



Dr. V. P. ShetkariShikshanMandal's PadmabhooshanVasantraodadaPatil Institute of Technology, Budhgaon– 416304 STUDENT'S INFORMATION MANUAL (Academic Year: 2022-23) Semester-I Teaching and Evaluation Scheme for First Year B. Tech. Group B



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 collaboration 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 / F FIRST YEAR ENGINEERING

(With effective from Academic Year 2022-23)





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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.
- ✤ 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 B Semester I

(Computer Science and Engineering/ Computer Science and Engineering (AI&DS) / Electronics and Computer Science Engineering)

Sr.	Course	Name of Course	Te S	eachi chen	ng 1e	Ev	aluati	on Sch	eme	Caradit
NO	Code		L	Т	P	CA	MSE	ESE	Total	Credit
1	BTBS101	Engineering Mathematics-I	3	1	-	20	20	60	100	4
2	BTBS102	Engineering Chemistry	3	1	-	20	20	60	100	4
3	BTES103	Engineering Mechanics	2	1	-	20	20	60	100	3
4	BTES104	Computer Programming in C	3	-	-	20	20	60	100	2
5	BTES105	Workshop Practices	-	-	4	60	-	40	100	2
6	BTES106	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
7	BTES107L	Computer Programming Laboratory	-	-	2	60	-	40	100	1
8	BTBS108L	Engineering Chemistry Laboratory	_	-	2	60	-	40	100	1
9	BTE109L	Engineering Mechanics Laboratory	-	-	2	60	-	40	100	1
		Total	13	3	10	370	80	400	850	18



COURSE CO-ORDINATOR

Sr. No.	Course	Corse Code	Course Coordinator	Email id	Contact No.
1	Engineering Mathematics-I	BS101	Dr. P. B. Kadam- Lugade	pbklugade.ge@pvpitsangli.edu.in	9970041879
2	Engineering Chemistry	BS102	Ms. D. A. Lavate	dalavate.ge@pvpitsangli.edu.in	8788009691
3	Engineering Mechanics	ES103	Ms. T. T. Shinde	tejaswinishinde.civil@pvpitsangli.edu.in	<mark>9405581370</mark>
4	Computer Programming in C	ES104	Mrs. N. R. Chaus	nilofar.chaus@pvpitsangli.edu.in	<mark>9960806786</mark>
5	Workshop Practice	ES105L	Mr. S. S. Gunjate	ssgunjate.mech@pvpitsangli.edu.in	<mark>9021040696</mark>
6	Basic Electrical and Electronic Engineering	ES106	Mr. M. B. Dongare Mr. V. J. Tamboli	mandarvdongare.ele@pvpitsangli.edu.in tambolivasim007@gmail.com	8390099553 9021114809

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

CLASS TEACHERS

Sr.	Class/	Class Taashans	Dan autor ant	Emailid	Contact
No.	Div	Class Teachers	Department		No.
01	Ι	Mr. A.A.Shaikh	Mathematics	aashaikh.ge@pvpitsangli.edu.in	9623819950
02	II	Mrs. M.S.Patil	CSE	mayuri.patil4017@gmail.com	9673784017
03	III	Mr. S. E.Narwade	Communication Skill	senarwade.ge@pvpitsangli.edu.in	9527057048
04	IV	Ms. D. A. Lavate	Chemistry	dalavate.ge@pvpitsangli.edu.in	8788009691
05	V	Mrs. A. V. Patil	Mathematics	avpatil.ge@pvpitsangli.edu.in	9561212878
06	VI	Mrs. S. P. Mandale	Mathematics	spmandale.ge@pvpitsangli.edu.in	9172035381



COURSE TEACHERS

SEM-I

Division/ Class Course	П	IV	VI
Engineering Mathematics-I	Dr. Mrs. A. A. Patil	Dr. Mr. P. B. Kadam Lugade	Mrs. S. P. Mandale
Engineering Chemistry	Miss. P. B. Patil	Mrs. D. A. Lavate	Mrs. D. A. Lavate
Engineering Mechanics	Mr. A. A.Kusnale	Mr.M. S. Kakamare	Mr. A. A. Kusnale
Computer Programming in C	Mrs. M. S. Patil	Mrs. M. S. Patil	Mrs. S. S. Patil
Basic Electrical and Electronic Engineering	T. S. Bandgar	Mrs. A. B. Patil	T. S. Bandgar



ACADEMIC CALENDAR



Dr V P S S M' s Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon (Sangli) First Year Engineering Department

Academic Calendar 2022-23 SEM I

		3

OVEM	BER 20	22		Aca	demic D	ays: 9
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				

Induction Program :- 4th Nov.-19th Nov.2022 Guru Nanaka Jayanti:- 8th Nov. 2022 Late Vasantdada Patil Jayanti :- 13th Nov.2022 Commencement of classes:-21stNov. 2022 List of non-Reported students :- 30th Nov.2022

ANUA	RY 2023	3		Aca	demic Da	ys: 23
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

Mid Semester Exam:-11thJan.-13thJan.2023 Makar Sankranti :- 14th Jan. 2023 Republic Day :- 26th Jan.2023 Parents Meet :- 28thJan.2023 2^{mDafaultar students list :- 31st Jan 2023}

2ndDefaulter students list :- 31st Jan.2023

MARCH	2023			Acade	emic Day	s: 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	1.8	19
20	21	22	23	24	25	26
27	28	29	30	31		

