Dr. V.P.S.S.M's

Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon (Sangli)

Student Information Manual

First Year B. Tech.

Dr. V. P. Shetkari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil

Institute of Technology, Budhgaon– 416304

STUDENT'S INFORMATION MANUAL

(Academic Year: 2021-22)

Semester-II

Teaching and
Evaluation Scheme
for
First Year B. Tech.
Group A
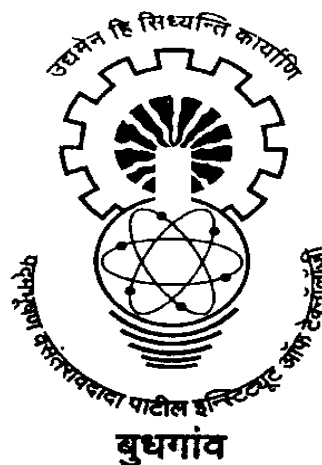
Department of First Year Engineering

Department of First Year Engineering

The Department of **First Year Engineering** is established in the year 1983 with the establishment of institute. The department has a good intermingle of experienced and young faculty which works as a team to strengthen the department.

VISION OF DEPARTMENT

To orient, educate and develop students in applying fundamentals of sciences to Engineering leading to smooth and successful transfer to an undergraduate degree engineering program.

MISSION OF DEPARTMENT

1. To create an environment where students can ascertain that career in engineering matches their interests and abilities.
2. To impart strong fundamental and technical knowledge in the basic science subjects to enable them to prepare themselves for successful career.
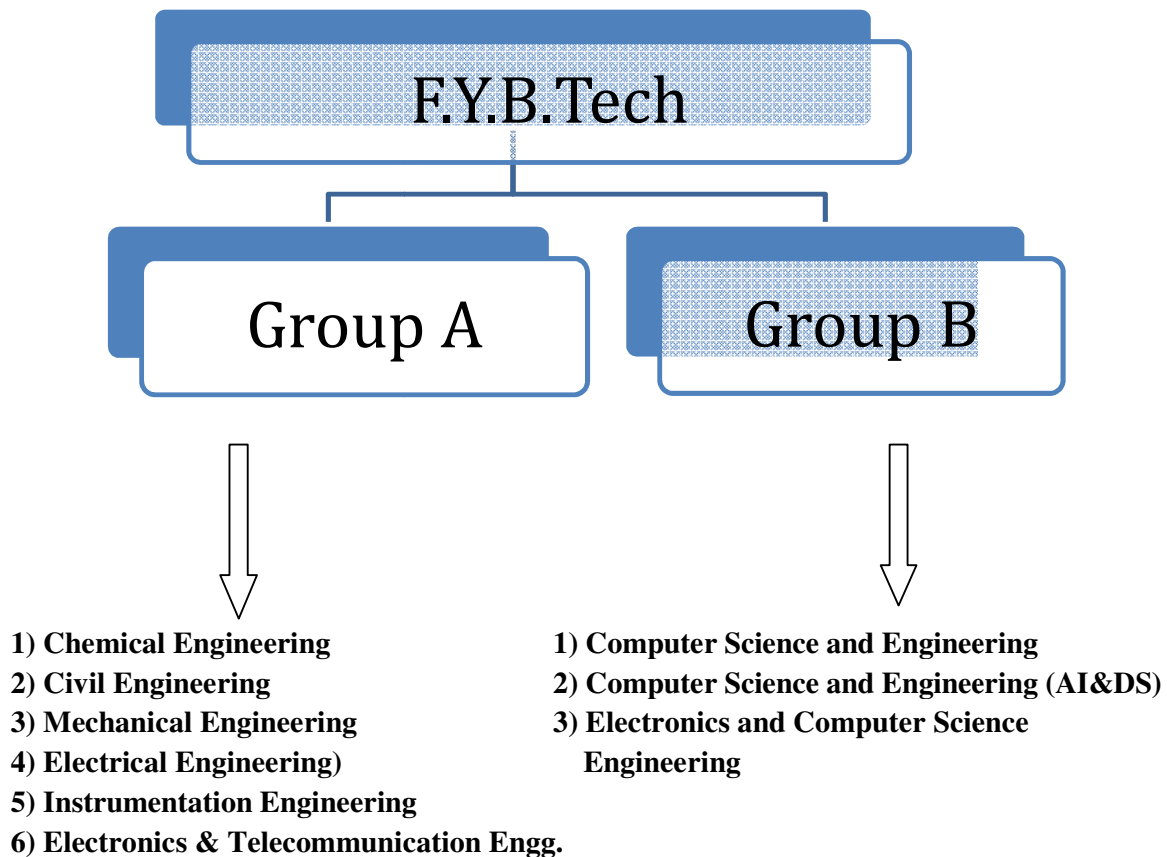3. To inculcate habbit of innovation and entrepreneurship.

GOALS

1. To achieve 100 % results in academics.
2. To inculcate competitive attitude by supporting and guiding them to participate in national competition.
3. To develop basic skills and human values required to undertake further studies.

STRUCTURE OF FIRST YEAR ENGINEERING

(With effective from Academic Year 2021-22**)**

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                    ┌─────────────────┐
                    │   F.Y.B.Tech    │
                    └────────┬────────┘
              ┌──────────────┴──────────────┐
        ┌─────────────┐              ┌─────────────┐
        │   Group A   │              │   Group B   │
        └──────┬──────┘              └──────┬──────┘
               ▼                            ▼
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1) Chemical Engineering

2) Civil Engineering

3) Mechanical Engineering

4) Electrical Engineering)

5) Instrumentation Engineering

6) Electronics & Telecommunication Engg.

1) Computer Science and Engineering

2) Computer Science and Engineering (AI&DS)

3) Electronics and Computer Science Engineering

INDEX

THE ROLE OF STUDENTS

As our society/ nation grows and becomes technologically more strong/ complex, it needs more trained Engineers. Students can contribute to this professional growth by playing an effective and disciplined role during their studies.

Responsibilities:

1. 100% Attendance and active participation in all academic activities.
2. Self-discipline and good relations with other students, teaching and support staff.
3. Positive attitude, motivation and technical thinking.
4. Participation in Co-Curricular and Extra-Curricular activities.
5. Carrying Identity Card and following the College Dress Code.
6. Pursuing all-round personality development with good generic skills.
7. Following the Code-of-Conduct laid down by the Department, Institute and University.

Code-of-Conduct: Students Shall

➢ Attend all Lecture's and Practical's in time.

➢ Not take common off, Leave without permission.

➢ Roaming in the campus premises during academic work or disturbing the campus activities through shouting/ misconduct is strictly not allowed.

➢ Use of personal unauthorized electronic gadgets without permission in department premises is not allowed.

➢ Attendance should be 100 % otherwise you will be ineligible for Exams.

➢ Not include themselves into any form of violence, ragging, use of tobacco, alcohol or drugs in campus.

➢ Let us all- Society, parents, teachers and students join hands and put our best efforts to imbibe the above mentioned behavior in our students.

➢ Maintain silence in class rooms

➢ Don't write anything on seating bench and walls of classroom

➢ Keep their mobiles switched off in classroom.

➢ Your reason of absence should be timely informed to your class teacher with written application.

➢ Help to conserve energy, Switch off fans and tubes before leaving the classroom.

➢ Keep the Classrooms clean.

Laboratory Instructions

Laboratory Instructions

- ❖ Read all the instructions carefully.
- ❖ Always keep silence in the laboratory.
- ❖ Keep your mobiles switched off in the laboratory.
- ❖ Always wear an apron before starting your laboratory work.
- ❖ Always carrying Identity Card and following the College Dress Code.
- ❖ Handle hazardous chemicals and concentrated chemicals carefully.
- ❖ Handle all electronics Devices /Equipment's carefully.
- ❖ Follow safety procedures and avoid damage to self and equipment.
- ❖ Be aware with what you are doing and why you are doing it.
- ❖ Except in emergency, don't run in laboratory.
- ❖ Inform the lab assistant or lab in-charge when any fault arises during the performance of an experiment.
- ❖ Report any not working equipment to the lab instructor; don't open/ remove the cover/ attempt to repair any equipment.
- ❖ Keep the working table always neat and clean.
- ❖ Be aware with the place of fire extinguisher and the method of using it.
- ❖ If any accident occurs, report it at once to the person concerned (Lab In charge).
- ❖ Use laboratory first aid box for any minor accident.
- ❖ Help to conserve energy, Switch off the equipment's tubes and fans before leaving the laboratory.
- ❖ Do not move the instruments from one laboratory to another, without permission.

First Year B. Tech. Teaching and Evaluation Scheme

Group A Semester II

(Chemical/ Civil/ Mechanical Engineering/ Electrical Engineering/ Instrumentation Engineering / Electronics & Telecommunication Engg)

Sr. No.	Course Code	Name of Course	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
1	BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
2	BTBS202	Engineering Chemistry	3	1	-	20	20	60	100	4
3	BTES203	Engineering Mechanics	2	1	-	20	20	60	100	3
4	BTES204	Computer Programming in C	3	-	-	20	20	60	100	3
5	BTES205	Workshop Practices	-	-	4	60		40	100	2
6	BTES206	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
7	BTBS207L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
8	BTES208L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
9	BTES210S	Seminar	-	-	2	60	-	40	100	1
10	BTES211P	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in at one time).	-	-	-	-	-	-	-	Credits To be evaluated in III Sem
		Total	**13**	**3**	**10**	**370**	**80**	**400**	**850**	**19**

COURSE CO-ORDINATOR

Sr. No.	Course	Corse Code	Course Coordinator	Email id	Contact No.
1	Engineering Mathematics-II	BS201	Dr. P. B. Kadam-Lugade	pbklugade.ge@pvpitsangli.edu.in	9970041879
2	Engineering Chemistry	BS202	Dr. V. J. Suryavanshi	vjsuryavanshi.ge@pvpitsangli.edu.in	9975758102
3	Engineering Mechanics	BE203	Mr. V. G. Sawant	vsawant981@gmail.com	9766057403
4	Computer Programming in C	HM204	Mrs. N. R. Chaus	nilofar.chaus15@gmail.com	9960806786
5	Workshop Practices	ES205	Mr. N. D. Patil	ndpatilmech@pvpitsangli.edu.in	8856955611
6	Basic Electrical and Electronics Engineering	ES206	Mrs. S. S. Khatangale Mrs. A. S. Bhandare	sayalikhatangale@gmail.com asbhandare.eln@pvpitsangli.edu.in	9172020575 8308391322

