

## AMRITA VISHWA VIDYAPEETHAM

**B.TECH. DEGREE PROGRAMME IN COMPUTER SCIENCE AND ENGINEERING***(HONOURS STREAM)***REGULATIONS (2014 admissions)****CONTENTS**

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**ORDINANCES**

- O 1. Candidates who have passed the final examination under the 10 +2 system or its equivalent with Mathematics, Physics and Chemistry as optionals, are eligible to apply for admission to the B.Tech. Degree programme.
- O 2. Procedure for admission will be decided from time to time by the University in accordance with the guidelines from competent authorities.
- O 3. The duration of the B.Tech Programme will normally be four academic years (eight semesters).
- O 4. The award of B.Tech. Degree will be recommended by the Academic Council and approved by the Board of Management in accordance with the regulations of the University.

O 5. Notwithstanding anything stated above, the Amrita Vishwa Vidyapeetham reserves the right to modify any of the ordinances, as deemed fit, from time to time.

## REGULATIONS

### R.1. Admission

- R.1.1 The admission to B.Tech. programmes will be as per the ordinances and regulations of the University.
- R.1.2 Students who have performed exceedingly well in their 10 +2 or equivalent examinations and in the first semester of study in the Amrita B.Tech. programme, shall be offered admission to the Honours stream of the B.Tech. Programme.
- R.1.3 The branches of study and the intake to each branch will be decided by the University from time to time.
- R.1.4 The University may allow a limited number of transfers from one discipline of study to another at the beginning of the second semester. Such transfers will be based on the option exercised by the student at the end of the first semester, the availability of vacancy in the discipline and the academic merit of the student. The decision of the University will be final in this matter.

### R.2. Language of Instruction

The language of instruction shall be English, except in cases so specified.

### R.3. Structure of B.Tech. Programme

- R.3.1 B.Tech. Programme will be structured on credit-based system and continuous evaluation, following a semester pattern.
- R.3.2 The curriculum of the Honours stream of the B.Tech. programme in Computer Science and Engineering will have a minimum of 181 credits, apportioned among the following knowledge segments:  
Humanities - 10 credits; Science (incl. Mathematics) - 44 credits;  
Engineering (General, Core) - 99 credits; Project - 28 credits = Total 181 credits
- R.3.3 In general, credits are assigned to the courses based on the following pattern, with possible modifications wherever necessary:
- One credit for each lecture hour per week,
  - One credit for each tutorial hour per week,
  - One credit for each laboratory course/practical of two/three hours per week
  - 28 credits for the project work.
- R.3.4 Every branch of B.Tech. programme will have a curriculum and syllabi for the courses, which will be updated according to the requirements and approved by the Academic Council.

All the campuses will be governed by the same curricula and syllabi, for the respective programmes.

R.3.5 Core, Select and Electives: Certain courses are identified as Core courses and a few others as electives.

Some courses are identified as Core courses, some as Select courses and a few others as Electives.

There is mandatory registration and credit earnings requirement for core courses and their relevant Lab. Courses.

There is mandatory registration and credit earnings requirement for a specified minimum number of Select theory courses and select Lab. Courses.

While it is mandatory to register and earn credits for a specified minimum number of elective courses, failure to earn credit in them, does not necessarily require repeating the elective courses. Often another elective course may be permitted as replacement course, through Regular registration.

#### R.4. Tuition Fees

At the beginning of each academic year, students shall pay all the fees prescribed. A student who drops out of the B.Tech. (Honours) programme or whose registration is cancelled, cannot claim refund of any fees paid.

#### R.5. Class Counsellors and Class Advisor

R.5.1 In order to (i) guide the students in planning their courses of study, (ii) advise them on academic programmes and (iii) monitor their progress, the departments will assign a batch (class) of certain number of students to a faculty member, who will be designated as their Class Counsellor.

R.5.2 One among the Counsellors, shall be designated as the Class Advisor, who shall coordinate the functions of the Class Counsellors.