End of Classes:-6th March 203

Practical Exam.:-8th March-10th March 2023 Dhulivandan:-7thMarch 2023

Gudi Padwa:-22nd March 2023

End Semester Examination :- 27th March -5th April 2023 Ram Navami:- 30th March 2023

ECEM	BER 202	22		Acader	nic Days	3: 25
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	

Late MadanBahu Patil Jayanti :- 2nd Dec.2022 Christmas:- 25th Dec. 2022

CA1 Evaluation: - 22th Dec. -24th Dec.22

 $1^{\rm st}$ Defaulter students list :- $31^{\rm st}$ Dec. 2022

EBRU	ARY 202	23		Acad	lemic Da	ys: 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				-	

Late Vishnu Anna Punyatithi :- 12th Feb. 2023 Mahashi vratari:-18th Feb.2023

Chhatrapati Shivaji Maharaj Jayanti:-19th Feb.2023 Late Vasantdada Patil Punyatithi:- 21stFeb.2023

CA2 Evaluation: - 20th Feb. -25th Feb.2023

 $3^{rd}\,$ Defaulter students list :- $28^{th}\,Feb.2023$

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
ioou i i	indiag					
EM II s)r. Bab ivery T	starts :- 1 asahed / 'hursday	10th Apr Ambedka Guest L	il 2023 ar Jayanti ecture Se	:- 14th ries on	April 20 Value Ec	23 lucatio
EM II s Dr. Bab very T	starts :- 1 asahed A hursday	10th Apr Ambedka Guest L	ril 2023 ar Jayanti secture Se	:- 14th ries on	April 20 Value Ec	23 lucatio

Dr. D. V. Ghewade

Principal

Dr. Anushka A.Patil HoD, First Year Engineering Dr. K. K. Pandyaji Dean Academic





Dr. Vasantraodada Patil Shtekari Shikshan Mandal's Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli) FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech) TIMETABLE 2020-21 SEM-I

With Effect From 28/11/2022

TIME TABLE

	And A built)	Padmabhoo FIRST	Dr. Vasa Oshan Vas YEAR ENG TII	ntraodada Patil Shtekari santraodada Pa Budhgaon. (S GINEERING DEPA METABLE 2022	Shikshan Itil Ins angli) ARTME -23 SE	Manda titute NT (F	of To Y. B.	echnology Tech)	Vith Effect From 28/11/2022
CI	lass: Fi	E-II	Branch: -	Compute	er Sci. and Engg	. (CSE) CH	IEMIS	STRY Grou	p CL-05
Sr. No	TIME IN	HRS	MONDAY	TUESDAY	WEDNESDAY	THU	RSDAY	2	FRIDAY	SATURDAY
1	10:00 TO 1	1:00	B1- ES103 (T)/LVH B2- ES105L	BS102-	B1- ES108L B2- ES105L	B1- B2- 102	ES105L	E	S106-ABP	LVH-Library Visit Hour
2	11:00 TO 1	2:00	B3- BS107L	BS101-A	AP B3- 102(T)/101(T)	B3- ES1	03(T) /	LVH E	3S101-AAP	*-Extra
	12:00 TO 1	2.45		LONG	RECESS					<u>.</u>
3	12.45 TO 1	3:45	ES104- MSP	B1-BS107	L ES104-MSP	ES1	04- MS	P B1	- 102(T) /101(T)	# - Alternate
4	13:45 TO 1	4:45	BS101-AAP	B3- ES105	ES103-AAK	BS	5102-	DZ	B3- ES105L	(T)-Tutorial
	14:45 TO 1	5:00		SHORT	RECESS					
5	15:00 TO 1	6:00	B1- ES105L	*B1- ES109	L *BS101-AAP	# TPC) Sessio	n/ E	S106-TSB	# M-M / Counselor Int.
6	16:00 TO 17:00		B2- BS107L B3- ES108L	*B2- ES109 *B3- ES109	BS102-	Guest Cour	Lec. / M nselor Ir	-M/ nt. E	S103-AAK	Mentee –Mentor or Counselor Interaction
AAP	-AAPATIL			AAK-A A	Kusnale MSP- M	S Patil	AB	P-ABF	atil T	SB- T S Bandgar
Sr. N	o. Course Code	N	ame of the Course Sr	No. Course Code	Name of the Cours	ie	Sr. No. C	ourse Cod	e Name	of the Course
1	BS101	Engin	eering Mathematics-I	4 ES104	Computer Programming in C		7	BS107L	Engineering Chen	nistry Laboratory
2	BS102	Engin	eering Chemistry	5 ES105L	Workshop Practices		8	ES108L	Engineering Mech	nanics Laboratory
3	ES103	Engin	eering Mechanics	6 ES106	Basic Electrical & Electronics	Engineering	9	ES109L	Computer Program	nming in C Laboratory*

(Dr. S. L. Patil) Time-Table Coordinator (F. Y. B. Tech.) (Dr. Mrs. A. A. Patil) HOD (F. Y. B. Tech.)

