

Shivaji University
Vidya Nagar, Kolhapur, Maharashtra 416004

Department of Technology



As per NEP2020 guidelines

**First Year to Final Year B. Tech (Computer Science and Technology) Curriculum Structure
2023-24 onwards**

A. Definition of Credit

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
2 Hr. Practical(Lab) per week	1 Credit

B. Credits for award of Degrees

- a. A total of **176 credits** are required for all the students to get entitled for **Under Graduate Degree in Engineering (Major) with a Multidisciplinary Minor (MDM)**. This feature is the **fourth vertical (Level 6.0)** from the National Credit Framework. For such a candidate the degree offered would be: B.Tech in Major Degree Title with Multidisciplinary Minor. The routine fees will be charged for award of the degree with multidisciplinary minor. There will be a pool of multidisciplinary minors for each major UG Program.
- b. A student will be entitled to acquire this 'MDM featured' **Under Graduate Degree with Honors**, if the candidate earns an **additional 17 credits**. Out of these 17 credits, 15 credits will be against 5 different theory courses (3 credits each) pertaining to the Major Discipline while 2 credits will be against an advance laboratory practice in the respective discipline of studies. These theory credits could be acquired preferably through MOOCs the title of which will be well declared to the aspirants. This particular feature is the **fifth vertical (Level 6.0)** from the National Credit Framework. For such a candidate the degree offered would be: B.Tech Honors in Major Degree and Multidisciplinary Minor. For this option of Honors, the interested candidates have to pay the separate fees as decided by the institute.
- c. A student will be entitled to acquire this 'MDM featured' **Under Graduate Degree having an option of Honors with Research**. For the same, the candidate, in addition to those **17 credits** allotted to the Honors, has to earn an **additional of 3 credits against an extra research project**. (As regards this extra project work, it is mandatory to be successful in publishing at least one research paper based on the research topic.) This feature is the **sixth vertical (Level 6.0)** from the National Credit Framework. For such a candidate the degree offered would be: B.Tech Honors with Research in Major Degree and Multidisciplinary Minor. The interested candidates for this option will have to pay the separate fees as decided by the institute.
- d. A student will be entitled to acquire this 'MDM featured' **Under Graduate Degree with additional Specialization Minor**, if the candidate earns an **additional 14 credits against one more minor from the specialization**. These will be a separate pool of the specialization minors for choice. (The courses under minors could be through MOOCs also). This is the case of double minors and it is the **seventh vertical (Level 6.0)** from the National Credit Framework. For such a candidate the degree offered would be: B.Tech in Major Degree with double minors. (Multidisciplinary Minor and Specialization minor.) For this option of additional specialization minor, the interested candidates will have to pay the separate fees as decided by the institute.

A. Component wise distribution of credits

(Expected range of credits as per AICTE & NEP2020 guidelines is 160-176)

Sr. No.	Category Suggested	Course Code	No. of Credits	Components %
1.	Indian Knowledge System	IKS	05	2.84
2.	Ability Enhancement Course	AEC	03	1.70
3.	Value Education Courses	VEC	02	1.13
4.	Basic Science Courses	BSC	22	12.5
5.	Engineering Science Courses including workshop, drawing, basics of civil/electrical/mechanical/computer etc.	ESC	24	13.63
6.	Professional Core Courses	PCC	75	42.61
7.	Professional Elective Courses relevant to chosen specialization/branch	PEC	12	6.81
8.	Open subjects – Electives from other technical and /or emerging subjects	OEC	06	3.40
9.	Project , Seminar and Internship	PSI	11	6.25
10.	Project Based Learning	PBL	02	1.13
11.	Multidisciplinary Minor	MDM	14	7.95
12.	Vocational and Skill Enhancement Courses	VSEC	Audit Courses	-
13.	Humanities and Social Sciences including Management & Environment Courses	HSMEC		
14.	Mandatory Audit Courses [Some other courses Decided at the Institute level but that do not get fit in the credits]	MAC		
	Total		176	100

B. Course code and Definition

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
MDM	Multidisciplinary Minor
SPM	Specialization Minor
ISE	In Semester Examination
ESE	End Semester Examination
IE	Internal Evaluation
EE	External Evaluation
BSC	Basic Science Course
ESC	Engineering Science Course

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

HSMEC	Humanities and Social Sciences including Management , Environmental Course
PCC	Professional Core Course
PEC	Professional Elective Course
OEC	Open Elective Courses
VSEC	Vocational and Skill Enhancement Courses
IKS	Indian Knowledge System
AEC	Ability Enhancement Course
VEC	Value Education Courses
MAC	Mandatory Audit Course
PSI	Project, Seminar, Internship
PBL	Project Based Learning
PBL, PBI	Project Based Learning Program Based Internship
MN , HN, HNR	Minor , Honors, Honors with Research
CC, DC	Certificate Course, Diploma Course
CHE, CE,CST	Chemical Engineering, Civil Engineering, Computer Science and Technology
ETC, FT, ME	Electronics and Telecommunication Engineering, Mechanical Engineering, Food Technology

**Mandatory Induction Program at FY B. Tech First Term Commencement
(3 Weeks Duration)**

- a) Physical activity
- b) Creative Arts
- c) Universal Human Values
- d) Literary
- e) Proficiency Modules
- f) Lectures by Eminent People
- g) Visits to local Areas
- h) Familiarization to Dept./Branch & Innovations

Note: On the campus, besides the curriculum structure, as co-curricular activities, National Cadet Corps (India) i.e. NCC is available for the interested & selected students while National Service Scheme i.e. NSS unit is for all the volunteer students who will contribute as and when necessarily called for the services.

C. Four-year B. Tech. Program Academic Rules and Regulations

INDEX

Sr. No.	Rules No.	Description
1.	R.B.T. 1	Admission
2.	R.B.T. 2	Award of Degree
3.	R.B.T. 3	Attendance Rule
4.	R.B.T. 4	Academic Progress Rules (ATKT Rules)
5.	R.B.T. 5	Academic Flexibility
6.	R.B.T. 6	Credit system
7.	R.B.T. 7	Features of Credit System at Department of Technology, Shivaji University, Kolhapur.
8.	R.B.T. 8	Course credits assignment
9.	R.B.T. 9	Detailed Evaluation Scheme
10.	R.B.T. 10	Earning credits
11.	R.B.T.11	CGPA Improvement Policy for award of degree
12.	R.B.T. 12	Evaluation System
13.	R.B.T. 13	Entry of Students from previous credit to new Credit Pattern
14.	R.B.T. 14	Audit Courses
15.	R.B.T. 15	Award of Grades for Re-Examination
16.	R.B.T. 16	Showing & Supplying Photocopy of the Evaluated Semester End Examination Answer Paper, Re-Evaluation, And Period of Retention
17.	R.B.T. 17	Change of Branch
18.	R.B.T. 18	Disciplines and Conduct
19.	R.B.T. 19	Details regarding B.Tech Major, Minor, Honors, Honors with Research, Multiple entry, multiple exit features

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Glossary

B. Tech.: Bachelor of Technology, an Under Graduate Degree awarded from the Shivaji University, Kolhapur

Director: Director, Department of Technology, Shivaji University, Kolhapur

Program: The specialization in B.Tech (Particular Major Branch)

Program Head: The Head of the Specialized Branch of B.Tech studies

DC: Department Committee

DEC: Departmental Examination Coordinator

Semester: The academic year will be divided into two regular semesters of approximately 20 weeks' duration each. Typically, the odd semester will be from the first week of July to last week of November while the even semester will be from the first week of January to the last week of May.

This will include the period of academic delivery (14 to 15 weeks), Internal Evaluation (CIE) i.e. In Semester Examination and Assignments, End Semester Examination (ESE) assessment and declaration of results.

R.B.T.: Rule B.Tech

Course: Subject

Course Coordinator: Subject teacher

Course Credit: Weighted sum of the number of Lecture hours (L), Tutorial hours (T), and Practical hours (P) associated with the course.

Credits Earned: The sum of course credits for credit courses in which a student has passed.

Grade: Assessment of the student's performance in a course indicated by the letters, "AA", "AB", "BB", "BC", "CC", "CD", "DD", "FF", "XX", "ABSENT", "PP", "NP".

Grade Point: Number equivalent of the letter grades given by 10, 9, 8, 7, 6, 5, 4 corresponding to grades "AA", "AB", "BB", "BC", "CC", "CD", "DD" respectively. "FF" and "XX" carry zero grade points.

Instructor: Member of faculty who will be assigned to teach a specific course.

Semester Grade Points: The sum of the products of credits and Grade Points for each course registered by a student in a semester.

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

SGPA: Semester Grade Point Average

CGPA: Cumulative Grade Point Average

ATKT: Allowed to Keep Terms.

R.B.T. 1 Admission:

At the Department of Technology, Shivaji University, candidates are admitted to all the available specialized B.Tech Programs according to norms and conditions prescribed as per AICTE, New Delhi and DTE, Mumbai, Maharashtra.

R.B.T. 2 Award of Degree:

Following rules prevail for the award of degree:

1. B.Tech Degree will be awarded to the student, who has registered and earned all the credits of prescribed courses under the general departmental requirements.
2. In addition to the credit requirement prescribed above for the Degree award, each student will have to complete the requirements of Audit Course (AC) during the programme. All the students will receive certification as PP (*for Passed*), and NP (*for not passed*) in AC, in the mark sheet. While obtaining certification as PP is a mandatory requirement for the Degree award of a student, this will not be taken into account for computing the final Cumulative Grade Point Average.
3. A student has obtained CGPA ≥ 4.5 .
4. A student has paid all the institute dues and satisfied all the requirements prescribed.
5. A student has no case of indiscipline pending against him/her.
6. University authorities will recommend the award of B. Tech. Degree to a student who is declared to be eligible and satisfies the said norms.

R.B.T. 3 Attendance Rule:

All students must attend every lecture, tutorial and practical class. However, to account for late registration, sickness or other such contingencies, the attendance requirement will be a minimum of 75% of the classes actually held. A student with less than 75% attendance in a course during the semester, in lectures, tutorials and laboratories taken together (as applicable), will be awarded an 'XX' grade in that course irrespective of his/her performance in the tests.

