



**REGULATIONS 2017**  
**CURRICULUM AND SYLLABI**

**For**  
**B.TECH. PROGRAMMES**

**REGULATIONS - 2017**  
**B.TECH. DEGREE PROGRAMMES**

**1.0 PRELIMINARY DEFINITIONS & NOMENCLATURE**

In these Regulations, unless the context otherwise requires:

- i) **"Programme"** means B.Tech. Degree Programme.
- ii) **"Branch"** means specialization or discipline of B.Tech. Degree Programme like Civil Engineering, Mechanical Engineering, etc.,
- iii) **"Course"** means a theory or practical subject that is normally studied in a semester, like Mathematics, Physics, Engineering Graphics, Computer Practice, etc.,
- iv) **"Institution"** means B.S.Abdur Rahman Crescent Institute of Science and Technology.
- v) **"Dean (Academic Affairs)"** means the Dean (Academic Affairs) of B.S.Abdur Rahman Crescent Institute of Science and Technology.
- vi) **"Dean (Student Affairs)"** means the Dean (Students Affairs) of B.S.Abdur Rahman Crescent Institute of Science and Technology.
- vii) **"Controller of Examinations"** means the Controller of Examination of B.S.Abdur Rahman Crescent Institute of Science and Technology who is responsible for conduct of examinations and declaration of results.

**2.0 ADMISSION**

**2.1a)** Candidates for admission to the first semester of the eight-semester B.Tech. degree programme shall be required to have passed the Higher Secondary Examination of the (10+2) curriculum (Academic stream) prescribed by the appropriate authority or any other examination of any university or authority accepted by the Institution as equivalent thereto.

**2.1b)** Candidates for admission to the third semester of the eight-semester B.Tech. programme under lateral entry scheme shall be required to have passed the Diploma examination in Engineering / Technology of the Department of Technical Education, Government of Tamil Nadu or any other examination of any other authority accepted by the Institution as equivalent thereto.

**2.2** Notwithstanding the qualifying examination the candidate might have passed, the candidate shall also write an entrance examination prescribed by the Institution for admission. The entrance examination shall test the proficiency of

the candidate in Mathematics, Physics and Chemistry on the standards prescribed for Ten plus Two academic stream.

**2.3** The eligibility criteria such as marks, number of attempts and physical fitness shall be as prescribed by the Institution from time to time.

### **3.0 BRANCHES OF STUDY**

**3.1** Regulations are applicable to the following B.Tech. degree programmes in various branches of Engineering and Technology, each distributed over eight semesters with two semesters per academic year.

### **B.TECH. DEGREE PROGRAMMES:**

1. Aeronautical Engineering
2. Automobile Engineering
3. Civil Engineering
4. Computer Science and Engineering
5. Electrical and Electronics Engineering
6. Electronics and Communication Engineering
7. Electronics and Instrumentation Engineering
8. Information Technology
9. Manufacturing Engineering
10. Mechanical Engineering
11. Polymer Engineering
12. Biotechnology
13. Cancer Biotechnology
14. Food Biotechnology

### **4.0 STRUCTURE OF THE PROGRAMME**

**4.1** Every Programme will have a curriculum with syllabi consisting of theory and practical courses such as,

- i) Basic Sciences (BS)
- ii) Humanities & Social Sciences (HS)
- iii) Management Sciences (MS)
- iv) Engineering Sciences Fundamentals (ESF)
- v) Engineering Core Courses (EC)
- vi) Professional Electives (PE)
- vii) General Electives (GE)
- viii) Workshop practice, laboratory work, industrial training, seminar

presentation, project work, etc.

**4.2** Each course is normally assigned certain number of credits :

- one credit per lecture period per week
- one credit per tutorial period per week
- one credit for two to three periods and two credits for four periods of laboratory or practical sessions
- one credit for two periods of seminar / project work per week
- one credit for two weeks of industrial training.

**4.3** Each semester curriculum shall normally have a blend of lecture courses, laboratory courses and laboratory integrated theory courses of total not exceeding 26 credits.

**4.4** For the award of the degree, a student has to earn a minimum total credits specified in the curriculum of the relevant branch of study. The minimum credits to be earned will be between 174 and 180, depending on the program.

**4.5** The medium of instruction, examinations and project report shall be in English, except for courses in languages other than English.

## **5.0 DURATION OF THE PROGRAMME**

**5.1** A student is ordinarily expected to complete the B.Tech. programme in eight semesters (six semesters in the case of lateral entry scheme), but in any case not more than 14 continuous semesters reckoned from the date of first admission (12 semesters in the case of lateral entry student).