#### R.6. Chief Mentor and Campus mentors

R.6.1 For each course offered in a campus, one of the teachers teaching that subject shall be nominated by the Dean/Associate Dean/Principal of the campus as the campus mentor of the course. Among the campus mentors, one of them, will be nominated as the Chief Mentor by the Dean (Engineering).

In the beginning of the semester, the Chief mentor and the mentors shall decide on all the details of conduct of the course, during the semester. The minutes of the meeting shall form the guidelines for the Course and Class committees.

R.6.2 The Chief mentor and other mentors will be responsible for preparing the question papers and answer keys, for the end-semester examinations. The Campus Mentors will be responsible for preparing the question papers and answer keys, for the periodical examinations and coordinating valuation of the answer books.

**R.7. Course Committees**

R.7.1. Course committees are constituted for running courses which are common for more than one discipline. Course committees will be set up in each campus for each group of similar courses as decided by the Dean/ Associate Dean/ Principal of that campus. For example there could be one course committee each for subjects of first semester, mathematics courses of higher semesters, science elective courses, humanities elective courses and any other subject which is common across disciplines.

R.7.2. Each course committee will consist of the following members:

- (i) The chairperson of the course committee, nominated by the Principal/Dean/Associate Dean of the school.
- (ii) All teachers involved in teaching the courses shall be included in the course committee
- (iii) Two student members from each discipline nominated into the committee by the chairpersons of departments with equal representation to boys and girls, to the extent possible.
- (iv) Chairpersons of departments and School Head may attend meetings of the course committees.

R.7.3. The Course Committees shall meet at least thrice in a semester. The Course committees shall meet at the beginning of the semester to finalise the course plans for the academic programme. They shall meet at the end of the semester, without the student representatives, to finalise the results of the respective courses. The results shall be submitted to the Dean/ Associate Dean/ Principal, who shall approve and forward the same, to the Examination section.

R.7.4. The Course committees shall be reconstituted at the beginning of every semester.

**R.8 Class Committees**

R.8.1 Every class of a B.Tech. programme in each campus starting from second semester will have a Class Committee constituted by the Dean/ Associate Dean/ Principal of the School based on recommendation of the Chairperson of the department.

R.8.2. The Constitution of the Class Committee will be as follows:

- a) The Chairperson of the class committee, nominated by chairperson of the department,
- b) All the teachers handling courses for the class,
- c) Two student representatives nominated by the Chairperson of the department, from each class with equal representation of boys and girls, to the extent possible.
- d) The Chairperson of the department and school head may attend the committee meetings.

R.8.3. The Class Committee shall meet at least thrice in a semester. The Class committee shall meet at the beginning of the semester to finalise the academic programme. At the end of the semester the committee (without student representatives) will meet, to finalise the results. The results shall be submitted to the Dean/ Associate Dean/ Principal, who shall approve and forward the same, to the Examination section.

R.8.4. The Class committees shall be reconstituted at the beginning of every semester.

### **R.9. Registration and Enrolment**

R.9.1 Every eligible student shall register for the courses of the next semester (including the chosen electives).

R.9.2 Except for the first semester, registration for a semester will be done during a specified week before the end-semester examinations of the previous semester. The consent of the Class Advisor is mandatory before registering for every course.

R.9.3 From the second semester onwards, all students have to enrol on a specified day at the beginning of a semester. A student will be eligible to enrol, only if he/she has cleared all the dues to the Institution, hostel, library and any other, as specified from time to time, at the time of enrolment of the semester and if he/she is not debarred from enrolment, as part of any disciplinary action of the Institution.

R.9.4 Late enrolment will be permitted on payment of a prescribed late-fee, up to a specified date, to be notified well in advance.

R.9.5 The maximum number of credits that can be enrolled for by a student in a semester is limited to 28. Exceeding the maximum of 28 credits per semester, enrolment will require approval from the Department Chair and Head of the School.

R.9.6 **Pre-requisites:** A student is not permitted to enrol for a course unless he/she has already attended the pre-requisite course, wherever specified.