(Dr. K. K. Pandyaji) Academic Dean (Dr. D. V. Ghewade) Principal



	and all	्र इन्हें प्रगांव)	FIRST	YE	AR EN	GINE MET	ERING DEPA ABLE 2022	ARTMEN -23 SE	NT (I M-I	₹. Y .	B. Teo	:h)	With Effect From 28/11/2022
Cla	ass:	FE	C-IV	Branch:	Con	np. Sci	. and	Engg.(CSE-	AIDS)	CI	HEM	ISTR	Y Group	CL-06
Sr. No.	TIM	E IN	HRS	MONDAY		TUESDA	Y	WEDNESDAY	THU	RSDA	Y	FF	RIDAY	SATURDAY
1	10:00	то	11:00	BS102-DAL	D1	- ES103(T)/LVH	BS102-DAL	D1- E	S108	L	BS10)1- PBKL	LVH-Library Visit Hour
2	11:00	то	12:00	ES103-MSK		D3- BS10	7L	ES104-MSP	D3- 102	(T) /10	D1(T)	ES1	06- ABP	*-Extra
	12:00	TO	12.45			LONG	;	RECESS						
3	12.45	TO	13:45	D1- 102(T)/101(T)	В	S101-P	BKL	D1- BS107L	BS10	1- PB	KL	ES1	04- MSP	# - Alternate
4	13:45	то	14:45	D2- ES103(1)/LVF D3- ES105L	E	S103-N	ISK	D2- ES108L D3- ES105L	ES10)4-M	SP	BS1	02- DAL	(T)-Tutorial
	14:45	то	15:00			SHOR	т	RECESS						N- 18
5	15:00	то	16:00	ES106-TSB	1	D1- ES10	5L	*D1- ES109L	# TPO	Sessi	on /	D1-	ES105L	# M-M / Counselor Int
6	16:00	то	17:00	*BS101 PBKI		D2- BS10 D3- ES10	7L 8L	*D2- ES109L *D3- ES109L	Gues M-M / Co	t Lec. unsele	/ or Int.	D2-10 D3-ES	2(T)/101(T) 103(T) /LVH	Counselor Interaction
BK	L-P B	Kad	am-Lu	gade DAL-DAL	avate	MSK	-MSKa	kmare MSP	M S Patil		ABP- /	A B Pati	і тѕв	- T S Bandgar
Sr. N	lo. Cour	se Co	de ?	Name of the Course	Sr. No.	Course Cod	e	Name of the Cour	se	Sr. No.	Course	Code	Name of	the Course
1	B	S101	Engi	ineering Mathematics-I	4	ES104	Compt	iter Programming in C		7	BS10	7L Eng	ineering Chemis	try Laboratory
2	B	S102	Engi	neering Chemistry	5	ES105L	Works	hop Practices		8	ES10	SL Eng	incering Mecha	nics Laboratory
3	E	\$103	Engi	neering Mechanics	6	ES106	Basic I	Electrical & Electronics	Engineering	9	ES10	9L Con	nputer Programi	ning in C Laboratory*



	and a second	Anun -		FIRST	YE	AR EN TI	Bud GINE MET	dhgaon. (Sang ERING DEPART ABLE 2022-23	gli) Me Sl) ENT (F E M-I	. Ү. В.	Tech)	With Effect From 28/11/2022	
Cla	ass:	FE-	71	Branch:	Ele	ctronic	s an	d Comp. Sci. I	Eng	gg.(EC	cs) c	HEMISTRY	Group CL-07	
šr. No.	TIN	IE IN HR	s	MONDAY		TUESDA	x	WEDNESDAY		THURS	DAY	FRIDAY	SATURDAY	
1	10:0	0 TO 11:	00	ES103-AAK	E	3S101- S	PM	F1- ES103 (T)/LVH	E	ES104	-SSP	F1- ES108L F2- ES105L	LVH-Library Visit Hour	
2	11:00 TO 12:00		:00 TO 12:00 BS101-SPM		BS102-DAL		AL	F3- BS107L		ES106-ABP		F3- 102(T) /101(T)	*-Extra	
	12:0	0 TO 12.	45			LONG)	RECESS						
3	12.4	5 TO 13:	45	BS101- SPM	F1 F2	- 102(T)/1 - ES103 (T	01(T))/LVH	ES103-AAK		F1- BS	107L 108L	BS102-DAL	# - Alternate	
4	13:4	5 TO 14:	45	BS102-DAL	1.5	F3-ES10	5L	ES104-SSP		F3-ES	105L	ES104- SSP (T)-Tutorial		
	14:4	5 TO 15:	00		-	SHOR	Т	RECESS						
5	15:0	0 TO 16:	00	F1- ES105L F2- 102(T) /101(T)	E	S106- 1	TSB	F1- ES105L F2- BS107L	# Gi	TPO Se uest Leo	ssion / c. / M-M	*F1- ES109L *F2- ES109L	# M-M / Counselor In Mentee – Mentor or	
	16:0	01017:	10	F3- ES103(T)/LVH		55101-3	51-161	F3-ES108L	1	Counse	lor Int.	*F3- ES109L	Counselor Interaction	
SP	M- S	P Manda	е	DAL-D A Lavate	A	AK-A A K	usnale	SSP-S S Patil	I.	ABP-	A B Pati	I TSB- T	S Bandgar	
Sr	No.C	ourse Code		Name of the Course	Sr. No.	Course Code		Name of the Course		Sr. No.	Course Coo	ie Name of	the Course	
Ľ	1	BS101	Eng	ineering Mathematics-I	4	ES104	Comput	ter Programming in C		7	BS107L	Engineering Chemis	try Laboratory	
	2	BS102	Eng	ineering Chemistry	5	ES105L	Worksh	op Practices		8	ES108L	Engineering Mechan	nics Laboratory	
L	3	ES103	Eng	ineering Mechanics	6	ES106	Basic E	lectrical & Electronics Engin	neerin	g 9	ES109L	Computer Programm	ning in C Laboratory*	
	Tim	(Dr. S.	L. F	Patil) (l ordinator	Dr. N	Irs. A. A. HOD	Patil)	(Dr. K. K. Pa	ndy	aji)		(Dr. D. V. Gh	ewade)	

DEPARTMENTAL1) <u>MENTORING ACTIVITY:</u>

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.**

<u>Note:</u>

- 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, advice, 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 /<u>Mentor/ Head of First</u> <u>Year Engg. Dept. (/Dr. Mrs. A. A. Patil)</u> 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.

