

SRI VENKATESWARA UNIVERSITY
COLLEGE OF ENGINEERING
TIRUPATI – 517 502
(Autonomous Institute)

M.Tech Degree Programme (CBCS) Regulations-2016
(With effect from the batch admitted in academic year 2016-17)

CHOICE-BASED CREDIT SYSTEM

1. Preamble:

M.Tech Degree Programme is of two academic years with each academic year being divided into two consecutive (one odd + one even) semesters.

Choice-Based Credit System (CBCS) is a flexible system of learning and provides choice for students to select from the prescribed elective courses. A course defines learning objectives and learning outcomes and comprises of lectures/tutorials/laboratory work/field work/project work/viva/seminars/ assignments/ presentations/ self-study etc. or a combination of some of these.

Under the CBCS, the requirement for awarding a degree is prescribed in terms of number of credits to be completed by the students.

The CBCS permits students to:

- i. choose electives from a wide range of elective courses offered by the Departments of the Institute.
- ii. undergo additional courses of interest
- iii. adopt an inter-disciplinary approach in learning
- iv. make the best use of expertise of the available faculty

2. Minimum Qualification:

Minimum qualification for seeking admission into a specialization of M.Tech Degree Programme is B.Tech Degree, with at least 50% marks in aggregate, awarded by Sri Venkateswara University (SVU) in appropriate Branch of Engineering or any other Degree recognized by SVU as equivalent thereto including AMIE, AMIICHE and AMIETE.

3. Specializations of Study:

The specializations of study in M.Tech Degree Programme are:

1. Department of Chemical Engineering :
 - a. Chemical Engineering
2. Department of Civil Engineering
 - a. Environmental Engineering

- b. Geotechnical Engineering
- c. Hydraulics and Water Resources Engineering
- d. Structural Engineering
- 3. Department of Electrical and Electronics Engineering:
 - a. Power Systems
- 4. Department of Electronics and Communication Engineering:
 - a. Communication Systems
 - b. Signal Processing
- 5. Department of Mechanical Engineering :
 - a. Industrial Engineering
 - b. Production Engineering
- 6. Department of Computer Science and Engineering:
 - a. Computer Science and Engineering

4. **Programme Duration:**

4.1 Minimum duration of the full-time M.Tech Programme is two consecutive academic years i.e. four semesters and maximum period is four academic years.

4.2 **Semester:**

Each semester shall consist of 18 weeks with a typical academic work of 30 hours/week equivalent to 90 instructional days. However, instructional days may be reduced to 72, when necessary, with increased instructional hours per course per week. Minimum instructional days for each semester shall be 90 including the sessional test days.

4.3 A candidate admitted as a full-time student and completed the course work and obtained a job may be permitted to pursue thesis work on part-time basis with due approval from the Principal. The duration of thesis work under part-time mode shall be four semesters.

5. **Credit Definition:**

Credit defines the quantum of contents/syllabus prescribed for a course and determines the number of instruction hours per week. The norms for assigning credits to a course for a duration of one semester shall be as follows:

- i One credit for every one hour of lecture per week
- ii One credit for every two hours of practical work/tutorial/seminar per week
- iii Two credits for comprehensive viva-voce
- iv. 24 credits for Dissertation work

6. **Classification of Courses:** The courses of each specialization of study are classified into Core Courses and Elective Courses and Audit courses. It is mandatory for a student to complete successfully all the Core and Elective courses pertaining to his/her of specialization of study.

6.1 **Core Courses:**

These are the courses which are to be compulsorily studied by a student to complete the requirement of a programme in a said discipline of study.

6.2 Elective Courses: Elective course is a course which is supportive to the specialization of study. It shall

- ✓ Provide an expanded scope
- ✓ Enable exposure to some other specialization/domain
- ✓ Nurture student's proficiency/skill.

An elective may be Specialization Elective, Cross-Specialization Elective or Open Elective. Specialization Elective courses are the elective courses pertaining to that particular specialization of study. Cross-Specialization Electives are the Core or Elective courses of other specializations of the same Department. Open Electives are courses offered by other Departments under open electives. Further, a student may choose a maximum of one open elective not exceeding four credits in the second semester.

6.3 Audit Courses:

Courses outside the prescribed range of Credits for students interested to supplement their knowledge/skills. Optional for students to appear/pass in Continuous Internal Evaluation (CIE) in the Semester and Semester End Examination (SEE) and/or seek their inclusion in the Grade cards or Transcripts issued (but, not for earning Credits). A student shall audit any course from any specialization of study with the permission of the concerned teacher. However, such credits will not be considered for including in the mandatory credits specified in clause 7.3.