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Attendance record will be maintained based upon roll calls (or any equivalent operation) in every scheduled lecture, tutorial and practical class. The course coordinator will maintain and consolidate attendance record for the course (lectures, tutorials and laboratories together, as applicable).

R.B.T. 4 Academic Progress Rules (ATKT Rules)

1. If a candidate fails in any number of courses (subject heads) of Semester I, will be allowed to proceed to Semester II.
2. A candidate, who earns 50% of total credits of Level 4.5 (FY B.Tech), will be allowed to keep terms in Level 5.0 (SY B.Tech).
3. If a candidate fails in any number of courses (subject heads) of Semester III, will be allowed to proceed to Semester IV.
4. A candidate, who earns 50% of total credits of Level 5.0 (SY B.Tech), will be allowed to keep terms in Level 5.5 (TY B.Tech).
5. No candidate will be allowed to proceed to Semester V (TY B.Tech), unless candidate has passed in all courses of Level 4.5 (FY B.Tech).
6. If a candidate fails in any number of courses (subject heads) of Semester V, will be allowed to proceed to Semester VI.
7. A candidate, who earns 50% of total credits of Level 5.5 (TY B.Tech), will be allowed to keep terms in Level 6.0 (Final Year B.Tech).
8. No candidate will be allowed to proceed to Semester VII (Final Year B.Tech), unless candidate has passed in all courses of Level 5.0 (SY B.Tech).
9. If a candidate fails in any number of courses (subject heads) of Semester VII, shall be allowed to proceed to Semester VIII.
10. In case, if the rules of any Apex body differ from these rules, then the rules of that apex body will be applicable. However under the National Education Policy, the rules extended by University from time to time regarding ATKT will be applicable.
11. While considering the passing heads, for a year (both the semesters), 45 % aggregate score is mandatory failing to which the same will be considered as one more passing head. Any such student needs to improve the score in either of the courses to maintain 45 % aggregate for the year through appearing in re-examination or repeated examination. In such cases, the award of grade for calculation of SGPA and CGPA will be as per the table no.3 from clause R.B.T 12 with the consideration of one grade penalty as mentioned under the clause R.B.T 15, f.
12. A student who has obtained 'FF' grade in ESE of a regular semester and has obtained 'FF' grade in 2nd attempt of ESE will be eligible to choose one of the two options below to clear the backlog:
 - i. Re-registration for the next regular semester course whenever that course is offered.

ii. Application for Repeated Examination.

13. A student who has been detained in a regular semester and obtained 'XX' grade can Re-register for the next regular semester whenever it is offered.
14. The maximum duration for getting B. Tech. degree for students admitted in the first semester of U.G. program will be 16 semesters (eight academic years) while for lateral entry students admitted in the third semester will be 14 semesters (seven academic years) from their date of admission. The maximum duration of the program includes the period of withdrawal, absence and different kinds of leaves permissible to a student but excludes the period of rustication of a student from the department.
15. If a student is unable to gain all credits of first year in three years from the date of the admission, then the candidate will be declared as "Not Fit for Engineering" leading to discontinuation of candidate's registration with the department.
16. Depending upon the academic progress of a student, department may take a decision regarding continuation or discontinuation of candidate's registration with the institute.

R.B.T. 5 Academic Flexibility

1. Flexibility in deciding curriculum structure and contents of curriculum with reasonable frequency for changes in the same.
2. Continuous assessment of student's performance with newly adopted NEP 2020 Credit system based on Award of Grade.
3. Credits are quite simply a means of attaching relative values to courses different components. These are a currency of learning, and in general regarded as a measure of the time typically required to achieve a given curricular outcome.
4. All courses (year-wise) under each program/discipline are unitized

R.B.T. 6 Credit system:

Education at the Institute is organized around the semester-based credit system of study. The prominent features of the credit system are a process of continuous evaluation of a student's performance/progress and flexibility to allow a student to progress at an optimum pace suited to candidate's ability or convenience, subject to fulfilling minimum requirements for continuation.

A student's performance/progress is measured by the number of credits that the candidate has earned, i.e. completed satisfactorily. Based on the course credits and grades obtained by the student, grade point average is calculated. A minimum grade point average is required to be maintained for satisfactory progress and continuation in the program. Also a minimum number of earned credits and

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

a minimum grade point average should be acquired in order to qualify for the degree. All programs are defined by the total credit requirement and a pattern of credit distribution over courses of different categories.

R.B.T. 7 Features of Credit System at Department of Technology, Shivaji University, Kolhapur:

Every course is allotted credits based on its academic importance/weightage.

1. All courses may not have same credits.
2. 21 credits / semester for First Year B.Tech while 20 credits /semester for remaining 6 semesters. Thus there are 162 credits against the B.Tech Major plus additional 14 credits against the chosen Multidisciplinary Minor. So the total credits of this Multidisciplinary Minor (MDM) Featured B.Tech Degree are 176. The particular Degree falls under the **fourth vertical** (Level 6.0) as per the National Credit Framework.
3. Absolute grading System with 7 passing Grades viz. AA, AB, BB, BC, CC, CD, DD and FF for failure.
4. Standardization of courses; with few exceptional cases, each course is of 6 units.
5. In Semester Examination (ISE) and End Semester Examination (ESE), both having (30:70) weightage in the student's performance in course work/laboratory work and other activities. A student's performance in a subject will be judged by taking into account the results of In Semester Examination and End Semester Examination together. Students must score 40% marks in ESE irrespective of the ISE marks.
(Note: The ISE will be conducted as In Semester Exam and assignments throughout the semester on dates announced in advance by the department and its results to be made known to the students from time to time. However, the dates for the ESE will be fixed at the University level.)
6. Continuous internal evaluation consists of 'In Semester Examination' of 20 marks and assignment of 10 marks handled by Department of Technology and setting of question papers should be done by course coordinator. Assignments may be of varied nature for each course based on the need of the course coordinator.
7. End Semester Examination (ESE) to be conducted by the Department of Technology however setting of question papers will be as per University Rules. The ESE will include a written examination for theory courses and practical/design/drawing examination with built-in oral part for laboratory/ design/drawing courses.

7.1 End Semester Examination (ESE) of the courses offered for the MOOCs will be conducted by MOOC offering Institute. The credits earned by the students will be

communicated to the University and to be converted as per the weightage of the said course in the structure. Student may get failure in the said MOOC or the examination may get delayed by the MOOC offering institute, in either cases, ESE of the said course will be conducted as per the University rules.

8. In case the candidate is absent on the scheduled ISE, request for separate In Semester Examination for the students representing in co-curricular, extracurricular activities or on medical grounds will only be considered. On receipt of application from the student, the DC will take decision for the conduct of the In Semester Examination.
9. Care will be taken to ensure that the total numbers of days for academic work are ≥ 180 per year.
10. Academic schedule prescribed will be strictly adhered and applicable to all the UG Programs.

R.B.T. 8 Course credits assignment:

Each course, except a few special courses, has a certain number of credits assigned to it depending upon its lecture, tutorial and laboratory contact hours in a week. This weightage is also indicative of the academic expectation that includes in-class contact and self-study outside of class hours.

Lectures and Tutorials: One lecture or tutorial hour per week per semester is assigned one credit.

Practical/Laboratory: One laboratory hour per week per semester is assigned half credit.

Example: Course: Heat Transfer Operations: 05 credits (3-1-2)

The credits indicated for this course are computed as follows:

3 hours/week lectures = 3 credits

1 hours/week tutorial = 1 credit

2 hours/week practical = $2 \times 0.5 = 1$ credit

Also, (3-1-2) 5 credit course = (3 h Lectures + 1 h Tutorial + 2 h Practical) per week

= 6 contact hours per week = 5 credits

R.B.T. 9 Detailed Evaluation Scheme:

1. Out of total 100% theory weightage, 30% weightage is allotted for In Semester Examination (ISE). Appearing for ISE is must and student must submit the assignments to become eligible for End Semester Examination (ESE) of respective course.

ISE (30% weightage) includes:

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

- a. In Semester Examination of 20 Marks of one Hour
 - b. Assignments of 10 Marks during entire semester
2. For the End Semester Examination (ESE), 70 marks question paper will be set in which student must secure 40% (28 Marks out of 70) as university examination pass head and candidate must be appeared for ISE to become eligible for ESE of respective course.
 3. Final theory marks (out of 100) will be the addition of ISE (30 Marks) and ESE (70Marks).
 4. Final laboratory letter grade will be awarded (100%) will be the addition of IE (50%) and EE (50%) as applicable to the course.
 5. End Semester Examination (ESE) for laboratory consists of internal evaluation (IE) and External Evaluation (EE). Nature of the evaluation as viva-voce or practical will be as application to the course which will be well mentioned in the course description.
 6. There will be no EE for laboratory courses of the First Year. The entire assessment of a student will be based on IE 100% weightage and a minimum performance of 40% in IE will be required to obtain the passing grade. IE of laboratory work will be based on turn-by-turn supervision of the student's work and the quality of the candidate's work as prescribed through laboratory journals and the candidate's performance in oral or Practical/Oral examinations uniformly distributed throughout the semester. Student must submit and secure 40% marks in the IE of the concerned course. Non submission of the term work and the IE score below 40% marks will lead to term not grant (TNG). The TNG cases must be promptly communicated by the course teacher to the examination cell of the Department of Technology. The Departmental Examination Coordinator (DEC) will communicate the same to the office of the Director, Board of Examinations and Evaluation,, Shivaji University, Kolhapur for further actions.
 7. The assessment of laboratory courses from the 3rd semester onwards will be carried out in two parts.
 - i. ISE of laboratory will be based on turn-by-turn supervision of the student's work and the quality of candidate's work as prescribed through laboratory journals and the performance in oral or Practical/Oral examinations uniformly distributed throughout the semester. Student must submit and secure 40% marks in the IE of the concerned course. Non submission of IE will lead to term not grant (TNG).
 - ii. ESE of laboratory will be based on performing an experiment followed by an oral examination or a written examination.
 - iii. The relative weightage for IE and EE for assessment of laboratory courses will be 50% and 50% respectively from second year onwards and a minimum performance of 40% in both IE and EE separately will be required to get the passing grade.