NOTE: Any query or suggestion in above subject should contact with respective subject Coordinator

CLASS TEACHERS

Sr. No.	Class/ Div	Class Teachers	Department	Email id	Contact No.
01	I	Mr. R. U. Yadav	Mathematics	ruyadav.ge@pvpitsangli.edu.in	7776074138
02	II	Dr. S. L. Patil	Physics	slpatil.ge@pvpitsangli.edu.in	7972594465
03	III	Ms. D. A. Lavate	Chemistry	dalavate.ge@pvpitsangli.edu.in	8788009691
04	IV	Mr. S. E. Narwade	English	senarwade.ge@pvpitsangli.edu.in	8329269479
05	V	Mrs. A. V. Patil	Mathematics	avpatil.ge@pvpitsangli.edu.in	9561212878
06	VI	Mr. A. K. Chavan	English	akchavan.ge@pvpitsangli.edu.in	9834750779

COURSE TEACHERS

SEM-II

Division/ Class Course	I	III	V
Engineering Mathematics-II	Mr. R. U. Yadav	Mrs. A. V. Patil Mr. R. U. Yadav	Mrs. A. V. Patil
Engineering Chemistry	Dr. V. J. Suryavanshi	Mrs. D. A. Lavate	Mrs. D. A. Lavate
Engineering Mechanics	Mr. A. K. Kusnale	Mr. V. G. Sawant	Mr. M. S. Kakmare
Computer Programming in C	Mrs. N. R. Chaus	Mrs. M. S. Mane	Mr. U. M. Mulani
Workshop Practices	Mr. S. S. Gunjate Mr. S. S. Awati	Mr. A. G. Pawar Mr. N. D. Patil	Mr. S. S. Awati Mr. P. P. Shinde
Basic Electrical and Electronics Engineering	Mrs. S. S. Khatangale Mrs. A. S. Bhandare	Mrs. S. S. Khatangale Mrs. A. S. Bhandare	Mrs. S. S. Khatangale Mrs. A. S. Bhandare

ACADEMIC CALENDAR

Dr V P S S M's

Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon (Sangli)

First Year Engineering Department

Academic Calendar 2021-22

SEM II

MAY 2022 — Academic Days: 20

MON	TUE	WED	THUR	FRI	SAT	SUN
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Maharashtra Day :- 1st May 2022
Ramazan Eid :-3rd May 22
Commencement of Classes:- 3rd May 22
Buddha Purnima:- 16th May 22
Traditional Day:- 21st May 22
Annual Sports :- 27th - 28th May 22
Annual Social Gathering:- 27th - 28th May 22
1st Defaulter students list:- 31st May 22

JUNE 2022 — Academic Days: 26

MON	TUE	WED	THUR	FRI	SAT	SUN
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

NIRMITI 2022 :- 10th and 11th June 22
CA1 Evaluation :- 6th -11th June 22
Mid Semester Exam:-20th -24th June 22
2nd Defaulter students list :- 30th June 22

JULY 2022 — Academic Days: 22

MON	TUE	WED	THUR	FRI	SAT	SUN
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Bakri Id:- 10th July 2022
Parents Meet :- 9th July 2022
CA2 Evaluation :- 18th -23rd July22
Practical Exam.:-27th -30th July22
3rd Defaulter students list :- 31st July 22

AUGUST 2022 — Academic Days: 4

MON	TUE	WED	THUR	FRI	SAT	SUN
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

End of Classes:- 4th August 22
Final Defaulter students list :- 4th August 22
End Semester Examination :- 5th – 10th August 22
Muharram:- 9th August 2022
Independence Day :- 15th August 22
Parsi New Year:- 16th August 22
Result Declaration :- 29th August 22
Ganesh Chaturthit :- 31st August 22

SEPTEMBER 2022 — Academic Days:

MON	TUE	WED	THUR	FRI	SAT	SUN
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

SEM III starts :- 1st September 22

Activity	Holiday	Exam

Commencement of Classes for next Semester:- 1st Sep. 22

Dr. Mrs. A. A. Patil
HoD, First Year Engineering

Dr. K. K. Pandyaji
Dean Academic

Dr. D. V. Ghewade
Principal

TIME TABLE

Dr. Vasantraodada Patil Shtekari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli)

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)
TIMETABLE 2021-22 SEM-II

With Effect From 03/05/2022

Class:- FE-I   Branch: -   Civil + Instrumentation   CHEMISTRY Group   CL-03

Sr. No.	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	A1- ES203(T)/LVH A2- ES205L	BS201-RUY	A1- BS207L A2- ES208L	BS201- RUY	ES206-ASB	LVH-Library Visit Hour
2	11:00 TO 12:00	A3- BS207L	BS202- VJS	A3- ES205L	ES203- MSK	ES204- NRC	*-Extra
	12:00 TO 12.45	LONG		RECESS			
3	12.45 TO 13:45	ES204 - NRC	A1- ES205L A2- BS207L	ES206-SSK	BS202- VJS	A1- ES205L A2- ES210S	# - Alternate (T)-Tutorial
4	13:45 TO 14:45	BS202- VJS	A3- ES208L	BS201- RUY	ES204- NRC	A3- 202(T) /201(T)	
	14:45 TO 14:55	SHORT		RECESS			
5	14:55 TO 15:55	*A1- ES209L	A1- ES210S	ES203- MSK	A1- ES208L	A1- 202(T)/201(T)	# M-M / Counselor Int.
6	15:55 TO 16:55	*A2- ES209L *A3- ES209L	A2- 202(T) /201(T) A3- ES205L	*BS201- RUY	A2- ES205L A3- ES210S	A2- ES203(T)/LVH A3- ES203(T)/LVH	Mentee –Mentor or Counselor Interaction

RUY-R U -R U Yadav   VJS-V J Suryavanshi   MSK-M S Kakmare   NRC- N R Chouse   SSK- S S Khatangale   ASB- A S Bhandare

Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	4	ES204	Computer Programming in C	7	BS207L	Engineering Chemistry Laboratory
2	BS202	Engineering Chemistry	5	ES205L	Workshop Practices	8	ES208L	Engineering Mechanics Laboratory
3	ES203	Engineering Mechanics	6	ES206	Basic Electrical & Electronics Engineering	9	ES209L	Computer Programming in C Laboratory*
						10	ES210S	Seminar

(Dr. S. L. Patil)
First Year Engg. Time-Table Coordinator

(Dr. Mrs. A. A. Patil)
HOD First Year Engg.

(Dr. K. K. Pandyaji)
Academic Dean

(Dr. D. V. Ghewade)
Principal

Dr. Vasantraodada Patil Shtekari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli)

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)
TIMETABLE 2021-22 SEM-II

With Effect From
03/05/2022

Class: FE-III **Branch:** Chemical + Elect. and Tele. (ETC) Engg **CHEMISTRY Group** CL-04

Sr. No.	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	ES203- VGS	ES206- ASB	C1- ES210S C2- 202(T) /201(T)	BS202- DAL	C1- BS207L C2- ES208L	LVH-Library Visit Hour
2	11:00 TO 12:00	BS201- RUY	ES203-VGS	C3- ES205L	ES206-SSK	C3- ES205L	*-Extra
	12:00 TO 12.45		LONG	RECESS			
3	12.45 TO 13:45	ES204-MSM	C1- ES205L C2- ES210S	BS201- AVP	C1- ES205L C2- BS207L	BS202- DAL	# - Alternate (T)-Tutorial
4	13:45 TO 14:45	BS202-DAL	C3- 202(T) /101(T)	ES204- MSM	C3- ES208L	BS201- AVP	
	14:45 TO 14:55		SHORT	RECESS			
5	14:55 TO 15:55	C1- ES208L C2- ES205L C3- ES210S	C1- ES203(T)/LVH C2- ES205L C3- BS207L	*C1- ES209L *C2- ES209L *C3- ES209L	ES204- MSM	C1- 202(T)/201(T) C2- ES203 (T)/LVH C3- ES203 (T)/LVH	# M-M / Counselor Int. Mentee – Mentor or Counselor Interaction
6	15:55 TO 16:55				*BS201- RUY		

RUY-R U Yadav AVP-/A V Patil DAL- /D A Lavate VGS- V G Sawant MSM- /M S Mane SSK- S S Khatangale ASB- A S Bhandare

Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	4	ES204	Computer Programming in C	7	BS207L	Engineering Chemistry Laboratory
2	BS202	Engineering Chemistry	5	ES205L	Workshop Practices	8	ES208L	Engineering Mechanics Laboratory
3	ES203	Engineering Mechanics	6	ES206	Basic Electrical & Electronics Engineering	9	ES209L	Computer Programming in C Laboratory*
						10	ES210	Seminar

(Dr. S. L. Patil)
First Year Engg. Time-Table Coordinator

(Dr. Mrs. A. A. Patil)
HOD First Year Engg.

(Dr. K. K. Pandyaji)
Academic Dean

(Dr. D. V. Ghewade)
Principal

Dr. Vasantraodada Patil Shtekari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli)

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)
TIMETABLE 2021-22 SEM-II

With Effect From
03/05/2022

Class:- FE-V   Branch: Electrical + Mechanical   CHEMISTRY Group   CL-03/04

Sr. No.	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	ES203-AAK	E1- ES210S E2- ES205L	BS202- DAL	E1- BS207L E2- ES208L	BS202-DAL	LVH-Library Visit Hour
2	11:00 TO 12:00	ES204-UMM	E3- ES203(T)/LVH	ES206-ASB	E3- ES205L	BS201- AVP	*-Extra
	12:00 TO 12.45		LONG	RECESS			
3	12.45 TO 13:45	E1- ES205L E2- ES210S	BS201- AVP	E1- ES205L E2- BS207L	ES206-SSK	ES204- UMM	# - Alternate (T)-Tutorial
4	13:45 TO 14:45	E3- 202(T)/201(T)	ES204- UMM	E3- ES208L	*BS201- AVP	ES203- AAK	
	14:45 TO 14:55		SHORT	RECESS			
5	14:55 TO 15:55	BS201-AVP	E1- ES208L E2- 202(T)/201(T)	E1- 202(T)/101(T) E2- ES203(T)/LVH	*E1- ES109L *E2- ES109L	E1- ES203 (T)/LVH E2- ES205L	# M-M / Counselor Int. Mentee – Mentor or Counselor Interaction
6	15:55 TO 16:55	BS202- DAL	E3- ES210S	E3- ES205L	*E3- ES109L	E3- BS207L	

AVP-/A V Patil   DAL- /D A Lavate   AAK- A A Kusnale   UMM- U M Mulani   SSK- S S Khatangale   ASB- A S Bhandare

Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course	Sr. No.	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	4	ES204	Computer Programming in C	7	BS207L	Engineering Chemistry Laboratory
2	BS202	Engineering Chemistry	5	ES205L	Workshop Practices	8	ES208L	Engineering Mechanics Laboratory
3	ES203	Engineering Mechanics	6	ES206	Basic Electrical & Electronics Engineering	9	ES209L	Computer Programming in C Laboratory*
						10	ES210	Seminar

(Dr. S. L. Patil)
First Year Engg. Time-Table Coordinator

(Dr. Mrs. A. A. Patil)
HOD First Year Engg.

