Academic Regulations (R22)
COURSE STRUCTURE & DETAILED SYLLABUS
(CHOICE BASED CREDIT SYSTEM (CBCS))

BACHELOR OF TECHNOLOGY
(B.Tech)

For
B. Tech. - Regular Four Year Under Graduate Degree Programme
(Applicable for the batches admitted from 2022 - 2023)

Balaji Institute of Technology & Science
(UGC - Autonomous)
Approved by AICTE, New Delhi, Affiliated to JNTUH
Accredited by NAAC with A+ Grade and NBA
Laknepally (V), Narsampet (M), Warangal District - 506331, Telangana

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FOREWORD

Balaji Institute of Technology & Science, established in the year 2001 is Approved by AICTE, New Delhi, Affiliated to JNTUH and Accredited by NBA and NAAC 'A$^+$' Grade with 3.37 CGPA in April 2021. The institution has commenced functioning independently within the set norms prescribed by UGC and AICTE.

The performance of any reputed institution manifests the confidence that the prestigious monitoring body, in terms of upholding its spirit and sustenance of the expected standards of functioning on its own consequently facilitating the award of degrees for its students. Thus, an autonomous institution is provided with the necessary freedom to have its own curriculum, examination system and monitoring mechanism, independent of the affiliating University but under its observance.

Balaji Institute of Technology & Science takes pride for having won the confidence of such distinguished academic bodies meant for monitoring the quality in technology education. Besides, the institution is delighted to sustain the same spirit of discharging the responsibilities that it has been conveying more than a decade to attain the current academic excellence. Consequently, statutory bodies such as the Academic Council and the Boards of Studies have been constituted under the supervision of the Governing Body of the College and with the recommendations of the JNTUH, Kukatpally, Hyderabad, to frame the regulations, course structure and syllabi for autonomous status.

The autonomous regulations, course structure and syllabi have been framed in accordance with the vision and mission of the institution along with certain valuable suggestions from professionals of various ancillary fields such as the academics, the industry, the research and all those with a noble vision to impart quality technical education and contribute in presenting full-fledged engineering and management graduates to the society.

All the faculty members, the parents and the students are requested to study all the rules and regulations carefully and approach the Principal to seek any clarifications, if needed, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments.

The cooperation of all the stakeholders is sought for the successful implementation of the autonomous system in the larger interests of the institution and for brightening the career of the students and other stakeholders.

BALAJI INSTITUTE OF TECHNOLOGY & SCIENCE

Vision

To be a centre for excellence in preparing the graduates professionally committed, intellectually adept and ethically balanced with high standards by imparting quality education with international standards to excel in their career to meet the challenges of the modern world and adapt to the technologically changing environment.

Mission

M1: To strive hard to produce technically trained human resources to serve the present and future global needs by providing quality education

M2: To provide value based training in technological advancements and employment opportunities to students by strengthening institute's interaction with industries.

M3: To disseminate knowledge of need based technical education, innovative learning and research & development with holistic approach.

Quality Policy:

We are committed to excellence in everything we do and strive to deliver value to the college community. We adhere to ethical standards. By our work, we demonstrate a commitment to high quality for academic, co-curricular and extracurricular areas.

PROGRAMME OUTCOMES (POs)

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: **Modern tool usage:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO6: **The engineer and society:** An a Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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Academic Regulations (R22)
B.Tech. - Regular Four Year Degree Programme
(For batches admitted from the academic year 2022 - 23)
&
B.Tech. - Lateral Entry Scheme
(For batches admitted from the academic year 2023 - 24)

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1. UNDER GRADUATE PROGRAMS OFFERED IN ENGINEERING & TECHNOLOGY

Balaji Institute of Technology& Science, affiliated to JNTUH, offers 4 Year (8 Semesters) B.Tech. Degree Programme in the following Branches of Engineering:

S. No.	Branch Code	Branch
1	01	Civil Engineering (CE)
2	02	Electrical & Electronics Engineering (EEE)
3	03	Mechanical Engineering (ME)
4	04	Electronics and Communication Engineering (ECE)
5	05	Computer Science and Engineering (CSE)
6	56	Computer Engineering (Software Engineering)
7	66	CSE (Artificial Intelligence & Machine Learning)
8	67	CSE (Data Science)
9	69	CSE (Internet of Things)

2. ADMISSION CRITERIA AND MEDIUM OF INSTRUCTIONS

2.1. Admission into first year of four year B.Tech. (Regular) Degree Programme:

2.1.1. Eligibility: A candidate seeking admission into the first year of four year B. Tech. Degree Programme should have:

Passed Intermediate Public Examination (IPE) conducted by the Board of Intermediate Education, Telangana, with Mathematics, Physics and Chemistry as optional subjects or any equivalent examination recognized by Board of Intermediate Education, Telangana & Secured a rank in the Telangana State – Engineering, Agriculture & Medical Common Entrance Test (TSEAMCET) examination conducted by Telangana State Council for Higher Education (TSCHE) for allotment of a seat by the Convener, TSEAMCET.

2.1.2. Admission Procedure: Admissions are made into the first year of four year B.Tech. Degree Programme as per the stipulations of the TSCHE. (a) Category A: 70% of the seats are filled through TSEAMCET counseling. (b) Category B: 30% of the seats are filled by the Management.

2.2. **Admission into the second year of four year B. Tech. (Regular) Degree Programme under Lateral Entry Scheme.**

2.2.1 **Eligibility:** A candidate seeking admission into the II Year i.e into III Semester B. Tech. Regular Degree Programme under Lateral Entry Scheme (LES) should have passed the qualifying examination (B.Sc. Mathematics or Diploma in concerned course) and have secured a rank at Engineering Common Entrance Test TSECET (FDH). Admissions are made in accordance with the instructions received from the Convener, TSECET and Government of Telangana State.

2.2.2 **Admission Procedure:** Admissions are made into the II year of four year B.Tech. (Regular) Degree Programme through Convener, TSECET (FDH) against the sanctioned intake in each Programme of study as lateral entry student.

2.3. **Branch Transfers:** There shall be no Branch transfers after the completion of Admission Process.

2.4. **Medium of Instructions:** The Medium of Instructions and Examinations for the entire B.Tech. Programme will be in English only.

3. B.TECH. PROGRAMME STRUCTURE

3.1 **Admitted under Four year B. Tech. (Regular) Degree Programme:**

3.1.1 A student after securing admission shall pursue the under graduate programme in B.Tech. for a minimum period of four academic years (8 semesters), and a maximum period of eight academic years (16 semesters) starting from the date of commencement of first year first semester, failing which, students shall forfeit their seat in B.Tech course.

3.1.2 As per AICTE guidelines, a 3-week 'Mandatory Induction Programme' shall be offered to I-B.Tech. students to acquaint the newly admitted students with the professional environment and prepare them for the academic schedules ahead.