- iv. EE for laboratory course will normally be held one week before the ESE for theory courses and will be conducted by a panel of examiners consisting of external and internal examiner. This activity will be coordinated by Department Examination Coordinator (DEC) in consultation with Coordinator of the respective Program.
8. A student failed in EE of a laboratory course in a regular semester will be eligible to appear for examination conducted along with ESE of laboratory courses of the subsequent semester. Such examination will be fairly comprehensive (generally of 3 hours similar to EE i.e. External Examinations) to properly judge candidate's practical skill and theoretical knowledge for that laboratory course. The candidate will suffer a grade penalty as per Table 3.
9. Assessment of Seminar, Mini-project, Major Project, internship etc.:
- i. The Seminar/Project report must be submitted by the prescribed date usually two weeks before the end of academic session of the semester.
 - ii. It is desirable that the topics for seminar/project be assigned by the end of previous semester.
 - iii. The seminar report and the presentation of seminar will be evaluated by panel of three departmental faculty members (decided by Branch Coordinator).
 - iv. The mini-project will be evaluated jointly by a panel of three Internal Examiners.
 - v. The report on field training will be evaluated by a panel of three Internal Examiners.
 - vi. The assessment of B. Tech major project work will be carried out in two phases as follows:
For IE, there will be
 - a) Departmental Committee (To approve synopsis submission based on seminar)
 - b) Project work assessment by Guide
(Departmental Committee constitution will be as follow:
 - (1) Director- Chairman
 - (2) Branch Coordinator from respective branch – member
 - (3) Senior faculty from respective branch – member
 - (4) Guide/Course Coordinator- member)
- EE consists of progress seminar and presentation to be evaluated by panel of internal and external examiners. The process will be as below:
- a) Project work assessment by Guide
 - b) Report submission based on seminar which will be evaluated by Departmental Committee
 - c) EE (Viva-voce and presentations): Evaluation by panel of external and internal examiners.

- vii. The evaluation of industrial internship: Students will undergo industrial internship for one semester (8th Semester). Students have to prepare a report related to the work carried out during this internship. This may include study of the new science/technology, applications of the technology/development of the technology and its implementation /designing/obtaining practical or numerical solution etc. By the Program, there will random and surprise visits to the place of internship so as to record the attendance and performance of the interns. The evaluation will be as per the university examination similar to the project evaluation.
10. The duration of End Semester Examination will be 2.5 hrs however there might be few courses having duration of End Semester Examination as 3 hrs.
11. In respect of IE and Laboratory work, a target date will be fixed for the completion of each sheet, job, Project, experiment or assignment and the same either complete or incomplete will be collected on the target date and assessed immediately at the respective departments by the concerned teachers and % marks (or grades) will be submitted to the Co-ordinator. The Co-ordinator of the Department of Technology will communicate this % of marks (or grades) to the University.
12. In respect of IE of the audit (Non Credit) courses, the respective course in charge will organise and plan activities for the conduct of the evaluation. Preferably, the teacher will announce 5 assignments each one carrying 10 marks. So based on the assignments submitted by the candidate, there will be evaluation out of 50 marks. The passing is for 20 marks. The passing is mandatory for every student. However, the course in charge will communicate to the examination section whether the student has passed the audit course or not. As mentioned earlier, in case of audit courses, the result will appear over the mark sheet and certificate as either PP for passed and NP for not passed.

R.B.T. 10 Earning credits:

At the end of every course, a letter grade is awarded in each course for which a student had registered. On obtaining a pass grade ($\geq 40\%$ minimum grade DD), the student accumulates the course credits as earned credits. A student's performance is measured by the number of credits that the candidate has earned and by the weighted grade point average.

The credit system enables continuous evaluation of a student's performance, and allows the students to progress at an optimum pace suited to individual ability and convenience, subject to fulfilling minimum requirement for continuation.

As regards earning credits against certificate or Diploma award (exit after the first year and the second respectively) also through Honors, Minors, Honors with Research, all these are the optional for the interested ones. The earning of credits for certificate and diploma is mandatory to take

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

place immediately within 45 days from the last day of respective even End Semester Examination. In case of the credits against the Honors, Minors, Honors with Research, the interested candidates to plan for the same from SY B.Tech to Final Year B.Tech completion. As per the list of interested students to opt for these features, the Department of Technology will plan the activities regarding conduct/mentoring of the course by such students. Further from time to time, the Department will communicate the details of such students to the University Examination section. The students will have their respective End Semester Examination in continuation to the End Semester Examination of the Majors.

The details regarding credits assigned against all these features are elaborated in R.B.T. 19.

R.B.T. 11 CGPA Improvement Policy for award of degree:

A student getting $CGPA \leq 4.50$ with grade 'DD' in any course or grade 'FF' in any course will have the possibility to repeat one or more 'DD' graded courses along with the failed courses, /are being offered in a semester.

An opportunity will be given to a student who has earned all the credits required by the respective program with CGPA greater than or equal to 4.00 but less than 4.50, to improve his/her grade by allowing him/her to appear for SEE of maximum two theory courses of seventh and eighth semester.

R.B.T. 12 Evaluation System:

1. Semester Grade Point Average (SGPA)

$$= \frac{\sum(\text{Course credits in passed courses} \times \text{Earned Credits})}{\sum(\text{Course credits in registered courses})}$$

2. Cumulative Grade Point Average (CGPA)

$$= \frac{\sum(\text{Course credits in passed courses} \times \text{Earned Credits}) \text{ of all Semesters}}{\sum(\text{Course credits in registered courses})}$$

- i. Cumulative Grade Point Average (CGPA) will be calculated cumulatively for Sem. I to Sem. VIII for regular students.
 - ii. Cumulative Grade Point Average (CGPA) will be calculated cumulatively for Sem. III to Sem. VIII for lateral entry students.
3. At the end of B. Tech Program, student will be placed in any one of the divisions as detailed below:

Ist Division with distinction : $CGPA \geq 7.5$ and above

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Ist Division : CGPA \geq 6.0 and $<$ 7.5

IInd Division : CGPA \geq 5.5 and $<$ 6.0

New gradation suggested as follows.

Table 1

Grade Points	Equivalent Range
5.5	55%
6.0	60%
6.5	65%
7.0	70%
7.5	75%

Conversion of CGPA to percentage marks for CGPA \geq 4.5 can be obtained using equation.

Percentage marks = (CGPA x 10)

An example of these calculations is given below:

Typical academic performance calculations - I semester

Table 2

Course no.	Course credits	Grade awarded	Earned credits	Grade points	Points secured
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6 (col4 *col5)
MALXXX	5	CC	5	6	30
CSLXXX	4	CD	4	5	20
PHLXXX	4	AA	4	10	40
PHPXXX	2	BB	2	8	16
MELXXX	4	FF	0	0	00
TTNXXX	2	AB	2	9	18
Total	21		17	38	124

1. Total Points earned for this semester = 124

$$\text{Semester Grade Point Average (SGPA)} = \frac{124}{21} = 5.90$$

2. Cumulative Grade Point Average (CGPA) =

Cumulative points earned in all passed courses = 124 (past semesters) + 124 (this semester)

$$= 248$$

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Cumulative earned credits = 23 (past semesters) + 21 (this sem.) = 44

$$\text{Cumulative Grade Point Average (CGPA)} = \frac{\Sigma(124 + 124)}{\Sigma(23 + 21)} = 5.63$$

Table 3: System of Evaluation

Grade	Grade Points	Marks obtained (%)			Description of Performance
		Regular Semester	Re-examination	Repeated Examination	
AA	10	90-100	--	--	Outstanding
AB	09	80-89	90-100	--	Excellent
BB	08	70-79	80-89	90-100	Very Good
BC	07	60-69	70-79	80-89	Good
CC	06	50-59	60-69	70-79	Fair
CD	05	45-49	50-59	60-69	Average
DD	04	40-44	40-49	40-59	Poor
DD\$	04	Below 40	Below 40	Below 40	Poor (Subject to Application of Ordinance 96)
FF	00	Below 40	Below 40	Below 40	Fail
XX	--	--	--	--	Detained
ABSENT	--	--	--	--	Absent
PP	--	--	--	--	Passed (Audit Course)
NP	--	--	--	--	Not Passed (Audit Course)

Note: An equivalent certificate of CGPA to percentage of marks will be provided to student on candidate's demand after remitting prescribed fees by Shivaji University.

R.B.T. 13 Entry of Students from previous credit to new Credit Pattern

A student of Department of Technology, Shivaji University, Kolhapur admitted before academic year 2023-24 and having backlogs such student will clear back log subjects as per the equivalence given by the respective program.

R.B.T. 14 Audit Courses:

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Additional courses are included as audit courses in each semester. While the performance of the student in audit courses will be included in the Grade Card, these grades do not contribute to SGPA or CGPA of the concerned student. However the passing in Audit Courses is mandatory for every student.

R.B.T. 15 Awards of Grades for Re-Examination:

- a) A student who has obtained grade 'FF' in regular semester will be eligible to appear for re-examination conducted before the commencement of the next regular semester.
- b) In such cases In Semester Examination performance of a student will not be wiped out.
- c) A student will apply for re-examination before the last date of such application and will appear for re-examination.
- d) 70% weightage similar to ESE will be given to re-examination.
- e) A student who is eligible for re-examination but remains absent for re-examination will be given grade 'Absent'.
- f) A student will be awarded a grade between 'AB' to 'DD', or 'FF' or 'XX' as given in Table 3 depending upon the cumulative marks obtained by him/her in IE and Re-examination of ESE. Here a student has to suffer a grade penalty by accepting one grade lower as compared with the regular grades.