**5.2** Each semester shall consist of a minimum of 90 working days.

**5.3** Semester end examination will normally follow within a week after the last working day of the semester.

## **6.0 CLASS ADVISOR AND FACULTY ADVISOR**

### **6.1 CLASS ADVISOR**

A faculty member will be nominated by the HOD as Class Advisor for the class throughout the period of study except first year.

The Class Advisor shall be responsible for maintaining the academic, curricular and co-curricular records of students of the class throughout their period of study.

However, for the first and second semester, the class advisors (First year class advisors) will be nominated by the first year coordinator.

## **6.2 FACULTY ADVISOR**

To help the students in planning their courses of study and for general counseling, the Head of the Department of the students will attach a maximum of 20 students to a faculty member of the department who shall function as faculty advisor for the students throughout their period of study. Such faculty advisor shall guide the students in taking up the elective courses for registration and enrolment in every semester and also offer advice to the students on academic and related personal matters.

## **7.0 COURSE COMMITTEE**

**7.1** Each common theory course offered to more than one group of students shall have a "Course Committee" comprising all the teachers teaching the common course with one of them nominated as course coordinator. The nomination of the course coordinator shall be made by the Head of the Department / Dean (Academic Affairs) depending upon whether all the teachers teaching the common course belong to a single department or to several departments. The Course Committee shall meet as often as possible and ensure uniform evaluation of the tests and arrive at a common scheme of evaluation for the tests. Wherever it is feasible, the Course Committee may also prepare a common question paper for the test(s).

## **8.0 CLASS COMMITTEE**

A class committee comprising faculty members handling the classes, student representatives and a senior faculty member not handling the courses as chairman will be constituted branch-wise and semester-wise

**8.1** The composition of class committees for first and second semester will be as follows:

- i) The first year coordinator shall be the chairman of the class committee
- ii) Faculty members of all individual courses of first / second semester
- iii) Six student representatives (male and female) of each class nominated by the first year coordinator
- iv) The class advisor and faculty advisors of the class.

**8.2** The composition of the class committee for each branch from 3<sup>rd</sup> to 8<sup>th</sup> semester will be as follows:

- i) One senior faculty member preferably not handling courses for the concerned semester, appointed as chairman by the Head of the

Department

- ii) Faculty members of all courses of the semester
  - iii) Six student representatives (male and female) of each class nominated by the Head of the Department in consultation with the relevant faculty advisors
  - iv) All faculty advisors and the class advisors.
  - v) Head of the Department
- 8.3** The class committee shall meet at least four times during the semester. The first meeting will be held within two weeks from the date of commencement of classes, in which the nature of continuous assessment for various courses and the weightages for each component of assessment will be decided for the first and second assessment. The second meeting will be held within a week after the date of first assessment report, to review the students' performance and for follow up action. The third meeting will be held within a week after the second assessment report, to review the students' performance and for follow up action.
- 8.4** During these three meetings the student members representing the entire class, shall meaningfully interact and express opinions and suggestions to improve the effectiveness of the teaching-learning process.
- 8.5** The fourth meeting of the class committee, excluding the student members, shall meet within 5 days from the last day of the semester end examination to analyze the performance of the students in all the components of assessments and decide their grades in each course. The grades for a common course shall be decided by the concerned course committee and shall be presented to the class committee(s) by the concerned course coordinator.

## **9.0 REGISTRATION AND ENROLMENT**

- 9.1** Except for the first semester, every student shall register for the ensuing semester during a specified week before the semester end examination of the ongoing semester. Every student shall submit a completed registration form indicating the list of courses intended to be enrolled during the ensuing semester. Late registration with the approval of the Dean (Academic Affairs) along with a late fee will be permitted up to the last working day of the current semester.

- 9.2** From the second year onwards, all students shall pay the prescribed fees for the year on a specific day at the beginning of the semester confirming the registered courses. Late enrolment along with a late fee will be permitted up to two weeks from the date of commencement of classes. If a student does not enroll, his/her name will be removed from rolls.
- 9.3** The students of first semester shall register and enroll at the time of admission by paying the prescribed fees.
- 9.4 A student should have registered for all preceding semesters before registering for a particular semester.

## **10.0 COURSE CHANGE / WITHDRAWAL**

### **10.1 CHANGE OF A COURSE**

A student can change an enrolled course within 10 working days from the commencement of the course, with the approval of the Dean (Academic Affairs), on the recommendation of the Head of the Department of the student.

### **10.2 WITHDRAWAL FROM A COURSE**

A student can withdraw from an enrolled course at any time before the first assessment for genuine reasons, with the approval of the Dean (Academic Affairs), on the recommendation of the Head of the Department of the student.

