# VEER MADHO SINGH BHANDARI UTTARAKHAND TECHNICAL UNIVERSITY

*(Formerly Uttarakhand Technical University, Dehradun Established by Uttarakhand State Govt. wide Act no. 415 of 2005)*

*Suddhowala, PO-Chandanwadi, Premnagar, Dehradun, Uttarakhand (Website- www.uktech.ac.in)*

# ORDINANCES

**For**

## Master of Technology Programmes

## (M.Tech.)

**(For admission in 2022-23 and onwards)**

**VEER MADHO SINGH BHANDARI**

# UTTARAKHANDTECHNICALUNIVERSITY

## Dehradun, Uttarakhand -248007, INDIA

## *Ordinances*

## *for*

## *Master of Technology Programmes*

**(w.e.f. 2022-23 and onwards)**

**1. Admission:**

1.1 Admission to first year of M.Tech two years programme will be made as per the rules prescribed by Academic Council of VMSB Uttarakhand Technical University, Dehradun in consonance with M.Tech guide lines of AICTE.

1.2 B.Tech. students of VMSB Uttarakhand Technical University who complete minimum 191 credits (including minor) in B.Tech. may get admission in one year M.Tech i.e. under B.Tech.-M.Tech. dual degree programme as per the rules prescribed by Academic Council of VMSB Uttarakhand Technical University, Dehradun subject to availability of seats andfulfilment of laid down criteria. Such students who complete minimum 191 credits in B.Tech. and opt for B.Tech.-M.Tech. dual degree programme will not be eligible to get certificate of having completed Minor as the same credits will be considered for completing the minimum credit requirements of M.Tech. in one year duration.

**2. Eligibility:**

2.1. Admission to M.Tech. first year through GATE/University PG entrance examination will be made.

2.2. Candidate who has passed B.Tech or equivalent from any University recognized by UGC under 2(f) for awarding B.Tech degree in India and foreign University recognized equivalent by notified authority of Indian Government for the purpose with at least 55% marks obtained in B.Tech degree.

2.3. Direct admission on vacant seats at institution/college level.

The eligibility criteria for direct admission/sponsored admission on seats remaining vacant after counselling may be filled as notified from time to time by University.

2.4 As per the mandate of national education policy 2020, student who has passed his/her B.Tech. course with a minimum CGPA 8.0 (without any carryover / back paper throughout the B.Tech. course) may be offered admission in one year M.Tech. program as per rules prescribed by University.

2.5. Academic Council shall have power to amend or repeal eligibility criteria laid down on adopting new guidelines of AICTE/UGC.

2.6 Admission to one year M. Tech. under B.Tech.-M.Tech. dual degree programme for B.Tech. students of VMSB Uttarakhand Technical University shall be made only by the university on available seats.

## 3. Duration of Course:

3.1. The total duration of M.Tech shall be 24 months (2years) / 12 months (1 year for candidates admitted in one year M.Tech programme) in which each year will be comprising two semesters of 90 working days normally or as prescribed by AICTE from time to time.

3.2. Maximum time allowed for a candidate admitted in M.Tech for completing M.Tech. is 3 yrs./ 2 yrs.(for candidates admitted in one year M.Tech. under B.Tech.-M.Tech. Dual degree programme) whichmay be extended by one more year on genuine reason by Academic Council.

## 4. Curriculum:

4.1. The 2 years curriculum has been divided into 4 semesters and 1 year curriculum is divided into 2 semesters. It shall include lectures, tutorials, practicals, seminars, project,dissertation etc. required for the degree course as prescribed in the scheme and instructions issued by the University from time to time

4.2. The curricular and co-curricular along with extra curricular activities may be prescribed by University if AICTE guide lines are prescribed on the issue.

4.3 **Curriculum Structure**

The University follows a specialized credit based semester system. Every Programme will have a specific curriculum for all semesters (Semester 1 to Semester 4) with a syllabi consisting of Theory, Practical, Project work, Dissertation etc. as given below and shall be in accordance with the prescribed syllabus. The subjects shall be covered through lectures, Tutorials, laboratory classes, seminar, projects work, dissertation etc. as prescribed by university

The curriculum structure comprises of broad segments as tabulated below.

| Knowledge Segments | Credits |
|---|---|
| Mathematics | 4 |
| Professional core courses | 20 |
| Professional Electives | 13 |
| Open Electives | 6 |
| Research Methodology and IPR | 2 |
| Seminar | 2 |
| Project | 5 |
| Dissertation | 20 |
| Total academic credits for M.Tech. degree | 72 |

**Audit Courses:**

The status and marks allotted for the audit courses are tabulated as below. Every student will have to qualify in the audit courses for becoming eligible to get the degree.

| S. No | Audit course status | Marks obtained |
|---|---|---|
| 1 | Qualified (Q) | 40% and above |
| 2 | Not Qualified (NQ) | Below 40 %, candidate has to repeat the course |

**5. Attendance:**

Every student is required to attend all the lectures, practicals and other prescribed curricular and co-curricular activities. The attendance can be condoned on medical ground or for other genuine reason beyond control of student but the attendance can be condoned only upto 20% only. Attendance will be deciding criteria for permission to appear in the examinations. It will be applicable subject wise and attendance will be counted from the date of admission in the course and first teaching class begins of the subject. The percentage of attendance will be estimated on the total classes held and the classes attended by the candidate.