### **R.10. Dropping/ Substituting Courses**

R.10.1 If a student finds his/ her load heavy in any semester, or for any other valid reasons, he/she may drop courses within **first ten working days** of the commencement of the semester, with the written approval of the Class Advisor and Chairperson of the Department.

R.10.2 A student can substitute a course registered earlier, with another for valid reasons, within **first ten working days** of the commencement of the semester, with the consent of the Class Advisor and Chairperson of the Department.

### **R.11. Maximum Duration of the programme**

R.11.1 A student is expected to complete the B.Tech. programme in eight semesters.

R.11.2 A student may be permitted by the concerned Principal/Dean to withdraw from the programme for a semester or a longer period for reasons of ill health or on other valid grounds. However, the programme should be completed within a total span of twelve semesters.

R.11.3 In the event of any student requiring more than twelve semesters to complete the B.Tech. programme, the extension can be considered on the merits of the case, by the Vice-Chancellor and ratified by the Academic Council.

## R.12 Exit Option

R.12.1 Students who desire to exit the Honours stream of the B.Tech. programme, may do so at the end of the fourth semester, on specific request to the concerned Head of the School, through the Chairperson of the Department.

R.12.2 Such students shall fall back to the Regular stream of the B.Tech. Programme, from the fifth semester onwards and mapping of the unregistered courses of the third and fourth semesters, shall be done by the Chairperson of the Department.

R.12.3 Such students shall need to complete all the credit requirements prescribed for the Regular stream of the B.Tech. programme, within a maximum period of twelve semesters.

R.12.4 Students who have exited the Honours stream of the B.Tech. programme shall on successful completion of the programme be eligible for the B.Tech. Degree and shall be governed by all the regulations applicable to the Regular stream of the B.Tech. programme.

## R.13. Attendance

R.13.1 Attendance of the students will be marked by the concerned teacher during every hour of the course.

R.13.2 A student is expected to attend all the classes (theory and lab.), in each of the courses, he/she has registered.

Marks will be awarded for attendance as follows, for each course (theory or lab.)

Putting in	Marks awarded
96-100% attendance	5 marks
91-95% attendance	4 marks
86-90% attendance	3 marks
80-85% attendance	2 marks
<80% attendance	0 marks

R.13.3 Leave shall be availed by students only under unavoidable circumstances. It is mandatory that students shall apply in the prescribed form before proceeding on leave. Leave letter recommended by the Class Advisor shall be submitted to the Chairperson of the department who will consider grant of the leave. Unauthorised absence will be treated as breach of discipline.

Request for leave for more than three consecutive days on medical grounds, must be supported by a proper medical certificate. In non-medical cases, requests for leave for more than three consecutive days must be countersigned by the parent/guardian or the Warden, whichever is applicable.

Leave granted will not be counted as physical presence.

R.13.4 Students going on official duty, such as representing the college/University for sports and cultural activities, or presenting papers in seminars, conferences, etc., will be eligible for 'duty leave' on the recommendation of the Class Advisor and approval by the Chairperson of the Department. **Students should get this leave sanctioned before proceeding on 'duty leave'. They will be granted attendance for the periods they missed on account of the duty leave upon production of the relevant participation certificate after attending the duty.**

All kinds of leave, authorized by the Chairperson of the Department, shall not exceed 25% of the total hours in the course.

R.13.5 Finalisation of attendance for every course shall be done three working days before the last instruction day of the semester.

#### **R.14. Assessment Procedure**

R.14.1 The academic performance of each student in each course will be assessed on the basis of Internal Assessment (including Continuous Assessment) and an End-semester Examination.

Normally, the teachers offering the course will evaluate the performance of the students at regular intervals and in the end-semester examination.

