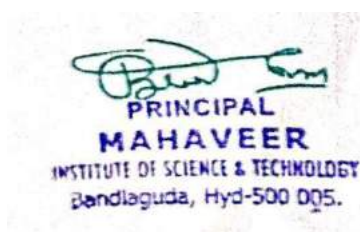




1.1.1 The Institution ensures effective curriculum delivery through a well-planned and documented process

S.NO	Name of the Document
1	JNTUH Academic Calendar
2	Institution Academic Calendar
3	Academic Regulations
4	Evaluation Guidelines
5	Class Timetables
6	Institution Vision Mission
7	Department Vision Mission
8	Course File content list
9	Department Academic Calendar
10	Lesson Plan
11	Course Outcomes
12	CO-PO Mapping

PRINCIPAL



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
ACADEMIC CALENDAR 2020-21
For All Constituent & Affiliated Colleges of JNTUH
B. Tech./B.Pharm. II, III & IV Years I & II Semesters

I SEM

S. No	Description	Duration	
		From	To
1.	Commencement of 1 st Semester classwork	24.08.2020	
2.	1 st Spell of Instructions	24.08.2020	17.10.2020 (8 Weeks)
3.	Dussehra Recess	19.10.2020	24.10.2020 (1 Week)
4.	First Mid Term Examinations	26.10.2020	31.10.2020 (1 Week)
5.	Submission of First Mid Term Exam Marks to the University on or before	07.11.2020	
6.	Parent-Teacher Meeting	13.11.2020	
7.	2 nd Spell of Instructions	02.11.2020	26.12.2020 (8 Weeks)
8.	Second Mid Term Examinations	28.12.2020	02.01.2021 (1 Week)
9.	Preparation Holidays and Practical Examinations	04.01.2021	09.01.2021 (1 Week)
10.	Submission of Second Mid Term Exam Marks to the University on or before	09.01.2021	
11.	End Semester Examinations	11.01.2021	23.01.2021 (2 Weeks)

II SEM

S. No	Description	Duration	
		From	To
1.	Commencement of 2 nd Semester classwork	25.01.2021	
2.	1 st Spell of Instructions	25.01.2021	20.03.2021 (8 Weeks)
3.	First Mid Term Examinations	22.03.2021	27.03.2021 (1 Week)
4.	Submission of First Mid Term Exam Marks to the University on or before	06.04.2021	
5.	Parent-Teacher Meeting	09.04.2021	
6.	2 nd Spell of Instructions	29.03.2021	22.05.2021 (8 Weeks)
7.	Second Mid Term Examinations	24.05.2021	29.05.2021 (1 Week)
8.	Preparation Holidays and Practical Examinations	31.05.2021	05.06.2021 (1 Week)
9.	Submission of Second Mid Term Exam Marks to the University on or before	05.06.2021	
10.	End Semester Examinations	07.06.2021	19.06.2021 (2 Weeks)
11.	Summer Vacation	21.06.2021	10.07.2021 (3 Weeks)

Note: All the laboratory courses shall be conducted once normalcy is restored.


 REGISTERAR
 26/5/2020

Vysapuri, Bandlaguda Post:Keshavgi,
Hyderabad-500 005, Telangana, INDIA
Tel: 040-29880086,8978380692,Fax: 040-24455003
E-mail: principal@mist.ac.in
principal.mahaveer@gmail.com,
Website: www.mist.ac.in,

MAHAVEER
INSTITUTE OF SCIENCE & TECHNOLOGY
Approved by AICTE, Affiliated to JNTUH,Hyd.




Counseling Code: **MHVR**, University Code: **E3**

Institution Academic Calendar 2020-2021

Semester-I		
S. No.	Event	Dates
1	Commencement of Instruction	24-08-2020
2	1 st Spell of Instructions	24-08-2020 to 17-10-2020
3	Traditional Day	16-10-2020
4	Cultural Fest (Bathukamma)	17-10-2020
5	Dussehra Recess	19-10-2020 to 24-10-2020
6	I- Mid Term Examinations	26-10-2020 to 31-10-2020
7	Submission of I- Mid Term marks to University On or before	07-11-2020
8	Parent Teacher Meeting	13-11-2020
9	2 nd Spell of Instructions	02-11-2020 to 26-12-2020
10	II- Mid Term Examinations	28-12-2020 to 02-01-2021
11	Preparation Holidays and Practical Examinations	04-01-2021 to 09-01-2021
12	Submission of II-Mid Term Exam Marks to University on or before	09-01-2021
13	End Semester & Supply Examinations	11-01-2021 to 23-01-2021

Semester-II		
S. No.	Event	Dates
1	Vivekananda Pushpanjali Progam	18-01-2021
2	Commencement of 2 nd Semester Class work	25-01-2021
3	Voter's Day	25-01-2021
4	1 st Spell of Instructions	25-01-2021 to 20-03-2021
5	International Women's Day	08-03-2021
6	Annual Day	12-03-2021 to 13-03-2021
7	I- Mid Term Examinations	22-03-2021 to 27-03-2021
8	Submission of I- Mid Term marks to University on or before	06-04-2021
9	Parent Teacher Meeting	09-04-2021
10	2 nd Spell of Instructions	29-03-2021 to 22-05-2021
11	II- Mid Term Examinations	24-05-2021 to 29-05-2021
12	Preparation Holidays and Practical Examinations	31-05-2021 to 05-06-2021
13	Submission of II-Mid Term Exam Marks to University on or before	05-06-2021
14	End Semester & Supply Examinations	07-06-2021 to 19-06-2021
15	Summer Vacation	21-06-2021 to 10-07-2021
16	International Yoga Day	21-06-2021


PRINCIPAL
MAHAVEER
 INSTITUTE OF SCIENCE & TECHNOLOGY
 Bandlaguda, Hyd-500 005.



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

ACADEMIC REGULATIONS FOR B.TECH. REGULAR STUDENTS

WITH EFFECT FROM ACADEMIC YEAR 2018-19 (R-18)

1.0 Under-Graduate Degree Programme in Engineering & Technology (UGP in E&T)

Jawaharlal Nehru Technological University Hyderabad (JNTUH) offers a 4-year (8 semesters) **Bachelor of Technology (B.Tech.)** degree programme, under Choice Based Credit System (CBCS) at its non-autonomous constituent and affiliated colleges with effect from the academic year 2018-19.

2.0 Eligibility for admission

2.1 Admission to the under graduate (UG) programme shall be made either on the basis of the merit rank obtained by the qualified student in entrance test conducted by the Telangana State Government (EAMCET) or the University or on the basis of any other order of merit approved by the University, subject to reservations as prescribed by the government from time to time.

2.2 The medium of instructions for the entire under graduate programme in Engineering & Technology will be **English** only.

3.0 B.Tech. Programme structure

3.1 A student after securing admission shall complete the B.Tech. programme in a minimum period of **four** academic years (8 semesters), and a maximum period of **eight** academic years (16 semesters) starting from the date of commencement of first year first semester, failing which student shall forfeit seat in B.Tech course. Each student shall secure 160 credits (with CGPA ≥ 5) required for the completion of the under graduate programme and award of the B.Tech. degree.

3.2 **UGC/ AICTE** specified definitions/ descriptions are adopted appropriately for various terms and abbreviations used in these academic regulations/ norms, which are listed below.

3.2.1 Semester scheme

Each under graduate programme is of 4 academic years (8 semesters) with the academic year divided into two semesters of 22 weeks (≥ 90 instructional days) each, each semester having - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)'

under Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) indicated by UGC, and curriculum/course structure as suggested by AICTE are followed.

3.2.2 Credit courses

All subjects/ courses are to be registered by the student in a semester to earn credits which shall be assigned to each subject/ course in an L: T: P: C (lecture periods: tutorial periods: practical periods: credits) structure based on the following general pattern.

- One credit for one hour/ week/ semester for theory/ lecture (L) courses or Tutorials.
- One credit for two hours/ week/ semester for laboratory/ practical (P) courses.

Courses like Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab are mandatory courses. These courses will not carry any credits.

