Academic Calendar for EVEN Semester of UG & PG programs for the year 2021-22

	VI semester B.E./B.Tech.	VI semester B.Arch./ B.Plan.	VIII semester B.E./B.Tech.	VIII semester B.Plan./B.Arch	IX semester B.Arch #	IV Semester B.Arch.	IV semester B. Plan	IV semester MCA	IV semester M.Tech.	IV Semester M.Arch.	VI Sem MCA (2018 scheme)
Commencement of EVEN Semester	04.04.2022	04.04.2022	04.04.2022	04.04.2022	14.02.2022	11.04.2022	11.04.2022	04.04.2022	04.04.2022	06.04.2022	04.04.2022
Last Working day of EVEN Semester	16.07.2022	16.07.2022	30.06.2022	30.06.2022	10.06.2022	23.07.2022	23.07.2022	30.06.2022	30.06.2022	30.06.2022	30.06.2022
Practical/Viva-Examination	18.07.2022 To 29.07.2022	18.07.2022 To 29.07.2022	---	---	20.06.2022 To 22.06.2022	25.07.2022 To 30.07.2022	25.07.2022 To 30.07.2022	04.07.2022 To 09.07.2022	---	---	-----
Theory Examinations	01.08.2022 To 20.08.2022	01.08.2022 To 20.08.2022	04.07.2022 To 20.07.2022	04.07.2022 To 15.07.2022	---	01.08.2022 To 20.08.2022	01.08.2022 To 20.08.2022	11.07.2022 To 28.07.2022	20.07.2022 To 10.08.2022	-----	----
Internship	---	---	---	---	---	---	---	---	------	-----	----
Internship Viva Voce/ Project viva	---	---	22.07.2022 To 30.07.2022	---	---	---	---	----	-----	-----	----
Summer Project / Professional training /Organization Study	---	---	---	---	---	---	---	-----	-----	-----	-----
Submission of the report to University	---	---	---	---	---	---	---	-----	04.07.2022 To 18.07.2022	04.07.2022 To 16.07.2022	04.07.2022 To 16.07.2022
Commencement of ODD Semester	22.08.2022	22.08.2022	---	18.07.2022 (B. Arch.)	----	22.08.2022	22.08.2022	----	----	----	----

B.Arch. X and IX semester swapped for AY 2021-22

Please Note:

- The academic sessions for EVEN semesters should commence from the dates mentioned above.
- The Institute can plan to have extra classes before the last working day to complete the requisite hours of teaching and learning of courses as per the scheme.
- Faculty should conduct additional tutorial classes in Blended mode to solve the doubts of the students.
- The faculty/staff shall be available to undertake any work assigned by the university.
- Notification regarding the Calendar of Events relating to the conduct of University Examinations will be issued by the Registrar (Evaluation) from time to time.
- Academic Calendar may be modified based on guidelines/directions issued in the future by MHRD/UGC/AICTE/State Government.
- Academic Calendar is also applicable for Autonomous Colleges. In case any changes are to be effected by Autonomous Colleges in the academic terms and examination schedule, they could do so with the approval of the University.
- The college has to conduct offline classes to cover 80% of the syllabus of the courses; however, 20% of the syllabus can be covered in virtual (Online) mode. Attendance of the students for offline and online classes is mandatory and records should be maintained and submitted to the university whenever informed.

|||AI SRI GURUDEV||

Sri Adichunchanagiri Shikshana Trust (R.)

S J C Institute of Technology

CALENDAR OF EVENTS FOR THE ACADEMIC YEAR 2021-2022 (Even Semester)

(Affiliated to Visvesvaraya Technological University, Belagavi & Approved by AICTE, New Delhi) P. B No. 20, B. B. Road, Chickballapur – 562101. Karnataka
Phone: 08156 – 263181/82/83/84 Mobile: 9880373629/9901653915 Email: principal@sjcit.ac.in www.sjcit.ac.in

Accredited by NAAC, NBA, Gold rated by QS – I Gauge Certified

Week No.	Month	Week Days							No of Working Days	EVENTS
		Mon	Tue	Wed	Thu	Fri	Sat	Sun		
1.	MAR/APRIL	28	29	30	31	1	2	3	5	28th HOD's / IC Meeting, April 1st Staff Council Meeting, April 2nd Chandramana Ugadi,
2.	APRIL	4	5	6	7	8	9	10	6	4th – Registration and commencement of VI ,VIII Sem B E & IV sem M.Tech, 4th HOD's / IC Meeting, 10th Sri Ramanavami
3.	APRIL	11	12	13	14	15	16	17	4	April 11th HOD's / IC Meeting, 14th Dr. B R Ambedkar Jayanthi / Sri Mahaveer Jayanthi, 15th Good Friday
4.	APRIL	18	19	20	21	22	23	24	6	18th HOD's / IC Meeting, 23rd – Functional Committee Meeting
5.	APRIL/MAY	25	26	27	28	29	30	1	6	11th HOD's / IC Meeting, 29th SEED Activity, 1st May Day
6.	MAY	2	3	4	5	6	7	8	5	2nd HOD's / IC Meeting, 3rd Ramzan, May 5th to 7th – Tutorial I, 11th – Announcement of Attendance CIE - I
7.	MAY	9	10	11	12	13	14	15	6	9th HOD's / IC Meeting, May 12th , 13th , 14th - Continuous Internal Evaluation I [for VI / VIII] semester
8.	MAY	16	17	18	19	20	21	22	6	16th HOD's / IC Meeting, May 20th – CIE-I Progress Report Dispatch, May 21st – Class Teachers and Proctors meeting
9.	MAY	23	24	25	26	27	28	29	5	23rd HOD's / IC Meeting, 25th – Course wise Mid Feedback, 27th SEED Activity
10.	MAY/JUNE	30	31	1	2	3	4	5	6	30th HOD's / IC Meeting, June 2nd to 4th – Tutorial II
11.	JUNE	6	7	8	9	10	11	12	6	6th HOD's / IC Meeting, 8th – Announcement of Attendance CIE – II ,9th, 10th, 11th - Continuous Internal Evaluation II [for VI / VIII] semester
12.	JUNE	13	14	15	16	17	18	19	6	13th HOD's / IC Meeting, 17th – CIE-II Progress Report Dispatch, June 18th – Class Teachers and Proctors meeting
13.	JUNE	20	21	22	23	24	25	26	5	20th HOD's / IC Meeting, 24th SEED Activity
14.	JUNE/JULY	27	28	29	30	1	2	3	6	27th HOD's / IC Meeting, June 30th to July 2nd – Tutorial III, July 2nd - Announcement of Attendance CIE - III
15.	JULY	4	5	6	7	8	9	10	6	4th HOD's / IC Meeting, 4th, 5th, 6th - Continuous Internal Evaluation III [for VI / VIII] semester. 9th – IQAC Meeting, 10th Bakrid
16.	JULY	11	12	13	14	15	16	17	6	11th HOD's / IC Meeting, 13th CIE-III Progress Report Dispatch, 14th – Class Teachers & Mentors meeting, 14th Course Wise Feedback, Course End Survey and Program Exit Survey
17.	JULY	18	19	20	21	22	23	24	6	18th HOD's / IC Meeting, Last Working Day of Even Semester. 19th July 2022
18.	JULY	25	26	27	28	29	30	31	6	25th HOD's / IC Meeting
19.	AUG	1	2	3	4	5	6	7	6	1st HOD's / IC Meeting
20.	AUG	8	9	10	11	12	13	14	5	8th HOD's / IC Meeting, 9th Moharam Last Day
21.	AUG	15	16	17	18	19	20	21	5	15th Independence Day
22.	AUG	22	23	24	25	26	27	28	6	22nd HOD's / IC Meeting, 22nd to 26th - Internal Quality Audit
23.	AUG/SEPT	29	30	31	1	2	3	4	5	29th HOD's / IC Meeting, 31st Vinayaka Chathurthi
24.	SEPT	5	6	7	8	9	10	11	6	5th HOD's / IC Meeting
25.	SEPT	12	13	14	15	16	17	18	6	12th HOD's / IC Meeting
26.	SEPT	19	20	21	22	23	24	25	6	19th HOD's / IC Meeting, 23rd SEED Activity, 25th Mahalaya Amavasye

4TH April – Commencement of VI & VIII Semester BE, IV Sem M Tech

VISION

Preparing Competent Engineering and Management Professional to Serve the Society

MISSION

- Providing Students with a Sound Knowledge in Fundamentals of their branch of Study.
- Promoting Excellence in Teaching, Training, Research and Consultancy.
- Exposing Students to Emerging Frontiers in various domains enabling Continuous Learning.
- Developing Entrepreneurial acumen to venture into Innovative areas.
- Imparting Value based Professional Education with a sense of Social Responsibility.

Dr. R. Ranganatha
HOD MED

21/03/2022

Dr. B. N. Shobha
Chairman - IQAC

Dr. G. T. Raju
Principal

SJCIT

DEPARTMENT OF MECHANICAL ENGINEERING
CALENDAR OF EVENTS FOR 2021 -22 EVEN SEMESTER

Week No.	Month	Week Days							No. of working Days	EVENTS
		Mon	Tue	Wed	Thu	Fri	Sat	Sun		
1.	MAR /APRIL	28	29	30	31	1			5	April 1st Staff Council Meeting , April 2nd Chandramana Ugadi,
2.	APRIL	4	5	6	7	8	9		6	April 4th – Registration and commencement of VI & VIII Semester B E
3.	APRIL	11	12	13			16		4	April 14th Dr. B R Ambedkar Jayanthi / Sri Mahaveer Jayanthi, April 15th Good Friday
4.	APRIL	18	19	20	21	22	23		6	
5.	APRIL /MAY	25	26	27	28	29	30		6	April 29th SEED Activity, May 1st May Day
6.	MAY	2		4	5	6	7		5	May 3rd Ramzan
7.	MAY	9	10	11	12	13	14		6	May 12th , 13th , 14th - Continuous Internal Evaluation I [for VI / VIII] semester
8.	MAY	16	17	18	19	20	21		6	
9.	MAY	23	24	25	26	27	28		5	May 27th SEED Activity
10.	MAY /JUNE	30	31	1	2	3	4		6	
11.	JUNE	6	7	8	9	10	11		6	June 9th, 10th, 11th - Continuous Internal Evaluation II [for VI / VIII] semester
12.	JUNE	13	14	15	16	17	18		6	
13.	JUNE	20	21	22	23	24	25		5	June 24th SEED Activity
14.	JUNE /JULY	27	28	29	30	1	2		6	
15.	JULY	4	5	6	7	8	9		6	July 4th, 5th, 6th - Continuous Internal Evaluation III [for VI / VIII] semester, July 10th Bakrid
16.	JULY	11	12	13	14	15	16		6	
17.	JULY	18	19	20	21	22	23		6	July 19th Last working day of Even Semester, July 22nd SEED Activity
18.	JULY	25	26	27	28	29	30		6	
19.	AUG	1	2	3	4	5	6		6	
20.	AUG	8		10	11	12	13		5	Aug 9th Moharam Last Day
21.	AUG		16	17	18	19	20		5	Aug 15th Independence Day
22.	AUG	22	23	24	25	26	27		6	Aug 26th SEED Activity
23.	AUG /SEPT	29	30		1	2	3		5	Aug 31st Vinayaka Chathurthi
24.	SEPT	5	6	7	8	9	10		6	
25.	SEPT	12	13	14	15	16	17		6	
26.	SEPT	19	20	21	22	23	24		6	Sept 23rd SEED Activity, Sept 25th Mahalaya Amavasye

Dr. R. Ranganatha
HOD MED

S.J.C INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR
Department of Mechanical Engineering
TIME TABLE

Faculty name: Dr. RAVI KUMAR.T.R
For the period: 2021-2022 EVEN
Room: LH-04 & LH-05

W.E.F 04-04-2022
SEMESTER: 6 A&B

DAYS / TIME	9.00 – 10.00	10.00 – 10.50	10:50 - 11:00	11.00-11.50	11.50 - 12.40	12.40 - 1.30	1.30 - 2.20	2.20 - 3.10	3.10 - 4.00	4.00 - 4.10	4.10 - 5.00
MONDAY		DME-II [6B] [LH-05]				Lunch break	CAMAL(A1)			Tea break	DME-II [6A]
TUESDAY	DME-II [6A] [LH-04]										DME-II [6B]
WEDNESDAY	DME-II [6B]						DME-II [6A]				
THURSDAY	DME-II [6A]										
FRIDAY	DME-II [6B]	CAMAL(B2)									
SATURDAY	DME-II [6B]			DME-II [6A]							

NOTE: The time table must include subject name, class and room no

Prepared by :	Dr. Manjunatha K N	Approved by :	Dr. Ranganatha R
Date & Sign :	28/3/22	Date & Sign :	28/3/2022

||Jai Sri Gurudev||

S. J. C Institute of Technology, Chickballapur

Department of Mechanical Engineering

2021-22 EVEN SEM

Students list

Semester/Section : 6th A

Sl. No.	Reg No.	Name of the Student	Signature
1	1SJ19ME001	Adarsh M	
2	1SJ19ME002	Akarsh M	
3	1SJ19ME003	Akshay M	
4	1SJ19ME004	Amruth V M	
5	1SJ19ME005	Anirudh	
6	1SJ19ME006	Balaji N	
7	1SJ19ME007	Bhuvan Athresh S	
8	1SJ19ME008	Chadive Sathish Kumar Reddy	
9	1SJ19ME010	Chethanraj D N	
10	1SJ19ME011	Chirag C	
11	1SJ19ME012	Dhanush B	
12	1SJ19ME013	Dhanush N	
13	1SJ19ME014	Gagan Gowda C	
14	1SJ19ME015	Ganesh U	
15	1SJ19ME016	Harshith Gowda Tl	
16	1SJ19ME018	Jahnavi Krupa A	
17	1SJ19ME019	Jashwanth J	
18	1SJ19ME020	Jayanth K R	
19	1SJ19ME021	Karthik B N	
20	1SJ19ME022	Keerthana B K	
21	1SJ19ME023	Kethireddy Hruday Reddy	
22	1SJ19ME024	Kumar S	
23	1SJ19ME025	Kuruba Avinash	
24	1SJ19ME026	Kushal Y S	
25	1SJ19ME027	Lakshay Kumar Singh	

26	1SJ19ME028	Likith K N	
27	1SJ19ME029	Madhu K	
28	1SJ19ME030	Madhu M N	
29	1SJ19ME031	Manju0th C	
30	1SJ19ME032	Manohar H K	
31	1SJ19ME034	Manoj H V	
32	1SJ19ME036	Md Aakib Khan	
33	1SJ19ME037	Mohammed Shoaib	
34	1SJ19ME038	Mohan H V	
35	1SJ19ME039	Mohankrish0 N	
36	1SJ19ME040	Mohith K V	
37	1SJ20ME400	Abhilash K N	
38	1SJ20ME401	Ajay Kumar G	
39	1SJ20ME402	Ashoka C	
40	1SJ20ME403	Bhavan.d	
41	1SJ20ME404	Chandan Gowda T N	
42	1SJ20ME405	Chandan N Gowda	
43	1SJ20ME406	Deepak N	
44	1SJ20ME407	G Chandan	
45	1SJ20ME408	Harshith A	
46	1SJ20ME409	Jayateertha C A	
47	1SJ20ME410	K G Rajeev Iyengar	

Department of Mechanical Engineering
S.J.C. Institute of Technology
Chickballapur-562 101

||Jai Sri Gurudev||

S. J. C Institute of Technology, Chickballapur

Department of Mechanical Engineering

2021-22 EVEN SEM

Students list

Semester/Section : 6th B

Sl. No.	Reg No.	Name of the Student	Signature
1	1SJ19ME041	Nagendra Babu N P	
2	1SJ19ME042	Nandan H	
3	1SJ19ME043	Nandhini G	
4	1SJ19ME044	Nikhil K M	
5	1SJ19ME045	Nithin M	
6	1SJ19ME046	Nithin M	
7	1SJ19ME047	Osama Hyder Babu Darvesh	
8	1SJ19ME049	Pooja P	
9	1SJ19ME050	Pothurai Ravikumar Reddy	
10	1SJ19ME051	Prabhakar Y V	
11	1SJ19ME052	Pulugura Manju0th Reddy	
12	1SJ19ME053	Punith D S	
13	1SJ19ME054	Rahul A	
14	1SJ19ME055	Rahul M	
15	1SJ19ME057	Rameshwar B M	
16	1SJ19ME058	Sagar T A	
17	1SJ19ME059	Sandeep B R	
18	1SJ19ME060	Sanivarapu Raja Sekhar Reddy	
19	1SJ19ME061	Sanjay S	
20	1SJ19ME062	Santosh N	
21	1SJ19ME063	Seetharam S	
22	1SJ19ME064	Shailesh N	
23	1SJ19ME065	Sharath Kumar H V	
24	1SJ19ME066	Shashank V	
25	1SJ19ME067	Shreyas L	
26	1SJ19ME068	Shrinidhi Kulkarni	
27	1SJ19ME069	Sreedhar A	

28	1SJ19ME071	Sridhar Reddy B	
29	1SJ19ME072	Sudeep Gowda N	
30	1SJ19ME073	Swasthik K M	
31	1SJ19ME074	Tabrez Pasha	
32	1SJ19ME075	Uday Kiran G R	
33	1SJ19ME076	V S Monish	
34	1SJ19ME077	Vijaykumar K S	
35	1SJ19ME078	Vivek B	
36	1SJ19ME079	Yashwanth K N	
37	1SJ20ME411	Karthik K J	
38	1SJ20ME412	Madhu T V	
39	1SJ20ME413	Nanda Kishore R	
40	1SJ20ME414	Pavan Kumar T N	
41	1SJ20ME415	Pradeep N	
42	1SJ20ME416	Praveen Kumar H A	
43	1SJ20ME417	Sumanth Y S	
44	1SJ20ME418	Varshith Gowda L	
45	1SJ18ME015	Boyananda Vardhan	
46	1SJ18ME017	Chandan Gowda M	
47	1SJ18ME074	Praveen G V	
48	1SJ19ME405	Girish KN	
49	1SJ20ME419	Arun Kumar K N	

Head of the Department
Department of Mechanical Engineering
S.J.C.I.T.,
CHICKBALLAPUR - 562 101

B. E. MECHANICAL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - VI

DESIGN OF MACHINE ELEMENTS II

Course Code	18ME62	CIE Marks	40
Teaching Hours /Week (L:T:P)	3:2:0	SEE Marks	60
Credits	04	Exam Hours	03

Course Learning Objectives:

- To understand various elements involved in a mechanical system.
- To analyze various forces acting on the elements of a mechanical system and design them using appropriate techniques, codes, and standards.
- To select transmission elements like gears, belts, pulleys, bearings from the manufacturers' catalogue.
- To design a mechanical system integrating machine elements.
- To produce assembly and working drawings of various mechanical systems involving machine elements like belts, pulleys, gears, springs, bearings, clutches and brakes.

Module-1

Springs: Types of springs, spring materials, stresses in helical coil springs of circular and non-circular cross sections. Tension and compression springs, concentric springs; springs under fluctuating loads.
Leaf Springs: Stresses in leaf springs, equalized stresses, and nipping of leaf springs.
Introduction to torsion and Belleville springs.
Belts: Materials of construction of flat and V belts, power rating of belts, concept of slip and creep, initial tension, effect of centrifugal tension, maximum power condition.
Selection of flat and V belts- length & cross section from manufacturers' catalogues. Construction and application of timing belts.
Wire ropes: Construction of wire ropes, stresses in wire ropes, and selection of wire ropes.

Module-2

Gear drives: Classification of gears, materials for gears, standard systems of gear tooth, lubrication of gears, and gear tooth failure modes.
Spur Gears: Definitions, stresses in gear tooth: Lewis equation and form factor, design for strength, dynamic load and wear.
Helical Gears: Definitions, transverse and normal module, formative number of teeth, design based on strength, dynamic load and wear.

Module-3

Bevel Gears: Definitions, formative number of teeth, design based on strength, dynamic load and wear.
Worm Gears: Definitions, types of worm and worm gears, and materials for worm and worm wheel. Design based on strength, dynamic, wear loads and efficiency of worm gear drives.

Module-4

Design of Clutches: Necessity of a clutch in an automobile, types of clutch, friction materials and its properties. Design of single plate, multi-plate and cone clutches based on uniform pressure and uniform wear theories.
Design of Brakes: Different types of brakes, Concept of self-energizing and self-locking of brakes. Practical examples, Design of band brakes, block brakes and internal expanding brakes.

Module-5

Lubrication and Bearings: Lubricants and their properties, bearing materials and properties; mechanisms of lubrication, hydrodynamic lubrication, pressure development in oil film, bearing modulus, coefficient of friction, minimum oil film thickness, heat generated, and heat dissipated. Numerical examples on hydrodynamic journal and thrust bearing design.

Department of Mechanical Engineering
S.J.C. Institute of Technology
Chickballapur-562 101

Antifriction bearings: Types of rolling contact bearings and their applications, static and dynamic load carrying capacities, equivalent bearing load, load life relationship; selection of deep grove ball bearings from the manufacturers' catalogue; selection of bearings subjected to cyclic loads and speeds;probability of survival.

Assignment:

Course work includes a **Design project**. Design project should enable the students to design a mechanical system (like single stage reduction gear box with spur gears, single stage worm reduction gear box, V-belt and pulley drive system, machine tool spindle with bearing mounting, C-clamp, screw jack, etc.) A group of students (maximum number in a group should be 4) should submit assembly drawing and part drawings, completely dimensioned, indicating the necessary manufacturing tolerances, surface finish symbols and geometric tolerances wherever necessary. Design project must be completed using appropriate solid modeling software. Computer generated drawings must be submitted. Design calculations must be hand written and should be included in the report. Design project should be given due credit in internal assessment.

Course Outcomes: At the end of the course, the student will be able to:

CO1: Apply design principles for the design of mechanical systems involving springs, belts, pulleys, and wire ropes.
CO2: Design different types of gears and simple gear boxes for relevant applications.
CO3: Understand the design principles of brakes and clutches.
CO4: Apply design concepts of hydrodynamic bearings for different applications and select Anti friction bearings for different applications using the manufacturers, catalogue.
CO6: Apply engineering design tools to product design.
CO7: Become good design engineers through learning the art of working in a team.

Question paper pattern:

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Sl No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
Textbook/s				
1	Shigley's Mechanical Engineering Design	Richard G. Budynas,and J. Keith Nisbett	McGraw-Hill Education	10th Edition, 2015
2	Fundamentals of Machine Component Design	Juvinall R.C, and Marshek K.M	John Wiley & Sons	Third Edition 2007 Wiley student edition
3	Design of Machine Elements	V. B. Bhandari	Tata Mcgraw Hill	4th Ed 2016.
4	Design of Machine Elements-II	Dr.M H Annaiah Dr. J Suresh Kumar Dr.C N Chandrappa	New Age International (P) Ltd.,	1s Ed., 2016
Reference Books				
1	Machine Design- an integrated approach	Robert L. Norton	Pearson Education	2nd edition
2	Design and Machine Elements	Spotts M.F., ShoupT.E	Pearson Education	8th edition, 2006

3	Machine design Hall, Holowenko, Laughlin (Schaum's Outline Series	adapted by S.K.Somani	Tata McGraw Hill Publishing Company Ltd	Special Indian Edition, 2008
4	Elements of Machine Design	H.G.Patil, S.C.Pilli, R.R.Malagi, M.S.Patil	IK International	First edition,2019
5	Design of Machine ElementsVolume II	T. Krishna Rao	IK international publishing house	2013
6	Hand book of Mechanical Design	G. M. Maithra and L.V.Prasad	Tata McGraw Hill	2nd edition,2004

Design Data Hand Books:

[1] Design Data Hand Book, K.Lingaiah, McGraw Hill, 2nd edition, 2003.
[2] Design Data Hand Book, K.Mahadevan and Balaveera Reddy, CBS publication.
[3] Design Data Hand Book, H.G.Patil, I.K.International Publisher, 2010
[4] PSG Design Data Hand Book, PSG College of technology, Coimbatore

Department of Mechanical Engineering
S.J.C. Institute of Technology
Chickballapur-562 101

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Chickballapur – 562 101

Estd: 1986

Department of Mechanical Engineering

LESSON PLAN

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER & SECTION	**VI 'A'**		
IA MARKS	**40**	*EXAM MARKS*	**60**
NUMBER OF LECTURE HOURs/WEEK	**5**	*TOTAL NUMBER OF LECTURE HOURS*	**50**
FACULTY NAME	**Dr. RAVIKUMAR T R**	*NO. OF TIMES HANDLED*	**4**

COURSE LEARNING OBJECTIVES: This course will enable students to

1. Understand various elements involved in a Mechanical system: Springs, Belts, Ropes, Gears, Clutches, Brakes and Bearings.
2. Determine various forces and stresses induced on the elements of a mechanical system to do its function.
3. Design Mechanical system integrating machine elements using appropriate techniques, Codes and Standards
4. Select transmission elements like gears, belts, pulleys, bearings from the manufacturers' catalogue.
5. Produce assembly and working drawings of various mechanical systems involvingmachine elements like belts, pulleys, gears, springs, bearings, clutches and brakes.

