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GUIDELINES FOR IMPLEMENTATION OF ACADEMIC AUTONOMY AT COLLEGES (2007) AMENDED-2018 (Framed under Section 20(w) of VTU Act, 1994)

MAY 2018

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Guidelines for Implementation of Academic Autonomy at Colleges (2007)
Amended-2018

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1. Short Title and Commencement:

- (a) These *Guidelines* shall be called “**Visvesvaraya Technological University Guidelines for Implementation of Academic Autonomy (2007) amended-2018**”.
- (b) The *Guidelines* shall be used by the Autonomous Colleges to frame appropriate *Regulations* for implementing the *academic autonomy* granted to them.
- (c) The *Guidelines* shall come into effect from the date of notification by the University after their approval by the Executive Council of the University.

2. Definitions:

- (a) “Academic Autonomy” means freedom granted by the University to a College in all aspects of conducting its academic programmes for promoting excellence.
- (b) “Autonomous College” means a College notified as an *autonomous college* by the University as per the VTU Statutes on Autonomous Colleges (Amended) 2011 and further amended from time to time as per UGC Regulations/Guidelines.
- (c) “Commission” means University Grants Commission.
- (d) “Council” means All India Council for Technical Education.
- (e) “Statutes” Means VTU Statutes on Autonomous Colleges (Amended) 2011 and further amended from time to time.
- (f) “University” means Visvesvaraya Technological University.

3. Preamble:

As per the Statutes, a number of Engineering Colleges have been granted the autonomous status. These *Guidelines* have been prepared to assist such Colleges to implement the *academic autonomy* accorded to them, while deriving its full benefits and in meeting the 21st century challenges faced by the technical education system in the country, like:

- (i) Ever increasing influence of science and technology and their impact on human society.
- (ii) Shrinking time scale of new developments and the high rate of obsolescence in the older practices.
- (iii) Penetration of Information Technology in all sectors of human activity and economic Development.

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- (iv) Service sector becoming a major avenue for employment of technical professionals and also for economic gains.
- (v) Emergence of *knowledge* as a key driver for the progress of nations and for increasing their influence on the world scenario.

As engineers have to convert these challenges into opportunities, it is expected that the 21st century engineers will be required to have:

- Strong foundation in the basics of mathematics, science and engineering discipline.
- Command over the chosen area of technical specialization.
- Capacity to apply the professional knowledge and skills acquired.
- Good competence to learn a subject on one's own without major external help.
- Expertise in analysis, design, modeling and simulation of complex systems.
- Scaling up, mass production, system operation and maintenance.
- Estimation of costs and time factors in an assignment.
- Ability for rational, logical, orderly and objective thinking.
- Skills in personnel management and human relations, and
- Leadership qualities including spirit of tolerance, patience and team work.

Therefore, it is desirable that each Autonomous College gets fully prepared to take the following steps based on the *Guidelines* given herein:

- (a) Make full use of the academic freedom given to it by the University with responsibility and accountability.
- (b) Use this opportunity to demonstrate its capabilities and innovative skills, to become visible in the higher education system and,
- (c) Gain the confidence, gratitude and respect of all its stake holders, especially students, alumni, parents and the society at large.

These are particularly important for each Autonomous College as well as the University to be able to maintain and enhance their respective reputation, image and visibility in the technical education system as a whole.

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4. Academic Programmes:

4.1 General:

- (a) Autonomy granted to the College is institutional in nature and hence an Autonomous College shall be free to launch new Degree programmes at Undergraduate (UG) like B.E., B. Tech., B. Plan., and B. Arch., Postgraduate (PG) like M. Tech., M. Arch., M.B.A and M.C.A and Research like M.Sc. (Engineering by research), Ph.D. all being in the list specified by the Commission from time to time after getting approval from its Governing Body and the University. In all cases, the programmes shall fulfill the minimum academic quality and standards for the award of Degrees prescribed by the University, the Council and the Commission.
- (b) An Autonomous College shall be free to make changes in the existing Degree programmes with the approval of its Academic Council. Such changes could be in the schemes of instruction, syllabi, schemes of examinations and other aspects, while fulfilling the minimum academic standards of the University for the Award of Degrees. The changes so made shall be notified by the Autonomous College concerned at least three months before the commencement of an academic year and the University be kept informed of these changes within a fortnight of such notification.
- (c) An Autonomous College shall have the freedom to start Diploma (post- polytechnic Diploma, post-UG and post-PG levels) and/or Certificate programmes with the approval of its Academic Council. The issuance of certificates/diplomas on completion of such programmes shall be made under the seal of the concerned College only.
- (d) An Autonomous College shall also be free to evolve methods for assessing the students' performance, notifying the results, issuing the grade cards/transcripts, migration and other certificates except the Degree Certificates.
- (e) In order to get the various benefits of *academic autonomy*, it is necessary for an Autonomous College to structure its various academic programmes based on the *Semester Scheme* by introducing *Credits* for academic activities, bring in *Examination Reforms* for better achievement testing, award *Letter Grades and Numerical Grade Points/ Averages* for students' performance and set appropriate *Passing Standards* as covered later in these **Guidelines**.
- (f) It is also necessary for Autonomous Colleges under the University to follow uniform practices for the *Semester Scheme, Credit System, Examinations, Letter Grades and Numerical Grade Points/Averages*, so as to enable their students to avail of horizontal/ vertical mobility and transfer of credits from one Autonomous College to another and related benefits of *academic autonomy*.

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4.2 Nomenclatures of Programmes:

- (a) The Autonomous Colleges shall use nomenclatures for their Degree programmes as specified by the Commission in its Notification on “Specification of Degrees 2014” as amended from time to time. Besides, the Degree Certificates issued by the University to their awardees shall bear the name of the concerned Autonomous College as well. This will help in maintaining the identity of each programme conducted at the College and also ensuring its accountability.
- (b) Therefore, the nomenclatures and their abbreviations given below, shall continue to be used for the Degree programmes at all Autonomous Colleges under the University:
- (i) UG Level: Bachelor of Engineering/Technology/Planning/ Architecture (B.E./B. Tech./B. Plan./ B.Arch.).
- (ii) **PG Level:** Master of Technology (M. Tech.), Master of Architecture (M. Arch.), Master of Business Administration (M.B.A.) and Master of Computer Applications (M.C.A.).
- (iii) **Research Level:** Master of Science (Engineering) (M.Sc. (Engineering) by Research and Doctor of Philosophy (Ph.D.).

Besides, the branch/subject of specialization, if any, shall be indicated in brackets after the abbreviation; e.g., B.E. (Mechanical Engineering), M.Tech.(VLSI Design).

- (c) Further, it is necessary that the Diploma and Certificate programmes at Autonomous Colleges shall also be indicated in abbreviated form, like DIP., and CERT with the branch/subject of specialization given in brackets after the abbreviation. As indicated earlier, the DIP., and CERT. awards shall be made by the concerned Autonomous College only.

4.3 Programme Duration:

- (a) Ordinarily, the duration of fulltime academic programme shall be the same as that followed by the University, i.e., four years for B.E./B.Tech./B.Plan., five years for B.Arch., two years for M.Tech., M. Arch., and M.B.A., three years for M.C.A., two years for M.Sc. (Engg.by Research), three years for Ph.D., one year for Diploma and six months for Certificate programmes.
- (b) As a flexible *credit system* is to be followed for coursework at each Autonomous College, it is to be noted that the programme duration in the case of UG and PG shall also be dictated by the period in which a student earns the prescribed *credits* for the Degree/Diploma/Certificate award. Hence, it is possible for an outstanding student to earn the required credits in a shorter time than that ordinarily prescribed for the relevant programme in (a) above.