3.2.3 Subject Course Classification

All subjects/ courses offered for the under graduate programme in E&T (B.Tech. degree programmes) are broadly classified as follows. The University has followed almost all the guidelines issued by AICTE/UGC.

S. No.	Broad Course Classification	Course Group/ Category	Course Description
1	Foundation Courses (FnC)	BS – Basic Sciences	Includes mathematics, physics and chemistry subjects
2		ES - Engineering Sciences	Includes fundamental engineering subjects
3		HS – Humanities and Social sciences	Includes subjects related to humanities, social sciences and management
4	Core Courses (CoC)	PC – Professional Core	Includes core subjects related to the parent discipline/ department/ branch of Engineering.
5	Elective Courses (ElC)	PE – Professional Electives	Includes elective subjects related to the parent discipline/ department/ branch of Engineering.
6		OE – Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the parent discipline/ department/ branch of Engineering.
7	Core Courses	Project Work	B.Tech. project or UG project or UG major project or Project Stage I & II
8		Industrial training/ Mini- project	Industrial training/ Summer Internship/ Industrial Oriented Mini-project/ Mini-project

9		Seminar	Seminar/ Colloquium based on core contents related to parent discipline/ department/ branch of Engineering.
10	Minor courses	-	1 or 2 Credit courses (subset of HS)
11	Mandatory Courses (MC)	-	Mandatory courses (non-credit)

4.0 Course registration

- 4.1 A ‘faculty advisor or counselor’ shall be assigned to a group of 20 students, who will advise the students about the under graduate programme, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.
- 4.2 The academic section of the college invites ‘registration forms’ from students before the beginning of the semester through ‘on-line registration’, ensuring ‘date and time stamping’. The on-line registration requests for any ‘current semester’ shall be **completed before the commencement of SEEs (Semester End Examinations) of the ‘preceding semester’**.
- 4.3 A student can apply for **on-line** registration, **only after** obtaining the ‘**written approval**’ from faculty advisor/counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with Head of the Department, faculty advisor/ counselor and the student.
- 4.4 A student may be permitted to register for all the subjects/ courses in a semester as specified in the course structure with maximum additional subject(s)/course(s) limited to 4 credits, based on **progress** and SGPA/ CGPA, and completion of the ‘**pre-requisites**’ as indicated for various subjects/ courses, in the department course structure and syllabus contents.
- 4.5 Choice for ‘**additional subjects/ courses**’ must be clearly indicated, which needs the specific approval and signature of the faculty advisor/ counselor.
- 4.6 If the student submits ambiguous choices or multiple options or erroneous entries during **on-line** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.
- 4.7 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any unforeseen or unexpected reasons, then the student shall be allowed to have alternate choice either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the head of the

department, with due notification and time-framed schedule, within the **first week** after the commencement of class-work for that semester.

- 4.8** Dropping of subjects/ courses may be permitted, only after obtaining prior approval from the faculty advisor/ counselor 'within a period of 15 days' from the beginning of the current semester.
- 4.9** **Open electives:** The students have to choose three open electives (OE-I, II & III) from the list of open electives given. However, the student cannot opt for an open elective subject offered by his own (parent) department, if it is already listed under any category of the subjects offered by parent department in any semester.
- 4.10** **Professional electives:** The students have to choose six professional electives (PE-I to VI) from the list of professional electives given.

5.0 **Subjects/ courses to be offered**

- 5.1** A typical section (or class) strength for each semester shall be 60.
- 5.2** A subject/ course may be offered to the students, **only if** a minimum of 20 students (1/3 of the section strength) opt for it. The maximum strength of a section is limited to 80 (60 + 1/3 of the section strength).
- 5.3** More than **one faculty member** may offer the **same subject** (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester. However, selection of choice for students will be based on - '**first come first serve** basis and CGPA criterion' (i.e. the first focus shall be on early **on-line entry** from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).
- 5.4** If more entries for registration of a subject come into picture, then the Head of the Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.
- 5.5** In case of options coming from students of other departments/ branches/ disciplines (not considering **open electives**), first **priority** shall be given to the student of the '**parent department**'.

6.0 **Attendance requirements:**

- 6.1** A student shall be eligible to appear for the semester end examinations, if the student acquires a minimum of 75% of attendance in aggregate of all the subjects/ courses (excluding attendance in mandatory courses like Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab) for that semester. Two periods of attendance for each theory subject shall be considered, if the student appears for the mid-term examination of that subject. **This attendance should also be included in the fortnightly upload of attendance to the University.**

The attendance of Mandatory Non-Credit courses should be uploaded separately to the University.

- 6.2 Shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each semester may be condoned by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.
- 6.3 A stipulated fee shall be payable for condoning of shortage of attendance.
- 6.4 Shortage of attendance below 65% in aggregate shall in **no** case be condoned.
- 6.5 **Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled. They will not be promoted to the next semester.** They may seek re-registration for all those subjects registered in that semester in which the student is detained, by seeking re-admission into that semester as and when offered; if there are any professional electives and/ or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.
- 6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.0 **Academic requirements**

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in item no.6.

- 7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% (26 marks out of 75 marks) in the semester end examination, and a minimum of 40% (40 marks out of 100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing 'C' grade or above in that subject/ course.
- 7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Industrial Oriented Mini Project/Summer Internship and seminar, if the student secures not less than 40% marks (i.e. 40 out of 100 allotted marks) in each of them. The student is deemed to have failed, if he (i) does not submit a report on Industrial Oriented Mini Project/Summer Internship, or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) does not present the seminar as required in the IV year I Semester, or (iii) secures less than 40% marks in Industrial Oriented Mini Project/Summer Internship and seminar evaluations.

A student may reappear once for each of the above evaluations, when they are scheduled again; if the student fails in such 'one reappearance' evaluation also, the student has to reappear for the same in the next subsequent semester, as and when it is scheduled.

7.3 Promotion Rules

S. No.	Promotion	Conditions to be fulfilled
1	First year first semester to first year second semester	Regular course of study of first year first semester.
2	First year second semester to second year first semester	(i) Regular course of study of first year second semester. (ii) Must have secured at least 18 credits out of 37 credits i.e., 50% credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3.	Second year first semester to second year second semester	Regular course of study of second year first semester.
4	Second year second semester to third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 47 credits out of 79 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Third year first semester to third year second semester	Regular course of study of third year first semester.
6	Third year second semester to fourth year first semester	(i) Regular course of study of third year second semester. (ii) Must have secured at least 73 credits out of 123 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
7	Fourth year first semester to fourth year second semester	Regular course of study of fourth year first semester.

- 7.4 A student (i) shall register for all courses/subjects covering 160 credits as specified and listed in the course structure, (ii) fulfills all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥ 5.0 (in each semester), and CGPA (at the end of each successive semester) ≥ 5.0 , (iv) **passes all the mandatory courses**, to successfully complete the under graduate programme. The performance of the student in these 160 credits shall be taken into account for the calculation of ‘the final CGPA (at the end of under graduate programme), and shall be indicated in the grade card of IV-year II semester.
- 7.5 If a student registers for ‘**extra subjects**’ (in the parent department or other departments/branches of Engg.) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those ‘**extra subjects**’ (although evaluated and graded using the same procedure as that of the required 160 credits) will not be taken into account while calculating the SGPA and CGPA. For such ‘**extra subjects**’ registered, percentage of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations 6 and 7.1 – 7.4 above.
- 7.6 A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure ‘C’ grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.
- 7.7 A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements**. The academic regulations under which a student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.
- 7.8 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required academic credits**. The academic regulations under which the student has been readmitted shall be applicable to him.
- 8.0 **Evaluation - Distribution and Weightage of marks**
- 8.1 The performance of a student in every subject/course (including practicals and Project Stage – I & II) will be evaluated for 100 marks each, with 25 marks allotted for CIE (Continuous Internal Evaluation) and 75 marks for SEE (Semester End-Examination).
- 8.2 For theory subjects, during a semester, there shall be two mid-term examinations. Each mid-term examination consists of one objective paper, one descriptive paper and one assignment. The objective paper and the descriptive paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for descriptive paper). The objective paper is set with 20 multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The descriptive paper shall contain 4 full questions out of which, the student has to answer 2 questions, each

carrying 5 marks. While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus. Five marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-term examination, and the second assignment should be submitted before the conduct of the second mid-term examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each student in Continuous Internal Evaluation. If any student is absent from any subject of a mid-term examination, an on-line test will be conducted for him by the University. The details of the end semester question paper pattern are as follows:

- 8.2.1** The semester end examinations (SEE) will be conducted for 75 marks consisting of two parts viz. i) **Part- A** for 25 marks, ii) **Part - B** for 50 marks.
- Part-A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit and carry 2 marks each. The next five sub-questions are one from each unit and carry 3 marks each.
 - Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an “either” “or” choice, which means that there will be two questions from each unit and the student should answer either of the two questions.
- 8.2.2** For subjects like **Engineering Graphics/Engineering Drawing**, the SEE shall consist of five questions. For each question there will be an “either” “or” choice, which means that there will be two questions from each unit and the student should answer either of the two questions. There shall be no Part – A, and Part – B system.
- 8.2.3** For subjects like **Machine Drawing Practice/Machine Drawing**, the SEE shall be conducted for 75 marks consisting of two parts viz. (i) Part – A for 30 marks. 3 out of 4 questions must be answered, (ii) Part – B for 45 marks. Part – B is compulsory.
- 8.2.4** For the Subject **Estimation, Costing and Project Management**, the SEE paper should consist of Part- A, Part-B and Part C. (i) Part – A – 1 out of 2 questions from Unit – I for 30 Marks, (ii) Part – B – 1 out of 2 questions from Unit – II for 15 Marks, (iii) Part – C – 3 out of 5 questions from Units – III, IV, V for 30 Marks.
- 8.2.5** For subjects **Structural Engineering – I & II (RCC & STEEL)**, the SEE will be conducted for 75 marks consisting of 2 parts viz. (i) Part – A for 15 marks and, (i) Part – B for 60 marks. Part – A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit relating to design theory and codal provisions and carry 2 marks each. The next five sub-questions are from each unit and carry 1 mark each. Part – B consists of 5 questions (numbered 2 to 6) carrying 12 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there is either or choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

- 8.3** For practical subjects there shall be a continuous internal evaluation during the semester for 25 marks and 75 marks for semester end examination. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The semester end examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the University.
- 8.4** For the subject having design and/or drawing, (such as engineering graphics, engineering drawing, machine drawing, machine drawing practice and estimation), the distribution shall be 25 marks for continuous internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for semester end examination. There shall be two internal tests in a semester and the average of the two shall be considered for the award of marks for internal tests.
- 8.5** There shall be an Industrial Oriented Mini Project/Summer Internship, in collaboration with an industry of their specialization. Students will register for this immediately after III year II semester examinations and pursue it during summer vacation. Industrial Oriented Mini Project/Summer Internship shall be submitted in a report form and presented before the committee in IV year I semester. It shall be evaluated for 100 external marks. The committee consists of an external examiner, Head of the Department, supervisor of the Industrial Oriented mini project/Summer Internship and a senior faculty member of the department. There shall be no internal marks for Industrial Oriented Mini Project/Summer Internship.
- 8.6** There shall be a seminar presentation in IV year I semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 100 internal marks. There shall be no semester end examination for the seminar.
- 8.7** UG project work shall be carried out in two stages: Project Stage – I during IV Year I Semester, Project Stage – II during IV Year II Semester. Each stage will be evaluated for 100 marks. Student has to submit project work report at the end of each semester. First report includes project work carried out in IV Year I semester and second report includes project work carried out in IV Year I & II Semesters. SEE for both project stages shall be completed before the commencement of SEE Theory examinations.
- 8.8** For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall evaluate the project work for 75 marks and project supervisor shall evaluate for 25 marks. The student is deemed to have failed, if he (i) does not submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

A student who has failed may reappear once for the above evaluation, when it is scheduled again; if he fails in such ‘one reappearance’ evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

- 8.9** For Project Stage – II, the external examiner shall evaluate the project work for 75 marks and the project supervisor shall evaluate it for 25 marks. The topics for industrial oriented mini project, seminar and Project Stage – I shall be different from one another. The student is deemed to have failed, if he (i) does not submit a report on Project Stage - II, or does not make a presentation of the same before the external examiner as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

For conducting viva-voce of project stage – II, University selects an external examiner from the list of experts in the relevant branch submitted by the Principal of the College.

A student who has failed may reappear once for the above evaluation, when it is scheduled again; if student fails in such ‘one reappearance’ evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

- 8.10** The laboratory marks and the internal marks awarded by the college are subject to scrutiny and scaling by the University wherever necessary. In such cases, the internal and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University rules and produced before the committees of the University as and when asked for.
- 8.11** For mandatory courses of Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab, a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course. **These marks should also be uploaded along with the internal marks of other subjects.**

- 8.12** No marks or letter grades shall be allotted for mandatory/non-credit courses. Only Pass/Fail shall be indicated in Grade Card.

9.0 Grading procedure

- 9.1** Grades will be awarded to indicate the performance of students in each theory subject, laboratory / practicals, seminar, Industry Oriented Mini Project, and project Stage - I & II. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.
- 9.2** As a measure of the performance of a student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
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Greater than or equal to 90%	O (Outstanding)	10
80 and less than 90%	A⁺ (Excellent)	9
70 and less than 80%	A (Very Good)	8
60 and less than 70%	B⁺ (Good)	7
50 and less than 60%	B (Average)	6
40 and less than 50%	C (Pass)	5
Below 40%	F (FAIL)	0
Absent	Ab	0

- 9.3 A student who has obtained an ‘F’ grade in any subject shall be deemed to have ‘**failed**’ and is required to reappear as a ‘supplementary student’ in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.
- 9.4 To a student who has not appeared for an examination in any subject, ‘**Ab**’ grade will be allocated in that subject, and he is deemed to have ‘**failed**’. A student will be required to reappear as a ‘supplementary student’ in the semester end examination, as and when offered next. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.
- 9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.
- 9.6 A student earns grade point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding ‘credit points’ (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

Credit points (CP) = grade point (GP) x credits For a course

- 9.7 A student passes the subject/ course only when **GP ≥ 5** (**‘C’ grade or above**)
- 9.8 The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

$$\text{SGPA} = \{ \sum_{i=1}^N C_i G_i \} / \{ \sum_{i=1}^N C_i \} \dots \text{For each semester,}$$

where ‘i’ is the subject indicator index (takes into account all subjects in a semester), ‘N’ is the no. of subjects ‘**registered**’ for the semester (as specifically required and listed under the course structure of the parent department), C_i is the no. of credits

allotted to the i^{th} subject, and G_i represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

9.9 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in **all** registered courses in **all** semesters, and the total number of credits registered in **all** the semesters. CGPA is rounded off to **two** decimal places. CGPA is thus computed from the I year II semester onwards at the end of each semester as per the formula

$$\text{CGPA} = \{ \sum_{j=1}^M C_j G_j \} / \{ \sum_{j=1}^M C_j \} \dots \text{for all S semesters registered}$$

(i.e., up to and inclusive of S semesters, $S \geq 2$),

where ‘M’ is the **total** no. of subjects (as specifically required and listed under the course structure of the parent department) the student has ‘**registered**’ i.e., from the 1st semester onwards up to and inclusive of the 8th semester, ‘j’ is the subject indicator index (takes into account all subjects from 1 to 8 semesters), C_j is the no. of credits allotted to the j^{th} subject, and G_j represents the grade points (GP) corresponding to the letter grade awarded for that j^{th} subject. After registration and completion of I year I semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA:

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
Course 1	4	A	8	4 x 8 = 32
Course 2	4	O	10	4 x 10 = 40
Course 3	4	C	5	4 x 5 = 20
Course 4	3	B	6	3 x 6 = 18
Course 5	3	A+	9	3 x 9 = 27
Course 6	3	C	5	3 x 5 = 15
	21			152

$$\text{SGPA} = 152/21 = 7.24$$

Illustration of calculation of CGPA up to 3rd semester:

Semester	Course/Subject Title	Credits Allotted	Letter Grade Secured	Corresponding Grade Point (GP)	Credit Points (CP)
I	Course 1	3	A	8	24
I	Course 2	3	O	10	30
I	Course 3	3	B	6	18
I	Course 4	4	A	8	32
I	Course 5	3	A+	9	27
I	Course 6	4	C	5	20

II	Course 7	4	B	6	24
II	Course 8	4	A	8	32
II	Course 9	3	C	5	15
II	Course 10	3	O	10	30
II	Course 11	3	B+	7	21
II	Course 12	4	B	6	24
II	Course 13	4	A	8	32
II	Course 14	3	O	10	30
III	Course 15	2	A	8	16
III	Course 16	1	C	5	5
III	Course 17	4	O	10	40
III	Course 18	3	B+	7	21
III	Course 19	4	B	6	24
III	Course 20	4	A	8	32
III	Course 21	3	B+	7	21
	Total Credits	69		Total Credit Points	518

$$\text{CGPA} = 518/69 = 7.51$$

The above illustrated calculation process of CGPA will be followed for each subsequent semester until 8th semester. The CGPA obtained at the end of 8th semester will become the final CGPA secured for entire B.Tech. Programme.