(Dr. K. K. Pandyaji)
Academic Dean

(Dr. D. V. Ghewade)
Principal

DEPARTMENTAL ACTIVITY

1) MENTORING ACTIVITY:

Each faculty from respective branch has been **assigned some students for mentoring.** Mentoring Forms (Student Information Form) are maintained by mentor (faculty), which involves **details of students** such as Date of Birth, Blood Group, Mail –ID, Parents information, academic information, his/her involvement in different activities. **At least once in a week interaction with the concerned students is done by respective mentor.**

Through interaction their difficulties **from department, hostel and amenities are known.** The suggestions and difficulties from the interaction are **conveyed to higher authorities** on whom corrective actions are taken. **Personal difficulties** during the interaction are also shared by the students. On which appropriate guidance and help is provided. The mentoring batch allotted is continued till the student completes his/her graduation.

Professional guidance is provided by arranging lectures of eminent personalities from Academic, Industry and Social spheres. Lectures of faculty from other institutions are organized. Mentoring includes **professional guidance, carrier advancement/ course work specific/ lab specific/ total development.**

Note:
  i. Student should collect **Mentoring Forms (Student Information Form)** from Respective **Mentors** and fill this form within **one week from the Commencement of Term and classes.**
  ii. Student should attend Mentoring Lectures as per Time Table Schedule.
  iii. **At least once in a week** interaction with the concerned Mentor is done by respective student.

COUNSELING ACTIVITY

- **Encourage students** to discuss their ideas

- Help to **lower stress and build confidence**

- Increases personal knowledge and organizational awareness

- Gives wisdom, advise, help and encouragement

- Develops an environment that supports constructive criticism

- Experiencing greater self-esteem and motivation to succeed.

- Improving interpersonal relationship such as with teacher and family.

- Receiving assistance in choosing a carrier path.

Counselor expert: Mrs. Archana Muley (Mobile: 9881667158)

Internal expert may be Dean, Head of department, Coordinators, Class Teachers, Mentors etc. whereas external expert may be related to medical field. **Counselor** as a mentor has been **assigned for each student.** Counseling sheets are maintained by

Counselor (Mentor), **at least once in each week interaction with the concerned class is done by respective counselor.**

CLASS TEACHER

- Receiving assistance with academic endeavors.
- Constructive interaction with a class teacher and participation in collective activities he or she arranges engagement in the field.
- Receiving encouragement to stay in college.
- Receiving assistance in the understanding of subject.
- It supports their advancement in research activity, conference, presentation, publication, pedagogical skill etc.
- Student should collect **Leave Application Form** from Class Teacher
- Defaulter Student should contact with their Class Teacher /Mentor/ Head of First Year Engg. Dept. (/Dr. Mrs. A. A. Patil) within 2-3 days after displaying Defaulter List on notice board as well as on college web site.

REMEDIAL LECTURES

Extra lectures are arranged for those students who are either weak in particular subject or failed in previous semester.

Note: 1) Student should **attend Remedial Lectures** as per Time Table Schedule.
2) Time Table Schedule for Remedial Lectures will be display after completion of Mid/ End Term Test.

CO/ EXTRA CURRICULAR ACTIVITIES:

Paper/ PPT Presentation, Nirmiti, Vasantotav and Sports activity benefits the student to participate in extracurricular activities.

Date	Activity Name	Participation level	Outcome

REMARKS: Student should submit Xerox copy of certificates obtained from Co/Extra Curricular Activities to Class Teacher.

ANTI- RAGGING ACTIVITY

ANTI-RAGGING RULES AND REGULATIONS

Ragging is a criminal offense as per act no. 1098 (113/98) WISHI-3, 27-5-99.
What Constitutes Ragging?

Ragging constitutes one or more of any of the following acts:

- Any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student.
- Asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student.
- Any act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher.
- Exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students.
- Any act of financial extortion or forceful expenditure burden put on a fresher or any other student by students.
- Any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, and stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person.

ADIMINISTRATIVE ACTION IN THE EVENT OF RAGGING:

The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed here in under

a) Suspension from attending classes and academic privileges.

b) Withholding/ withdrawing scholarship/ fellowship and other benefits.

c) Debarring from appearing in any test/ examination or other evaluation process.

d) Withholding results.

e) Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.

f) Suspension/ expulsion from the hostel.

g) Cancellation of admission.

h) Rustication from the institution for period ranging from one to four semesters.

i) Expulsion from the institution and consequent debarring from admission to any other institution for a specified period.

Library: Late Shri Vishnuanna Patil Technical Library – This specious Library of the Institute is enriched with more than 59000 Volumes of books with more than 78 Indian, 30 International Journals, 538 online journals and periodicals are subscribed per month. Total nontechnical journal are 09, 1800 digital books and 400 Videos.

Gymkhana and N.S.S.

PVPIT has been keen in providing sufficient time and facilities for sports and gymnasium. The Gymkhana is equipped with the cardio and strength machines. The facilities for outdoor and indoor games like table-tenis, Volleyball, basketball, badminton courts as well as cricket, kho-kho and kabaddi are available. PVPIT shares the athletics track and indoor multipurpose hall with its neighboring sport complex.

The National Service Scheme (NSS) is an Indian government-sponsored flagship for public service program conducted by the Ministry of Youth Affairs and Sports of the Government of India. Popularly known as NSS, it provides opportunity to the student youth of Technical Institution, Graduate and Post Graduate at colleges and University level of India to take part in various government led community service activities and programmes. Under this program we always serve/ help community various social activities arrange by NSS. e.g. Blood Donation and Health Checkup camp, Swachh Bharat Abhiyaan and various social and National activities as per the directions receive from UGC and University..

Hostel

The institute has multi storey hostel building inside the institute campus, which accommodates about 450 boys. There is separate girl's hostel where 225 girls can live comfortably with all amenities. Guest house facility is available for visiting parents. The hostels have all necessary facilities such as water purification plant, water coolers, T.V. Medical First aid center, Water heating plant, News Paper, Reading Room, Indoor games, Canteen, Mess, Laundry, Xerox Center, Public Telephone booth are available inside the campus.

Training and Placement Office (TPO)

Placement @PVPIT Sangli: All students those who are interested for industrial placement, are groomed and prepared to face the interview process. Efforts are made by all means to provide maximum opportunities to each and every student, so that every eligible and interested student get at least one offer

Objectives of Training and Placement

The **Training and Placement (TandP)** cell at PVPIT guide and counsel every students to choose their proper career path, make them eligible and employable.

Here we groom future Technocrats as per their interest and make them industry-ready. The objective is to

- ❖ Provide opportunities for industrial placements
- ❖ Motivate them for other placement opportunities *
- ❖ Motivate them to become future entrepreneur
- ❖ Motivate them to opt for Higher Education and research.

At PVPIT students can have their choice of placement other than job in industry. Accordingly we provide with the source of appropriate knowledge and skill which would be resourceful them. Training is given to improve their aptitude and soft skill through expert agencies.

We provide proper platform for *other placements like teaching as a profession, competitive exams, higher education, education abroad, jobs in government or semi government, defence services and research sector. We encourage and empower student to become an entrepreneur and provide them necessary awareness and orientation about it.

Our Recruiters

Engineering Mathematics – II (4 Credits)
BTBS201

Teaching Scheme	**Evaluation Scheme**
Lecture: 3 hrs/ week	Continuous Assessment:- 20 Marks
Tutorial: 1 hr/ week	Mid Term Test:-20 Marks
	End Semester Exam:- 60 Marks

Course Objectives:

1. To know and discuss the need and use of complex variables to find roots, to separate complex quantities and to establish relation between circular and hyperbolic functions.
2. To understand and solve first and higher order differential equations and apply them as a mathematical modeling in electric and mechanical systems.
3. To determine Fourier series representation of periodic functions over different intervals.
4. To demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence &curl in various engineering streams.
5. To know and apply the principles of vector integration to transform line integral to surface integral, surface to volume integral &vice versa using Green's, Stoke's and Gauss divergence theorems.

Course Outcomes:
Students will be able to :

1. Discuss the need and use of complex variables to find roots ,to separate complex quantities and to establish relation between circular and hyperbolic functions.
2. Solve first and higher order differential equations and apply them as a mathematical modeling in electric and mechanical systems..
3. Illustrate Fourier series representation of periodic functions over different intervals and understand the concept of vector differentiation and apply the principles of vector integration to transform line integral to surface integral , surface to volume integral &vice versa using Green''s , Stoke''s and Gauss divergence theorems..