3.1.3 The entire B.Tech. Programme is structured for a total of 160 credits. Distribution of credits Semester-wise is available in the respective course structure.

3.1.4 Each student shall register and secure 160 credits (with CGPA $\geq$ 5) for the completion of the under graduate programme and award of the B.Tech. Degree.

3.2 **Admitted under Lateral Entry Scheme (LES) into B. Tech. degree Programme:**

3.2.1 After securing admission into II year B.Tech. i.e into III Semester, the LES students shall pursue a course of study for not less than three academic years (6 Semesters) and not more than six academic years (12 Semesters), failing which students shall forfeit their seat in B.Tech. Programme.

3.2.2 The student shall register and secure 120 credits (with CGPA ≥ 5) from II year to IV year B.Tech. Programme (LES) for the award of B.Tech. Degree

3.3 The Course Structure is designed based on the AICTE Model Curriculum (Jan-2018) for Under-Graduate Degree Courses in Engineering & Technology. UGC / AICTE specified definitions / descriptions are adopted appropriately for various terms and abbreviations used in these Academic Regulations / Norms, which are listed below

3.3.1 **Semester Scheme:** Each B.Tech. (Regular) Programme is of 4 Academic Years (8 Semesters) and B.Tech. (LES) Programme is of 3 Academic Years (6 Semesters)), with the academic year being divided into two semesters of 22 weeks (≥ 90 Instructional days per semester) each, each Semester having - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)', Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) as indicated by UGC and Curriculum / Course Structure as suggested by AICTE are followed.

3.3.2 **Credit Courses:**

a)   All Subjects / Courses are to be registered by a student in a Semester to earn Credits. Credits shall be assigned to each Subject / Course in a L: T: P: C (Lecture Periods: Tutorial Periods: Practical Periods: Credits) Structure based on the following pattern:

Theory		Practical	
1 Hr. Lecture (L) per week	1 credit	1 Hr. Practical (P) per week	0.5 credit
1 Hr. Tutorial (T) per week	1 credit	2 Hrs Practical (Lab) per week	1.0 credit

All Mandatory Courses, Study Tour, Guest Lecture, etc., will not carry any Credits.

b) **Contact Hours:** Weekly contact hours – maximum of 30 hours per week (i.e. 1 hour = 60 Minutes) including credit and non-credit courses.

3.3.3 **Subject / Course Classification and Nomenclature:** BITS has followed the guidelines specified by AICTE / UGC / JNTUH. The subjects / courses offered in B.Tech. programme are broadly classified as mentioned below.

S. No.	Broad Course Classification	Course Group/Category	Course Description
1	Foundation Courses (FnC)	BS–Basic Sciences	Includes Mathematics, Physics and Chemistry subjects
2		ES- Engineering Sciences	Includes Fundamental Engineering Subjects
3		HS–Humanities and Social Sciences	Includes subjects related to Humanities, Social Sciences and Management

4	Core Courses (CoC)	PC–Professional Core	Includes core subjects related to the parent discipline/department/branch of Engineering.
5	Elective Courses (EℓC)	PE–Professional Electives	Includes elective subjects related to the parent discipline/department/branch of Engineering.
6		OE–Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the parent discipline/department/branch Of Engineering.
7	Core Courses	Project Work	B.Tech. Projector UG Projector UG Major Project or Project Stage I & II

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

4. COURSE REGISTRATION

4.1 A 'faculty advisor or counselor' shall be assigned to each student to advise the student about the B.Tech. Programme, course structure and curriculum, choice / option for subjects / courses, based on his/her competence, progress, pre-requisites and interest.

4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through online submission, ensuring 'date and time stamping'.

The online registration requests for any 'current semester' shall be completed before the commencement of SEEs (Semester End Examinations) of the 'preceding semester'.

4.3 A student can apply for online registration, only after obtaining the 'written approval' from his/her faculty advisor or counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with Head of the Department, faculty advisor and the student.

4.4 A student has to register for all subjects/courses in a semester as specified in the course structure and may be permitted to register one additional theory subject / course limited to 3 credits, based on the student's progress and SGPA / CGPA, and completion of the 'prerequisites' as indicated for various subjects/courses, in the department course structure and syllabus contents.

4.5 If the student submits ambiguous choices or multiple options or erroneous (incorrect) entries during online registration for the subject(s) / course(s) under a given / specified course group / category as listed in the course structure, only the first mentioned subject / course in that category will be taken into consideration.

4.6 Subject / course options exercised through online registration are final and cannot be changed or inter- changed; further, alternate choices will not be considered. However, if the subject / course that has already been listed for registration by Head of the Department in a semester could not be offered due to any unforeseen or unexpected reasons, then the student shall be

allowed to have alternate choice - either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats), which may be considered. Such alternate arrangements will be made by Head of the Department, with due notification and time-framed schedule, within the first week from the commencement of class-work for that semester.

4.7 Dropping of additional registered subject / course (refer 4.4) may be permitted only after obtaining prior approval from the faculty advisor / counselor, 'within a period of 15 days' from the commencement of that semester.

4.8 **Open Electives:** The students have to choose three Open Electives (OE-I, II & III) from the list of Open Electives given by other departments. However, the student can opt for an Open Elective subject offered by his own (parent) department, if the student has not registered and not studied that subject under any category (Professional Core, Professional Electives, Mandatory Courses etc.) offered by parent department in any semester. Open Elective subjects already studied should not repeat/should not match with any category (Professional Core, Professional Electives, Mandatory Courses etc.) of subjects even in the forthcoming semesters.

4.9 **Professional Electives:** The students have to choose six professional electives (PE-I to VI) from the list of professional electives given.

4.10 **Mandatory Courses (Non-Credit):** All mandatory courses wherever offered require prior registration.

5.   SUBJECTS / COURSES TO BE OFFERED

5.1 A typical Section (or Class) Strength for each Semester shall be 60. A subject / course may be offered to the students, if only a minimum 1/3 of students register to the course. The Maximum Strength of a Section is limited to 80 (60 + 1/3 of the Section Strength).

i)   More than one faculty member may offer the same subject (lab / practicals may be included with the corresponding theory subject in the same semester) in any semester. However, selection choice for students will be based on 'first come first served basis and CGPA criterion' (i.e. the first focus shall be on early on-line entry from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).

ii)   If more entries for registration of a subject come into picture, then the concerned Head of the Department shall take necessary decision, whether or not to offer such a subject / course for two (or multiple) sections.

6.   ATTENDANCE REQUIREMENTS

6.1 A student shall be eligible to appear for the semester end examinations, if the student acquires a minimum 75% of attendance in aggregate (excluding the days of midterm examinations) for all the subjects / courses, excluding attendance in mandatory courses in that semester.