- 9.10** For merit ranking or comparison purposes or any other listing, **only the ‘rounded off’** values of the CGPAs will be used.
- 9.11** SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester. However, mandatory courses will not be taken into consideration.

10.0 Passing standards

- 10.1 A student shall be declared successful or 'passed' in a semester, if he secures a GP ≥ 5 ('C' grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA ≥ 5.00 at the end of that particular semester); and he shall be declared successful or 'passed' in the entire under graduate programme, only when gets a CGPA ≥ 5.00 for the award of the degree as required.
- 10.2 After the completion of each semester, a grade card or grade sheet shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.), credits earned.

11.0 Declaration of results

- 11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.
- 11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

$$\% \text{ of Marks} = (\text{final CGPA} - 0.5) \times 10$$

12.0 Award of degree

- 12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA ≥ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have '**qualified**' for the award of B.Tech. degree in the chosen branch of Engineering selected at the time of admission.
- 12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.
- 12.3 A student with final CGPA (at the end of the under graduate programme) ≥ 8.00 , and fulfilling the following conditions - shall be placed in '**first class with distinction**'. However, he
- (i) Should have passed all the subjects/courses in '**first appearance**' within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.
 - (ii) Should have secured a CGPA ≥ 8.00 , at the end of each of the 8 sequential semesters, starting from I year I semester onwards.
 - (iii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.
- A student not fulfilling any of the above conditions with final CGPA > 8 shall be placed in '**first class**'.

- 12.4 Students with final CGPA (at the end of the under graduate programme) ≥ 6.50 but $<$

8.00 shall be placed in '**first class**'.

12.5 Students with final CGPA (at the end of the under graduate programme) ≥ 5.50 but < 6.50 , shall be placed in '**second class**'.

12.6 All other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the under graduate programme) ≥ 5.00 but < 5.50 , shall be placed in '**pass class**'.

12.7 A student with final CGPA (at the end of the under graduate programme) < 5.00 will not be eligible for the award of the degree.

12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of '**Gold Medal**'.

13.0 Withholding of results

13.1 If the student has not paid the fees to the University at any stage, or has dues pending due to any reason whatsoever, or if any case of indiscipline is pending, the result of the student may be withheld, and the student will not be allowed to go into the next higher semester. The award or issue of the degree may also be withheld in such cases.

14.0 Student transfers

14.1 There shall be no branch transfers after the completion of admission process.

14.2 There shall be no transfers from one college/stream to another within the constituent colleges and units of Jawaharlal Nehru Technological University Hyderabad.

14.3 The students seeking transfer to colleges affiliated to JNTUH from various other Universities/institutions have to pass the failed subjects which are equivalent to the subjects of JNTUH, and also pass the subjects of JNTUH which the students have not studied at the earlier institution. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JNTUH, the students have to study those subjects in JNTUH in spite of the fact that those subjects are repeated.

14.4 The transferred students from other Universities/institutions to JNTUH affiliated colleges who are on rolls are to be provided one chance to write the CBT (internal marks) in the **equivalent subject(s)** as per the clearance letter issued by the University.

14.5 The autonomous affiliated colleges have to provide one chance to write the internal examinations in the **equivalent subject(s)** to the students transferred from other universities/institutions to JNTUH autonomous affiliated colleges who are on rolls, as per the clearance (equivalence) letter issued by the University.

15.0 Scope

15.1 The academic regulations should be read as a whole, for the purpose of any interpretation.

15.2 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

- 15.3** The University may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the dates notified by the University authorities.
- 15.4** Where the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

ACADEMIC REGULATIONS FOR B.TECH. (LATERAL ENTRY SCHEME) FROM THE AY 2019-20

1. Eligibility for award of B. Tech. Degree (LES)

The LES students after securing admission shall pursue a course of study for not less than three academic years and not more than six academic years.

2. The student shall register for 123 credits and secure 123 credits with CGPA ≥ 5 from II year to IV year B.Tech. programme (LES) for the award of B.Tech. degree.
3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.
4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. Promotion rule

S. No	Promotion	Conditions to be fulfilled
1	Second year first semester to second year second semester	Regular course of study of second year first semester.
2	Second year second semester to third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 25 credits out of 42 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3	Third year first semester to third year second semester	Regular course of study of third year first semester.
4	Third year second semester to fourth year first semester	(i) Regular course of study of third year second semester.

		(ii) Must have secured at least 51 credits out of 86 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Fourth year first semester to fourth year second semester	Regular course of study of fourth year first semester.

6. All the other regulations as applicable to B. Tech. 4-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme).

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	If the student:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the students involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted to

	of the examination (theory or practical) in which the student is appearing.	appear for the remaining examinations of the subjects of that semester/year. The hall ticket of the student is to be cancelled and sent to the University.
3.	Impersonates any other student in connection with the examination.	The student who has impersonated shall be expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the chief superintendent/assistant – superintendent / any officer on duty or	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject

	<p>misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the college campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.</p>	<p>and all other subjects the student(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The students also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.</p>
7.	<p>Leaves the exam hall taking away answer script or intentionally tears off the script or any part thereof inside or outside the examination hall.</p>	<p>Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.</p>
8.	<p>Possesses any lethal weapon or firearm in the examination hall.</p>	<p>Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat.</p>

9.	If student of the college, who is not a student for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat. Person(s) who do not belong to the college will be handed over to the police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared for including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the student has appeared for including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award a suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the students as per the above guidelines.
2. Punishment for institutions: (if the squad reports that the college is also involved in encouraging malpractices)
 - a. A show cause notice shall be issued to the college.
 - b. Impose a suitable fine on the college.
 - c. Shifting the examination centre from one college to another college for a specific period of not less than one year.

* * * * *

Web : www.jntuh.ac.in
E Mail: dejntuh@jntuh.ac.in
Phone: Off: +91-40-23156113
Fax:+91-40-23158668



ACCREDITED BY NAAC



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by JNTU Act No. 30 of 2008)

Kukatpally, Hyderabad – 500 085, Telangana (India)

Dr. V.Kamakshi Prasad

M.Tech., Ph.D.(IIT-M), FIE, MCSI, LMISTE

**Professor of Computer Science and Engineering &
DIRECTOR OF EVALUATION**

Letter No.EB/369/2021, dated 15-02-2021

To
The Principals of constituent and affiliated colleges
JNTUH, Hyderabad.

Dear Sir/Madam

Sub: University guidelines for conducting UG odd semester exams March-
/April-2021- reg

Ref: 1) Note orders of Hon'ble Vice-Chancellor dated 11-02-2021
2) State govt.Memo.No.564/SE.Prog.II/A1/2020 dated 12-01-2021.
3) Recommendations of the committee meeting held on 09-02-2021
4) Letter No.EB/368/2021, dated 13-02-2021.

Vide ref.1 cited above permission has been accorded for the following procedure to conduct odd sem regular exams of UG courses commencing from March 8, 2021.