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- (c) In such cases, it shall be open to the Autonomous College to prescribe additional *credits* to be earned by a UG/PG student in prior consultation with the University so as to qualify for the concerned Degree award with Honours or any other term associated with it. As an alternative, the Autonomous College may provide opportunity for such a student to register for Diploma/Certificate/Add-On courses being conducted at the College or to take up suitable internship until completion of the prescribed programme duration.
- (d) The maximum period which a student can take to complete a fulltime academic programme shall be the same as that prescribed by the University from time to time; e.g., double the nominal duration of the programme, i.e., eight years for B.E. / B. Tech. /B. Plan., ten years for B.Arch., four years for M. Tech./ M. Arch./M.B.A., six years for M.C.A., four years for M.Sc.(Engineering by Research), six years for Ph.D., two years for Diploma and one year for Certificate.
- (e) Besides, the maximum period for a programme at Autonomous Colleges shall also be dictated by the fact that a student has to demonstrate the specified minimum academic performance by registering for the prescribed minimum number of *credits* in every semester for continuing with the programme. And, this period can be equal to or smaller than the maximum period indicated as in (d) above.

4.4 Admission of Students:

- (a) **Admissions:** The admission of students to various UG, PG and Research Degree programmes listed under Section 4.2 (b), shall be made by the Autonomous Colleges by following the State Government and/or the University Policies/Practices in this regard. In particular, the admission of students for Research Degree programmes at Autonomous Colleges shall be made by the University by associating the College concerned in the process as per the provisions in the VTU Regulations governing the Degree of Ph.D., June 2017. However, the admission of students to Diploma and Certificate programmes shall be made by the Autonomous College on its own, by following the Regulations approved by its Academic Council. In all the cases, it shall be necessary to follow the statutory provisions of reservation of seats to different categories of candidates from time to time.
- (b) There shall be provision for candidates with a polytechnic Diploma or any other qualification approved by the Council and the Commission to join UG Degree programmes at the beginning of the second year of the 4-year programme as per the prevailing practice in the University.
- (c) The students can opt to migrate from one branch or specialization to another branch or specialization at the same College or at another Autonomous/ Affiliated/ Constituent College under the University at the beginning of the second year. In these cases, the Autonomous Colleges shall follow the Rules and Regulations of the University/Council.
- (d) **Eligibility Criteria:** The eligibility criteria for admission of students to UG, PG and Research Degree programmes at the Autonomous Colleges shall be the same as those

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prescribed by the University. But, the minimum requirements for admission to Diploma programmes shall be the Post *Polytechnic Diploma* or equivalent qualification or the *B.E./B.Tech./B. Plan., B. Arch.* or equivalent Degree. The equivalence or its method of determination shall be as notified by the University from time to time. However, the Autonomous College shall be free to prescribe appropriate criteria for admission to Certificate programmes after receiving approval from its Academic Council.

- (e) The eligibility criteria for admission of students from a non-Autonomous College to an Autonomous College, from one Autonomous College to another Autonomous College and from University scheme at an Autonomous College to its Autonomous scheme, shall be fixed by the Academic Councils of the respective Autonomous Colleges, who shall frame suitable Rules for this purpose consistent with the objectives of academic autonomy. A copy of the Rules so adopted shall be sent to the University within a fortnight of such adoption.
- (f) The eligibility criteria for the admission of students from other Universities to an Autonomous College shall be fixed by the Academic Council of the College by getting the individual cases examined by the concerned Board(s) of Studies and also by following the same criteria as in (e) above and recommending the names of such candidates qualifying for admission to the University for its approval.

4.5 Semester Scheme:

- (a) As is well known, the *Semester Scheme* provides several benefits to technical education programmes in contrast to the *Annual Scheme*. Therefore, it shall be necessary for all the Autonomous Colleges under the University to adopt the *Semester Scheme* for their UG, PG, Research, Diploma and Certificate programmes.
- (b) **Academic Calendar:** There shall be uniformity in the functioning of the *Semester Scheme* for all academic programmes across all Autonomous Colleges under the University as this can provide good *academic flexibility* to their stake holders, particularly the students and the faculty members. For this purpose, each academic year shall be divided into *semesters*, with the calendar, durations and academic activities being fixed in advance by the Autonomous Colleges while maintaining a common *opening/reopening* date for the *odd semester*. A copy of the calendar so fixed by each College shall be forwarded to the University at least two weeks before the commencement of the academic year.
- (c) The breakdown of an academic year for implementing the *Semester Scheme* at Autonomous Colleges is given in Table 1 as a typical example:

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Table 1: A Typical Breakdown of Academic Year into Semesters	
1. Number of Semesters/Year	Three; Two being Main Semesters (<i>Odd, Even</i>) and one being a Supplementary Semester. (Note: Supplementary Semester is primarily to assist the slow learners and/or repeater students for repeating the courses. However, Autonomous Colleges may use this Semester to arrange Add-On Courses for other students and/or for deputing them for field work and/or internship.)
2.Semester Durations (Weeks)	Main Semesters (<i>Odd/Even</i>): 19 each. Supplementary Semester: 8.
3. Academic Activities (Weeks)	<p><u>Main Semester:</u> Registration of Courses- 0.5; Course Work- 15.5; Examination Preparation-1.0; Examinations- 1.0; Declaration of Results- 1.0; <i>Total: 19.</i></p> <p><u>Supplementary Semester (For Repeat/Add-On Courses):</u> Registration of Courses- 0.1; Course Work- 7.0; Examination Preparation-0.2; Examination-0.2; Declaration of Results-0.5; <i>Total: 8.</i></p> <p><u>Inter-Semester Recess:</u> After each Main Semester– <i>2to 3, flexible.</i> After Supplementary Semester– <i>1 to 2, flexible.</i> Total: 14 (for good students) and 6 (for slow learner students).</p> <p>(Note: In each Semester, there shall be various provisions for students like, Registration of Courses at the beginning, Dropping of Courses in the middle and Withdrawal from Courses towards the end, all being under the Faculty Members’ advice. These facilities are required to ensure proper monitoring of students by Faculty Advisors, leading to their improved learning capabilities and minimizing their chances of failure in the Courses registered.)</p>
4.Examinations	<p><u>Continuous Internal Evaluation (CIE) and Semester End Examination (SEE)</u>, both having equal weightages in the students’ performance in Course Work/Laboratory Work and other activities. (Note: The CIE shall be conducted by the Course Instructor throughout a Semester on dates to be announced in advance and the results made known to the students from time to time. This will be of help to the students to decide on Dropping of Courses or Withdrawal from Courses based on their performance and in consultation with their Faculty Advisors. However, the dates for SEE at all the Autonomous Colleges shall be jointly fixed by them in consultation with the University so as to facilitate the students in the ‘transfer of credits’.)</p>

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Table 1: A Typical Breakdown of Academic Year into Semesters (continued)	
5. A Typical Calendar	<p><i>1st Main Semester(Odd Semester):</i> <i>1st August - 10th December, 19 Weeks.</i> <i>Recess: 11th December - 31st December, 3 Weeks.</i></p> <p><i>2nd Main Semester(Even Semester):</i> <i>01th January - 13th May, 19 Weeks.</i></p> <p><i>Recess: 14th May - 30th May, (2 Weeks);</i></p> <p><i>Supplementary Semester:</i> <i>01th June - 25th July, 8 Weeks.</i></p> <p><i>Recess: 26th July-31st July (1 Week).</i></p> <p><i>Total: 52 Weeks.</i></p> <p>(Note: This calendar is to be used only as an example to assist the Autonomous Colleges to fix their respective calendars in consultation with the University. Specific time periods are to be provided in this calendar for Registration of Courses, Dropping of Courses and Withdrawal from Courses by the Colleges individually. Also, each College to provide for a 3-week Induction Programme for UG students at the beginning of their 1st Semester to meet the requirements of AICTE Model Curriculum for First Year UG students, Nov. 2017)</p>
6. Other Items	<ul style="list-style-type: none"> • Care shall be taken by each Autonomous College to ensure that the total number of days for academic work is ≥ 180/year. • Academic schedules prescribed at each College shall be strictly adhered to by it for success of the <i>Semester Scheme</i>. • <i>Supplementary Semester</i> shall be mainly used by the Colleges for conducting <i>Repeat Courses</i> for the benefit of slow learners/ repeaters. • Students failing in any Course(s) at a College shall re-register for the same, when offered again and go through CIE and SEE in each case. • Minimum, Maximum and Average Course loads per Semester shall be the same at all Autonomous Colleges and be fixed by prior consultation with the University.

