

**DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY
U.P., LUCKNOW**



ORDINANCE

For

**MASTER OF TECHNOLOGY (M.TECH.)
PROGRAMMES**

**[Approved in the academic council meeting dated 23rd July 2016]
(Effective from 2016-17)**

CHOICE BASED CREDIT SYSTEM (CBCS) ORDINANCE GOVERNING THE DEGREE OF MASTER OF TECHNOLOGY (M.TECH) PROGRAMS

DEFINITIONS OF KEY WORDS:

- (i) **University:** Dr. A.P.J. Abdul Kalam Technical University, U.P., Lucknow (AKTU).
- (ii) **Academic Year:** Two consecutive (one odd followed by one even) semesters constitute one academic year.
- (iii) **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.
- (iv) **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses (*core and elective courses*).
- (v) **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or certificate is prescribed in terms of number of credits to be earned by the students.
- (vi) **Programme:** An educational programme leading to award of a Post graduate Degree.
- (vii) **Courses/Subject:** Usually referred to, as 'papers' is a component of a programme. All subjects need not carry the same weightage. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/tutorials/laboratory work/ field work/ project work/ seminars/ term papers/ assignments/ dissertation/ viva/ presentations/ self-study etc. or a combination of some of these.
- (viii) **Branch:** Specialization or discipline of M.Tech. Degree Programme, like Civil Engineering, Mechanical Engineering etc.
- (ix) **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters A, B, C, D, E and F.
- (x) **Grade Point:** It is a numerical weightage allotted to each letter grade on a 10-point scale.
- (xi) **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
- (xii) **Credit Point:** It is the product of grade point and number of credits for a course.
- (xiii) **Semester Grade Point Average (SGPA):** It is a measure of academic performance of a student in a semester. It is the ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
- (xiv) **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student of all semesters. The CGPA is the ratio of total credit points earned by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

- (xv) **First Attempt:** If a student has completed all formalities and become eligible to attend the examinations and has attended at least one subject of passing, such attempt (first sitting) shall be considered as first attempt.
- (xvi) **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade sheet/certificate shall be issued to all the registered students at the end of every academic year. The grade sheet/certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of both semesters and CGPA earned till that academic year.

ORDINANCES FOR MASTER OF TECHNOLOGY PROGRAMMES

1. SHORT TITLE AND COMMENCEMENT

- 1.1 These Ordinances shall be called the Ordinances for the Master of Technology (M.Tech) Programmes of the University.
- 1.2 These Ordinances shall come into force with effect from the Academic Council/Executive Council may decide on this behalf.

2. ELIGIBILITY FOR ADMISSIONS

- 2.1 Eligibility for admission in the M. Tech. Programme shall be the Bachelor's degree in the appropriate branch.
- 2.2 The Academic Council of the University shall have power to amend or repeal the eligibility criteria laid down at clause 2.1.

3. ADMISSION

- 3.1 University shall permit admission to M. Tech. Programmes and award M.Tech. degrees to only such courses those are duly approved by AICTE/Academic Council.
- 3.2 Admission to M.Tech. Programmes in the first year will only be made through GATE/Entrance test(s) conducted by the University followed by counseling(s).
- 3.3 Admission on migration of a candidate from any other University to the University is not permitted.
- 3.4 Reservation in admission to an M.Tech. programme shall be governed by the AICTE/State Government/ Central Government rules. Where such rules are at variance with each other, the decision of Academic Council/Executive Council shall be final.

4. DURATION OF PROGRAMME

- 4.1 Total duration of M.Tech. Programme shall be 2 years, each year comprising of two semesters. Each semester shall normally have teaching for the 90 working days or as prescribed by A.I.C.T.E. from time to time.
- 4.2 The student admitted to M.Tech. Programme shall complete the course within a period of four academic years from the date of first admission, failing which he/she has to discontinue the M.Tech. Programme.
- 4.3 A student, who has failed twice in first year due to any reason (either due to his/her non-appearance or he/she being not permitted to appear in semester examinations) shall not be allowed to continue his/her studies further.
- 4.4 The minimum credit requirement for M. Tech. degree is 72 credits. The lower and upper limit for course credits registered in a semester by a full time students are:

Lower limit - 12 Credits, Upper limit - 22 Credits

5. CURRICULUM

- 5.1 The 2 year curriculum has been divided into 4 semesters and shall include lectures, tutorials, practical, projects, and Dissertation etc. as defined in the course structure and executive instructions issued by the University from time to time.
- 5.2 The curriculum may also include such other curricular, co-curricular and extracurricular activities as may be prescribed by the University from time to time.