6.2   Condoning of shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each semester may be granted by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.

6.3   A stipulated fee shall be payable towards condoning of shortage of attendance.

6.4   Shortage of attendance below 65% in aggregate shall in no case be condoned.

6.5   Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled. They will not be promoted to the next semester. They may seek re-registration for all those subjects registered in that semester in which student was detained, by seeking re-admission into that semester as and when offered; in case if there are any professional electives and / or open electives, the same may also be re-registered, if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the same set of elective subjects offered under that category.

6.6   A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.   ACADEMIC REQUIREMENTS

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in Item No. 6.

7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% (14 marks out of 40 marks including minimum 35% ofaverage Mid-Term examinations for 25marks) in the internal examinations, not less than 35% (21 marks out of 60 marks) in the semester end examination, and a minimum of 40% (40 marks out of 100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing 'C' grade or above in that subject/course.

7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Real-time Research Project (or) Field Based Research Project (or)Industry Oriented Mini Project (or) Internship (or) Seminar, if the student secures not less than 40% marks (i.e.40 out of 100 allotted marks) in each of them. The student is deemed to have failed, if he (i) does not submit a report on Industry Oriented Mini Project/Internship, or (ii) not make a presentation of the same before the evaluation committee as per schedule, or (iii) secures less than 40% marks in Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship evaluations.

A student may reappear once for each of the above evaluations, when they are scheduled again; if the student fails in such 'one reappearance' evaluation also, the student has to reappear for the same in the next subsequent semester, as and when it is scheduled.

7.3   Promotion Rules

S.No.	Promotion	Conditions to be fulfilled
1	First year first semester to first year second semester	Regular course of study of first year first semester.
2	First year second semester to Second year first semester	(i)Regular course of study of first year second semester. (ii) Must have secured at least 20 credits out of 40 credits i.e., 50% credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3.	Second year first semester to Second year second semester	Regular course of study of second year first semester
4	Second year second semester to Third year first semester	(i) Regular course of study of second year second semester (ii) Must have secured at least 48 credits out of 80 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Third year first semester to Third year second semester	Regular course of study of third year first semester
6	Third year second semester to Fourth year first semester	(i) Regular course of study of third year second semester. (ii)Must have secured atleast 72 credits out of 120 credits i.e., 60% credits upto third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not
7	Fourth year first semester to Fourth year second semester	Regular course of study of fourth year first semester.

7.0 A student (i) shall register for all courses/subjects covering 160 credits as specified and listed in the course structure, (ii) fulfills all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥ 5.0 (in each semester), and CGPA ≥ 5 (at the end of 8 semesters), (iv) **passes all the mandatory courses**, to successfully complete the undergraduate programme. The performance of the student in these 160 credits shall be considered for the calculation of the final CGPA **(at the end of undergraduate programme)**.

7.1 If a student registers for **'extra subjects'** (in the parent department or other departments/branches of Engg.) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those **'extra subjects'** (although evaluated and graded using the same procedure as that of the required 160 credits) will not be considered while calculating the SGPA and CGPA. For such **'extra subjects'** registered, percentage of marks and letter grade alone will be indicated in the grade card / marks memo as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations Items 6 and 7.1 – 7.4 above.

7.2 A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure 'C' grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.

7.3 A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements**. The academic regulations under which a student has been re-admitted shall be applicable. Further, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.

7.4 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required number of academic credits**. The academic regulations under which the student has been readmitted shall be applicable to him.

8.0 **Evaluation- Distribution and Weightage of Marks**

8.1 The performance of a student in every subject/course (including practicals and Project

Stage – I & II) will be evaluated for 100 marks each, with 40 marks allotted for CIE (Continuous Internal Evaluation) and 60 marks for SEE (Semester End-Examination).

8.2 In CIE, for theory subjects, during a semester, there shall be two mid-term examinations. Each Mid-Term examination consists of two parts i) **Part – A** for 10 marks, ii) **Part – B** for 20 marks with a total duration of 2 hours as follows:

1. Mid Term Examination for 30 marks:
   a. Part - A : Objective/quiz paper for 10 marks.
   b. Part - B : Descriptive paper for 20 marks.

The objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 10 marks. The descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks. The **average of the two Mid Term Examinations** shall be taken as the final marks for Mid Term Examination (for 30 marks).

The remaining 10 marks of Continuous Internal Evaluation are distributed as:

2. Assignment for 5 marks. (**Average of 2 Assignments** each for 5 marks)
3. Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the concerned subject for 5 marks.

While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus.

Five (5) marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-term examination, and the second assignment should be submitted before the conduct of the second mid-term examination. The average of the two assignments shall be taken as the final marks for assignment (for 5 marks).

Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the subject concerned for 5 marks before II Mid-Term Examination.

- The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Over all 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

The student is eligible to write Semester End Examination of the concerned subject, if the student scores ≥ 35% (14 marks) of 40 Continuous Internal Examination (CIE) marks.

In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

There is NO Computer Based Test (CBT) for R22 regulations.

The details of the end semester question paper pattern are as follows:

8.2.1 The semester end examinations (SEE), for theory subjects, will be conducted for 60 marks consisting of two parts viz. i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.

- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from each unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

- The duration of Semester End Examination is 3 hours.

8.2.2 For the subject, **Computer Aided Engineering Graphics**, the Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) evaluation pattern is same as for other theory subjects.

8.3 For practical subjects there shall be a Continuous Internal Evaluation (CIE) during the semester for 40 marks and 60 marks for semester end examination. Out of the 40 marks for internal evaluation:

1. A write-up on day-to-day experiment in the laboratory (in terms of aim, components/procedure, expected outcome) which shall be evaluated for 10 marks
2. **10 marks for viva-voce** (or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.
3. Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for 10 marks.
4. The remaining 10 marks are for Laboratory Report/Project and Presentation, which consists of the Design (or) Software / Hardware Model Presentation (or) App Development (or) Prototype Presentation submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

The Semester End Examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the cluster / other colleges which will be decided by the examination branch of the University.

In the Semester End Examination held for 3 hours, total 60 marks are divided and allocated as shown below:

1. 10 marks for write-up
2. 15 for experiment/program
3. 15 for evaluation of results
4. 10 marks for presentation on another experiment/program in the same laboratory course and
5. 10 marks for viva-voce on concerned laboratory course.

- The Student, in each subject, shall have to earn 35% of marks (i.e 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Over all 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

The student is eligible to write Semester End Examination of the concerned subject, if the student scores ≥ 35% (14 marks) of 40 Continuous Internal Examination (CIE) marks.