6.4 MOOCS and e-Learning:

Specialization centric elective course through MOOCS (Massive Open Online Course) platform. Students of I and/or II semesters can register for the course offered by authorized Institutions/Agencies through online with the approval of the Head of the Department concerned. The certificate issued by the Institutions/Agencies after successful completion of the course will be considered for the award of the Grade to that course.

Further, 30-40% of the syllabus of any one course in I and II semesters may be taught through e-Learning.

7 Course Registration:

Every student has to register for the set of Courses offered by the Department in that Semester including those of Open Elective course of the other Departments and MOOCS with the total number of their Credits being limited by considering the permissible weekly contact hours (typically: 30/Week). Audit courses are over and above these courses/credits.

8 Credits Required for Award of Degree:

A student shall become eligible for the award of M.Tech degree, if he/she earns a minimum of 80

credits by passing all the core and electives along with practicals, seminars, comprehensive viva-voce and dissertation prescribed for the programme.

- 8.1 It is mandatory for a student to complete successfully all the core courses pertaining to his/her specialization of study.
- 8.2 A student may choose Specialization Electives from the list of elective courses offered from his/her specialization of study. Further, a student may select Cross-Specialization Electives from a list of Core or Elective courses from other specializations of the Department. Elective courses offered by the other Departments may be selected as Open Electives.
- 8.3 A student may audit a course of his/her interest with the permission of the teacher concerned. However, such credits are not considered as part of the mandatory credits specified in clause 8.

9. Scheme of Instruction :

The Board of Studies (BoS) of each specialization shall formulate the scheme of instruction and detailed syllabi. For every course learning objectives and learning outcomes should be defined. While formulating the scheme of instruction, the BoS shall facilitate to offer the minimum number of credits for the entire Programme. The syllabi of theory courses shall be organized into five units of equal weight.

10. Course Numbering Scheme:

Each course is denoted by an alphanumeric code of seven characters width as detailed below:

First two	Alphabetic characters	Department	MA: Mathematics PY: Physics CY: Chemistry CO: Commerce EO: Economics CH : Chemical Engineering CE: Civil Engineering EE: Electrical and Electronics Engineering EC : Electronics and Communication Engineering ME : Mechanical Engineering CS : Computer Science and Engineering
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Next two	Alphabetic characters	Specialization	CH : Chemical Engineering EE : Environmental Engineering GT: Geotechnical Engineering HW: Hydraulics and Water Resources Engineering SE: Structural Engineering PS: Power Systems CS: Communication Systems SP: Signal Processing IC: Instrumentation and Control Systems IE: Industrial Engineering PE: Production Engineering CO : Computer Science and Engineering
Next one	Alphabetic characters	Course Type	T: Theory P: Practical D : Design and Drawing S :Seminar V : Comprehensive Viva-Voce J : Project Work
Next two	Numerals	Serial Number	01, 02, ...

11 Attendance Requirements:

- 11.1 A student is required to complete the Programme of Study satisfying the attendance requirements in all the semesters within twice the prescribed period of study in clause 4 from the year of admission failing which he/she forfeits his/her seat.
- 11.2 A student will be detained in a semester if he/she fails to satisfy the attendance requirements given below:
- i. A student shall attend at least 60 percent of the maximum hours of instruction taken by the teacher for each course.
 - ii. A student shall attend at least 75 percent of the maximum hours of instruction taken for all the courses put together in that semester.
- 11.3 A student who fails to satisfy the attendance requirements specified in clause 11.2 shall repeat that semester in the subsequent academic years with the written

permission of the Principal.

- 11.4 A student shall not be permitted to study any semester more than two times during the Programme of his/her study.
- 11.5 A student who satisfies the attendance requirements specified in clause 11.2 in any semester may be permitted to repeat that semester canceling the previous attendance and sessional marks of that semester with the written permission of the Principal. However, this facility shall be extended to any student not exceeding twice during the entire Programme of study provided the stipulation in clause 11.1 is satisfied.