R.14.2 In theory courses (that are taught primarily in the lecture mode), the weightage for the Internal Assessment and End-semester examination will be 50:50. The Internal assessment in theory courses shall consist of at least two periodical tests, weekly quizzes, assignments, tutorials, viva-voce etc. The weightage for these components shall be 20 marks for the Continuous assessment, comprising of Quizzes, assignments, tutorials, viva-voce, etc. and 15 marks each for both the Periodical Tests. At the end of the semester, there will be an end-semester examination of three hours duration, with a weightage of 50 marks, in each lecture-based course.

R.14.3 In the case of laboratory courses and practicals, the relative weight for Internal assessment and End-semester examination will be 80:20. The weight for the components of Internal assessment will be decided by the course committee/class committee at the beginning of the course.

#### *Evaluation pattern for course having both Theory and Lab. components:*

Courses having only one hour per week for lecture/tutorial, be treated as a Lab. course, for evaluation purposes; and evaluation pattern will be 80 marks for continuous assessment of lab. work and 20 marks for end-semester lab. examination.

Courses having two hours per week for theory and/or tutorials, be given a weightage of 60 marks and 40 marks for the Theory and Lab. components, respectively; The Lab. component evaluation will be based on continuous evaluation, without any end-semester practical evaluation. 10 marks will be for continuous assessment of the theory portion, 10 marks for each of the two periodical tests, 30 marks for the theory end-semester examination and 40 marks for continuous assessment of lab. work.

and

Courses having three hours per week for theory and/or tutorials, be given a weightage of 70 marks and 30 marks for the Theory and Lab. components, respectively; The Lab. component evaluation will be based on continuous evaluation, without any end-semester practical evaluation. 15 marks will be for continuous assessment of the theory portion, 10 marks for each of the two periodical tests, 35 marks for the theory end-semester examination and 30 marks for continuous assessment of lab. work.

R.14.4 It is mandatory that the students shall appear for the end-semester examinations in all theory and practical courses, for completion of the requirements of the course. Those who do not appear in the end-semester examinations will be awarded 'F' grade.

At the end of a semester, examinations shall be held for all the courses that were offered during that semester and those subjects of the previous semesters for which the students shall apply for supplementary examination, with a prescribed fee.

R.14.5 PROJECT WORK: The Internal assessment of project work will be carried out through a minimum of two assessments (presentations followed by oral examinations). At the completion of the project work, the student will submit a bound volume of the project report in the prescribed format. The project work will be evaluated by a team of duly appointed examiners.

The final evaluation of the project work, will be based on the content of the report, presentation by the student and a viva-voce examination on the project. There will be 60% weight for Internal assessment and the remaining 40% for final evaluation.

If the project work is not satisfactory, he/she will be asked to continue the project work and appear for assessment later.

## **R.15 PUBLICATION/ INTERNSHIP**

R.15.1 Students pursuing the programme in the Honours stream, shall have submitted TWO papers, to qualify for the Degree with 'Honours', in addition to the other requirements prescribed for the award of an degree with Honours, as mentioned in R.25 (later in this document).



R.15.2 All publications shall be in Scopus-indexed Journals/ Conferences and shall be as per the guidelines prescribed by the University.

R.15.3 Additional marks of 5 – 10 will be awarded for each Publication, subject to a maximum of Two publications.

For students, under the Honours stream, with a CGPA of 8.00 or more, the first two papers will count towards the degree requirement for 'Honours' and hence no additional marks will be awarded for the first two papers.

The additional marks shall be awarded in the semester in which the paper is published or accepted for publication, if applied for within 10 days of the publication of the results of the concerned semester.

#### R.15.4 Extra-curricular and Co-curricular Activities

The students during their period of study in the University are encouraged to indulge in Technical events, Sports, Arts, Social/Community Service and Seva activities. Grace marks (1 to 10 marks) shall be awarded for representing AMRITA University in Technical events, Sports, Cultural and Seva activities. The procedure for awarding these marks will be published by the University, from time to time.

### R.16 REMEDIAL PROVISIONS

#### R.16.1 Supplementary Examinations:

Students failed in a non-semester course (i.e. courses not registered by the student during the current semester), shall apply for appearance in the respective examination by paying a prescribed fee and take the examination.