R.B.T. 16 Showing Evaluated Semester End Examination Answer Papers, Re-evaluation, and applying for revaluation:

The evaluated answer book will be shown to the student immediately as per the timetable prepared by the exam cell of Department of Technology before the declaration of result. The grievances regarding the incorrect total and assessment of the not assed questions will be done by the respective faculty. A student having doubt regarding the grade declared in a course can apply for the photocopy of the answer book by remitting the prescribed fee as specified; a student can also apply for rechecking of his/her SEE answer book as per Shivaji University rules. There is no provision for showing of evaluated answer book, photocopy, rechecking and revaluation of the re-examination.

R.B.T. 17 Change of Branch:

Students will be eligible to apply for Change of Branch after completing the first two semesters. The change of branch will be permitted strictly on merit basis subject to the rules and regulations prescribed by Directorate of Technical Education, Maharashtra State/Admission Regulatory authority, Maharashtra State time to time.

R.B.T. 18 Disciplines and Conduct:

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

- i. Every student will be required to observe discipline and decorous behaviour both inside and outside the campus and not to indulge in any activity which will tend to bring down the prestige of the Department.
- ii. Any act of indiscipline of a student reported to the Department will be referred as per Shivaji University norms.
- iii. If a student while studying in the institute is found indulging in anti-national activities contrary to the provisions of acts and laws enforced by Government, the candidate will be liable to be expelled from the Department without any notice.
- iv. If a student is involved in any kind of ragging, the student will be liable for strict action as per Maharashtra anti-ragging act 1999, which is in effect from 15th May 1999.
- v. If any statement/information supplied by the student in connection with his/her admission is found to be false/ incorrect at any time, his/ her admission will be cancelled and the candidate will be expelled from the institute and fees paid will be forfeited.
- vi. Student once admitted in the Department of Technology will follow instructions issued from time to time.
- vii. If a student is found guilty of malpractice in examinations then the candidate will be punished as per the recommendations of the Shivaji University, Kolhapur.
- viii. Every admitted student will be issued photo identification (ID) card which must be retained by the student while the candidate is registered at Department of Technology. The student must have valid ID card with him/her while in the Department of Technology.
- ix. Any student who alters or intentionally mutilates an ID card or who uses the ID card of another student or allows his/her ID card to be used by another student will be subjected to disciplinary action.
- x. The valid ID card must be presented for identification purpose as and when demanded by authorities. Any student refusing to provide an ID card will be subjected to disciplinary action.

R.B.T. 19 Details regarding B.Tech Major, Minor, Honors, Honors with Research, Multiple entry, multiple exit features:

(Major means the respective 6 UG Programs available on the Campus at the Department of Technology)

- I. **B. Tech Major:** The B. Tech Major requires earning the routine no of credits i.e. 162 (First Two semesters, 21 credits each plus remaining 6 semesters @ 20 Credits=120 credits.), thus the total credits against the Major will be $42 + 120 = 162$. Along with that, there will be mandatory audit courses in each semester.

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

- II. **B. Tech Multidisciplinary Minor (MDM):** There will be at least one Multidisciplinary Minor Program for each UG Major. For that sake, extra 14 Credits are mandatory to be earned. The credit split up is as follows: 3 Courses each of 3 credits plus 3 credits against MDM based internship plus 2 credits against MDM based Mini Project.
- III. With the aforesaid I & II, every enrollee under a particular UG Degree program, after the successful completion of the same will be the awardees of B.Tech in Major Degree Title with Multidisciplinary Minor (Minor Title Mention). *As per the National Credit Framework's mention of verticals, this particular Degree falls under the **fourth level (Level 6.0)**.* Routine fees as decided by the institute will be applicable to all the enrolled students. As usual if these graduates want to pursue PG, it will be of 2 years duration for them.
- IV. The credits distribution for the MDM featured B.Tech Degree in a particular Major Program is as follows: 21+21+20+23+23+23+23+22=176. The SGPA and CGPA calculation will be as per this distribution.
- V. **B. Tech (Honors):** This is purely an option to all the students. There will be additional **17** credits out of which **15** credits will be earned through successful completion of 05 courses 3 Credits each **plus 2** credits will be against a course in advanced laboratory practice from the major. (These courses could be preferably through the MOOCs. If so, these MOOCs need to be other than MOOCs of Semester VIII). The courses to be completed throughout four years starting from second year. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **fifth level (Level 6.0)**.* As per NEP 2020 guidelines, such successful candidates will be eligible to enter at the Second Year of PG in the respective specialization.
- VI. **B. Tech (Honors with Research):** This is also purely an option to all the students. There will be **17 credits** earned as in case of Honors **plus** there will be **3 more credits** earned against an additional Project Work with success in publishing at least one research paper based on the research topic. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **sixth level (Level 6.0)**.* As per NEP 2020 guidelines, such successful candidates will be eligible to pursue PhD studies **provided the candidate's entire CGPA is 7.5 and above.**
- VII. **B. Tech Double Minor:** This is also purely an option to all the students. As mentioned in I & II, the candidate in addition to Multidisciplinary Minor (MDM) along with the Major Degree, may choose to opt for one more minor from the Pool of Specialization Minors (SPM) and earns 14 extra credits against this minor. The successful candidates will be the awardees of B.Tech in Major Degree with Double Minors. (Mention of the Multidisciplinary and Specialization Minors). The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **seventh level (Level 6.0)**.*

VIII. Multiple entry and multiple exit feature:

- i. **After First year**, any candidate desiring exit from first year with a claim to be an awardee of certificate course in respective specialization, the enrollee has to complete (in addition to the First Year Credits 42 in number), two, '2 credits theory courses' and a skill based 4 credits course (i.e. 1 Month Industrial Training). These additional 08 credits to be earned by such aspirants. The details of these courses to be defined by the respective specialization and designed and well narrated to the aspirants. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the first vertical (Level 4.5).*
- ii. **After Second Year**, any candidate desiring to exit from second year with a claim to be an awardee of Diploma in respective specialization, the enrollee must have completed the courses against the Certificate. Moreover, the enrollee has to complete (in addition to the First Year and Second Year Credits 85 in number), three, '2 credits theory courses' and a skill based 4 credits course (i.e. 1 Month Industrial Training). These additional 10 credits to be earned by such aspirants. The details of these courses to be defined by the respective specialization and designed and well narrated to the aspirants. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the second vertical (Level 5.0).*
- iii. **After Third Year**, any candidate desiring to exit from third year will be an awardee of Bachelor's Degree in Vocation (B.Voc.) in respective specialization, provided the enrollee must have completed all the courses till T.Y B.Tech (Credits 131 in number). However, such a candidate needs to earn an additional 8 credits that include any two '2 credits theory courses' and a skill based 4 credits course (i.e. 1 Month Industrial Training). The choice of these two theory courses could be from the two courses which are listed against the exit after first year for certificate and three courses which are listed against the exit after S.Y.B.Tech with a claim for Diploma in respective specialization. *As per the National Credit Framework's mention of verticals, this particular case falls under the third vertical (Level 5.5).*
- iv. In case of multiple entry-multiple exit features, to undergo the one-month internship against the certificate and diploma, also in case of all other internships, the selection of skill imparting industry or organization will be preferably from the **AICTE approved SKPs (Skill knowledge Providers)** list.

- IX. About the courses through MOOCs:** In case of the non-availability of the MOOCs, the students will prepare for the course in a self-study mode under the mentorship of a teacher assigned by the respective Program Coordinator and the Director of the Department of Technology. The students also will have option to choose to appear for the End Semester Examination either by the MOOCs organizers or that by the Shivaji University.

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

N.B.: All the students will be mandatorily enrolled under the academic bank of credits. As regards, multiple entries, any student from same specialization who desires to join at second, third or Final Year has to have accumulation of those minimum numbers credits in the ABC account till the candidate's last year to that of the entry year.

Note: Also one more feature of this revision is that, besides the curriculum structure, as co-curricular activities, National Cadet Corps (India) i.e. NCC and National Service Scheme i.e. NSS units are available for the interested ones the selections of whom will be as per the respective norms.

Note: All other rules and regulations will be applicable as per Shivaji University, Kolhapur.

F. Engineering Graduate Attributes

1. Domain specific Engineering Knowledge
2. Problem Analysis Ability
3. Acquiring Skills that enable them to Design & Develop Solutions to the Problems
4. Capacity to investigate Complex Problems
5. Familiarity of using Modern Tools
6. Understanding Engineer's role and connectivity towards Society
7. Awareness about Environment & Sustainability
8. Practicing ethics and values
9. Ability to work as an Individual & in a Team also
10. Acquiring Communication skills
11. Becoming well verse with task of Project management & Finance aspects
12. Developing Lifelong Learning attitude

Note: For every program, there are its own Program Educational Objectives (PEOs) while there are 12 Program Outcomes (POs) which are aligned with these graduate attributes for the engineers.

G. B. Tech (Computer Science and Technology) Program: Vision, Mission, PEOs and POs.

VISION:

To be a centre of academic excellence and research in the field of Computer Science and Technology by imparting knowledge to students and facilitating research activities that cater the needs of industries and society.

MISSION:

1. To provide a learning environment that help students to enhance problem solving skills, be successful in their professional career and to prepare students to be lifelong learners by offering theoretical foundation in Computer Science and Technology.
2. To prepare students in developing research, design, entrepreneur skills and employability capabilities.
3. To establish Industry Institute Interaction to make students ready for industrial environment.
4. To educate students about their professional and ethical responsibilities.

