (a place holder; gets converted to an appropriate grade after clearing SEE examination else converted to ‘F’) else automatically converted to

'F'.

7) W: No credits – Dropped/ withdrawn (W is not a grade but only a place holder indicating that the course has been dropped/withdrawn and it must be cleared in subsequent semesters).

22OB 6.3. Passing Standards

1) **Maximum and Minimum CIE Marks:**

The maximum weightage of CIE mark shall be 50. To appear for the SEE, the minimum CIE marks to be secured in each of the courses shall be 40 % of the maximum marks of CIE.

2) **Maximum and Minimum SEE Marks:**

The maximum weightage of SEE marks shall be 50 and marks to be secured for passing shall be 35 % of the maximum marks of SEE.

3) **Eligibility for Passing a Course:**

The overall passing marks shall be 40% of the maximum marks (the sum of the CIE and SEE should be 40% of the maximum marks) of the course.That is, minimum passing grade in a course (head of passing) shall be "P".

4) **Semester Passing Standards:**

a) A student shall be declared successful or 'passed' in the entire undergraduate programme, only when he secures a Grade Point of 4 ("P" Grade) or above in every registered course in each Semester during the entire programme for the Degree Award, as required.

b) A Student shall be declared successful or 'passed' in any Non-Credit Course if he secures a 'Satisfactory Grade (PP)' for that Mandatory Course.

5) A student who satisfy the conditions (1), (2), and (3) above, and obtain any grade from 'O' to 'P' in a course shall be considered to have passed that course.

6) A student shall be awarded letter grade in a course as indicated below, if he/she,

a) Fails to satisfy the conditions under Section (5) above: 'F' Grade,

b) Absents himself/herself from the University examinations: 'AB' Grade,

c) Has attendance shortage in a course: 'DX' Grade, and

d) Course is Incomplete for any reason: 'IC'.

7) Students satisfying the attendance requirement but failing to secure the minimum percentage of CIE marks, in any course/s, shall not be eligible for the SEE, conducted by the University and they shall be considered as fail in that Course/those Courses and marked as DX in the grade cards against this course/s. However, they can appear for University examinations conducted for other Courses of the same semester and backlog course/s if any.
8) Students who have satisfied the attendance requirement but not the CIE requirements can be permitted to register afresh and appear for SEE after satisfying the CIE requirements in the same Course(s) when offered during the next immediate semester/s or later.
9) Each appearance to SEE or absence after completing CIE and attendance requirements to complete a course shall be treated as an attempt.

22OB 6.4. Vertical Progression

A student progresses according to his/her performance and could register for the higher semesters subjected to conditions under clause 5.2.

1) **Students admitted to the first year:**
   a) Students having "F" grades for the courses totaling to more than 16 credits in the 1st and 2nd semesters of the first year of the programme shall not be permitted to to move to the 3rd semester (2nd year) of the programme. These courses include courses marked as DX.
   b) The students who fail to satisfy CIE and attendance requirement shall repeat the courses whenever offered next and become eligible for the 2nd year.
2) **Obtaining CIE:** From the 3rd semester (II year) onwards the student who obtains the required attendance for the course, but not the required CIE marks is allowed to move forward to the next semester. However, the student shall mandatorily obtain the required CIE in the subsequent semester. Obtaining minimum CIE marks for the course is mandatory. It may also be noted that the student shall not be permitted to appear for SEE in such courses until he/she obtains the required CIE.
3) **Completion of backlog courses:** From 3rd semester (II year) onwards,
   a) the student who obtains required attendance, CIE, and appearing for SEE

obtains "F" Grade shall be allowed to move forward to the next semester (odd /even) irrespective of several "F" grades, subjected to satisfying the clause 22OB 3.3 and 22OB 5.2.

b) there shall be no restriction for promotion from an even to next odd semester (or odd to next even semester) even if the student has not satisfied the attendance requirement in one or more courses (including bridge courses for lateral entry students), but he/she shall not be eligible to appear for SEE in those course(s). Such students shall repeat those courses whenever offered next.

4) A student shall be given admission to the 7th semester (IV year) provided he/she passes all courses of 1st and 2nd semesters.

5) **Permitted Maximum credits for registration:** The student shall be permitted to register for total courses to an extent subjected to the conditions under clause 22OB 3.6.2.

6) **Successive Failures and alternate course selection:**

a) If a student not completing a course, other than the professional core course, even after four attempts, may drop that course and choose an alternate course having the same number of credits from the pool of courses suggested by the concerned Board of Studies.

b) The course so selected should not have been studied by the student or to be studied in future at higher semesters. The faculty advisor shall guide/ advise the student in this regard.

c) The college shall make arrangements for the registration and conduction of CIE for the alternate course selected.

d) This provision is given only for two courses (one at a time) during the entire maximum duration of the programme.

e) This provision is optional; the student/s can continue registering for the same course without opting for a change.

22OB 6.5. Condition for Re-Registering a Course:

1) Students who do not pass the course as per clause 22OB 6.3(3) and awarded "F" Grade may Re-Register and improve their performance.

2) Such student, after passing the failed course in subsequent examination/s, will be awarded letter grade based on the marks he scores while passing in the subsequent examination/s.