12. **Evaluation :**

- 12.1 Evaluation shall be done on a continuous basis i.e. through Continuous Internal Evaluation (CIE) in the Semester and Semester End Examination (SEE). For each theory course, there shall be two sessional tests of two hours duration carrying 40 marks each and one End-Semester Examination of 3 hours duration carrying 60 marks. Sessional marks for a maximum of 40 shall be awarded based on the performance of the two sessional tests.
- 12.2 First Sessional Test shall be conducted in the middle of the semester i.e. after the completion of 50 % of instruction days covering 50% of the syllabus. Second Sessional Test shall be conducted immediately after the completion of instruction days covering rest of the syllabus.
- 12.3 It is mandatory for a student to attend both the sessional tests in each theory course. The weighted average of the marks secured in two tests is awarded as sessional marks. However, 0.8 shall be assigned as weight for the best performance of the two tests whereas for the other test it shall be 0.2. If a student is absent for any of the internal test for whatsoever reason, the marks for that test shall be zero.
- 12.4 The students shall be permitted to verify the valuation of answer scripts of sessional tests.
- 12.5 The valuation and verification of answer scripts of Sessional Tests shall be completed within 15 days after the conduct of the Sessional Tests.
- 12.6 The valuation of End-Semester Examination answer scripts shall be arranged by the Controller of Examinations as per the University procedures in vogue.
- 12.7 Evaluation of Practicals:

For each practical course, the sessional marks for a maximum of 40 shall be awarded by the teacher based on continuous assessment of practical work. The End-Semester University Examination carrying 60 marks shall be conducted by two examiners: i) concerned teacher and ii) teacher nominated by the HoD.

12.8 Evaluation of Seminars:

For each seminar course, the sessional marks for a maximum of 100 shall be awarded based on the quality, depth and organization of contents, documentation, presentation and answering capability of questions from the participants of the seminar.

12.9 Evaluation of Comprehensive Viva-voce examination:

The comprehensive viva shall be conducted by a committee consisting of one external examiner and two internal examiners. The external examiner shall be appointed by the Principal from among panel of examiners recommended by the Chairman, BoS (PG) concerned whereas, the internal examiners shall be nominated by the HOD concerned.

13. **Evaluation of Dissertation Work :**

Normally, the thesis work should be carried out Sri Venkateswara University College of Engineering (SVUCE). However, it can also be carried out in any of the recognized Educational Institutions, National Laboratories, Research Institutions, Industrial Organizations, Service Organizations or Government Organizations with the prior permission from the guide and Head of the Department (HoD) concerned.

13.1 The dissertation work shall be evaluated for a total of 24 credits as indicated in the Table below.

13.2 A open pre-submission seminar shall be given by the student at least four weeks ahead of the completion of the programme and submit the dissertation work. Head of the Department shall constitute a committee comprising of the Chairman, BoS (PG), HoD and Guide and convenes its meeting to evaluate the open pre-submission seminar. If the open pre-submission seminar delivered by a student is not satisfactory, another seminar shall be scheduled within two weeks.

13.3 A student can submit his dissertation work duly certified by the guide and HoD, after successfully completing all the requisite credits pertaining to theory, practical, seminar and comprehensive viva. As soon as a student submits his/her dissertation, Principal shall appoint the External Examiner from among the panel of examiners recommended by the Chairman, BoS (PG).

13.4 Head of the Department in consultation with the Guide and External Examiner shall schedule the viva-voce Examination of dissertation work and send the evaluation report to the Controller of Examinations.

The evaluation of the thesis work and the marks allotted are as under:

S No.	Mode	Evaluation Committee	Marks
1	Evaluation at the end of III Semester	Committee comprising of Senior faculty of the specialization, Guide and HoD	20
2	Continuous evaluation	Guide	30

2	An open pre-submission seminar	The committee with Head of the Department as Chairman, Chairman BoS (PG) and Guide as members.	20
3.	End-semester University Examination (An open seminar followed by a Viva-voce)	The committee comprising of External Examiner, HoD and guide wherein the HOD shall be the chairman of the committee.	30
Total			100

14. **Question Paper Setting:**

14.1 Model Question Paper for each theory course shall be prepared by the teacher within 30 days from the commencement of the Semester and the same shall be forwarded to the Controller of Examinations through the Chairman, BOS concerned. A total of eight questions for a maximum of 10 marks each shall be set. A student has to answer Question Number one which is compulsory and any five questions from the remaining seven questions i.e. a total of six questions. Question Number one is a compulsory question and comprises of sub-questions covering all the Units, i.e. whole of the syllabus. Remaining seven questions should be set covering all the units of the syllabus with at least one question from each unit. Further, a question may comprise sub-questions specifying the distribution of marks among them. However, the Chairman, BOS shall accord exception in question paper format, if necessary.