In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

8.4 The evaluation of courses having ONLY internal marks in I Year I Semester and II Year II Semester is as follows:

1. I Year I Semester course (*ex., **Elements of CE/ME/EEE/ECE/CSE** etc*): The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations is the final for 50 marks. Student shall have to earn 40%, i.e 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation. The student is deemed to have failed, if he (i) is absent as per schedule, or (ii) secures less than 40% marks in this course.
   For CSE/IT and allied branches the Continuous Internal Evaluation (CIE) will be for 50 marks. Each Mid-Term examination consists of two parts i) **Part – A** for 20 marks, ii) **Part – B** for 20 marks with a total duration of 2 hours.

   Part A: Objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 20 marks. **Part B:** Descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks.

   The remaining 10 marks of Continuous Internal Evaluation are for Assignment (5 marks) and Subject Viva-Voce/PPT/Poster Presentation/ Case Study (5 marks) and the evaluation pattern will remain same as for other theory subjects.
   For all other branches, the Continuous Internal Evaluation (CIE) will be for 50 marks. Out of the 50 marks for internal evaluation:

   a) A write-up on day-to-day experiment in the laboratory (in terms of aim, components/procedure, expected outcome) which shall be evaluated for 10 marks
   b) **10 marks for viva-voce (**or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.
   c) Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for 15 marks.
   d) The remaining 15 marks are for Laboratory Report/Project and Presentation, which consists of the Design (or) Software / Hardware Model Presentation (or) App Development (or) Prototype Presentation submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

2. II Year II Semester *Real-Time (or) Field-based Research Project* course: The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations is the final for 50 marks. Student shall have to earn 40%, i.e 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation. The studentis deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the internal committee as per schedule, or

(ii) secures less than 40% marks in this course.

8.5 There shall be an Industry training (or) Internship (or) Industry oriented Mini-project(or)

Skill Development Courses (or) Paper presentation in reputed journal (or) Industry

Oriented Mini Project in collaboration with an industry of their specialization. Students shall register for this immediately after II-Year II Semester Examinations and pursue it during summer vacation/semester break & during III Year without effecting regular course work. Internship at reputed organization (or) Skill development courses (or) Paper presentation in reputed journal (or) Industry Oriented Mini Project shall be submitted in a report form and presented before the committee in III-year II semester before end semester examination. It shall be evaluated for 100 external marks. The committee consists of an External Examiner, Head of the Department, Supervisor of the Industry Oriented Mini Project (or) Internship etc, Internal Supervisor and a Senior Faculty Member of the Department. There shall be **NO internal marks** for Industry Training (or) Internship (or) Mini-Project (or) Skill Development Courses (or) Paper Presentation in reputed journal (or) Industry Oriented Mini Project.

8.6 The UG project shall be initiated at the end of the IV Year I Semester and the durationof the project work is one semester. The student must present Project Stage – I during IV Year I Semester before II Mid examinations, in consultation with his Supervisor, the title, objective and plan of action of his Project work to the departmental committee for approval before commencement of IV Year II Semester. Only after obtaining the approval of the departmental committee, the student can start his project work.

8.7 UG project work shall be carried out in two stages: Project Stage – I for approval of project before Mid-II examinations in IV Year I Semester and Project Stage – II during IV Year II Semester. Student has to submit project work report at the end of IV Year II Semester. The project shall be evaluated for 100 marks before commencement of SEE Theory examinations.

8.8 For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall approve the project work to begin before II Mid-Term examination of IV Year I Semester. The student is deemed to be not eligible to register for the Project work, if he does not

submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule.

A student who has failed may reappear once for the above evaluation, when it is scheduled again; if he fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

8.9 For Project Stage – II, the external examiner shall evaluate the project work for 60 marks and the internal project committee shall evaluate it for 40 marks. Out of 40 internal marks, the departmental committee consisting of Head of the Department, Project Supervisor and a Senior Faculty Member shall evaluate the project work for 20 marks and Project Supervisor shall evaluate for 20 marks. The topics for Industry Oriented Mini Project/ Internship/SDC etc. and the main Project shall be different from the topic already taken. The student is deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the External Examiner as per schedule, or (iii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

For conducting viva-voce of project, University selects an external examiner from the list of experts in the relevant branch submitted by the Principal of the College.

A student who has failed, may reappear once for the above evaluation, when it is scheduled again; if student fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

8.10 A student shall be given only one time chance to re-register for a maximum of two subjects
in a semester:

- If the internal marks secured by a student in the Continuous Internal Evaluation marks for 40 (Sum of average of two mid-term examinations consisting of Objective & descriptive parts, Average of two Assignments & Subject Viva-voce/PPT/ Poster presentation/ Case Study on a topic in the concerned subject) are less than 35% and failed in those subjects.

A student must re-register for the failed subject(s) for 40 marks within four weeks of commencement of the classwork in next academic year.

In the event of the student taking this chance, his Continuous Internal Evaluation marks for 40 and Semester End Examination marks for 60 obtained in the previous attempt stand cancelled.

8.11 For mandatory courses of Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab, a student has to secure 40 marks out of 100 marks (i.e. 40% of the 100 marks allotted) in the Continuous Internal Evaluation for passing the subject/course. These marks should also be uploaded along with the internal marks of other subjects.

8.12 No marks or letter grades shall be allotted for mandatory/non-credit courses. Only Pass/Fail shall be indicated in Grade Card.

9.0 **Grading Procedure**

9.1 Grades will be awarded to indicate the performance of students in each Theory Subject, Laboratory/Practicals/ Industry-Oriented Mini Project/Internship/SDC and Project Stage. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.

9.2 As a measure of the performance of a student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
Greater than or equal to 90%	**O** (Outstanding)	**10**
80 and less than 90%	$\mathbf{A^+}$ (Excellent)	**9**
70 and less than 80%	**A** (Very Good)	**8**
60 and less than 70%	$\mathbf{B^+}$ (Good)	**7**
50 and less than 60%	**B** (Average)	**6**
40 and less than 50%	**C** (Pass)	**5**
Below 40%	**F** (FAIL)	**0**
Absent	**Ab**	**0**

9.3 A student who has obtained an **'F'** grade in any subject shall be deemed to have **'failed'** and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.

9.4 To a student who has not appeared for an examination in any subject, '**Ab**' grade will be allocated in that subject, and he is deemed to have '**Failed**'. A student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered next. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.