- 1) To comply with the state government directions (Ref. 2 cited above), it is resolved not to consider attendance based detentions for odd semesters of the AY 2020-21.
- 2) The same pattern of question paper which had been followed in the previous semester examinations (even semester exams of AY 2019-20 held in Oct-Nov., 2020) due to COVID-19 pandemic conditions shall be followed for all the semester exams commencing from March 8, 2021. The pattern of question papers shall be *five out of eight questions* and there shall be no mandatory section in the question paper.
- 3) Each semester examination shall be conducted for **a duration of three hours**.
- 4) For writing the semester examinations, choices have already been collected from the students to select a cluster. Each cluster shall be consisting of the colleges which are geographically close to each other. The center shall be allocated from the clusters preferred by the student such that the college where **the student**

studied shall not be allocated. However if there are no colleges in the range of 50 KMs, self-center shall be allotted. The provisional allotment of test center has already been intimated to the colleges. All the requests for the corrections in the provisionally allotted clusters should be submitted by 17-02-2021 by 5:00 PM.

- 5) The semester examinations of one semester (II-1) shall be scheduled in the forenoon session and one semester (IV-1) in the afternoon session. Following day forenoon session the remaining semester (III-1) exams shall be scheduled. The exams shall be conducted on alternative days to the students. The timings of the forenoon exams shall be preponed by 15 mins (ie from 9:45AM) and the afternoon examinations shall be postponed by 15 mins time (ie from 2:15PM). This rescheduling is done to give sufficient time to the colleges to carry out the sanitization of the examination halls.

Following additional points may also be noted:

- 6) The Principals are informed to go through all the guidelines which are listed in the letter ref.4,wrt one time chance students and mid-term exams etc. which was uploaded in to exam portal on12-02-2021.
- 7) The RC/RV results of MBA/MCA have been announced. The students who passed in these exams should not be allowed to write the supplementary exams.
- 8) The notification for MBA/MCA IV sem and II Sem supplementary exams has been issued on 12-02-2021.
- 9) The PG candidates who completed their course work but not completed their project viva exam due to completion of the double the duration plus two years will also be given a chance to clear their project viva exam. The eligible candidates list shall be made available through the portals, on or before 22-02-2021.
- 10) It is proposed to conduct a meeting of all Officers-in-charge of constituent and affiliated colleges in video conferencing on 19-02-2021 at 3:30PM. The Principals are requested to intimate the same to OIEs of their respective colleges.

The cooperation of the Principals is highly solicited.

Thanking you,

Yours Sincerely,

Sd/-
DIRECTOR OF EVALUATION

Copy to PA to VC, Rector and Registrar, JNTUH.

DEPARTMENT OF CIVIL ENGINEERING

YEAR: IV BTECH

AY: 2019-20 SEM-I

Room.No:139

w.e.f:-15-07-2019

Timings Day	1 9.30-10.20	2 10.20-11.10	3 11.10-12.00	4 12.00-12.50	12.50- 1.40 LUNCH	5 1.40- 2.30	6 2.30-3.20	7 3.20-4.10
MON	WSM	TE	FE			EQS&V	SEMINAR	
TUE	WSM		TE			FE	TRAFFIC ENGG	
WED	INDUSTRY ORIENTED MINI PROJECT					EQS&V	TRAFFIC ENGG	
THU	TE	FE		SPT		TE LAB		
FRI	LIB	EE LAB				SEM	WSM	
SAT	EQS&V		TRAFFIC ENGG	NPTEL/INT		TE		FE

S.No.	Sub Code	Name of the Subject	Sub. Abbv.	Name of the Faculty
1	CE701PC	TRANSPORTATION ENGINEERING	TE	G.ARUNA
2	CE702PC	ESTIMATING QUANTITY SURVEYING & VALUATION	EQS&V	A.RAJ KISHORE
3	CE723PE	FOUNDATION ENGINEERING	FE	M.SAI KUMAR SAGAR
4	CE722PE	WATERSHED MANAGEMENT	WSM	DR.M.VASANTHA LAKSHMI
5	CE741PE	TRAFFIC ENGINEERING	TRAFFIC ENGG	RESHMA SULTHANA
6	CE703PC	TRANSPORTATION ENGINEERING LAB	TE LAB	G.ARUNA
7	CE704PC	ENVIRINMENTAL ENGINEERING LAB	EE LAB	DR.M.VASANTHALAKSHMI
8	CE705PC	INDUSTRY ORIENTED MINI PROJECT	IOMP	M.SAI KUMAR SAGAR
9	CE706PC	SEMINAR	SEM	M.SAI KUMAR SAGAR
		NPTEL/Internet	NPTEL/INT	G.ARUNA
		Sports	SPT	CH.SAIDIAH
		Library	LIB	RESHMA SULTHANA
		Counselling/Seminar	COUN/SEM	K.SAI PRADEEP

Class Mentor: Mrs. DR.M.VASANTHALAKSHMI



TIME TABLE INCHARGE




PRINCIPAL
MAHAVEER
INSTITUTE OF SCIENCE & TECHNOLOGY
Bandlaguda, Hyd-500 005.

Vysapuri, Bandlaguda Post:Keshavgirl,
Hyderabad-500 005, TELANGANA INDIA
Tel: 040-64596979,8978380692,Fax: 040-24455003
E-mail: e3hod.eee@gmail.com,
Website: www.mist.ac.in,

MAHAVEER

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Approved by AICTE, Affiliated to JNTUH,Hyd.



DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

TIME TABLE

Class: III EEE I SEM
Year: 2019-20

W.e.f: 15/7/2019
Room No. 116

DAY/TIME	1 9:30AM to 10:20A M	2 10:20AM to 11:10AM	3 11:10AM to 12:00 PM	4 12:00 PM to 12.50PM	12.50 to 1.40PM	5 1:40 PM to 2:30 PM	6 2:30 PM to 3:20 PM	7 3:20 PM to 4:10 PM
MON	FOM	PS-II	EMI	DBMS	L U N C H	MPMC	DBMS	Sports
TUE	EMI	PS-II		LIBRARY		MPMC Lab / EMI Lab		
WED	PS-II	MPMC		PE		FOM	EMI(T)	DBMS
THU	DBMS	FOM	EMI	PS-II		EMI Lab / MPMC Lab		
FRI	MPMC	EMI		Counseling /Seminar		PE	MPMC(T)	FOM
SAT	BES Lab					FOM	PE(T)	Nptel//Inter net

SUBJECT CODE	SUBJECT	FACULTY MEMBER
EE501PC	Electrical Measurements and Instrumentation(EMI)	Dr.M.Sudhakaran
EE502PC	Power Systems-II (PS-II)	Mr.G.Prem Kumar Reddy
E1503PC	Microprocessor and Microcontrollers (MPMC)	Mr.P.Sridhar
SM504MS	Fundamentals of Management (FoM)	Mr.Ch.Raghunath Reddy
CE5110E	Data Base Management Systems (DBMS)	Mr.Giri Baru
EE505PC	Electrical Measurements & Instrumentation Lab(EMI Lab)	Dr.Sudhakaran Ms.R.Kalyani
EE506PC	Basic Electrical Simulation Lab (BES Lab)	Mr.A.Mahesh Kumar /Mr.G.P.K. Reddy
E1507PC	Microprocessor and Microcontrollers Lab (MPMC Lab)	Mr.P.Sridhar
*MC500HS	Professional Ethics (PE)	Mr.M..Rajesh Sagar
	Sports	Mr.A.Mahesh Kumar
	LIBRARY	Ms.R.Kalyani
	Nptel/INTERNET	Dr.M.Sudhakaran
	Counseling/Seminar	Mr.G.Prem Kumar Reddy

Class-Incharge : Mr. A.Mahesh Kumar

Time Table I/c

HOD-EEE

PRINCIPAL

PRINCIPAL
MAHAVEER
INSTITUTE OF SCIENCE & TECHNOLOGY
Bandlaguda, Hyd-500 005.