22OB 6.6. Computation of SGPA and CGPA:

1) Semester Grade Point Average (SGPA) will be awarded at the end of each Semester and Cumulative Grade Point Average (CGPA) will be awarded at the end of the program. However, CGPA is calculated at the end of each semester from the second semester onwards and reflected in the grade card for indicating the progress of the student.
2) Each course in a program is associated with number of credits (C). Based on the number of Credits for a course and obtained Grade Point (GP) for that course in a Semester, the GPA is calculated as given below:
   a) The SGPA is the ratio of sum of the product of the number of credits with the grade points secured by a student in all the courses taken by him and the sum of the number of credits of all the courses undergone by a student, i.e.,

      $SGPA = \sum (Ci \times Gi) / \sum Ci$

      Where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.
   b) The CGPA is also calculated in the same manner considering all the courses undergone by a student over all the semesters of a programme, i.e.,

      $CGPA = \sum (Ci \times Si) / \sum Ci$

      Where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

      Finally, the SGPA and CGPA shall be rounded off to 2 decimal points and reported in the grade cards. An illustrative example to calculate SGPA and CGPA for one academic year is shown in **Annexure-I**.

22OB 6.7. Conversions of CGPA into Percentage of marks and Class Equivalence

The following formula for conversion of the CGPA on a 10-point scale into the percentage of marks (M) for employment/ higher studies, etc. may be used;

Percentage of marks secured, M = CGPA Earned x 10

E.g.: Illustration for a CGPA of 8.20;

Percentage of marks secured, M = 8.20 × 10= 82.0 %

22OB 6.8. Class Equivalence

Subsequent to the conversion of final CGPA, after successful completion ofthe Program, into the percentage of marks (M), a graduating student isreckoned to have passed in

(i) First Class with Distinction (FCD) if M≥ 70

(ii) First Class (FC) if 60 ≤M<70

(iii) Second Class (SC) if 50 ≤ M < 60

(iv) Pass Class (P) if 40≤ M ≤ 50

22OB 6.9. Award of Grade Cards, Certificates and Transcripts:

(1) **Grade Cards:** At the end of each semester, a Grade Card shall be issued to all the registered students of that semester, indicating the Course code, Title, Number of credits, Letter grade awarded, and Credits earned, for all the Courses as specified in the scheme of teaching and evaluation, along with total credits earned, SGPA, and CGPA as applicable. This may have F grades and other temporary grades awarded to the student.

(2) **Grade Certificate:** The Grade Certificate, having the same format of Grade card but indicating the month and year of clearing a course, is issued to the student on demand only on clearing all the temporary grades specified in the Grade Card.

(3) **Transcripts:** Transcript is the consolidated statement of the academic performance of a student for all the semesters since joining the programme and is generally given to a student on successful completion of the programme along with the degree certificate.

(4) For those students who have taken multiple attempts to clear a course, the transcript given on successful completion of the programme will only contain earned pass grade ('O' to 'E', AU and PP); the courses cleared subsequently will however be shown in the respective semester with Month and Year in which the student has finally cleared the course. The transcript will show only the overall CGPA based on all the courses taken by the student. Credits earned beyond the requirement for the award of the degree shall be shown as additional courses separately, indicating the grade earned by the student.

Additional copies of the transcript can be obtained if needed, on request submitted along with payment of applicable fee.

(5) Students who have not yet completed the programme can obtain an interim Transcript at the end of any semester, if needed, on request and upon payment of applicable fee. The interim Transcript includes failed courses, which have not been cleared at the time of issue.

22OB 6.9.1. Mandatory Earning of Activity points:

Sl. No.	Student Category	Activity Points prescribed
1	Regular Students admitted to the 4 year Degree Programme	100
2	Students entering 4 year Degree Programme through lateral entry	75
3	Students transferred from other Universities. To the 5th Semester	50

The Activity Points earned shall be reflected on the student's eighth semester Grade Card.

(i) Activity Points (non-credit) have no effect on SGPA/CGPA.
In case a student fails to earn the prescribed activity Points before the commencement of 8th semester examinations, the Eighth Semester Grade Card shallbe issued only after earning the required activity Points. Students shall be admitted for the award of the degree only after the release of the Eighth Semester Grade Card.

(ii) The Guidelines and suggestive activities under Activity points are listed in Annexure –VII

22OB 7.0. ELIGIBILITY FOR AWARD OF DEGREE, PRIZES, MEDALS, AND RANKS

22OB 7.1. B.E./B.Tech. degree

(a) Students shall be declared to have completed the undergraduate Programme of B.E./B.Tech. degree and is eligible for the award of degree provided they have

undergone the stipulated course work of all the semesters under the Scheme of Teaching and Examinations and have earned the prescribed number of credits as per clause 22OB 3.3 within the permitted maximum duration specified under clause 22OB 5.2.

(b) For the award of degree, completion of bridge courses, if any, as applicable is compulsory.

22OB 7.2. B.E./B.Tech. (Honors) Degree

(a) Students shall be declared to have completed the undergraduate Programmme of B.E./B.Tech., degree with Honours, provided they have,

(i) Been declared eligible for the award of the degree as per clause 22OB 7.1,

(ii) Earned additional 18 or more credits through University-approved online courses, and

(iii) Satisfied the conditions of "VTU (Award of Honours/ Minor at B.E./B.Tech. Degree Programmes) Regulations, 2022".

22OB 7.3. B.E./B.Tech. with Minor Degree

a) Students shall be declared to have completed the undergraduate Programmme of B.E./B.Tech., degree with Minors, provided they have,

(i) Been declared eligible for the award of the degree as per clause 22OB 7.1,

(ii) has earned additional 18 or more credits through University-approved online courses, and

(iii) Satisfied the conditions of "VTU (Award of Honors/Minor at B.E./B.Tech. Degree Programmes) Regulations, 2022".