9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

9.6 A student earns Grade Point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'Credit Points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

Credit Points (CP) =Grade Point (GP) x Credits….For a course

9.7 A student passes the subject/course only when **GP ≥ 5 ('C'grade or above)**

9.8 The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to two decimal places. SGPA is thus computed as

$$\textbf{SGPA} = \{ \textstyle\sum_{i=1}^{N} C_i\, G_i \} / \{ \textstyle\sum_{i=1}^{N} C_i \} \ \textbf{.... For each semester,}$$

where 'i' is the subject indicator index (considering all subjects in a semester), 'N' is the no. of subjects '**registered**' for the semester (as specifically required and listed under the course structure of the parent department), C_i is the no. of credits allotted to the ith subject, and G_i represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

9.9 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in **all** registered courses (of 160) in **all** semesters, and the total number of credits registered in **all** the semesters. CGPA is rounded off to **two** decimal places. CGPA is thus computed from the I year II semester onwards at the end of each semester as per the formula

$$\textbf{CGPA} = \{ \textstyle\sum_{j=1}^{M} C_j\, G_j \} / \{ \textstyle\sum_{j=1}^{M} C_j \} \ \textbf{... for all S semesters registered}$$

$$\textbf{(i.e., up to and inclusive of S semesters, S ≥ 2),}$$

where '**M**' is the **total** no. of subjects (as specifically required and listed under the course structure of the parent department) the student has '**registered**' i.e., from the 1st semester onwards up to and inclusive of the 8th semester, 'j' is the subject indicator index (takes into account all subjects from 1 to 8 semesters), C_j is the no. of credits allotted to the jth subject, and G_j represents the grade points (GP) corresponding to the letter grade awarded for that j^{th} subject. After registration and completion of I year I semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA:

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
Course1	4	A	8	4x8=32
Course2	4	O	10	4x10=40
Course3	4	C	5	4x5=20
Course4	3	B	6	3x6=18
Course5	3	A+	9	3x9=27
Course6	3	C	5	3x5=15
	21			152

SGPA=152/21=7.24

Illustration of Calculation of CGPA upto 3rd Semester:

Semester	Course/Subject Title	Credits Allotted	Letter Grade Secured	Corresponding Grade Point (GP)	Credit Points (CP)
I	Course1	3	A	8	24
I	Course2	3	O	10	30
I	Course3	3	B	6	18
I	Course4	4	A	8	32
I	Course5	3	A+	9	27
I	Course6	4	C	5	20
II	Course7	4	B	6	24
II	Course8	4	A	8	32
II	Course9	3	C	5	15
II	Course10	3	O	10	30
II	Course11	3	B+	7	21
II	Course12	4	B	6	24
II	Course13	4	A	8	32
II	Course14	3	O	10	30
III	Course15	2	A	8	16
III	Course16	1	C	5	5
III	Course17	4	O	10	40
III	Course18	3	B+	7	21
III	Course19	4	B	6	24
III	Course20	4	A	8	32
III	Course21	3	B+	7	21
	Total Credits	**69**		**Total Credit Points**	**518**

CGPA= 518/69= 7.51

The calculation process of CGPA illustrated above will be followed for each subsequent semester until 8th semester. The CGPA obtained at the end of 8th semester will become the final CGPA secured for entire B.Tech. programme.

For merit ranking or comparison purposes or any other listing, only the 'rounded off' values of the CGPAs will be used.

9.10 SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester. However, mandatory courses will not be taken into consideration.

10.0 Passing Standards

10.1 A student shall be declared successful or 'passed' in a semester, if he secures a GP $\geq$ 5 ('**C**' grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA $\geq$ 5.0 at the end of that particular semester); and he shall be declared successful or 'passed' in the entire undergraduate programme, only when gets a CGPA $\geq$ 5.00 ('**C**' grade or above) for the award of the degree as required.

10.2 After the completion of each semester, a grade card or grade sheet shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.) and credits earned. **There is NO exemption of credits in any case.**

11.0 Declaration of results

11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.

11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

$$\% \text{ of Marks} = (\text{final CGPA} - 0.5) \times 10$$

12.0 Award of Degree

12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA $\geq$ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have **'qualified'** for the award of B.Tech. degree in the branch of Engineering selected at the time of admission.

12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.

12.3 A student with final CGPA (at the end of the undergraduate programme) > 8.00, and fulfilling the following conditions - shall be placed in 'First Class with Distinction'. However, he

(i) Should have passed all the subjects/courses in **'First Appearance'** within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.

A student not fulfilling any of the above conditions with final CGPA > 8 shall be placed in **'First Class'.**

12.4 Students with final CGPA (at the end of the undergraduate programme) ≥ 7.0 but <

8.00 shall be placed in **'First Class'.**

12.5 Students with final CGPA (at the end of the undergraduate programme) ≥ 6.00 but <7.00, shall be placed in '**Second Class'**.

12.6 All other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the undergraduate programme) ≥ 5.00 but < 6, shall be placed in **'pass class'**.

12.7 A student with final CGPA (at the end of the undergraduate programme) < 5.00 will not be eligible for the award of the degree.

12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of 'Gold Medal'.

12.9 Award of 2-Year B.Tech. Diploma Certificate

1. A student is awarded 2-Year UG Diploma Certificate in the concerned engineering branch on completion of all the academic requirements and earned all the 80 credits (with in 4 years from the date of admission) upto B. Tech. – II Year – II Semester, if the student want to exit the 4-Year B. Tech. program. The student **once opted and awarded for 2-Year UG Diploma Certificate, the student will not be permitted to join** in B. Tech. III Year – I Semester and continue for completion of remaining years of study for 4-Year B. Tech. Degree.

2. A student may be permitted to take one year break after completion of II Year – II Semester or B. Tech. – III Year – II Semester (with Institution permission through the principal of the college well in advance) and can re-enter the course in **next Academic Year in the same college** and complete the course on fulfilling all the academic credentials within a stipulated duration i.e. double the duration of the course (Ex. within 8 Years for 4-Year program).

13.0 Withholding of results

13.1 If the student has not paid the fees to the college at any stage, or has dues pending due to any reason whatsoever, or if any case of indiscipline is pending, the result of the student may be withheld, and the student will not be allowed to go into the next higher semester. The award or issue of the degree may also be withheld in such cases.

14.0 Transitory Regulations

A. For students detained due to shortage of attendance:

1. A Student who has been detained in I year of R21 Regulations due to lack of attendance, shall be permitted to join I year I Semester of R22 Regulations and he is required to complete the study of B.Tech./B. Pharmacy programme within the stipulated period of eight academic years from the date of first admission in I Year.

2. A student who has been detained in any semester of II, III and IV years of R21 regulations for want of attendance, shall be permitted to join the corresponding semester of R22 Regulations and is required to complete the study of B.Tech./B. Pharmacy within the stipulated period of eight academic years from the date of first admission in I Year. The R22 Academic Regulations under which a student has been readmitted shall be applicable to that student from that semester. See rule (C) for further Transitory Regulations.