Course Outcomes: At the end of this course, students are able to:

CO1	**Understand** the type and design procedure of various Machine elements (such as Springs, Belts, Ropes, Gears, Clutches, Brakes and Bearings).
CO2	**Determine** Forces and stresses induced in machine elements subjected to different types of loading conditions (Such as Static, Dynamic and Wear).
CO3	**Design** Machine Elements based on Strength criteria.
CO4	**Select** suitable bearings to give support to different rotating elements.

Explore

CO-PO MATRIX

COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-		-	-	-	-	3	
CO2	3	3	2	1	-	-	-	-	-	-	-	-	3	
CO3	3	2	3	2	-	-	-	-	-	-	-	-	3	
CO4	3	2	3	1	-	-	-	-	-	-	-	-	3	

Note: Justification of CO-PO mapping

CO'S	PO'S	LEVELS	JUSTIFICATIONS
CO1	PO1	3	CO1 is having high level consistency with PO1, because it addresses the fundamental knowledge of the subject to the students
	PO2	2	CO1 is having medium level consistency with PO2, because it derives the equations by using first principles of mathematics.
CO2	PO1	3	CO2 is having high level consistency with PO1, because it addresses apply the knowledge of mathematics to determination of the stresses induced in the machine elements.
	PO2	3	CO2 is having high level consistency with PO2, because the students are able to determine stresses in machine elements subjected to different types of loads.
	PO3	2	CO2 is having medium level consistency with PO3, because the students are able to design the machine elements based strength criteria by determining different stresses induced in the element
	PO4	1	CO2 is having Low level consistency with PO4, because the students are able to investigate stresses induced in machine elements to check the machine element is safe or not to withstand the applied load.
CO3	PO1	3	CO3 is having high level consistency with PO1, because the students know the knowledge of various forces acting on machine elements.
	PO2	2	CO3 is having medium level consistency with PO2, because it determine various stresses developed in a machine elements subjected to different loading conditions to check the design component is safe or not based on strength criteria.
	PO3	3	CO3 is having medium level consistency with PO3, because it determines the size of the machine elements based on strength criteria.

	PO4	2	CO3 is having medium level consistency with PO4, because it addresses the determination of stresses acting on the machine element and interpretation of the result with actual environment
CO4	PO1	3	CO4 is having high level consistency with PO1, because the students know the knowledge of Pressure distribution and load carrying capacity.
	PO2	2	CO4 is having medium level consistency with PO2, because it derives the equations and determine the pressure distribution subjected to different types of loads.
	PO3	3	CO4 is having high level consistency with PO3, because it determines the size of the bearings subjected to different loads and end conditions.
	PO4	1	CO4 is having low level consistency with PO4, because it addresses the determination of the size and interpretation of the result with actual environment conditions
CO1	PSO1	3	CO1 is having high level consistency with PSO1, because the students are able to know the design procedure before going to design a machine elements.
CO2	PSO1	3	CO2 is having high level consistency with PSO1, because the students are able to determine the stresses in various machine elements subjected to different types of loads.
CO3	PSO1	3	CO3 is having high level consistency with PSO1, because it determines the the size of the machine element subjected to various loads and end conditions.
CO4	PSO1	3	CO4 is having high level consistency with PSO1, because it determines the pressure distribution and the size of the bearings.

DELIVERY PLAN WITH DETAILS

MODULE – 2

Lecture #	Topic	Mode of Delivery (PlsTick √)				Date of Delivery	COs Covered
		1	2	3	4		
1	Introduction about Engineering, Mechanical Engineering, Machine design		√			5/4/22	
2	Syllabus, CO's		√			6/4/22	
3	**Gear drives:** Classification of gears, Gear materials, Gear tooth and tooth failures, Lubrication of gears.		√			7/4/22	CO1
4	**Spur gears:**Stresses in gear tooth, Design procedure,	√				9/4/22	CO2
5	Gear tooth design against Static, Dynamic and Wear load.	√				12/4/22	CO3
6	Solving Problems	√				13/4/22	CO3
7	Solving Problems	√				19/4/22	CO3
8	**Helical gears:**Definitions, Transverse and Normal module, Formative No. of teeth		√			20/4/22	CO1
9	Design Procedure, Gear tooth design against Static, Dynamic and Wear load.	√				21/4/22	CO1
10	Solving Problems	√				23/4/22	CO3
11	Solving Problems	√				26/4/22	CO3

Textbook : and chapter : Textbook : and chapter : "Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016. Chapter 17 and 18.

Signatures	Faculty: 21/4/22	#HOURS	Allotted	Taken
	HoD: 3/5		16	16
Remarks				

MODULE – 3

Lecture #	Topic	Mode of Delivery (PlsTick √)				Date of Delivery	COs Covered
		1	2	3	4		
1	**Bevel gears:** Definitions, Formative No. of teeth,		√			27/4/22	CO1
2	Design procedure	√				28/4/22	CO1
3	Gear tooth design against Static, Dynamic and Wear load.	√				30/4/22	CO2
4	Solving Problems	√				4/5/22	CO3
5	Solving Problems	√				4/5/22	CO3
6	**Worm gears:** Definitions, Types of worm and		√			5/5/22	CO1

	worm gears, tooth materials						
7	Design procedure,	√				5/5/22	CO1
8	Gear tooth design against Static, Dynamic and Wear load.	√				10/5/22	CO2
9	Solving Problems	√				11/5/22	CO3
10	Solving Problems	√				11/5/22	CO3

Textbook : and chapter:"Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016. Chapter 19 and 20.

Signatures	**Faculty:**	**#HOURS**	**Allotted**	**Taken**
	HoD:		12	12
Remarks				

MODULE – 4

Lecture #	Topic	Mode of Delivery (PlsTick √)				Date of Delivery	COs Covered
		1	2	3	4		
1	**Design of Clutches:** Necessities, Types of clutch, Friction materials and its properties, Design of single plate and multi plate clutches		√			17/5/22	CO1
2	Solving Problems	√				18/5/22	CO3
3	Design of cone clutches, Problems	√	√			19/5/22	CO3
4	**Design of Brakes:** Different types of brakes, Self-energizing and self-locking of brakes		√			24/5/22	CO1
5	Design of band brakes,Solving Problems	√				25/5/22	CO3
6	Design of Block brakes,Solving Problems		√			26/5/22	CO3
7	Design of Internal expanding brakes,Solving Problems	√				28/5/22	CO3

Textbook : and chapter :"Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016.Chapter 11 and 12.

Signatures	**Faculty:**	**#HOURS**	**Allotted**	**Taken**
	HoD:		11	11
Remarks				

MODULE – 5

Lecture #	Topic	Mode of Delivery (PlsTick √)				Date of Delivery	COs Covered
		1	2	3	4		

1	**Lubrication and Bearings:**Lubricants and their properties, Bearing materials and properties, Mechanisms of lubrication, Hydrodynamic lubrication. Terminologies		√			1/6/22	CO1
2	Design procedure of Hydrodynamic bearing, Solving Problems	√				2/6/22	CO1
3	Solving Problems	√				7/6/22	CO4
4	Thrust bearing design procedure, Problems	√				8/6/22	CO4
5	**Antifriction bearings:**Types of rolling contact bearings and their applications, Static and dynamic load carrying capacities, Equivalent bearing load, Load life relationship	√				14/6/22	CO2
6	Selection of deep; grove ball bearings from the manufacturer's catalogue	√				15/6/22	CO4
7	Solving Problems	√				16/6/22	CO4
8	Selection of bearings subjected to cyclic loads and speeds, probability of survival		√			21/6/22	CO4
9	Solving Problems	√				22/6/22	CO4

Textbook: and chapter:"Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016. Chapter 15 and 16.

Signatures	**Faculty:**	**#HOURS**	**Allotted**	**Taken**
	HoD:		16	16
Remarks				

MODULE – 1

Lecture #	Topic	Mode of Delivery (PlsTick √)				Date of Delivery	COs Covered
		1	2	3	4		
1	**Springs:**Types of springs, spring materials and applications		√			23/6/22	CO1
2	Stresses in helical coil springs of different cross sections		√			25/6/22	CO2
3	Solving Problems	√				28/6/22	CO3
4	Leaf springs: Stresses in leaf springs, Problems	√				29/6/22	CO1
5	**Belts:** Materials, Concepts of slip and creep, Initial tension, Centrifugal tension and Maximum power condition, Timing belts		√			30/6/22	CO1
6	Selection of Flat belts: Design procedure, Solving Problems	√	√			7/7/22	CO3
7	Selection of V belts: Design Procedure, Solving Problems	√				9/7/22	CO3
8	**Wire ropes:**Construction of wire ropes ,Stresses in wire ropes	√				12/7/22	CO1
9	Selection of wire ropes: Design procedure,	√				13/7/22	CO3

10	Solving Problems	√				14/7/22	CO3

Textbook : and chapter :. "Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016. Chapter 10, 13 and 14.

			Allotted	Taken
Signatures	**Faculty:**	**#HOURS**	10	16
	HoD:			
Remarks				

Text Books:

1. "Mechanical Engineering Design", Shigley's, Richard G and J Keith Nisbett, McGraw-Hill Education, 10th Edition, 2015.
2. "Design of Machine Elements", V B Bhandari, Tata Mcgraw Hill, 4th Edition, 2016.

Reference Books:

1. "Machine Design- an integrated approach", Robert L Norton, Pearson Education, 2nd Edition, 2016.
2. "Design and Machine Elements", Spotts M F, Shoup T E, Pearson Education, 8th Edition, 2006.
3. "Machine Design", Schaum's Outline series, Hall, Holowenko, Laughlin adapted by S K Somani, Tata McGraw Hill publishing company Ltd, Special indian Edition, 2008.

Design Data Hand Book:

1. Design Data Hand Book, K Lingaiah, McGraw Hill, 2nd edition, 2003.

(Note: Mode of Delivery : 1:Black Board 2:PPT 3:Video 4:Demo/Hands-on)

INTERNAL/ASSIGNMENT/QUIZ SCHEDULE

TEST and QUIZ		COs and Portions Covered		ASSIGNMENT	
Test# and Quiz#	DATE	CO	Modules	Assignment#	Submission DATE
T1 & Q1	12/5/2022	CO1, CO2 & CO3	Modules 2 & 3	A1	11/5/2022
T2 & Q2	09/6/2022	CO1 & CO3	Modules 4 & 5	A2	08/6/2022
T3 & Q3	04/7/2022	CO1, CO2, CO3 & CO4	Modules 5 & 1	A3	03/7/2022

SUMMARY

			Allotted	Taken
Signatures With Date	**Faculty:**	**Total #HOURS**	50	71
	HoD:			
Remarks				

ENCLOSURES

1. **Syllabus**
2. **CO Attainment**
3. **Gap Analysis**
4. **Special lectures/talks arranged if any**

Feedback by PAC

04/04/2022

Faculty **Course coordinator** **PAC** **HOD**

Estd: 1986

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Chickballapur – 562 101

Department of Mechanical Engineering

QUESTION BANK

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021-22 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER	**VI 'A & B'**		
FACULTY NAME and DESIGNATION	**Dr. RAVIKUMAR T R, Assistant Professor**		

Module -1			
Q. No.	*Questions*	*Bloom's LL*	*COs*
1	Enumerate the application of springs. Classify in detail about helical and leaf springs	L1	CO1
2	Classify different types of belts used in machine tools.	L1	CO1
3	Write a short note on Timing belts used in precision machines.	L1	CO1
4	Derive an expression for the deflection of a close coiled helical spring.	L2	CO1
5	Derive an expression for the stress induced in a helical spring, with usual notations. (June 2012)	L2	CO1
6	Derive an expression for an effort required to raise the load Q by using Hoist and Tackle mechanism.	L2	CO1
7	A carriage weighing 25000 N is moving on track with a linear velocity of 3.6 km/hour. If it is brought to rest by two helical compression springs is the form of a bumper by undergoing a compression of 180 mm. The springs may be assumed to have a spring index of 6 and permissible shear strength of 450 MPa. Design the spring and determine the diameter of the	L3	CO2

	wire, mean coil diameter and the length of the spring. Assume the modulus of rigidity of the spring material as 81.4 GPa. (June 2012)		
8	A V-belt drive is required to transmit 15kW at 210mm sheave running at 800 rpm to another pulley to run at 400 rpm. The belt used is 30mm wide at top, 21mm thick with V-angle 40°. The allowable stress for belt material is 2MPa. Center distance is 1.2m. Specific weight of belt material is 1.1gm/cc. Coefficient of friction of smaller pulley is 0.3 and for larger pulley is 0.25. Find the number of V-belts of given cross section required for this application.	L3	CO3
9	For a flat belt drive, the following data are given: Power transmitted = 10kW Speed of motor = 1200 rpm Speed of driven pulley = 400 rpm Velocity of belt = 14m/s Load factor = 1.2 Density of leather = 9.8 kN/m^3 Smaller pulley diameter to thickness of belt ratio = 36 Factor of safety = 10 Ultimate strength of belt material = 24 MPa Centre distance = 2.1 m and Coefficient of friction = 0.36 Design the belt.	L4	CO3
10	Design the complete specification of a helical compression spring to sustain axial load of 3 kN. The deflection is 60mm and the spring index is 6. Shear stress is not to exceed 300 MPa. Take G = 81 GPa. Take clearance a = 0.25y. Assume squared and round ends.	L4	CO3

Module -2			
Q. No.	*Questions*	*Bloom's LL*	*COs*
1	Sketch and Explain the different forms of Involute gear tooth. (June 2012)	L1	CO1
2	Explain the gear tooth failure modes and their possible remedies to avoid	L1	CO1

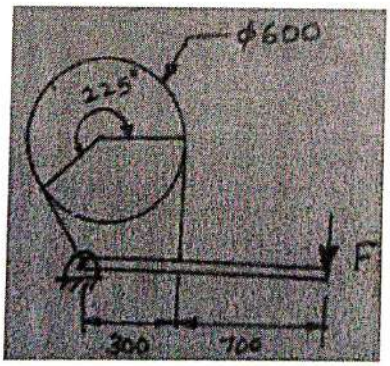
	the failure.		
3	Explain formative number of teeth in helical gears.	L1	CO1
4	Derive an expression for beam strength of a spur gear tooth. Also list the assumptions. (June/July 2019)	L2	CO1
5	Design a pair of spur gear transmits 15kW from a shaft rotating at 1100 rpm to a parallel shaft which is to rotate at 340 rpm. Assume number of teeth on pinion 31 and 20^{o} FDI tooth form. The material for pinion is C45 steel untreated and for gear cast steel 0.2%C untreated.	L3	CO3
6	Design a bronze spur gears 81MPa and mild steel pinion 101MPa to transmit 5kW at 1800rpm. The velocity ratio is 3.5 to 1, pressure angle is 14 $1/2^{0}$ involute. Not less than 15 teeth are to be used on either gear. Determine the module, face width & suggest suitable surface hardness for the weaker member based on dynamic & wear considerations.	L3	CO2
7	The following data refer to a helical gear drive a. Power transmitted 30kW at 2800 rpm of pinion b. Speed reduction ration 4.5 c. Helix angle 25^{o} d. Material for both pinion and gears is medium carbon steel whose allowable bending stress may be taken as 230MPa, BHN =275. e. Pinion material is limited to 125mm. Determine module and face width. Check the design for wear strength against dynamic loading. Determine also the axial thrust on the shaft.	L3	CO2
8	A cast steel pinion rotating at 900 rpm is to drive cast iron gear at 144 rpm. The static design stresses for pinion and gear materials are 103 MPa and 55 MPa respectively. The teeth are to have standard 20^{o} stub involute profiles and the maximum power to be transmitted is 25 KW. Design the spur gears completely and check for the dynamic and wear loads. The gear surfaces are hardened to BHN 250. Use 16 teeth on the pinion.	L3	CO3
9	A pair of equal diameter herringbone gears of CI (σ_o=60MPa) is used to transmit 6kW at 6000rpm. The center distance between the gears is 80mm, the normal pressure angle is 20^{0} and helix angle is 28^{0}. The teeth's are FDI. Determine (i) transverse module, (ii) normal module & (iii) face	L4	CO3

	width.		
10	A pair of helical gears with a 23° helix angle is to transmit 2.5 KW at 10,000 rpm of the pinion. The velocity ratio is 4:1. Both gears are to be made of hardened steel with an allowable stress of 100 Mpa for each gear. The gears are 20° stub and the pinion is to have 24 teeth. Design the gears and determine the required BHN.	L4	CO

Module -3			
Q. No.	*Questions*	*Bloom's LL*	*COs*
1	Explain the advantages of worm drive. Write a note on materials used for worm and worm wheel. (June 2012)	L1	CO1
2	Explain self-locking effect in case of a worm gear drive.	L1	CO1
3	Under what circumstances the bevel gears are used? Give detailed classification of bevel gears.	L1	CO1
4	Derive an equation for formative number of teeth on bevel gear. (Dec 2018/Jan 2019).	L2	CO1
5	Design a pair of miter bevel gears to transmit 9kW at 1200 rpm. The pitch line velocity of gear is not exceeding 15m/sec.	L3	CO1
6	A pair of bevel gear wheels with 20° pressure angle consists of 20 teeth pinion meshing with 30 teeth gear. The module is 4 mm while face width is 20 mm. The surface hardness of both pinion and gear is 400 BHN. The pinion rotates at 500 rpm and receives power from an electric motor. The starting torque of the motor is 150 percent of the rated torque. Determine the safe power that can be transmitted considering the dynamic load wear strength and endurance strength. The allowable bending stress may be taken as 240 MPa. (June/July 2018)	L3	CO2
7	Design a worm and worm wheel to transmit a power of 10kW with a speed reduction ratio of 20 and a center distance of 220 mm. The worm speed is 1000 rpm.	L3	CO3
8	Complete the design and determine the input power capacity of a worm gear speed reduces unit composed of a hardened steel worm and a	L3	CO3

	phosphor bronze gear having 20^0 stub involute teeth. The center distance C is to be 200 mm, the transmission ratio is to be 10 and the worm speed is to be 1750 rev/min. (June/July 2018)		
9	Design a worm gear drive to transmit a 2kW at 1000rpm of worm. The velocity ratio is 20:1 and center distance is 200mm. Material for the gear is phosphor bronze and that of worm is hardened steel. Determine the efficiency of the drive.	L4	CO3
10	A speed reduced unit is to be designed for an input power of 0.75 kW with a transmission ratio of 27. The speed of the hardened worm is 1750 r/min. The worm wheel is made of phosphor bronze. The tooth form is to be 14 ½ involute. The allowable stress for the wheel may be taken as 80 MPa.	L4	CO3

Module -4			
Q. No.	***Questions***	***Bloom's LL***	***COs***
1	Explain briefly the uniform pressure theory and uniform wear theory as applicable to friction clutches and brakes.	L1	CO1
2	Name the different type of clutches. Describe with the help of a neat sketch the working principle of any one friction clutch.	L1	CO1
3	Classify the brakes and name different types of mechanical brakes.	L1	CO1
4	Derive a relation to compute the torque developed on block brake.	L2	CO1
5	With help of a neat sketch derive an equation for torque transmitting capacity of single plate clutch, considering uniform wear.	L2	CO1
6	An automotive plate clutch consists of two pairs of contacting surfaces with asbestos friction lining. The maximum engine torque is 250 N-m. The clamping force is provided by nine springs, each compressed by 5 mm to give a force of 800 N, when the clutch is new: i. What is the factor of safety with respect to slippage when the clutch is brand new? ii. What is the factor of safety with respect to slippage after initial wear has occurred? iii. How much wear of friction lining can take place before the	L3	CO2

	clutch will slip? (June/July 2018).		
7	A multi plate clutch consists of five steel plates and four bronze plates. The inner and outer diameter of friction disks are 75 mm and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure is limited to 0.3 N/mm^2. Assuming uniform wear theory. Calculate: i. The required operating force, ii. Power transmitting capacity at 750 r/min. (June 2012)	L3	CO2
8	A differential band brake is shown in Fig. The width and thickness of the steel band are 100 mm and 3 mm respectively. The permissible tensile stress in the band is limited to 50 MPa. The coefficient of friction between the friction lining and the drum is 0.25. Calculate i. Tension in the band, ii. The actuating force, iii. Torque capacity of the brake. (June 2012)	L3	CO2
9	Design a centrifugal clutch with four shoes for transmitting 20kW at 1200rpm. The speed at which engagement begins is 80% of the running speed. The inside radius of the pulley rim is 150mm. the shoes are lined with Ferodo lining for which μ=0.25.	L4	CO3
10	A single band brake shown in fig. is to be designed to stop the rotation of a shaft transmitting a power of 45kW at a rated speed of 500 rpm. Selecting suitable materials determine, i) Dimensions of rectangular cross section of band. ii) Dimensions of rectangular cross section of brake lever.(Assume $h_1=2b_1$). iii) Diameter of fulcrum pin. Assume $l_p=1.5dp$, bearing stress σ_b=10MPa. 	L4	CO3

Module -5

Q. No.	Questions	Bloom's LL	COs
1	List the different forms of lubrication and bearing materials.	L1	CO1
2	Explain the mechanism of Hydrodynamic lubrication in journal bearing.	L1	CO1
3	What are the advantages and disadvantages of rolling contact bearings?	L1	CO1
4	Derive Petroff's equation for coefficient of friction for Hydrodynamic bearing and also state assumption. (June/July 2019)	L2	CO1
5	Explain the properties of a good bearing material should possess. List the different types of bearing materials. (June 2012)	L2	CO1
6	The following data are given for a full journal bearing: Radial load 25 kN, L/d ratio 1:1, Unit bearing pressure 2.5 MPa, Viscosity of the lubricant 20Cp, Class of fit H7 e7. Calculate i. Dimensions of the bearing, ii. Minimum oil film thickness, iii. Requirement of oil flow. Assume that the process to clearance is centered. (June 2012)	L3	CO4
7	A 75mm long full journal bearing of diameter 75mm supports a load of 12 kN on a journal Y rotating at 1800 rpm. Assuming a ratio of 1000 and an oil having viscosity of 0.01 kg/ms at the operating temperature, Determine the coefficient of friction by using i. The McKee equation, ii. The Raimondi and Boyd curve, iii also determine the amount of heat generated using the co-efficient of friction as calculated by the McKee equation. (June/July 2018)	L3	CO4
8	Design a multi collar thrust bearing for a propeller shaft of a 400 kW marine oil engine. The engine makes 300 rpm. The propeller has a pitch of 2.5m and slip is 30%. The permissible bearing pressure is 0.5 N/mm^2. Assume (a) uniform pressure theory and (b) uniform wear theory.	L3	CO4
9	Design the main bearing for a stationary slow speed steam engine for the following data: journal diameter = 180mm, Maximum load on the piston = 70kN, Engine speed = 200 rpm.	L4	CO4
10	A deep groove ball bearing of BC 02 series has to work under following work cycle at constant shaft speed of 1440 rev/min. i. Radial load of 2.5	L4	CO4

	kN for 10 seconds. ii. Radial load of 1.2 kN for 20 seconds, iii. Radial load of 450 kN for 30 seconds and the above cycle repeats itself. The bearing has to work for five years at 80 hours/week. Select the bearing for the above purpose.		