22OB 7.4. Award of Degree for an Extraordinary Student:

1) The University through college can offer a fast-track degree for an extraordinary student. The same is done by offering courses of his/ her choice to fulfill the requirement of the programme in three and half years.
2) However, the degree shall be awarded on completion of 04 years.
3) The course completion letter shall be issued jointly by the University and the College immediately after completion of the programme, not withstanding the minimum duration.
4) The extraordinary student is one with a CGPA ≥ 9 in 2nd and 3rd semesters

and continue to maintain the same in all the semesters. Otherwise, his/her registration shall stand canceled automatically.

5) Aspirant students shall register with the University through the Principal of the college at the 4th semester level, with the prescribed registration fee as fixed by the University from time to time. Such students shall register for more credits, other than the regular semester credits, along with the 5th semester registration.

22OB 7.5. Noncompliance Cases

1) **Noncompliance of Mini-project**

The mini-project shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the mini-project shall be declared fail in that course and shall have to complete the same during subsequent University examinations after satisfying the Mini-project requirements.

2) **Noncompliance of Major-project**

The Project Work shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the Major-project shall be declared fail in that course and shall have to complete the same during subsequent University examinations after satisfying the Major-project requirements.

3) **Noncompliance of Internship**

All the students of B.E./B.Tech. shall have to undergo mandatoryinternship The internship shall be considered as a head of passing andshall be considered for the award of degree. Those, who do not takeup/complete the internship shall be declared fail in that Course and shallhave to complete the same during subsequent University examinationsafter satisfying the internship requirements.

4) **Non compliance to earn credits in Honours and Minors**

When a student registering for minor or honours degree is unable to complete all the required courses or earn the required credits within the maximum programme duration or at the time of becoming eligible for the award of the Degree, may

withdraw from these additional degree programmes and request for the award of a certificate. The University shall consider those additional courses passed as Value Added Courses and issue a certificate to that effect.

22OB 7.6. Award of Prizes, Medals, and Ranks

For the award of Prizes and Medals, the conditions stipulated by the Donor shall be considered subject to the provisions of the statutes framed by the University for such awards.

(1) For the award of rank in a Specialization of Bachelor of Engineering/Technology, the highest CGPA secured by the students at the end of the VIII semesters shall be considered after having completed the requisite credits.

(2) The additional credits earned for the award of Honours/ Minors degree shall not have any bearing for the Rank declaration.

(3) A student shall be eligible for a rank at the time of award of the degree of Bachelor of Engineering/ Technology, provided that the student,

a) (i) Has passed all the Courses of I to VIII semester in the first attempt only in case of Candidates admitted to I year.

(ii) Has passed all the Courses (including bridge courses) of III to VIII semester in the first attempt only in case of Candidates admitted under lateral entry scheme.

b) Is not a repeater in any semester because of rejection of result of a semester/ shortage of attendance /temporarily discontinued and rejoined/readmitted etc.

c) Has completed all the semesters (I to VIII or III to VIII for lateral entry students) in VTU constituent college or in any VTU affiliated college, excluding the autonomous colleges.

d) Has not been transferred from any autonomous college affiliated to VTU or any other University.

(4) The total number of ranks awarded shall be 10% of the total number of students who appeared in the VIII semester subject to a maximum of10 ranks in a specialization.

(5) For an award of ranks in a specialization, a minimum of 10 students should

have appeared in the VIII semester examination.

Illustration:

a) If 1228 students appeared for the VIII semester in Electronics and Communication Engineering Program, the number of ranks to be awarded for Electronics and Communication Engineering shall be10.

b) If 90 students appeared for the VIII semester in Biomedical Engineering, the number of ranks to be awarded for Biomedical Engineering will be 09.

c) In case of a fractional number of ranks, it is rounded to a higher integer only when the first decimal place is greater than or equal to 5.

22OB 7.7. Ranks shall be awarded based on the merit of the students as determinedby CGPA. If two or more students get the same CGPA, the tie shall beresolved by considering the number of times a student has obtained ahigher SGPA. If it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A+, A, B+ etc., shall be taken in to account to decide the order of the rank.

22OB 8.0. CHANGE OF COLLEGE: TRANSFER OF STUDENTS

The Regulations Governing the Change of College shall be followed [Annexure-II].

22OB 9.0. CHANGE OF BRANCH

The Regulations Governing the Change of Branch shall be followed[Annexure-III].

22OB 10.0. MISCELLANEOUS

1) Guidelines for using Online content in courses at the University and Colleges [Annexure-IV].
2) The Regulations Governing the Academic Bank of Credits shall be followed [Annexure-V]

22OB 11.0. Applicability and Power to Modify

i) The regulations governing the degree of Bachelor of Engineering/ Technology of Visvesvaraya Technological University shall be binding on all concerned.

ii) Notwithstanding anything contained in the foregoing, the University shall have the power to issue directions/ orders to address and removal of any difficulty.

iii) Nothing in the foregoing may be construed as limiting the power of the

University to amend, modify or repeal any or all of the above.

Annexure – I

An illustrative example to calculate SGPA and CGPA for one academic year:

(a) SGPA and CGPA Calculations: An Illustrative Example for one academic year

Semester (Odd :I, Even: II)	Course Code	Credits	Grade	Grade Points (GP)	Credit Points (CrP)	SGPA, CGPA
I	XX11	3	B	8	3x8=24	$SGPA = \frac{101}{20} = \mathbf{5.05}$
I	XX12	3	Absent(F)	0	3x0=00	
I	XX13	3	A+	9	3x9=27	
I	XX14	3	F	0	3x0=00	
I	XX15	3	B	6	3x6=18	
I	XX16	1	C	5	1x5=05	
I	XX17	1	A+	9	1x9=09	
I	XX18	2	B	6	2x6=12	
I	XX19	1	B	6	1x6 = 06	
	Total	20(14*)		Total	101	
(14*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.						
II	XX21	3	B+	7	3x7=21	$SGPA = \frac{178}{26} = \mathbf{6.85}$
II	XX22	3	A	8	3x8=24	
II	XX23	3	B	6	3x6=18	
II	XX24	3	C	5	3x5=15	
II	XX25	3	A+	9	3x9=27	
II	XX26	1	F	0	1x0=00	$CGPA = \frac{(101+178)}{14+25} = \frac{279}{39} = \mathbf{7.15}$
II	XX27	1	A	8	1x8=08	
II	XX28	2	A+	9	2x9=18	
II	XX29	1	A	8	1x8=08	
I semester						
I	XX12	3	B	6	3x6=18	
I	XX14	3	B+	7	3x7=21	
	Total	26(25*)		Total	178	
(25*): Total credits of the semester excluding the credits of the courses under F grade. Considered for the calculation of CGPA of the two consecutive semesters under consideration.						

(b) CGPA Calculation of the Program: An Illustrative Example

Semester	I	II	III	IV	V	VI	VII	VIII
Credits of the semester	20	20	20	20	20	20	24	16
SGPA	5.0	6.73	9.20	6.86	8.18	7.73	9.18	9.40
∑CrP	100	175	220	165	204	185	184	169

$$\boldsymbol{CGPA} = \frac{[100+175+220+165+204+185+184+169]}{160} = \frac{[1402]}{160} = \mathbf{8.76}$$

For Lateral Entry Students

$$CGPA = \frac{[220 + 165 + 204 + 185 + 184 + 169\,]}{120} = \frac{[1127\,]}{120} = \mathbf{9.39}$$

Annexure – II

The Regulations Governing the Change of College:

(@ https://vtu.ac.in/wp-content/uploads/2021/01/Notified-COC-Regulations.pdf)

Annexure – III

The Regulations Governing the Change of Branch:

(@ https://vtu.ac.in/wp-content/uploads/2021/01/Notified-COB-Regulations.pdf)

Annexure – IV

Guidelines for Using Online Content in Courses at the University and Colleges.

1.0. Background

A lot of online high quality content is available today either free or at a low cost. Besides the Government supported NPTEL, there are companies who aggregate courses from several Universities (and even private commercial organizations) and offer them to students all over the world. There are other companies who offer courses designed and developed by them. Further, a lot of companies have online content available to students.

On the other hand, most of the Computer Science (and related) departments face serious shortage of faculty, particularly in areas where there is a significant demand in the industry.

So, on one hand, we have quality content available for free or low cost, and on the other hand, we don't have faculty to teach such courses. The natural solution is to find ways to use online content for the courses in the curriculum (with credits). This way, either a knowledgeable faculty can "teach" a much larger class, or a faculty member with inadequate background in the topic can still "teach" the course better than what he/she would have done without the support of such online content.

1.1. Issues

The online content has been around for several years. The regulatory bodies have also been encouraging use of such content (particularly, NPTEL). And yet, the online content has not been integrated with the curriculum in most colleges. The pandemic has allowed people to take a fresh look at online content and the mental barriers to using such content in the curriculum have been breached. At this time, it is felt that a lot of colleges would want to use this content. However, there are two primary academic issues that need to be addressed (besides logistics, financial, and HR issues). These are:

1. How do we decide what material to use? This has two sub-issues. One, what content would be equivalent to the content that is mentioned in our curriculum (course mapping). Note this is a challenge because there may not be a single module which covers all parts of the curriculum. So we may need to select more than one module. Two, given the plethora of content, which content is of reasonable quality.
2. How would a college do evaluation of students in order to assign marks/grades?

1.2. Modes of Learning

There are several ways of using the online content in the curriculum.

The simplest mode (Mode 1) is to use online content as additional reference material. In this mode, the normal teaching is anyway being done and the faculty is referring to online content in the same way he/she would refer to a book. This mode requires no change or suggestions and hence is outside the scope of this document.

The next mode (Mode 2) is the flipped classroom model where the students go through the online content (including writing programs, small quizzes, etc.), and the local faculty takes discussion sessions and does all the evaluation. This mode still requires a knowledgeable faculty member to be the course Teacher. However, given that we can now reduce the contact hours for the students and faculty, the same faculty can handle a much larger class (or multiple sections in case there is an upper limit on the size of the class).

The next mode (Mode 3) is that the students are studying only through the online mode and there is very little interaction with the faculty at the college. May be there can be some sessions once in a while, but mostly, the role of a local faculty is only to handle evaluation (exams, assignments, projects, etc.). This partially addresses the issue of lack of faculty in certain areas since the expertise required for handling evaluation is arguably lesser than the expertise required to teach the course.

The last mode (Mode 4) is where the online provider does everything, including evaluations. We don't need any faculty member at the college to offer this course. We only need to decide how to translate the evaluation done by an outsider to an equivalent grade/ mark on the college transcript.

The table below illustrate the four models in brief.

S. No.	Model	Local Part	Online Part	Guidelines
1	Reference Mode	All lectures, home works, evaluations	Additional Reference material	No additional recommendations. This requires no additional details.
2	Flipped Mode	Discussion sessions, evaluations	Lectures, Home works, Quizzes, Project options	Requires local faculty with some knowledge in the subject area. Large sections/class sizes can be handled

3	Screen Mode	Evaluations	All lectures, Home works, Projects	Place reasonable limit on the number of credits that can be earned in this mode. Use in cases where there is faculty shortage in critical areas.
4	Fully online	--	All lectures, evaluations, Projects, Tests	Place reasonable limit on the number of credits that can be earned in this mode. Advised not to repeat this model for the same course more than two times. Local faculty also to register and go through the course. Official score/grade to be suitably added to the student transcript.