Unit No.	Details of Content	Hrs
1.	**Complex Numbers** Definition and geometrical representation ; De-Moivre''s theorem (without proof) ; Roots of complex numbers by using De-Moivre''s theorem ; Circular functions of complex variable – definition ; Hyperbolic functions ; Relations between circular and hyperbolic functions ; Real and imaginary parts of circular and hyperbolic functions ; Logarithm of Complex quantities.	7
2.	**Ordinary Differential Equations of First Order and First Degree and Their Applications** Linear equations; Reducible to linear equations (Bernoulli''s equation); Exact differential equations; Equations reducible to exact equations ; Applications to orthogonal trajectories , mechanical systems and electrical systems.	7

3.	**Linear Differential Equations with Constant Coefficients** Introductory remarks - complementary function, particular integral; Rules for finding complementary functions and particular integrals; Method of variation of parameters; Cauchy"s homogeneous and Legendre"s linear equations.	7
4.	**Fourier Series** Introductory remarks- Euler"s formulae; Conditions for Fourier series expansion - Dirichlet"s conditions; Functions having points of discontinuity; Change of interval; Odd and even functions expansions of odd and even periodic functions; Half-rangeseries.	7
5.	**Vector Calculus** Scalar and vector fields: Gradient , divergence and curl; Solenoidal and irrotational vector fields; Vector identities (statement without proofs); Green"s lemma, Gauss 'divergence theorem and Stokes' theorem (without proofs)	7

Text Books
   a. Higher Engineering Mathematics by B. S. Grewal, Khanna Publishers, New Delhi.
   b. Advanced Engineering Mathematics by Erwin Kreyszig, John Wiley & Sons, NewYork.
   c. A Course in Engineering Mathematics (Vol II) by Dr. B. B. Singh, Synergy Knowledge ware, Mumbai.
   d. A Text Book of Applied Mathematics (Vol I & II) by P. N. Wartikar and J. N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
   e. Higher Engineering Mathematics by H. K. Das and Er. Rajnish Verma, S. Chand & CO. Pvt. Ltd., New Delhi.

Reference Books
   a. Higher Engineering Mathematics by B. V. Ramana, Tata McGraw-Hill Publications, New Delhi.
   b. A Text Book of Engineering Mathematics by Peter O" Neil, Thomson Asia Pte Ltd., Singapore.
   c. Advanced Engineering Mathematics by C. R. Wylie & L. C. Barrett, Tata Mcgraw-Hill Publishing Company Ltd., New Delhi.

General Instructions:
   1. The tutorial classes in Engineering Mathematics-II are to be conducted batch wise. Each class should be divided into three batches for the purpose.
   2. The internal assessment of the students for 20 marks will be done based on assignments, surprise tests, quizzes, innovative approach to problem solving and percentage attendance.
   3. The minimum number of assignments should be eight covering all topics.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End – Semester Examination (Supplementary): May 2019

Branch: B. Tech (Common to all)   **Semester:** II

Subject with code: Engineering Mathematics – II (MATH 201)   **Marks:** 60

Date: 29.05.2019   **Duration:** 03 Hrs.

INSTRUCTION: Attempt any **FIVE** of the following questions. All questions carry equal marks.

Q.1

(a) Find all the values of $(i)^{\frac{1}{4}}$ [4 *Marks*]

(b) If $sin(\theta + i\phi) = cos\alpha + isin\alpha$, prove that $cos^2\theta = \pm sin\alpha$.   [4 *Marks*]

(c) Prove that $tan\left[i\,log\frac{a-ih}{a+ih}\right] = \frac{2ah}{a^2-b^2}$.   [4 *Marks*]

Q.2

(a) Solve: $cos^2x\frac{dy}{dx} + y = tanx$.   [4 *Marks*]

(b) Solve: $(x^2 + y^2)dx - (xy)dy = 0$.   [4 *Marks*]

(c) Two particles fall freely, one in a medium whose resistance is equal to k times the velocity and other in a medium whose resistance is equal to k times the square of the velocity. If V_1 and V_2 are their maximum velocities respectively, show that $V_1 = V_2^2$.   [4 *Marks*]

Q.3 Solve any TWO:

(a) Solve: $(D^2 - 3D + 2)y = e^{3x}$.   [6 *Marks*]

(b) Solve: $(D^6 - D^4)y = x^2$.   [6 *Marks*]

(c) Solve by the method of variation of parameters

$\frac{d^2y}{dx^2} + y = cosecx$.   [6 *Marks*]

Q.4

(a) Find the Fourier series of $f(x) = x^2$ in the interval $(-\pi, \pi)$, and hence deduce that

$$\frac{\pi^2}{6} = \frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \cdots$$

[6 Marks]

(b) If $f(x) = 2x - x^2$ in $0 \le x \le 2$, show that $f(x) = \frac{2}{3} - \sum_{n=1}^{\infty} \frac{4}{n^2 \pi^2} \cos n\pi x$.

[6 Marks]

Q.5

(a) The necessary and sufficient condition for vector $\vec{F}(t)$ to have constant magnitude is

$$\vec{F}(t) \cdot \frac{d\vec{F}(t)}{dt} = 0.$$

[6 Marks]

(b) Show that the acceleration of the point moving along the curve with uniform speed is $\varrho \left(\frac{d\psi}{dt}\right)^2$ along the normal.

[6 Marks]

Q.6

(a) Find $\nabla \cdot \vec{F}$, where $\vec{F} = \nabla(x^3 + y^3 + z^3 - 3xyz)$. [4 Marks]

(b) If $\vec{r}$ is a position vector with $r = |\vec{r}|$, show that

$$\nabla \cdot (r^n \vec{r}) = (n+3)r^n.$$

[4 Marks]

(c) Show that $\iiint_v \frac{dv}{r^2} = \iint_s \frac{\vec{r} \cdot \hat{n}}{r^2} ds$. [4 Marks]

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Engineering Chemistry (4 Credits)
BTBS202

Teaching Scheme

Lecture: 3 hrs/ week

Tutorial: 1 hr/ week

Evaluation Scheme

Continuous Assessment:- 20 Marks

Mid Term Test:- 20 Marks

End Semester Exam:- 60 Marks

Course Objectives:
1. To know the demonstration of knowledge of Chemistry in technical fields.
2. To bring adaptability to new developments in Engineering Chemistry and to acquire the skills required to become a perfect engineer.
3. To understand and develop the importance of water in industrial and domestic usage.
4. To identify the concepts of Chemistry to lay the ground work for subsequent studies in various engineering fields.
5. To examine a fuel and suggest alternative fuels.

Course Outcomes: Students will be able to:
1. To acquire and apply basic knowledge of Chemistry in technical fields..
2. Bring adaptability to new developments in Engineering Chemistry and to acquire the skills required to become a perfect engineer..
3. To integrate pure Chemistry principles and fundamentals with Engineering Applications.

Unit No.	Details of Content	Hrs
1.	**Water Treatment** Introduction, hard and soft water, Disadvantages of hard water- in domestic use, in Industrial use, softening of water – Zeolite process, Ion exchange process, Hot Lime –Soda process. water characteristics- Hardness and its determination by EDTA method, Dissolve oxygen (DO) and its determination by Winkler's method.	5
2.	**Phase Rule** Phase Rule, statement, Explanation of the terms – Phase, Component, Degrees of freedom. One component system – Water and Sulphur. Reduced Phase rule equation, Two component alloy system Phase diagram of Silver- Lead alloy system	5
3.	**Corrosion and its Control** Introduction, Fundamental reason of corrosion, Electrochemical Corrosion(Wet corrosion) , Direct Chemical Corrosion(Dry corrosion), Factors affecting the rate of corrosion, Types of corrosion Galvanic, Microbiological Corrosion, Methods to minimise the rate of corrosion- Proper designing , Cathodic and Anodic protection method.	5
4.	**Fuels and Lubricants**	6

	Fuels: Introduction, Classification of fuel, Calorific value of a fuel, Characteristics of a good fuel, solid fuel- Coal and Various types of Coal, Analysis of coal- Proximate and Ultimate analysis, Liquid fuel Refining of Petroleum. **Lubricants:** Introduction, classification of lubricants - Solid, Semi –solid and Liquid Lubricants, Properties of lubricants: Physical properties – Viscosity, Viscosity index, surface tension, Flash point and Fire point. Chemical properties – Acidity, Saponification	
5.	**Electrochemistry** Introduction – Definition and units of Ohm‟s Law, Specific Resistance, Specific Conductance, Equivalent and Molecular Conductance. Method of conductance measurement by Wheatstone bridge method, Cell constant, Conductometric titrations, Nernst equation and its application for the calculation of half-cell potential, Glass electrode, Fuel cell (H_2O_2), Advantages of fuel cell, Ostwald‟s theory of acid- base indicator.	**5**

Text books

1. Jain P.C & Jain Monica, Engineering Chemistry, Dhanpat Rai & Sons, Delhi, 1992.
2. Bhal & Tuli, Text book of Physical Chemistry, S. Chand & Company, New Delhi.
3. Shikha Agarwal, Engineering Chemistry- Fundamentals and applications, Cambridge Publishers - 2015

Reference books

1. Barrow G.M., Physical Chemistry, McGraw-Hill Publication, New Delhi.
2. O. G. Palanna , Engineering Chemistry, Tata McGraw-Hill Publication, New Delhi.
3. WILEY, Engineering Chemistry, Wiley India, New Delhi 2014.
1. S. S. Dara, Engineering Chemistry, McGraw Hill Publication, New Delhi

Engineering Chemistry Laboratory
BTBS207L

Practical Scheme

Lecture: 2 Hrs/ Batch

Evaluation Scheme

Continuous Assessment:- 60 Marks

External Exam:- 40 Marks

At least 10 experiments should be performed from the following list.

Sr. No.	Practical
1.	Determination of Hardness of water sample by EDTA method
2.	Determination of Chloride content in water sample by precipitation titration method.
3.	Determination of Dissolve Oxygen in water by Iodometric method
4.	Determination of Percent purity of Bleaching Powder.
5.	pH – metric Titration (Acid Base titration)
6.	Conductometric Titration (Acid Base titration)
7.	Surface tension
8.	Viscosity
9.	To determine Acidity of water sample
10.	To determine Calorific value of a fuel.
11.	Determination of Acid value of an oil sample.
12.	Determination of Saponification value of an oil sample.
13.	Experiment on water treatment by using Ion exchange resins.
14.	To find out P-T curve diagram of steam.
15.	To determine Alkalinity water sample.
	Reference Books: 1. Systematic experiments in Chemistry, A. Sethi, New Age International Publication, New Delhi. 2. Practical Inorganic Chemistry, A. I. Vogel, ELBS Pub. 3. Practical in Engineering Chemistry, S. S. Dara .