Program Educational Objectives (PEOs):	
PEO1	To create graduates with sound learning of basics of Computer Science and Technology who can contribute towards propelling Science and Technology.
PEO2	To create graduates with adequate abilities in Computer Science and Technology who can progress towards becoming developers, researchers and designers to fulfill the necessities of Computer Industries.
PEO3	To develop among students capacity to figure, formulate, analyze and solve real life problems confronted in Software Enterprises.
PEO4	Graduate will exhibit professionalism, ethical attitude, communication ability, collaboration in their profession and adapt to current trends by engaging in lifelong learning.
Program Outcomes (POs)	
PO1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and Leader in a team, to manage projects and in multidisciplinary environments.
PO12	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

H. Fees structure for Multiple Entry/Exit, Minor, Honors, Honors with Research

Sr. No.	Component	Total additional	Fees to be
---------	-----------	------------------	------------

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

		Credits	charged* INR
1.	Exit After FY B.Tech claiming Certification in respective specialization	08	8000/-
2.	Exit After SY B.Tech claiming Diploma in respective specialization	10	10000/-
3.	Exit After TY B.Tech claiming Bachelor's Degree in Vocation (B.Voc.) in respective specialization.	08	8000/-
4.	B.Tech Double minor (Only for Specialization Minor)	14	14000/-
5.	B.Tech (Honors)	17	17000/-
6.	B.Tech (Honor with Research)	20	20000/-

* For these optional features, the fees calculation is based on INR1000 per Credit. These fees against the additional optional features are applicable to the batch enrolled in the year 2023-24. All these fees will be in addition to the management approved total tuition fees per year for the MDM featured B.Tech Majors plus the admissible and payable other fees.



Shivaji University, Kolhapur Department of Technology

First Year B. Tech (All Programs), Semester- I

Physics Group : Teaching and Evaluation Scheme

S.N.	Category	Course Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Course	BSC111	Engineering Physics	03	-	02	05	04	30:70	50:00
2.	Basic Science course	BSC112	Engineering Mathematics –I	03	01	-	04	04	30:70	50:00
3.	Engineering Science Courses	ESC111	Elements of Mechanical and Electronics Engineering	04	-	02	06	05	30:70	50:00
4.	Engineering Science Courses	ESC112	Engineering Mechanics	03	-	02	05	04	30:70	50:00
5.	Engineering Science Course	ESC113	Computer Programming for Engineers	02	-	02	04	03	30:70	50:00
6.	Indian Knowledge System	IKS111	Yoga and Meditation	01	-	-	01	01	-	50:00
				-	-	-	-	21	500	300
7.	Humanities & Social Sciences, Management, Environment Courses	HSMEC 111	Professional Communication (English)-I	02	-	-	02	IE at Course in charge end		
8.	Vocational and Skill Enhancement Courses	VSEC111	Design Thinking and Innovation-I	01	01	-	02	IE at Course in charge end		
Total Hours				19	02	08	29	-	-	-

Note: After the First Semester of F.Y. B. Tech, the students will undergo 10 days Social Internship and its evaluation will be done in the Second Semester.



Shivaji University, Kolhapur Department of Technology

First Year B. Tech (All Programs), Semester- I

Chemistry Group : Teaching and Evaluation Scheme

S.N.	Category	Course Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Course	BSC111	Engineering Chemistry	03	-	02	05	04	30:70	50:00
2.	Basic Science Course	BSC112	Engineering Mathematics –I	03	01	-	04	04	30:70	50:00
3.	Engineering Science Course	ESC111	Elements of Civil and Electrical Engineering	04	-	02	06	05	30:70	50:00
4.	Engineering Science Course	ESC112	Engineering Graphics	03	-	02	05	04	30:70	50:00
5.	Engineering Science Course	ESC113	Electrical-Electronic Components and Devices	02	-	02	04	03	30:70	50:00
6.	Indian Knowledge System	IKS111	Yoga and Meditation	01	-	-	01	01	-	50:00
				-	-	-	-	21	500	300
7.	Humanities & Social Sciences, Management, Environment Courses	HSMEC 111	Professional Communication (English)-I	02	-	-	02		IE at Course in charge end	
8.	Vocational and Skill Enhancement Courses	VSEC111	Design Thinking and Innovation-I	01	01	-	02		IE at Course in charge end	
Total Hours				19	02	08	29	-	-	-

Note: After the First Semester of F.Y. B. Tech, the students will undergo 10 days Social Internship and its evaluation will be done in the Second Semester.



Shivaji University, Kolhapur Department of Technology

First Year B. Tech (All Programs), Semester- II

Physics Group, Teaching and Evaluation Scheme

S. N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Course	BSC121	Engineering Chemistry	03	-	02	05	04	30:70	50:00
2.	Basic Science Course	BSC122	Engineering Mathematics – II	03	01	-	04	04	30:70	50:00
3.	Engineering Science Course	ESC121	Elements of Civil and Electrical Engineering	04	-	02	06	05	30:70	50:00
4.	Engineering Science Course	ESC122	Engineering Graphics	03	-	02	05	04	30:70	50:00
5.	Engineering Science Course	ESC123	Electrical-Electronic Components and Devices	02	-	02	04	03	30:70	50:00
6.	Indian Knowledge System	IKS121	Human Rights and Constitution	01	-	-	01	01	-	50:00
				-	-	-	-	21	500	300
7.	Humanities & Social Sciences, Management, Environment Courses	HSMEC 121	Professional Communication (English)-II	02	-	-	02	ISE at Course in charge end		
8.	Vocational and Skill Enhancement Courses	VSEC121	Design Thinking & Innovation-II	01	01	-	02	IE at Course in charge end		
9.	Project Seminar Internship	PSI 121	Social Internship	After Semester 1, 10 days internship preferably in a rural area.			IE at Course in charge end			
			Total Hours	19	02	08	29	-	-	-



Shivaji University, Kolhapur Department of Technology

First Year B. Tech (All Programs), Semester- II

Chemistry Group : Teaching and Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Course	BSC121	Engineering Physics	03	-	02	05	04	30:70	50:00
2.	Basic Science Course	BSC122	Engineering Mathematics – II	03	01	-	04	04	30:70	50:00
3.	Engineering Science Course	ESC121	Elements of Mechanical and Electronics Engineering	04	-	02	06	05	30:70	50:00
4.	Engineering Science Course	ESC122	Engineering Mechanics	03	-	02	05	04	30:70	50:00
5.	Engineering Science Course	ESC123	Computer Programming for Engineers	02	-	02	04	03	30:70	50:00
6.	Indian Knowledge System	IKS121	Human Rights and Constitution	01	-	-	01	01	-	50:00
				-	-	-	-	21	500	300
7.	Humanities & Social Sciences, Management, Environment Course	HSMEC 121	Professional Communication (English)-II	02	-	-	02	IE at Course in charge end		
8.	Vocational and Skill Enhancement Courses	VSEC121	Design Thinking & Innovation-II	01	01	-	02	IE at Course in charge end		
9.	Project Seminar Internship	PSI 121	Social Internship	After Semester 1, 10 days internship preferably in a rural area.			IE at Course in charge end			
Total Hours				19	02	08	29	-	-	-



Shivaji University, Kolhapur Department of Technology

Second Year B.Tech. (Computer Science and Technology), Semester- III

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Course	BSC 211	Applied Mathematics- I	03	-	00	03	03	30:70	50:00
2.	Professional Core Courses	PCC211	Discrete Mathematical Structure	03	-	00	03	03	30:70	00:00
3.	Professional Core Courses	PCC212	Digital System and Microprocessor	03	-	02	05	04	30:70	50:00
4.	Professional Core Courses	PCC213	Data Structures	03	-	04	07	05	30:70	50:50
5.	Professional Core Courses	PCC214	Data Communication and Networking	03	-	02	05	04	30:70	00:50
6.	Ability Enhancement Courses	AEC211	Soft Skills Development	01	-	-	01	01	-	50:00
				-	-	-	-	20	500	300
7.	Project Based Learning	PBL211	Mini Project I	-	01	-	01	IE at Course in charge end		
8.	Humanities, Social Sciences, Management, Environment	HSMEC 211	Environmental Studies	02	-	-	02	University Exam at year end		
			Total Hours	18	01	08	27	-	-	-



Shivaji University, Kolhapur Department of Technology

Second Year B.Tech (Computer Science and Technology), Semester- IV

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Basic Science Courses	BSC 221	Applied Mathematics- II	03	-	-	03	03	30:70	00:00
2.	Professional Core Courses	PCC221	Theory of Computation	03	-	-	03	03	30:70	00:00
3.	Professional Core Course	PCC 222	Advanced Microprocessor	03	-	02	05	04	30:70	50:50
4.	Professional Core Course	PCC 223	Computer Organization	03	-	-	03	03	30:70	00:00
5.	Professional Core Course	PCC 224	Software Engineering	03	-	-	03	03	30:70	00:00
6.	Professional Core Course	PCC 225	Linux and Shell Programming Lab	-	-	02	02	01	00:00	50:00
7.	Professional Core Course	PCC 226	Object Oriented Programming Lab	-	-	04	04	02	00:00	50:50
8.	MDM Course	MDM 221	Multidisciplinary Minor Course I*	03	-	-	03	03	30:70	00:00
9.	Indian Knowledge Systems	IKS221	Introduction to Performing Arts	01	-	-	01	01	-	50:00
				-	-	-	-	23	600	300
10.	Mandatory Audit Course	MAC 221	Aptitude Enhancement Course I	-	01	-	01	IE at Course in charge end		
11.	Project Based Learning	PBL221	Mini Project II	-	01	-	01	IE at Course in charge end		
12.	Humanities, Social Sciences, Management Environment	HSMEC 221	Environmental Studies	02	-	-	02	University Exam at year end		
			Total Hours	21	02	08	31	-	-	-