1.3. Course Mapping

Each course in the curriculum has course outcomes and the content defined by the University. Typically, we may have some course outcomes which are important ones and may be some outcome which is desirable or optional. Similarly, the curriculum may also define the rough duration of each topic. Sometimes the curriculum will also include the kind of projects or assignments that the student shall be asked to do in the course.

The key to course mapping is to realize that any two individuals defining a course will have some differences and we must be flexible to accept differences to some extent. The committee trying to do course mapping should have an understanding of what are the important components (in all three: outcomes, topics, and projects) and should ensure that the online content meets all the important requirements. But looking for identical course would be usually futile.

Also, what is noticed is that typical online courses are often available in smaller modules than a typical 4- credit course in our curriculum. And therefore, one may need to consider more than one online courses together to be equivalent to one course in the college. It may also be noted that just like some small aspects of the course may not be present in the modules chosen, there may be some aspects of the online modules which were not part of the college course. This amount of flexibility should be acceptable to the college. Typically, if the online content covers 80% of the college course, it may be accepted.

While autonomous colleges and Universities do have this flexibility, the affiliated colleges may not have the flexibility of not teaching even 20% of the content. In case of affiliated colleges, one will have to either be stricter in course mapping or find a way to cover the gaps through a local faculty or a visiting faculty. It is assumed that it is easier to find a visiting faculty for a small part of the course and

hence it is still a useful mode.

It may also be noted here that for Core courses, the overlap needs to be significantly higher while for the elective courses, the overlap could be relaxed somewhat. It is because the core courses typically are pre-requisites for other courses. Also, core courses have been defined to be such because it is assumed that content is more important for the graduates than what is taught in electives.

However, course mapping is still not an easy thing to do. It requires an understanding of important versus less important components, and quality of content among the plethora of options available. It may require someone to go through the content patiently.

And hence it is recommended that for courses recommended in the curriculum, a course mapping may be suggested for the benefit of colleges by the University.

1.4. Evaluation

In Modes 1, 2, and 3, the complete evaluation is local, and hence there is no issue. In Mode 4, we need to consider an external evaluation and use that internally. This is a challenge. There is a difference in how to handle this in a University versus an affiliating college. In a University, a simple way of handling this would be to assign a Pass/Fail grade to the student. In case of an affiliating college, where only the internal marks need to be forwarded to the University, one could consider the external evaluation since it impacts only 30% of the marks, and the University will anyway have its own exam of 70% marks.

There are other models like normalizing the external evaluation to the college's internal policy or average distribution of marks in other courses.

It is assumed that in Mode 4, there is a formal way of communicating performance of the student by the provider of the online courses since colleges/Universities will not accept screen shots, emails, etc.

1.5. Other Issues

a) **Financial:** If there is a fee to be paid for online content, the college should have a policy on that. Typically, if the savings due to reduced faculty requirements are significant, then the fees for the online provider shall be reimbursed by the college.

b) **Teaching Load:** Faculty member supporting the course whether by taking a few discussion sessions (in Mode 2) or by evaluating the students (in Mode 3) is still putting in substantial effort in managing the course, and an appropriate credit should be given to the faculty member when his/her teaching load is computed.

c) **Training the teacher:** When a course is being done in Mode 3, the local faculty member should also be expected to register for the course and go through the course (with load being appropriately counted). After a faculty member has gone through the course in two academic sessions, he/she would be well prepared to teach the course in the class in a much better way. Even if the course is being offered in Mode 4, there is no harm in asking a faculty member to register for the course and go through it. Some responsible person in the college would know the level of the course and what exactly students have done, and again, after two such sessions, the faculty member would be well prepared to teach the course. Hence this mode will also lead to better training of the teachers.

d) **Limits on Credits:** The University recommends that there should be a limit on the number of credits students can earn through online courses. In case of Mode 4, where even the evaluation is done by the online course provider, the proposed limit is 8 credits only. As the technology for online exams or the processes for evaluation by online providers improve over a period of time, this limit may be increased. In case of Mode 3 where the content is delivered online but evaluation is local, the limit can be high. For Mode 3 and Mode 4 combined, the limit can be what the regulatory bodies like UGC have announced for online courses, which is currently 40% of the total credits. In Modes 1 and 2 where the online content is really the reference material, there is no need for any limit.

   Another constraint the committee would want the colleges to consider is that in a sequence of courses in one stream of Computer Science, at least one course should be in class. For example, if we consider the sequence of systems courses – Operating Systems, Databases, Networks, Architecture, at least one course should be in class. This is to ensure that if there were some gaps in online courses, the faculty in the face to face class can try to cover that to some extent.

e) **Faculty Incentive:** There is a need to provide some incentive to faculty members who would manage the course that is being taught in the online mode. If a course is being taught in Mode 2, the load on the faculty is only marginally less than the load of teaching an in person course. So the full teaching load should be considered for the faculty. In Mode 3, the load is much less, and in Mode 4, the load is only that we are asking the faculty to also go through the course along with the students. In these two modes, the college may consider this as reduced load. However, their learning the course may be treated as equivalent to having done a Faculty Development Program when it comes to their appraisal and promotions.

f) **Consideration in NBA Accreditation**: One of the prime reasons why online courses haven't become popular with colleges is that they must recruit faculty with a certain faculty to student ratio for accreditation and ranking. And once they have recruited faculty, one would always want the faculty to teach and not keep them under-loaded. If one can consider online courses as equivalent to faculty strength while deciding faculty-to-student ratio, then colleges would be attracted to online courses. A typical faculty member teaches about 100 students in a semester (across 2-3 courses). If 100 students do a course in Mode 4, we may consider this as equivalent to having one additional full time equivalent (FTE) faculty member on the rolls of the college for that semester. Similarly, if 200 students do a course in Mode 3, we may consider this as equivalent to having one additional FTE faculty member for that semester.

g) Online offering of AICTE Model Curriculum Courses by Experts

It is known that a significant number of colleges do not have adequately qualified faculty to teach the courses in the model curriculum properly. This proposal tries to alleviate this challenge by utilizing our newly acquired comfort level with online education. Essentially, the suggestion is that AICTE incentivizes top faculty to offer the AICTE model courses online and publishes a calendar of such courses well in advance, so colleges/HEIs can use them for teaching the AICTE curriculum.