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD - 402 103
End Semester Examination, May 2018

Branch: B. Tech   **Semester: II**

Subject with Subject Code: Engineering Chemistry [CHM203]   **Marks: 60**

Date: 18 / 05 / 2018   **Time: 3 Hrs.**

Instructions to the Students:
1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Q.1. Attempt Any Two questions of the following.
   a) Explain Zeolite process of softening of water with its advantages and disadvantages.   06
   b) What are the types of water and explain methods to remove temporary hardness?   06
   c) Write note on: Dissolved Oxygen.   06

Q. 2. a) State Phase rule equation. Explain the term Phase involved in it with examples.   06
   b) Explain areas, curves, triple point and metastable curve of water system with phase diagram.   06

Q.3. a) Explain any two physical methods of concentrations of ore.   06
   b) What is Smelting? Explain the process of isolation of metals by Pyrolysis.   06

Q.4. Attempt Any Two questions of the following.
   a) What are the types of fuels and characteristics of good fuel?   06
   b) Describe the process of determination of % of C, H and N in the coal.   06
   c) How can you differentiate the Thick film and Extreme pressure lubrication with examples?   06

Q.5. a) What is Fermentation? Discuss how Invertage and Zymase brings the conversion of cane sugar to Ethyl alcohol.   06
   b) Explain synthesis, physical-chemical properties and uses of Naphthalene.   06

Q.6. Attempt Any Two questions of the following.
   a) What are the types of indicators? Explain Quinonoid theory of Acid Base Indicator.   06
   b) Write note on: Conductometric Titrations.   06
   c) Explain in detail Debye-Huckel theory of Strong electrolyte.   06

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Engineering Mechanics (3 Credits)
BTES203

Teaching Scheme	Evaluation Scheme
Lecture: 2 hrs/ week	Continuous Assessment:- 20 Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60 Marks

Course Objectives:
1. To know and apply fundamental Laws of Engineering Mechanics
2. To know and apply Conditions of static equilibrium to analyze given force system
3. To compute Centre of gravity and Moment of Inertia of plane surfaces
4. To compute the motion characteristics of a body/particle for a Rectilinear and Curvilinear Motion
5. To know and discuss relation between force and motion characteristics.

Course Outcomes: Students will be able to :
1. Apply the fundamental Laws of Engineering Mechanics
2. Apply Conditions of static equilibrium to analyze given force system
3. Compute the motion characteristics of a body/particle for a Rectilinear and Curvilinear Motion also Know and discuss relation between force and motion characteristics.

Unit No.	Details of Content	Hrs
1.	**Basic Concepts:** Objectives of Engineering Analysis and Design, Idealization of Engineering Problems, Simplification of real 3D problems to 2-D and 1-D domain,Basis of Assumptions, types of supports, types of load, free body diagram, Laws of Motion, Fundamental principles, Resolution and composition of a forces, Resultant, couple, moment, Varignon‟s theorem, force systems, Centroid of composite shapes, moment of inertia of planer sections and radius of gyration .	7
2.	**Equilibrium:** Static equilibrium, analytical and graphical conditions of equilibrium, Lami‟s theorem, equilibrium of coplanar concurrent forces, coplanar non concurrent forces, parallel forces, beams reactions Simple trusses (plane and space), method of joints for plane trusses, method of sections for plane trusses Friction: Coulomb law, friction angles, wedge friction, sliding friction and rolling resistance.	7
3.	**Kinematics:** Types of motions, kinematics of particles, rectilinear motion, constant and variable acceleration, relative motion, motion under gravity, study of motion diagrams, angular motion, tangential and radial acceleration, projectile motion, kinematics of rigid bodies, concept of instantaneous center of rotation, concept of relativevelocity, .	7
4.	**Kinetics:** Mass moment of inertia, kinetics of particle, D'Alembert‟s principle:applications in linear motion, kinetics of rigid bodies, applications in translation, applications in fixed axisrotation	6

5	**Work, Power, Energy:** Principle of virtual work, virtual displacements for particle and rigid bodies, work done by a force, spring, potential energy, kinetic energy of linear motion and rotation, work energyequation, conservation of energy, power, impulse momentum principle, collision of elasticbodies.	6

Reference/ Text Books

1. S. Timoshenko, D. H. Young, "Engineering Mechanics", McGraw Hill, 1995.
2. Tayal A. K., "Engineering Mechanics", Umesh Publications, 2010.
3. Bhavikatti S. S., Rajashekarappa K. G., "Engineering Mechanics", New Age International Publications, 2ndEdition.
4. Beer, Johnston, "Vector Mechanics for Engineers", Vol. 1: Statics and Vol. 2: Dynamics, McGraw Hill Company Publication, 7th edition, 1995.
5. Irving H. Shames, "Engineering Mechanics - Statics and Dynamics", Pearson Educations, Fourth edition, 2003.
6. McLean, Nelson, "Engineering Mechanics", Schaum"s outline series, McGraw Hill Book Company, N.Delhi, Publication.
7. Singer F. L., "Engineering Mechanics - Statics & Dynamics", Harper and Row Pub.York.
8. Khurmi R. S., "Engineering Mechanics", S. Chand Publications, N. Delhi

Engineering Mechanics Laboratory
BTES208L

Practical Scheme	**Evaluation Scheme**
Lecture: 4 Hrs/ Batch	Continuous Assessment:- 60 Marks
	External Exam:-40 Marks

List of Practical

Sr. No.	Name of Experiment
1.	Polygon law of coplanar forces
2.	Bell crank lever
3.	Support reaction for beam.
4.	Problems on beam reaction by graphics statics method
5.	Simple / compound pendulum
6.	Inclined plane (to determine coefficient of friction).
7.	Collision of elastic bodies (Law of conservation of momentum).
8.	Moment of Inertia of fly wheel.
9.	Verification of law of Machine using Screw jack
10	Assignment based on graphics statics solutions
11	Any other innovative experiment relevant to Engineering Mechanics.
12	Centroid of irregular shaped bodies.
13	Verification of law of Machine using Worm and Worm Wheel
14	Verification of law of Machine using Single and Double Gear Crab
15	Application of Spreadsheet Program for concepts like law of moments, beam reactions, problems in kinematics, etc

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Semester Examination – May/June 2019

First Year (I/II Semester) B. Tech. (All)

Sub: ENGINEERING MECHANICS (ME102/ME202)

Time: 03 Hours   Date: 01/06/2019   Max Marks: 60

INSTRUCTIONS TO THE STUDENTS

1. Attempt any five questions. Each question carries 12 marks.
2. Illustrate your answers with neat sketches, diagrams etc. where ever necessary.
3. Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of that data is a part of the examination.
4. If some part or parameter is noticed to be missing, you many appropriately assume it and should mention it clearly.

                                                            (Marks)

Q.1. (a) Define: Resultant force, Coplanar forces, and Moment of a force.   (6)

    (b) Find the magnitude and direction of the resultant force for a number of   (6) forces acting at a common point:

        i) 600 N inclined at 45° towards South of West.
        ii) 800 N towards South-East,
        iii) 400 N inclined at 30° towards North of East
        iv) 300 N towards North-West
        iv) 500 N towards North

Q.2. (a) List for the following: Types of beams, and types of supports.   (4)

    (b) Find the support reactions for a simply supported beam shown in fig. 1.   (8)
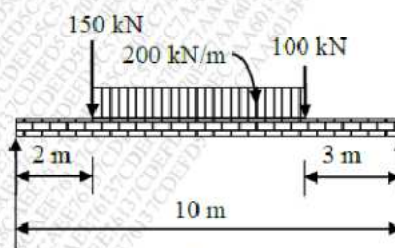
OR

    (b) Find magnitude and nature of forces in members of a truss shown in Fig.   (8)
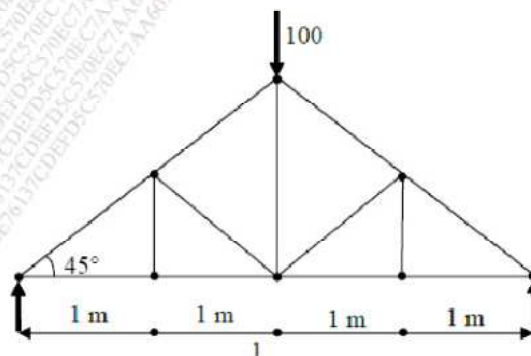
Q.3. (a) Define friction and state laws of static friction and dynamic friction. (6)

(b) A uniform ladder of 4 m length rests against a vertical wall with which it (6) makes an angle of 45°. The coefficient of friction between the ladder and the wall is 0.4 and that between ladder and the floor is 0.5. If a man, whose weight is one-half of that of the ladder, ascends it, how high will it be when the ladder slips?

Q.4. (a) Motion of a particle along a straight line is given by the equation: (4)

$$x = t^3 - 3t^2 - 9t + 12$$

Determine the time, position and acceleration of the particle when its velocity becomes zero.

(b) The distance between two stations A and B is 3.9 km. A train starts from (8) station A and reach its speed 30 kmph in 20 seconds and travels until the speed reaches 36 kmph. This speed is maintained until brakes are applied and the train is brought to rest at the second station B under the retardation of 0.9 m/s². Find the time taken to perform this journey.

Q.5. Solve any two:

(a) State and explain in brief D'Alembert's principle. (6)

(b) A motorist is traveling on a curved road of radius 200 m at a speed of 72 (6) kmph. Find the normal and tangential components of acceleration.

(c) Boat A is moving north-west at a speed of 36 km/h and the boat B is (6) moving east at speed 18 km/h. Find the magnitude and direction of the relative velocity of the boat B with respect to the boat A.

Q.6. Solve any two:

(a) State: The work-energy principle for a system of particles. (6)

(b) A man of mass 60 kg dives vertically downwards into a swimming pool (6) from a tower of height 20 m. He was found to go down in water by 2 m and then started rising. Neglect the air resistance. Find the average resistance of the water.

(c) An army truck of mass 5 tonnes (t) has tractive resistance of 150 N/t. (6) Find the power required to propel the truck at a uniform speed of 36 km.p.h. (a) up an incline of 1 in 100 ; (b) on a level track ; and (c) down an incline of 1 in 100.

$$$

2

Computer Programming in C (3 Credits)
BTES204

Teaching Scheme	Evaluation Scheme
Lecture: 2 Hrs/ week	Continuous Assessment:- 20 Marks
Mid Term Test:- 20 Marks	End Semester Exam:- 60 Marks

Course Objectives:
1. To give a broad perspective about the uses of computers in engineering industry and C Programming.
2. To develop the basic concept of algorithm, algorithmic thinking and flowchart.
3. To apply the use of C programming language to implement various algorithms and develops the basic concepts and terminology of programming in general.
4. To make familiar the more advanced features of the C language.
5. To identify tasks in which the numerical techniques learned are applicable and apply them to write programs and hence use computers effectively to solve the task.