<u>CO/EXTRA CURRICULAR ACTIVITIES</u>:

Paper/PPT Presentation, Nirmiti, Vasantotavand 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 <u>Class Teacher</u>.



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 us social and vari 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 housefacility is available for visiting parents. The hostels have all necessary facilitiessuch 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

Our Recruiters

The **Training and Placement (TandP)** cell at PVPITguide 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
- ✤ Motivatethem 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 skillthrough 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.

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	Engineering Mathematics – I (4 Credits) BTBS101	
Teachi	ig Scheme Evaluation Scheme	
Lecture	: 3 hrs/ week Continuous Assessment:- 20 Marks	
Tutoria	: 1 hr/ week Mid Term Test:-20 Marks	
	End Semester Exam:-60 Marks	
Course	Objectives:	
1. To lind 2. To ser 3. To 4. To 5. To Course Studen 1. Ap aris 2. Dec exp	know the application of the matrix technique (Linear algebra) to find solutions of syste ear equations arising in many engineering problem know and apply the concept partial derivatives and their applications to Maxima/ Mi ies expansion of multi valued functions. understand Computation of Jacobian of functions of several variables and their applica engineering problems identify and sketch of curves in various coordinate system. evaluate multiple integrals and their applications to area and volume. Outcomes: ts will be able to : ply the matrix technique (Linear algebra) to find solutions of system of linear equations sing in many engineering problem monstrate the concept partial derivatives and their applications to Maxima/ Minima , series pansion of multi valued functions.	em o nima tions
3. Co pro 4. Ide	blems ntify and sketch of curves in various coordinate system.	
3. Co pro 4. Ide Evaluate	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume	
3. Co pro 4. Ide Evaluate Unit No.	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content	Hrs
3. Co pro 4. Ide Evaluato Unit No. 1.	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications.	Hr: 6
3. Co: prc 4. Ide Evaluate Unit No. 1. 2.	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1.	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s	Hr 6 6
3. Co: prc 4. Ide Evaluate Unit No. 1.	mpute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton"s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler"s Theorem for functions containing two and three variables (with proofs); Total	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1.	npute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s Theorem for functions containing two and three variables (with proofs); Total derivatives: Change of variables.	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1. 2.	npute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s Theorem for functions containing two and three variables (with proofs); Total derivatives; Change of variables. Applications of Partial differentiation	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1. 2. 3.	Inpute Jacobian of functions of several variables and their applications to engineering blems in tify and sketch of curves in various coordinate system. Intify and sketch of curves in various coordinate system. Intige integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s Theorem for functions containing two and three variables (with proofs); Total derivatives; Change of variables. Applications of Partial differentiation Jacobians - properties; Taylor''s and Maclaurin''s theorems (without proofs) for functions of two variables; Maxima and minima of functions of two variables;	Hr 6 6
3. Co. prc 4. Ide Evaluate Unit No. 1. 2. 3.	npute Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton"s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler"s Theorem for functions containing two and three variables (with proofs); Total derivatives; Change of variables. Applications of Partial differentiation Jacobians - properties; Taylor"s and Maclaurin"s theorems (without proofs) for functions of two variables; Maxima and minima of functions of two variables; Lagrange"s method of undetermined multipliers.	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1. 2. 3.	mpute Jacobian of functions of several variables and their applications to engineering blems nify and sketch of curves in various coordinate system. e multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non- homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s Theorem for functions containing two and three variables (with proofs); Total derivatives; Change of variables. Applications of Partial differentiation Jacobians - properties; Taylor''s and Maclaurin''s theorems (without proofs) for functions of two variables; Maxima and minima of functions of two variables; Lagrange''s method of undetermined multipliers.	Hr 6 6
3. Co. pro 4. Ide Evaluate Unit No. 1. 2. 3.	 Input Jacobian of functions of several variables and their applications to engineering blems ntify and sketch of curves in various coordinate system. multiple integrals and their applications to area and volume Details of Content Linear Algebra- Matrices Inverse of a matrix by Gauss-Jordan method; Rank of a matrix; Normal form of a matrix ; Consistency of non-homogeneous and homogeneous system of linear equations ; Eigen values and eigen vectors ; Properties of eigen values and eigen vectors (without proofs); Cayley- Hamilton''s theorem (without proof) andits applications. Partial Differentiation Partial derivatives of first and higher orders; Homogeneous functions – Euler''s Theorem for functions containing two and three variables (with proofs); Total derivatives; Change of variables. Applications of Partial differentiation Jacobians - properties; Taylor''s and Maclaurin''s theorems (without proofs) for functions of two variables; Maxima and minima of functions of two variables; Lagrange''s method of undetermined multipliers. Reduction Formulae and Curve Tracing Tracing of the curves given in Cartesian parametric and polar forms 	Hr 6 6



Multiple Integrals

Double integration in Cartesian and polar co-ordinates; Evaluation of double integrals by changing the order of integration and changing to polar form; Triple integral; Applications of multiple integrals to find area as double integral, volume as triple integral and surface area.

Text Books

5.