Note:

1. Questions shall be framed by consolidating comprehensively from the following sources
   - Exercise problems of text books/ references
   - Previous year question VTU exam Question paper. (Mark the year/exam beside the question)
   - Questions by Experts during Interview/Academic Audit
   - Internet sources/ other Universities examination question papers.
   - Own / experience.
   - Gate questions mentioning the year.
2. Questions shall follow all the Bloom's learning levels with appropriate action verbs
3. There shall be a total of 50 questions considering10 questions from each module, of which, 3 questions each at L1 and L2, 2 questions at L3, 1 question each at L4 and L5/L6.
4. Ensure the coverage of all Cos.

04/04/22 6/4/22 PAC HOD

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Estd: 1986 Chickballapur – 562 101

Department of Mechanical Engineering
ASSIGNMENT

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021-22 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER	**VI 'A & B'**		
FACULTY NAME and DESIGNATION	**Dr. RAVIKUMAR T R, Assistant Professor**		

Module -1

Q. No.	*Questions*	*Bloom's LL*	*COs*
1	A carriage weighing 25000 N is moving on track with a linear velocity of 3.6 km/hour. If it is brought to rest by two helical compression springs is the form of a bumper by undergoing a compression of 180 mm. The springs may be assumed to have a spring index of 6 and permissible shear strength of 450 MPa. Design the spring and determine the diameter of the wire, mean coil diameter and the length of the spring. Assume the modulus of rigidity of the spring material as 81.4 GPa. (June 2012)	L3	CO2
2	A loaded narrow gauge car weighs 18 kN and moving at a velocity of 80 m/min is brought to rest by a buffer spring; of two helical springs. In bringing the car to rest the spring undergoes a compression of 200 mm. The allowable shear stress is 0.3 GPa and spring index is 8. Solve for the dimensions of spring. Take G = 84 GPa.	L3	CO3
3	A V-belt drive is required to transmit 15kW at 210mm sheave running at 800 rpm to another pulley to run at 400 rpm. The belt used is 30mm wide at top, 21mm thick with V-angle 40°. The allowable stress for belt	L3	CO3

	material is 2MPa. Center distance is 1.2m. Specific weight of belt material is 1.1gm/cc. Coefficient of friction of smaller pulley is 0.3 and for larger pulley is 0.25. Find the number of V-belts of given cross section required for this application.		
4	For a flat belt drive, the following data are given: Power transmitted = 10kW Speed of motor = 1200 rpm Speed of driven pulley = 400 rpm Velocity of belt = 14m/s Load factor = 1.2 Density of leather = 9.8 kN/m^3 Smaller pulley diameter to thickness of belt ratio = 36 Factor of safety = 10 Ultimate strength of belt material = 24 MPa Centre distance = 2.1 m and Coefficient of friction = 0.36 Design the belt.	L4	CO3
5	Design the complete specification of a helical compression spring to sustain axial load of 3 kN. The deflection is 60mm and the spring index is 6. Shear stress is not to exceed 300 MPa. Take G = 81 GPa. Take clearance a = 0.25y. Assume squared and round ends.	L4	CO3

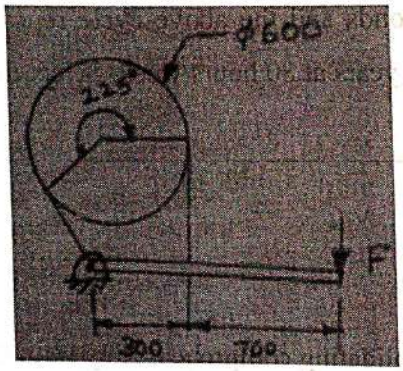
Module -2			
Q. No.	***Questions***	***Blooms LL***	***COs***
1	Design a pair of spur gear transmits 15kW from a shaft rotating at 1100 rpm to a parallel shaft which is to rotate at 340 rpm. Assume number of teeth on pinion 31 and 20° FDI tooth form. The material for pinion is C45 steel untreated and for gear cast steel 0.2%C untreated.	L3	CO2
2	Design a bronze spur gears 81MPa and mild steel pinion 101MPa to transmit 5kW at 1800rpm. The velocity ratio is 3.5 to 1, pressure angle is 14 1/2^0 involute. Not less than 15 teeth are to be used on either gear. Determine the module, face width & suggest suitable surface hardness for the weaker member based on dynamic & wear considerations.	L3	CO2

3	The following data refer to a helical gear drive a. Power transmitted 30kW at 2800 rpm of pinion b. Speed reduction ration 4.5 c. Helix angle 25° d. Material for both pinion and gears is medium carbon steel whose allowable bending stress may be taken as 230MPa, BHN =275. e. Pinion material is limited to 125mm. Determine module and face width. Check the design for wear strength against dynamic loading. Determine also the axial thrust on the shaft.	L3	CO2
4	A pair of equal diameter herringbone gears of CI (σ_o=60MPa) is used to transmit 6kW at 6000rpm. The center distance between the gears is 80mm, the normal pressure angle is 20^0 and helix angle is 28^0. The teeth's are FDI. Determine (i) transverse module, (ii) normal module & (iii) face width.	L4	CO3
5	A pair of helical gears with a 23° helix angle is to transmit 2.5 KW at 10,000 rpm of the pinion. The velocity ratio is 4:1. Both gears are to be made of hardened steel with an allowable stress of 100 Mpa for each gear. The gears are 20° stub and the pinion is to have 24 teeth. Design the gears and determine the required BHN.	L4	CO3

Module -3			
Q. No.	***Questions***	***Bloom's LL***	***COs***
1	Design a pair of miter bevel gears to transmit 9kW at 1200 rpm. The pitch line velocity of gear is not exceeding 15m/sec.	L3	CO2
2	A pair of bevel gear wheels with 20^0 pressure angle consists of 20 teeth pinion meshing with 30 teeth gear. The module is 4 mm while face width is 20 mm. The surface hardness of both pinion and gear is 400 BHN. The pinion rotates at 500 rpm and receives power from an electric motor. The starting torque of the motor is 150 percent of the rated torque. Determine the safe power that can be transmitted considering the dynamic load wear strength and endurance strength. The allowable bending stress may be taken as 240 MPa. (June/July 2018)	L3	CO2

3	Design a worm and worm wheel to transmit a power of 10kW with a speed reduction ratio of 20 and a center distance of 220 mm. The worm speed is 1000 rpm.	L3	CO3
4	Design a worm gear drive to transmit a 2kW at 1000rpm of worm. The velocity ratio is 20:1 and center distance is 200mm. Material for the gear is phosphor bronze and that of worm is hardened steel. Determine the efficiency of the drive.	L4	CO3
5	A speed reduced unit is to be designed for an input power of 0.75 kW with a transmission ratio of 27. The speed of the hardened worm is 1750 r/min. The worm wheel is made of phosphor bronze. The tooth form is to be 14 ½ involute. The allowable stress for the wheel may be taken as 80 MPa.	L4	CO3

Module -4			
Q. No.	***Questions***	***Bloom's LL***	***COs***
1	An automotive plate clutch consists of two pairs of contacting surfaces with asbestos friction lining. The maximum engine torque is 250 N-m. The clamping force is provided by nine springs, each compressed by 5 mm to give a force of 800 N, when the clutch is new: i. What is the factor of safety with respect to slippage when the clutch is brand new? ii. What is the factor of safety with respect to slippage after initial wear has occurred? iii. How much wear of friction lining can take place before the clutch will slip? (June/July 2018).	L3	CO2
2	A multi plate clutch consists of five steel plates and four bronze plates. The inner and outer diameter of friction disks are 75 mm and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure is limited to 0.3 N/mm^2. Assuming uniform wear theory. Calculate: i. The required operating force, ii. Power transmitting capacity at 750 r/min. (June 2012)	L3	CO2
3	A differential band brake is shown in Fig. The width and thickness of the steel band are 100 mm and 3 mm respectively. The permissible tensile stress in the band is limited to 50 MPa. The coefficient of friction between the friction lining and the drum is 0.25. Calculate i. Tension in	L3	CO3

	the band, ii. The actuating force, iii. Torque capacity of the brake. (June 2012)		
4	Design a centrifugal clutch with four shoes for transmitting 20kW at 1200rpm. The speed at which engagement begins is 80% of the running speed. The inside radius of the pulley rim is 150mm. the shoes are lined with Ferodo lining for which μ=0.25.	L4	
5	A single band brake shown in fig. is to be designed to stop the rotation of a shaft transmitting a power of 45kW at a rated speed of 500 rpm. Selecting suitable materials determine, i) Dimensions of rectangular cross section of band. ii) Dimensions of rectangular cross section of brake lever.(Assume $h_1=2b_1$). iii) Diameter of fulcrum pin. Assume I_p=1.5dp, bearing stress σ_b=10MPa. 	L4	CO3

Module -5			
Q. No.	*Questions*	*Bloom's LL*	*COs*
1	The following data are given for a full journal bearing: Radial load 25 kN, L/d ratio 1:1, Unit bearing pressure 2.5 MPa, Viscosity of the lubricant 20Cp, Class of fit H7 e7. Calculate i. Dimensions of the bearing, ii. Minimum oil film thickness, iii. Requirement of oil flow. Assume that the process to clearance is centered. (June 2012)	L3	CO4
2	A 75mm long full journal bearing of diameter 75mm supports a load of 12 kN on a journal Y rotating at 1800 rpm. Assuming a ratio of 1000 and an oil having viscosity of 0.01 kg/ms at the operating temperature, Determine the coefficient of friction by using i. The McKee equation, ii. The Raimondi and Boyd curve, iii also determine the amount of heat	L3	CO4

	generated using the co-efficient of friction as calculated by the McKee equation. (June/July 2018)		
3	Design a multi collar thrust bearing for a propeller shaft of a 400 kW marine oil engine. The engine makes 300 rpm. The propeller has a pitch of 2.5m and slip is 30%. The permissible bearing pressure is 0.5 N/mm^2. Assume (a) uniform pressure theory and (b) uniform wear theory.	L3	CO4
4	Design the main bearing for a stationary slow speed steam engine for the following data: journal diameter = 180mm, Maximum load on the piston = 70kN, Engine speed = 200 rpm.	L4	CO4
5	A deep groove ball bearing of BC 02 series has to work under following work cycle at constant shaft speed of 1440 rev/min. i. Radial load of 2.5 kN for 10 seconds. ii. Radial load of 1.2 kN for 20 seconds, iii. Radial load of 450 kN for 30 seconds and the above cycle repeats itself. The bearing has to work for five years at 80 hours/week. Select the bearing for the above purpose.	L4	CO4

Note:

1. Questions shall be framed by consolidating comprehensively from the following sources
   - Exercise problems of text books/ references
   - Previous year question VTU exam Question paper. (Mark the year/exam beside the question)
   - Questions by Experts during Interview/Academic Audit
   - Internet sources/ other Universities examination question papers.
   - Own / experience.
2. Questions shall follow all the Bloom's learning levels with appropriate action verbs
3. There shall be a total of 25 questions considering 5 questions from each module, of which, 3 questions at L3, 2 questions each at L4/L5.
4. Ensure the coverage of all COs
5. Rubrics to be specified for all assignment questions.

04/04/22 (Faculty) 6/4/22 Reviewer HOD

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Estd: 1986

Chickballapur – 562 101

Department of Mechanical Engineering
ASSIGNMENT-1

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021-22 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER	**VI 'A & B'**		
FACULTY NAME and DESIGNATION	**Dr. RAVIKUMAR T R, Assistant Professor**		

Q. No.	*Questions*	*Bloom's LL*	*COs*
1	Design a pair of spur gear transmits 15kW from a shaft rotating at 1100 rpm to a parallel shaft which is to rotate at 340 rpm. Assume number of teeth on pinion 31 and 20° FDI tooth form. The material for pinion is C45 steel untreated and for gear cast steel 0.2%C untreated.	L4	CO3
2	Design a pair of spur gears to transmit a power of 18 kW from a shaft running at 1000 rpm to a parallel shaft to be run at 250 rpm maintaining a distance of 160 mm between the shaft centers. Suggest suitable surface hardness for the gear pair	L4	CO3
3	Design a pair of helical gears to transmit power of 15kW at 3200 rpm with speed reduction 4:1 pinion is made of cast steel 0.4% C-untreated. Gear made of high grade CI, Helix angle is limited to 26° and not less than 20 teeth are to be used on either gear. Check the gears for dynamic and wear considerations.	L4	CO3
4	A pair of equal diameter herringbone gears of CI (σ_o=60MPa) is used to transmit 6kW at 6000rpm. The center distance between the gears is 80mm, the normal pressure angle is 20^0 and helix angle is 28^0. The teeth's are FDI. Determine (i) transverse module, (ii) normal module & (iii) face	L4	CO3

	width, iv) BHN for gears		
5	Design a pair of bevel gears to transmit 12 kW at 300 rpm of the gear and 1470 rpm of the pinion. The angle between the shaft axes is 90°. The pinion has 20 teeth and the material for gears is cast steel (σo = 183.33N/mm2) BHN 320. Take service factor as 1.25 and check the gears for wear and dynamic load. Suggest suitable surface hardness for the gear pair.	L4	CO3
6	A pair of bevel gear wheels with 20° pressure angle consists of 20 teeth pinion meshing with 30 teeth gear. The module is 4 mm while face width is 20 mm. The surface hardness of both pinion and gear is 400 BHN. The pinion rotates at 500 rpm and receives power from an electric motor. The starting torque of the motor is 150 percent of the rated torque. Determine the safe power that can be transmitted considering the dynamic load wear strength and endurance strength. The allowable bending stress may be taken as 240 MPa.	L4	CO3

Rubrics:

1. If all questions answered - 6M
2. If on date submission (i.e. 08/06/2022) - 2M
3. If assignment write neatly - 2M

Total **10M**

Draft Copy

SJCIT

Internal Test Question paper format- CBCS Scheme

Name of the staff/s: Dr. RAVIKUMAR T R

Date: 13/05/2022 Signature: 13/05/22

Reviewer's Signature:	

NOTE: Only the following information's to be given to the students.

S.J.C. Institute of Technology

Department: MECHANICAL ENGINEERING

Test : I

Semester: 6th Section: A & B

Subject Name & Code: DESIGN OF MACHINE ELEMENTS-II [18ME62]

Instructions

Date: 18/05/2022 Max Marks: 50+10MCQ

Duration: 90 minutes

i. Answer all the questions.

ii. Use of Design data hand book is permitted

iii. Missing data, if any may be suitably assumed

Question Number		Marks	CO	RBTL
1	Derive an expression for beam strength of a spur gear tooth. Also list the assumptions made in design of spur gear.	10M	CO1	L2
	OR			
2	Derive an expression for the load carrying capacity of a helical gear tooth. Also list the assumptions made in design of helical gear.	10M	CO1	L2
3	Design a pair of spur gear transmits 15kW from a shaft rotating at 1100 rpm to a parallel shaft which is to rotate at 340 rpm. Assume number of teeth on pinion 31 and 20° FDI tooth form. The material for pinion is C45 steel untreated and for gear cast steel 0.2%C untreated.	10M	CO3	L4
	OR			
4	Design a pair of spur gears to transmit a power of 18 kW from a shaft running at 1000 rpm to a parallel shaft to be	10M	CO3	L4

	run at 250 rpm maintaining a distance of 160 mm between the shaft centers. Suggest suitable surface hardness for the gear pair			
5	Design a pair of helical gears to transmit power of 15kW at 3200 rpm with speed reduction 4:1 pinion is made of cast steel 0.4% C-untreated. Gear made of high grade CI, Helix angle is limited to 26° and not less than 20 teeth are to be used on either gear. Check the gears for dynamic and wear considerations.	**10M**	**CO3**	**L4**
	OR			
6	A pair of equal diameter herringbone gears of CI (σ_o=60MPa) is used to transmit 6kW at 6000rpm. The center distance between the gears is 80mm, the normal pressure angle is 20^0 and helix angle is 28^0. The teeth's are FDI. Determine (i) transverse module, (ii) normal module & (iii) face width, iv) BHN for gears	**10M**	**CO3**	**L4**
7	Explain the modes gear tooth failure and their possible remedies to avoid the failure.	**10M**	**CO1**	**L2**
	OR			
8	Explain Formative number of teeth on Helical Gear	**10M**	**CO1**	**L2**
9	Design a pair of bevel gears to transmit 12 kW at 300 rpm of the gear and 1470 rpm of the pinion. The angle between the shaft axes is 90°. The pinion has 20 teeth and the material for gears is cast steel (σo = 183.33N/mm2) BHN 320. Take service factor as 1.25 and check the gears for wear and dynamic load. Suggest suitable surface hardness for the gear pair.	**10**	**CO3**	**L4**
	OR			
10	A pair of bevel gear wheels with 20^0 pressure angle consists	**10**	**CO3**	**L4**

	of 20 teeth pinion meshing with 30 teeth gear. The module is 4 mm while face width is 20 mm. The surface hardness of both pinion and gear is 400 BHN. The pinion rotates at 500 rpm and receives power from an electric motor. The starting torque of the motor is 150 percent of the rated torque. Determine the safe power that can be transmitted considering the dynamic load wear strength and endurance strength. The allowable bending stress may be taken as 240 MPa.			
	Multiple Choice Questions			
1	When the axes of two shafts are perpendicular and intersecting, use a) Spur gear c) Bevel gears b) Worm gears d) Helical gears	1	CO1	L1
2	Which of the following type of gears are free from axial thrust a) Herringbone gears c) Bevel gears b) Worm gears d) Helical gears	1	CO1	L1
3	Which of the following type of gears are used for noiseless operations? a) Spur gear c) Worm gears b) Bevel gear d) Helical gears	1	CO1	L1
4	Involute profile is widely used for gear tooth because a) Pressure angle remains constant b) Face and Flank form a continuous curve c) Involute rack has straight sided teeth d) All the above factors	1	CO1	L1
5	In metric system, the size of the gear tooth is specified by a) Circular pitch c) Module b) Diametral pitch d) Pitch circle diameter	1	CO1	L1

6	The pitch circle diameter and number of teeth in a spur gear are d and z respectively. The module m is defined as a) $(\pi d / z)$ c) (z / d) b) (d / z) d) $(d z)$	1	CO1	L1
7	In spur gears, Lewis form factor depends upon a) Module c) Pressure angle b) Number of teeth d) Both b and c	1	CO1	L1
8	Beam strength of gear tooth is a) Maximum tangential force that the tooth can transmit without bending failure. b) Maximum bending stress that the tooth can transmit without failure. c) Maximum tangential force that the tooth can transmit without pitting failure. d) Maximum contact stress that the tooth can transmit without failure.	1	CO1	L1
9	Dynamic force on gear tooth is induced due to a) Inaccuracies of tooth profile and errors in tooth spacing b) Misalignment in bearings c) Elasticity of parts and inertia of rotating masses d) a, b and c	1	CO1	L1
10	Surface endurance strength of gear tooth depends upon a) Surface finish of gear tooth b) Ultimate tensile strength of gear materials c) Surface hardness of gear tooth d) Modulus of elasticity of gear materials	1	CO1	L1

Internal Test Question paper format- CBCS Scheme

Name of the staff/s: Dr. RAVIKUMAR T R

Date: 13/05/2022 Signature: 13/05/22

Reviewer's Signature:

NOTE: Only the following information's to be given to the students.

S.J.C. Institute of Technology

Department: MECHANICAL ENGINEERING
Test : I
Semester: 6th Section: A & B
Subject Name & Code: DESIGN OF MACHINE ELEMENTS-II [18ME62]

Instructions

Date: 18/05/2022
Duration: 90 minutes Max Marks: 50+10MCQ

i. Answer all the questions.
ii. Use of Design data hand book is permitted
iii. Missing data, if any may be suitably assumed

Question Number		Marks	CO	RBTL
1	Derive an expression for beam strength of a spur gear tooth. Also list the assumptions made in design of spur gear.	10M	CO1	L3
	OR			
2	Derive an expression for the load carrying capacity of a helical gear tooth. Also list the assumptions made in design of helical gear.	10M	CO1	L3
3	Design a pair of spur gear transmits 15kW from a shaft rotating at 1100 rpm to a parallel shaft which is to rotate at 340 rpm. Assume number of teeth on pinion 31 and 20° FDI tooth form. The material for pinion is C45 steel untreated and for gear cast steel 0.2%C untreated.	10M	CO3	L4
	OR			
4	Design a pair of spur gears to transmit a power of 18 kW from a shaft running at 1000 rpm to a parallel shaft to be	10M	CO3	L4

	run at 250 rpm maintaining a distance of 160 mm between the shaft centers. Suggest suitable surface hardness for the gear pair			
5	Design a pair of helical gears to transmit power of 15kW at 3200 rpm with speed reduction 4:1 pinion is made of cast steel 0.4% C-untreated. Gear made of high grade CI, Helix angle is limited to 26° and not less than 20 teeth are to be used on either gear. Check the gears for dynamic and wear considerations.	**10M**	**CO3**	**L4**
	OR			
6	A pair of equal diameter herringbone gears of CI (σ_o=60MPa) is used to transmit 6kW at 6000rpm. The center distance between the gears is 80mm, the normal pressure angle is 20^0 and helix angle is 28^0. The teeth's are FDI. Determine (i) transverse module, (ii) normal module & (iii) face width, iv) BHN for gears	**10M**	**CO3**	**L4**
7	Explain the modes gear tooth failure and their possible remedies to avoid the failure.	**10M**	**CO1**	**L2**
	OR			
8	Explain Formative number of teeth on Helical Gear	**10M**	**CO1**	**L2**
9	Design a pair of bevel gears to transmit 12 kW at 300 rpm of the gear and 1470 rpm of the pinion. The angle between the shaft axes is 90°. The pinion has 20 teeth and the material for gears is cast steel (σo = 183.33N/mm2) BHN 320. Take service factor as 1.25 and check the gears for wear and dynamic load. Suggest suitable surface hardness for the gear pair.	**10**	**CO3**	**L4**
	OR			
10	A pair of bevel gear wheels with 20° pressure angle consists	**10**	**CO3**	**L4**

	of 20 teeth pinion meshing with 30 teeth gear. The module is 4 mm while face width is 20 mm. The surface hardness of both pinion and gear is 400 BHN. The pinion rotates at 500 rpm and receives power from an electric motor. The starting torque of the motor is 150 percent of the rated torque. Determine the safe power that can be transmitted considering the dynamic load wear strength and endurance strength. The allowable bending stress may be taken as 240 MPa.			
	Multiple Choice Questions			
1	When the axes of two shafts are perpendicular and intersecting, use a) Spur gear c) Bevel gears b) Worm gears d) Helical gears	1	CO1	L1
2	Which of the following type of gears are free from axial thrust a) Herringbone gears c) Bevel gears b) Worm gears d) Helical gears	1	CO1	L1
3	Which of the following type of gears are used for noiseless operations? a) Spur gear c) Worm gears b) Bevel gear d) Helical gears	1	CO1	L1
4	Involute profile is widely used for gear tooth because a) Pressure angle remains constant b) Face and Flank form a continuous curve c) Involute rack has straight sided teeth d) All the above factors	1	CO1	L1
5	In metric system, the size of the gear tooth is specified by a) Circular pitch c) Module b) Diametral pitch d) Pitch circle diameter	1	CO1	L1

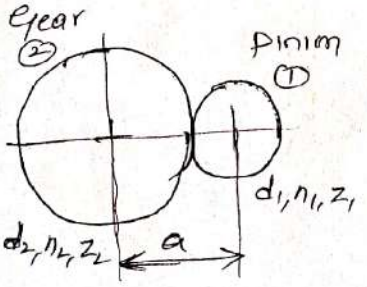
6	The pitch circle diameter and number of teeth in a spur gear are d and z respectively. The module m is defined as a) $(\pi d / z)$ c) (z / d) b) (d / z) d) $(d z)$	1	CO1	L1
7	In spur gears, Lewis form factor depends upon a) Module c) Pressure angle b) Number of teeth d) Both b and c	1	CO1	L1
8	Beam strength of gear tooth is a) Maximum tangential force that the tooth can transmit without bending failure. b) Maximum bending stress that the tooth can transmit without failure. c) Maximum tangential force that the tooth can transmit without pitting failure. d) Maximum contact stress that the tooth can transmit without failure.	1	CO1	L1
9	Dynamic force on gear tooth is induced due to a) Inaccuracies of tooth profile and errors in tooth spacing b) Misalignment in bearings c) Elasticity of parts and inertia of rotating masses d) a, b and c	1	CO1	L1
10	Surface endurance strength of gear tooth depends upon a) Surface finish of gear tooth b) Ultimate tensile strength of gear materials c) Surface hardness of gear tooth d) Modulus of elasticity of gear materials	1	CO1	L1