Shivaji University, Kolhapur Department of Technology

Third Year B. Tech (Computer Science and Technology), Semester- V

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
									ISE:ESE	IE:EE
1.	Professional Core Courses	PCC311	System Programming	03	-	-	03	03	30:70	00:00
2.	Professional Core Courses	PCC312	Design and Analysis of Algorithm	03	-	-	03	03	30:70	00:00
3.	Professional Core Courses	PCC313	Operating System	03	-	-	03	03	30:70	00:00
4.	Professional Core Courses	PCC314	Database Engineering	03	-	02	05	04	30:70	50:50
5.	Professional Core Course	PCC315	Machine Learning	03	-	-	03	03	30:70	00:00
6.	Professional Core Course	PCC316	Java Programming Lab	-	-	04	04	02	00:00	50:50
7.	Professional Core Course	PCC317	Free Open Source Software Lab	-	-	02	02	01	00:00	50:00
8.	Ability Enhancement Courses	AEC311	Introduction to Foreign Language	01	-	-	01	01	-	50:00
9.	MDM Course	MDM 311	Multidisciplinary Minor Course II*	03	-	-	03	03	30:70	00:00
				-	-	-	-	23	600	300
10.	Project Based Learning	PBL311	Seminar	-	01	-	01		IE at Course in charge end	
11.	Mandatory Audit Course	MAC311	Aptitude Enhancement Course II		01	-	01			
			Total Hours	19	02	08	29	-	-	-



Shivaji University, Kolhapur Department of Technology

Third Year B. Tech (Computer Science and Technology), Semester- VI

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
									ISE:ESE	IE:EE
1.	Professional Core Courses	PCC 321	Compiler Construction	03	-	-	03	03	30:70	00:00
2.	Professional Core Course	PCC322	Computer Graphics and Multimedia Techniques	03	-	02	05	04	30:70	50:50
3.	Professional Core Course	PCC323	Distributed and Cloud Computing	03	-	-	03	03	30:70	50:00
4.	Professional Elective Course	PEC321	Elective- I	03	-	-	03	03	30:70	00:00
5.	Open Elective Course	OEC 321	Open Elective –I	03	-	-	03	03	30:70	00:00
6.	MDM Course	MDM 321	Multidisciplinary Minor Course III*	03	-	-	03	03	30:70	00:00
7.	Professional Core Course	PCC324	Advanced Programming Lab	02	-	02	04	03	00:00	50:50
8.	Ability Enhancement Course	AEC321	Mini Project –III	-	-	02	02	01	00:00	50:00
				-	-	-	-	23	600	300
9.	Vocational and Skill Enhancement Course	VSEC321	Design Thinking & Innovation – III	01	-	-	01	IE at Course in charge end		
10.	Mandatory Audit Course	MAC 321	Aptitude Enhancement Course III	-	01	-	01	IE at Course in charge end		
			Total Hours	21	01	06	28	-	-	-



Shivaji University, Kolhapur Department of Technology

Final Year B. Tech (Computer Science and Technology), Semester- VII

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
									ISE:ESE	IE:EE
1.	Program Core Course	PCC411	High Performance Computing	03	-	-	03	03	30:70	00:00
2.	Program Core Course	PCC412	Soft Computing	03	-	02	05	04	30:70	50:00
3.	Program Core Course	PCC413	Advanced Database Management System	03	-	-	03	03	30:70	00:00
4.	Program Elective Course	PEC 411	Elective II	03	-	-	03	03	30:70	00:00
5.	Open Elective Course	OEC 411	Open Elective- II	03	-	-	03	03	30:70	00:00
6.	Program Core Course	PCC414	Web Technology Lab	-	-	02	02	01	00:00	50:50
7.	Project Based Learning	PBL411	Major Project-I	-	-	04	04	02	00:00	50:50
8.	Value Education Course	VEC411	Green Technology & Sustainability	01	-	-	01	01	-	50:00
9.	Project Seminar Internship	PSI 412	MDM based Industry Internship *	One Month Duration*				03	-	50:50
							-	23	500	400
			Total Hours	16	00	08	24	-	-	-

* The MDM based industry Internship to be completed during any winter/summer vacation slots 4th Semester onwards, before 7th Semester commencement.



Shivaji University, Kolhapur Department of Technology

Final Year B. Tech (Computer Science and Technology), Semester- VIII

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
									ISE:ESE	IE:EE
1.	Project Seminar Internship	PSI 421	Industrial Internship (Follow up by the Department)	Entire Semester to be spent in industry				10	00:00	100:100
2.	Program Elective Course [SWAYAM (NPTEL) or any other MOOCs]	PEC 421	Program Elective –III Through MOOC*	03	-	-	03	03	30:70	00:00
3.		PEC 422	Program Elective –IV Through MOOC*	03	-	-	03	03	30:70	00:00
4.	Indian Knowledge Systems	IKS 421	Program Specific IKS	02	-	-	02	02	30:70	50:00
5.	Project Seminar Internship	PSI 424	Major Project-II	-	-	02	02	01	00:00	100:100
6.	Value Education Courses	VEC421	Professional Ethics (Through MOOC)	01	-	-	01	01	-	50:00
7.	Project Based Learning	PBL 421	MDM based Mini Project**	-	-	-	-	02	-	50:50
				-	-	-	-	22	300	600
			Total Hours (Other than Internship)	09	00	02	11	-	-	-

*There is an option for End Semester Examination either on respective MOOC platform or at the course teacher's end through the University System.

** MDM based Mini Project to be completed during 4th Semester to 8th Semester.



Shivaji University, Kolhapur Department of Technology

B. Tech (Computer Science and Technology), Minor Degree(Both MDM & Specialization)

Teaching & Evaluation Scheme

Sr. No.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	Preferably on SWAYAM (NPTEL) or any other MOOCs (Minor Program Core) Or In a Face-to-Face mode	MN 1	MN-Minor I	03	-	-	03	03	30:70	00:00
2.		MN 2	MN-Minor II	03	-	-	03	03	30:70	00:00
3.		MN 3	MN-Minor III	03	-	-	03	03	30:70	00:00
4.	Minor Program Based Internship	MN 4	Industrial Internship* (Minor Program Specific Industry)	One Month Internship				03	-	50:50
5.	Project Based Learning	MN 5	Minor Program Based Mini Project*	-	-	-	-	02	-	50:50
				-	-	-	-	14	300	200
			Total Hours	09	00	00	09	-	-	-

Note: The workload against the B.Tech Minors will be finalized at the Program Level considering the strength of students opting for the Minor.

For MDM, there will be three choices and also three choices for Specialization Minors. The credits 176 required for the B. Tech (Major) include 14 credits against the compulsory MDM, while specialization minor (SPM) will be purely an option.

*MDM based internship to be completed during vacations between 4th Semester to 7th Semester. MDM based Mini Project to be completed during 4th Semester to 8th Semester.



Shivaji University, Kolhapur Department of Technology

B. Tech (Computer Science and Technology), Honors(An additional but optional one)

Teaching & Evaluation Scheme

Sr. No.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	SWAYAM (NPTEL) or any other MOOCs Or Self-study mode with University's End Semester Examination (Program Core Courses)	HN 1	HN-Course I	03	-	-	03	03	30:70	00:00
2.		HN 2	HN- Course II	03	-	-	03	03	30:70	00:00
3.		HN 3	HN- Course III	03	-	-	03	03	30:70	00:00
4.		HN 4	HN- Course IV	03	-	-	03	03	30:70	00:00
5.		HN 5	HNR - Course V	03	-	-	03	03	30:70	00:00
6.	Ability Enhancement Course	HN-AEC1	HN-Advanced Laboratory Practice	-	-	04	04	02	-	50:50
				-	-	-	-	17	500	100
			Total Hours	15	00	04	19	-	-	-

Note: The workload against the B. Tech Honors will be finalized at the Program Level considering the strength of students opting for the Honors.

Note1: The Program will fix up these courses either through MOOCs' or from a conventional list for self-studies.

Note2: These courses / MOOCs will be different than those to be opted in the VIII semester of B. Tech Major against electives.

Note 3: B. Tech (Honors) candidate will be eligible to join the Second Year of PG program in the same or allied specialization.

Note 4: Students may earn these credits during **SY B. Tech to Final Year of their studies.**



Shivaji University, Kolhapur Department of Technology

B. Tech (Computer Science and Technology), Honors with Research (An additional but Optional One)

Teaching & Evaluation Scheme

Sr. No.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	SWAYAM (NPTEL) or any other MOOCs Or Self-study mode with University's End Semester Examination (Program Core Courses)	HNR 1	HNR -Course I	03	-	-	03	03	30:70	00:00
2.		HNR 2	HNR - Course II	03	-	-	03	03	30:70	00:00
3.		HNR 3	HNR - Course III	03	-	-	03	03	30:70	00:00
4.		HNR 4	HNR - Course IV	03	-	-	03	03	30:70	00:00
5.		HNR 5	HNR - Course V	03	-	-	03	03	30:70	00:00
6.	Ability Enhancement Course	HNR-AEC1	HNR- Advanced Laboratory Practice	-	-	04	04	02	-	50:50
7.	Project Based Learning	HNR-PBL	*Additional Research Project	-	-	06	06	03	-	50:50
				-	-	-	-	20	500	200
			Total Hours	15	-	10	25	-	-	-

Note: The workload against the B. Tech Honors with Research will be finalized at the Program Level considering the strength of students opting for the Honors with Research. *Research Project to be treated successful upon publishing of 1 research paper in a reputed Research Journals.

Note1: The Program will fix up these courses/MOOCs. Note2: These courses or MOOCs will be different than those to be opted in the VIII semester of B. Tech Major against the electives. Note 3: A successful B. Tech (Honors with Research) candidate will be eligible to get enrolled to PhD in same or allied field **provided the candidate's entire CGPA is 7.5 or above.** Note 4: Students may earn these credits during SY B. Tech to Final Year of their studies.



Shivaji University, Kolhapur Department of Technology

B. Tech (Computer Science and Technology), Exit After First Year (Certificate Course in Computer Science and Technology)

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
1.	SWAYAM (NPTEL) or any other MOOCs Or any other course from in face to face mode (Program Core Courses)	CC-CST 1	Fundamentals of Computer Science and Technology	02	-	-	02	02	30:70	00:00
2.		CC- CST 2	Concept of Programming Using C	02	-	-	02	02	30:70	00:00
3.	Program Based Internship	CC-PBI	Industrial Internship	One Month				04	00:00	50:50
				-	-	-	-	08*	200	100
			Total Hours	04	-	-	04	-	-	-

Note: The Workload against the Certificate Course will be finalised at the Program Level considering the strength of the students seeking for the Certificate. *Obtaining these credits will be in addition to 42 regular credits at FY B. Tech

** There is an option for End Semester Examination either on respective MOOC platform if any or through the University System.