**6. Examination:**

6.1. The performance of a student in the 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 shall be awarded at the end of the semester (sessional marks). The end semester examination shall be comprised of writtenpapers, practicals, viva voce, project work, design report, seminar and dissertation evaluated by supervisors and external evaluators with open defence.

6.2. Scheme of examination will be provided on each aspects and accordingly statement of marks will be prepared for records and award of M.Tech degree.

6.3

Themarksobtainedinasubjectshallconsistofmarksallottedinendsemestertheorypaper,practicalexaminationandsessionalwork. The grade will be awarded based on marks obtained as per Clause 10.1. The "F" grade denotes the failure in passing respective subjects and student has to make another attempt to pass the subject as per the provisions of this Ordinance.

6.4. The minimum pass marks in each theory subjects shall be 50% (including sessional marks) with minimum 40% in each theory papers in the end semester examination. If there is no sessional mark prescribed for theory papers then 50% will be minimum passing marks.

6.5. Project/Practical shall be 50% minimum marks to be declared pass and dissertation 70% marks will be minimum to be declared pass.

6.6. Aggregate of marks obtained by candidate to declare pass in M.Tech shall be 50%.

**7. Unfair Means:**

7.1. If unfair means adopted by the M.Tech student, the subject evaluation will be cancelled and candidate has to reappear in the examination, whenever conducted by the University.

7.2. Dissertation must be candidates own work written with similarity index being less than 20% as per similarity check software prescribed by the University. If Plagiarism is found in the dissertation with sufficient proof, the M.Tech degree will be made null and void at any stage.

**8. Grace marks:** In M.Tech. grace marks will be nil.

**9. Structure of Grading of Academic Performance:**

The following shall be the structure of grading for academic performance of the students:

**9.1 Award of Grades:**

Students obtaining grades O to P, shall be declared pass. Students failing in subject, will be awarded F grade. The grades shall be decided on the aggregate of evaluation of all the components like: -

Three written tests: CT-1, CT-2 and End Semester Examination

Assignments, Quizzes, tutorials and regularity in attendance etc.

Practical (If part of the course).

Practical, Project and dissertation shall be evaluated & graded as per guideline.

**Structure of Grades and Grade Points:**

| Grades | Grade Point (GP) | % of Total Marks obtained in the course |
|---|---|---|
| O - Outstanding | 10 | 90% and above |
| A+- Excellent | 9 | 85% and above but less than 90% |
| A - Very Good | 8 | 80% and above but less than 85% |
| B - Good | 7 | 70% and above but less than 80% |
| C - Average | 6 | 60% and above but less than 70% |
| P - Pass | 5 | 50% and above but less than 60% |
| F - Fail | 0 | Less than 50% |
| AB - Absent | - | Absent |

The "W" grade is awarded to a student if he/she is allowed to withdraw for an entire Semester only if he/she has been on authorized absence from the Institute/University on medical grounds for a period exceeding four weeks and informed to the University in time. The "I" grade is awarded to a student who is unable to complete the course.

**9.2 Evaluation of Performance:**

The performance of a student will be evaluated in terms of two indices, viz., the Semester Grade Point Average (SGPA) which is the Grade point Average for a semester and Cumulative Grade Point Average

(CGPA) which is the Grade Point Average for all the completed semesters at any point in time. The SGPA is calculated on the basis of grades obtained in all courses, except audit/non-credit courses, registered in the semester.

$$SGPA = \frac{\sum_{i=1}^{s} C_i G_i}{\sum_{i=1}^{s} C_i}$$

where Ci = Credits of the registered subject

Gi= Grade point awarded to the student in the registered subject

s = Total number of registered subjects in the semester, except audit/non-credit courses. Here the failed courses are also accounted.

The overall Grade of a student in the program of study upto the end of a particular semester shall be called Cumulative Grade Point Average (CGPA). CGPA shall be calculated on the basis of all grades, except audit courses, obtained in all completed semesters as follows:

$$CGPA = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{i=1}^{n} C_i}$$

where $C_i$ = Credits of the registered subject

$G_i$ = Grade point awarded to the student in the registered subject

n = Total number of registered subjects, except audit/non-credit Courses. Here the failed courses are also accounted.