Vysapuri, Bandlaguda Post:Keshavgiri,
Hyderabad-500 005, Telangana, INDIA
Tel: 040-29880086,8978380692,Fax: 040-24455003
E-mail: principal@mist.ac.in
principal.mahaveer@gmail.com,
Website: www.mist.ac.in,

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INSTITUTE OF SCIENCE & TECHNOLOGY
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Counseling Code: **MHVR**, University Code: **E3**

INSTITUTION VISION AND MISSION

VISION

- To be a centre of excellence in technical education with research orientation and to develop human resources to serve the society and nation building.

MISSION

- To provide comprehensive technical education programmes in various disciplines and to contribute effectively to the profession and the society.
- Establishing centre of excellence in inter disciplinary areas which are important and relevant to industry and employment with scope for research.
- To inculcate human values and ethical practices to the graduates through co-curricular and extracurricular activities.


PRINCIPAL
MAHAVEER
INSTITUTE OF SCIENCE & TECHNOLOGY
Bandlaguda, Hyd-500 005.

**DEPARTMENT OF ELECTRICAL &
ELECTRONICS ENGINEERING**
Vysapuri, Bandlaguda Post:Keshavgiri,
Hyderabad-500 005, TELANGANA INDIA
Tel: 040-64596979,8978380692,Fax: 040-24455003
E-mail: e3hod.eee@gmail.com,
Website: www.mist.ac.in,

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Vision of the Department

To contribute to the Country through excellence in technical education, with research orientation and to develop human resources in Electrical and Electronics Engineering.

Mission of the Department

To provide broad based education in electrical and electronics engineering.
To keep the curriculum industry friendly.

To undertake development activity and provide consultancy services in industrial, educational and society relevant areas in Electrical and Electronics Engineering.

To promote ethical and moral values among the students so as to make them emerge as responsible professionals.

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**DEPARTMENT OF ELECTRONICS &
COMMUNICATION ENGINEERING**

Vysapuri, Bandlaguda Post:Keshavgi,
Hyderabad-500 005, AP INDIA
Tel: 040-20020772,20020773,,Fax: 040-24455003
E-mail: e3hod.ece@gmail.com,
Website: www.mist.ac.in,

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DEPARTMENT OF ECE

Vision

To impart technical education with latest art of technology with scope for research and development and groom the students with leadership skill to suit the challenging needs industry and society.

Mission

Provide contemporary technical education programs, in the field of ECE and prepare for competitive employment and higher studies.

Provide comprehensive in depth knowledge with research orientation which are important and relevant to industry, society, environment and global needs.

Organize specific programs to inculcate values and ethical practices to the students through co-curricular and extracurricular activities.

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DEPARTMENT OF INFORMATION TECHNOLOGY

Course File Content List

S.No.	Particulars
1	Name of the Course/Subject:
2	Year/Sem/Section:
3	Name of the Faculty:
4	Name of the Department:
5	Institute Vision/Mission
6	Dept Vision/Mission
7	JNTUH Academic Calendar
8	Institute Academic Calendar
9	Dept Academic Calendar
10	Class Time Tables
11	PEOs/POs/PSOs
12	University Syllabus
13	Pre requisites
14	Course Outcomes
15	CO-PO Mapping
16	Lecture Notes
17	Gaps identified in the Syllabus
18	Topics Beyond Syllabus/Additional Experiments
19	Course Outcome Assessment Sheet
20	List of Power Point Presentations
21	Web References
22	Assignments
23	Unit Wise Question Bank
24	Internal Question Paper
25	University Question Paper
26	Remedial Classes
27	Student Feedback
28	Micro Lesson Plan
29	Macro Lesson Plan
30	Teacher Log Updated?
31	Internal, Assignment Marks In Register?
32	Sample Answer Sheets
33	Sample Assignment Sheets
34	Result Analysis

Signature of the Faculty

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION AND ENGINEERING

Action plan for the I SEMESTER OF ACADEMIC YEAR 2020-2021

JNTUH ACADEMIC CALENDAR 2019-20 I SEMESTER	
Commencement of II semester classwork	24-08-2020
1st spell of instructions	24-08-2020 to 17-10-2020 (8 weeks)
Dussehra Recess	19-10-2020 to 24-10-2020 (1weeks)
1st Midterm Examinations	26-10-2020 to 31-10-2020 (1weeks)
Parent teacher meeting	13-11-2020
Submission of 1st Mid Term Exam Marks to University on or before	07-11-2020
2nd spell of instructions	2-11-2020 to 26-12-2020 (8 weeks)
2nd Mid Term Examinations	28-12-2020 to 26-12-2020 (1 weeks)
Preparation Holidays & Practical Examinations	4-01-2021 to 9-01-2021(1weeks)
Submission of 2nd Mid Term Exam Marks to University on or before	9-01-2021
End Semester Examinations	11-01-2021 to 23-01-2021

DATE: 16-08-2020

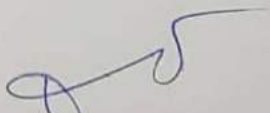
Academic calendar week no	Date	Work/Event Planned	Assigned to (If applicable)	Resources required:/by date remarks
Week 0				
	19-08-2020 to 22-08-2020	Department staff meeting -01 regarding class commencement	Hod	
		Information passing to parents and students for regularity in attending online classes right from start	Class mentors	
		Lab manual verification	Hod	Completed
		Subject course file verification	Hod	Completed
Week 1				


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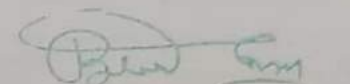


DEPARTMENT OF ELECTRONICS AND COMMUNICATION AND ENGINEERING

	24-08-2020 to 26-08-2020	Class work commencement		
		Academic meeting -01		
		Discipline meeting -01		
		Information passing to parents for absentees students	Mentors	
Week 2				
	01-09-2020 to 03-09-2020	Counseling for irregular students	Class mentors	
Week 3				
	17-10-2020 to 20-10-2020	Counseling for irregular students	Class mentors	
Week 4				
	1-11-2020 to 03-11-2020	Counseling for irregular students	Class mentors	
		Department meeting -02 regarding mid exams	Hod Exam branch I/c M.K.Khan	
Week 5				
	02-12-2020 to 04-12-2020	Counseling for irregular students	Class mentors	
		Submission of 1 mid marks (2 nd ,3 rd ,4 th year)		
Week 6				
	04-01-2021 to 11-01-2021	Counseling for irregular students	Class mentors	
	9-01-2021	Submission of 2 nd mid marks		
	4-01-2021 to 9-01-2021	Conducting lab external exams		


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION AND ENGINEERING

Action plan for the II SEMESTER OF ACADEMIC YEAR 2020-2021

JNTUH ACADEMIC CALENDAR 2019-20 II SEMESTER	
Commencement of II semester classwork	23-03-2021
1st spell of instructions	23-03-2021 to 15-05-2021(8 weeks)
2 nd spell of instructions	17-05-2021 to 29-05-2021(2 weeks)
1st Midterm Examinations	31-05-2021 to 5-06-2021 (1 week)
Submission of 1st Mid Term Exam Marks to University on or before	11-06-2021
Continuation of 2 nd spell of instructions	07-06-2021 to 17-07-2021(6 weeks)
2nd Mid Term Examinations	19-07-2021 to 24-07-2021(1 week)
Preparation Holidays & Practical Examinations	26-07-2021 to 14-08-2021(3 weeks)
Submission of 2nd Mid Term Exam Marks to University on or before	04-08-2021
End Semester Examinations	16-08-2021 to 28-08-2021

DATE: 23-03-2022

Academic calendar week no	Date	Work/Event Planned	Assigned to (If applicable)	Resources required:/by date remarks
Week 0				
	17-03 -2021 to 23-03-2021	Department staff meeting -01 regarding class commencement	Hod	
		Information passing to parents and students for regularity in attending classes right from start	Class mentors	
		Lab manual verification	Hod	Completed
		Subject course file verification	Hod	Completed
Week 1				
	23-03-2021 to 29-	Class work		