6. ATTENDANCE

- 6.1 Every student is required to attend all the lectures, tutorials, practicals and other prescribed curricular and co-curricular activities. The attendance can be condoned upto 25% on medical grounds or for other genuine reasons beyond the control of students.
- 6.2 A further relaxation of attendance upto 15% for a student can be given by Head of Institution/college provided that he/she has been absent with prior permission of the Head of the institution/college for the reasons acceptable to him.
- 6.3 No student will be allowed to appear in the end semester examination if he / she does not satisfy the overall average attendance requirements of clause no. 6.1 and 6.2 and such student(s) shall be treated as having failed.
- 6.4 The attendance shall be counted from the date of admission in the college or start of academic session whichever is later.

7. CHANGE OF COLLEGE

Change of college shall not be permitted.

8. CHANGE OF BRANCH

Change of branch shall not be permitted.

9. EXAMINATION

- 9.1 The performance of a student in a semester shall be evaluated through continuous class assessment and end semester examination. The continuous assessment shall be based on class tests, assignments/tutorials, quizzes/viva-voce and attendance. The marks for continuous assessment (Sessional marks) shall be awarded at the end of the semester. The end semester examination shall be comprised of written papers, practicals and viva-voce, inspection of certified course work in classes and laboratories, project work, design reports or by means of any combination of these methods.
- 9.2 The distribution of marks for sessional, end semester theory papers, practicals and other examinations, seminar and dissertation shall be as prescribed.
- 9.3 The marks obtained in a subject shall consist of marks allotted in end semester theory paper and sessional work.

10. ELIGIBILITY OF PASSING

- 10.1 A student who obtained Grades A⁺ to E shall be considered as passed. If a student secured "F" grade, he /she has to reappear for the examination. It is mandatory for a student to earn the required credits as mentioned in section 4.4.
- (a) For a pass in a Theory Subject, a student shall secure minimum of 30% of the maximum marks prescribed in the University Examination and 40% of marks in the aggregate marks in the subject including sessional marks i.e. Minimum Passing Grade is "E".
- (b) For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 50% of the maximum marks prescribed for the University Examination in the relevant Practical/Internship/Project/Viva-voce and 40% of marks in the aggregate marks in the Practical/Internship/Project/Viva-voce including sessional marks i.e. Minimum Passing Grade in a course is "E".
- (c) For a pass in Seminar, a student shall secure a minimum of 50% of the maximum marks prescribed i.e. Minimum Passing Grade is "E".

- 10.2 A student who does not satisfy the condition 10.1 or remains absent shall be deemed to have failed in that subject and may reappear in the University examination in the subsequent examination. However, the sessional marks awarded to the student/s at previous attempt in the concerned subject will be carried forward.
- 10.3 The student who passes a course of a semester as per 10.1 shall not be allowed to appear again in the examination of same subject, unless he/she opts for *abandoning of results* as per 10.4-10.8.
- 10.4 A student may, at his/her desire, opt to abandon his/her performance of a semester in following manner.
- (a) A student may opt to abandon his/her performance in University Examination of any or both semesters of the same academic year only.
 - (b) A student may opt to abandon his/her Total Performance of the Semester which includes performance in University Examination and Sessional Marks.
 - (c) A student shall be allowed to abandon the performance maximum twice during the entire programme of study.
 - (d) Performance of a semester, once abandoned, cannot be claimed again.
- 10.5 A student, who opts to abandon the performance of a semester as per clause 10.4 shall abandon performance in all the courses of that semester, irrespective of the fact whether the student has passed or failed in any subject of that semester.
- 10.6 A student, who opts to abandon the total performance of the semester including sessional marks, has to take readmission for the relevant semester. Readmission to the First semester in such case shall not be considered as fresh admission i.e., the student will continue to have the same University Roll Number, which was allotted earlier.
- 10.7 A student, who opted to abandon his/her performance only in the University examination of a semester and does not desire readmission, shall be permitted to re-appear in examinations of all the subjects of the semester in the subsequent examinations as an Ex-Student. However, the sessional marks obtained by the student in the abandoned semester shall be retained.
- 10.8 Such students who opted to abandon the performance at final semester are eligible for the award of Class and Distinction at the M. Tech. degree level, but are not eligible for the award of ranks.
- 10.9 A student shall be declared to have completed the programme of M.Tech. Degree, provided the student has undergone the stipulated course work as per the ordinances and has earned at least **72 Credits**.