The following would be the salient features of the proposed scheme.

1. All the identified core courses and later on some key electives of the AICTE curriculum may offered regularly (maybe every semester) with a predefined calendar enabling colleges to plan to use them for their students.

2. For each course AICTE identifies through a process a set of "Distinguished National Technical Teachers" who are subject experts and who also have experience teaching the course at the undergraduate level.

3. These "Distinguished Teachers" are offered financial reward for offering one course online once every 2 to 3 years. The reward must be substantial to make it prestigious as well as attractive. Suitable funding is also made available to the instructor for engaging TAs for help sessions as well as laboratory exercises.

4. AICTE can also recognize industry professionals in the panel of distinguished faculty as they can make these courses more interesting and industry oriented. They could teach jointly with

academics appointed as Distinguished Teachers and handle certain components of the course. The Distinguished Teachers will be encouraged to actively invite guest faculty from industry and/or professional associations (e.g., ACM) to give lectures in these courses to make them more interesting and industry oriented.

5. There is a registration procedure for colleges (not individual students) to register for making this course available to their students. They should also commit to assigning an instructor for coordinating classes including infrastructure, conducting assessments, help in grading etc.

6. Colleges may be asked to pay a reasonable amount as registration charges so that the scheme is self-sustaining.

7. This will be an AICTE scheme for teaching its model curriculum courses by experts. It can be managed by AICTE directly, or it can offer it to another institutions/consortium to manage them. Any platform (e.g., NPTEL) can be used to deliver these courses.

This approach differs from the currently available online courses from NPTEL and other platforms substantially.

1. Syllabus for each course is the approved AICTE syllabus.

2. The courses would be available against a set calendar each semester making it possible for colleges to rely on them.

3. It empowers the college rather than individual students to make use of the online course in a "mixed" mode and thus addresses the deficiency of expertise in specific areas in that college.

4. With suitable incentive (both prestige and financial) top experts may be motivated to offer these courses.

Annexure – V:

The Regulations Governing the Academic Bank of Credits: (to be framed)

Annexure – VI:

ASSESSMENT AND EVALUATION IN SPECIFIC COURSES

[Recommendations of the Joint Board of Studies]

22OB A6.1. CIE and SEE Assessment in Specific Courses:

Examination and Evaluation for all the courses shall be done as specified under Sections 22OB 4.1, 22OB 4.2 and 22OB 4.3 of this Regulations for SEE and CIE. However, for some specific courses, the procedure is made clear in the following sections.

22OB A6.1.1. CAED

The CIE marks for CAED course offered in the 1st year shall be assessed as follows:

1) The CIE marks awarded in the case of Drawing shall be based on weekly evaluation of the classwork (sketching and computer- aided drawing) with each drawing evaluated as mentioned module-wise in the syllabus. The marks for all the drawing sheets are added and scaled down to **30 marks**.
2) One class test similar to SEE will be conducted after completion of the syllabus for 100 marks and scaled down to **20 marks**.
3) CIE marks (out of 50) scored by the student is the sum of classwork evaluation and test marks.

22OB A6.1.2. Engineering Graphics/ Drawing /Field Works

1) **Engineering Graphics and Drawing (Laboratory Course)**
   a) The CIE marks awarded for higher semester Engineering Graphics/ Drawings/ Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 80:20. Method of assessing the CIE for such courses shall as per the scheme of Teaching and Evaluation of the course.
   b) The SEE shall be conducted and evaluated for a maximum of marks 100. Marks obtained shall be accounted for SEE final marks, reducing it by 50%.
      (i) SEE will be conducted by the two examiners of the same institute appointed by the Principal.
      (ii) Question paper shall be set jointly by both the Examiners and made available for each batch as per schedule. Examiners may refer question bank for this purpose.

(iii) Evaluation shall be carried out jointly by both examiners as per the scheme of Teaching and Evaluation.

2) **Field Works**

a) Field works include Surveying Practice/ Socio-Economic survey/ Marketing survey/ traffic survey/environmental survey. The CIE marks shall be split into two components with 80% of maximum marks (40 marks) are considered for fieldwork report evaluation and 20% of maximum marks (10 marks) for internal assessment test evaluation.

Fieldwork evaluation includes attendance, data collection through survey, use of datafor design drawing, and report. The split-up of marks for the report shall be decidedby the faculty member who is guiding them for the design drawing and report. The criteria for split-up of marks shall be done to achieve the course outcomes. The report evaluation shall be carried out for 100 marks and scored marks shall be scaled down to 40 marks.

The assessment shall be through a presentation of the report followed by the viva-voce. This test shall be conducted by the fieldwork project guide and fieldwork coordinator. If the fieldwork coordinator happens to be the same faculty, then, HOD or senior faculty member will conduct the test with the guide. A test similar to SEE shall be conducted for 100 marks and marks scored shall be scaled down to 10 marks.