## **11.0 TEMPORARY BREAK OF STUDY FROM PROGRAMME**

A student may be permitted by the Dean (Academic Affairs) to avail temporary break of study from the programme up to a maximum of two semesters for reasons of ill health or other valid grounds. A student can avail the break of study before the start of first assessment of the ongoing semester. However the total duration for completion of the programme shall not exceed the prescribed maximum number of semesters (vide clause 5.1). If any student is debarred for want of attendance or suspended due to any act of indiscipline, it will not be considered as break of study. A student who has availed break of study has to rejoin in the same semester only.

## **12.0 CREDIT LIMIT FOR ENROLMENT & MOVEMENT TO HIGHER SEMESTER**

- 12.1** A student can enroll for a maximum of 32 credits during a semester including Redo /Pre do Courses
- 12.2** The minimum earned credit required to move to the higher semester shall be
- Not less than 20 credits, to move to the 3<sup>rd</sup> semester
  - Not less than 40 credits, (20 for lateral entry) to move to the 5<sup>th</sup> semester

- Not less than 60 credits, (40 for lateral entry) to move to the 7<sup>th</sup> semester

### **13.0 ASSESSMENT PROCEDURE AND PERCENTAGE WEIGHTAGE OF MARKS**

**13.1** Every theory course shall have a total of three assessments during a semester as given below:

Assessment No.	Course Coverage in Weeks	Duration	Weightage of Marks
Assessment 1	1 to 6	1.5 hours	25%
Assessment 2	7 to 12	1.5 hours	25%
Semester End Exam	Full course	3 hours	50%

**13.2** Appearing for semester end theory examination for each course is mandatory and a student should secure a minimum of 40% marks in each course in semester end examination for the successful completion of the course.

**13.3** Every practical course will have 60% weightage for continuous assessments and 40% for semester end examination. However a student should have secured a minimum of 50% marks in the semester end practical examination.

**13.4** For laboratory integrated theory courses, the theory and practical components shall be assessed separately for 100 marks each and consolidated by assigning a weightage of 75% for theory component and 25% for practical component. Grading shall be done for this consolidated mark. Assessment of theory component shall have a total of three assessments with two continuous assessments carrying 25% weightage each and semester end examination carrying 50% weightage. The student shall secure a separate minimum of 40% in the semester end theory examination. The evaluation of practical component shall be through continuous assessment.

**13.5** The components of continuous assessment for theory/practical/laboratory integrated theory courses shall be finalized in the first class committee meeting.

**13.6** In the case of Industrial training, the student shall submit a report, which will be evaluated along with an oral examination by a committee of faculty members, constituted by the Head of the Department. A progress report from the industry will also be taken into account for evaluation. The weightage for report shall be 60% and 40% for Viva Voce examination.

**13.7** In the case of project work, a committee of faculty members constituted by the Head of the Department will carry out three periodic reviews. Based on the project report submitted by the student(s), an oral examination (viva-voce) will be conducted as the semester end examination, for which one external examiner, approved by the Controller of Examinations, will be included. The weightage for periodic review will be 50%. Of the remaining 50%, 20% will be for the project report and 30% for the Viva Voce examination.

**13.8** Assessment of seminars and comprehension will be carried out by a committee of faculty members constituted by the Head of the Department.

**13.9** For the first attempt of the arrear theory examination, the internal assessment marks scored for a course during first appearance will be used for grading along with the marks scored in the arrear examination. From the subsequent appearance onwards, full weightage shall be assigned to the marks scored in the semester end examination and the internal assessment marks secured during the course of study shall be ignored.

In case of laboratory integrated theory courses, after one regular and one arrear appearance, the internal mark of theory component is invalid and full weightage shall be assigned to the marks scored in the semester end examination for theory component. There shall be no arrear or improvement examination for lab component.

#### **14.0 SUBSTITUTE EXAMINATIONS**

**14.1** A student who has missed, for genuine reasons, a maximum of one of the two continuous assessments of a course may be permitted to write a substitute examination paying the prescribed substitute examination fees. However, permission to take up a substitute examination will be given under exceptional circumstances, such as accidents, admission to a hospital due to illness, etc. by a committee constituted by the Dean of School for that purpose. However there is no Substitute Examination for Semester End examination.

**14.2** A student who misses any continuous assessment test in a course shall apply for substitute exam in the prescribed form to the Head of the Department / Dean of School within a week from the date of missed assessment test. However the Substitute Examination will be conducted after the last working day of the semester and before Semester End Examination.