DEPARTMENT

Test-1

Scheme & Solutions

Semester: VI A+B **Subject Title:** DESIGN OF MACHINE ELEMENTS-II **Subject Code:** 18ME62

Question Number	Solution	Marks Allocated
1.	Beam Strength of Spur gear tooth Sketch – 02M Derivation ; $F_t = \sigma_0 \cdot b \cdot y \cdot K_v$ → 06M Assumptions [Atleast 4] – 02M	10
2.	Load carrying capacity of Helical gear tooth Sketch – 02M Derivation – $F_t = \frac{\sigma_0 \cdot b Y P_n K_v}{C_w}$ – 06M Assumptions [Atleast 4] – 02M	10
3	Spur gear  Given datas – 01M Other datas ; $Z_1 = 31$, $Z_2 = 140$ } 01M GEAR is Weaker → 02M Module, $m = 5mm$ } 02M Face width, $b = 50mm$ Tangential tooth load, $F_t = 3696.8N$ → 01M Dynamic tooth load, $F_d = 18677.9N$ → 02M Load stress factor, $K \geq 1.581$ } → 02M BHN for pinion = 350 + gear = 300	10M
4.	Spur gear Given datas – 01M Other datas ; $d_1 = 64mm$, $d_2 = 256mm$ → 01M Assumption : Class – II, $Z_1 = 20$ $\alpha = 20°$ FD Pinion — SAE 3245 } → 01M GEAR is Weaker – 01M module, $m = 4mm$ $b = 40mm$ } 02M $F_t =$	

13/05/22

Subject Title: DME-II **Subject Code:** 18MEG2

Question Number	Solution	Marks Allocated
	Tangential tooth load, Ft = 8057.81 N } 02M Dynamic tooth load, Fa = 13242.5 N Load stress factor, k = 3.233 N/mm² } 02M BHN for pinion = 450, & Gear = 150	10M
5	Helical gears Given datas - P = 15kW, n_1 = 3200 rpm, β = 26°, Z_1 = 20, i = 4 Other datas - n_2 = 800 rpm, Z_2 = 80, Z_{1V} = 27.545, Z_{2V} = 110.18 } 02M GEAR is Weaker → 01M Module, m = 6mm } 02M Face width, b = 60 mm Tangential tooth load, Ft = 1206 N → 01M Dynamic tooth load, Fa = 6155.27 N → 02M Load stress factor, k = 0.388 N/mm² } → 02M BHN for pinion = 200 & Gear = 150 BHN	10M
6.	HERRINGBONE GEARS Given datas: σ_0 = 60 MPa, P = 6 kW, n_1 = 6000 rpm, a = 50 mm, α = 20°, β = 28° } 02M Other datas: → 01M Weaker member: Module m = } → 02M Face width b = 30 mm Tangential tooth load, Ft = → 01M Dynamic tooth load, Fa = → 02M BHN for pinion = & Gear = → 02M	10M

13/05/22

Subject Title: **Subject Code:**

Question Number	Solution	Marks Allocated
7	Modes of Gear tooth failure . List - 04M Explination of Each mode - 06M	10
8.	Formative Number of teeth on Helical gear Defination - 02M Explination Along With formula - 08M	10
9.	BEVEL GEARS Given datas: $P = 12KW$, $n_2 = 300 rpm$, $n_1 = 1470 rpm$ $\Sigma = 90°$, $Z_1 = 20$, $BHN = 320$, $C_s = 1.25$ Other datas: $Z_2 = 98$, $\delta_1 = 11.535°$, $\delta_2 = 78.465°$ } 02M $Z_{1V} = 20.442$, $Z_{2V} = 490$ Weaker Member: PINION → 01M Module, $m = 3 mm$ $b = 30 mm$ } 02M Tangential tooth load, $F_t = 3248.3 N$ → 01M Dynamic tooth load, $F_d = 3421.436 N$ → 02M Wear load, $F_N = 5402 N$ BHN for Pinion = 480 & Gear = 480 } → 02M	10
10.	BEVEL Gears Given datas: $\alpha = 20°$, $Z_1 = 20$, $Z_2 = 30$, $m = 4 mm$, $b = 20 mm$, BHN = ~~400~~ 400, $n_1 = 500 rpm$ $T_{Max} = 150 T$ Other datas: $n_2 = 333.33 rpm$, $\delta_1 = 33.69°$ } 03M $\delta_2 = 56.31°$ Assume: $\Sigma = 90°$, $Z_{1V} = 24.04$ & $Z_{2V} = 54.08$ } 04M $d_1 = 80 mm$, $d_2 = 120 mm$, $R = 72.11 mm$	

DEPARTMENT

Scheme & Solutions

Semester: **Subject Title:** **Subject Code:**

Question Number	Solution	Marks Allocated
	Weaker Member : PINION → 01M Beam Strength, $F_b = 5058.96\,N$. Wear Strength, $F_w = 5039.35\,N$. } 04M Dynamic load, $F_d = 109.456\,N$ Tangential tooth load, $F_t = 3286.6\,N$ Safe power, $P = 6.883\,KW$ } 02M	10
	MCQ	
1	c, Bevel gears	
2,	a. Herringbone gears	
3,	d. Helical gears	
4.	d. All the above factors	
5.	c. Module	
6.	a $\frac{\pi d}{2}$	
7	c. Pressure angle	
8.	a. Maximum tangential force that the tooth can transmit without bending failure	
9.	d. a, b & c	
10	c. Surface hardness of gear tooth.	

13/08/22

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Estd: 1986

Chickballapur – 562 101

Department of Mechanical Engineering

ASSIGNMENT-2

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021-22 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER	**VI 'A & B'**		
FACULTY NAME and DESIGNATION	**Dr. RAVIKUMAR T R, Assistant Professor**		

Q. No.	*Questions*	*Bloom's LL*	*COs*
1	Completer the design and determine the input capacity of a worm gear speed reducer unit which consists of a hardened steel worm and a phosphor bronze gear having 20° stub involute teeth. The centre distance is to be 200 mm and transmission ratio is 10 and the worm speed is 2000 rpm.	L4	CO3
2	Design a worm gear drive to transmit a 2kW at 1000rpm of worm. The velocity ratio is 20:1 and center distance is 200mm. Material for the gear is phosphor bronze and that of worm is hardened steel. Determine the efficiency of the drive.	L4	CO3
3	Design the main bearing for a stationary slow speed steam engine for the following data: Journal diameter = 200mm, Maximum load on the piston = 80kN and Engine speed = 200 rpm.	L4	CO3
4	Design the main bearing of a steam turbine that runs at 1800 rpm. The load on the bearing is estimated to be 2500 N.	L4	CO3
5	A 75mm long full journal bearing of diameter 75mm supports a load of 10kN. The speed of the journal is 1200 rpm. The absolute viscosity of the	L4	CO3

	oil is $10X10^{-3}$ Pas and diameter clearance ratio is 0.001. Determine the coefficient of friction by using a) Petroff's equation b) Mckee's equation and c) Raimondi and Boyd curve.		
6	Design a multi collar thrust bearing for a propeller shaft of a 400 kW marine oil engine. The engine makes 300 rpm. The propeller has a pitch of 2.5m and slip is 30%. The permissible bearing pressure is 0.5 N/mm^2. Assume uniform wear theory.	L4	CO3

Rubrics:

1. If all questions answered - 6M
2. If on date submission (i.e. 07/07/2022) - 2M
3. If assignment write neatly - 2M

Total **10M**

Internal Test Question paper format- CBCS Scheme

Name of the staff/s: Dr. RAVIKUMAR T R

Date: 06/06/2022 Signature: 06/06/22

Reviewer's Signature:	

NOTE: Only the following information's to be given to the students.

S.J.C. Institute of Technology

Department: MECHANICAL ENGINEERING

Test : II

Semester: 6th Section: A & B

Subject Name & Code: DESIGN OF MACHINE ELEMENTS-II [18ME62]

Instructions

Date: 09/06/2022

Duration: 90 minutes Max Marks: 50+10MCQ

i. Answer all the questions.
ii. Use of Design data hand book is permitted
iii. Missing data, if any may be suitably assumed

Question Number		Marks	CO	RBTL
1	List and explain the properties of lubricant	10M	CO1	L2
	OR			
2	With a neat sketch explain Hydrodynamic theory of lubrication.	10M	CO1	L2
3	Complete the design and determine the input capacity of a worm gear speed reducer unit which consists of a hardened steel worm and a phosphor bronze gear having 20° stub involute teeth. The centre distance is to be 200 mm and transmission ratio is 10 and the worm speed is 2000 rpm.	10M	CO3	L4
	OR			
4	Design a worm gear drive to transmit a 2kW at 1000rpm of worm. The velocity ratio is 20:1 and center distance is 200mm. Material for the gear is phosphor bronze and that of worm is hardened steel. Determine the efficiency of the drive.	10M	CO3	L4

5	Derive an expression for load carrying capacity of Worm gear tooth under static loading conditions.	10M	CO1	L3
	OR			
6	Derive Petroff's equations for coefficient of friction for Hydrodynamic bearing and also state assumptions.	10M	CO1	L3
7	Design the main bearing for a stationary slow speed steam engine for the following data: Journal diameter = 200mm, Maximum load on the piston = 80kN and Engine speed = 200 rpm.	10M	CO4	L4
	OR			
8	Design the main bearing of a steam turbine that runs at 1800 rpm. The load on the bearing is estimated to be 2500 N	10M	CO4	L4
9	A 75mm long full journal bearing of diameter 75mm supports a load of 10kN. The speed of the journal is 1200 rpm. The absolute viscosity of the oil is $10X10^{-3}$ Pas and diameter clearance ratio is 0.001. Determine the coefficient of friction by using a) Petroff's equation b) Mckee's equation and c) Raimondi and Boyd curve.	10	CO4	L4
	OR			
10	Design a multi collar thrust bearing for a propeller shaft of a 400 kW marine oil engine. The engine makes 300 rpm. The propeller has a pitch of 2.5m and slip is 30%. The permissible bearing pressure is 0.5 N/mm². Assume uniform wear theory.	10	CO4	L4
	Multiple Choice Questions			
1	Worm gears are widely used when a) Velocity ratio is high b) Space is limited c) Axes of shafts are non-intersecting d) All the three	1	CO1	L1

2	A worm gear drive consists of double start worm meshing with a 50 teeth worm wheel. The velocity ratio is a) 25 b) 100 c) 50 d) 75	1	CO1	L1
3	In thrust bearings, the load acts a) Along the axis of rotation b) Perpendicular to the axis of rotation c) Parallel to the axis of rotation d) a and c	1	CO1	L1
4	In case of full journal bearing, the angle of contact of the bushing with the journal is a) 60° b) 90° c) 180° d) 360°	1	CO1	L1
5	The length to diameter ratio for a short bearing is a) More than 1 b) Less than 1 c) ∞ d) 1	1	CO1	L1
6	The unit of Absolute viscosity is a) N/m^2 b) N-m c) N-s / m^2 d) N-m/s	1	CO1	L1
7	Petroff's equation is used to find out a) Load carrying capacity of the bearing b) Frictional losses in the bearing c) Unit bearing pressure on the bearing d) Pressure distribution around the periphery of the journal	1	CO1	L1
8	If η = Absolute viscosity, n'= Speed of the journal in rps and P = Bearing pressure a) η n'/P b) η n'P c) η /P n' b) None of the above	1	CO1	L1
9	Sommerfeld number is a) Similar to bearing characteristic number b) Similar to Reynold's number c) Dimensionless parameter that contains all the design parameters d) Used to find out dynamic load carrying capacity of	1	CO1	L1

	the hydrodynamic bearing			
10	In most of internal combustion engines, crankshaft bearing is a) Hydrodynamic journal bearing b) Hydrostatic journal bearing c) Ball bearings d) Roller bearings	1	CO1	L1

Internal Test Question paper format- CBCS Scheme

Name of the staff/s: Dr. RAVIKUMAR T R

Date: 06/06/2022 Signature: 06/06/22

Reviewer's Signature:

NOTE: Only the following information's to be given to the students.

S.J.C. Institute of Technology

Department: MECHANICAL ENGINEERING

Test : II

Semester: 6th Section: A & B

Subject Name & Code: DESIGN OF MACHINE ELEMENTS-II [18ME62]

Instructions

Date: 09/06/2022

Duration: 90 minutes Max Marks: 50+10MCQ

i. Answer all the questions.
ii. Use of Design data hand book is permitted
iii. Missing data, if any may be suitably assumed

Question Number		Marks	CO	RBTL
1	List and explain the properties of lubricant	10M	CO1	L2
	OR			
2	With a neat sketch explain Hydrodynamic theory of lubrication.	10M	CO1	L2
3	Completer the design and determine the input capacity of a worm gear speed reducer unit which consists of a hardened steel worm and a phosphor bronze gear having 20° stub involute teeth. The centre distance is to be 200 mm and transmission ratio is 10 and the worm speed is 2000 rpm.	10M	CO3	L4
	OR			
4	Design a worm gear drive to transmit a 2kW at 1000rpm of worm. The velocity ratio is 20:1 and center distance is 200mm. Material for the gear is phosphor bronze and that of	10M	CO3	L4

	worm is hardened steel. Determine the efficiency of the drive.			
5	Derive an expression for load carrying capacity of Worm gear tooth under static loading conditions.	10M	CO1	L3
	OR			
6	Derive Petroff's equations for coefficient of friction for Hydrodynamic bearing and also state assumptions.	10M	CO1	L3
7	Design the main bearing for a stationary slow speed steam engine for the following data: Journal diameter = 200mm, Maximum load on the piston = 80kN and Engine speed = 200 rpm.	10M	CO4	L4
	OR			
8	Design the main bearing of a steam turbine that runs at 1800 rpm. The load on the bearing is estimated to be 2500 N	10M	CO4	L4
9	A 75mm long full journal bearing of diameter 75mm supports a load of 10kN. The speed of the journal is 1200 rpm. The absolute viscosity of the oil is $10X10^{-3}$ Pas and diameter clearance ratio is 0.001. Determine the coefficient of friction by using a) Petroff's equation b) Mckee's equation and c) Raimondi and Boyd curve.	10	CO4	L4
	OR			
10	Design a multi collar thrust bearing for a propeller shaft of a 400 kW marine oil engine. The engine makes 300 rpm. The propeller has a pitch of 2.5m and slip is 30%. The permissible bearing pressure is 0.5 N/mm^2. Assume uniform wear theory.	10	CO4	L4
	Multiple Choice Questions			
1	Worm gears are widely used when a) Velocity ratio is high	1	CO1	L1

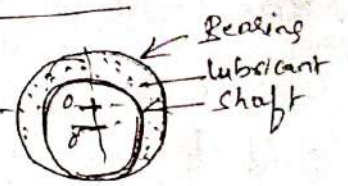
	b) Space is limited c) Axes of shafts are non-intersecting d) All the three			
2	A worm gear drive consists of double start worm meshing with a 50 teeth worm wheel. The velocity ratio is a) 25 b) 100 c) 50 d) 75	1	CO1	L1
3	In thrust bearings, the load acts a) Along the axis of rotation b) Perpendicular to the axis of rotation c) Parallel to the axis of rotation d) a and c	1	CO1	L1
4	In case of full journal bearing, the angle of contact of the bushing with the journal is a) 60° b) 90° c) 180° d) 360°	1	CO1	L1
5	The length to diameter ratio for a short bearing is a) More than 1 b) Less than 1 c) ∞ d) 1	1	CO1	L1
6	The unit of Absolute viscosity is a) N/m^2 b) N-m c) N-s / m^2 d) N-m/s	1	CO1	L1
7	Petroff's equation is used to find out a) Load carrying capacity of the bearing b) Frictional losses in the bearing c) Unit bearing pressure on the bearing d) Pressure distribution around the periphery of the journal	1	CO1	L1
8	If η = Absolute viscosity, n'= Speed of the journal in rps and P = Bearing pressure a) η n'/P b) η n'P c) η /P n' b) None of the above	1	CO1	L1
9	Sommerfeld number is a) Similar to bearing characteristic number b) Similar to Reynold's number	1	CO1	L1

	c) Dimensionless parameter that contains all the design parameters d) Used to find out dynamic load carrying capacity of the hydrodynamic bearing			
10	In most of internal combustion engines, crankshaft bearing is a) Hydrodynamic journal bearing b) Hydrostatic journal bearing c) Ball bearings d) Roller bearings	1	CO1	L1

DEPARTMENT TEST-2

Scheme & Solutions

Semester: VI A&B **Subject Title:** DESIGN OF MACHINE ELEMENTS -II **Subject Code:** 18ME62

Question Number	Solution	Marks Allocated
1	Properties of lubricants - List → (05 M) : Viscosity, Oiliness, Flash & Fire point, Cloud point & pour point - Explination of each property (05 M)	10 M
2.	Hydrodynamic theory of lubrication - Sketch (05 M) - Explinations (05 M) 	10
3.	WORM GEAR Given datas and Sketch - (02 M) Designation : $z_1 \mid z_2 \mid Q \mid m - 4 \mid 40 \mid 10 \mid 8$ → (02 M) Tangential Force, $F_t = 7,226.42\ N$ Dynamic Force, $F_d = 11262.42\ N$ Wear Load, $F_W = 13,248\ N$ (02 M) Power $N = 13.53\ KW$ Efficiency $\eta = 86\%$ (02 M) Heat generated $H_g = 4.08\ KW$ Heat Dissipated, $H_d = 11.95\ KW$ (02 M) No Artificial cooling	10

06/04/22

Subject Title: DME-II **Subject Code:** 18MEG2

Question Number	Solution	Marks Allocated
4.	**WORM GEAR** Given datas & Sketches — 02M Designations : $Z_1/Z_2/Q/m = 2/40/10/8$ — 02M Tangential tooth load, $F_t = 2387.5N$ Dynamic tooth load, $F_d = 2720.8N$ Wear load, $F_w = 13,248N$ } 02M Power $N = 7.844$ KW Efficiency $\eta = 82.12\%$ } 02M Heat generated, $H_g = 1.692$ KW Heat dissipated, $H_d = 11.95$ KW No Artificial Cooling required } 02M	10
5	**Worm gear** Sketches - Forces Acting on worm gear — 04M Derivations, Tangential tooth load $F_t = \nabla_{02}\, b\, Y\, m_n\, C_v$ — 06M	10
6.	**Petroff's eqn** Sketches with Assumptions — 04M Derivation, Co-efficient of friction $\mu = 2\pi^2 \left(\frac{\eta n'}{p}\right)\left(\frac{1}{\varphi}\right)$ — 06M	

06/06/22

Subject Title: DME-II **Subject Code:** 18ME62

Question Number	Solution	Marks Allocated
7.	**Journal bearing** Given datax with unit Conversions – 01M Design of bearings, $d = 0.2m$, $L = 0.2m$, $P_{act} = 2\times10^6 N/m^2$ } – 02M Type of oil, SAE60 — 01M Heat generated, $H_g = 698.132W$ } – 02M Heat dissipated, $H_d = 227.2W$ $h_{min} = 3.6\times10^{-5}m$ & $\phi = 52°$ — 01M Rate of oil flow. $\Phi = 5.16\times10^{-5}\ m^3/s$, $Q_s = 8.405\times10^{-5}\ m^3/s$ } 02M Power loss due to friction, $N_\mu = 698.13W$ – 01M	10
8.	**Journal bearing** Given datax with Unit Conversions – 01M Design; $d = 0.05m$, $L = 0.05m$, $P_{act} = 1\times10^6 N/m^2$ } – 02M Type of oil – SAE20 — 01M $H_g = 133.832\ W$, $H_d = 15.975W$ — 02M $h_{min} = 1.85\times10^{-5}m$, $\phi = 72°$ — 01M $\Phi = 1.22\times10^{-6}\ m^3/s$, $Q_s = 1.4248\times10^{-6}\ m^3/s$ – 02M $N_\mu = 133.82\ W$ — 01M	10

06/06/22

Subject Title: DME-II **Subject Code:** 18ME62

Question Number	Solution	Marks Allocated
9.	**Journal bearing** Given datas with Unit Conversions – 02M a) petroff's eqn, $\mu = 2.22 \times 10^{-3}$ – 02M b) Mckee eqn, $\mu = 4.22 \times 10^{-3}$ – 02M c) Raimondi & Boyd $\mu = 4.5 \times 10^{-3}$ – 03M	10
10	**Multi collar thrust bearing** Given datas with Unit Conversions – 02M Other datas: $V = 8.75$ m/s, $W = 45.71 \times 10^3$ N, $d_1 = 0.11$ m, $d_2 = 0.165$ m – 02M a) $Pr = C$, $i = 10$ collars, $M_t = 60$ N-m, $N_\mu = 1.8$ kW – 03M b) $P = C$, $i = 8$ collars, $M_t = 61.586$ N-m, $N_\mu = 1.93$ kW – 03M	10
b	Multiple Choice Questions 1, d) all the Above 2, a) 25 teeth. 3, d) a & c 4, d) 360° 5, b) $L/d < 1$ 6, c) N-s/m^2 7, b) 8. a) $\frac{\eta n}{p}$ 9. a) 10. a) Hydrodynamic journal bearings	10

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust ®

SJC INSTITUTE OF TECHNOLOGY

Chickballapur – 562 101

Estd: 1986

Department of Mechanical Engineering
ASSIGNMENT-3

SUBJECT TITLE	**DESIGN OF MACHINE ELEMENTS II**		
SUBJECT TYPE	**CORE**		
SUBJECT CODE	**18ME62**		
ACADEMIC YEAR	**2021-22 (EVEN SEMESTER)**	**BATCH**	**2019-2023**
SCHEME	**CBCS scheme (Effective from the academic year 2018 -2019)**		
SEMESTER	**VI 'A & B'**		
FACULTY NAME and DESIGNATION	**Dr. RAVIKUMAR T R, Assistant Professor**		

Q. No.	*Questions*	*Bloom's LL*	*COs*
1	In a multiple disc clutch the radial width of the friction material is to be 0.2 of maximum radius. The coefficient of friction is 0.25. The clutch is to transmit 60kW at 3000 rpm. Its maximum diameter is 250mm and the axial force is limited to 600N. Determine a) Number of driving and driven discs. b) Mean unit pressure on each contact surface. Assume uniform wear.	L4	CO3
2	A cone clutch has a semi-cone angle of 12° to transmit 10kW at 750 rpm. The width of the face is one fourth of the mean diameter of friction lining. If the normal intensity of pressure between the contacting surface is not to exceed 0.85 bar, assuming uniform wear criterion and taking $\mu = 0.2$. Calculate dimensions of clutch. Also find the axial force while running i.e., at the beginning of engagement.	L4	CO3
3	A belt is required to transmit 18.5kW from a pulley of 1.2m diameter running at 250 rpm to another pulley which runs at 500 rpm. The distance between the centers of pulleys is 2.7m. The following data refer to an open belt drive $\mu = 0.25$. Safe working stress for leather is 1.75N/mm^2. Thickness of belt = 10mm. Determine the width and length of belt taking	L4	CO3

	centrifugal tension into account. Also find the initial tension in the belt and absolute power that can be transmitted by this belt and the speed at which this can be transmitted.		
4	A nylon core flat belt 200mm wide weighing 20 N/m, connecting a 300mm diameter pulley to a 900 mm diameter driven pulley at a shaft spacing of 6m, transmits 55.2 kW at a belt speed of 25 m/s. a) Calculate the belt length and the angles of wrap, b) Compute the belt tensions based on a co-efficient of friction 0.38.	L4	CO3
5	A V-belt is to be arranged between two shafts whose centers are 3000 mm. The driving pulley is of 850 mm effective diameter and is to be supplied with 75 kW at 960 rpm. The follower pulley is to run at 480 rpm. Determine the number of belts required for the following particulars. Area of belt section = 400 mm^2 Weight of belt = 0.01 N/cm^3 Safe working tensile stress = 2.1 N/mm^2 Coefficient of friction = 0.27 Groove angle of pulley = 40° Also find the initial tension required in each belt.	L4	CO3
6	Select a V-belt drive to transmit 10 kW of power from a pulley of 200 mm pitch diameter mounted on an electric motor running at 720 rpm to another pulley mounted on compressor running at 200 rpm. The service is heavy duty varying from 10 hours to 14 hours per day and centre distance between centre of pulleys is 600mm.	L4	CO3