The sum of the report and test marks shall be the total CIE marks for fieldwork.

b) SEE for fieldwork Conducted by the two examiners of the same institute appointed by the University. Report and design drawing evaluation and viva-voce are in the ratio of 60:40. Fieldwork will be jointly evaluated by the Internal and External examiners and the duration of SEE shall be three hours.

22OB A6.1.3. Practical Courses:

1) **CIE for Practical Work Courses**

a) CIE marks for a practical course shall be 50 Marks. The split-up of CIE marks for record/ journal and test to be split in the ratio 60:40.

(i) Each experiment to be evaluated for conduction with observation sheet

and record write-up. Spit up of marks for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and shall be made known to students at the beginning of the practical session.

(ii) Record shall contain all the specified experiments in the syllabus and each experiment write-up be evaluated for 10 marks.

(iii) Total marks scored shall be scaled downed to 30 marks (60% of maximum marks).

(iv) Weightage to be given for neatness and submission of record/write-up on time.

(v) Department shall conduct one test for 100 marks, after the completion of the experiments.

(vi) In test write-up, conduction of experiment, acceptable result, and procedural knowledge shall carry a weightage of 60% and the rest 40% for viva-voce.

(vii) The suitable split up of marks can be designed to evaluate each student's performance and learning ability.

(viii) The test marks out of 100 shall be scaled down to 20 marks (40% of the maximum marks).

The Sum of scaled-down marks scored in the report write- up/journal and marks of the test shall be the total CIE marks scored by the student.

b) Internal tests for laboratory courses with software experiments shall be conducted for a total of 100 marks at the end of the semester, jointly by the class Teacher and a Senior faculty nominated by the Principal.

In this evaluation, Observation, write-up of procedure/ Algorithm/ program, and execution of experiment shall be assessed for 80 marks and the Viva-voce for 20 marks.

Marks scored out of 100 shall be scaled down to 50 marks.

2) SEE for Practical Work Courses

1) The SEE marks for the practical courses shall be 50 Marks.

2) SEE shall be conducted jointly by the two examiners of the same institute

appointed by the University.

3) All laboratory experiments are to be included for practical examination.
4) Breakup of marks and the instructions printed on the cover page of the answer script are to be strictly adhered to by the examiners. **OR**
   Based on the course requirement, a split-up of marks for evaluation shall be decided jointly by the examiners.
5) Students shall pick one question (experiment) from the questions pool prepared by the examiners jointly.
6) Evaluation of write-up/ conduction procedure and result/viva will be conducted jointly by the examiners.
7) The split-up of maximum allocated marks for SEE are:
   (i) procedure/ writeup 20%,
   (ii) Conduction and result 60%,
   (iii) Viva-voce 20%
8) SEE for the practical course shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks.
9) Change of experiment is allowed only once and 20% Marks allotted to the procedure/write-up part to be made zero (Evaluation is to be carried out for 80% of total maximum marks).
10) The duration of SEE shall be three hours.

22OB A6.1.4. Internship

1) The Internship shall be taken up during the period specified in the Scheme of Teaching and Examinations.
   The Department/ College shall nominate faculty member/s to facilitate, Guide, and supervise students under an internship.
   The students shall report the progress of the internship to the Guide in regular intervals and seek his/her advice. The Guide shall maintain the progress record of the candidates undergoing internship. Duration of the internship shall be as mentioned in the scheme of Teaching and Examination.
   The Internship examination shall be conducted at the end of the internship period.

2) **Report evaluation:**Internship shall be evaluated for 50% maximum marks. The split-up of marks suggested for report evaluation shall be based on,
   a) Report formatting (20% of marks of CIE for report)
   b) Presentation of the outcomes in the report (40% of marks for CIE for report) and
   c) Technical content of the report (40% of marks for CIE for report)

   Weightage shall be given for paper publication in reputed journals/refereed journals/ Conferences/Product developed/ Patent filed – only for Industry/ Research Internship.
3) **Viva-Voce** shall be conducted for 50% of marks of CIE. The split-up of marks suggested are:
   a) For demonstration of (soft) skills/Engineering Knowledge gained (50% of marks of CIE for Viva-voce).
   b) The question-answer session will check for the understanding of the fundamentals and concepts (40% of CIE marks for Viva-voce)
   c) Clarity in answering the questions (10% of CIE marks for Viva-voce)

   Viva-voce shall be conducted by the Mentor/ Guide and Head of the Department/ one of the senior faculty assigned by the Head of the department.
4) Those who do not complete the internship shall be declared Fail and shall complete it during subsequent University examinations after satisfying the internship requirements during subsequent semesters.

22OB A6.1.5. Seminar

1) The maximum marks prescribed for the Seminar and the evaluation process shall be notified by the University/ College before offering the course.
2) The Seminar performance evaluation shall be a part of CIE only in a course where required.
3) The Seminar shall be assessed as indicated below.
   a) The Head of the Department shall make arrangements for the conduct of seminars through a committee of faculty members of the Department. The committee, constituted for the purpose by the Head of the Department, shall award the CIE marks for the seminar. The committee shall consist of

three senior faculty members of the Department and the most senior among them shall be the Chairperson.

b) The marks awarded for Seminar shall be based on the evaluation of the Seminar Report, Presentation skill, and Viva-voce (Question & Answer session) in the ratio of 50:25:25.

c) Split up Marks to be assessed as follows:

(i) Report marks to be allotted by the seminar guide/s(50% of the maximum marks)

A). Formatting of the report (10% of maximum marks)

B). Literature survey (20% of maximum Marks) and

C). Technical content of the report (20% of maximum marks)

(ii) Seminar Presentation skill marks to be allotted by the committee: (25% of the maximum marks)

(iii) Viva-Voce marks to be allotted by the committee: (25% of the maximum marks)

A). Understanding of fundamentals and concepts (15%)

B). Clarity in answering the questions (10%)

22OB A6.1.6. Mini-Project

1) The Mini-Project performance of a student shall be evaluated under CIE only. The maximum marks rescribed for CIE shall be as mentioned in the Scheme of Teaching and Evaluation.