## **15.0 ATTENDANCE REQUIREMENT AND SEMESTER / COURSE REPETITION**

- 15.1** A student shall earn 100% attendance in the contact periods of every course, subject to a maximum relaxation of 25% (for genuine reasons such as medical grounds or representing the Institution in approved events etc.) to become eligible to appear for the semester-end examination in that course, failing which the student shall be awarded “I” grade in that course. The cases in which the student is awarded “I” grade, shall register and repeat the course when it is offered next.
- 15.2** The faculty member of each course shall cumulate the attendance details for the semester and furnish the names of the students who have not earned the required attendance in that course to the Class Advisor. The Class Advisor will consolidate and furnish the list of students who have earned less than 75% attendance, in various courses, to the Dean (Academic Affairs) through the Head of the Department/ Dean of School. Thereupon, the Dean (Academic Affairs) shall announce the names of such students prevented from writing the semester end examination in each course.
- 15.3** A student who has obtained ‘I’ grade in all the courses in a semester is not permitted to move to next higher semester. Such student shall repeat all the courses of the semester in the subsequent academic year.
- 15.4** A student should register to re-do a core course wherein “I” or “W” grade is awarded. If the student is awarded, “I” or “W” grade in an elective course either the same elective course may be repeated or a new elective course may be taken with the approval of Head of the Department / Dean of School.
- 15.5** A student who is awarded “U” grade in a course will have the option to either write the semester end arrear examination at the end of the subsequent semesters, or to redo the course in the evening when the course is offered by the department. Marks scored in the continuous assessment during the redo classes shall be considered for grading along with the marks scored in the semester-end (redo) examination. If any student obtained “U” grade in the redo course, the marks scored in the continuous assessment test (redo) for that course will be considered as internal mark for further appearance of arrear examination.
- 15.6** If a student with “U” grade, who prefers to redo any particular course, fails to earn the minimum 75% attendance while doing that course, then he / she will

not be permitted to write the semester end examination and his / her earlier “U” grade and continuous assessment marks shall continue.

## **16.0 REDO COURSES**

**16.1** A student can register for a maximum of two redo courses per semester in the evening after regular college hours, if such courses are offered by the concerned department. Students may also opt to redo the courses offered during regular semesters.

**16.2** The Head of the Department with the approval of Dean Academic Affairs may arrange for the conduct of a few courses during the evening, depending on the availability of faculty members and subject to a specified minimum number of students registering for each of such courses.

**16.3** The number of contact hours and the assessment procedure for any redo course will be the same as those during regular semesters except that there is no provision for any substitute examination and withdrawal from an evening redo course.

## **17.0 PASSING AND DECLARATION OF RESULTS AND GRADE SHEET**

**17.1** All assessments of a course will be made on absolute marks basis. However, the Class Committee without the student members shall meet within 5 days after the semester-end examination and analyze the performance of students in all assessments of a course and award letter grades. The letter grades and the corresponding grade points are as follows:

<b>Letter Grade</b>	<b>Grade Points</b>
S	10
A	9
B	8
C	7
D	6
E	5
U	0
W	0
I	0
AB	0

**"W"** denotes withdrawal from the course.

**"I"** denotes inadequate attendance and hence prevention from semester-end examination

**"U"** denotes unsuccessful performance in the course.

**"AB"** denotes absence for the semester-end examination.

**17.2** A student who earns a minimum of five grade points ('E' grade) in a course is declared to have successfully completed the course. Such a course cannot be repeated by the student for improvement of grade.

**17.3** The results, after awarding of grades, shall be signed by the Chairman of the Class Committee and Head of the Department/Dean of Schools and it shall be declared by the Controller of Examinations.

**17.4** Within one week from the date of declaration of result, a student can apply for revaluation of his / her semester-end theory examination answer scripts of one or more courses, on payment of prescribed fee, through proper application to Controller of Examination. Subsequently the Head of the Department/ Dean of School offered the course shall constitute a revaluation committee consisting of Chairman of the Class Committee as Convener, the faculty member of the course and a senior member of faculty knowledgeable in that course. The committee shall meet within a week to revalue the answer scripts and submit its report to the Controller of Examinations for consideration and decision.

**17.5** After results are declared, grade sheets shall be issued to each student, which will contain the following details. The list of courses enrolled during the semester including redo courses, if any, and the grade scored, the Grade Point Average (GPA) for the semester and the Cumulative Grade Point Average (CGPA) of all courses enrolled from first semester onwards. GPA is the ratio of the sum of the products of the number of credits of courses registered and the grade points corresponding to the grades scored in those courses, taken for all the courses, to the sum of the number of credits of all the courses in the semester.