A student who has secured an 'F' grade in a course may take the supplementary examination for a maximum of three additional attempts (excluding the regular end-semester examinations) carrying the previous Internal marks earned by them. Students failing to pass the course after three additional attempts shall henceforth appear for the supplementary examination for the entire 100 marks and the Internal assessment marks earned by them in the regular registration, shall not be considered.

If a student wishes to improve his/her internal marks, he/she can do so, by re-registering for the course by choosing any of the appropriate remedial options. In this case the internal marks obtained by the student will be valid for the end-semester of the re-registration and three more additional attempts.

#### R.16.2 Other options:

Certain courses may be offered as run-time-redo or as contact courses, as and when necessary to enable students who have dropped courses or failed in some courses, to register and endeavor to complete them.

- a) Re-registration: Students who have failed in a course and opt to re-do the course may do so by re-registering for the course, along with a junior batch of students,
- b) Run-time re-do: Certain courses may be offered specially for the benefit of failed students during a semester, on a regular pattern.

The above two modes, enable possible improvement of the Internal assessment marks.

c) **Contact courses:** Final-semester students and term-out students (students who have completed four-year period) may register for contact mode, to clear the failed courses, if any, subject to the approval of the Head of the School.

A maximum of only two courses, can be taken under Contact mode, in the entire programme of study.

R.16.3 Supplementary examinations will be evaluated against the most recent grade rule (whenever the course was offered recently in the regular semester).

## R.17 Grading

R.17.1 Based on the performance in each course, a student is awarded at the end of the semester, a letter grade in each of the courses registered. Letter grades will be awarded by the Class Committee in its final sitting, without the student representatives.

The letter grades, the corresponding grade points and the ratings are as follows:

<b>Letter Grade</b>	<b>Grade Points</b>	<b>Ratings</b>
A+	10.00	Outstanding
A	10.00	Excellent
B+	9.00	Very Good
B	8.00	Good
C+	7.00	Above Average
C	6.00	Average
D	5.00	Pass
F	0.00	Fail
I	0.00	Incomplete (awarded only for Lab. courses/ Project/ Seminar)
W		Withheld

R.17.2 A student who has been awarded 'I' Grade in a Lab. course, due to reasons of not completing the Lab., shall take up additional Lab. whenever offered next and earn a pass grade, which will be reflected in the next semester's grade sheet.

The 'I' grade, awarded in a Project/ Seminar course, will be subsequently changed into appropriate grade, when the student completes the requirement during the subsequent semester. If he/she does not complete it in the next semester, it will be converted to 'F' grade.

R.17.3 A student is considered to have successfully completed the course and earned the credit, if he/she scores a letter grade 'P' or better in that course.

## R.18 Declaration of Result

After finalization of the grades by the Class Committee and subsequent approval of the the Dean/Associate Dean/Principal of the School, the result will be announced by the Controller of Examinations.

**R.19 Revaluation of answer Papers**

On publication of the results, an aggrieved student can request for revaluation of answers scripts of the end-semester examination, within five working days of publication of the results, along with the prescribed revaluation fees. The request has to be made to the Examination Section, through the Head of the School.

If the revaluation leads to a better grade, the revised grade will be awarded to the student and in such cases, the revaluation fee will be refunded in full.

Revaluation is permitted only for lecture-based courses.

**R.20 Course completion:**

A student is said to have successfully completed a course and earned the corresponding credits, if he/she has:

- registered for the course,
- appeared for the end-semester examinations,
- obtained a pass grade 'P' or better in the course,
- no pending disciplinary proceedings against him/her.

**R.21 Grade Sheet**

The Grade Sheet issued to the student at the end of a semester will contain the following information:

- Name, Roll No. Grade Sheet No., Semester, Branch, Month and year of the Examination,
- Course Code, Course Title, Credits, Grade obtained and Grade points earned for the courses registered,
- Credits registered and earned during the semester,
- Cumulative credits earned and Grade Points,
- SGPA and
- CGPA.