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5 Credit System:

5.1 General:

- (a) As the *Credit System* has many advantages over the conventional system of organizing academic programmes, it is necessary to introduce an appropriate *Choice Based Credit System (CBCS)* for the various programmes at Autonomous Colleges under the University. This will be of great benefit to the students in their preparations to meet the challenging opportunities ahead.
- (b) In the *Credit System*, the course work of students is unitized and each unit is assigned *one credit* after a student completes the teaching-learning process as prescribed for that *unit* and is successful in its assessment. However, there are different definitions followed in academic circles for the size of a *unit* and in turn, for a *credit*. This needs to be given careful consideration at the Autonomous Colleges.
- (c) ***Credit Definition:*** As it is desirable to have uniformity in the definition of *credit* across all Autonomous Colleges under the University, the following widely accepted definition for *credit* shall be followed here. This can provide the good flexibility to the students and also strengthens *CBCS* under the University. Here, ***one unit of course work*** and its corresponding ***one credit*** (while referring to a Main Semester) shall be equal to:
- (i) *Theory* course conducted for 1 hour/week/ semester;
- (ii) *Laboratory* course or *Tutorial*, conducted for 2 hours/week/semester.

The following additional factors may also be noted in this connection:

- *The above figures shall be multiplied by a factor of 2 in the case of the Supplementary Semester, and*
 - *Other student activities which are not demanding intellectually or which do not lend to effective assessment, like practical training, study tours, attending guest lectures shall not carry any credit.*
- (d) ***Course Registration:*** A student shall register for courses (core or elective) to earn *credits* for meeting the requirements of a Degree/ Diploma/Certificate programme. Such courses together with their *grades* and the *credits* earned shall be included in the *Grade Card* issued by the College at the end of each semester, like *odd, even, supplementary* and it forms the basis for determining the student's academic performance in that semester.
- (e) ***Audit Courses:*** In Addition, a student can register for courses for *audit* only with a view to supplement his/her knowledge and/or skills. Here also, the student's grades will have to be reflected in the *Grade Card*. But, these shall not be taken into account in determining the student's academic performance in the semester. In view of this, it may not be necessary

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for the Autonomous College to issue any separate *transcript covering the audit courses* to the registrants at these courses.

5.2 Credit Structure:

- (a) A typical *Credit Structure* for coursework based on the above definition is given in Table 2. This shall be applicable for the coursework of students registered for UG, PG and Research Programmes at the Autonomous Colleges.

Table 2: Typical Credit Structure for Course Work				
Lectures (L) (Hours/Week/Semester)	Tutorials (T) (Hours/Week/Semester)	Laboratory Work (P)(Hours/Week/Semester)	Credits (L:T:P)	Credits (Total)
3	0	0	3:0:0	3
2	2	0	2:1:0	3
2	0	2	2:0:1	3
2	2	2	2:1:1	4
0	0	6	0:0:3	3

- (b) **Major Benefits:** Major benefits accruing to Autonomous Colleges by adopting the *Credit System* are listed below:

- Quantification and uniformity in the listing of courses for all programmes at a College, like core (hard/soft), electives and project work.
- Ease of allocation of courses under different heads by using their *credits* to meet national / international practices in technical education.
- Convenience to specify the minimum/ maximum limits of course load and its average per semester in the form of *credits* to be earned by a student.
- Flexibility in programme duration for students by enabling them to pace their course load within minimum/maximum limits based on their preparation and capabilities.
- Wider choice of courses available from any department of the same College or even from other similar Colleges, either for *credit* or for *audit*.
- Improved facility for students to optimize their learning by availing of transfer of *credits* earned by them from one College to another.

- (c) Thus, it is more appropriate to specify the eligibility requirements for a Degree/ Diploma/Certificate award based on course work (like UG, PG) by prescribing the total number of *credits* to be earned, as an alternative to specifying the Programme Duration (as

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indicated in Section 4.3(a)). This will be of great help in providing the well-needed flexibility to the students in planning their academic programmes and their careers.

5.3 Course Load:

In the planning of Coursework for an academic programme like, UG/PG/ Research Degree, Diploma and Certificate at Autonomous Colleges, it is therefore necessary to specify the average Course load for a student per semester as well as its minimum and maximum limits. Here again, uniformity shall be maintained in these parameters across all Autonomous Colleges under the University, so as to benefit the students.

(a) Looking at the prevailing practices at leading institutions in India and abroad in this respect, taking into account the AICTE Model Curricula for UG Programmes (February 2018) and considering the academic strength and capability of an average student, the course load at all Autonomous Colleges under the University shall be fixed at 22 *credits/semester (average level)* with its minimum and maximum limits being set at 16 and 28 *credits* respectively. This pattern shall be followed uniformly at each Autonomous College by making a provision in its time table for the students to register for 22 *credits* on an average in each semester.

(b) **Course Flexibility:** Further, each Autonomous College shall follow the following practices for providing flexibility to its students in their academic programmes and to meet their varied needs:

(i) **Faculty Advice:** There shall be a *Faculty Advisory System (comprising its regular faculty members)* established at each Autonomous College with each *Faculty Advisor* being assigned a group of students. The functions of *Faculty Advisor* shall be to:

- Advise the students in the group on all academic matters (like registration of courses, dropping of courses and/or withdrawing from courses),
- Monitor the students' in the group for their individual academic performance,
- Identify students in the group who are slow, average or fast learners to help them pace their studies /learning at the College based on their individual abilities, and
- Serve as a *friend, philosopher and guide* to all of them in the group during their studentship at the College.

(ii) With the *Faculty Advisory System* in place, a student to be normally permitted to register for the average course load in the first semester. And, based on the performance in the semester and faculty advice, he/she to continue with this load (for average and fast learners) or to reduce it to the minimum permissible (for slow learners) by dropping of/withdrawing from some course(s)/*credits* before the dates prescribed for these. This facility to assist the student to pace the course work, minimize the chances of failure in

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the course(s) and optimize the learning process.

- (iii) The student's performance in the first semester to form the basis for faculty advice on the number of *credits* to be registered in the second (or subsequent) semester, (to be within the minimum/maximum limits of 16/ 28 *credits*). Further faculty advice and close monitoring to help a slow learner to pace the course work properly by reducing the course load, if required and to minimize the chances of failure in the semester.

- (iv) The above experience to enable any student to properly plan his/her course load in each succeeding semester, by fixing it to be between ≥ 16 and ≤ 28 *credit* limits based on faculty advice and his/her academic performance in the previous semester. Faculty advice to be also useful to the student in identifying appropriate elective courses.

- (v) This experience to also help fast learners (or outstanding students) to accelerate their programmes by registering and maintaining up to the maximum (*equal to 28 credits*) course load in each succeeding semester based on their performance in the preceding and the current semesters. Such students to be able to complete the credit requirements of the programme in a shorter time, like 7 semesters in the case of B.E./B. Tech. as example.

- (vi) Similarly, slow learners to register only for the minimum (*equal to 16*) number of *credits* in each succeeding semester and strive to maintain good performance in all the courses registered and complete the total requirements for the programme at a slower pace, say 9 to 10 semesters in all, in the case of B.E./B. Tech. as example.

- (vii) All Autonomous Colleges under the University shall set uniform standards for enabling the vertical progression of students from one academic year to the next. The number of *credits* earned by a student during the semester/year and Semester Grade Point Average (SGPA) as well as the Cumulative Grade Point Averages (CGPA) shall serve as performance indices to determine the standards as given in the **Guidelines** later.

- (viii) Each Autonomous College may introduce a well-organized *Faculty Advisory System*, effective examinations/assessment system and a comprehensive Academic Calendar prescribing specific dates for each activity (as in Table 1), for good success in realizing the flexibilities.

- (c) The total number of *credits* to be earned by a student to qualify for the Degree/ Diploma/Certificate award from each Autonomous College shall be as given in Table 3.