Rubrics:

1. If all questions answered - 6M
2. If on date submission (i.e. 16/07/2022) - 2M
3. If assignment write neatly - 2M

Total **10M**

Internal Test Question paper format- CBCS Scheme

Name of the staff/s: Dr. RAVIKUMAR T R

Date: 06/07/2022 Signature: 08/07/22

Reviewer's Signature:

NOTE: Only the following information's to be given to the students

S.J.C. Institute of Technology

Department: MECHANICAL ENGINEERING

Test : III

Semester: 6th Section: A & B

Subject Name & Code: DESIGN OF MACHINE ELEMENTS-II [18ME62]

Instructions

Date: 09/07/2022

Duration: 90 minutes

Max Marks: 50+10MCQ

i. Answer all the questions.
ii. Use of Design data hand book is permitted
iii. Missing data, if any may be suitably assumed

Question Number		Marks	CO	RBTL
1	Name the different type of clutches. Describe with the help of a neat sketch the working principle of any one friction clutch.	10	CO1	L2
	OR			
2	Classify the brakes and Explain with a sketch of any one Brake system.	10	CO1	L2
3	Derive an expression for Torque transmitted by friction surfaces in Disc or Plate clutch under Uniform Pressure theory.	10	CO1	L3
	OR			
4	Derive an expression for Torque transmitted by friction surfaces in Cone clutch under Uniform Pressure theory.	10	CO1	L3
5	In a multiple disc clutch the radial width of the friction material is to be 0.2 of maximum radius. The coefficient of	10	CO3	L4

	friction is 0.25. The clutch is to transmit 60kW at 3000 rpm. Its maximum diameter is 250mm and the axial force is limited to 600N. Determine a) Number of driving and driven discs. b) Mean unit pressure on each contact surface. Assume uniform wear.			
	OR			
6	A cone clutch has a semi-cone angle of 12° to transmit 10kW at 750 rpm. The width of the face is one fourth of the mean diameter of friction lining. If the normal intensity of pressure between the contacting surface is not to exceed 0.85 bar, assuming uniform wear criterion and taking μ = 0.2. Calculate dimensions of clutch. Also find the axial force while running i.e., at the beginning of engagement.	10	CO3	L4
7	A belt is required to transmit 18.5kW from a pulley of 1.2m diameter running at 250 rpm to another pulley which runs at 500 rpm. The distance between the centers of pulleys is 2.7m. The following data refer to an open belt drive μ = 0.25. Safe working stress for leather is 1.75N/mm^2. Thickness of belt = 10mm. Determine the width and length of belt taking centrifugal tension into account. Also find the initial tension in the belt and absolute power that can be transmitted by this belt and the speed at which this can be transmitted.	10	CO3	L4
	OR			
8	A nylon core flat belt 200mm wide weighing 20 N/m, connecting a 300mm diameter pulley to a 900 mm diameter driven pulley at a shaft spacing of 6m, transmits 55.2 kW at a belt speed of 25 m/s. a) Calculate the belt length and the angles of wrap, b) Compute the belt tensions based on a co-efficient of friction 0.38.	10	CO3	L4

9	A V-belt is to be arranged between two shafts whose centers are 3000 mm. The driving pulley is of 850 mm effective diameter and is to be supplied with 75 kW at 960 rpm. The follower pulley is to run at 480 rpm. Determine the number of belts required for the following particulars. Area of belt section = 400 mm^2 Weight of belt = 0:01 N/cm^3 Safe working tensile stress = 2.1 N/mm^2 Coefficient of friction = 0.27 Groove angle of pulley = 40^o Also find the initial tension required in each belt.	10	CO3	L4
	OR			
10	Select a V-belt drive to transmit 10 kW of power from a pulley of 200 mm pitch diameter mounted on an electric motor running at 720 rpm to another pulley mounted on compressor running at 200 rpm. The service is heavy duty varying from 10 hours to 14 hours per day and centre distance between centre of pulleys is 600mm.	10	CO3	L4
	Multiple Choice Questions			
1	The clutch used in Trucks is a) Centrifugal clutch c) Multi-plate clutch b) Cone clutch d) Single plate clutch	1	CO1	L1
2	The clutch used in Scooters is c) Centrifugal clutch c) Multi-plate clutch a) Cone clutch d) Single plate clutch	1	CO1	L1
3	In case of multi-plate clutch in i_1 is number of disks on driving shaft and i_2 is the number of disks on driven shaft, then the number of pairs of contacting surfaces is given by b) $i_1 + i_2$ c) $i_1 + i_2 - 1$ c) $i_1 + i_2 + 1$ d) $i_1 - i_2$	1	CO1	L1

4	The cone clutches have become obsolete because a) Strict requirement of co-axiality of two shafts b) Difficult of disengage c) Difficult of Construction d) None of the above	1	CO1	L1
5	Torque transmitting capacity of clutch depends upon a) Coefficient of friction b) Dimensions of friction lining c) Axial force provided to engage the clutch d) All the above three factors	1	CO1	L1
6	The commonly used angle between leather or asbestos friction lining surface and axis of cone clutch for a cone clutch is a) 14.5^{o} c) 12.5^{o} b) 20^{o} d) 45^{o}	1	CO1	L1
7	The brake used in railway coaches is a) Shoe Brake c) Band brake b) Block brake d) Disk brake	1	CO1	L1
8	The brake used in most of motor cycles is a) Internal expanding brake c) Band brake b) Block brake d) Disk brake	1	CO1	L1
9	The suitable material for belt used in flour mill is a) Leather c) Canvas or Cotton duck b) Rubber d) Balata gum	1	CO1	L1
10	The condition for maximum power transmission is that the maximum tension in the flat belt should be equal to a) 3Tc b) Tc c) Tc/3 d) 2Tc Where: Tc – Tension in belt due to Centrifugal force	1	CO1	L1

Scheme & Solutions

TEST-3

Subject Title: DESIGN OF MACHINE ELEMENTS - II **Subject Code:** 18ME62

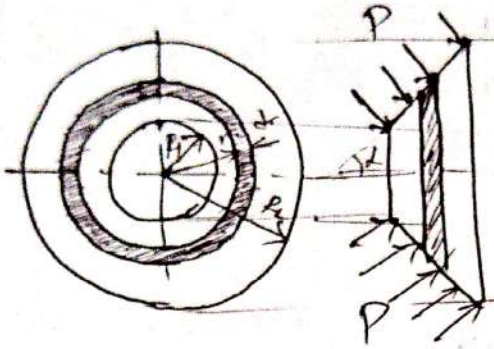
Question Number	Solution	Marks Allocated
1	**Types of clutches :** List — (04M) Any one friction clutch. Sketch — (03M) Explination — (03M)	10
2.	**Types of Brakes** List — (04M) Any one Braking system Sketch — (03M) Explination — (03M)	10
3.	**Torque transmitted by friction surface in Disc (or) plate clutch** $p = c$ Sketch — (02M) Total Axial Force Fa $fa = \int_{R_1}^{R_2} 2\pi p r\, dr$ — (02M) Total Frictional torque per Active Surface $M_f = \int_{R_1}^{R_2} 2\mu\pi r p r^2\, dr$ — (02M) Under $p = c$ [Uniform pressure theory] $M_f = \frac{1}{2}\mu F_a D_m$ — (03M) Where D_m = Mean diameter $= \frac{2}{3}\left[\frac{D_2^3 - D_1^3}{D_2^2 - D_1^2}\right]$ — (01M)	10

06/07/22

Subject Title: **Subject Code:**

Question Number	Solution	Marks Allocated
4.	**Torque transmitted by friction Surface in Cone clutch**	10

Sketch – 02M



Total Axial force

$$F_a = \int_{r_1}^{r_2} p \cdot 2\pi r \cdot dr$$ – 02M

Total Torque

$$M_t = \int_{r_1}^{r_2} \frac{2\pi\mu p r^2 dr}{\sin\alpha}$$ – 02M

Under Uniform Pressure theory [P = C]

$$M_t = \frac{\mu F_a D_m}{2 \cdot \sin\alpha}$$ – 03M

Where D_m – Mean diameter $= \frac{2}{3}\left[\frac{D_2^3 - D_1^3}{D_2^2 - D_1^2}\right]$ – 01M

5	**Multi-Plate clutch**	10

Given datas with unit Conversion – 02M

a) **No. of discs**

Total torque, $M_t = 191000$ N-mm – 01M

Mean diameter, $D_m = 225$ mm – 01M

No. of Active Surfaces, $i = 12$ – 02M

No. of discs on the driven shaft, $f_1 = 6$

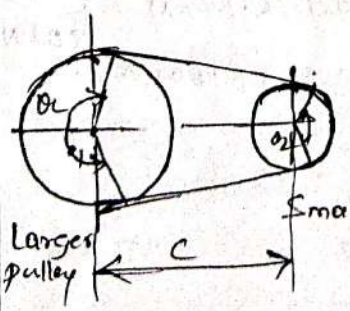
No. of discs on the driven shaft, $f_2 = 7$ – 02M

Total No. of disc, $n = f_1 + f_2 = 6 + 7 = 13$

06/07/21

Scheme & Solutions

Semester: **Subject Title:** **Subject Code:**

Question Number	Solution	Marks Allocated
	b) Mean Unit Pressure, $p \leq 0.034 N/mm^2$ – Limiting mean unit pressure, $p = 0.034 N/mm^2$ – (01M) For Actual mean unit Pressure, $p = 0.032 N/mm^2$ (01M)	10
6	CONE CLUTCH Given data's with Unit Conversion – (02M) a) Torque transmitted, $M_t = 127333.33 N\text{-}mm$ (02M) b) Axial Force, $F_a = 0.01388 D_m^2$ (01M) c) Dimensions, $D_m = 268 mm$, Face Width, $b = 67 mm$ (02M) Inner dia, $D_1 = 254 mm$, Outer dia, $D_2 = 282 mm$, Axial Force, $F_a = 996.9 N$ (02M) Axial force required when one member is rotating $F_a = 1934.31 N$ – (01M)	10
7.	Flat belt drive [Open drive]  Given data's with Unit conversions – (02M) Smaller diameter, $d_1 = 600 mm$, velocity, $V = 15.829 m/s$. (02M) $\sigma_c = 0.25573 N/mm^2$ $e^{\mu\theta} = 2.075$ (01M)	

06/07/22

Subject Title: **Subject Code:**

Question Number	Solution	Marks Allocated
	Constant $K = 0.52$, Width of the belt, $b = 152$ mm Length of the belt, $L = 8260.96$ mm (02M) Initial tension, $T_0 = 2006.552$ N (01M) Absolute power, $= 21.8$ KW $\therefore V_{max} = 23.92$ m/s (02M)	10
8	Nylon Core flat belt drive Given datas with Unit Conversion (02M) a) Length of belt [L] Angle of wrap, $\theta_L = 3.0246$ rad (02M) $\theta_S = 3.04185$ rad Length of open belt $L = 13895.893$ mm (01M)	
	b) Belt tensions $e^{\mu\theta} = 3.1765$, $K = 0.6852$, $T_c = 1274.21$ N (02M) ~~Total power transmitted, H =~~ Tension on tight side, $T_1 = 4496.617$ N Tension on slack side, $T_2 = 2288.665$ N (02M)	10

06/07/22

Scheme & Solutions

Semester: **Subject Title:** **Subject Code:**

Question Number	Solution	Marks Allocated
9.	**V-belt drive** Given datas with Unit Conversion – 02M Diameter of larger pulley, $D = 1700$ mm velocity, $V = 42.726$ m/s } 02M Centrifugal Stress, $\sigma_c = 1.861$ N/mm^2 – 01M Capacity, $\theta_s = 2.8573$ rad $\theta_L = 3.4259$ rad } 02M $e^{\mu\theta/\sin\alpha} = 9.54$ Constant, $k = 0.8952$, Power/belt = 3.658 kw, No. of belts = 3. } 03M Initial tension, $T_0 = 796.64$ N.	10
10.	**V-belt drive** Given datax with Unit Conversion – 02M Diameter of larger pulley, D = 720mm – 01M – Select the c/s of belt de = 228 mm, the c/s of belt is 'C' } 02M V = 7.54 m/s, Power capacity, $N^* = 4.4$ kw – 01M No. of belts = $i = 4$, $L_i = 2667$ mm – 02M Correct centre distance, $C = 580.73$mm – 01M Specification of V-belt, C2667, W = 22 mm, T = 14 mm } 01M	10

06/07/22

Subject Title: **Subject Code:**

Question Number	Solution	Marks Allocated
	MULTIPLE CHOICE QUESTIONS	
1	d) Single plate clutch	01
2.	c) Multi-plate clutch	01
3.	c) $i_1 i_2 - 1$	01
4.	a) Strict requirements of co-axially of two shafts	01
5.	d) All the above three factors	01
6.	c) 12.5°	01
7.	b) Block brake	01
8.	d) Disk brake	01
9.	c) Canvas (or) cotton duck	01
10.	a) 3Tc	01

06/01/22

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S J C INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FINALIZED MARKS

SUB: DME- II [18ME62]

SEM: VI A

Sl No.	USN	STUDENT NAME	TEST 1 (50M)	TEST 2 (50M)	TEST 3 (50M)	AVERAGE TEST (50M)	AVERAGE TEST (30M)	AS1 /MCQ 1 (10M)	AS2 /MCQ 2 (10M)	AS3/MCQ 3(10M)	AVG AS / MCQ (10M)	CIE (40M)
1	1SJ19ME001	Adarsh M	23	24	13	20	12	07	07	07	07	19
2	1SJ19ME002	Akarsh M	30	36	38	35	21	10	8	8	9	30
3	1SJ19ME003	Akshay M	22	30	42	35	23	2	2	2	2	30
4	1SJ19ME004	Amruth V M	24	26	33	28	17	10	8	8	9	26
5	1SJ19ME005	Anirudh	46	46	34	42	25	10	10	10	10	35
6	1SJ19ME006	Balaji N	46	24	34	35	21	9	9	9	9	30
7	1SJ19ME007	Bhuvan Athresh S	15	29	28	24	14	9	9	8	9	23
8	1SJ19ME008	Chadive Sathish Kumar R	27	45	29	34	20	9	9	8	9	29
9	1SJ19ME010	Chethanraj D N	26	24	40	30	18	9	9	9	9	27
10	1SJ19ME011	Chirag C	32	04	09	12	07	0	0	5	07	23
11	1SJ19ME012	Dhanush B	34	41	33	36	22	10	9	8	9	31
12	1SJ19ME013	Dhanush N	27	29	26	27	16	8	8	8	8	24
13	1SJ19ME014	Gagan Gowda C	31	41	38	37	22	0	3	5	08	30
14	1SJ19ME015	Ganesh U	17	23	33	24	15	4	2	1	2	20
15	1SJ19ME016	Harshith Gowda TI	47	28	23	33	20	9	9	9	9	29
16	1SJ19ME018	Jahnavi Krupa A	46	37	40	41	25	9	8	7	8	33
17	1SJ19ME019	Jashwanth J	29	25	27	27	16	0	7	4	08	28
18	1SJ19ME020	Jayanth K R	21	29	29	35	21	9	9	8	9	30
19	1SJ19ME021	Karthik B N	26	27	32	28	17	9	9	8	9	26
20	1SJ19ME022	Keerthana B K	46	41	40	42	25	10	8	8	9	34
21	1SJ19ME023	Kethireddy Hruday Reddy	37	32	13	27	16	9	9	8	9	25
22	1SJ19ME024	Kumar S	46	30	44	40	24	9	9	9	9	33

23	1SJ19ME025	Kuruba Avinash	23	38	22	28	17	10	10	10	10	27
24	1SJ19ME026	Kushal Y S	22	22	12	19	11	10	10	7	9	20
25	1SJ19ME027	Lakshay Kumar Singh	18	27	30	25	15	9	6	5	7	22
26	1SJ19ME028	Likith K N	0	15	13	9	6	0	3	5	3	9
27	1SJ19ME029	Madhu K	37	33	23	31	19	0	0	0	0	19
28	1SJ19ME030	Madhu M N	46	44	19	36	22	8	8	8	8	30
29	1SJ19ME031	Manjunath C	21	31	20	24	14	10	8	9	9	23
30	1SJ19ME032	Manohar H K	16	25	41	27	16	10	8	8	9	25
31	1SJ19ME034	Manoj H V	37	19	33	25	26	15	9	9	8	9
32	1SJ19ME036	Md Aakib Khan	0	0	15	5	3	0	0	1	0	3
33	1SJ19ME037	Mohammed Shoaib	37	27	34	33	20	10	4	0	5	25
34	1SJ19ME038	Mohan H V	44	34	28	35	21	8	8	8	8	29
35	1SJ19ME039	Mohankrishna N	7	10	18	12	7	9	9	9	9	16
36	1SJ19ME040	Mohith K V	4	7	30	14	8	0	4	4	3	11
37	1SJ20ME400	Abhilash K N	33	31	39	34	21	9	9	9	9	30
38	1SJ20ME401	Ajay Kumar G	45	45	21	37	22	10	10	10	10	32
39	1SJ20ME402	Ashoka C	44	46	33	41	25	10	10	10	10	35
40	1SJ20ME403	Bhavan.d	36	49	28	38	23	9	9	0	6	29
41	1SJ20ME404	Chandan Gowda T N	0	0	6	2	1	0	0	3	1	20
42	1SJ20ME405	Chandan N Gowda	35	27	39	34	20	9	9	8	9	29
43	1SJ20ME406	Deepak N	35	24	34	31	19	8	8	7	8	27
44	1SJ20ME407	G Chandan	43	48	21	37	22	6	4	3	4	27
45	1SJ20ME408	Harshith A	0	0	23	8	5	10	10	10	10	15
46	1SJ20ME409	Jayateertha C A	38	38	35	36	22	9	9	9	9	31
47	1SJ20ME410	K G Rajeev Iyengar	35	44	37	39	23	10	8	10	9	33

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S J C INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FINALIZED MARKS

SUB: DME- II [18ME62]

SEM: VI B

Sl No.	USN	STUDENT NAME	TEST 1 (50M)	TEST 2 (50M)	TEST 3 (50M)	AVERAGE TEST (50M)	AVERAGE TEST (30M)	AS1/MCQ 1 (10M)	AS2/MCQ 2 (10M)	AS3/MCQ 3 (10M)	AVG AS/MCQ (10M)	CIE (40 M)
1	1SJ18ME015	Boya Nandavardhan	25	35	34	31	19	0	0	0	01	~~19~~ 20
2	1SJ18ME017	Chandan Gowda M	31	44	23	33	20	8	8	5	7	27
3	1SJ18ME074	Praveen G V	43	25	25	31	19	9	9	8	9	28
4	1SJ19ME041	Nagendra Babu N P	48	34	25	36	21	10	10	9	10	31
5	1SJ19ME042	Nandan H	25	30	35	30	18	3	2	3	3	21
6	1SJ19ME043	Nandhini G	22	26	43	30	18	10	9	7	9	27
7	1SJ19ME044	Nikhil K M	41	47	36	41	25	10	9	9	9	34
8	1SJ19ME045	Nithin M	38	38	25	34	20	10	10	9	10	30
9	1SJ19ME046	Nithin M	39	25	30	31	19	9	~~9~~ 8	8	~~9~~ 8	27
10	1SJ19ME047	Osama Hyder Babu Darvesh	28	44	34	35	21	9	9	9	9	30
11	1SJ19ME049	Pooja P	33	43	2~~5~~	~~32~~ 34	~~19~~ 21	9	9	2	7	~~26~~ 28
12	1SJ19ME050	Pothurai Ravikumar Reddy	27	18	18	21	13	9	9	8	9	22
13	1SJ19ME051	Prabhakar Y V	48	32	19	33	20	10	9	8	9	29
14	1SJ19ME052	Pulugura Manjunath Reddy	26	48	12	29	17	9	9	9	9	26
15	1SJ19ME053	Punith D S	48	31	44	41	25	10	9	10	10	35
16	1SJ19ME054	Rahul A	42	38	28	36	22	10	10	9	10	32
17	1SJ19ME055	Rahul M	30	34	27	30	18	9	9	9	9	27
18	1SJ19ME057	Rameshwar B M	32	39	25	32	19	9	9	9	9	28
19	1SJ19ME058	Sagar T A	32	47	47	42	25	10	10	9	10	35
20	1SJ19ME059	Sandeep B R	43	~~29~~ 26	30	34	20	9	8	8	8	29
21	1SJ19ME060	Sanivarapu Raja Sekhar Reddy	37	37	43	39	23	9	9	8	9	32
22	1SJ19ME061	Sanjay S	20	23	32	25	15	0	7	4	4	19
23	1SJ19ME062	Santosh N	~~17~~ 34	28~~13~~	22	~~22~~ 32	~~13~~ 20	9	8	9	9	~~22~~ 29
24	1SJ19ME063	Seetharam S	26	32	42	33	20	10	10	9	10	30

28/07/20

25	1SJ19ME064	Shailesh N	38	25	35	33	20	8	8	8	8	28
26	1SJ19ME065	Sharath Kumar H V	41	33	36	37	22	9	9	8	9	31
27	1SJ19ME066	Shashank V	29	43	36	36	22	9	9	8	9	31
28	1SJ19ME067	Shreyas L	19	42	29	30	18	9	9	8	9	27
29	1SJ19ME068	Shrinidhi Kulkarni	35	35	15	28	17	9	8	7	8	25
30	1SJ19ME069	Sreedhar A	38	22	29	30	18	9	9	9	9	27
31	1SJ19ME071	Sridhar Reddy B	13	36	36	28	17	9	9	9	9	26
32	1SJ19ME072	Sudeep Gowda N	41	45	19	35	21	8	9	9	9	30
33	1SJ19ME073	Swasthik K M	19	33	26	26	16	8	8	8	8	24
34	1SJ19ME074	Tabrez Pasha	36	27	18	27	16	9	9	9	9	25
35	1SJ19ME075	Uday Kiran G R	~~035~~	27	~~6~~ 19	~~1~~ 27	~~7~~ 16	07	07	~~2~~7	~~1~~07	~~8~~ 23
36	1SJ19ME076	V S Monish	11	25	27	21	13	8	8	8	8	21
37	1SJ19ME077	Vijaykumar K S	34	33	10	26	15	9	8	9	9	24
38	1SJ19ME078	Vivek B	22	47	42	37	22	10	10	9	10	32
39	1SJ19ME079	Yashwanth K N	39	39	44	41	24	9	9	9	9	33
40	1SJ19ME405	Girish. K. N	28	23	32	28	17	10	10	9	10	27
41	1SJ20ME411	Karthik K J	40	41	29	37	22	0	0	0	0	22
42	1SJ20ME412	Madhu T V	42	34	42	39	24	10	10	9	10	34
43	1SJ20ME413	Nanda Kishore R	34	41	30	35	21	9	9	8	9	30
44	1SJ20ME414	Pavan Kumar T N	39	35	22	32	19	8	3	0	4	23
45	1SJ20ME415	Pradeep N	46	48	38	44	26	10	10	9	10	36
46	1SJ20ME416	Praveen Kumar H A	39	28	28	32	19	9	9	9	9	28
47	1SJ20ME417	Sumanth Y S	24	34	30	29	18	9	9	0	6	24
48	1SJ20ME418	Varshith Gowda L	5	25	30	20	12	9	8	7	8	20
49	1SJ20ME419	Arun Kumar K N	29	32	38	33	20	~~5~~07	~~5~~07	08	~~3~~07	~~23~~