If  $C_i$ , is the number of credits assigned for the  $i^{\text{th}}$  course and  $G_{P_i}$  is the Grade Point in the  $i^{\text{th}}$  course

$$GPA = \frac{\sum_{i=1}^n (C_i)(GPI)}{\sum_{i=1}^n C_i}$$

Where n = number of courses

The Cumulative Grade Point Average CGPA shall be calculated in a similar manner, considering all the courses enrolled from first semester.

**"I" and "W"** grades will be excluded for calculating GPA .

**"U", "I", "AB" and "W"** grades will be excluded for calculating CGPA.

The formula for the conversion of CGPA to equivalent percentage of marks shall be as follows:

Percentage Equivalent of Marks = CGPA X 10

**17.6** After successful completion of the programme, the Degree will be awarded with the following classifications based on CGPA.

<b>Classification</b>	<b>CGPA</b>
First Class with Distinction	8.50 and above and passing all the courses in first appearance and completing the programme within the Prescribed period of 8 semester for normal entry and 6 semesters for lateral entry
First Class	6.50 and above and completing the programme within a maximum of 10 semester for normal entry and 8 semesters for lateral entry
Second Class	Others

However, to be eligible for First Class with Distinction, a student should not have obtained 'U' or 'I' grade in any course during his/her study and should have completed the U.G. programme within a minimum period (except break of study). To be eligible for First Class, a student should have passed the examination in all the courses within the specified minimum number of semesters reckoned from his/her commencement of study. For this purpose, the authorized break of study will not be counted. The students who do not satisfy the above two conditions will be classified as second class. For the purpose of classification, the CGPA will be rounded to two decimal places. For the purpose of comparison of performance of students and ranking,

CGPA will be considered up to three decimal places.

## **18.0 ELECTIVE CHOICE:**

**18.1** Apart from the various elective courses listed in the curriculum for each branch of specialization, the student can choose a maximum of two electives from any other specialization under any department, during the entire period of study, with the approval of the Head of the parent department and the Head of the other department offering the course.

## **18.2 ONLINE / SELF STUDY COURSES**

Students are permitted to undergo department approved online/ self study courses not exceeding a total of six credits with the recommendation of the Head of the Department / Dean of School and with the prior approval of Dean Academic Affairs during his/ her period of study. In case of credits earned through online mode ratified by the respective Board of Studies, the credits may be transferred following the due approval procedures. The students shall undergo self study courses on their own with the mentoring of a member of the faculty. The online/ self study courses can be considered in lieu of elective courses.

## **19.0 SUPPLEMENTARY EXAMINATION**

Final Year students can apply for supplementary examination for a maximum of two courses thus providing an opportunity to complete their degree programme. Like wise students with less credits can also apply for supplementary examination for a maximum of two courses to enable them to earn minimum credits to move to higher semester. The students can apply for supplementary examination within three weeks of the declaration of results.

## **20.0 PERSONALITY AND CHARACTER DEVELOPMENT**

**20.1** All students shall enroll, on admission, in any of the personality and character development programmes, NCC / NSS / NSO / YRC / Rotaract and undergo practical training.

- **National Cadet Corps (NCC)** will have to undergo specified number of parades.
- **National Service Scheme (NSS)** will have social service activities in and around Chennai.
- **National Sports Organization (NSO)** will have sports, games, drills and physical exercises.

- **Youth Red Cross (YRC)** will have social service activities in and around Chennai.
- **Rotaract** will have social service activities in and around Chennai.

## **21.0 DISCIPLINE**

**21.1** Every student is required to observe disciplined and decorous behavior both inside and outside the campus and not to indulge in any activity which will tend to affect the prestige of the Institution.

**21.2** Any act of indiscipline of a student, reported to the Dean (Student Affairs), through the HOD / Dean will be referred to a Discipline and Welfare Committee nominated by the Vice-Chancellor, for taking appropriate action.

## **22.0 ELIGIBILITY FOR THE AWARD OF DEGREE**

**22.1** A student shall be declared to be eligible for the award of B.Tech. degree provided the student has:

- i) successfully completed all the required courses specified in the programme curriculum and earned the number of credits prescribed for the specialization, within a maximum period of 14 semester (12 semesters for lateral entry) from the date of admission, including break of study
- ii) no dues to the Institution, Library, Hostels
- iii) no disciplinary action pending against him/her.

**22.2** The award of the degree must have been approved by the Institution.

## **23.0 POWER TO MODIFY**

Notwithstanding all that has been stated above, the Academic Council has the right to modify the above regulations from time to time.