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Table 3: Total Number of Credits to Qualify for Degree/Diploma/Certificate Award			
Programme		Normal Duration: Years (Semesters)	Total number of Credits to be Earned
UG Degree	<i>B.E./ B. Tech.</i>	4.0 (8)	175
	<i>B.E / B.Tech.(Lateral entry)</i>	3.0 (6)	135
	<i>B. Arch.</i>	5.0 (10)	260 (as per COA)
PG Degree	<i>M. Tech.</i>	2.0 (4)	88
	<i>M. Arch.</i>	2.0(4)	100
	<i>M.B.A.</i>	2.0(4)	100
	<i>M.C.A.</i>	3.0(6)	132
	<i>MCA (Lateral Entry)</i>	2.0(4)	88
Diploma (UG/PG)		1.0 (2)	44
Certificate		0.5 (1)	22

(d) Contact Hours: Considering the expectations from engineering professionals with UG, PG and Research Degrees in the 21st century, it is desirable to limit the number of contact hours for students at Autonomous Colleges under the University to 30-35/week. This will be of help to students in getting enough time and opportunity to do better preparation for the courses prescribed for *credit*, to take up *self-study*, to develop their creative talents and abilities and benefitting from the *Add-On* courses and those taken for *audit*. This can also enable them to get ready for challenging and exciting careers ahead. A typical example showing the calculation of *contact hours* based on course *credits* is given in Table 4:

Table 4: Calculation of Contact Hours/Week – An Example			
Typical Course Load per Semester			
No. of Courses	Credits of the Course	Total Credits	Contact hours per week
Three Lecture Courses	3:0:0	9	9
Two Lecture cum Tutorial Courses	3:1:0	8	10
Two Lecture cum Laboratory Courses	3:0:1	8	10
One Lecture, Laboratory cum Tutorial Course	1:1:1	3	5
Total		28	34

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6 Curriculum Framework:

6.1 General Issues:

- (a) Curriculum Framework is important in setting the right direction for a Degree/ Diploma/Certificate programme at an Autonomous College, as it takes into account the type and quantum of knowledge necessary to be acquired by a student to qualify for a particular award in his/her chosen branch or specialization area.
- (b) Besides, this also helps in assigning the *credits* for each course, sequencing the *courses* semester-wise and finally arriving at the total number of *courses* to be studied and the total number of *credits* to be earned by a student to fulfill the requirements for the conferment. The Autonomous Colleges shall also take into account the AICTE Model Curricula notified from time to time and follow them so as to be abreast of the national trends in this connection.

6.2 B.E./B. Tech. Degree Programme:

The Curriculum Framework for a B.E./B. Tech. Degree programme is given below as an example. The programme shall include the following Courses.

(a) **Recommended Courses:** These include coursework under the following categories:

- Humanities and Social Sciences including Management(HSMC);
- Basic Sciences(BSC) (Mathematics, Physics, Chemistry, Biology);
- Engineering Sciences(ESC) (Materials, Workshop, Drawing, Computers);
- Professional Core (PCC), relevant to the chosen specialization/ branch;
- Professional Electives (PEC), relevant to the chosen specialization/ branch;
- Open Electives (OEC), from other technical and/or emerging subject areas;
- Project Work (PROJ), Seminar and/or Internship in Industry or elsewhere.

(b) **Mandatory Courses (MC) and Other Requirements:** The UG Degree programmes also require the inclusion of certain courses necessary for familiarity of subjects, like Environmental Studies, Constitution of India, Communication Skills, Chosen Language Knowledge/ Proficiency as *Mandatory Courses*. Such courses shall not carry any *credit* for the award of the Degree. But, a pass in each such course during the programme shall be a necessary requirement for the student to qualify for the Degree. Hence, each Autonomous College under the University shall take suitable steps to organize the *Mandatory Courses* as required and to include the student's performance (like, pass or fail) in such course(s) in his/her transcript.

(c) **Induction Programme and Internship:** There is also a requirement now a days to include a 3-week Induction Programme for the first-year B.E./B. Tech. students at the beginning of their 1st Semester, as per the requirements of AICTE in its Model UG Curriculum (Feb. 2018). Besides, there is also a mandatory requirement of Internship to be undertaken by all

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the UG students. The Autonomous Colleges shall ensure that both these are fulfilled to the best possible extent.

- (d) **Allocation of Credits for B.E./B. Tech. Degree Programme:** Looking at the UG Engineering Degree programmes practiced at leading institutions in India and abroad and the need for Indian engineering professionals to be able to meet the 21st century challenges, it is necessary for each Autonomous College to follow the breakdown of coursework as given in Table 5. It is expected that this breakdown will lead to a highly useful and respectable B.E./B. Tech. Degree programme under the University. While it shall be required for all the Autonomous Colleges under the University to follow the percentage range of total number of *credits* allocated under each course category, each College can fix the actual (average) number of *credits* for each category to suit its own needs. On similar lines, the allocation of *credits* can be proposed for B. Plan./B. Arch. Degree programme at the Autonomous Colleges under the University.

Table 5: A Typical Breakdown for the B.E./B. Tech. Degree Curriculum			
Course Category*	Percentage (%) of total Credits		Average number of credits (Typical)
	Minimum	Maximum	
Humanities, Social Sciences and Management (HSMC)	5	10	10
Basic Sciences (BSC)	10	20	28
Engineering Sciences (ESC)	10	20	20
Professional Courses (PCC) – Core	30	40	64
Professional Courses(PEC) -Elective	10	15	20
Other Open Elective Courses(OEC)	5	10	09
Project Work (PROJ)	10	15	24
Total			175
* It is desirable that each Autonomous College follows the VTU curriculum (2018) based on the AICTE Model Curriculum (Nov.2017) for the First Year UG in Engineering and Technology.			

- (e) **Sequencing of Courses for B.E./B.Tech. Degree:** The above breakdown of the B.E./B. Tech. Degree curriculum shall form the basis for proper sequencing of the coursework for the programmes at all Autonomous Colleges under the University. Based on this, a typical sequencing plan for coursework for B.E./B.Tech. Degree programme at Autonomous Colleges is given in Table 6. Autonomous Colleges shall also take into account the provisions in the AICTE Model Curriculum while finalizing the sequencing of courses. A

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similar sequencing plan can also be proposed for *B. Plan/B. Arch.* Degree programme launched at Autonomous Colleges under the University.

Semesters	Course Categories
I–II	<ul style="list-style-type: none"> • HSMC, BSC and ESC, Common for all Programmes <i>as per AICTE Model Curriculum.</i> • MC and Mandatory <i>Induction Programme (3 weeks).</i>
III-IV	<ul style="list-style-type: none"> • HSMC, BSC and ESC, Common for all Programmes (to be continued). • Also, MC (to be continued, if required). • PCC: In two/three groups (<i>like Circuit, Non-Circuit</i>). • Area-wise Orientation, Add-On Courses.
V-VII	<ul style="list-style-type: none"> • PCC/PEC/OEC, Core and Electives. • Branch-wise Orientation, Add-On Courses, Seminar, Internship.
VIII	<ul style="list-style-type: none"> • PEC/OEC, Electives, Project work (PROJ), Dissertation. • Add-On Courses, Seminar, Final wrap-up of Programme.

6.3 PG Degree Programmes: Autonomous Colleges under the University may conduct a variety of PG programmes like *M. Tech, M.B.A, and M.C.A.* Following on similar lines as in Table 5, a typical allocation of *credits* for each of these programmes is now given in Tables 7 to 9. Here, *hard core* includes all compulsory Courses, whereas *soft core* covers a choice to be made from among the suggested compulsory *Courses*. While it is desirable for all the Autonomous Colleges under the University to follow the percentage range of total number of *credits* allocated under each category, the College shall be free to fix the actual (average) number of *credits* under each category. On similar lines, allocation of *credits* can also be proposed for the *M. Arch.* Degree programme at Autonomous Colleges under the University.