Course Outcomes: Students will be able to:
1. Understand C programming environment..
2. Understand problem solving skills or techniques..
3. Apply logic to solve various problem statements.

Unit No.	Details of Content	Hrs
1.	**Process of programming:** Editing, Compiling, Error Checking, executing, testing and debugging of programs. IDE commands. Eclipse for C Program development, Flowcharts, Algorithms.	4
2.	**Types, Operators and Expressions:** Variablenames, Data types, sizes, constants, declarations, arithmetic operators, relational and logical operators, type conversions, increment and decrement operators, bitwise operators, assignment operators and expressions, conditional expressions precedence and orderofevaluation.	4
3.	**Control Flow:** Statements and Blocks. If-else, else-if switch Loops while and for, do-while break and continue goto and Labels. Functions and Program Structure: Basic of functions, functions returning non integers external variablesscoperules.	4
4.	**Arrays in C:** Initializing arrays, Initializing character arrays, multidimensional arrays.	4
5.	**Structures C:** Basics of structures, structures and functions arraysofstructures, Pointer in C. Pointers to integers, characters, floats, arrays, structures.	4

Reference Books/ text Book:

1. Brain W. Kernighan & Dennis Ritchie, the C Programming Language, Prentice Hall, 2nd Edition, 1988.
2. R. S. Bichkar, Programming with C, Orient Blackswan, 1st Edition, 2012.
3. Herbert Schildit, C the Complete Reference, McGraw-Hill Publication, 2000.
4. Balguruswamy, Programming in C, PHI. Yashwant Kanitkar, Let Us C, PHI

<table>
<tr><td colspan="2" align="center">Computer Programming in C Laboratory</td></tr>
<tr><td>Practical Scheme
Lecture: 4 Hrs/ Batch</td><td>Evaluation Scheme
Continuous Assessment:- 60 Marks
External Exam:-40 Marks</td></tr>
<tr><td colspan="2" align="center">List of Practical</td></tr>
<tr><td>Sr. No.</td><td>Name of Experiment</td></tr>
<tr><td>1.</td><td>Assignment on Flow Chart.</td></tr>
<tr><td>2.</td><td>A Simple program to display a message "Hello world" on screen.</td></tr>
<tr><td>3.</td><td>A Program to take input from user and display value entered by user on screen.</td></tr>
<tr><td>4.</td><td>Basic example for performing different C Operations using operator. (With and without using scanf()).</td></tr>
<tr><td>5.</td><td>Basic Program on Operator. (Using scan f ()). a) Program to find and print area, perimeter and volume of geometric objects. b) Program to check a number entered by user is Perfect number or not.</td></tr>
<tr><td>6.</td><td>Program to find maximum and minimum between two numbers given by user using if-else and conditional Operators.</td></tr>
<tr><td>7.</td><td>Program to swap two numbers.</td></tr>
<tr><td>8.</td><td>Program to print square and factorial of an entered number using while loop</td></tr>
<tr><td>9.</td><td>Program to check a number is Palindrome number</td></tr>
<tr><td>10</td><td>Program to check Armstrong number. Assignment based on graphics statics solutions</td></tr>
<tr><td>11</td><td>Program to check and generate prime numbers up to n. Any other innovative experiment relevant to Engineering Mechanics.</td></tr>
<tr><td>12</td><td>Program to find GCD of two entered numbers. Centroid of irregular shaped bodies.</td></tr>
<tr><td>13</td><td>Program to find maximum and minimum from n entered numbers. Verification of law of Machine using Worm and Worm Wheel</td></tr>
<tr><td>14</td><td>Program to print alternate numbers from n entered numbers. Verification of law of Machine using Single and Double Gear Crab</td></tr>
<tr><td>15</td><td>Program to search an element in an Array using linear and binary search. Application of Spreadsheet Program for concepts like law of moments, beam reactions, problems in kinematics, etc</td></tr>
<tr><td>16</td><td>Program to print entered numbers in ascending order using sorting.</td></tr>
</table>

17	Program to print addition, subtraction and multiplication of Matrices.
18	Program to find length of string. (With and without using library function).
19	Programs demonstrating use of Structures, Arrays of Structures and Structure containing arrays.
20	Programs demonstrating use of pointers to integers, floats, char, strings, structures and arrays Verification of law of Machine using Screw jack

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103
Winter Semester Examination – Dec. - 2019

Branch: B. Computer Engineering **Sem.:-I**
Subject:- Computer Programming in C [CP1204] **Marks: 60**
Date:- 23/12/2019 **Time:- 3 Hr.**

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Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

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(Marks)

Q.1. Attempt any two (12)

a) What is algorithm? Write down its characteristics.

b) What are the different symbols, its purpose and give its description with   which is used for different states in flow chart?

c) Explain language translators in details. Differentiate between compiler and interpreter.

Q.2. Solve the following (12)

a) Define variable. With suitable example explain variable declaration. Explain the rules for constructing variable names.

b) The length & breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area & perimeter of the rectangle, and the area & circumference of the circle.

Q.3. Attempt any two of following (12)

a) Write a program to print Fibonacci series up to the term entered by the user.
b) What is switch statement? Explain its syntax. What is the use of break statement?

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Workshop Practice
BTES206L

Teaching Scheme:	Examination Scheme:
Practical: 4 hrs/ batch	Internal Assessment: 60 Marks
	External Exam: 40 Marks

Instruction to Students:

1. Each student is required to maintain a „workshop diary" consisting of drawing / sketches of the jobs and a brief description of tools, equipment, and procedure used for doing the job.

Sr. No.	List of Practical:
1.	Wood sizing exercises in planning, marking, sawing, chiseling and grooving to make half lap joint and cross lap joint.
2.	A job involving cutting, filing to saw cut, filing all sides and faces, corner rounding, drilling and tapping on M. S. plates.
3.	A job on use of plumbing tools and preparation of plumbing line involving fixing of water tap and use of elbow, tee, union and coupling, etc.
4.	Making a small parts using GI sheet involving development, marking, cutting, bending, brazing and soldering operations- i)Tray ii) Funnel and similar articles.
5	Exercise in Arc welding (MMAW) to make a square butt joint.
6.	Exercise in Resistance (Spot) welding to make a lap joint.
7.	A job using power operated tools related to sheet metal work, Welding, Fitting, Plumbing, Carpentry and pattern making.
8.	A job on turning of a Mild Steel cylindrical job using center lathe.
	Contents:
a)	**Carpentry:** Technical Terms related to wood working, Types of wood, Joining materials, Types of joints - Mortise and Tenon, Dovetail, Half Lap, etc., Methods of preparation and applications, Wood working lathe, safety precautions.
b)	**Welding:** Arc welding - welding joints, edge preparation, welding tools and equipment, Gas welding -types of flames, tools and equipment, Resistance welding - Spot welding, joint preparation, tools and equipment, safety precautions.
c)	**Fitting and Plumbing:** Fitting operation like chipping, filing, right angle, marking, drilling, tapping etc., Fitting hand tools like vices, cold chisel, etc. Drilling machine and its operation, Different types of pipes, joints, taps, fixtures and accessories used in plumbing, safety precautions.
d)	**Sheet Metal Work:** Simple development and cutting, bending, Beading, Flanging, Lancing and shearing of sheet metal, Sheet metal machines - Bending Machine, Guillotine shear, Sheet metal joints, Fluxes and their use.
e)	**Machine shop**: Lathe machine, types of lathes, major parts, cutting tool, turning

	operations, safety precautions
	Reference/ Text Books: 1. K. C. John, Mechanical Workshop Practice, Prentice Hall Publication, New Delhi, 2010. **2.** Hazra and Chaudhary, Workshop Technology-I, Media promoters and Publisher private limited

Basic Electrical and Electronics Engineering (Audit)
BTES206

Teaching Scheme	Evaluation Scheme
Lecture: 2 Hrs/ week	Continuous Assessment:- 20 Marks
Mid Term Test:- 20 Marks	End Semester Exam:- 60 Marks

Course Objectives:
1. To know and apply basic ideas and principles of electrical engineering.
2. To identify protection equipment and energy storage devices.
3. To differentiate electrical and electronics domains and explain the operation of diodes and transistors.
4. To acquire knowledge of digital electronics
5. To design simple combinational and sequential logic circuits.

Course Outcomes: Students will be able to:
1. Define basic concepts of electrical engineering..
2. Explain devices used for energy storage and protection of electrical system.
3. Relate electrical and electronics domains and Define the operation of diodes and transistors..
4. Explain digital electronics. Illustrate simple combinational and sequential logic circuits.

Unit No	Details of Content	Hrs
1	**Elementary Electrical Concepts:** Fundamental of Electrical system Potential difference, Ohm's law, Effect of temperature on resister, resistance temperature coefficient, Electrical wiring system: Study of different wire gauges and their applications in domestic and industry. Energy Resources and Utilization: Conventional and nonconventional energy resources; Introduction to electrical energy generation from different resources, transmission, distribution and utilization, Advantages & Disadvantages of AC & DC transmission. Concept of Supply Demand, Power Factor, Need of unity factor.	7
2	**Measurement of Electrical Quantities:** Measurement of Voltage, Current, and Power; Measurement of 3 phase power; Study of Energy meters. Study of Electrical Storage devices: Batteries such as Nickel-cadmium (NiCd), Lithium- ion (Li-ion), Lithium Polymer (Li-pol.) batteries. Study of circuit breakers & Actuators (MCB & MPCB, Power Contactors & Aux contactors, Electro Mechanical & Solid state Relays)	7
3	**Diodes and Circuits:** The P-N Junction Diode, V-I characteristics, Diode as Rectifier, specifications of Rectifier Diodes, Half Wave, Full wave, Bridge rectifiers, Equations for IDCVDC VRMS, IRMS, Efficiency and Ripple Factor for each configuration. Filters: Capacitor Filter, Choke Input Filter, Capacitor Input Filter(Π Filter), Zener Diode, Characteristics, Specifications, Zener Voltage Regulator, Types of Diodes: LED, Photodiode	7
4	**Semiconductor Devices and Applications:** Transistors: Introduction, Classification, CE, CB, and CC configurations, α, β, concept of gain and bandwidth. Operation of BJT in cut-off, saturation and active regions (DC analysis). BJT as an amplifier, biasing techniques of BJT, BJT as a switch. Introduction to Digital Electronics: Number System, Basic logic Gates, Universal Gates, Boolean Postulates, De-Morgan Theorems	7

Reference/Text Books:

1. V. N. Mittal and Arvind Mittal, Basic Electrical Engineering, McGraw-HillPublication.

2. Brijesh Iyer and S. L. Nalbalwar, A Text book of Basic Electronics, Synergy Knowledgeware Mumbai, 2017.ISBN:978-93-8335-246-3

3. Vincent DelToro, Electrical engineering Fundamentals, PHI Publication, 2nd Edition,2011.

4. Boylstad, Electronics Devices and Circuits Theory, PearsonEducation.

5. Edward Hughes, Electrical Technology, PearsonEducation.

6. D. P. Kothari and Nagrath, Theory and Problems in Electrical Engineering, PHI Publication,2011.

7. B. L. Theraja, Basic Electronics, S. Chand Limited, 2007.

8. Millman Halkias, Integrated Electronics-Analog and Digital Circuits and Systems, McGraw-Hill Publication, 2000.

9. Donald Neaman, Electronic Circuit Analysis and Design, McGraw-Hill Publication, 3rd Edition.

10. Donald Neaman, Electronic Circuit Analysis and Design, McGraw-Hill Publication, 3rd Edition.

11. Printed Circuit Boards Design &Technology, Walter C. Bosshart, McGraw-Hill Publication. Note: Students are advised to use internet resources whenever required.