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	03-2021	commencement		
		Academic meeting -01		
		Discipline meeting -01		
		Information passing to parents for absenties students	Mentors	
Week 2				
	15-04-2021 to 21-04-2020	Counseling for irregular students	Class mentors	
Week 3				
	22-04-2021 to 6-05-2020	Counseling for irregular students	Class mentors	
		Workshop on constitution of india		
Week 4				
	16-05-2021 to 30-05-2021	Counseling for irregular students	Class mentors	
		Department meeting -02 regarding mid exams	Hod Exam branch I/c k .Archana	
Week 5				
	1-06-2021 to 15-06-2021	Counseling for irregular students	Class mentors	
		Submission of I mid marks (2 nd ,3 rd ,4 th year)	Exam branch i/c K .archana	
		Workshop on total quality management		
Week 6				
	16-06-2021 to 30-06-2021	Counseling for irregular students	Class mentors	
		Workshop on java programming		
Week 7				
	1-07-2021 to 15-07-2021	Department meeting – regarding syllabus coverage	Hod	

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Tel: 040-64596979,8978380692,Fax: 040-24455003
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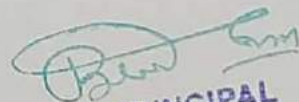
		Workshop on modern software engineering		
Week 8				
	1-08-2021	Counseling for irregular students	Class Mentors	
	04-08-2021	Submission of 2 nd mid marks	Exam branch i/c K .archana	
	26-07-2021 to 14-08-2021	Conducting lab external exams		



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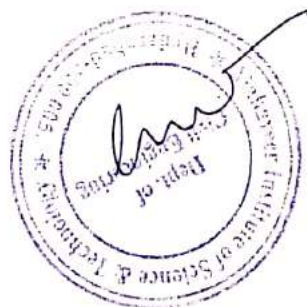
DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN

Year:III B.Tech I Semester CIVIL ENGG R18
Lecture Duration:50 Min

Subject: CONCRETE TECHNOLOGY(CE511PE)
AY: 2020-2021

S.No	Topics as Per Subject	Sub –Topics	Lecture No.	Date	Suggested Books	Teaching aids
1	Overview of the Subject	Unit wise overview of the subject and all the reference books	L1	25/08/2020	T1	TA1,TA2
UNIT –I: CEMENT						
2	CEMENT	Port land cement, chemical compositions	L2	26/08/2020	T1	TA1
3		Hydration, Setting Of Cement	L3	27/08/2020	T1,T2	TA1,TA2
4		Structure of hydrated cement	L4	28/08/2020	T1,T2	TA1
5		Tests on physical properties	L5	29/08/2020	T1,T2,R1	TA1,TA2
6		Different grades of cement	L6		T1,T2,R1	TA1
7		ADMIXTURES	Types of admixtures, Minerals chemical admixtures	L7,L8	01/09/2020	T1,T2,R1
UNIT-II AGGREGATES						
8	AGGREGATES	Classification of aggregates- particles shape & texture	L9,L10	03/09/2020	T1,T2	TA1,TA2
9		Strength and other Mechanical properties of aggregate	L11,L12	04/09/2020	T1,T2,R1	TA1
10		Specific Gravity , Bulk Density , Porosity , Adsorption & Moisture Content of Aggregate	L13,L14	07/09/2020	T1,T2,R1	TA1,TA2
11		Bulking of Sand – Deleterious Substance In aggregate- Soundness Of aggregate	L15,L16	08/09/2020	T1,T2,R2	TA1

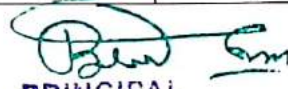


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12		Alkali aggregate Reaction – Thermal Properties- Sieve analysis	L17	10/09/2020	T1,T2,R2	TA1,TA2
13		Fineness – Modulus – Grading curves- Grading Of Fine	L18	11/09/2020	T1,T2	TA1,TA2
14		Manufactured Sand and Course aggregates	L19	14/09/2020	T1,T2	TA1,TA2
15		Gap graded aggregates, maximum Aggregate Size, Properties Recycled aggrgates	L20,L21	15/09/2020	T1,T2	TA1,TA2
UNIT-III, FRESH CONCRETE						
16	FRESH CONCRETE	Workability – factors affecting workability	L22	17/09/2020	T1,T2	TA1,TA2
17		Measurement of Workability by Different Tests	L23	18/09/2020	T1,T2,R2	TA1,TA2
18		Setting time of concrete-time & temperature on workability	L24,L25	21/09/2020	T1,T2,R1	TA1,TA2
19		Segregation & bleeding ,vibration of concrete	L26,L27	22/09/2020	T1,T2,R2	TA1,TA2
20		Steps in Manufacture of concrete	L28,L29	24/09/2020	T1,T2,R2	TA1,TA2
21		Quality of mixing water	L30	25/09/2020	T1,T2	TA1,TA2,TA3
UNIT-IV, HARDENED CONCRETE						
22	HARDENED CONCRETE	Water / cement ratio – Abram’s law –gel space ratio	L31,L32	28/09/2020	T1,T2,R2	TA1,TA2,TA3
23		Gain of Strength of	L33	29/09/2020	T1,T2	TA1,TA2





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		Concrete				
24		Maturity Concept, Strength in Tension and Compression	L34,L35	01/10/2020	T1,T2,R1	TA1,TA2
25		Factors affecting Strength	L36	02/10/2020	T1,T2	TA1,TA2
26		Relation Between Compression and tensile Strength .Curing	L37,L38	05/10/2020	T1,T2	TA1,TA2
27	TESTING OF HARDENED CONCRETE	Compression tests Tension tests	L39	06/10/2020	T1,T2	TA1,TA2
28		Factors Affecting Strength, Flexure tests – Splitting tests	L40,L41	08/10/2020	T1,T2	TA1,TA2
29		Pull-Out tests , Non Destructive testing Methods	L42,L43	09/10/2020	T1,T2	TA1,TA2
30		Codal Provision for NDT	L44	12/10/2020	T1,T2	TA1,TA2
31	ELASTICITY, CREEP, &SHRINKAGE	Modulus of Elasticity – Dynamics modulus of Elasticity	L45,L46	13/10/2020	T1,T2	TA1,TA2
32		Poisson's ratio ,Creep of concrete – Factors influencing creep	L47,L48	15/10/2020	T1,T2	TA1,TA2
33		Relation between creep and time – Nature of creep, Effects of creep, Shrinkage.	L49,L50	16/10/2020	T1,T2	TA1,TA2
34		Shrinkage, Types of Shrinkage	L51	17/10/2020	T1,T2	TA1,TA2
UNIT-V MIX DESIGN						
35	MIX DESIGN	Factors in choice of mix proportions	L52	02/11/2020	T1,T2	TA1,TA2
36		Durability of concrete – quality control of concrete	L53,L54	03/11/2020	T1,T2,R2	TA1,TA2




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37		Proportioning of concrete mix by various Methods	L55	05/11/2020	T1,T2,R2	TA1,TA2
38		BIS Methods	L56	06/11/2020	T1,T2,R2	TA1,TA2
39	SPECIAL CONCRETE	Introduction to Light Weight concrete- Cellular Concrete	L57	09/11/2020	T1,T2,R2	TA1,TA2
40		No Fines Concrete , High Density Concrete	L58	10/11/2020	T1,T2,R2	TA1,TA2
41		Fibre reinforced concrete, Polymer Concrete	L59	12/11/2020	T1,T2,R1	TA1,TA2
42		High performance Concrete	L60	13/11/2020	T1,T2,R1	TA1,TA2
43		Self Compacting Concrete	L61	16/11/2020	T1,T2,R1	TA1,TA2

TEACHING AIDS:

- 1.Black board
- 2.Power point presentation
- 3.Components description

TEXT BOOKS:

1. Concrete Technology by M.S SHETTY-S.Chand & Co ; 2004.
2. Concrete technology by A.R. Santhakumar, Oxford University Press, New Delhi.
3. Concrete technology by M.L. Gambhir. – Tata Mc. Graw Hill Publishers, New Delhi

REFERENCES:

- 1.Properties of Concrete by A.M. Neville- Low priced Edition-4th edition .
- 2.Concrete : Micro Structure, Properties and Materials P.K Mehta and J.M Monterio, Mc Graw Hill Publishers



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IS Codes:

IS 383

IS 516

IS 10262-2009

WEB SOURCE REFERENCE	
1	www.classcentral.com
2	www.indianconcreteinstitute.org



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DEPARTMENT OF AERONAUTICAL ENGINEERING