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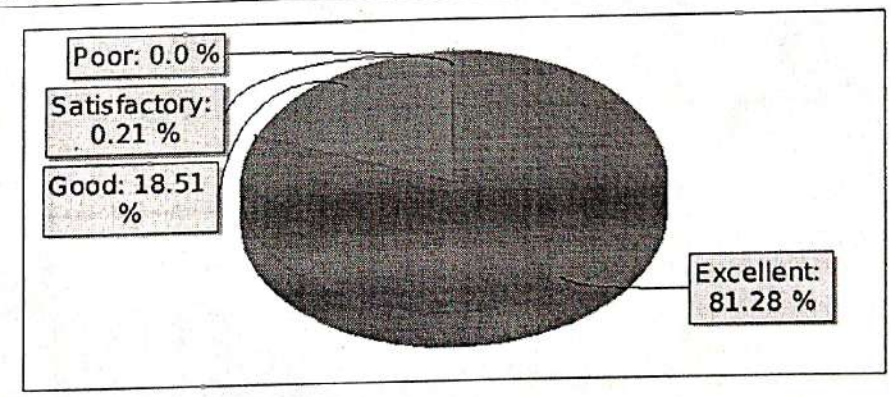
Email: principal@sjcit.ac.in, Web:www.sjcit.ac.in

Course-Wise 2021-22

Batch : BE , 2019-2023
Name of the Faculty : Dr Ravi Kumar T R
Course Code : 18ME62
Course Name : DESIGN OF MACHINE ELEMENTS II

Department : Mechanical Engineering
Semester 6 , Sec : B
Date : 08 Jul 2022

No	Questions	Score on a scale of 4				Feedback Percentage	Average Score (4)
		4	3	2	1		
	General						
1	Preparation of the class	41	6	0	0	96.8	3.9
2	Stressing on important ideas and points	37	10	0	0	94.7	3.8
3	Communication of teacher	39	8	0	0	95.7	3.8
4	Response to questions and doubts	38	9	0	0	95.2	3.8
5	Coverage of syllabus	36	11	0	0	94.1	3.8
6	Availability of teacher outside the class hour	37	10	0	0	94.7	3.8
7	Usefulness of notes given	37	10	0	0	94.7	3.8
8	Knowledge gained by attending the class	41	6	0	0	96.8	3.9
9	Maintenance of discipline in the class	39	7	1	0	95.2	3.8
10	Overall ranking of performance of teacher	37	10	0	0	94.7	3.8
	Total Count	382	87	1	0	95.3	3.82



Comments
Nice
Excellent
Good
No
Good

Good
Good
Way of teaching is excellent
Good
Good
Good
Excellent teaching
Excellent
Excellent
Good
good
Excellent
Good
Excellent
No
Teaching is good
Good
Teaching is understandable and notes provided are useful
Excellent
Good
Excellent
Good
Very good
good
Good
Good
Excellent
Good
Good
Good
Good
Super
Good
Fantastic
Good
Super person in my life
Good sir
Excellent
No comments
Good

S.J.C Institute of Technology

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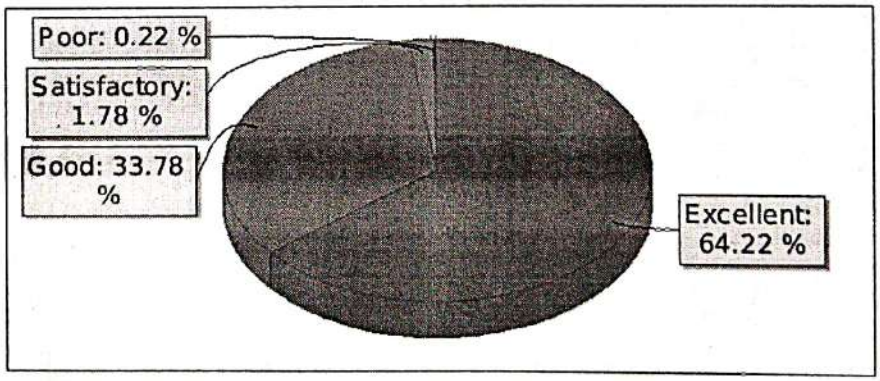
Email: principal@sjcit.ac.in, Web:www.sjcit.ac.in

Course-Wise 2021-22

Batch : BE , 2019-2023
Name of the Faculty : Dr Ravi Kumar T R
Course Code : 18ME62
Course Name : DESIGN OF MACHINE ELEMENTS II

Department : Mechanical Engineering
Semester 6 , Sec : A
Date : 08 Jul 2022

No	Questions	Score on a scale of 4				Feedback Percentage	Average Score (4)
		4	3	2	1		
	General						
1	Preparation of the class	31	13	1	0	91.7	3.7
2	Stressing on important ideas and points	31	13	1	0	91.7	3.7
3	Communication of teacher	30	14	1	0	91.1	3.6
4	Response to questions and doubts	30	15	0	0	91.7	3.7
5	Coverage of syllabus	27	17	1	0	89.4	3.6
6	Availability of teacher outside the class hour	29	16	0	0	91.1	3.6
7	Usefulness of notes given	28	15	2	0	89.4	3.6
8	Knowledge gained by attending the class	29	15	1	0	90.6	3.6
9	Maintenance of discipline in the class	26	18	0	1	88.3	3.5
10	Overall ranking of performance of teacher	28	16	1	0	90	3.6
	Total Count	289	152	8	1	90.5	3.62



Comments
No
Good
Excellent
Good
No comments

.
The best teacher i have seen and very good in communicating with the doubts we have
Good
Good
.
.....
Good
Good teaching
No comments
Good
Good
Everything was taught very well. Thank you sir
Syallbus is completed on time and we can solve the problem verry easily
Good
Good
Excellent
Excellent
Good
Good #
Excellent
Good
Good
Good
Kk
Good
Good
Good teaching
Good
Good Teaching
Excellent
Excellent
No
Hood
Excellent
Good
Good
Good teacher
Very good teacher
Good

SJCIT/NBA/ CO-PO-PSO REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering

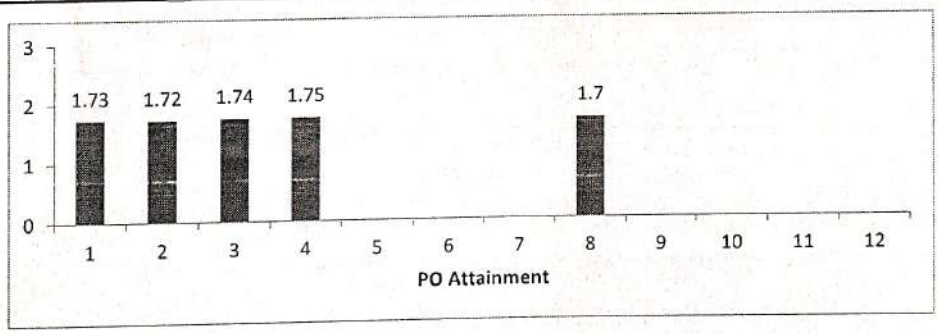
Course Title	DESIGN OF MACHINE ELEMENTS II					Course Code	C312
Subject Code	18ME62	Semester	6	Section	B	Emp.ID	1103
Faculty Name	RAVIKUMAR T R					No.students	49

Summary of CO attainments of Sub: 18ME62 Based on TYPE-2 Academic Year:2021-22

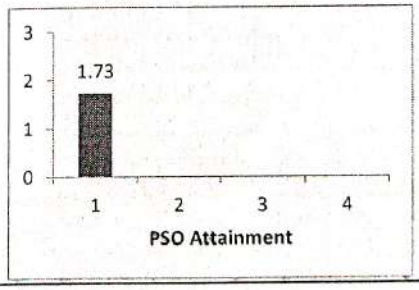
CO	CID_CO	CIE			SEE			CES			TOT_Attainment		
		S_AT	T_ST	ATN	S_AT	T_ST	ATN	S_AT	T_ST	ATN	ATN	%	Status
CO1	C312.1	46	49	2.8	12	49	0.7	41	47	2.6	1.7	58	NO
CO2	C312.2	44	49	2.7	12	49	0.7	41	47	2.6	1.7	57	NO
CO3	C312.3	47	49	2.9	12	49	0.7	41	47	2.6	1.8	59	NO
CO4	C312.4	44	49	2.7	12	49	0.7	41	47	2.6	1.7	57	NO

Summary of PO attainments of Sub: 18ME62 Based on TYPE-2 Academic Year:2021-22

PO Number	1	2	3	4	5	6	7	8	9	10	11	12
Direct ATNT(D)	1.62	1.62	1.62	1.63				1.63				
Indirect ATNT(ID)	2.6	2.6	2.6	2.6				2.6				
Total-ATNT	1.73	1.72	1.74	1.75				1.7				
Total-ATNT (%)	58	57	58	58				57				
Rel. to Mapping	6.9	5.2	4.6	2.3				1.1				



Summary of PSO attainments in Year:2021-22				
PSO Number	1	2	3	4
Direct ATNT(D)	1.62			
Indirect ATNT(ID)	2.6			
Total-ATNT	1.73			
Total-ATNT (%)	58			
Rel. to Mapping	6.9			



SJCIT/NBA/ COURSE/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering

Course Information

Programme Name:	Mechanical Engineering					Subject Type:	Theory
Academic Year:	2021-22	Semester:	6	Section:	B		
Course Title:	DESIGN OF MACHINE ELEMENTS II						
Course Instructor Name:	RAVIKUMAR T R					Class Strength:	49
Subject Code:	18ME62	Course No:	2	Course ID:	C312		

Scheme of Teaching & Marks

Contact Hr/Week:	5	Lecture Hours (Hr.):	3	Tutorials (Hr.):	2
Max.CIE Marks:	40	Max. SEE Marks:	60	Total Max.Marks:	100
Min.CIE Marks:	19	Min.SEE Marks:	21	Total Min.Marks:	40
Final CIE (IA) Marks:	40	Assignment Marks:	10	Test Marks:	30

Threshold Values for Attainment Calculation							Final CO Attainment			
Attainment level	3	%	2	%	1	%	(Percentage Contribution, %)			
Internal Assessment	>=	60	>=	50	>=	40	CIE	40	SEE	50
SE Examination	>=	50	>=	40	>=	35	-		CES	10

Statements of Course Outcomes		No.of CO's	4	Target(%)	BL
C312.1	ign procedure of various Machine elements (such as Springs, Belts, Ropes, Gears, Cl			60	
C312.2	nduced in machine elements subjected to different types of loading conditions (Suc			60	
C312.3	Design Machine Elements based on Strength criteria.			60	
C312.4	Select suitable bearings to give support to different rotating elements.			60	

Semester End Exam. (SEE) Target(%)	90	Course End Survey(CES) Target (%):	10

CO-PO Mapping Table (In the scale of 3)

CO/PO	1	2	3	4	5	6	7	8	9	10	11	12
C312.1	3	2						2				
C312.2	3	3	2	1								
C312.3	3	2	3	2								
C312.4	3	2	3	1								
Total	12	9	8	4				2				

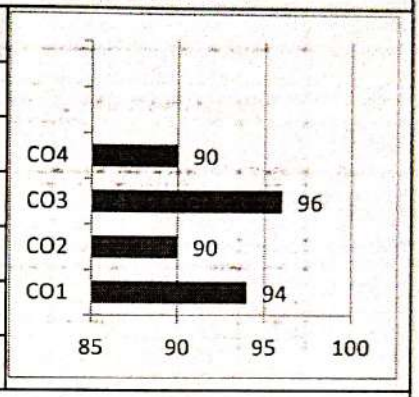
CO-PSO Mapping Table

CO/PSO	1	2	3	4
C312.1	3			
C312.2	3			
C312.3	3			
C312.4	3			
Total	12			

SJCIT/NBA/ CO-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering						
Course Title	DESIGN OF MACHINE ELEMENTS II					Course Code	C312
Subject Code	18ME62	Semester	6	Section	B	Emp.ID	1103
Faculty Name	RAVIKUMAR T R					No.students	49

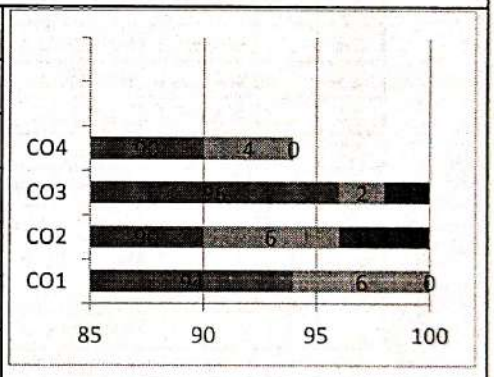
CO Attainment from -TEST - 3, in the Subject: 18ME62-Based on: TYPE-2, Academic Year 2021-22

Sl.	CO Number	Sum	T_Std	Av-AT	TS(=3)	AT,%	Ac_AT	ATNT
CO1	C312.1	144	49	2.9	46	94	2.8	YES
CO2	C312.2	140	49	2.9	44	90	2.7	YES
CO3	C312.3	144	49	2.9	47	96	2.9	YES
CO4	C312.4	136	49	2.8	44	90	2.7	YES



Distribution of CO Attainment from -TEST - 3, in Subj: 18ME62-Based on: TYPE-2, ACDY:2021-22

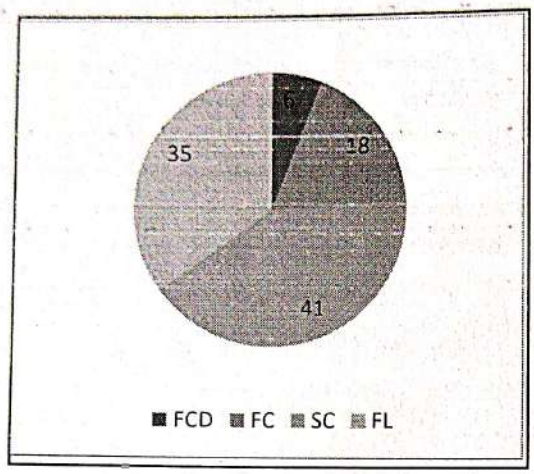
Sl.	CO Number	3	%	2	%	1	%
CO1	C312.1	46	94	3	6		0
CO2	C312.2	44	90	3	6	2	4
CO3	C312.3	47	96	1	2	1	2
CO4	C312.4	44	90	2	4		0



Remarks of Course Intructor

Signature of HOD/DAC	*Signature of Course Instructor*

SJCIT/NBA/ SEE-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering						
Course Title	DESIGN OF MACHINE ELEMENTS II					Course Code	C312
Subject Code	18ME62	Semester	6	Section	B	Emp.ID	1103
Faculty Name	RAVIKUMAR T R					No.students	49
	Result Analysis of Subject Code -18ME62 - for the Academic year 2021-22						



Result Analysis of Section: 6 - B				
No. Students	Pass	%	Fail	%
49	32	65	17	35

Class Analysis of Section: 6 - B			
No. Students	49	%	Grade Point
FCD	3	6	10,9,8
FC	9	18	7
SC	20	41	6,4
FL	17	35	0

Max. and Avg. Marks					
CIE	AVG	SEE	AVG	TOT	AVG
40	28	60	22	100	50

CO Attainment in SEE	
Sum_AT	66
T_students	49
Avg.ATNT	1.4
Sum_AT(=3)	12
AT(=3)%	24
Attainment	NO

ANALYSIS OF GRADE POINT AND GRADE LETTER							
Grade Letter	S	A	B	C	D	E	F
Grade Point	10	9	8	7	6	4	0
No.of Students			3	9	20		14
% of Students			6	18	41		29

CIE and SEE correlation Coefficient	0.51

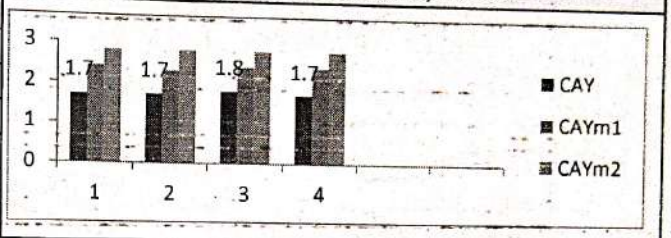
Course Coordinator Remarks on Semester End Results for the Academic Year2021-22

Signature of Course Coordinator

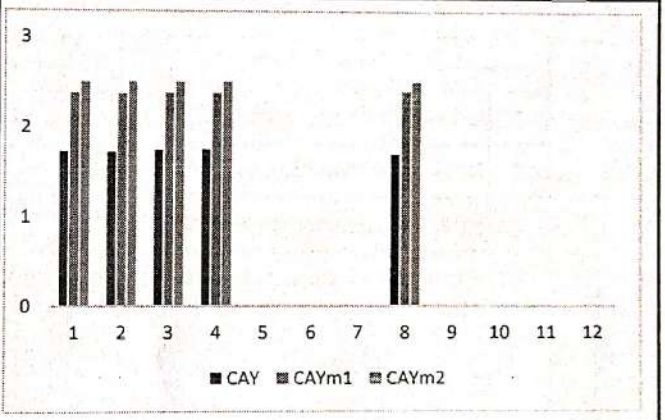
Signature HOD/DAC

SJCIT/NBA/ S&F-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering						
Course Title	DESIGN OF MACHINE ELEMENTS II					Course Code	C312
Subject Code	18ME62	Semester	6	Section	B	Emp.ID	1103
Faculty Name	RAVIKUMAR T R					No.students	49

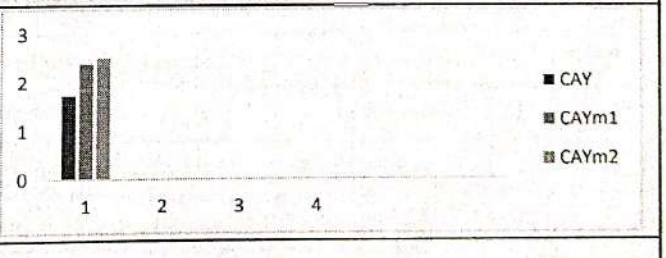
Sl.	CO_ID	CO-ATTAINMENT COMPARISON FOR THE CAY, CAY-1, CAY-2		
		2021-22	2020-21	2019-20
1	C312.1	1.7	2.4	2.8
2	C312.2	1.7	2.3	2.8
3	C312.3	1.8	2.4	2.8
4	C312.4	1.7	2.4	2.8



Sl.	PO-No.	PO-ATTAINMENT COMPARISON FOR THE CAY, CAY-1, CAY-2		
		2021-22	2020-21	2019-20
1	PO-1	1.73	2.38	2.5
2	PO-2	1.72	2.37	2.5
3	PO-3	1.74	2.38	2.5
4	PO-4	1.75	2.38	2.5
5	PO-5			
6	PO-6			
7	PO-7			
8	PO-8	1.7	2.4	2.5
9	PO-9			
10	PO-10			
11	PO-11			
12	PO-12			



Sl.	PSO-No.	PSO-ATTAINMENT COMPARISON FOR THE CAY, CAY-1, CAY-2		
		2021-22	2020-21	2019-20
1	PSO-1	1.73	2.38	2.5
2	PSO-2			
3	PSO-3			
4	PSO-4			



Academic Year	Course Intructor Name
2021-22	RAVIKUMAR T R
2020-21	Prof. RAVIKUMAR T R
2019-20	Dr SURESH GOWDA M V

Signature of Course Intructor

Signature of HOD/DAC

SJCIT/NBA/ CER/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering

Summary of Course Outcomes

	Attainment				Blooms Levels	
Weight, %	40	50	10		Level's	No.
CO-Number	CIE	SEE	CES	Total		
C312.1	2.8	0.7	2.6	1.7		2
C312.2	2.7	0.7	2.6	1.7		3
C312.3	2.9	0.7	2.6	1.8		3
C312.4	2.7	0.7	2.6	1.7		3

E. Students Feedback

Over all feedback value	93

F. Remarks on CIE, attainment and suggestion(s) to improve course delivery by course instructor

SOLVE MORE NUMBER OF PROBLEMS

G. Innovative/Best methods used for course delivery by the course instructor

PPT, VIDEOS AND SHOWN ACTUAL MODELS USING DESIGN CALCULATIONS

H. Remarks of the Module Coordinator

Signature
Name
Module Coordinator

RAVIKUMAR T R
Course Instructor

Signature of the HOD

||Jai Sri Gurudev||

S J C Institute of Technology, Chickballapur – 562 101

Mechanical Engineering Department

Sem / Sec : VI A & B
Sub / Code : Design of Machine Elements-II (18ME62)
Subject Teacher : Ravikumar T R

Summary of DME-II subject result

a) Current Academic Year (2021-22):

Section	No of Students appeared	No. of Students passed	No. of students failed	Pass Percentage	Average Pass Percentage
A	46	24	22	52.17 %	60.00 %
B	49	33	16	67.35 %	

b) Failure Analysis:

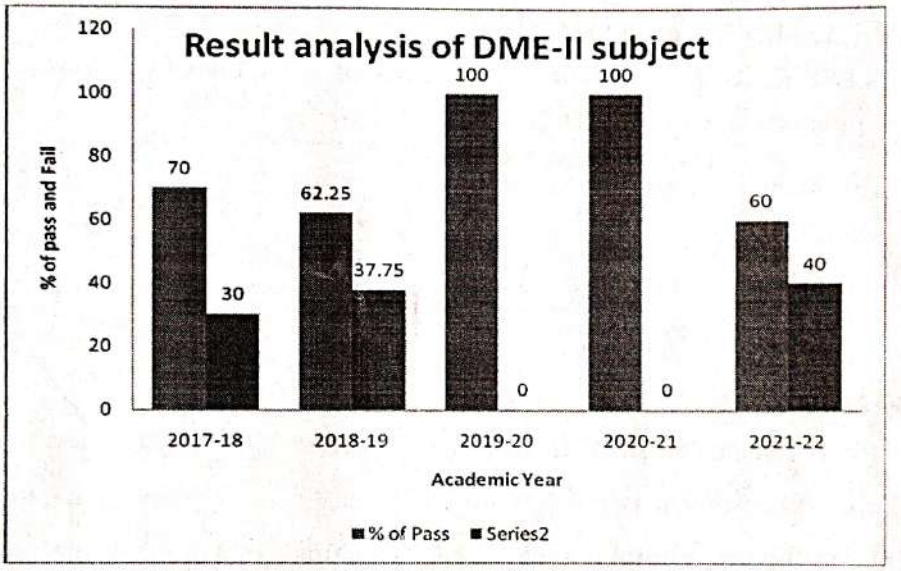
In VI semester DME-II subject pass percentage is 60.00%, when compared to previous year results it is too low, this is because of so many number of students are irregular to the classes and not taken regular internals due to not registered their name to the university in stipulated period. The subject is problematic one which needs to solve more number of problems and requires proper usage of data hand book and also need thorough basic knowledge of the subject Mechanics of Materials and Design of machine elements I, most of the students are failed in that subject.

The department is listed this subject as critical subject in 6^{th} semester. However this one is solved by making students to solve more number of problems in class room.

The previous year results of this subject listed below

Previous year DME-I results

Academic Year	Pass Percentage	Fail Percentage
2017-18	70	30
2018-19	62.25	37.75
2019-20	100	00
2020-21	100	00
2021-22	60	40



c) Corrective measures:

1. As irregularity of the students is the main reason for the failure they are advised to be regular for the classes in future.
2. Additional classes will be engaged for the failed students in this semester.
3. Study materials and VTU previous year question papers problems with solutions will be provided.

Date: 02/11/2022

Ravikumar T R

Period : From APR 2022 To JULY 2022 Semester : Odd / Even

Name of the Teacher : RAVIKUMAR T. R

Designation : ASSISTANT PROFESSOR

Department : MECHANICAL ENGINEERING

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	VI / A / MECHANICAL	DESIGN OF MACHINE ELEMENTS - II	18ME62
2	VI / B / MECHANICAL	DESIGN OF MACHINE ELEMENTS - II	18ME62
3			
4			

	REVIEWS at the End of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff	04/05/22	06/06/2022	05/07/22		03/10/2022
HOD / Reviewer	4/8/22	6/8/22	5/9/22		

LESSON PLANNING

DESIGN OF MACHINE ELEMENTS - II

Class : VI | A Course with Code : ..... [18ME62]

Period : From APRIL 2022 To JULY 2022

1st Month : From 04th APRIL To 30th APRIL	No. of Hours Planned :	216	Actual No. of Hours Taken :	16

Chapter / Experiment / Module No. :

MODULE-2. GEAR DRIVES, SPUR GEARS, HELICAL GEARS

- Classification of gear, gear tooth failure, Terminologies
- Design of Spur gear against Static, Dynamic & Wear loads
- Design of Helical gear against Static, Dynamic & Wear loads.