B. For students detained due to shortage of credits:

3. A student of R21 Regulations who has been detained due to lack of credits, shall be promoted to the next semester of R22 Regulations only after acquiring the required number of credits as per the corresponding regulations of his/her first admission. The total credits required are 160 including both R21 & R22 regulations. The student is required to complete the study of B.Tech. within the stipulated period of eight academic years from the year of first admission. The R22 Academic Regulations are applicable to a student from the year of readmission. See rule (C) for further Transitory Regulations.

C. For readmitted students in R22Regulations:

4. A student who has failed in any subject under any regulation has to pass those subjects in the same regulations.

5. The maximum credits that a student acquires for the award of degree, shall be the sum of the total number of credits secured in all the regulations of his/her study including R22 Regulations. **There is NO exemption of credits in any case**.

6. If a student is readmitted to R22 Regulations and has any subject with 80% of syllabus common with his/her previous regulations, that particular subject in R22 Regulations will be substituted by another subject.

Note: If a student readmitted to R22 Regulations and has not studied any subjects/topics in his/her earlier regulations of study which is prerequisite for further subjects in R22 Regulations, the College Principals concerned shall conduct remedial classes to cover those subjects/topics for the benefit of the students.

15.0   Student Transfers

15.1   There shall be no branch transfers after the completion of admission process.

15.2   There shall be no transfers from one college/stream to another.

15.3   The students seeking transfer to BITS from various other Universities/institutions have to pass the failed subjects which are equivalent to the subjects of BITS, and also pass the subjects of BITS which the students have not studied at the earlier institution. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of BITS, the students have to study those subjects in BITS in spite of the fact that those subjects are repeated.

15.4   The transferred students from other Universities/Institutions to BITS College are provided one chance to write the MID (for internal marks) in the **equivalent subject(s).**

15.5   The college will provide one chance to write the internal examinations in the equivalent subject(s) to the students transferred from other universities/institutions to BITS college.

16.0   Scope

16.1   The academic regulations should be read as a whole, for the purpose of any interpretation.

16.2   In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the CAC Chairman is final.

16.3   The Institution may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students.

16.4   Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers"..

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ACADEMIC REGULATIONS FOR B.TECH (LATERAL ENTRY SCHEME) FROMTHEAY2023-24

1. **Eligibility for the award of B.Tech Degree (LES)**

The LES students after securing admission shall pursue a course of study for not less than three academic years and not more than six academic years.

2. The student shall register for 120 credits and secure 120 credits with CGPA $\geq$ 5 from II year to IV-year B.Tech. programme (LES) for the award of B.Tech. degree.

3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.

4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. **Promotion rule**

S.No	Promotion	Conditions to be fulfilled
1	**Second year first semester to second year second semester**	**Regular course of study of second year first semester**
2	**Second year second semester to third year first semester**	**(i) Regular course of study of second year second semester. (ii) Must have secured at least 24 credits out of 40 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not**
3	**Third year first semester to third year second semester**	**Regular course of study of third year first semester.**
4	**Third year second semester to fourth year first semester**	**(i) Regular course of study of third year second semester (ii) Must have secured at least 48 credits out of 80 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**

5	Fourth year first semester to fourth year second semester	Regular course of study of fourth year first semester.

6. All the other regulations as applicable to B. Tech. 4-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme).

7. LES students are not eligible for 2-Year B.Tech. Diploma Certificate.

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Malpractices Rules

Disciplinary Action For/Improper Conduct in Examinations

	Nature of Malpractices/Improper conduct	**Punishment**
	If the student:	
1.(a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter	Expulsion from the examination hall and cancellation of the performance in that subject only of all the students involved. In case of an outsider, he will be handed over to the police and a case is registered against him
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the student is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The hall ticket of the student is to be cancelled and sent to the Principal.

3.	Impersonates any other student in connection with the examination.	The student who has impersonated shall be expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks	Cancellation of the performance in that subject
6	Refuses to obey the orders of the chief superintendent/assistant – superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the student(s) has (have) already appeared and shall not be

	hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the college campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	permitted to appear for the remaining examinations of the subjects of that semester/year. The students also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them
7.	Leaves the exam hall taking away answer script or intentionally tears off the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
8.	Possesses any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and

		forfeits the seat.
9.	If student of the college, who is not a student for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat. Person(s) who do not belong to the college will be handed over to the police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared for including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the student has appeared for including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the Principal for further action to award a suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the students as per the above guidelines.

2. Punishment for Institutions: (if the squad reports that the college is also involved

in encouraging malpractices)

a. A show-cause notice shall be issued to the college.

b. Impose a suitable fine on the college.

c. Shifting the examination center from one college to another college for a specific period of not less than one year .

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BALAJI INSTITUTE OF TECHNOLOGY & SCIENCE
Academic Regulations for *B. Tech. with Honors program*

1. Objectives

The key objectives of offering B. Tech. with Honors program are:

- To expand the domain knowledge of the students laterally and vertically.
- To increase the employability of undergraduate students with expanded knowledge in one of the core Engineering disciplines.
- To provide an opportunity to students to pursue their higher studies in wider range of specialisations.

2. Academic Regulations for B. Tech. Honours degree

1) The weekly instruction hours, internal & external evaluation and award of grades are on par with regular 4-Years B. Tech. program.

2) For B. Tech with Honors program, a student needs to earn additional 20 credits (over and above the required 160 credits for B. Tech degree). The broad guidelines for the courses of Honours program, their respective credits weightage and semester-wise break-up of the course are enclosed as Annexure. All these 20 credits need to be completed in III year and IV year only.

3) After registering for the Honours programme, if a student is unable to pass all courses in first attempt and earn the required 20 credits, he/she shall not be awarded Honours degree. However, if the student earns all the required 160 credits of B. Tech., he/she will be awarded only B. Tech degree in the concerned branch.

4) There is no transfer of credits from courses of Honours program to regular B. Tech. degree course & vice versa.

5) These 20 credits are to be earned from the additional courses offered by the host department in the college or from a closely related departments in the college as well as from the MOOCS platform.

6) For the courses selected under MOOCS platform following guidelines may be followed:

   a) Prior to registration of MOOCS courses, formal approval of the courses, by the BITS is essential. BITS before the issue of approval considers the parameters like the institute / agency which is offering the course, syllabus, credits, duration of the programme and mode of evaluation etc.

b) Minimum credits for a MOOCS course must be equal to or more than the credits specified in the Honors course structure provided by the BITS.

c) Only Pass-grade/marks or above shall be considered for inclusion of grades in the Honours grade memo.

d) Any expenses incurred for the MOOCS courses are to be met by the students only.

7) The choice to opt/take the Honours program is purely on the choice of the students.

8) The student shall be given a choice of withdrawing all the courses registered and/or the credits earned for Honours program at any time; and in that case the student will be awarded only B. Tech. degree in the concerned branch on earning the required credits of 160.