Note 1: The students aspiring to exit after first year will finalise the title of the course/MOOC from the list provided by the Program.

Note 2: Program Specific Industry Internship to be completed by such students before commencement of SY B. Tech.



Shivaji University, Kolhapur Department of Technology

B. Tech (Computer Science and Technology), Exit After Second Year (Diploma in Computer Science and Technology)

Teaching & Evaluation Scheme

S.N.	Category	Code	Course Title	Hours per week			Contact Hours	Credits	Evaluation scheme	
				L	T	P			Theory	Practical
				L	T	P			ISE:ESE	IE:EE
1.	SWAYAM (NPTEL) or any other MOOCs Or any other course from in face to face mode (Program Core Courses)	DC-CST 1	DC-I **	02	-	-	02	02	30:70	00:00
2.		DC- CST 2	DC-II**	02	-	-	02	02	30:70	00:00
3.		DC- CST 3	DC-III**	02	-	-	02	02	30:70	00:00
4.	Program Based Internship	DC-PBI	Industrial Internship	One Month				04	00:00	50:50
				-	-	-	-	10*	300**	100
			Total Hours	06	-	-	06	-	-	-

Note: The Workload against the Diploma Course will be finalised at the Program Level considering the strength of the students seeking for the Diploma.

***Obtaining these credits will be in addition to 84 regular credits up to SY B. Tech**

** There is an option for End Semester Examination either on respective MOOC platform if any or through the University System.

Note 1: The students aspiring to exit after the second year will finalise the title of the course/MOOC from the list provided by the Program.

Note 2: Program Specific Industry Internship to be completed by such students before commencement of TY B. Tech.

Salient Feature of the revision made in line with NEP 2020 Guidelines

(Major means the respective 6 UG Programs available on the Campus at the Department of Technology)

- I. **B. Tech Major:** The B. Tech Major requires earning the routine no of credits i.e. 162 (First Two semesters, 21 credits each plus remaining 6 semesters @ 20 Credits=120 credits.), thus the total credits against the Major will be $42 + 120 = 162$. Along with that, there will be mandatory audit courses in each semester.
- II. **B. Tech Multidisciplinary Minor (MDM):** There will be at least one Multidisciplinary Minor Program for each UG Major. For that sake, extra 14 Credits are mandatory to be earned. The credit split up is as follows: 3 Courses each of 3 credits plus 3 credits against MDM based internship plus 2 credits against MDM based Mini Project.
- III. With the aforesaid I & II, every enrolee under a particular UG Degree program, after the successful completion of the same will be the awardee of **B.Tech in Major Degree Title with Multidisciplinary Minor** (Minor Title Mention). *As per the National Credit Framework's mention of verticals, this particular Degree falls under the **fourth level**.* Routine fees as decided by the institute will be applicable to all the enrolled students.
As usual if these graduates want to pursue PG, it will be of 2 years duration for them.
- IV. The credits distribution for the MDM featured B.Tech Degree in a particular Major Program is as follows: $21+21+20+23+23+23+23+22=176$. The SGPA and CGPA calculation will be as per this distribution.
- V. **B. Tech (Honors):** This is purely an option to all the students. There will be additional **17** credits out of which **15** credits will be earned through successful completion of 05 courses 3 Credits each **plus 2** credits will be against a course in advanced laboratory practice from the major. (These courses could be preferably through the MOOCs. If so, these MOOCs need to be other than MOOCs of Semester VIII). The courses to be completed throughout four years starting from second year. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **fifth level**.* As per NEP 2020 guidelines, such successful candidates will be eligible to enter at the Second Year of PG in the respective specialization.
- VI. **B. Tech (Honors with Research):** This is also purely an option to all the students. There will be **17 credits** earned as in case of Honors **plus** there will be **3 more credits** earned against

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

an additional Project Work with success in publishing at least one research paper based on the research topic. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **sixth level**.* As per NEP 2020 guidelines, such successful candidates will be eligible to pursue PhD studies **provided the candidate's entire CGPA is 7.5 and above.**

VII. B. Tech Double Minor: This is also purely an option to all the students. As mentioned in I & II, the candidate in addition to Multidisciplinary Minor (MDM) along with the Major Degree, may choose to opt for one more minor from the Pool of Specialization Minors (SPM) and earns 14 extra credits against this minor. The successful candidates will be the awardees of B.Tech in Major Degree with Double Minors. (Mention of the Multidisciplinary and Specialization Minors). The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **seventh level**.*

VIII. Multiple entry and multiple exit feature:

i. After First year, any candidate desiring exit from first year with a claim to be an awardee of certificate course in respective specialization, the enrollee has to complete (in addition to the First Year Credits 42 in number), two, '2 credits theory courses' and a skill based 4 credits course (i.e. 1 Month Industrial Training). These additional 08 credits to be earned by such aspirants. The details of these courses to be defined by the respective specialization and designed and well narrated to the aspirants. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **first level**.*

ii. After Second Year, any candidate desiring to exit from second year with a claim to be an awardee of Diploma in respective specialization, the enrollee must have completed the courses against the Certificate. Moreover, the enrollee has to complete (in addition to the First Year and Second Year Credits 85 in number), three, '2 credits theory courses' and a skill based 4 credits course (i.e. 1 Month Industrial Training). These additional 10 credits to be earned by such aspirants. The details of these courses to be defined by the respective specialization and designed and well narrated to the aspirants. The interested students have to pay separate fees for the same. *As per the National Credit Framework's mention of verticals, this particular case falls under the **second level**.*

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

- iii. In case of multiple entry-multiple exit features, to undergo the one-month internship against the certificate and diploma, also in case of all other internships, the selection of skill imparting industry or organization will be preferably from the **AICTE approved SKPs (Skill knowledge Providers)** list.

IX. About the courses through MOOCs: In case of the non-availability of the MOOCs, the students will prepare for the course in a self-study mode under the mentorship of a teacher assigned by the respective Program Coordinator and the Director of the Department of Technology. The students also will have option to choose to appear for the End Semester Examination either by the MOOCs organizers or that by the Shivaji University.

N.B.: All the students will be mandatorily enrolled under the academic bank of credits. As regards, multiple entries, any student from same specialization who desires to join at second, third or Final Year has to have accumulation of those minimum numbers credits in the ABC account till the candidate's last year to that of the entry year.

Note: Also one more feature of this revision is that, besides the curriculum structure, as co-curricular activities, National Cadet Corps (India) i.e. NCC and National Service Scheme i.e. NSS units are available for the interested ones the selections of whom will be as per the respective norms.

Note: All other rules and regulations will be applicable as per Shivaji University, Kolhapur.

Pool of Courses under various features

As per this revision of B. Tech curriculum in line with NEP2020, here is an exhaustive pool of courses for opting by different aspirants under different features namely: 1-year certificate, diploma in respective Major Program, B. Tech Minor, Elective I and Elective II under B. Tech Major and B. Tech Honors.

I. Pool of Courses against Multiple entry-multiple exit (Certificate & Diploma)

1. Fundamentals of Computer Science and Technology (Compulsory for 1 year Certificate)
2. Concept of Programming Using C (For 1 Year Certificate)
3. Object Oriented Programming (For Diploma)
4. Data Communication and Computer Networks (For Diploma)
5. Computer Architecture and Hardware Maintenance (For Diploma)

However, for aspirants' interested to leave after Second Year B. Tech with a claim for Diploma in Computer Science and Technology, the candidate has to have completion of the courses against 1 year certification also

II. Pool of Courses for Program Core Elective I (Semester VI)

1. Mobile Computing
2. Object Oriented Modelling and Design
3. Advanced Operating System
4. Image Processing

III. Pool of Courses for Program Core Elective II (Semester VII)

1. Advanced Network Engineering
2. Industrial Management
3. Information Security

IV. Pool of Courses against Open Elective I to IV (From Semester VI onwards of the Major Degree)

In case of Open Electives I and II students will have option to choose any course from the list of open elective pools from across the institute (Department of Technology) while Open Electives III and IV would be said as self-study courses.

Note: The Program will finalise and update the list for the honours.

Open Elective I

1. Basics of Software Engineering
2. Introduction to Computer Networks
3. Introduction to Database Engineering
4. Engineering Economics

Open Elective II

1. Cyber Laws
2. IT For Engineers
3. Data Mining and warehousing

Open Elective III

1. Deep Learning
2. E Commerce
3. Internet of Things
4. Project Management

Open Elective IV

1. Data Science
2. Search Engine and Optimization
3. Big Data Technology

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

Equivalence for the curriculum revision at B. Tech Computer Science and Technology

We at the B. Tech Computer Science and Technology, Department of Technology due for revision in curriculum w.e.f. 2023-2024 have revised the structure and the content as well at the F.Y. B. Tech Computer Science and Technology. The entire structure for Second Year Final Year B. Tech Computer Science and Technology is also designed under this revision. The detailed of course content will be designed and submitted as the First Year batch proceed year to year.

A special mention rather feature of this revision is, ***it is in line with New National Education Policy 2020 guidelines.*** It is our every effort to incorporate most of the key features of NEP2020.

Following is a semester wise table that depicts equivalences for the previous version of curriculum.

SEM – I

Sr. No.	First Year B. Tech Semester I Pre-revised syllabus	First Year B. Tech Semester I Revised syllabus	Remark
1.	Engineering Mathematics–I	Engineering Mathematics–I	Content is revised
2.	Engineering Physics (Theory & Lab)	Engineering Physics (Theory & Lab)	Content is revised
3.	Basics of Mechanical Engineering (Theory & Lab)	-	-
4.		Elements of Mechanical and Electronics Engineering (Theory & Lab)	Two courses of the previous version are clubbed.
5.	Engineering Mechanics (Theory & Lab)	Engineering Mechanics (Theory & Lab)	Content is revised
6.	Basic Electronics Engineering (Theory & Lab)	-	Clubbed with other course.
7.	Computer Programming (Lab)	Computer Programming for Engineers (Theory & Lab)	Content is revised
8.	Workshop Practice (Lab)	-	A new course called Design thinking & Innovation is introduced in lieu.
9.	-	Professional Communication (English)-I (Theory)	Content is revised, split in I & II, It is as an audit course.
10.	-	Design Thinking and Innovation-I	Newly introduced audit course.
11.	-	Yoga and Meditation	Newly introduced Credit course.