Course Category	Percentage (%) of total Credits		Average number of credits (Typical)
	Minimum	Maximum	
Core Courses (Hard/Soft)	15	25	22
Electives (Specialization/Other)	25	35	30
Project Work	30	45	30
Industrial Internship, Seminar& Field Work	05	10	06
Total			88

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Table 8: A Typical Breakdown for the <i>M.B.A</i> Degree Curriculum			
Course Category	Percentage (%) of total Credits		Average number of credits (Typical)
	Minimum	Maximum	
Core Courses (Hard/Soft)	45	60	50
Electives (Specialization/Others)	20	35	25
Seminar	02	10	05
Field Work/Internship & Project Work	10	25	20
Total			100

Table 9: A Typical Breakdown for the <i>M.C.A.</i> Degree Curriculum			
Course Category	Percentage (%) of total Credits		Average number of credits * (Typical)
	Minimum	Maximum	
Core Courses (Hard/Soft)	40	55	60
Electives (Specialization/Other)	20	35	32
Seminar	02	10	05
Industrial Internship and Project Work	20	35	35
Total			132
*The total number of credits for the first and second semesters shall be limited to 44			

6.4 Coursework of Research Degree Programmes: Autonomous Colleges under the University conducting M. Sc. (Engineering by Research) and Ph.D. programmes shall follow the University Regulations in respect of coursework for the award of these Degrees. In particular, the provisions in the Regulations Ph.D.-14 and Ph.D.-15 in the VTU Regulations governing the award of Ph.D. (June 2017) or its more recent version shall be incorporated suitably in the Regulations of each Autonomous College.

7. Assessment:

7.1 Achievement Testing:

- (a) The assessment of students' performance in course work during and/or at the conclusion of

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a programme has to be done using examinations. In general, an examination may have different objectives, like achievement-testing, prediction-testing, endurance-testing, creativity-testing and testing for ranking.

(b) In technical education, the assessment has to be preferably of the *achievement-testing* type, so that a student's knowledge, understanding and competence in the courses studied are properly assessed and certified. Therefore, Autonomous Colleges under the University are required to introduce proper reforms in the examination system to achieve this goal. The **Guidelines** given below enable the Autonomous Colleges to achieve this goal and gain the confidence and respect of their stake holders, particularly students. Typically *achievement-testing* is done in two parts as follows, both of them being important in assessing a student's achievement:

- **Sessional: Involving Continuous Internal Evaluation (CIE)**, to be conducted by the course instructor all through the semester. This may include mid-term tests, weekly/ fortnightly class tests, homework assignments, problem solving, group discussions, quiz, seminar, mini-project and other means.
- **Terminal, covering Semester End Examinations (SEE)**, to be conducted by the course instructor jointly with an external examiner at the end of a semester, on dates to be fixed at the College level. This may include a written examination for theory courses and practical/design examination with built-in oral part for laboratory/design courses.

(c) Both CIE and SEE being equally important in judging the coursework performance of students, they need to be conducted with equal rigour and equal seriousness in the *credit system*. This makes it necessary that both of them are assigned equal (50:50) weightage. And, a student's performance in coursework shall be judged by taking into account the results of both CIE and SEE individually and also together by giving equal weightage for them. This practice shall be followed at all Autonomous Colleges under the University.

7.2 Question Papers:

(a) **Question Paper Pattern:** For an effective *achievement testing* of students in a course, a good question paper needs to be used as the principal tool. This makes it necessary for the question papers used at CIE and SEE to;

- Cover all sections of the course syllabus uniformly.
- Be unambiguous and free from any defects/errors.
- Emphasize knowledge testing, problem solving and quantitative methods.
- Contain adequate data/ other information on the problems assigned, and
- Have clear and complete instructions to the candidates.

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- (b) **Question Paper Planning:** The above requirements make it necessary for a Question Paper to cover the entire syllabus, with a provision for the students to answer questions from the whole syllabus. As students need to be given some choice in the questions included in the Paper, it is necessary for the Question Papers at SEE, in particular, to have built in choice under each module of the syllabus. This factor shall be taken note of and strictly followed by each Autonomous College, while planning of the Question Papers.
- (c) Besides, it is also necessary for the Course syllabi to be drafted properly, be defect-free and also properly given in modular form to enable the setting of good question papers covering the whole syllabus. These aspects have to be taken into account, in particular, by the Boards of Studies at Autonomous Colleges under the University.
- (d) **Typical Question Paper:** The questions to be included in the Question Papers at CIE and SEE can be of two types as follows and the course instructors as well as the external examiners shall have to be well trained/experienced to set them.
- *Multiple Choice Question*, having each question to be answered by tick marking the correct answer from the choices (commonly four) given against it. Such a question paper to be useful in the testing of knowledge, skills, comprehension, application, analysis, synthesis, evaluation and understanding of the students. However, Question Papers for CIE and SEE to include *no more than* 15-20% of questions of this type.
 - *Comprehensive Questions*, having all questions of the regular type to be answered in detail. Such a Question Paper to be useful in the testing of overall achievement and maturity of the students in a course through long questions relating to theoretical/practical knowledge, derivations, problem solving, modeling, simulation, design, application and quantitative evaluation.

7.3 Examinations:

- (a) **Maintenance of Standards:** For ensuring a high standard in both CIE and SEE fully meeting the provisions of the University Statutes and being able to declare the results of students' performance at both these in a time bound manner as per their Academic Calendars, each Autonomous College may follow a few suggestions given below for conducting the examinations:
- (i) **CIE:** The CIE shall be conducted exclusively by the course instructor. The instructor to spell out the components of CIE to the students in advance, maintain transparency in its operation, declare the evaluation results in time and then return the answer scripts and assignment sheets to them as soon as possible. The instructor to also solve the questions from these test papers during tutorial sessions for the benefit of all the students concerned, especially slow learners.
- (ii) **SEE:** The SEE shall be conducted jointly by the course instructor and an external examiner appointed for this purpose by the Autonomous College. Here, the external examiner to

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mainly associate with the work of Question Paper setting, because of the difficulties in having him/her for conducting the evaluation of students' answer scripts due to the tight time schedule for the various tasks connected with SEE, as covered in sub-sections (iii) and(iv) below.

- (iii)SEE Answer Scripts:** The answer scripts of SEE may be normally evaluated by the course instructor only. But as a healthy step, a Departmental Committee at each Autonomous College to preferably oversee this task and ensure the quality and standard of evaluation and also of the *grades* awarded in all the cases. The next step to be taken before declaring the results, to include an external review of the SEE conducted.
- (iv)External Review of SEE:** An external review shall be conducted under the aegis of the Board of Studies/Board of Examiners of the Autonomous College by appointing a panel of experts from outside the College for this purpose aiming at a complete review of SEE operation in the College. This may include such steps as, *question paper review, checking random samples of answer scripts, analysis of results/grades awarded and other related aspects*. This step to be also necessary for gaining the confidence of the University and of the society at large, on the fairness, transparency and acceptability of the examination practice among the stakeholders.
- (b) Attendance Standards:** All students of Autonomous Colleges under the University shall maintain a minimum attendance of 85% in each course registered. In case of any short fall in this, the Academic Council of the College shall consider the same and may condone the deficiency in special cases up to 10%. Any student failing to meet the above standard of attendance in any course(s) registered may not be allowed to appear for SEE of such course(s).
- (c) Attendance at CIE and SEE:** Attendance at all examinations, both CIE and SEE of each course registered shall be compulsory for the students and there shall not be any provision for re-examinations. Any student against whom any disciplinary action by the College/University is pending may not be permitted to attend any SEE in that Semester.
- (d) Passing Standards:** High standards shall be maintained in all aspects of the examinations at Autonomous Colleges under the University. For this purpose, each Autonomous College shall follow the *standards of passing* at CIE and SEE for each Course, registered, as given in Tables 10 and 11(*Please see Section 8 on Grading*):

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Table 10: Passing Standards at Colleges using Relative Grading	
Evaluation Method	Passing Standard
Sessional (Continuous Internal Evaluation)	Score: $\geq 40\%$
Terminal (Semester End Examination)	Score in (CIE +SEE) leading to the award of Letter Grade $\geq E$. (as covered in Section 8.2(d)).