- 1) Higher Engineering Mathematics by B. S. Grewal, Khanna Publishers, New Delhi
- 2) Advanced Engineering Mathematics by Erwin Kreyszig, John Wiley and Sons, New York
- 3) A Course in Engineering Mathematics (Vol I) by Dr. B. B. Singh, Synergy Knowledgeware, Mumbai.
- 4) A Text Book of Applied Mathematics (Vol I and II) by P. N. Wartikar and J. N. Wartikar, Pune, Vidyarthi Griha Prakashan, Pune.
- 5) Higher Engineering Mathematics by H. K. Das and Er. RajnishVerma, S. Chand and CO. Pvt. Ltd., New Delhi.

Reference Books

- 1) Higher Engineering Mathematics by B. V. Ramana, Tata McGraw-Hill Publications, New Delhi.
- 2) A Text Book of Engineering Mathematics by Peter O' Neil, Thomson Asia Pte Ltd., Singapore.
- 3) Advanced Engineering Mathematics by C. R. Wylie and L. C. Barrett, Tata Mcgraw-Hill Publishing Company Ltd., New Delhi.

General Instructions

- The tutorial classes in Engineering Mathematics-I are to be conducted batchwise. Each class should be divided into three batches for the purpose.
- ➤ 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.
- > The minimum number of assignments should be eight covering all topics.

8



RAIGAD -402 103 Semester Winter Examination – Dec 20	19
Branch: B. Tech. (Common to all) Subject:- Engineering Mathematics – I (MATH 101) Date:- 11/12/2019	Semester:- I Marks: 60 Time:- 3 Hr.
 Instructions to the Students Attempt any five questions of the following. Illustrate your answers with neat sketches, diagram etc., wherever neads. If some part or parameter is noticed to be missing, you may appropriate assume it and should mention it clearly 	cessary. itely
Q.1	
(a) Determine the consistency of the set of equations:	
x - 2y + z = -5; $x + 5y - 7z = 2$; $3x + y - 5z = 1$.	[6 Marks
(b) Find the eigen values and eigen vectors of the matrix $A = \begin{bmatrix} 3 & 1 & 4 \\ 0 & 2 & 6 \\ 0 & 0 & 5 \end{bmatrix}$.	[6 Marks
Q.2	
(a) If $y = x^n \log x$, prove that $y_{n+1} = \frac{n!}{x}$.	[6 Marks
(b) Using Taylor's theorem,	
Prove that $\log sinx = \log sina + (x - a)cota - \frac{1}{2}(x - a)^2 cosec^2 x + \cdots$	[6 Marks
Q.3 Solve any TWO:	
(a) If $u = \log(x^3 + y^3 + z^3 - 3xyz)$, show that $\left(\frac{\partial}{\partial x} + \frac{\partial}{\partial y} + \frac{\partial}{\partial z}\right)^2 u = \frac{-9}{(x+y+z)^2}$	z) ² . [6 Marks
(b) If z is a homogeneous function of degree n in x and y , prove that	
$x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} = n(n-1)z.$	[6 Marks
(c) If $z = f(x, y)$ where $x = e^{u} + e^{-v}$ & $y = e^{-u} - e^{v}$,	
then show that $\frac{\partial x}{\partial u} - \frac{\partial x}{\partial v} = x \frac{\partial x}{\partial x} - y \frac{\partial z}{\partial y}$.	[6 Marks
Q.4	
(a) If $u = \frac{yz}{v}$, $v = \frac{zx}{v}$, $w = \frac{xy}{v}$, show that $\frac{\partial(u,v,w)}{\partial(v-x)} = 4$.	[4 Marks]



in measuring its major and minor axes.	[4 Marks]
(c) Find the points on the surface $z^2 = xy + 1$ nearest to the origin.	[4 Marks]
Q.5 Solve any TWO:	
(a) Evaluate the integral $I = \int_0^1 \int_0^x e^{x+y} dy dx$.	[6 Marks]
(b) Change the order of integration and evaluate $\int_0^{\frac{\pi}{2}} \int_x^{\frac{\pi}{2}} \frac{\cos y}{y} dx dy$.	[6 Marks]
(c) Evaluate the integral $I = \int_0^a \int_0^x \int_0^{x+y} e^{x+y+z} dz dx dy$.	[6 Marks]
Q.6	5222 5222
(a) State D' Alembert's ratio test, and hence check the convergence of the series: $\sum_{n=1}^{\infty} \left(\frac{n^2}{2^n} + \frac{1}{n^2}\right).$	[6 Marks]
(b) State Cauchy's root test, and hence check the convergence of the series: $\sum \frac{[(2n+1)x]^n}{n^{n+1}} (x > 0)$	[6 Marks]