11. PROMOTION AND ELIGIBILITY FOR THE EXAMINATION

11.1 There shall not be any restriction for promotion from a semester to the subsequent semester, provided the student has fulfilled the attendance requirement and fulfilled the requirement of ordinance 4.4.

11.2 For promotion from one semester to next semester the minimum credit required are 50% of the total credits of the subjects opted for the study in the semester.

12. CARRYOVER SYSTEM

All carryover examinations shall be held only with end semester examination.

RE-ADMISSION IN THE INSTITUTION/ COLLEGE

A candidate may be allowed for re-admission provided he/she satisfies one of the following conditions:

12.1 A candidate is declared fail

12.2 A candidate did not appear in a semester examination / or he/she was not granted permission to appear in the examination

12.3 A candidate has been detained by the institute and subsequently has been permitted to take re-admission.

12.4 A candidate as an ex-student passed the examination of the same semester or qualified for carryover system.

12.5 A candidate promoted with carry over subjects and he/she opted for readmission.

13. COURSES

13.1 There will be four types of courses.

- (i) **Core Courses:** This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirements of a program in a said discipline of study.
- (ii) **Elective Courses:** This is course, which can be chosen from the pool of papers. It may be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student proficiency skills.
- (iii) **Seminar:** This is a course in which the student will have to prepare a report and make a presentation on the topic decided in consultation with the faculty member(s).

- (iv) **Dissertation:** In dissertation the student will have to have work on a research topic under the guidance of supervisor(s). Write a dissertation report and make a presentation of the research work carried out through the semester(s).
- 13.2 The minimum number of students to be registered for an Elective to be offered shall be not less than 05.
- 13.3 A student shall exercise his/her option in respect of the electives and register for the same at the beginning of the concerned semester. The student may be permitted to opt for change of elective subject within 15 days from the date of commencement of the semester as per the calendar of the University.

14. COMPUTATION OF SGPA AND CGPA

- 14.1 An absolute grading system wherein the marks earned by a student in a subject shall be converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated every semester, except the first semester. The grading system is with the following letter grades and grade points scale as given below:

Level	Outstanding	Excellent	Very Good	Good	Average	Pass	Fail
Letter Grade	A ⁺	A	B	C	D	E	F
Grade Points	10	9	8	7	6	5	4
Score (Marks) Range (%)	≥ 90	<90 ≥80	<80, ≥70	<70, ≥60	<60, ≥50	<50, ≥40	<40

- 14.2 A student obtaining Grade “F” shall be considered failed and will be required to reappear in the examination. Such students after passing the failed subject in subsequent examination/s will be awarded with grade according to marks he/she scores in the subsequent examination/s. Number of attempts taken to clear a subject/s shall be shown in the transcripts.
- 14.3 The University has right to scale/moderate the theory exam/practical exam/sessional marks of any subject whenever required for converting of marks in to letter grades on the basis of the result statistics of the University as in usual practice.
- 14.4 Computation of SGPA and CGPA

The following procedure will be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- (a) The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\text{SGPA} (S_i) = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

Where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

- (b) The CGPA is also calculated in the same manner taking into account all the courses undergone by a student till the end of semester of assessment, i.e.