Table 11: Passing Standards at Colleges using Absolute Grading	
Evaluation Method	Passing Standard
Sessional (Continuous Internal Evaluation)	Score: $\geq 40\%$
Terminal (Semester End Examination)	Score: $\geq 40\%$

- (e) **Project work Evaluation:** The evaluation of CIE of the project work shall be based on the progress of the student in the work assigned by the project supervisor periodically evaluated by him/her together with a Departmental Committee constituted for this purpose at each Autonomous College. Seminar presentation, project report (dissertation) and final oral examination conducted by a common Project Evaluation Committee at the College level shall form the SEE of the project work.
- (f) In the case of other requirements, such as seminar, industrial internship, field work, comprehensive viva voce, if any, the assessment shall be made as laid down by the Academic Council of the concerned Autonomous College.
- (g) **There shall be no re-examination for any Course in the credit system** to take care of such students:
- (i) Who have absented themselves from attending CIE or SEE without any valid reason;
 - (ii) Who have failed (Grade F, as covered in Section 8) to meet the minimum passing Standard prescribed for CIE and/or SEE;
 - (iii) Who have been detained for shortage of attendance in any coursework;
 - (iv) Who have withdrawn (Grade W, as covered in Section 8.) from a Course.

Such students shall be required to re-register for the Course(s) and go through CIE and SEE again and obtain a *Grade E or better* (see Tables 10 and 11) in each case. While such students shall have to re-register for the same Course(s) if *hard core*, they can re-register for alternative Course(s) from among the *soft core or elective* Courses, as the case may be. The re-registration shall be possible only when the particular Course is offered again either in a *main (Odd/Even) or a supplementary semester*.

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- (h) **Successive Failures:** If a student fails (Grade F, as covered in Section 8) to pass a Course and earn the *credits* prescribed for the Course **even after five attempts**, the admission of the student to the programme shall be terminated. However, such a student may seek admission to the programme afresh.
- (i) **Monitoring/Assessment for Research Degrees:** Students registered for Research Degrees at Autonomous Colleges shall be monitored and assessed at each College level by following the prescribed procedure as outlined in the relevant University Regulations Governing the M.Sc(Engineeringby research)/Ph.D. Degrees notified from time to time. These provisions may be suitably included in the Regulations of each Autonomous College.

8. Grading:

8.1 General:

- (a) In recent years, the *grading system* has replaced the evaluation of students' performance in a Course based on absolute marks, because of its many advantages. Therefore, Autonomous Colleges under the University shall follow this practice. Here again, it is necessary to maintain uniformity in the *grading practices* at different Colleges to ensure that the migration of students or transfer of *credits* among Autonomous Colleges under the University is made easy.
- (b) **Letter Grades:** A *letter grade* is basically a qualitative measure (an alphabet/letter) giving the performance of a student, such as, Outstanding (S), Excellent (A), Very Good (B), Good (C), Above Average (D), Poor (E) and Fail (F), based on the raw score (marks, as in conventional practice) obtained by the student. This is usually arrived at after the student's performance in a Course, which includes both CIE and SEE, is assessed and raw score (marks) for the total are awarded to begin with, followed by grouping of all the students at a Course under different grading levels, as above.
- (c) There are different approaches possible for the grouping of raw score (marks). But, the most useful one is based on the computation of statistical measures like mean and standard deviation of the raw score (marks) of all the students attending a Course to separate out the *letter grade* groups. This approach facilitates *relative grading* of the students, which has many advantages over the conventional *absolute grading*, like, freedom from the difficulty level of Question Papers used, absence of personal bias and influence of evaluation norms/standards adopted by the examiner. Hence, this approach may be preferably followed at Autonomous Colleges under the University for awarding *letter grades* against the raw score (marks) obtained by the students.
- (d) **Relative Grading:** In the *relative grading* approach, statistical quantities, such as, mean (μ) value and standard deviation(σ) for the raw score (marks) in (CIE + SEE) obtained by the students of a Course shall be evaluated first. And then, the range of marks for each *letter grade* shall be assigned as follows:

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- F grade: $<(\mu-1)\sigma$;
- E grade: $\geq (\mu-1)\sigma$ to $<(\mu)$;
- D grade: $\geq(\mu)$ to $<(\mu+1)\sigma$;
- C grade: $\geq(\mu+1)\sigma$ to $<(\mu+1.5)\sigma$;
- B grade: $\geq(\mu+1.5)\sigma$ to $<(\mu+2.0)\sigma$;
- A grade: $\geq (\mu+2.0)\sigma$ to $<(\mu+2.5)\sigma$; and,
- S grade: $\geq (\mu+2.5)\sigma$.

(e) **Absolute Grading:** While it is most desirable to follow the system of *relative grading* at all the Autonomous Colleges it is noticed that they need specific preparation to introduce this system. Hence, the Colleges may adopt the *absolute grading* system in the initial years of *academic autonomy* and take steps to move to *relative grading* from *absolute grading* eventually. Such Autonomous Colleges adopting the *absolute grading* system may prepare proper plans to move to the *relative grading* system at the earliest. The plans so prepared may be got approved by their respective Academic Councils and implemented soon. The University may be kept informed of this by the College concerned within a fortnight of the change- over of the *grading system*.

8.2 Grade Points:

(a) Depending on the *letter grades* assigned, a student earns certain *grade points*. As the *grading system* can have different scales for *grade points* (like 5, 8, 10.) with more number of points in the scale being desirable for providing higher resolution in the assessment. Moreover, all Autonomous Colleges under the University need to follow the same scale for uniformity in their operations. Hence, the Autonomous Colleges under the University shall follow the *10-point grading system*, as given in Table 12 for both the *relative grading system* and the *absolute grading system*.

Table 12: Grade Points Scales for both Relative and Absolute Grading							
Level	Out-standing	Excellent	Very Good	Good	Above Average	Poor	Fail
Grade	S	A	B	C	D	E	F
Grade Points	10	09	08	07	06	04	00
Score (Marks) Range %	≥ 90	$< 90-$ ≥ 80	$< 80-$ ≥ 70	$< 70-$ ≥ 60	$< 60-$ ≥ 50	$< 50 -$ ≥ 40	< 40

(b) The *grade points* given in Table 12 will help in the evaluation of *credit points* earned by the student in a Course as the *credit points* are equal to the number of credits assigned to the Course multiplied by the *grade points* awarded to the student in that Course. This shall

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be used in arriving at the *credit index* of the student for that semester, as it is the sum total of all the *credit points* earned by the student for all the Courses registered in that semester.

- (c) **Earning of Credits:** A student shall be considered to have completed a Course successfully and earned *credits* if he/she secures an acceptable *letter grade* in the range S to E. *Letter grade* F in any Course implies failure of the student in that Course and no *credit* shall be earned.
- (d) **Transitional Grades:** The *transitional grades*, such as, 'I', 'W' and 'X' shall be awarded to a student in the following cases. These *grades* need to be converted into one or the other of the *letter grades* (S-F) after the student completes his/her Course requirements, including the examinations.
- (i) **Grade 'I':** Awarded to a student having satisfactory attendance at classes and meeting the passing standard at CIE in a Course, but remained absent from SEE for valid and convincing reasons acceptable to the College, like:
- Illness or accident, which disabled him/her from attending SEE;
 - A calamity in the family at the time of SEE, which required the Student to be away from the College;
 - Any other verifiable exigency.
- (ii) **Grade 'W':** Awarded to a student having satisfactory attendance at classes, but withdrawing from that Course before the prescribed date in a semester under *faculty advice*.
- (iii) **Grade 'X':** Awarded to a student having high CIE rating ($\geq 90\%$) in a Course, but SEE performance observed to be poor, which could result in an overall F Grade in the Course.
- (e) **Make-up Examination:** The *Make-up Examination* facility shall be available to the students who may have missed to attend the SEE of one or more Courses in a semester for valid reasons and given the 'I' grade. Students having the 'X' grade shall also be eligible to take advantage of this facility. The *Make-up Examination* shall be held as per dates notified in the Academic Calendar. However, it will be possible for an Autonomous College to hold this examination at any other time in the semester with the permission of its Academic Council. In all these cases, the standard of the *Make-up Examination* shall be the same as that of the regular SEE for the Courses.
- (f) All the 'I' and 'X' *grades* awarded to the students shall have to be converted by the instructors concerned to appropriate *letter grades* and communicated to the College Authorities within *two days* of the respective *Make-Up Examinations*. Any 'I' and 'X' *grades* still not converted within two days after the last scheduled *Make-Up Examinations* shall be automatically converted to 'F' *grade*.
- (g) All the 'W' *grades* awarded to the students shall be eligible for conversion to the

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appropriate letter *grades* only after the concerned students re-register for these Courses in a main(*Odd/Even*)/supplementary semester and fulfill the passing standards for their CIE and (CIE + SEE)as prescribed at the Autonomous College.