MODULE-3 BEVEL GEARS AND WORM GEARS

- Definations, Formative no. of teeth, Design of bevel gears against

HOD Review and Sign. :

2nd Month : From 01st MAY To 31st MAY	No. of Hours Planned :	15	Actual No. of Hours Taken :	11

Chapter / Experiment / Module No. : Static, Dynamic & Wear load.

- Design of Worm gear Subjected to Static, Dynamic & Wear load.

MODULE-5. LUBRICATION AND BEARINGS

- Lubricants & their Properties, Hydrodynamic lubrications,
- Design of Hydrodynamic journal & Thrust bearings
- Design of Antifriction bearing

HOD Review and Sign. :

3rd Month : From 01st JUN To 30th JUN	No. of Hours Planned :	~~23~~ 15	Actual No. of Hours Taken :	20

Chapter / Experiment / Module No. :

MODULE-4. DESIGN OF CLUTCHES AND BRAKES

- Clutches, Types, Design of Single, multi-plate clutches & Cone Clutches based on $p = c$ & $pr = c$.
- Brakes, types, Design of band brakes, Block brakes & Internal Expanding brakes

MODULE-1. SPRINGS, ~~BEARINGS~~ BELTS

- Introduction, Types of Springs, Different c/s, Leaf Spring.

HOD Review and Sign. :

4th Month : From 01st July To 19th July	No. of Hours Planned :	09	Actual No. of Hours Taken :	09

Chapter / Experiment / Module No. :

11 Belleville Spring

Belts - Introduction, Types, Design of flat belt & V-belt

Wire ropes - Construction, Design of wire rope.

HOD Review and Sign. :

5th Month : From ..... To	No. of Hours Planned :		Actual No. of Hours Taken :	

Chapter / Experiment / Module No. :

HOD Review and Sign. :

Tutorials & Tests Conducted on

Tutorial - 1 :	17/05/2022	Test - 1 :	18/05/2022
Tutorial - 2 :	08/06/2022	Test - 2 :	09/06/2022
Tutorial - 3 :	07/07/2022	Test - 3 :	09/07/2022

04/04/22
Staff Sign

6/4/22
Reviewer Sign

HOD Sign

LESSON PLANNING

Class : VI | B

Subject with Code : DME-II [18ME62]

Period : From APRIL 2022 To JULY 2022

1st Month : From 04th APRIL To 30th APRIL	No. of Hours Planned :	~~22~~ 16	Actual No. of Hours Taken :	19

Chapter / Experiment / Module No. :

MODULE-2. GEAR DRIVES, SPUR GEARS, HELICAL GEARS

- Classification of Gear, Gear tooth failure, Terminologies
- Design of Spur gear against Static, Dynamic & Wear loa
- Design of Helical gear Subjected to Static, Dynamic & Wear l

MODULE-3. BEVEL GEARS AND WORM GEARS

- Definations, Design of bevel gears Subjected to Static, Dynamic & Wear load.

HOD Review and Sign. :

2nd Month : From 01st MAY To 31st MAY	No. of Hours Planned :	~~22~~ 16	Actual No. of Hours Taken :	19

Chapter / Experiment / Module No. :

- Design of Worm gear Subjected to Static, Dynamic & Wear loa

MODULE-5. LUBRICATION AND BEARINGS

- Lubricants & their Properties, Hydrodynamic lubrications,
- Design of Hydrodynamic journal & Thrust bearings
- Design of Anti-friction bearings.

HOD Review and Sign.

3rd Month : From 01st JUN To 30th JUN	No. of Hours Planned :	~~22~~ 15	Actual No. of Hours Taken :	18

Chapter / Experiment / Module No. :

MODULE-4. DESIGN OF CLUTCHES AND BRAKES

- Clutches, Types, Design of Single plate, multi plate clutches & Cone clutches based on $p=c$ & $pr=c$
- Brakes, Types, Design of band brake, Block brakes & Internal expanding brakes.

MODULE-1. SPRINGS & BELTS. Introduction, Types of Springs, leaf spring.

HOD Review and Sign.

4th Month : From 01st July To 19th July	No. of Hours Planned :	10	Actual No. of Hours Taken :	10

Chapter / Experiment / Module No. :

Belleville spring,

Belts : Introduction, Types, Design of Flat belt & V-belt

Wire ropes : Construction, Design of Wire rope.

HOD Review and Sign. :

5th Month : From ..... To	No. of Hours Planned :		Actual No. of Hours Taken :	

Chapter / Experiment / Module No. :

HOD Review and Sign. :

Tutorials & Tests Conducted on

Tutorial - 1 : 16/05/2022

Tutorial - 2 : 08/06/2022

Tutorial - 3 : 07/07/2022

Test - 1 : 18/05/2022

Test - 2 : 09/06/2022

Test - 3 : 09/07/2022

04/04/2022

Staff Sign

Reviewer Sign

HOD Sign

ATTENDANCE

Class : VI | A

Subject : DESIGN OF MACHINE ELEMENTS - II [18ME6…]

ASSESSMENT

Sl. No.	USN	NAME	05/04	06/04	06/04	12/04	13/04	13/04	19/04	20/04	20/04	21/04	21/04	26/04	27/04	27/04	Attendance A1 (14/06)	Attendance A2 (07/06)	Attendance A3 (07/07)	Attendance Final (16/07)	CIE Marks T1 (50) (14/05)	CIE Marks T2 (50) (09/06)	CIE Marks T3 (50) (01/06)	CIE Marks Final (20)	Assignment Marks (10)	CIE Marks (40)	SEE Marks (60)
			01	05	06	01	05	06	01	05	06	01	02	01	05	06											
			1	2	3	4	5	6	7	8	9	10	11	12	13	14											
1	1SJ19ME001	ADARSH M	1	2	3	A	4	5	6	A	A	7	8	A	A	A	50	59	62	62	23	24	13	12	07	20	05
2	02	AKARSH M	1	2	3	4	A	A	5	6	7	8	9	10	11	12	75	79	83	85	30	36	38	21	09	30	35
3	03	AKSHAY M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	92	94	96	97	47	30	44	23	07	30	13
4	04	AMRUTH V.M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	92	94	92	93	24	26	33	17	08	26	14
5	05	ANIRUDH	1	2	3	4	A	A	5	A	A	6	7	8	9	10	75	65	56	60	46	48	34	25	10	35	42
6	06	BALAJI N	1	2	3	A	4	5	6	7	8	9	10	11	12	13	79	76	75	78	46	24	34	21	09	30	21
7	07	BHUVAN ATHRESHS	1	2	3	4	5	6	7	A	A	A	A	A	A	A	46	41	46	52	15	29	28	14	09	23	03
8	08	CHADIVE SATHISH KUMAR REDDY	1	2	3	4	5	6	7	A	A	8	9	10	11	12	83	75	77	79	27	45	29	20	09	29	36
9	10	CHETHANRAJ D N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	83	88	92	93	26	24	40	18	09	27	07
10	11	CHIRAG C	1	2	3	4	5	6	7	A	A	8	9	10	11	12	83	85	79	81	36	24	23	16	07	23	15
11	12	DHANUSH B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	100	97	94	95	34	41	33	22	09	31	23
12	13	DHANUSH N	1	2	3	4	5	6	7	A	A	8	9	10	A	A	75	75	75	78	27	29	26	16	08	24	17
13	14	GAGAN GOWDA C	1	2	3	A	4	5	6	7	8	9	10	11	12	13	88	85	85	86	31	41	33	22	08	30	21
14	15	GANESH G	1	2	3	A	4	5	A	A	A	6	7	8	9	10	75	79	87	88	17	23	33	15	05	20	A
15	16	HARSHITH GOWDA T L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	100	94	92	93	47	28	23	20	09	29	28
16	17	HARSHITH K (NE)	1	2	3	A	A	A	A	A	A	A	A	A	A	A	10	–	–	–	–	–	–	–	–	–	–
17	18	JAHNAVI KRUPA A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	100	97	92	93	46	37	40	25	08	33	36
18	19	JASHWANTH J	1	2	3	4	5	6	7	A	A	A	A	8	A	A	67	68	75	78	29	25	27	16	08	24	27
19	20	JAYANTH K R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	92	94	92	93	29	46	29	21	09	30	29
20	21	KARTHIK B N	1	2	3	4	5	6	7	A	A	8	9	10	11	12	83	85	87	88	18	27	32	17	09	26	21
21	22	KEERTHANA B K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	100	97	94	95	46	41	40	25	08	34	41
22	23	KETHIREDDY HRUDAY REDDY	1	2	3	4	5	6	7	A	A	8	9	10	11	12	83	85	87	88	37	32	13	16	09	25	21
23	24	KUMAR S	1	2	3	4	5	6	7	8	9	A	A	10	11	12	92	94	94	95	46	30	44	24	09	33	26
24	25	KURUBA AVINASH	1	2	3	4	A	A	A	A	A	5	6	7	8	9	79	75	63	67	23	38	22	17	10	27	16
25	26	KUSHAL Y S	1	2	3	4	5	6	7	A	A	8	9	10	11	12	92	94	90	91	22	22	12	11	09	20	09
	No. of Abs.		00	00	00	05	04	04	03	13	13	04	04	03	05	05					04	01	00				
	Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]

17 FCD ≥ 40 = 01 SC ≥ 30 = 01 F = 04
FC ≥ 36 = 03 P ≥ 21 = 09 F = 01

ATTENDANCE

Class : VI A Subject : DE

Sl. No.	USN	NAME
1	1SJ19MC001	ADARSH M
2	02	AKARSH M
3	03	AKSHAY M
4	04	AMRUTH V.M
5	05	ANIRUDH
6	06	BALAJI N
7	07	BHUVAN ATHRESHS
8	08	CHADIVE SATHISH KUM
9	10	CHETHANRAJ D N
10	11	CHIRAG C
11	12	DHANUSH B
12	13	DHANUSH N
13	14	GAGAN GOWDA C
14	15	GANESH G
15	16	HARSHITH GOWDA T L
16	17	HARSHITH K (RJL)
17	18	JAHNAVI KRUPA A
18	19	JASHWANTH J
19	20	JAYANTH K L
20	21	KARTHIK B N
21	22	KEERTHANA B K
22	23	KETHIREDDY HRUDAY REI
23	24	KUMAR S
24	25	KURUBA AVINASH
25	26	KUSHAL Y S
	No. of Abs.	
	Initials	

29/06	29/06	29/06	01/07	06/07	06/07	07/07	07/07
02	05	06	01	05	06	02	03
45	46	47	48	49	50	51	52
28	29	30	A	A	A	31	32
36	37	38	39	40	41	42	43
43	44	45	46	47	48	49	50
A 43	A	A	44	45	46	47	48
A	A	A	A	26	27	28	29
A 34	A	A	35	36	37	38	39
20	21	22	A	23	24	A	A
A 35	A	A	36	37	38	39	40
41	42	43	44	45	46	47	48
38	39	40	41	A	A	A	A
42	43	44	45	46	47	48	49
32	33	34	35	36	37	38	39
A	39	40	A	41	42	43	44
38	39	40	41	42	43	44	45
A	42	43	44	45	46	47	48
—	—	—	—	—	—	—	—
41	42	43	44	45	46	47	48
32	33	34	35	36	37	38	39
43	44	45	46	A	A	47	48
A 40	A	A	41	42	43	44	45
42	43	44	45	46	47	48	49
40	41	42	43	A	A	44	45
42	43	44	45	46	47	48	49
A	A	A	29	30	31	32	33
40	41	42	43	44	45	46	47
04	06	06	04	04	04	02	02
✓	✓	✓	✓	✓	✓	✓	✓

ASSESSMENT

06 classes Grace

Total

A1	A2	A3	Avg A	M1	M2	M3	Avg M
53	54	55	56	57	58	59	60
07	06	06	07		05	03	
10	08	08		06	04	02	
08	08	07	08	02	02	02	
10	08	08			00	05	
10	10	10	10	03	06		
09	09	09			04	02	
09	09	08		06	00	05	
09	09	08		02	05		
09	09	09		02	04	03	
07	07	07				05	
10	09	08		02	04	01	
08	06	08		02	05	00	
08	08	08		00	03	05	
				04	02	01	
09	09	09		00	00	06	
—	—	—	—	—	—	—	—
09	08	07		03	05	04	
08	08	06		00	07	04	
09	09	08		00	09	04	
09	09	08		00	00	00	
10	08	08		00	06	00	
09	09	08		00	04	06	
09	09	09		00	03	01	
10	10	10	10	00	06	03	
10	10	07		05	05	05	
✓	✓	✓		✓	✓	✓	

Attendance A1 (14/06)	Attendance A2 (07/06)	Attendance A3 (09/07)	Attendance Final (16/07)	CIE Marks T1 (14/06) (50)	CIE Marks T2 (09/06) (50)	CIE Marks T3 (09/06) (50)	CIE Marks Final (20)	Assignment Marks (10)	CIE Marks (40)	SEE Marks (60)
50	59	62	62	23	24	13	12	07	20	05
75	79	83	85	36	36	38	21	09	30	35
92	94	96	97	24	30	24	23	08	30	13
92	94	92	93	24	26	33	17	08	26	14
75	65	56	60	46	46	34	25	10	35	42
79	76	75	78	46	24	34	21	09	30	21
46	41	46	52	15	29	28	14	09	23	03
82	75	77	79	27	45	29	20	09	29	36
83	88	92	93	26	24	40	18	09	27	07
83	85	79	81	36	24	23	16	07	23	15
100	97	94	95	34	41	33	22	09	31	23
75	75	75	78	27	29	26	16	08	24	17
88	85	85	86	31	41	33	22	08	30	21
75	79	87	88	17	23	33	15	05	20	A
100	94	92	93	47	28	23	20	09	29	28
—	—	—	—	—	—	—	—	—	—	—
100	97	92	93	46	37	40	25	08	33	36
67	68	75	78	29	25	27	16	08	24	27
92	94	92	93	29	46	29	21	09	30	29
83	85	87	88	28	27	32	17	09	26	21
100	97	94	95	46	41	40	25	09	34	41
83	85	87	88	37	32	23	16	09	25	21
92	94	94	95	46	30	44	24	09	33	26
79	75	63	67	23	38	28	17	10	27	16
91	94	90	91	22	22	12	11	09	20	09
				04	01	00				
✓	✓	✓	✓	✓	✓	✓		✓	✓	✓

Roll ≥ 42 = 01
M ≥ 36 = 03
S ≥ 30 = 01
P ≥ 21 = 09

ATTENDANCE

Class : VI A Subject : D

Sl. No.	USN	NAME
26	27	LAKSHAY KUMAR SING
27	28	LIKITH K N
28	29	MADHU K
29	30	MADHU M N
30	31	MANJUNATH C
31	32	MANOHAR H K
32	34	MANOJ H V
33	36	MD. AAKIB KHAN
34	37	MOHAMMED SHOAIB
35	38	MOHAN H V
36	39	MOHAN KRISHNA N
37	40	MOHITH K V
38	1SJ20ME400	ABHILASH K N
39	401	AJAYKUMAR G
40	402	ASHOKA C
41	403	BHAVAN D
42	404	CHANDAN GOWDA T N
43	405	CHANDAN N GOWDA
44	406	DEEPAK N
45	407	G CHANDAN
46	408	HARSHITH A
47	409	JAYATEERTHA C A
48	410	K. G LAJEEV IYENGA
(47) 49		
50		
	No. of Abs.	
	Initials	

18

23/06	29/06	29/06	01/07	06/07	06/07	07/07	07/07
02	05	06	01	05	06	02	03
45	46	47	48	49	50	51	52
39	40	41	42	43	44	45	46
25	26	27	A	A	A	A	A
A 35	A	A	A	A	A	A	A
A 41	A	A	42	43	44	45	46
A 41	A	A	42	43	44	45	46
44	45	46	47	48	49	50	51
42	44	45	46	47	48	49	50
32	33	34	35	A	A	A	A
32	33	34	A	A35	A36	37	38
A 44	A	A	45	A46	A47	48	49
A	35	36	A	A	A	A	A
33	34	35	36	A	A	A	A
A 24	A	A	25	A	A	26	27
38	39	40	41	42	43	44	45
40	41	42	43	44	45	A	A
27	28	29	30	A	A	31	32
32	33	34	35	A	A	36	37
40	41	42	43	44	45	A	A
43	44	45	46	47	48	49	50
A 34	A	A	35	36	37	38	39
A 33	A	A	34	35	36	37	38
40	41	42	43	44	45	46	47
43	44	45	46	47	48	49	50
01	07	07	04	08	08	07	07

24

06 classes grace

ASSESSMENT

Total										Attendance				CIE Marks				Assignment Marks	CIE Marks	SEE Marks
	A	A2	A3		M1	M2	M3	AVG M		14/06 A1	07/06 A2	07/07 A3	14/07 Final	13/06 T1 (25)	04/06 T2 (50)	09/07 T3 (25)	Final (30)	(10)	(40)	(60)
(58)	53	54	55	56	57	58	59	60												
52	09	07	07		00	06	05			88	82	88	90	12	42	19	25	07	32	21
33	08	06	06			03	05			62	62	52	57	23	28	22	14	07	21	12
41	00	00	00				00			71	75	67	71	37	04 23	07 23	19	01	20	13
52	08	06	08			05	01			83	88	88	90	16	17	19	22	08	30	09
52 10	10	08	09		04	08	01			92	91	85	90	21	31	40	18	09	27	15
57 10	10	08	08		00	06	05			100	97	98	98	16	25	41	16	09	25	05
56	09	09	08		02	05	03			92	94	96	97	39 37	33	25	19	09	28	23
41	00	00	00				01			75	75	67	71	21	38	34	21	01	22	12
44 10	10	07	07	08		04				71	75	75	76	12	42	34	24	08	32	27
55	08	08	08		04	05	06			100	97	94	95	24	34	28	21	08	29	21
42	09	09	09		06	05	04			92	79	69	72	22	36	18	15	09	24	21
42	07	06	06		00	04	04			71	75	69	72	24	23	30	15	07	28	17
33	09	09	09		.					38	41	52	57	33	28 31	39	21	09	30	02
51 10	10	10	10		00	06	08			75	79	87	88	45	45	21	22	10	32	21
45 1	10	10	10		03	03				83	85	87	83	44	46	33	25	10	35	27
38	09	09	00				00			58	56	62	66	36	49	23	23	06	29	08
43							03			75	75	71	75		20	06			20	00 (A
51	09	09	08		04	04	02			100	91	87	88	35	27	39	20	08	29	22
56	08	08	07		01	03	00			100	100	96	97	35	24	34	19	08	27	10
45	08	08		07	06	04	03			75	75	75	78	48 31	48	21	22	08	30	10
44 10	10	10	10				00			71	68	75	76	37	32	23	19	10	29	15 25
53	09	09	09		00	03	04			92	88	90	91	38	36	35	22	09	31	39
56	10	08	10		05	05	04			92	88	96	97	36 (31)	44	37	24	09	33	23
														09	04	00				

25

ATTENDANCE

Class : VII B Subject : .....

Sl. No.	USN	NAME	09/07	03	61	Total
26	068	SHRINIDHI KULKARNI	57			63
27	069	SREEDHAR A	41			47
28	071	SRIDHAR REDDY B	A			45
29	072	SUDEEP GOWDA N	57			63
30	073	SWASTHIK K M	38			44
31	074	TABREZ PASHA	51			57
32	075	UDAY KIRAN G R	A			42
33	076	V S MONISH	41			47
34	077	VIJAYKUMAR K S	44			50
35	078	VIVEK B	53			59
36	079	YASHWANTH K N	61			67
37	1SJ18ME074	PRAVEEN G.V	57			63
38	1SJ20ME411	KARTHIK K J	56			62
39	412	MADHU T V	59			65
40	413	NANDA KISHORE R	A			56
41	414	PAVANKUMAR	A			51
42	415	PRADEEP N	49			55
43	416	PRAVEEN KUMAR H A	50			56
44	417	SUMANTH Y S	51			57
45	418	VARSHITH GOWDA L	A			53
46	1SJ18ME015	BOYANANDA VARDHAN	A			33
47	017	CHANDAN GOWDA M	A			43
48	1SJ19ME405	GIRISH K N	54			60
49	1SJ20ME419	ARUNKUMAR K N	A			40
50						
	No. of Abs.		08			
	Initials					

42

+ 06 classes grace

27

ASSESSMENT

	A1	A2	A3	Avg of A	IA1	IA2	IA3	Avg of IA
	53	54	55	56	57	58	59	60
	09	08	07	08	03	04	04	
	09	09	09	09	00	04	04	
	09	09	09	09			04	
	08	09	09				02	
	08	08	08				02	
	09	09	09	09	02	00	04	
	07					00	02	
	08	08	08	08	00	02	00	
	09	08	09	09		03	02	
	10	10	09	10	01	05	00	
	09	09	09		00	02	02	
	09	09	08	09	00	04	00	
					00	00	00	
	10	10	09		00	03	04	
	09	09	08	09			04	
	08					03	00	
	10	10	09	10		04	00	
	09	09	09	09	00	00	04	
	09	09			00	00	00	
	09	08	07	08	00	05	04	
	08	08					05	
	10	10	09	10		03	04	
	07	07	07		05	05	00	

	Attendance				CIE Marks				Assignment Marks	CIE Marks	SEE Marks
	14/05 A1	03/06 A2	01/07 A3	14/07 Final	14/05 T1 (15)	09/06 T2 (15)	07/07 T3 (15)	Final (25)	(10)	(40)	(60)
	93	93	93	94	13 5	14	15	17	08	25	32
	82	75	67	70	38	22	29	18	09	27	21
	75	75	64	67	13	36	36	17	09	26	12
	90	93	93	94	46	45	09	21	09	30	24
	75	63	62	66	19	33	26	16	08	24	29
	93	93	84	85	36	23 27	18	16	09	25	18 21
	75	65	59	63	35	27	19	16	07	23	02
	63	75	67	70	11	25	27	13	08	21	21
	60	51	72	75	34	23 23	10	15	09	24	09
	87	86	87	88	22	47 47	042	22	10	32	23
	100	100	100	100	39	39	44	24	09	33	25
	90	93	93	94	43,	25	25	19	09	28	17 30
	93	91	92	93	40	42 41	29	22	00	22	42
	100	100	96	97	042	34	42	24	10	34	21
	90	88	82	84	34	41	30	21	09	30	18
	80	77	75	76	39	33 35	22	19	04	23	08
	80	79	80	82	46	40	38	26	10	36	25
	87	81	82	84	39	28	28	19	09	28	24
	77	79	84	85	24	34	30	18	06	24	14
	77	79	77	79	05	25	30	12	08	20	35
	53	40	44	49	25	35	34	19	01	20	07
	60	56	61	64	31	44	23	20	07	27	21
	90	84	89	90	28	23	32	17	10	27	36
	67	54	56	60	29	32	38	20	07	27	14
					05	06	01				

49

ATTENDANCE

Class : VI | B

Subject : D

+06 classes ex grace

Sl. No.	USN	NAME	07/07	07/07		
			02	03		
			60	61		67
1	1SJ19ME004	NAGENDRA BABU NP	4	57	58	64
2	042	NANDAN H	3	A	A	47
3	043	NANDHINI G	4	55	56	62
4	044	NIKHIL KM	3	47	48	54
5	045	NITHIN M	4	52	53	59
6	046	NITHIN M	3	47	48	54
7	047	OSAMA HYDER BABU DA	3	50	51	57
8	049	POOJA P	4	52	53	59
9	050	POTHURAI RAVIKUMAR R	2	39	40	46
10	051	PRABHAKAR YV	4	A	A	61
11	052	PULUGURA MANJUNATH	2	36	37	43
12	053	PUNITH DS	4	59	60	66
13	054	RAHUL A	4	56	57	63
14	055	RAHUL M	4	48	49	55
15	057	RAMESHWAR BM	3	42	43	49
16	058	SAGAR TA	4	58	59	65
17	059	SANDEEP BR	4	A	A	56
18	060	SANIVARAPPU RAJA SHEK	4	57	58	64
19	061	SANJAY S	3	46	47	53
20	062	SANTOSH N	3	39	40	46
21	063	SEETHARAM S	3	44	45	51
22	064	SHAILESH N	4	53	54	60
23	065	SHARATH KUMAR HV	3	51	52	58
24	066	SHASHANK V	4	57	58	64
25	067	SHREYAS L	3	44	45	51
	No. of Abs.		4	03	03	
	Initials					

34

30

ASSESSMENT

A1	A2	A3	Avg A	M1	M2	M3	Avg M	Attendance A1 (14/08)	Attendance A2 (08/08)	Attendance A3 (07/07)	Attendance Final (16/07)	CIE Marks T1 (14/08)	CIE Marks T2 (09/08)	CIE Marks T3 (09/07)	CIE Marks Final	Assignment Marks	CIE Marks	SEE Marks
53	54	55	56	57	58	59	60					(50)	(50)	(50)	(30)	(10)	(40)	(60)
10	10	09			07	02		90	98	95	96	48	34	25	21	10	31	21
				03	02	03		75	78	67	70	25	30	35	18	03	21	09
10	09	07	09	07	08	03		90	93	92	93	22	26	43	18	09	27	21
10	09	09	10	04	00	00		87	90	79	81	38 41	49	36	24	10	24	21
10	10	09		02	07	05		97	98	87	88	38 (38)	39	25	20	10	30	25
09	09	08	08	03	00	02		87	88	79	81	39	25	20	19	08	27	21
09	09	09	09	03	04	05		93	88	84	85	28	28	34	21	09	30	23
09	09	08			06	02		90	93	87	88	33	43	21	21	09	28	02
09	09	08	09	00	06	06		60	51	66	67	27	18	18	13	09	22	14
10	09	08	09	05	04	04		90	98	90	91	48	32	19	20	09	29	27
09	09	09			00	03		50	58	61	64	26	48	12	17	09	26	26
10	09	10	10		03	01		100	100	98	99	48	31	44	25	10	35	31
10	10	09	10	04	04	00		97	98	93	94	42	38	28	22	10	32	21
09	09	09	09	07	02	02		83	88	80	82	30	34	27	18	09	27	09
09	09	09	09		03	03		75	75	71	73	32	39	25	19	09	28	23
10	10	09		04	06	02		97	98	96	97	32	47	47	25	10	35	36
09	08	08	08	00	02	01		100	91	84	85	43	28	30	20	08	28	29
09	09	08	09	03	05	04		100	100	95	96	37	37	43	23	09	32	30
				00	07	04		87	84	77	79	20	23	32	15	05	20	14
09	08	09	09	00	06	03		67	65	66	67	32	38	22	20	09	29	29
10	10	09		06	05	00		75	75	75	76	26	32	42	20	10	30	40
08	08	08	08	03	07	03		83	88	89	90	38	25	35	20	08	28	27
09	09	08		00	05	05		80	86	85	87	42	33	36	22	09	31	36
09	09	08	09	03	04	05		90	93	95	96	29	43	36	22	09	31	41
09	09	08		05	06	03		83	79	75	76	19	042	29	18	09	27	33
												03	01	NO				

41

SC=30 : 02

ST=06

ATTENDANCE

Class : VII B Subject : .....