2020-21 1st SEM

COURSE OUTCOMES

COURSE: FLIGHT VEHICLE DESIGN-AE701

CLASS: IV-I SEM- AERO

- CO 1 Understand the concept of phases of aircraft design and the importance of conceptual design process involved in the aero dynamic design of an airplane.
- CO 2 Describe the concept of airfoil selection, design and airfoil design considerations for wing and tail geometry.
- CO 3 Explain geometrical sizing of fuselage, wing, tail, control surfaces, and development of configuration lay out for conceptual sketch.
- CO 4 Explain the effects of camber, angle of attack and thickness on the aerodynamic characteristics of an airfoil.
- CO 5 Solve the performance parameters of an aircraft takeoff stage to landing based on the aerodynamic forces and moments acting on the body.
- CO 6 Explain the different types of Pyrotechnics and their usage in real world applications by understand its limitations and safety measures.
- CO 7 Classify the types of landing gears and sub systems arrangements, guidelines and significance of design layout for the report of initial specifications.
- CO 8 Explain jet and propeller driven airplane performance for (takeoff/landing distance, range, endurance, climb, maneuver).
- CO 9 Understand selection criteria and properties of materials to perform under adverse conditions for design the new components as per the requirements.
- CO 10 Understand Elements of life cycle cost parametric analysis, optimization, refined sizing trade studies and its estimating methods for airline economics. Understand


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ACADEMIC YEAR 2020-2021

B.Tech III Year ECE II Sem

SUBJECT: DIGITAL SIGNAL PROCESSING

CO325		PO	Cognitive level	Class hrs
CO325.1	Perform time, frequency, and Z -transform analysis on signals and systems.	PO6,PO7,PO8, PSO1,PSO2	Apply	10
CO325.2	Understand the inter-relationship between DFT and various transforms.	PO8,PO9,PO10, PO12,PSO1, PSO2	Analyze	10
CO325.3	Understand the significance of various filter structures and effects of round off errors.	PO5,PO7,PO8,PO12, PSO1,PSO2	Create, Apply	10
CO325.4	Design a digital filter for a given specification.	PO7,PO9,PO10, PO11,PSO1, PSO2,PSO3	Analyze, Evaluate	15
CO325.5	Understand the fast computation of DFT and appreciate the FFT processing.	PO9,PO11,PO12,PSO1,PSO2, PSO3	Evaluate, Create	15
CO325.6	Understand the tradeoffs between normal and multi rate DSP techniques and finite length word effects.	PO5,PO7,PO8,PO12, PSO1,PSO2	Evaluate, Create	5
	Total			65

CO Justification

CO325	DIGITAL SIGNAL PROCESSING
CO325.1	Students learn Perform time, frequency, and Z -transform analysis on signals and systems.
CO325.2	Students are able to Understand the inter-relationship between DFT and various transforms.
CO325.3	The students are able to Understand the significance of various filter structures and effects of round off errors.
CO325.4	Students understand and Design a digital filter for a given specification.
CO325.5	Students Understand the fast computation of DFT and appreciate the FFT processing.
CO325.6	The students will Understand the tradeoffs between normal and multi rate DSP techniques and finite length word effects.

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CO-PO MAPPING


CO325	DIGITAL SIGNAL PROCESSING											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO325.1	-	-	-	-	-	2	1	3	-	-	-	-
CO325.2	-	-	-	-	-	-	-	3	2	1	-	3
CO325.3	-	-	-	-	2	-	1	3	-	-	-	3
CO325.4	-	-	-	-	-	-	3	-	2	1	3	-
CO325.5	-	-	-	-	-	-	-	-	3	-	1	2
CO325.6	2	-	1	3	-	-	-	3	2	-	1	3

CO-PSO MAPPING

CO325	DIGITAL SIGNAL PROCESSING		
	PSO1	PSO2	PSO3
CO325.1	2	2	-
CO325.2	1	2	-
CO325.3	3	2	-
CO325.4	1	1	1
CO325.5	2	1	1
CO325.6	-	-	-


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Program Outcomes (POs):

After the completion of the course Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** 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.
4. **Conduct investigations of complex problems:** 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.
5. **Modern tool usage:** 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.
6. **The engineer and society:** 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.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** 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.
11. **Project management and finance:** 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.
12. **Life-long learning:** 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.

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Program Educational Objectives:

PEO 1	Imparting knowledge on latest art of technology in curriculum to mould the Student for higher Education.
PEO 2	Produce graduates to the challenging needs of the Industry.
PEO 3	Develop the Professional and Ethical values for Society upliftment
PEO 4	To develop interest in lifelong learning process through professional memberships active participation.

Program Specific Outcomes (PSOs):

1. Impart Engineering knowledge through teaching, learning & participative process.
2. Ensure engineering fundamental concepts learning with emphasis on self learning process through lab practices and project development programs.
3. Develop Team building, Ethical values and create interest for Continuous Learning Process.


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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Academic Year : 2020-2021


Program : B.Tech

Year & SEM : IV year I Sem

Course : Additive Manufacturing Technology (ME744PE)

- Describe various CAD issues for 3D printing and rapid prototyping and related operations for STL model manipulation.
- Formulate and solve typical problems on reverse engineering for surface reconstruction from physical prototype models through digitizing and spline-based surface fitting.
- Formulate and solve typical problems on reverse engineering for surface reconstruction from digitized mesh models through topological modelling and subdivision surface fitting.
- Explain and summarize the principles and key characteristics of additive manufacturing technologies and commonly used 3D printing and additive manufacturing systems.
- Explain and summarize typical rapid tooling processes for quick batch production of plastic and metal parts.

~~Head of Department
Mechanical Engg.~~


PRINCIPAL
MAHAVEER
INSTITUTE OF SCIENCE & TECHNOLOGY
Bandlaguda, Hyd-500 005.



DEPARTMENT OF MECHANICAL ENGINEERING

CO-PO MAPPING

Academic Year : 2020-2021

Program : B.Tech

Year & SEM : IV year I Sem


Course : Additive Manufacturing Technology (ME744PE)


Course Objectives:

COs	Course Objectives
CO1	To understand the fundamental concepts of Additive Manufacturing (i.e. Rapid Prototyping) and 3-D printing, its advantages and limitations.
CO2	To classify various types of Additive Manufacturing Processes and know their working principle, advantages, limitations etc.
CO3	To have a holistic view of various applications of these technologies in relevant fields such as mechanical, Bio-medical, Aerospace, electronics etc.

Course Outcomes:

COs	Course Outcomes
CO1	Describe various CAD issues for 3D printing and rapid prototyping and related operations for STL model manipulation..
CO2	Formulate and solve typical problems on reverse engineering for surface reconstruction from physical prototype models through digitizing and spline-based surface fitting.
CO3	Formulate and solve typical problems on reverse engineering for surface reconstruction from digitized mesh models through topological modelling and subdivision surface fitting.
CO4	Explain and summarize the principles and key characteristics of additive manufacturing technologies and commonly used 3D printing and additive manufacturing systems.
CO5	Explain and summarize typical rapid tooling processes for quick batch production of plastic and metal parts.


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DEPARTMENT OF MECHANICAL ENGINEERING

Program Outcomes:

POs	Program Outcomes
PO 1	Apply advanced level knowledge, techniques, skills and modern tools in the field of computer aided engineering to critically assess the emerging technological issues.
PO 2	Have abilities and capabilities in developing and applying computer software and hardware to mechanical design and manufacturing fields.
PO 3	Conduct experimental and/or analytical study and analyzing results with modern mathematical / scientific methods and use of software tools.
PO 4	Function on multidisciplinary environments by working cooperatively, creatively and responsibly as a member of a team.
PO5	Write and present a substantial technical report / document.
PO6	Independently carry out research / investigation and development work to solve practical problems
PO7	Design and validate technological solutions to defined problems and recognize the need to engage in lifelong learning through continuing education.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES

COs	Course Outcomes						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 1	3						
CO 2	3		2				
CO 3	3	3	2				
CO 4	3	2	1		1	1	
CO 5		2			2	1	2

3 = High; 2 = Medium; 1 = Low

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