	Engineering Chemistry (4 Credit) BTBS102	
Teaching	Scheme Evaluation Scheme	
Lecture: 3	hrs/week Continuous Assessment - 20 Marks	
Tutorial 1	he/week Mid Term Test-20 Marks	
i utoriur. i	End Semester Exam:-60 Marks	
Course O	bjectives:	
1. To kn	ow the demonstration of knowledge of Chemistry in technical fields.	
2. To br	ing adaptability to new developments in Engineering Chemistry and to acquire the	e skills
requir	red to become a perfect engineer.	
3. To un	derstand and develop the importance of water in industrial and domestic usage.	
4. To ide	entify the concepts of Chemistry to lay the ground work for subsequent studies in v	various
engin	eering fields.	
5. To ex	amine a fuel and suggest alternative fuels.	
Course O	utcomes: Students will be able to:	
1. Demo	nstrate knowledge of chemistry in technical fields.	
2. Bring	adaptability to new developments in Engineering Chemistry and to acquire the	e skills
requi	red to become a perfect engineer.	
3. Devel	op the importance of water in industrial and domestic usage.	
4. Identi	fy the concepts of Chemistry to lay the ground work for subsequent studies in v	various
engin	eering fields.	
5. Exam	ine a fuel and suggest alternative fuels.	
Unit No.	Details of Content	Hrs
	Water Treatment	
1.	Introduction, Hard and Soft water, Disadvantages of hard water -In Domestic	
	use, In Industrial use, Softening of water - Zeolite process, Ion exchange	6
	process, Hot Lime -Soda process, water characteristics- Hardness and its	
	determination by EDTA method, Dissolved oxygen (DO) and its determination	
	by Winkler's method.	
•	Phase Rule	
2.	Phase Rule, statement, Explanation of the terms – Phase, Component, Degrees of	_
	Treedom. One component system – Water and Sulphur. Reduced Phase rule equation,	7
	I wo component alloy system- Phase diagram of Sliver- Lead alloy system.	
	Corrosion and its control	
	Introduction, Fundamental reason of corrosion, Electrochemical Corrosion(Wet	
3.	corrosion), Direct Chemical Corrosion(Dry corrosion), Factors affecting the	6
	rate of corrosion, Types of corrosion- Galvanic, Microbiological Corrosion,	
	Methods to minimise the rate of corrosion- Proper designing, Cathodic and	
	Anodic protection method.	
	Fuels and Lubricants	
	Fuels: Introduction, Classification of fuel, Calorific value of a fuel,	
4.	Characteristics of a good fuel, solid fuel- Coal and Various types of Coal,	7
	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,	
	Liquid Lubricants, Properties of lubricants: Physical properties – Viscosity, Viscosity index, surface tension, Flash point and Fire point. Chemical	



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 (H2O2), Advantages of fuel cell, Ostwald"s theory of acid- base indicator.

6

Text books:

5.

- 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.
- 4. S.S.Dara, Engineering Chemistry, McGraw Hill Publication, New Delhi.



	Engineering Chemistry Laboratory
	BTBS108L
Practica	I Scheme Evaluation Scheme
Lecture:	2hrs/ Batch Continuous Assessment:- 60 Marks
Externa	Exam:-40 Marks
	List of Experiments: (reriorm any to Experiments)
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.
16.	Determination of rate of corrosion of metal.
Referen	e Books:
1. S	ystematic experiments in Chemistry, A. Sethi, New Age International Publication, New
	elhi.
2. P	ractical Inorganic Chemistry, A. I. Vogel, ELBS Pub.

3. Practical in Engineering Chemistry, S. S. Dara.



	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY End Semester Examination – Summer 2022	Y,LONERE	
	Course: B. TechSem: IISubject: Engineering ChemistrySubject codeMarks: 60Date: 20/08/2022DuratiInstructions to the Students:1. All the questions are compulsory.	: BTBS202 on: 3.45 Hr.	
	 Draw neat diagram wherever necessary Figures to right indicates full marks 	5032344 8500333	
	5. Tigares to right marcues full marks	(Level/CO)	Marks
Q. 1	Solve Any TWO of the following.		
A)	Explain in details Zeolite process for softening of water with its advantages and disadvantages.	2	6
B)	Explain the determination of hardness of water by EDTA method.	8.88 1 989	6
C)	Discuss disadvantages of hard water in Domestic and Industrial use.	2	6
	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Q.2	Solve Any TWO of the following.		
A)	write Phase rule equation. Explain the term Phase and Component with suitable examples.	3 1	6
B)	Draw the Phase diagram of Water System and discuss line/curves, areas and triple point in it	2	6
C)	Describe Phase diagram of two components Ag – Pb alloy system.	2	6
Q. 3	Solve Any TWO of the following.		
A)	Define Corrosion and explain Cathodic protection method to minimize the rate of corrosion.	2	6
B)	Discuss direct chemical corrosion (dry corrosion) occurs due to oxygen.	2	6
C)	Write a note on: Galvanic corrosion.	1	6
C 4			
Q.4	Solve Any TWO of the following.		
A)	What are Fuels? How are they classified? Write characteristics of a good fuel.	1	6
B)	Describe determination of percentage of moisture content and volatile matter of Proximate analysis of coal.	2	6
C)	Discuss any three Physical properties of lubricants.	1	6
0.5	Solve Any TWO of the following		
A)	Explain the method of conductance measurement by Wheetstone's Bridge	2	6
B)	Explain Conductometric titration with any two avamples	2	6
C)	Describe Octuald's theory of Asid Ress Indicator	2	6
000	Describe Ostward's theory of Acid-Dase Indicator.	1	v



Engineering Mechanics (3 Credits) BTES103

Teaching Scheme Lecture: 2hrs/week Tutorial:1hr/week **Evaluation Scheme** 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 fundamental Laws of Engineering Mechanics
- 2. Apply Conditions of static equilibrium to analyze given force system
- 3. Compute Centre of gravity and Moment of Inertia of plane surfaces
- 4. Compute the motion characteristics of a body/particle for a Rectilinear and Curvilinear Motion
- 5. Know and discuss relation between force and motion characteristics

Unit	Details of Content	Hrs
110.	Basic Concepts	
1	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 sectionsand radius of gyration	7
2	Module2: Equilibrium Static equilibrium, analytical and graphical conditions of equilibrium, Lami"s theorem, equilibrium of coplanar concurrent forces, coplanar non concurrent forces, parallel forces, beams reactionsSimple 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	Module3: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	Module4: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
	Module5: Work, Power, Energy	