The SGPA and CGPA will be rounded off to 2 decimal points and reported in marksheet, transcripts, etc.

**Conversion of Grade in to percentage**: The performance of the students is measured in terms of CGPA (on a 10 point scale) as defined above. The equated percentage shall be equivalent to CGPA x 9.5.

**Award of Division:**

**First Division** - CGPA of 6.5 and above but less than 10 CGPA (First Division with Distinction will be awarded to those securing CGPA of 8 and above but less than 10 CGPA provided they pass all the examinations in first attempt)

**Second Division** - CGPA of 5 and above but less than 6.5 CGPA

**Definition of Credit:**

| | |
|---|---|
| 1 Hr. Lecture (L) per week | 1 Credit |
| 1 Hr. Tutorial (T) per week | 1 Credit |
| 2 or 3 Hours Practical (P) per week | 1 Credit |

**Essential Credits for Post Graduate Degree:**The credits essential for obtaining the Post Graduate Degree in a particular specializationis 72 credits / 52 credits for admissions in 2 year/ 1 year M.Tech under B.Tech.-M.Tech. Dual degree respectively.

**10. Earned Credits (EC):**

The credits assigned to a course in which a student has obtained "P" (minimum passing grade) or a higher grade will be counted as credits earned by him/her.

**11. Promotion:**

12.1 A student has to usually earn a minimum 12 number of credits in a semester to be eligible to register for the new subjects offered in the next semester. But in odd semesters if this requirement is not met, the student is to be forewarned and allowed to continue to the next even semester. However at the end of even semesters this requirement will be strictly implemented as detailed in "Eligibility criteria for registering in higher semesters". Students who do not meet this requirement detailed inTable1 & 2 are not permitted to register for new subjects in the higher semesters. They have to either register for appearing in examination of the failed subjects in normal semesters in which they are offered subject(s).

Table1 Eligibility Criteria for Registering in Higher Semesters for 2 year M.Tech. Programme

| Semester | Allotted Credits | Cumulative Credits | Minimum cumulative credits required to register for courses in higher semester |
|---|---|---|---|
| First | 22 (22+3*) | 22 | Not insisted |
| Second | 20 (20+3*) | 42 | 24 |
| Third | 16 | 58 | Not insisted |
| Fourth | 14 | 72 | -- |

***Optional credit course to students and it is not mandatory to promote in the next academic year.The marks of these optional subjects will be displayed in mark sheet.**

Table 2 Eligibility Criteria for Registering in Higher Semesters for 1 year B.Tech.-M.Tech. Dual Degree Programme

| Semester | Allotted Credits | Cumulative Credits | Minimum cumulative credits required to register for courses in higher semester |
|---|---|---|---|
| First | 16+10=26 | 26 | Not insisted |
| Second | 14+12=26 | 52 | -- |

Faculty advisors (Head of Department to designate One Faculty advisor) shall monitor advice and support the students for this. Institute shall make necessary arrangement to inform the students about the minimum cumulative credits requirement to register for higher semester as in Table1.

12.2 The candidate shall appear in the theory papers which does not satisfy clasue 12.1 only two times after main examinations, otherwise has to leave the M.Tech course.

12.3 There shall be no carryover in M.Tech 2nd year.

12.4 Project/Dissertation duration will be one year and RDC (PG) will monitor the progress of the candidate on the topic at least two times before permission to write dissertation.

**12. Evaluation of Dissertation:**

13.1 Supervisor will submit at least three members expert list from relevant area with complete name & address and Head of Institutionwill designate one name outside the institute for evaluation of M.Tech. dissertation and supervisor will evaluate independently.

13.2 If the mark is less than 70%, then candidate has to resubmit his/her dissertation for next evaluation.

13.3 The internal assessment marks will be awarded based on evaluation of progress made by student in the work at least three times in a semester. Each evaluation will be of equal weightage. Total internal marks will be sum of :

i) Progress review - 60%
ii) Supervisor assessment - 40%

13.4 There will be open defence of M.Tech dissertation before external evaluator and any one of the two Professor/Associate Professor nominated by Head of Institution. The aggregate marks will be sum of marks awarded individually by External evaluator + Nominated internal teacher (Professor/Associate professor) + Supervisor during viva-voce examination i.e. open defence.
The marks distribution will be on the following basis

Quality of work - 200
Report - 100
Presentation - 100
Viva-voce - 50

13.5It is compulsory for every student to submit/publish a research paper in SCI/Scopus/UGC indexed journal or national/ international conference before submission of thesis and also submit the similarity check report of originality being not less than 80% as per similarity check software prescribed by University.

**14. Results:**

The result of a candidate shall be declared on the basis of performance of both semesters of the same academic year.

15. **Award of Rank and Medals:**

15.1 On the basis of final year result, the top three candidates in each branch of M..Tech. shall be awarded rank

according to their merit provided they pass all the examinations in first attemptin the minimum duration prescribed for the programme.