9) The students of every branch can choose Honours program in their respective branches if they are eligible for the Honours program. A student who chooses an Honours program is not eligible to choose a Minor program and vice-versa.

10) The B. Tech. with Honours program shall be offered from the AY 2021-22 onwards. The students who are pursuing their III year I semester in the current academic year can register for the Honours program if they fulfil the eligibility criteria.

11) A student can graduate with Honors if he/she fulfils the requirements for his/her regular B. Tech. program as well as fulfils the requirements for Honors program.

12) The institute shall maintain a record of students registered and pursuing their Honours programs branch-wise.

13) The department shall prepare the time-tables for each Honours program offered at their respective departments without any overlap/clash with other courses of study in the respective semesters.

3. Eligibility conditions of the students for the Honors degree

a) A student can opt for B.Tech. degree with Honors, if she/he passed all subjects in first attempt in all the semesters till the results announced and maintaining 7.5 or more CGPA.

b) If a student fails in any registered course of either B. Tech. or Honours in any semester of four years program, he/she will not be eligible for obtaining Honors degree. He will be eligible for only B. Tech. degree

c) Prior approval of mentor and Head of the Department for the enrolment into Honours program, before commencement of III year I Semester (V Semester), is mandatory.

d) If more than 30% of the students in a branch fulfil the eligibility criteria (as stated above), the number of students given eligibility should be limited to 30%. The criteria to be followed for choosing 30% candidates in a branch may be the CGPA secured by the students till II year I semester.

e) The department concerned should be preferably NBA accredited and shall offer at least one M. Tech. Program.

f) Successful completion of 20 credits earmarked for honours program with atleast 7.5

CGPA along with successful completion of 160 credits earmarked for regular B. Tech. Program with at least 7.5 CGPA and passing all subjects in first attempt gives the eligibility for the award of B. Tech. (Honors) degree.

g) For CGPA calculation of B. Tech. course, the 20 credits of Honours program will not be considered.

4. Registration for the course in Honors program

a) At the beginning of each semester, just before the commencement of classes, students shall register for the courses which they wish to take in that semester.

b) The students should choose a course from the list against each semester (from Honors course structure) other than the courses they have studied/registered for regular B.Tech. programme. No course should be identical to that of the regular   B. Tech. course. The students should take the advice of faculty mentors while registering for a course at the beginning of semester.

c) The maximum No. of courses for the Honours is limited to two (three in case of inclusion of lab) in a semester along with regular semester courses.

d) The registration fee to be collected from the students by the College is **Rs. 1000/-** per one credit.

e) A fee for late registration may be imposed as per the norms.

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ANNEXURE

Academic Regulations for Honors degree in B. Tech. programs

S. No.	Year / Semester	Course to be chosen from/ studied	Mode of Learning	No. of Credits
1	III-1	PE-1 or PE-2	Blended/Conventional	3
2	III-2	Research Methodologies	Conventional	3
3	III-2	PE-3	Conventional	3
4	IV-1	PE-4	Conventional	3
5	IV-1	PE-5	conventional	3
6	IV-2	Technical Paper writing	Under the mentorship of a supervisor	2
7	IV-2	PE-6 or an Interdisciplinary subject as suggested by Head of the department	MOOCS	3
		Total Credits		20

Note:
  i. Professional Elective (PE) course should be selected (which is not studied) from each Professional Electives list provided in regular B. Tech. course.
  ii. Courses can be chosen as in above table.

1. Technical paper writing:
   a) The student shall take up a problem/topic of engineering branches (inter-disciplinary nature) and apply the knowledge which they acquired while pursuing their engineering branch. It is expected to analyse, design and develop an application for the identified problem and write a technical paper/document.
   Alternatively, the student i) shall identify a research topic, analyse the problem, carryout the experiments, write a technical paper and publish in /communicate for a Scopus indexed journal/any journal with decent reputation or ii) Demonstrate a talent/an idea/development of an innovative product.
   b) The evaluation shall be done by the same committee which is constituted for project evaluation, along with the final semester project work.
   c) The students should start exploration for the Technical Paper Writing immediately after the semester exams of III-II semester. Only the evaluation part shall be carried in IV-II semester.
2. The institute shall offer a course on Research Methodologies by combining the students of all branches (if the number of students is more, multiple parallel sessions may be

conducted). The time slots in the time-tables of respective branches should be aligned. The external evaluation of Research Methodologies course shall be done by the College.

3. If the blended course option is chosen, for the subject in III-I semester, the learning should be partially in online mode and partially in offline mode. The external evaluation shall be done by the College; however, for the internal evaluation component, online assessment should also be taken into account while finalising the internal marks by the course teacher.

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R22 B.TECH. HONORS
RESEARCH
METHODOLOGIES

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Prerequisite: None

Course Objectives:
- To understand the research problem
- To know the literature studies, plagiarism and ethics
- To get the knowledge about technical writing and induce paper publication skills

Course Outcomes: Gain the sound knowledge of the following important elements:
- Distinguish research methods
- Carryout literature review thoroughly to identify contemporary research problems
- Data collection and analysis
- Write and publish a technical research paper
- Review papers effectively

UNIT - I
INTRODUCTIO
N:

Objective of Research; Definition and Motivation; Types of Research; Research Approaches; Steps in Research Process; Criteria of Good Research.

UNIT - II
RESEARCH FORMULATION AND LITERATURE REVIEW:

Problem Definition and Formulation; Literature Review; Characteristics of Good Research Problem; Literature Review Process; Plagiarism, Ethics in Research.

UNIT - III
DATA COLLECTION:

Primary and Secondary Data; Primary and Secondary Data Sources; Data Collection Methods; Data Processing; Classification of Data.
DATA ANALYSIS:

Statistical Analysis; Multivariate Analysis; Correlation Analysis; Regression Analysis; Principle Component Analysis; Samplings

UNIT - IV
RESEARCH
DESIGN:

Need for Research Design; Features of a Good Design; Types of Research Designs; Induction and Deduction.

HYPOTHESIS FORMULATION AND TESTING:

Hypothesis; Important Terms; Types of Research Hypothesis; Hypothesis Testing; Z-Test; t-Test; f-Test; Making a Decision; Types of Errors; ROC Graphics.

UNIT - V

PRESENTATION OF THE RESEARCH WORK:

Business Report; Technical Report; Research Report; General Tips for Writing Report; Presentation of Data; Oral Presentation; Bibliography and References; Intellectual Property Rights;Open-Access Initiatives; Plagiarism.