- (h) In the event of a student in his/her final semester fails in a Laboratory Course and/or in CIE of a Course, the student shall be given 'I' *grade* for such Course(s). In such a case, the instructor concerned may grant the student extra time not exceeding 12 weeks for completing the Course, with the concurrence of the Head of the Department and the Principal of the College. If no such extra time is sought/granted, the concerned student shall have to re-register for the Course(s) in a succeeding semester and fulfill the requirements for the award of the Degree.
- (i) **Grade Card:** Each student shall be issued a *Grade Card* (or transcript) at the end of each semester. While this will have a list of all the Courses registered by a student in the semester together with their *credits*, the *letter grades* with *grade points awarded* in each case and those with *grades 'I', 'W' and 'X'*, only those Courses registered for *credit* and having *grade points* shall be included in the computation of the student's performance, like *SGPA* and *CGPA*. And, the Courses taken for *audit* will not form part of this computation. The results of *mandatory courses*, which are of the *non-credit* type, shall also be reflected in the *Grade Card* as *PP (for Passed)* or *NP (for Not Passed)*. It may be noted that each UG student shall have to obtain the *grade PP* in each *mandatory course* to qualify for the Degree award by the University.

8.3 Grade Point Averages:

- (a) **SGPA and CGPA:** The *credit index* can be used further for calculating the Semester Grade Point Average (*SGPA*) and the Cumulative Grade Point Average (*CGPA*), both being important academic performance indices of the student. While *SGPA* is equal to the *credit index* for a semester divided by the total number of *credits* registered by the student in that semester, *CGPA* gives the sum total of *credit indices* of all the previous semesters divided by the total number of *credits* registered in all these semesters. Both the equations together facilitate the declaration of academic performance of a student, at the end of a semester and at the end of successive semesters respectively. Thus,

$$SGPA = \frac{\sum[\text{Course Credits} \times \text{Grade Points}] \text{ for all the Courses in that Semester}}{\sum[\text{Course Credits}] \text{ for all the Courses in that Semester}}$$

$$CGPA = \frac{\sum[\text{Course Credits} \times \text{Grade Points}] \text{ for all Courses excluding those with F and transitional grades until that Semester}}{\sum[\text{Course Credits}] \text{ for all Courses excluding those with F gradees until that semester}}$$

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(b) **Illustrative Example:** An illustrative example given in Table 13 indicates the use of the two equations in calculating *SGPA* and *CGPA*. Both of them shall be normally calculated up to the second decimal position, so that the *CGPA*, in particular, can be made use of in rank ordering the students' performance in a class at an Autonomous College. If two students get the same *CGPA*, the tie may be resolved by considering the number of times a student has obtained higher *SGPA*. But, if it is not resolved even at this stage, the number of times a student has obtained higher grades like S, A, B, maybe taken into account in rank ordering of the students in the class.

Table 13: SGPA/CGPA Calculations: An Illustrative Example						
Semester (Odd:I,Even:II)	Course No.	Credits	Grade	Grade Points	Credit Points	SGPA, CGPA
I	XX101	5:0:0	B	8	40	<i>SGPA</i> = 117/20 = 5.85
I	XX102	3:2:0	W	-	--	
I	XX103	3:0:0	A	9	27	
I	XX104	0:1:1	F	0	00	
I	XX105	4:1:0	D	6	30	
I	XX106	5:0:0	E	4	20	
Total		20 (18*)	Total		117	
II	XX107	3:1:1	C	7	35	<i>SGPA</i> = 157/25 = 6.28
II	XX108	4:0:0	B	8	32	
II	XX109	3:0:0	D	6	18	
II	XX110	4:1:0	E	4	20	
II	XX111	2:1:1	A	9	36	<i>CGPA</i> = 274/41 = 6.68
II	XX112	2:0:0	F	0	00	
II	XX113	0:2:0	B	8	16	
Total		25 (23*)	Total		157	
Supplementary	XX102	3:2:0	D	6	30	<i>SGPA</i> = 56/9 = 6.22
Supplementary	XX104	0:1:1	C	7	14	
Supplementary	XX112	2:0:0	D	6	12	<i>CGPA</i> = 330/50 = 6.60
Total		9	Total		56	
*Total No. of credits excluding those with 'F' and 'W' grades particularly important to keep track of the number of credits earned by a student up to any semester.						

(c) **Vertical Progression:** It shall also be necessary to lay down uniform minimum standards for *CGPA* together with the minimum number of *credits* to be earned in an academic year for the *vertical progression* of students at all Autonomous Colleges under the University. This shall be used to facilitate the mobility of students from one College to another and also to avoid any confusion among the students. The prescribed standards for *vertical progression* shall be as follows:

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1. The range of minimum and the maximum credits to be earned in an academic year (inclusive of supplementary semester, if any):
 - (i) First year: ≥ 28 to ≤ 40 credits
 - (ii) Second year and third year: ≥ 32 to ≤ 56 credits
2. Minimum standard for CGPA = 5.0 (At the end of each academic year).
3. Further, at the end of each academic year (inclusive of supplementary semester), the number of heads with “F” of all the previous semesters shall not exceed four.

And, failure to secure a minimum CGPA = 5.0 at the end of any semester for the first time, shall attract a warning before approval of the student to continue in the following semester and such a student shall be placed on *probation*.

Note: From II year onwards, the number of maximum credits that a student can register in a semester shall be 28. In any case, the number of credits shall not be less than 16 after dropping/ withdrawal of a course/(s) in that semester.

(d) Award of Class: Sometimes, it is necessary to provide equivalence of these averages, viz., *SGPA* and *CGPA* with the percentages and/or *Class* awarded as in the conventional system of declaring the results of University examinations. This shall be done by Autonomous Colleges under the University only at one stage by prescribing certain specific thresholds in these averages for *First Class with Distinction*, *First Class* and *Second Class*, at the time of Degree Award. This provision given in Table 14 follows the approach of the Council for this purpose as reproduced from the AICTE Approval Process Handbook:

Table 14: Percentage Equivalence of Grade Points (For a 10 – Point Scale)	
Grade Point	Percentage of Marks/Class
5.75	50
6.25	55
6.75	60
7.25	65
7.75	70
8.25	75

Note: (1) The following Formula for Conversion of CGPA to percentage of marks to be used only after a student has successfully completed the programme:

$$\text{Percentage of Marks} = (\text{CGPA} - 0.75) \times 10$$

(2) *Class designation:*

- $\geq 70\%$ (*First Class with Distinction*),
- $\geq 60\%$ and $< 70\%$ (*First Class*),
- $< 60\%$ (*Second Class*).

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9. Other Academic Matters:

9.1 Choice Based Credit System:

- (a) It is necessary to implement a *Choice Based Credit System* for academic programmes at all the Autonomous Colleges under the University. This will be of considerable benefit to the students for customizing their programmes of direct interest to them, developing their individual capabilities and talents and preparing them for exciting careers ahead in the 21st century.
- (b) This makes it necessary for the Autonomous Colleges to provide for:
 - (i) Easy access to the Schemes of Instruction, Syllabi, *Credit Structure* of programmes and the Courses being conducted by all students (either in print or in electronic form) so as to assist them in course work planning.
 - (ii) Institutionalizing the conduct of course work by adopting a centralized time table for all the programmes at a College, with a view to assist the students in customizing their programmes and also optimizing the use of physical facilities.
 - (iii) Establishing a dynamic *Faculty Advisory System* at each College with 5-10 students assigned to an Advisor, for guiding them in planning/implementing their course work in a flexible and effective manner and also monitoring them.