6

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,2nd Edition.
- 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 and Dynamics", Harper and Row Pub. York.
- 8. Khurmi R. S., "Engineering Mechanics", S. Chand Publications, N. Delhi



Engineering Mechanics Laboratory				
-	BTES109L			
Practica	Practical Scheme Evaluation Scheme			
Lecture:	2hrs/ Batch Continuous Assessment:- 60 Marks			
Extern	al Exam:-40 Marks			
Sr. No.	Students are expected to satisfactorily complete any ten experiments listed below.			
	List of Practical's/Experiments/Assignments			
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 conceptslike law of moments, beam reactions,			
	problems in kinematics, etc			











Q. 5 Solve Any Two of the following. A) A motorist travelling at a speed of 70 kmph suddenly applies a breaks and CO 5 6 halts after skidding 50 m. Determine A) The time required to stop the car, B) The coefficient of friction between the tyres and road. B) An automobile is moving at a speed of 70 kmph, when the breaks are fully CO 5 6 applied causing all four wheels to skid. Determine the time required to stop the automobile, a) On concrete road, coeff. of friction = 0.75b) On ice for which coeff. of friction = 0.08C) A ball of mass 10 kg moving with a velocity of 20 m/s impinges directly on a CO 5 6 ball of mass 20 kg at rest. The first ball, after impinging, comes to rest. Find the velocity of the second ball after the impact and the coefficient of restitution. *** End ***



Computer Programming in C (2 Credits) BTES104

Teaching Scheme Lecture: 2 hrs/ week

Evaluation Scheme

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. Gain a broad perspective about the uses of computers in engineering industry and C Programming.
- 2. Develop the basic concept of algorithm, algorithmic thinking and flowchart.
- 3. Apply the use of C programming language to implement various algorithms and develops the basic concepts and terminology of programming in general.
- 4. Use the more advanced features of the C language.
- 5. 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.

Unit	Details of Content	Hrs
No.		
1.	Processofprogramming: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 arrays of structures, Pointer in C. Pointers to integers, characters, floats, arrays, structures	4



Special Note: Topic of Pointers in C is only for lab exercises and not	
for end semester examinations.	



Reference/Text Books:

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

Computer Programming in C: Laboratory					
	BTES107L				
Practica	I Scheme Evaluation Scheme				
Practica	<i>l</i> : 2hrs/ Batch Continuous Assessment:- 60 Marks				
Externa	I Exam:-40 Marks				
1	Assignment on Flow Chart				
2	A Simple program to display a message "Hello world" on screen				
3	A Program to take input from user and display value entered by user on screen				
	Basic example for performing different C Operations using operator. (With and without				
4	using scanf())				
5	Basic Program on Operator (Using scanf())				
 	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				
	Program to find maximum and minimum between two numbers given by user using if-				
6	else and conditional Operators				
7	Program to swap two numbers				
8	Program to print square and factorial of an entered number using while loop				
0	Program to check a number is Palindrome number or not				
10	Program to check a number is rainfulone number of not.				
10	Program to check Armstrong number.				
11	Program to check and generate prime numbers up to n.				
12	Program to find OCD of two entered numbers.				
13	Program to find maximum and minimum from n entered numbers.				
14	Program to print alternate numbers from n entered numbers.				
15	Program to search an element in an Array using linear and binary search.				
16	Program to print entered numbers in ascending order using sorting.				
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				
20	arrays.				







	int main()		
	{		
	$ \begin{array}{l} \text{mt a}=-2;\\ ++a: \end{array} $		
	if (a)		
	printf("H1 this is CPC "); else		
	printf("C is Programming language ");		
	}		
B)	a) Hi this is CPC b) error c) C is Programming language d) None Define variable ? Define constant ? Give the difference between	(Understand)	6
	variable & constant with suitable example .		
C)	Write a Program to a read a number & display its reverse using	(Synthesis)	6
	while loop.		
Q. 3	Solve any two from the following		
A)	write a program to accept two numbers & compute quotient and	(Synthesis)	6
	remainder display the same.		
B)	Define function ? explain function signature with suitable example.	(Understand)	6
	{ Hint: function signature is also called as function prototype)		
C)	Explain the following with proper example	(Understand)	6
	i) extern variable ii) Static variable iii) size qualifier		
Q.4	Solve any two from the following		
A)	Define string ? Write a program to copy first 16 characters from	(Synthesis)	6
	"Cpc is very easy programming language" into string abc.		
	{ Hint : consider "Cpc is very easy programming language" as a		
	string with valid name}		
B)	Define Array ? Define one subscripted variable ? explain Dynamic	(Analysis)	6
	initialization of one subscripted variable with suitable program		
	{ Hint : one subscripted variable is also known as 1 dimensional		
	array }		
C)	why one should use goto statement in a c programming ?	(Synthesis)	6
	Explain with suitable program.		
Q. 5	Solve any two from the following		
A)	Define Structure ? Explain how one should access structure fields	(Understand)	6
	explain with suitable program.		