TEXT BOOKS:

1. Research Methodology. Methods & Technique: Kothari. C.R.
2. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science &engineering students'"

REFERENCES:

1. Practical Research: planning and Design (8th Edition) – Paul D. Leedy and Jeanne E. Ormrod.
2. A Hand Book of Education Research – NCTE
3. Methodology of Education Research – K.S. Sidhu.
4. Tests, Measurements and Research methods in Behavioural Sciences- A.K. Singh.
5. Statistical Methods- Y.P. Agarwal.
6. Methods of Statistical Ananlysis- P.S Grewal.
7. Fundamentals of Statistics – S.C. Gupta, V.K. Kapoor.
8. Intellectual Property Rights by Deborah E. Bouchoux, Cengage Learning.
9. Managing Intellectual Property – The Strategic Imperative, Vinod V.Sople, 2nd Edition, PHILearning Private Limited.
10. Research methodology – S.S. Vinod Chandra, S. Anand Hareendran

BALAJI INSTITUTE OF TECHNOLOGY & SCIENCE

Academic Regulations for *B. Tech. with Minor* program

1. Introduction

The philosophy behind Engineering as an academic discipline has been to orient the knowledge seekers in a manner that shatters the theoretical boundaries and pushes them into the realms of a practical world view.

The emphasis of BITS has always been to orient the students towards the technologies that shall drive the world in the years to come; with this philosophy the College has decided to launch the **Bachelor of Technology in a particular branch with minor in a specified program** (Ex. B. Tech. in Mechanical Engineering with Minor in AI&ML) from the AY 2022-23 onwards.

The **Bachelor of Technology (B. Tech.) with Minor** program focuses on the fundamental principles of multiple Engineering disciplines, critical & analytical thinking and the ability to develop a distinctive approach to the interdisciplinary problems.

2. Objectives

The key objectives of offering B. Tech. with Minor program are:

- To expand the domain knowledge of the students in one of the other branches of engineering.
- To increase the employability of undergraduate students keeping in view of better opportunity in interdisciplinary areas of engineering & technology.
- To provide an opportunity to students to pursue their higher studies in the inter-disciplinary areas in addition to their own branch of study.
- To offer the knowledge in the areas which are identified as emerging technologies/thrust areas of Engineering.

3. Minor courses and the offering departments

S. No.	Minor Program	Eligible branch of students	@Offering Department	Award of Degree
1.	Artificial Intelligence & Machine Learning	All branches, except B. Tech. in CSE (AI&ML) /B. Tech. (AI&ML)/ B. Tech. (AI)/ B. Tech. CSE(AI)	CSE	"B. Tech. in branch name with Minor in Artificial Intelligence & Machine Learning"
2.	Cyber Security	All branches, except B. Tech. in CSE (Cyber Security)/ B. Tech. (Cyber Security)	CSE	"B. Tech. in branch name with Minor in Cyber Security"
3.	Data Science	All branches, except B. Tech. in CSE (Data Science)/ B. Tech. (Data Science)	CSE	"B. Tech. in branch name with Minor in Data Science"
4.	IOT	All branches, except B. Tech. in CSE (IOT) / B. Tech. (IOT)	ECE	"B. Tech. in branch name with Minor in IOT"
5.	Innovation and Entrepreneurship	All branches.	Management Science / MBA	"B. Tech. in branch name with Minor in Innovation and Entrepreneurship"

Note: @ As per AICTE guide lines.

4. Academic Regulations for B. Tech. Degree with Minor programs

1. The weekly instruction hours, internal & external evaluation and award of grades are on par with regular 4-Years B. Tech. program.
2. For B. Tech. with Minor, a student needs to earn additional 18 credits (over and above the required 160 credits for B. Tech degree). The list of courses of each Minor program, their respective credits weightage and semester-wise break-up of the courses are enclosed as Annexure. All these 18 credits need to be completed in III year and IV year only.
3. After registering for the Minor programme, if a student is unable to earn all the required 18 credits in a specified duration (twice the duration of the course), he/she shall not be awarded Minor degree. However, if the student earns all the required 160 credits of B.Tech., he/she will be awarded only B. Tech degree in the concerned branch.
4. There is no transfer of credits from Minor program courses to regular B. Tech. degree course & vice versa.
5. These 18 credits are to be earned from the additional Courses offered by the host department in the college as well as from the MOOCS platform.

6. For the course selected under MOOCS platform following guidelines may be followed:

   a) Prior to registration of MOOCS courses, formal approval of the courses, by the Head of the Department is essential. Head of the Department before the issue of approval considers the parameters like the institute / agency which is offering the course, syllabus, credits, duration of the programme and mode of evaluation etc.
   b) Minimum credits for MOOCS course must be equal to or more than the credits specified in the Minor course structure provided by the Head of the Department.
   c) Only Pass-grade/marks or above shall be considered for inclusion of grades in minor grade memo.
   d) Any expenses incurred for the MOOCS courses are to be met by the students only.

7. The choice to opt/take a Minor program is purely on the choice of the students.

8. The student shall be given a choice of withdrawing all the courses registered and/or the credits earned for Minor program at any time; and in that case the student will be awarded only B. Tech. degree in the concerned branch on earning the required credits of 160.

9. The student can choose only one Minor program along with his/her basic engineering degree. A student who chooses an Honors program is not eligible to choose a Minor program and vice-versa.

10. The B. Tech. with a Minor program shall be offered from the AY 2022-23 onwards. The students who are pursuing their III year I semester in the current academic year can register for the Minor program if they fulfill the eligibility criteria.

11. A student can graduate with a Minor if he/she fulfils the requirements for his/her regular B. Tech. program as well as fulfils the requirements for Minor program.

12. The institute shall maintain a record of students registered and pursuing their Minor programs, minor program-wise and parent branch-wise.

13. The institute / department shall prepare the time-tables for each Minor course offered at their respective institutes without any overlap/clash with other courses of study in the respective semesters.

5. **Eligibility conditions for the student to register for Minor course**

   a) A student can opt for B.Tech. degree with Minor program if she/he has no active backlogs till II Year I Semester (III semester) at the time of entering into III year I semester.
   b) Prior approval of mentor and Head of the Department for the enrolment into Minor program, before commencement of III year I Semester (V Semester), is mandatory
   c) If more than 50% of the students in a branch fulfil the eligibility criteria (as stated above), the number of students given eligibility should be limited to 50%.

6. Registration for the courses in Minor Program

   a) At the beginning of each semester, just before the commencement of classes, students shall register for the courses which they wish to take in the that semester.
   b) The students should choose a course from the list against each semester (from Minors course structure) other than the courses they have studied/registered for regular B.Tech. programme. No course should be identical to that of the regular BTech course. The students should take the advice of faculty mentors while registering for a course at the beginning of semester.
   c) The maximum No. of courses for the Minor is limited to two (three in case of inclusion of lab) in a semester along with regular semester courses.
   d) The registration fee to be collected from the students by the College is **Rs. 1000/-** per one credit.
   e) A fee for late registration may be imposed as per the norms.

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