14.2 For each theory course, the question paper shall be set by an external paper setter. The Chairman, BOS shall recommend a panel comprising at least six external paper setters for each theory course to the University. The University shall arrange for setting the question paper by appointing one external paper setter from that panel.

15. **Grading and Grade Points:**

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale

Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

Semester Grade Point Average (SGPA): It is a measure of performance in a semester.

Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all semesters.

Letter Grades and Grade Points:

A 10-point grading system with the following letter grades are to be followed.

Table 1: Grades and Grade Points for courses

Letter Grade	Grade Point
O (Outstanding)	10
A+(Excellent)	9
A(Very Good)	8
B+(Good)	7
B(Above Average)	6
C(Average)	5
P (Pass)	4
F(Fail)	0
Ab (Absent)	0

A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

For non-credit courses ‘Satisfactory’ or ‘Unsatisfactory’ shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

Computation of SGPA and CGPA

SGPA is the ratio of sum of the product of the number of credits and the grade points scored by a student in the courses taken by a student and the sum of the number of credits of the taken by a student in the semester.

$$\text{SGPA } (S_i) = \frac{\sum_{i=1}^N (C_i \times G_i)}{\sum_{i=1}^N C_i}$$

where C_i is the number of credits of the i th course

G_i is the grade point scored by the student in the i th course and

N is the number of courses taken by the student in the semester.

The CGPA is also calculated in the same manner taking into account all the courses taken by a student over all the semesters of the programme, i.e.

$$\text{CGPA} = \frac{\sum_{i=1}^M (C_i \times S_i)}{\sum_{i=1}^M C_i}$$

where S_i is the SGPA of the i th semester

C_i is the total number of credits in that semester and

M is the number of semesters.

The SGPA and CGPA shall be rounded off to two decimal points and reported in the transcripts.

- 15.1 To pass a course, a student has to secure a minimum Grade of P in End-Semester Examination. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination. A student cannot reappear for the End-Semester Examination in a course in which he/she has passed to improve the score. A student may be allowed to improve the Grade in a course(s) if his/her CGPA is less than 5.0.
- 15.2 A student who has failed in a course can reappear for the End-Semester Examination as and when it is conducted in the normal course. The Sessional Marks obtained by the student will be carried over for declaring the results.
- 15.3 Whenever the syllabus is revised for a course, the End-semester Examination shall be conducted in old syllabus three times. Thereafter, the students who failed in that course shall take the End-semester Examination in the revised syllabus.

16. Award of Degree :

A student who has earned a minimum of 80 credits and with a minimum CGPA of 5.0 by passing in all the core courses and the minimum number of electives prescribed shall be declared to have passed the course work.

A student who has also passed successfully the Viva-voce Examination of dissertation work shall become eligible for the award of degree.

17. Ranking and Award of Prizes / Medals :

- 17.1 Ranks shall be awarded in each branch of study on the basis of Cumulative Grade Point Average (CGPA) for top ten percent of the students or top three students whichever is higher.
- 17.2 The students who have become eligible for the award of M.Tech degree by passing regularly all the courses in two Semesters shall only be considered for the award of ranks.
- 17.3 Award of prizes, scholarships and other honours shall be according to the rank secured by the student as said above and in conformity with the desire of the Donor.

18. Conditions of Promotion:

A student shall be eligible for promotion to the next semester if he/she satisfies the attendance requirements in the immediately preceding semester as specified in clause 11.

19. Transitory Regulations:

19.1 A student who has been detained in the previous regulations for not satisfying the attendance requirements shall be permitted to join in these regulations provided the clauses 11.1 and 11.4 hold good.

19.2 End-Semester University Examinations under the regulations that precede immediately these regulations shall be conducted two times after the conduct of last regular examination under those regulations.

19.3 The students who satisfy the attendance requirements under the regulations that precede immediately these regulations, but do not pass the courses shall appear for the End-Semester University Examinations in equivalent courses under these regulations as specified by the BoS concerned.

20. Grievance Redressal Committee

The Principal shall constitute a Grievance Redressal Committee by nominating three Professors from among the faculty of the college for a period of two years. The convener of the committee, one among the three, shall receive the complaints from the students regarding the valuation of sessional tests and place the same before the committee for its consideration. The committee shall submit its recommendations to the Principal for his consideration.

21. Amendment to Regulations:

Sri Venkateswara University reserves the right to amend these regulations at any time in future without any notice. Further, the interpretation of any of the clauses of these regulations entirely rests with the University.