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	Basic Electrical and Electronics Engineering (Audit)			
Teach	DIEDIVO Fing Schome Evolution Scheme			
Lectu	re: 2brs/week Continuous Assessment: 50 Marks			
Cour	so Objectives:			
	se Objectives:			
2 7	To Identify protection equipment and energy storage devices			
3. 7	To differentiate electrical and electronics domains and explain the operation of di	odes		
a	nd transistors.			
4. 7	To acquire knowledge of digital electronics			
5. 7	o design simple combinational and sequential logic circuits.			
Cour	se Outcomes: Students will be able to:			
1. A	Apply basic ideas and principles of electrical engineering.			
2. I	dentify protection equipment and energy storage devices.			
3. I	Differentiate electrical and electronics domains and explain the operation of diode	es		
a	nd transistors.			
4. A	Acquire knowledge of digital electronics.			
5. I	Design simple combinational and sequential logic circuits.			
Unit	Details of Content	Hrs		
No.				
	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			
1	and industry. Energy Resources and Utilization: Conventional and	4		
-	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 unityfactor.			
	Measurement of Electrical Quantities:			
	Measurement of Voltage, Current, and Power; Measurement of 3 phase			
	power; Study of Energy meters. Study of Electrical Storage devices:			
2	Batteries such as Nickel-cadmium (NiCd), Lithium- ion (Li-ion), Lithium	4		
	Polymer (Li-pol.) batteries. Study of circuit breakers & Actuators (MCB &			
	MPCB, Power Contactors & Aux contactors, Electro- Mechanical & Solid			
	state Relays)			
	Diodes and Circuits:			
	Ine P-N Junction Diode, V-I characteristics, Diode as Rectifier,			
	specifications of Rectifier Diodes, Half Wave, Full wave, Bridge rectifiers,			
3	Equations for IDC V DC V KMS, IKMS, Efficiency and Kipple Factor for	4		
	each configuration. Filters: Capacitor Filter, Choke Input Filter, Capacitor			
	Voltage Regulator Types of Diodes: I ED Photodioda			
	voltage Regulator, Types of Diodes. LED, Fliotodiode			
	Semiconductor Devices and Applications:			
A	Transistors: Introduction, Classification, CE, CB, and CC configurations, α ,	1		
4	β , concept of gain and bandwidth. Operation of BJT in cut-off, saturation	4		



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

Reference/Text Books:

- 1. V. N. Mittal and Arvind Mittal, Basic Electrical Engineering, McGraw-Hill Publication.
- 2. BrijeshIyer 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, Pearson Education.
- 5. Edward Hughes, Electrical Technology, Pearson Education.
- 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. MillmanHalkias, Integrated Electronics-Analog and Digital Circuits and Systems, McGraw-Hill Publication, 2000.
- 9. Donald Neaman, Electronic Circuit Analysis and Design, McGraw-Hill Publication, 3rdEdition.
- Donald Neaman, Electronic Circuit Analysis and Design, McGraw-Hill Publication, 3rd Edition.
- 11. Printed Circuit Boards Design and Technology, Walter C. Bosshart, McGraw-Hill Publication.

Note: Students are advised to use internet resources whenever required



	Workshop Practices			
	BTES105			
Practica	I Scheme Evaluation Scheme			
Lecture:	4hrs/Batch Continuous Assessment:- 60 Marks			
	External Exam:- 40 Marks			
Instruct	ions to the student:			
Each stu	dent is required to maintain a "workshop diary" consisting of drawing / sketches of the			
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			
2.	drilling and tanning on M. S. plates			
3	A job on use of plumbing tools and preparation of plumbing line involving fiving of			
5.	water tan and use of elbow tee union and coupling etc			
4	Making a small parts using GL sheet involving development marking cutting			
	hending 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 (Snot) welding to make a lan joint			
7	A job using nower operated tools related to sheet metal work. Welding Fitting			
/.	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	ce/ Text Books:			
1. K.	C. John, Mechanical Workshop Practice, Prentice Hall Publication, New Delhi, 2010.			
2. Haz	tra and Chaudhary, Workshop Technology-I, Media promoters and Publisher private			
	ncu			



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 = $\frac{1}{2}$ 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	EndSemesterExam	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,completionofexperimentsviva-voce,journalsubmission,assignments,project,experiments,announced test

4) In-Semester Evaluation

- a) It is expected that the teacher would conduct at least two formal assessments of the students under the continuous assessment mode in a Semester
- b) 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.
- c) 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.
- d) In-semester performance of all students, both continuous assessment and midsemester 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

e) 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.

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).

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 endsemester tests for the respective subject head. The teacher shall collate the marks in the midsemester 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	Explanation	
Grade	Point		
		The candidate fails in subject head. The candidate will be	
FF	0	allowed to take end-semester repeat or subsequent examinations	
		as per rule	
		(i) The candidate has not kept term for the subject head due to	
		attendance less than requisite 75%. (ii) The in-semester	
XX	0	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	
		The candidate has kept term for the subject head, has taken all	
	0	the internal examinations with satisfactory performance, but has	
I		failed to take the end-semester examination due to genuine	
		reasons. The candidate will be allowed to take subsequent	
		examinations as per rule	
		The candidate has exhausted all the permissible chances to clear	
		the end-semester examinations. The candidate has to register for	
FR	0	the respective semester again for all the subject heads or will be	
		out of the respective degree course as per the rules	



		(i) The candidate hasn't participated in academic programme.
		(ii) The candidate has taken a drop for the subject head;-
DR	0	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

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 $60\% \le AM < 70\%$, 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

 \geq 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 = $(92-76)/3 = 5.33 \approx 5$

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

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

Marks distribution for different grades

Sr.	Letter	Example 1	Example 2
No.	Grade	(HM=92, AM= 76, IL = 6, IU = 5	(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:

$$SGPA = \frac{(\sum_{i=1}^{n} c1g1)}{\sum_{i=1}^{n} c1}$$

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:

$$CGPA = \frac{(\sum_{i=1}^{m} c1g1)}{\sum_{i=1}^{m} c1}$$

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 Honors'

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)