Seminar Guidelines

The seminar paper, including introduction, main section and concluding remarks must not exceed 16 pages. An appendix can only be added (after consultation with the instructor) if the topic requires the use of large-size figures and tables or comprehensive mathematical expositions.

The table of contents providing the deep structure has to be included directly after the title page. It has to contain page references for all paragraphs, sections and subsections, the headings of which have to be repeated at the respective locations in the text.

The introductory paragraph provides a first characterization of the topic. It answers the question why this topic is worth investigating and is concluded by an overview of the structure of the paper. In the subsequent paragraphs, firstly the theoretical foundations of the topic have to be displayed. This is usually done in the form of a review of the relevant literature in the respective field. After that, the specific topic (i.e. a case study or a specific economic or political issue) is dealt with and the results are discussed according to the criteria developed in the theoretical section. The last paragraph contains some concluding remarks. This part emphasizes and evaluates the main findings of the paper (avoid mere summaries!). The concluding remarks should also provide interesting perspectives for future re- search.

The structure of a seminar report can be as shown in schematic form below:
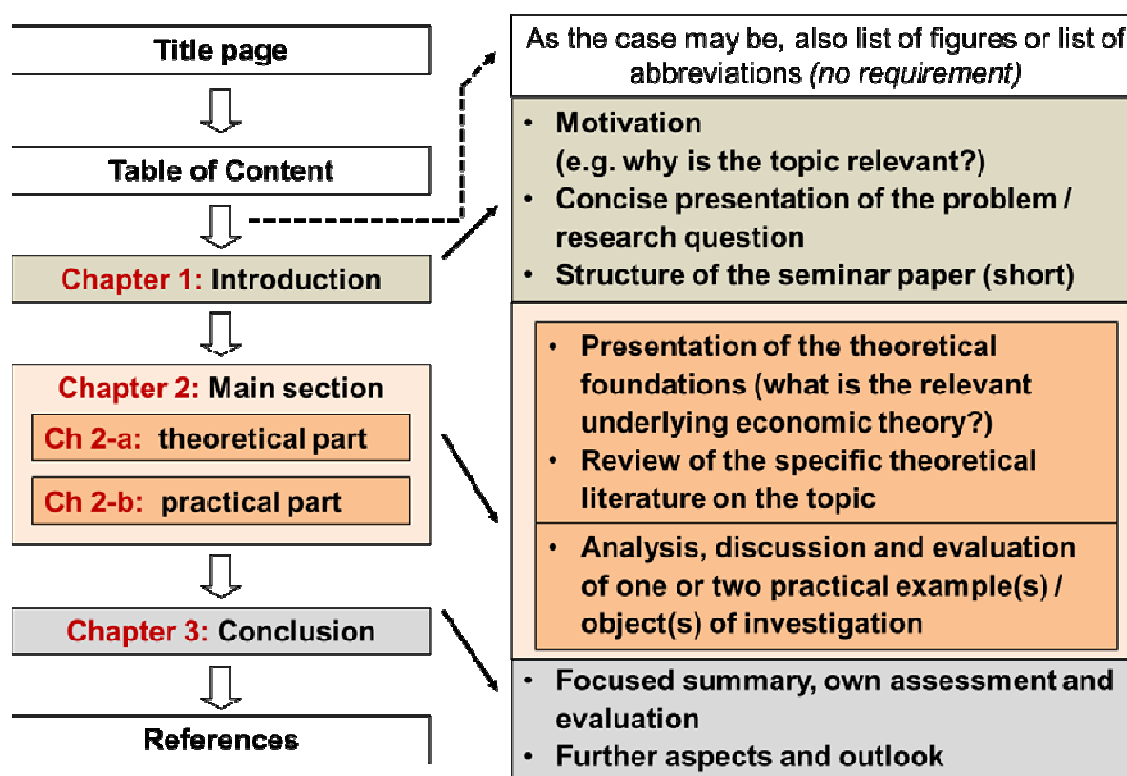
Assessment method:

Assessment heads	Weight age of final marks
Seminar report/paper (12-16 pages)	50%
Seminar Presentation (15 minutes)	25%
Use of modern analysis tools	25%

1) CREDIT SYSTEM AND MODE OF EVALUATION

All the courses in the University and affiliated colleges shall be credit based and the evaluation will be grade based. Credit based grading system is a systematic way of describing an educational programme by attaching credits to its components. The definition of credits may be based on different parameters, such as student workload, learning outcomes and contact hours. It is a student-centric system based on the student workload required to achieve the objectives of a programme. It should facilitate academic recognition of the courses and mobility of the students. Credits assignment is based on the principle that Credits can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved. Student workload consists of the time required to complete all prescribed learning activities such as attendance at lectures/practical, seminars, projects, etc. Credits are allocated to all the educational components of a study programme and indicate the quantity of work each component requires to achieve its specific objectives. Evaluation is an important component of any teaching-learning process. The University gives emphasis on continuous evaluation with considerable freedom to the teacher in deciding the mode of evaluation of the students. The performance of the student is documented by a grade at the end of the semester. The grading scale ranks the students on a statistical basis. Therefore, statistical data on student performance in his/her class is a prerequisite for applying the grading system.

2. Course Credits

In general, a certain quantum of work measured in terms of credits is laid down as the requirement for a particular degree. The student acquires credits by passing courses every semester, the amount of credits associated with a course being dependent upon the number of hours of instruction per week in that course. There are mainly two types of courses in the University - lecture courses and laboratory courses. Lecture courses consist of lecture (L) and tutorial (T) hours. Laboratory courses consist of practical (P) hours. As per the AICTE norms, the credit (C) for a course is dependent on the number of hours of instruction per week in that course, as given below: (1) 1h/week of lecture (L) or tutorial (T) = 1 credit (2) 2h/week of Practical's (P) = 1 credit (3) Credit (C) for a theory course = No. of hours of lectures per week + No. of hours of tutorials per week = L + T (4) Credits (C) for a Laboratory course = ½ x No. of hours of laboratory course per week Credits will be assigned

to Industrial Training, Seminar, Projects and other mandatory course requirements also and these will be mentioned in the respective syllabi. There may be some non-credit requirements. A student is required to earn credits as mentioned in the syllabus.

3. Evaluation

The weightages of different modes of assessments shall be as under.

In-Semester evaluation				
	Continuous mode (CA)	**Mid Semester Exam**	**End Semester Exam**	**Components of continuous mode**
Theory	20%	20%	60%	Quizzes, class tests (open or closed book but minimum 2 in the semester if only mode of CA), home assignments, group assignments, viva-voce discussions
Practical's	60%	-	40%	Attendance, completion of experiments viva -voce, journal submission, assignments, project, experiments, announced test

4) In-Semester Evaluation

j) It is expected that the teacher would conduct at least two formal assessments of the students under the continuous assessment mode in a Semester

k) The teacher will announce at the beginning of the respective course the method of conducting the assessments under the continuous mode and the assignment of marks and inform the same to the Director- Academics or Dean in University or Principal/ HoD in affiliated college in the first week of the semester. The same may be also displayed on the University/ College Portal.

l) The teacher shall keep the record of the continuous assessment of a class at least for three years and produce it to the Principal of the college or Director-Academics, if needed.

m) In-semester performance of all students, both continuous assessment and mid semester examination should be displayed on notice board as well on College / University Portal and sent to the academic office of the University/ College by the teacher before the end-semester examination. e) For the theory courses, there will be one Mid-semester test for

each course to be held as per the schedule fixed in the Academic Calendar of the University/college, preferably in the eighth week of the semester

n) A candidate who has not appeared for the in-semester continuous tests and/or midterm examination in one or more subjects shall be considered to have not completed the course and will have to re-register for the respective subjects/course in the following year.

5) End-Semester examination

The semester end examination will cover the full syllabus of the course and will be conducted as per the University time table at the end of each semester.

5.1) Pass and Fail

(Revised as per the Item 8 of the Minutes of the Academic Council Meeting held on 19th August 2017)

(a) The candidates who obtain 40% and more marks in a subject head of the end semester examination AND 40% or more of the total marks of a subject head shall be deemed to have passed the respective subject head.

(b) The candidates who obtain less than 40% of marks in a subject head of the end semester examination and less than 40% the total marks of a subject head shall be deemed to have failed in the respective subject head (Grade FF).

5.2) Grades

(a) The performance of a student shall be documented by a Letter grade. Each letter grade has a Grade point associated with it. The Grades and Grade points shall be assigned to each head of passing and both will be indicated in the mark-list of the semester examination.

(b) A teacher shall assign absolute marks to all the in-semester tests and the end-semester tests for the respective subject head. The teacher shall collate the marks in the mid semester and continuous mode examinations convert them to prescribed 20% and 20% mark, respectively and submit the same to the office.

(c) The total marks (continuous assessment + mid-semester + end-semester) of a candidate in a subject head are converted into a letter grade, based on the relative performance of the student in the class taking examination in the subject. The performance of the students who have passed the said subject shall be considered for the allotment of the relative grade on statistical basis.