15.2 The topper of each M. Tech. programme will be awarded Vice Chancellor's Gold Medal in respective branch of the University subject to fulfilment of requirements in Clause 15.1.

15.3 The overall topper of M. Tech. programmes together will be awarded Chancellor's Gold Medal of the University subject to fulfilment of requirements in Clause 15.1.

15.4 The topper of each B.Tech.-M. Tech. dual degree programme will be awarded Vice Chancellor's Gold Medal in respective branch of the University subject to fulfilment of requirements in Clause 15.1.

15.5 The overall topper of B.Tech.-M. Tech. dual degree programmes together will be awarded Chancellor's Gold Medal of the University subject to fulfilment of requirements in Clause 15.1.

**16.** The Academic Council shall have the power to amend/relax any provision provided in the ordinance in any specific matter/situation subject to the approval of Executive Council of the University & such decision(s) shall be reported to the Chancellor of the University.

## ANNEXURE-I : Tentative Scheme of Examination

### Proposed Scheme of Examination of M. Tech. 2 Year Programme for all specializations

| Semester I | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
| | | | **L** | **T** | **P** | | | | |
| **1** | | Advanced Mathematics | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **2** | Core-I | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **3** | Core-II | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **4** | Professional Elective-1 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **5** | Professional Elective-2 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **6** | Core | Lab-I | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| **7** | Core | Lab-II | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| **8** | Mandatory course | Research Methodology and IPR | 2 | 0 | 0 | 2 | 50 | 50 | 100 |
| **9** | Audit-1 | Audit | 2 | 0 | 0 | 0 | 50 | 0 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Total** | **22** | **3** | **8** | **22** | **400** | **600** | 950 |
| **10** | *Open Elective-1 (Optional) | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **Semester II** | | | | | | | | | |
| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
| | | | **L** | **T** | **P** | | | | |
| **1** | Core-III | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **2** | Core-IV | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **3** | Professional Elective-3 | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **4** | Professional Elective-4 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **5** | Open Elective-1 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **6** | Core | Lab-III | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| **7** | Core | Lab-IV | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| | | **Total** | **15** | **3** | **6** | **20** | **300** | **550** | **850** |
| **9** | *Open Elective-2 (Optional) | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **Semester III** | | | | | | | | | |
| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
| | | | L | T | P | | | | |
| **1** | Open Elective-2 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **2** | Seminar | | 0 | 0 | 4 | 2 | 100 | | 100 |
| **3** | Project | | 0 | 0 | 10 | 5 | 100 | 150 | 250 |
| **4** | Dissertation | Dissertation | 0 | 0 | 12 | 6 | 300 | | 300 |
| | | **Total** | **3** | **0** | **22** | **16** | **550** | **250** | **800** |
| **Semester IV** | | | | | | | | | |
| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
| | | | L | T | P | | | | |
| **1** | Dissertation | Dissertation | 0 | 0 | 28 | 14 | 250 | 450 | 700 |
| | | **Total** | **0** | **0** | **28** | **14** | **250** | **450** | **700** |

## Proposed Scheme of Examination for B.Tech.-M. Tech. Dual 1 Year M.Tech. Programme for all specializations

| **Semester III** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
| | | | L | T | P | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1** | | **Advanced Mathematics** | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **2** | Core-I | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **3** | Open Elective-1 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **4** | Mandatory course | Research Methodology and IPR | 2 | 0 | 0 | 2 | 50 | 50 | 100 |
| **5** | Seminar | | 0 | 0 | 4 | 2 | 100 | | 100 |
| **6** | Project | | 0 | 0 | 10 | 5 | 100 | 150 | 250 |
| **7** | Dissertation | Dissertation | 0 | 0 | 12 | 6 | 300 | | 300 |
| | | **Total** | **11** | **2** | **26** | **26** | **700** | **500** | **1200** |

**Semester IV**

| **Sr. No.** | **Course Type/Code** | **Course Name** | **Teaching Scheme** | | | **Credits** | **Internal Marks** | **External Marks** | **Total Marks** |
|---|---|---|---|---|---|---|---|---|---|
| | | | L | T | P | | | | |
| **1** | Core-II | | 3 | 1 | 0 | 4 | 50 | 100 | 150 |
| **2** | Professional Elective-1 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **3** | Open Elective-1 | | 3 | 0 | 0 | 3 | 50 | 100 | 150 |
| **4** | Core | Lab-I | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| **5** | Core | Lab-II | 0 | 0 | 3 | 1 | 25 | 25 | 50 |
| **6** | Dissertation | Dissertation | 0 | 0 | 28 | 14 | 250 | 450 | 700 |
| | | **Total** | **9** | **1** | **34** | **26** | **450** | **800** | **1250** |