**R.22 Semester Grade Point Average (SGPA)**

On completion of a semester, each student is assigned Semester Grade Point Average (SGPA) which is computed as below for all courses registered by the student during that semester.

$$\text{Semester Grade Point Average} = \frac{\sum (C_i \times Gp_i)}{\sum C_i}$$

where  $C_i$  is the credit for  $i^{\text{th}}$  course in that semester and  $Gp_i$  is the grade point for that course.

The summation is over all the courses registered by the student during the semester, including the failed courses.

The SGPA is rounded off to two decimals.

**R.23 Cumulative Grade Point Average (CGPA)**

The overall performance of a student at any stage of the B.Tech. Degree programme is evaluated by the Cumulative Grade Point Average (CGPA) up to that point of time.

$$\text{Cumulative Grade Point Average} = \frac{\sum (C_i \times Gp_i)}{\sum C_i}$$

where  $C_i$  is the credit for  $i^{\text{th}}$  course in any semester and  $Gp_i$  is the grade point for that course.

The summation is over all the courses registered by the student during all the semesters up to that point of time, including the failed courses. The CGPA is also rounded off to two decimals.

#### **R.24 Ranking**

The ranking of the students in a batch at any intermediate or final stage is based on CGPA. Only those students who have passed all subjects up to that stage in the first attempt are considered for ranking.

Students are eligible for final ranking, only if the programme is completed within four years of joining the programme.

#### **R.25 Classification of successful candidates:**

A student shall be considered to have successfully completed the Honours stream of the B Tech programme, if he/she has:

- i) registered and successfully completed all the core and select courses, electives and projects as mentioned in the curriculum, in the first attempt;
- ii) earned the required minimum number of credits as specified in the curriculum corresponding to the programme, within the stipulated time of eight semesters;
- iii) published two papers in Scopus-indexed Journal/ Conference;
- iv) securing a CGPA of 8.00 and above.

#### **R.26 Transcript**

The Controller of Examinations will also issue, on request and payment of a prescribed fee, a detailed transcript with his signature or facsimile to every student after completion of the programme. It shall contain all the information that is contained in the grade sheets. Additionally, it shall also include the month and year of passing each course. The transcript card shall contain only the final grades secured, but will not indicate the earlier failures, if any. The detailed transcript, will contain the CGPA and the class, if any obtained.

#### **R.27 Discipline**

Every student is required and expected to observe strict discipline and decorous behaviour both inside and outside the campus. He/ she should not indulge in any activity which may tarnish the fair name and prestige of Amrita Vishwa Vidyapeetham. Any act of indiscipline or misbehaviour including unfair practice in the examinations will be dealt with by the Disciplinary Action Committee of the Institution, constituted by the Dean concerned. The committee will enquire into the charges and make recommendations to the Dean/ Principal concerned. Based on the findings of the committee, Dean/Principal will take appropriate disciplinary action. Serious act of indiscipline on the part of the students may even attract penalty upto the extent of expulsion from the University.

**R.28 Redressal of grievances**

Students have the right to seek redress of grievances. For this, they have to appeal in writing to the Dean/Principal concerned, who will take necessary steps in the matter.

**R.29 Award of B.Tech. Degree with Honours:**

A student will be declared eligible for the award of B.Tech. Degree with Honours, if he/she has:

- a) completed the programme successfully as described in R.25. and
- b) no outstanding dues against him/her.

The B.Tech. degree, indicating the discipline, will be awarded by the Board of Management of Amrita Vishwa Vidyapeetham on recommendation of the Academic Council.

**R.30 Interpretation Clause**

Related to any of the academic matters, whenever there arises any doubt or dispute on the interpretation of regulations or rules, the decision of the Academic Council will be final as well as binding on all concerned.

**R.31 Amendment to Regulations**

Notwithstanding anything stated above, the Amrita Vishwa Vidyapeetham reserves the right to modify any of the regulations, as deemed fit, from time to time.

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