Sl. No.	USN	NAME
26	068	SHRINIDHI KULKARNI
27	069	SREEDHAR A
28	071	SRIDHAR REDDY B
29	072	SUDEEP GOWDA N
30	073	SWASTHIK K M
31	074	TABREZ PASHA
32	075	UDAY KIRAN G.R
33	076	V.S MONISH
34	077	VIJAYKUMAR K S
35	078	VIVEK B
36	079	YASHWANTH K N
37	1SJ18ME074	PRAVEEN G.V
38	1SJ20ME411	KARTHIK K J
39	412	MADHU T V
40	413	NANDA KISHORE R
41	414	PAVANKUMAR
42	415	PRADEEP N
43	416	PRAVEEN KUMAR H A
44	417	SUMANTH Y S
45	418	VARSHITH GOWDA L
46	1SJ18ME015	BOYANANDA VARDHAN
47	017	CHANDAN GOWDA M
48	1SJ19ME405	GIRISH K N
49	1SJ20ME419	ARUNKUMAR K N
50		
	No. of Abs.	
	Initials	

42

+ 06 classes grace

09/07	
03	Total
61	67
57	63
41	47
A	45
57	63
38	44
51	57
A	42
41	47
44	50
53	59
61	67
57	63
56	62
59	65
A	56
A	51
49	55
50	56
51	57
A	53
A	33
A	43
54	60
A	40
08	
A	A

27

ASSESSMENT

A1	A2	A3	Avg A	M1	M2	M3	Avg M
53	54	55	56	57	58	59	60
09	08	07	08	03	04	04	
09	09	09	09	00	04	04	
09	09	09	09			04	
08	09	09				02	
08	08	08				02	
09	09	09	09	02	00	04	
09					00	02	
08	08	08	08	00	02	00	
A 09	08	09	09		03	02	
10	10	09	10	01	05	00	
09	09	09		00	02	02	
09	09	08	09	00	04	00	
				00	00	00	
10	10	09		00	03	04	
09	09	08	09			04	
08					03	00	
10	10	09	10		04	00	
09	09	09	09	00	00	04	
09	09			00	00	00	
09	08	07	08	00	05	04	
08	08					05	
10	10	09	10		03	00	
07	07	07		05	05	00	

Attendance				CIE Marks				Assignment Marks	CIE Marks	SEE Marks
14/05 A1	05/06 A2	07/07 A3	16/07 Final	12/05 T1 (15)	09/06 T2 (50)	07/07 T3 (50)	Final (30)	(10)	(40)	(60)
93	93	93	94	035	35	15	17	08	25	32
82	75	67	70	38	22	29	18	09	27	21
75	75	64	67	13	36	36	17	09	26	12
90	93	93	94	46	45	19	21	09	30	24
75	63	62	66	19	33	26	16	08	24	29
93	93	84	85	36	23	18	16	09	25	18
75	65	59	63	35	27	19	16	07	23	02
63	75	67	70	11	25	27	13	08	21	21
60	51	72	75	34	33	10	15	09	24	09
89	86	87	88	22	47	042	22	10	32	23
100	100	100	100	39	39	44	24	09	33	25
90	93	93	94	43	25	25	19	09	28	17
93	91	92	93	48	41	29	22	00	22	42
100	100	96	97	042	34	42	24	10	34	21
90	88	82	84	34	41	30	21	09	30	18
80	77	75	76	39	35	22	19	04	23	08
80	79	80	82	48	48	38	26	10	36	25
87	81	82	84	39	28	28	19	09	28	24
77	79	84	85	24	34	30	18	06	24	14
77	79	77	79	05	25	30	12	08	20	35
53	44	44	49	25	35	34	19	01	20	07
60	56	61	64	39	44	23	20	07	27	21
90	84	89	90	28	23	32	17	10	27	36
67	54	56	60	29	32	38	20	07	27	14
				05	06	01				

49

FEO ≥ 40 = 01 CC ≥ 10 = 02 F = 10
FC ≥ 26 = 01 P ≥ 20 = 10

WORK DIARY

Monday	Tuesday	Wednesday
Date : 04/04/2022 "College Reopen" DME-II VI-B - 10:00 to 11:50 - Bridge Course - Introduction to MECHANICAL Engg.	Date : 05/04 DME-II - VI-A - 9:00 to 10:00 AM - Bridge Course - Introduction to Mechanical Engineering.	Date : 06/04 VI-B - 9:00 to 10:50 - Design, Machine Design Types, Codes & Standards, Syllabus, Co's. VI-A - 1:30 to 3:10 - Design, Machine Design Types, Codes & Standards, Syllabus, Co's.
Date : 11/04 VI-B - 10:00 to 11:50 MOD 2. Gears, Gear drives, Spur & Helical Gears - Introduction, Definations, Types, Terminologies Design of Spur gear CAMA lab - VI-A, 1:30 to 4:10 pm - Introduction to modeling & Analysis lab, ANSYS, Syllabus - Analysis of Straight bar.	Date : 12/04 VI-A . 9:00 to 10:00 am MOD 2. Gears, Gear drives, Spur & Helical gears. - Introduction, Definations, Types, Terminologies	Date : 13/04 VI-B . 9:00 to 10:50 - Design Procedure of Spur gear VI-A 1:30 to 3:10 - Design procedure of Spur gear
Date : 18/04 VI-B - 10:00 to 11:50 - Solved problems Design of Spur gear [TYPE-I] CAMA lab VI-A Classes of 51 students Attended HMT lab. Rest Helped due to CAMD lab going in CAD lab.	Date :- 19/04 VI-A - 9:00 to 10:40 AM - Solved a problem on Design of Spur gear. [TYPE-I]	Date : 20/04 VI-B 9:00 to 10:50 - Solved problems on Design of spur gear. [TYPE-II] VI-A - 1:30 to 3:10 pm - Solved Problems on Design of Spur gear [TYPE-2]

WORK DIARY

Thursday	Friday	Saturday Date : 09/04
Date : 07/04 Students are not Attended Classes - Some of them due to Not registered their names to V.T.U	Date : 08/04	Sunday Date : 10/04 Holiday
Date : 14/04 "AMBEDKAR JAYANTHI"	Date : 15/04 "GOOD FRIDAY"	Saturday Date : 16/04 HOLIDAY Sunday Date : 17/04 HOLIDAY
Date : 21/04 VI-A - 9:00 to 10:50 - Solved problems on Design of Spur gear. [TYPE-I]	Date : 22/04 VI-B - 9:00 to 10:00 - Solved problems on Spur gear [TYPE-II] CAMA lab VI-B - 10:00 to 12:40 - Introduction to CAMA lab, ANSYS, Syllabus, - Solved problem on Analysis of bar	Saturday Date : 23/04 VI-B - 9:00 to 10:00 - Solved problem on Spur gear. [TYPE-III] Sunday Date : 24/04 Holiday

WORK DIARY

Monday	Tuesday	Wednesday
Date : 25/04 DME-II VI-B - 10:00 to 11:50 - Solved problems on Spur gear [TYPE-III] CAMA lab VI-A - 1:30 to 4:10pm - Stress Analysis of Straight & Stepped bar	Date : 26/04 VI-A 9:00 to 10:00 - Solved problems on Spur gear. [TYPE-II]	Date : 27/04 VI-B 9:00 to 10:50 - Solved problems on Spur gear [TYPE-IV] VI-A 1:30 to 3:10 PM - Solved problems on Spur gear [TYPE-II]
Date : 02/05 "RAMZAN FESTIVAL"	Date : 03/05 "BASAVA JAYANTHI"	Date : 04/05 VI-B 9:00 to 10:50 - Design procedure of Helical gear & Solved problem on Helical gear [Type-I] VI-A 1:30 to 3:10pm - Helical gears, Introduction, Types, Terminologies, Design of Helical gears, Design procedure.
Date : 09/05 VI-B 10:00 to 11:50 - Solved problems on Bevel gears [TYPE-I method] VI-A1 · 1:30 to 4:00 pm - Stress Analysis of Tapered bar	Date : 10/05 VI-A & B 9:00 to 10:50 Solved problems on Bevel gears.	Date : 11/05 VI-B 9:00 to 10:50AM - Solved problems on Bevel gear of [TYPE-II method] VI-A · 1:30 to 3:10 PM - Solved problems on Bevel Gears [TYPE-II method]

WORK DIARY

Thursday	Friday	Saturday Date : 30/04
Date : 28/04 VI-A 9:00 to 10:50 - Solved problems on Spur gear [TYPE-III & TYPE-IV]	Date : 29/04 VI-B 9:00 to 10:00 - Introduction to Helical Gears, Types, Terminologies, CAMA lab VI-B2 - 10:00 to 12:40 - Analysis of stepped bar	Students are not attended the class due to - M-2 Exam in morning session Sunday Date : 01/05 HOLIDAY
Date : 05/05 Exam Duty - Classes altered to Dr. TNR.	Date : 06/05 VI-B 9:00 to 10:00 - Solved problem on Helical gear Type-I & Type-II methods CAMA lab: VI-B2 - Analysis of Tapered bar - Analysis of Trusses	Saturday Date : 07/05 VI A & B - 1:30 to 3:10 PM - Mod 2. BEVEL GEARS - Introduction, Types, Terminology, Design procedure. Sunday Date : 08/05 Holiday
Date : 12/05 VI-A 9:00 to 10:50 - Solved problems on Helical Gears	Date : 13/05 ← Students Attended CAMA & ANSYS Training	Saturday Date : 14/05 Sunday Date : 15/05 Holiday

WORK DIARY

Monday	Tuesday	Wednesday
Date : 16/05 VI-B 10:10 to 11:50 TUTORIAL-1 Discussed VI-A - CAMA lab 1:30 to 4:10 - Stress Analysis of Trusses	Date : 17/05 VI-A 9:10 to 10:10 AM TUTORIAL-1 Discussed	Date : 18/05 TEST-1
Date : 23/05 VI-B 10:10 to 11:50 Worm gears: Introduction, Terminologies, Design of Worm gear VI-A - CAMA lab 1:30 to 4:10 - Analysis of Cantilever Beam Subjected to point load.	Date : 24/05 Classes Suspended due to Demise of Prof Chandrashekar P.M Prof. of ISE Dept.	Date : 25/05 VI-B 9:10 to 10:50 Design procedure of worm gears, VI-A 1:30 to 4:10 Worm gears: Introduction, Terminologies, Design Procedure of Wormgears
Date : 30/05 No classes, I Attended Workshop on "AUTODESK", Conducted by MED, AE & AS Dept.	Date : 31/05 VI-B 9:10 to 10:10 Mod. 5. Lubrications & Bearings - Definations, Types & purpose of lubricants, properties, selection, requirements of lubricant, - Bearings, Types of bearings	Date : 01/06 VI-B - 9:10 to 10:50 - Hydrodynamic journal bearings, Design of journal bearing - Design Procedure of journal bearing VI-A - 1:30 to 4:10 Mod 5. Lubrication & Bearings - Def, Types, Purposes of lubrication - Bearing, Types, Hydrodynamic journal bearings

WORK DIARY

Thursday	Friday	Saturday / Sunday
Date : 19/05	Date : 20/05	Saturday Date : 21/05 Holiday Sunday Date : 22/05 Holiday
Date : 26/05 VI-B - 9:10 to 10:50 Solved problems on Design of worm gears	Date : 27/05 VI-B - 9:10 to 10:10 Solved problems on worm gear.	Saturday Date : 28/05 Conducted Technical Seminar for VIII Sem Students [1 to 89] Sunday Date : 29/05 Holiday
Date : 02/06 VI-A 9:10 to 10:50 Mod 5. Lubrications & Bearings - Def, Types, purpose of lubricant - Bearings, Types, Hydrodynamic journal bearings - Petroff's Equn, Derivation, - Design procedure of journal bearings	Date : 03/06 VI B - 9:10 to 10:10 Mod. 5. Solved problem on full journal bearing	Saturday Date : 04/06 NBA related Works Carried out Sunday Date : 05/06 Holiday

WORK DIARY

Monday	Tuesday	Wednesday
Date : 06/06 VI A&B' - 10:00 to 11:50 AM - Solved problems on Journal bearing VI-A - 10:00 to 10:50 AM - Solved problems on Journal bearing VI-A - CAMA lab 1:30 to 4:00 PM - Analysis of Cantilever beam Sub. to different loads	Date : 07/06 VI-A 9:00 to 10:50 - Design procedure of Journal bearings, Solved Problem on Journal bearing	Date : 08/06 VI A&B : 9:00 to 11:00 Thrust BEARINGS Discussed TUTORIAL-2
Date : 13/06 VI-B 10:00 to 11:50 AM Solved problems on Thrust bearings. VI A - CAMA lab 1:30 to 4:00 PM - Analysis of plate with a hole problem.	Date : 14/06 VI-A 9:00 to 10:00 Solved problems on Thrust bearings	Date : 15/06 DME-II VI-A 1:30 to 3:10 PM Mod. 4. Clutches & Brakes Introduction, Types, Torque transmitted Derivation under $P=C+pr=C$.
Date : 20/06 CELEBRATION OF Department FEST" "TARANG-2K22"	Date : 21/06 VI A&B : 9:00 to 10:30 - Design of Single & Multi-plate clutch, Design procedure, Solved problems on Single clutch plate.	Date : 22/06 VI A&B : 11:00 to 12:40 - Solved problems on Multiplate clutch Problems

WORK DIARY

Thursday	Friday	Saturday / Sunday
Date : 09/06	Date : 10/06 TEST - 2	Saturday Date : 11/06 Sunday Date : 12/06 NBA Team Visited Our College for Accreditation
Date : 16/06 DME-II, VI-A 9:00 to 10:50 - Classes Suspended due to "ETHNIC DAY"	Date : 17/06 DME-II VI-B - 9:00 to 10:00 AM Mod. 4. Clutches & Brakes. Introduction to clutch, Types, Torque transmitted Derivation under $P=C+pr=C$.	Saturday Date : 18/06 HL ENCLAVE Sunday Date : 19/06 Holiday
Date : 23/06 VI A&B - 9:00 to 10:50 - Design of Cone clutches & Solved problems on Cone clutch.	Date : 24/06 "COLLEGE FEST SAMBHRAMA - 2K22"	Saturday Date : 25/06 Technical Seminar : for B5, B6, B7, B8, & B9 Batches from 9:30 to 4:00 PM Sunday Date : 26/06 HOLIDAY

WORK DIARY

Monday	Tuesday	Wednesday
Date : 27/06 VI - B_2 : 9:15 to 12:40 pm - Analysis of beam sub. to different types of loading conditions - Analysis of a plate with a hole problem. VI A_1 : 1:30 to 4:00 PM - Analysis of plate with a hole problem & - Modal Analysis of Cantilever beam & Fixed-fixed beam	Date : 28/06 Dr. TNE had taken Fem Class.	Date : 29/06 VI B - 9:40 to 10:50 Mod 2. Design of Belt drive Drives, Types, Belt drive, Types, Design of Flat belt drive, Design procedure VI A - 1:30 to 3:10 pm mod. 1. Design of Belt drive Types, Design of Flat belt drive, Design procedure.
Date : 04/07 VI - A_1 - 1:30 to 4:40 PM - Harmonic Analysis of a cantilever beam - 1D Thermal Analysis of Composite wall	Date : 05/07 VI - B - DME-II 1:30 to 2:10 PM Solved problems on Belt drive [Open & Crossed belt drive] - Taken students to M/c Shop to Show Different type of belt drive	Date : 06/07 VI - A - 1:30 to 2:10 PM Solved problems on Flat belt drive [Open & Crossed belt drive] - Taken students to M/c Shop to Shows Open & C_1 belt drive S/M & V belt drive S/M
Date : 10/07 TEST - 3 has CONDUCTED	Date : 12/07	Date : 13/07 VI A+B - 11:40 to 12:40 PM - Solved problems on Vbelt drive, - Introduction to Rope drive 'Admission Duty'

WORK DIARY

Thursday	Friday	Saturday Date : 02/07
Date : 26/06	Date : 01/07 VI A & B - 9:40 to 10:40 AM Solved problem Design of Flat belt drive VI - B_2 - CAMA lab 10:40 to 12:40 PM - Ans. Modal Analysis of Cantilever beam & Fixed-Fixed end beam.	- Conducted Technical Seminar Exam for B10 & B11 Batch students. - Dept. & Admission Duty Sunday Date : 03/07 Holiday
Date : 07/07 VI A & B 10:40 to 11:50 - V-belt drive, Introduction, Design Procedure & Solved problems on V-belt drive for both Direct method & Manufacture Catalogue. - TUTORIAL-3 DISCUSSED VI A_1 & B_2 - Batch CAMA lab - Conducted 1D & 2D Thermal Analysis.	Date : 08/07 HOD Sir engaged VI A & B Class.	Saturday Date : 09/07 TEST-3 Sunday Date : 10/07 HOLIDAY
Date : 14/07	Date : 15/07 VI A_1 CAMA lab : 9:40 to 12:40 'LAB INTERNAL'	Saturday Date : 16/07 Sunday Date : 17/07

TEACHER APPRAISAL BY STUDENTS

Course	Class / Sec.	Total Students Participated	A	%	B	%	C	%	D	%	Total Points
DME-II	VI / A	45	289	64.2	152	33.8	08	1.7	01	0.2	441 / 450 = 98
DME-II	VI / B	47	382	81.27	87	22.7	01	0.21	00	∞	469 / 470 = 99
CAMA lab	VI / A1	21	247	61.9	143	35.8	05	1.2	04	1.00	390 / 399 = 97
CAMA lab	VI / B2	22	360	86.12	58	16.11	∞	∞	∞	∞	418 / 418 = 100

Additional Responsibilities :

1, Proctor for IV - B2 BATCH Students
2, Discipline Duty MAIN gate
3 Technical Seminar Co-ordinator
4, Alumni Co-ordinator [Dept.]
5. NAAC - Criterium-3 Member
6. NBA - Criterion-4 Co-ordinator
7, NDLI - Club member
8. Students Carrier - Guidance Co-ordina

Paper Presentation Details :

- NIL -

Training / Workshop / Seminar Attended Details :

1, Autodesk - Fusion 360 Hands on Workshop, Conducted by Dept. of ME, AE & AS, on 30/05/2022 at AED, SJCIT.

2. 5 Days Global E-FDP on "Unleashing Research Potential: Global Trends & Practices" Organised by Office of Internatio Relations, Galgotias University, Greater Noida, Uttar Pradesh hel from March 07-11 2022.

Date : 03/10/2022

Sign. of the Staff

HOD Remarks :

Sign. of the HOD

RESULT ABSTRACT

Period : From Apr 2022 To JULY 2022

DATA	Course Title & Code			
	DME-II 18.1 [VI-A]	DME-II [VI-B]		
No. of Students Appeared	47	49		
Absentees	01	-NIL-		
First Class with Distinctions	01	01		
First Class	04	06		
Second Class	01	05		
Pass	18+1	21+4		
Fail	22-1=21	16-4=12		
% of Pass	52.17%	67.35%		
	54.35% After RV	75.51%		

03/10/2022
Sign. of the Staff

Sign. of the HOD

LEAVE DETAILS

Sl. No.	Date	Type	Reason
01	05/05/2022	Restricted Holiday	VARAMAHALAXMI PUJA (7.5)

Sign. of the Staff

TIME TABLE

Time	1	2	3	4	5	6	7
MONDAY		← DME-II → [VI-B, LH 5]			← CAMAL (A1) (VII-A) →		
TUESDAY	DME-II [VI-A LH-4]						
WEDNESDAY	← DME-II [VI-B] →				← DME-II [VI-A] →		
THURSDAY	← DME-II [VI-A] →						
FRIDAY	DME-II VI-B	← CAMAL (VI-B2)	→				
SATURDAY	DME-II VI-B		DME-II VI-A				

Department : Vision & Mission

Aeronautical Engineering

Vision : *Developing the department as a centre of excellence to evolve Aeronautical Engineers with knowledge, skill and character for all relevant occupations.*

Mission :
- *To build a talent pool of Aeronautical Engineers with innovative problem solving capabilities.*
- *Orientation of the students to state-of-the-art technologies and research for aerospace product development activities.*
- *To groom Aeronautical Engineers to be responsible citizens with sensitivity to ethical, societal and environmental issues.*

Civil Engineering

Vision : *To build competent Civil Engineers with a societal perspective.*

Mission :
- *By providing infrastructure and state-of-the-art laboratory facilities to meet the requirements of Curriculum, Research and Consultancy services.*
- *By Imparting Technical Knowledge and skills of current & future needs of the Industry.*
- *By inculcating Professionalism and motivate entrepreneurship among the students to serve the society.*