SEM – II

Sr. No.	First Year B. Tech Semester II Pre-revised syllabus	First Year B. Tech Semester II Revised syllabus	Remark
1.	Engineering Mathematics–II	Engineering Mathematics–II	Content is revised.
2.	Engineering Chemistry (Theory & Lab)	Engineering Chemistry (Theory & Lab)	Content is revised.
3.	Engineering Graphics (Theory & Lab)	Engineering Graphics (Theory & Lab)	Content is revised.
4.	Basic Civil Engineering (Theory & Lab)	-	-
5.	-	Elements of Civil and Electrical Engineering (Theory & Lab)	Two courses are clubbed with content revision
6.	Basic Electrical Engineering (Theory & Lab)	-	-
7.	-	Electrical-Electronic Components and Devices (Theory & Lab)	Two courses are clubbed with content revision
8.	Programming with Scilab and Matlab (Lab)	-	-
9.	Professional Communication (Lab)	Professional Communication (English)-II (Theory)	Content is revised, split in I & II, It is as an audit course.
10.	-	Design Thinking and Innovation-II	Newly introduced audit course.
11.	-	Social Internship	Newly introduced audit course
12.	-	Human Rights and Constitution	Newly introduced Credit course.

SEM – III

Sr. No.	Second Year B. Tech Semester III Pre-revised syllabus	Second Year B. Tech Semester III Revised syllabus	Remark
1	Applied Mathematics-I	Applied Mathematics- I	Content is revised
2	Discrete Mathematical Structure	Discrete Mathematical Structure	No change in the subject content
3	Digital System and Microprocessor	Digital System and Microprocessor	No change in the subject content
4	Data Structures	Data Structures	No change in the subject content
5	Data Communication and Networking	Data Communication and Networking	No change in the subject content
6	Digital System and Microprocessor Lab	Digital System and Microprocessor Lab	No change in the subject content
7	Data Structures Lab	Data Structures Lab	No change in the subject content
8	Data Communication and Networking Lab	Data Communication and Networking Lab	No change in the subject content
9	Environmental Studies	Environmental Studies	No change as it is centrally offered by the University.
10	Soft Skills Development	Soft Skills Development	Content is revised and made it as a Credit course
11	-----	Mini Project I	Newly introduced audit course.
12	Introduction to Performing Arts	-----	Shifted to Sem IV

SEM – IV

Sr. No.	Second Year B. Tech Semester IV Pre-revised syllabus	Second Year B. Tech Semester IV Revised syllabus	Remark
1	Theory of Computation	Theory of Computation	No change in the subject content
2	Advanced Microprocessor	Advanced Microprocessor	No change in the subject content
3	Computer Organization	Computer Organization	No change in the subject content
4	Software Engineering	Software Engineering	No change in the subject content
5	Applied Mathematics-II	Applied Mathematics-II	No change in the subject content
6	Advanced Microprocessor Lab	Advanced Microprocessor Lab	No change in the subject content
7	Linux and Shell Programming Lab	Linux and Shell Programming Lab	No change in the subject content
8	Object Oriented Programming Lab	Object Oriented Programming Lab	No change in the subject content
9	Environmental Studies Project Work	Environmental Studies	No change in the subject content. Only change in Title.
10	Soft Skills Development	-----	Shifted to Sem III
11	-	Multidisciplinary Minor Course I	As per NEP feature, MDM is introduced.
12	-----	Aptitude Enhancement Course -I	Newly introduced
13	-----	Mini Project II	Newly introduced
14	-----	Introduction to Performing Arts	Made it as a Credit course with content

			revision.
--	--	--	-----------

SEM – V

Sr. No.	Second Year B. Tech Semester V Pre-revised syllabus	Second Year B. Tech Semester V Revised syllabus	Remark
1	System Programming	System Programming	No change in the subject content
2	Design and Analysis of Algorithm	Design and Analysis of Algorithm	No change in the subject content
3	Operating System	Operating System	No change in the subject content
4	Machine Learning	Machine Learning	No change in the subject content
5	Database Engineering	Database Engineering	No change in the subject content
6	Free Open Source Software Lab	Free Open Source Software Lab	No change in the subject content
7	Database Engineering Lab	Database Engineering Lab	No change in the subject content
8	Java Programming Lab	Java Programming Lab	No change in the subject content
9	Seminar	Seminar	No change in the subject content
10	Internship- I	-----	Shifted to Sem VIII
11	Research Methodology	-----	Course Removed
12	-----		
13	-----	Aptitude Enhancement Course II	Newly introduced.
14	-----	Introduction to Foreign Language	Made it as a Credit course.
15	-	Multidisciplinary Minor Course II	As per NEP feature, MDM is introduced.

SEM – VI

Sr. No.	Second Year B. Tech Semester VI Pre-revised syllabus	Second Year B. Tech Semester VI Revised syllabus	Remark
1	Compiler Construction	Compiler Construction	
2	Advanced Operating System	Elective I	Shifted to Elective I Sem VI
3	Object Oriented Modeling and Design	Elective I	Shifted to Elective I Sem VI
4	Computer Graphics and Multimedia Techniques	Computer Graphics and Multimedia Techniques	No change in the subject content
5	Engineering Economics	Open Elective I	Shifted to Open Elective I Sem VI
6	Object Oriented Modeling and Design Lab	-----	Lab removed
7	Computer Graphics and Multimedia Techniques Lab	Computer Graphics and Multimedia Techniques Lab	No change in the subject content
8	Advanced Programming Lab	Advanced Programming Lab	No change in the subject content
9	Mini Project	Mini Project – III	No change in the subject content. Made it as a Credit course.
10	Introduction to Foreign Language	-----	Shifted to Sem V
12	-----	Design Thinking & Innovation – III	Newly introduced.
13	-----	Aptitude Enhancement Course III	Newly introduced.
14	-	Multidisciplinary Minor Course II	As per NEP feature, MDM is introduced.

SEM – VII

Sr. No.	Second Year B. Tech Semester VII Pre-revised syllabus	Second Year B. Tech Semester VII Revised syllabus	Remark
1	High Performance Computing	High Performance Computing	No change in the subject content
2	Advanced Database Management System	Advanced Database Management System	No change in the subject content
	Distributed and Cloud Computing	-----	Shifted to Sem VI
3	Advanced Network Engineering	Advanced Network Engineering	Shifted to Elective II Sem VII
4	Elective-I Project Management	-----	Shifted to Project Seminar Internship Sem VIII
5	-----		Content revision.
6	Elective-I Internet of Things	-----	Shifted to Open Elective III Sem VIII
7	Elective-I Data Science	-----	Shifted to Open Elective IV Sem VIII
8	Advanced Network Engineering Lab	-----	Lab removed
9	Web Technology Lab-1	Web Technology Lab-1	No change in the subject content
10	Major Project Phase-I	Major Project – I	No change in the subject content. Only change in Title.
11	Internship - II	-----	Shifted to Sem VIII
12	Professional Ethics	-----	Shifted to Sem VIII MOOC III
13	-----	Green Technology & Sustainability	Newly added Credit course.
14	-----	Open Elective- II	Newly introduced.
15	-----	Soft Computing	Newly introduced.
16	-----	Soft Computing Lab	Newly introduced.
17	-----	Elective II (Industrial Management)	Newly introduced.
18	-	MDM based Industry Internship	Newly introduced as a part of MDM

*The MDM based industry Internship to be completed during winter/summer vacation slots 4th Semester onwards, before 7th Semester commencement.

SEM – VIII

Sr. No.	Second Year B. Tech Semester VIII Pre-revised syllabus	Second Year B. Tech Semester VIII Revised syllabus	Remark
1	Mobile Computing	-----	Shifted to Elective I Sem VI
2	Information Security	-----	Shifted to Elective II Sem VII
3	Soft Computing	-----	Shifted to Sem VII
4	Elective-2 Big Data Technology	-----	Shifted to Open Elective IV Sem VIII
5	Elective-2 Data Mining and Warehousing	-----	Shifted to Open Elective II Sem VII
6	Elective-2 Service Oriented Architecture	-----	Course Removed
7	Elective-2 Image Processing	-----	Shifted to Elective I Sem VI
8	Elective-3(Open Elective) Cyber Laws	-----	Shifted to Open Elective II Sem VII
9	Elective-3(Open Elective) IT for Engineers	-----	Shifted to Open Elective II Sem VII
10	Elective-3(Open Elective) E-Commerce	-----	Shifted to Open Elective III Sem VIII
11	-----	Project Management (Through MOOC *)	Taken from Sem VII as Project Seminar Internship
12	Soft Computing Lab	-----	Shifted to Sem VII
13	Web Technology Lab-2	-----	Lab removed
14	Major Project Phase-II	Major Project –II	No change in the subject content. Only change in Title.
15	Constitution of India	-----	Course removed
16		Seminar	Mode is online/offline
17	-----	MOOC III (Professional Ethics)	Mode is changed and made it as a Credit Course
18	-----	Industrial Internship (Follow up by the Department)	Newly introduced.
19	-----	Open Elective III Preferably on MOOC *	Newly introduced. Online mode.
20	-----	Open Elective –IV	Newly introduced. Online

F.Y. to Final Year [B. Tech (Computer Science and Technology)] Curriculum structure w.e.f. 2023-24 and onwards.

		Preferably on MOOC *	mode.
21	-	Program Specific IKS	Newly introduced (Online Mode)
22	-	MDM Based Mini Project*	Newly introduced as a part of MDM

*MDM based Mini Project to be completed during 4th Semester to 8th Semester.