9.2 Time Schedules:

- (a) **Academic Schedules:** It is necessary to specify various time schedules in the Academic Calendar of each Autonomous College to assist the students and also the faculty. These include, dates assigned for registration of courses, dropping of courses and withdrawal from courses. This enables the students to be well prepared, minimize their chances of failure in CIE and/or SEE and take full advantage of the flexibility provided by the *credit system*. Here again, uniformity across the University shall be followed by the Autonomous Colleges in the interest of the students.
- (b) **Registration of Courses:** Each student of an Autonomous College shall have to register for coursework at the beginning of a semester. The permissible Course load to be either *average number of credits* in the 1st Semester of a programme or to be within the limits of *minimum and maximum credits* prescribed in each later Semester. A period of 2-3 days to be specifically assigned for this event in the Academic Calendar for the students to seek faculty advice, discuss with the course instructors and complete the formalities.
- (c) **Dropping of Courses:** A specific time period shall be fixed at each Autonomous College, e.g., in the middle of a semester for this purpose to be based on the review to be conducted of students' performance in CIE by the Faculty Advisors concerned. The review to mainly assist the students having poor performance to be facilitated to *drop* the identified

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course(s) (up to the *minimum credits* specified for the semester) without being mentioned in the *Grade Card*. Such Courses to be re-registered by these students and taken up for study at a later semester in the programme.

- (d) **Withdrawal from Courses:** A specific time period shall be identified at each Autonomous College towards the end of a semester to help review the students' performance in CIE by the Faculty Advisors, followed by the students having poor performance to *withdraw* from identified course(s) (up to the *minimum credits* specified for the semester) with mention in the *Grade Card* (Grade 'W'). Such Courses to be re-registered by these students and taken up for study at a later semester in the programme.

9.3 Temporary Withdrawal:

A student shall be permitted to withdraw temporarily from an Autonomous College under the University on grounds like, prolonged illness, grave calamity in the family or any other serious happening. The withdrawal shall be for periods which are integral multiples of a semester, provided that:

- (i) The student applies to the College within at least 6 weeks of the commencement of the semester or from the date he/she last attended the classes, whichever is later, stating fully the reasons for such a withdrawal, together with supporting documents and endorsement of his/her parents / guardians.
 - (ii) The College is satisfied of the genuineness of the case and that, even by taking into account the expected period of withdrawal, the student has the possibility to complete the prescribed programme requirements within the time limits specified by the University.
 - (iii) The student does not have any dues or demands at the College/ University including tuition and other fees as well as library material.
- (a) A student availing of temporary withdrawal from an Autonomous College under the above provision shall be required to pay such fees and/or charges as may be fixed by the College until such time as his/her name appears on the Students' Roll List. However, it may be noted that the fees/charges once paid shall not be refunded.
- (b) Normally, a student will be entitled to avail of the temporary withdrawal facility only once during his/her studentship of the programme at the Autonomous College. However, any other concession for the student shall have to be approved by the Academic Council of the College. Hence, the students shall be advised by the Principal of the Autonomous College to use the above provision only in exceptional cases.

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9.4 Termination from the Programme:

A student shall be required to withdraw from the programme and leave the Autonomous College on the following grounds:

- (i) Failure (Getting F Grade) and not passing a Course to earn credits for the same, in spite of **five** attempts.
- (ii) Failure to secure $CGPA \geq 5.00$ on three consecutive occasions to lead the student being asked to discontinue the programme and leave the College. However,
 - *Failure to secure a $CGPA \geq 5.00$ at the end of any semester for the first time, to attract warning before approval of the student to continue in the following semester (on probation).*
 - There shall be a provision for the rejection of total performance of a semester and re-registration for the semester. This shall be done only once in the entire course of studies.
- (iii) Absence from classes for more than six weeks at a time in a semester without leave of absence being granted by the competent Authority.
- (iv) Failure to meet the standards of discipline as prescribed by the Autonomous College from time to time.

9.5 Students' Feedback:

- (a) It is necessary for Autonomous Colleges under the University to obtain feedback from students on their course work and various academic activities conducted under the *credit system*. For this purpose, suitable feedback forms shall be devised by the Colleges and the feedback obtained from the students in confidence regularly, by administering the feedback form in print or on-line in electronic form. A Report on the Feedback received and its Action Taken Report shall be uploaded on the College website regularly in a time bound manner and also be forwarded to the University.
- (b) The feedback received from the students shall be discussed at various levels of decision making at the Autonomous Colleges and the changes/ improvements, if any, suggested shall be given due consideration for implementation at the Colleges.

9.6 Recommendations for Degree Award:

- (a) Each Autonomous College shall forward its recommendations to the University in respect of students qualifying for UG/PG/ Research Degree Awards based on their success in the examinations/adjudication of theses as the case may be after receiving approval from the Authorities/ Bodies of the College concerned.
- (b) The Autonomous College shall also ensure that each such student in (a) has fulfilled all the

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requirements for the Degree Award.

- (c) Only those students recommended for the Degree Award shall be entitled to receive the relevant Provisional Certificates/Transcripts from the College at this stage.

9.7 Graduation Ceremony:

- (a) Each Autonomous College shall have its own annual *Graduation Ceremony* for the award of Degrees (Provisional Certificates) to the students completing the prescribed academic and other requirements in each case as per the lists recommended to the University, in prior consultation with the University and by following the provisions in the University Statutes.
- (b) Autonomous Colleges may institute Prizes and Awards to meritorious students, for being given away annually at the *Graduation Ceremony*. This will greatly encourage the students to strive for excellence in their academic activities.

10. Other Issues:

10.1 Quality/Standard:

- (a) The quality/standard of engineering professionals is closely linked with the level of the technical education system. As it is now recognized that these features are essential to develop the intellectual skills and knowledge of the professionals for being able to contribute to the society through productive and satisfying careers as *innovators, decision makers and/or leaders* in the global economy of the 21st century, it becomes necessary that certain improvements are introduced at different stages of their education system.
- (b) These requirements include:
- (i) Selective admission of students to a programme, so that merit and aptitude for the chosen technical branch or specialization are given due consideration.
 - (ii) Faculty recruitment and orientation, so that qualified teachers trained in good teaching methods, technical leadership and students' motivation are available.
 - (iii) Instructional/Laboratory facilities and related physical infrastructure, so that they are adequate and at the contemporary level.
 - (iv) Access to good library resources and Information and Communication Technology (ICT) facilities, to develop the student's *self-learning abilities*.
 - (v) Adequate opportunities and facilities for the development of the student's *aptitudes and attitudes* so that the professionals are conscious of social/other responsibilities.

10.2 Suggested Improvements:

- (a) These requirements make it necessary for the Autonomous Colleges to introduce improvements in their operations, like:
- (i) Teaching-learning process on modern lines, to provide *Add-On Courses* for *audit/credit* in a number of peripheral areas useful for students' self-development.

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- (ii) Facilitating the use of MOOCs (Massive Open Online Courses) in the coursework up to a level prescribed by the Council with a view to enable the students to acquire state-of-the-art Science and Technology knowledge.
- (iii) Life-long learning opportunities for faculty, students and alumni, to facilitate their dynamic interaction with the society, industries and the world of work.
- (iv) Regular updating of the physical infrastructure, laboratories and other academic facilities to be at the contemporary level.
- (v) Generous use of ICT and other modern technologies in everyday activities.

10.3 Accreditation/Ranking:

- (a) Each Autonomous College shall get all its eligible UG/PG programmes periodically assessed and accredited by NBA or any other accrediting Body acceptable to the University and ensure that all of them have a high rating as specified by the Commission in its Regulations for Autonomous Colleges (February 2018)/as amended from time to time. Besides, each Autonomous College shall ensure that the accreditation ratings are in the validity period.
- (b) Each Autonomous College shall also endeavour to get its performance ranked annually under National Institutional Ranking Framework (NIRF) or any other institutional ranking Body acceptable to the University and take necessary steps to be among the top Colleges nationally.

11. Annual Returns:

Each Autonomous College under the University shall be required to submit (within four weeks of completing an academic year) an *Annual Return* to the University in the prescribed proforma annexed herewith, providing information on the observance of the above **Guidelines** during the previous academic year. The University may issue its *observations and directions* periodically to each Autonomous College based on the data/information provided in its Annual Return and the Autonomous College shall comply with these requirements.

12. Interpretation:

Any question as to the interpretation of these **Guidelines** shall be decided by the University, whose decision shall be final and binding on the Autonomous Colleges in the matter. The University shall also have the power to issue clarifications to remove any doubt, difficulty or anomaly, which may arise in regard to the implementation of these **Guidelines**.