$$\text{CGPA} = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

- (c) The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

Illustration for Computation of SGPA and CGPA

Computation of SGPA Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	3	B ⁺	8	3x8 = 32
Course 2	3	C	6	3x6 = 18
Course 3	3	B	7	3x7 = 21
Course 4	3	A ⁺	10	3x10= 30
Course 5	3	D	4	3x4 = 12
Course 6	2	C	6	2x6 = 12
Course 7	1	A	9	1x9 = 09
Total	18			126

Thus, $\text{SGPA} = 126/18 = 7.00$

Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	3	B ⁺	8	3x8 = 24
Course 2	3	C	6	3x6 = 18
Course 3	3	B	7	3x7 = 21
Course 4	3	A ⁺	10	3x10= 30
Course 5	3	F	0	3x0= 00
Course 6	2	C	6	2x6 = 12
Course 7	1	A	9	1x9 = 09
Total	18			114

Thus, $\text{SGPA} = 114/18 = 6.33$

Illustration No.2 (a)

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 5	3	E	4	3x4 = 12

$$Ci \text{ (First Attempt)} - 114 + Ci \text{ (subsequent attempt)} - 12 = 126$$

$$\text{Thus, SGPA} = 126/18 = 7.00$$

$$\text{Thus, CGPA} = (7.0 \times 18 + 7.0 \times 18) / 36 = 7.00$$

Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	3	B ⁺	8	3x8 = 24
Course 2	15	A	9	15x9 = 135
Total	18			159

$$\text{Thus, SGPA} = 159/18 = 8.83$$

$$\text{CGPA} = (7.0 \times 18 + 7.0 \times 18 + 8.83 \times 18) / 54 = 7.61$$

Illustration No.4

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	18	B ⁺	8	18x8 = 144
Total	18			144

$$\text{Thus, SGPA} = 18 \times 8 / 18 = 8.00$$

CGPA after Final Semester

Sem.- 1	Sem. - 2	Sem. - 3	Sem. - 4
Credit: 18	Credit : 18	Credit : 18	Credit : 18
SGPA:7.0	SGPA:7.0	SGPA:7.61	SGPA:8.0

$$\text{Thus, CGPA} = (7.0 \times 18 + 7.0 \times 18 + 8.83 \times 18 + 18 \times 8) / 72 = 7.71$$

- 14.5 **Transcript (Format):** Based on the above recommendations on Letter grades, grade points, SGPA and CCPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters may be issued.

15. CONVERSION OF GRADES INTO PERCENTAGE

Conversion formula for the conversion of CGPA into Percentage is [CGPA Earned] x 10 = Percentage of marks scored.

Illustration: [CGPA Earned 8.2] x 10 = 82.0%

16. AWARD OF DIVISION, RANK AND MEDALS

- 16.1 Division shall be awarded only after the Fourth and final semester examination based on integrated performance of the candidate for all the four semesters as per following details.
- (a) A candidate who qualifies for the award of the degree securing E or above grades in all subjects pertaining to all semesters in his/her first attempt within four consecutive semesters (two academic years) and in addition secures a CGPA of 7.5 and above shall be declared to have passed the examination in FIRST DIVISION WITH HONOURS.
 - (b) A candidate who qualifies for the award of the degree by securing E or above grades in all subjects of all the semesters within a maximum period of four semesters, after his/her commencement of study in the 1st semester and secures CGPA not less than 6.0 shall be declared to have passed the examination in FIRST DIVISION.
 - (c) All other candidates who qualify for the award of degree by securing E or above grades in all subjects of all semesters within a maximum period of four semesters as applicable, after his/her commencement of study in the 1st semester shall be declared to have passed the examination in SECOND DIVISION.
- 16.2 For award of ranks in a branch, a minimum of 10 students should have appeared in the final semester dissertation examination. The total number of ranks awarded shall be 10% of total number of students appeared in final semester dissertation examination or 10 students, whichever is less in that branch.

17. SCRUTINY AND REVALUATION

- 17.1 Scrutiny shall be allowed in only theory papers.
- 17.2 Revaluation of theory/practical papers is permitted only with certain conditions as laid down by university.

18. UNFAIR MEANS

Cases of unfair means shall be dealt as per the rules of the University.