Letter Grade	Grade Point
EX	10
AA	9.5
AB	9
BB	8.5
BC	8.0
CC	7.5
CD	7
DD	6.5
DE	6.0
EE	5

(d) The grades to be allotted in the case of students who fail or do not appear at the end semester examination shall be as under.

Letter Grade	Grade Point	Explanation
FF	0	The candidate fails in subject head. The candidate will be allowed to take end-semester repeat or subsequent examinations as per rule
XX	0	(i) The candidate has not kept term for the subject head due to attendance less than requisite 75%. (ii) The in-semester performance of the candidate is very poor. Further see 7.3.5(g) In the above cases, the candidate has to repeat the respective course by paying the fees in the following year
I	0	The candidate has kept term for the subject head, has taken all the internal examinations with satisfactory performance, but has failed to take the end-semester examination due to genuine reasons. The candidate will be allowed to take subsequent examinations as per rule
FR	0	The candidate has exhausted all the permissible chances to clear the end-semester examinations. The candidate has to register for the respective semester again for all the subject heads or will be out of the respective degree course as per the rules
DR	0	(i) The candidate hasn't participated in academic programme. (ii) The candidate has taken a drop for the subject head;- provided he/she intimates the same (i or ii) at least 7 days in advance of

		the commencement of the end-semester examination for the respective year.

(e) Grades FF and I are place-holders only and do not enter into CGPI/SGPI calculations directly. These grades get converted to one of the regular grades after the end-semester examination.

(f) A candidate with an FR grade has appeared for maximum number of permissible six end semester examinations and has to re-register for that course by paying the appropriate fees.

(g) I grade will not be continued beyond the permissible number of six consecutive end semester examinations, irrespective of whether the candidate fails to take any of these exams.

(h) 'XX' Grade: The grade XX in a course is awarded if – (i) a candidate does not maintain the minimum 75% attendance in the Lecture/Tutorial/Practical classes, (ii) the student has bad or incomplete in-semester records, for example, a candidate missing all internal tests and mid-semester examination, etc., (iii) a candidate indulges in a misconduct/uses unfair means in the examination, assignments, etc., of a nature serious enough to invite disciplinary action in the opinion of the teacher. (Note: Award of the XX grade in the case of g(iii) above shall be done by Disciplinary Action Committee (DAC)).

(i) The names/ roll numbers of students to be awarded the XX grade should be communicated by the teacher to the Academic office as per academic calendar before the last date of submission of the application for end-semester examination

5.3. Awarding the grades

(1)   The grading scale ranks the students on a statistical basis on the basis of the overall performance of the students of a given class in the given subject head. Therefore, statistical data on students' performance is a prerequisite for applying the grading system. While assigning grades in a given subject head, it is essential to know the average marks (AM) obtained by the students who have passed the subject head and the highest marks (HM) obtained in the same subject head.

(a) EX Grade shall be awarded to the candidate(s) who scored highest mark (HM) in the concerned subject head provided the marks obtained are 80% or higher in the given subject head.

(b) If the average marks (AM) obtained by the students who have passed the subject head is such that $60\% \leq AM < 70\%$, the interval AM shall be awarded grade CC and the other grades shall be decided as follows:

(c) AA, AB, BB grades shall be decided between the AM and HM by dividing the range in equal intervals.

(d) CC, CD, DD, DE and EE grades shall be decided between the AM and minimum marks required for passing the head (i.e. 40%) by dividing the range in equal intervals.

(2) If the average marks (AM) obtained by the students who have passed the subject head is ≥ 70%, the interval AM shall be awarded grade BB and the other grades shall be decided as follows:

(a) AA, AB and BB grades shall be decided between the AM and HM by dividing the range in equal intervals.

(b) BC CC, CD, DD, DE and EE grades shall be decided between the AM and minimum marks required for passing the head (i.e. 40%) by dividing the range in equal intervals

(3) Illustration of award of different grades are explained in the following examples:

i) Example 1: HM = 92, AM = 76

Hence, IL = (76-40)/6 = 6, IU = (92-76)/3 = 5.33 ≈ 5

ii) Example 2: HM = 84, AM = 62

Hence, IL = (62-40)/5 = 4.4 ≈ 4, IU = (84-62)/4 = 5.5 ≈ 6

Marks distribution for different grades

Sr. No.	Letter Grade	Example 1 (HM=92, AM= 76, IL = 6, IU = 5	Example 2 (HM=84, AM= 62, IL = 4, IU = 6
1	EE	40 to 45	40 to 43
2	DE	46 to51	44to45
3	DD	52 to 57	48to 50
4	CD	58 to 63	52 to 55
5	CC	64to 69	56to 62
6	BC	70 to 76	63 to 68
7	BB	77 to 81	69 to 74
8	AB	82 to 86	75 to 80
9	AA	87 to 91	81 to 83
10	EX	92	84

6. Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)

(a) Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by Semester Grade Point Average (SGPA) which is a weighted average of the grade points obtained in all the courses taken by the student in the semester and scaled to a maximum of 10. (SGPI is to be calculated upto two decimal places). A Semester Grade Point Average (SGPA) will be computed for each semester as follows:

First Year B. Tech Engineering

$$SGPA = \frac{(\sum_{i=1}^{n} c_1 g_1)}{(\sum_{i=1}^{n} c_1)}$$

Where

'n' is the number of subjects for the semester,

'ci' is the number of credits allotted to a particular subject, and

'gi' is the grade-points awarded to the student for the subject based on his performance as per the above table.

SGPA will be rounded off to the second place of decimal and recorded as such.

(b) Cumulative Grade Point Average (CGPA):

An up to date assessment of the overall performance of a student from the time he entered the Institute is obtained by calculating Cumulative Grade Point Average (CGPA) of a student. The CGPA is weighted average of the grade points obtained in all the courses registered by the student since s/he entered the Institute. CGPA is also calculated at the end of every semester (up to two decimal places). Starting from the first semester at the end of each semester (S), a Cumulative Grade Point Average (CGPA) will be computed as follows:

$$CGPA = \frac{(\sum_{i=1}^{m} c_1 g_1)}{(\sum_{i=1}^{m} c_1)}$$

Where,

'm' is the total number of subjects from the first semester onwards up to and including the semester S
'ci' is the number of credits allotted to a particular subject, and
'gi' is the grade-points awarded to the student for the subject based on his/ her performance as per the above table.

CGPA will be rounded off to the second place of decimal and recorded as such.

(c) The CGPA, SGPA and the grades obtained in all the subjects in a semester will be communicated to every student at the end of every semester/ beginning of the next semester.

(d) When a student gets the grade 'FF', or I' in any subject head during a semester, the SGPA and CGPA from that semester onwards will be tentatively calculated, taking only 'zero' grade point for each such 'FF' or 'I' grade. When the 'FF' grade(s) has/ have been substituted by better grades after the repeat examination or subsequent semester examination, the SGPA and CGPA will be recomputed and recorded.

7. Supplementary End-Semester Examination

(Revised as per the item 7 of Minutes of the Academic Council meeting held on 19th August 2017)

(1) For those candidates who fail in a subject head or are eligible for appearing at the repeat examination, A Supplementary End-Semester Examination of odd semester will be conducted before the regular End semester examination of the even semester.

(2) A Supplementary End-Semester Examination of even semester will be conducted before the regular End semester examination of the odd semester.

(3) The marks obtained by candidates in the in-semester examinations (continuous assessment and mid-term examination) will be carried forward in such cases.

(4) Grading the performance in the Supplementary Examination: The grades will be assigned as per 3.5 and 3.6 above

(5) Revaluation of end-semester and Supplementary examination: Candidate's performance in these examinations will be announced on web portal of the University and after one month of such announcement the grade statements will be sent to the concerned Department for distribution to the students. Those who want to get the photocopy of their answer books are required to pay the requisite fee. Revaluation of these examinations shall be allowed. Those who would like to have the revaluation of their answer books are required to pay a requisite fee.

(6) Remedial examination the candidate will have an option of appearing for an Online Remedial Examination, after the declaration of each End-semester examination results, to pass the subject head where he/she has failed in regular end-semester examination of the semester. The candidate will get only EE grade if he clears the remedial examination and can continue with the next semester. However, for improving his grade in the same subject head, the candidate will have an option of appearing in the 'same' subject in the Supplementary Examination before the regular end-Semester examination.

8. Passing of a Semester Examination

A candidate shall be declared as 'PASSED' any semester examination if he/she has

(a) Cleared all heads of passing by securing grades EE or higher in all the heads;

(b) Passed all the heads of passing such as project, seminar, training, etc as per the rules;

(c) Satisfactorily completed all the mandatory requirements of the course;

(d) paid all the University/college dues;

(e) No case of indiscipline pending against him/her.

9. Eligibility for the Award of a Degree

A candidate shall be declared eligible for the award of a degree, if he/ she has cleared all the semester examinations as given in (6) above.

10. Award of Degree of Honours

Major Degree

The concept of Major and Minors at B.Tech level is introduced , to enhance learning skills of students, acquisition of additional knowledge in domains other than the discipline being pursued by the student, to make the students better employable with additional knowledge and encourage students to pursue cross-discipline research.

A. Eligibility Criteria for Majors

i. The Student should have Minimum CGPA of 7.5 up to 4th Semester
ii. Student willing to opt for majors has to register at the beginning of 5th Semester
iii. The Student has to complete 5 additional advanced courses from the same discipline specified in the curriculum. These five courses should be of 4 credits each amounting to 20 credits. The students should complete these credits before the end of last semester.
iv. Student may opt for the courses from NPTEL/ SWAYAM platform. (if the credits of NPTEL/ SWAYAM courses do not match with the existing subject proper scaling will be done).

Student complying with these criteria will be awarded B. Tech (Honours) Degree.

B. Eligibility Criteria for Minors

i. The Student should have Minimum CGPA of 7.5 up to 4th Semester
ii. Student willing to opt for minors has to register at the beginning of 5th Semester
iii. The Student has to complete 5 additional courses from other discipline of their interest, which are specified in the respective discipline. These five courses should be of 4 credits each amounting to 20 credits.
iv. Student may opt for the courses from NPTEL/ SWAYAM platform. (if the credits of NPTEL/ SWAYAM courses do not match with the existing subject proper scaling will be done)

Student complying with these criteria will be awarded with B. Tech Degree in ------- Engineering with Minor in ------ --Engineering. (For e.g.: B. Tech in Civil Engineering with Minor in Computer Engineering)