2) The Head of the Department shall make arrangements for the conduct of viva-voce evaluation of the mini-project. The committee shall consist of a Faculty guide/mentor and two senior faculty members of the Department and the most senior among them shall be the Chairperson.

3) The CIE marks awarded for Mini-Project, shall be based on the evaluation of the Mini-Project Report, Project Presentation skill, and Viva-Voce (Question and Answer session) in the ratio of 50:25:25.

4) The marks awarded for the Mini-Project report shall be the same for all the students of the batch.The faculty guide/ mentor guiding the Mini-project shall Evaluate the performance for 50% of the maximum marks of CIE for the

report.

5) This committee shall evaluate Mini-project Work for the rest of 50% of the maximum marks considering performance in project presentation and Viva-Voce (question-answer session).
   a) Project presentation: 25% of maximum marks
   b) Viva-Voce (Question and answer session) :25% of maximum marks

22OB A6.1.7. Project Work

1) The project work shall be evaluated considering both CIE and SEE; The CIE and SEE marks shall be as mentioned in the Scheme of Teaching and Evaluation.
2) The CIE marks awarded for Project Work shall be based on the evaluation of the Project Report, Project Presentation skill, and Viva-voce in the ratio of 50:25:25.
3) The marks awarded for the Project report shall be the same for all the students of the batch.
4) The Head of the Department shall make arrangements for the conduct of Viva-Voce for evaluation of the project work. The committee shall consist of the faculty guide/mentor and two senior faculty members of the Department and the most senior among them shall be the Chairperson.
5) The faculty guide/ mentor guiding the project shall Evaluate the performance for 50% of the maximum marks of CIE for the report.
6) This committee shall evaluate Project Work for 50% of the maximum marks considering the project presentation and question-answer session.
   a) Project presentation: 25% of maximum marks
   b) Question and answer session: 25% of maximum marks

22OB A6.2. SEE Assessment in Specific Courses:

22OB A6.2.1. Theory Course with 4, 3 and 2 Credits

The SEE for theory courses shall be conducted by the University as per the scheduled timetable for all, with common question papers for the course. The duration of examination shall be three hours.

1) The question paper will have ten questions. Each question is set for 20 marks.

The medium of the question paper shall be ENGLISH unless otherwise it is mentioned.

2) There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.
3) The students have to answer 5 full questions, selecting one full question from each module.
4) Marks scored will be proportionally scaled down to 50 marks.

22OB A6.2.2. Integrated Course (I/c) /Integrated Professional Core Courses (IPCC)

For a course where theory is integrated with Laboratory course, the SEE duration for the theory part shall be three hours, as specified in section **22OB 4.3.** However, the question paper in the SEE examination shall include at least one question from the Laboratory component.

22OB A6.2.3.Theory Course with 1 Credit

The SEE question paper shall have MCQ(multiple choice questions) set for 50 questions, each carrying one mark. The time duration for SEE is one hour**.**

22OB A6.2.6. Practical Work Courses

1) The SEE marks for the practical courses shall be 50 Marks.
2) SEE shall be conducted jointly by the two examiners of the University/ College appointed by the University.
3) All laboratory experiments are to be included for practical examination.
4) Breakup of marks and the instructions printed on the cover page of the answer script are to be strictly adhered to by the examiners. **OR**

   Based on the course requirement, a split-up of marks for evaluation shall be decided jointly by the examiners.
5) Students shall pick one question (experiment) from the questions pool prepared by the examiners jointly.
6) Evaluation of write-up/ conduction procedure and result/viva will be conducted jointly by the examiners.
7) The split-up of maximum allocated marks for SEE are:
   a) procedure/ writeup 20%,

b) Conduction and result in 60%,

c) Viva-voce 20%

8) SEE for the practical course shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks.

9) Change of experiment is allowed only once and 20% Marks allotted to the procedure/write-up part to be made zero (Evaluation is to be carried out for 80% of total maximum marks).

10) The duration of SEE shall bethree hours.

22OB A6.2.7. Internship

1) SEE shall be conducted by the Internal and external examiners approved by the University. The internal examiner shall be the guide for SEE. The external Guide for the Internship shall be the external examiner for SEE.

2) Examination for internship shall be conducted at the college and the date shall be fixed in consultation with the external Guide. The Examiners shall jointly award the SEE marks.

3) In case the external Guide expresses his inability to conduct the Examination at the last moment, the Principal /Chief Superintendent appointed by the University for the concerned examination of the Institute shall appoint a senior faculty of the Department to conduct the Examination along with the internal Guide.

4) Split up of marks for evaluation may be the same as suggested for CIE or Internal and external examiners shall devise split up of marks for SEE and the same may be submitted to the University along with evaluation marks.

22OB A6.2.8. Project Work

1) The project work shall be evaluated for 200 marks with CIE of 100 marks and SEE of 100 marks.

2) The Project Work will be conducted by the two examiners one internal and one external examiner appointed by university.

3) SEE marks for the project shall be awarded using appropriate Rubrics based on the quality of work& report, presentation skills, and viva- voce in the ratio 50:25:25 respectively.

Annexure –VII:

Guidelines and Suggestive Activities under Activity Points