19. AWARD OF SESSIONAL MARKS

Sessional marks for theory subjects, practical and seminar shall be awarded in the following manner:

- (a) Theory Subjects:
 - (i) Class test will comprise two third weightage with two mid-term tests of equal weightage
 - (ii) Teacher Assessment Tutorial/Assignment/ Quizzes/ Attendance comprises one third weightage.

- (b) Practical,
 - (i) Two mid-term viva-voce/tests of equal weightage 50%
 - (ii) Teacher Assessment: Lab, Record 25%, Attendance 25%

- (c) Make-up test may be held only for those students who could not appear in any one of mid-term class tests due to genuine reasons for which the prior permission from the Head of Institution/College was taken. Make up test shall ordinarily be held about two weeks before the semester examination. The syllabus for the make-up test shall be the whole syllabus covered by the subject teacher upto that time.

- (d) The marks of Seminar shall be awarded on the following basis:
 - (i) Write-up / Report 50%
 - (ii) Presentation 50%

20. DISSERTATION SUBMISSION

- 20.1 The medium of expression for the dissertation shall be English language.

- 20.2 The dissertation shall satisfy the following conditions:
 - (i) It should be satisfactory as far as its scientific/technical/literary presentation is concerned.

 - (ii) The dissertation should be submitted along with the 'Originality Report' using an anti plagiarism software e.g. Turnitin or similar software. The student shall also provide a certificate of non-plagiarism duly countersigned by the dissertation supervisor/ guide.

 - (iii) It is presumed that a candidate would endeavor to present quality work in the dissertation leading to get the results published in one International Journal (SCI/SCOPUS indexed) or two International conference papers (e.g. IEEE reviewed conference or equivalent). The thesis evaluation panel will give due consideration on this point while awarding marks for dissertation.

 - (iv) If the conditions stated at 21 (iii) is not met then the dissertation will get reviewed by one expert from IITs/NITs or equivalent Institutes of National importance before viva voce.

- (v) The dissertation shall be typed as per the prescribed format and specifications given in the Ph.D. Ordinance of the University.

21. AWARD OF DISSERTATION MARKS

- 21.1 Session marks for the dissertation shall be awarded jointly by the supervisor(s)/guide, Head of the Department and a senior faculty member of the department.
- 21.2 Final dissertation evaluation will be carried out by an external examiner. The viva voce will be held at examination center(s) decided by the University. The marks shall be awarded by the external examiner(s) appointed by the University. The supervisor(s)/guide may join the viva voce if he/she desires so.

22. CANCELLATION OF ADMISSION

The admission of a student at any stage of study shall be cancelled if:

- (i) He / She is not found qualified as per AICTE / State Government norms and guidelines or the eligibility criteria prescribed by the University. or
- (ii) He / She is found unable to complete the course within the stipulated time as prescribed in clause 4.2 or
- (iii) He / She is found involved in creating indiscipline in the Institution / College or in the University

23. SCHOLARSHIPS, PRIZES AND CERTIFICATES

- 23.1 The University shall award the Merit-Cum-Means (MCM) scholarships, fee waivers and such other scholarships, award and prizes as approved by the Academic Council/ Executive Council. Announcements of these scholarships/ assistantships stating eligibility and the number and value of scholarships/ assistantships etc shall be made while inviting applications from time to time from the students of the constituent/affiliated Colleges/ Institutes.
- 23.2 A student may draw scholarships or stipends from outside sources with the necessary permission from the Principal/ Director of the constituent/affiliated Colleges/ Institutes.

24. INTERPRETATION OF ORDINANCES

Notwithstanding anything contained in the Ordinances, the Vice-Chancellor may, on behalf of the Academic Council/ Executive Council approve the amendment, modification of the Ordinance (s), which in his/her opinion is necessary or expedient for smooth running of a programme and reports it to the next meeting of the Academic Council/Executive Council. In case of any dispute, difference of opinion in interpretation of these Ordinances or any other matter not covered in these Ordinances, the decision of the Vice-Chancellor/ Academic Council/Executive Council shall be final and binding.