Dr. V. P.S.S.M's
Padmabhooshan Vasantraodada Patil Institute of Technology,
Budhgaon, Sangli

Student Information Manual
(SIM) 2024-25 SEM-II

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:2024-25)

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 youngfaculty 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

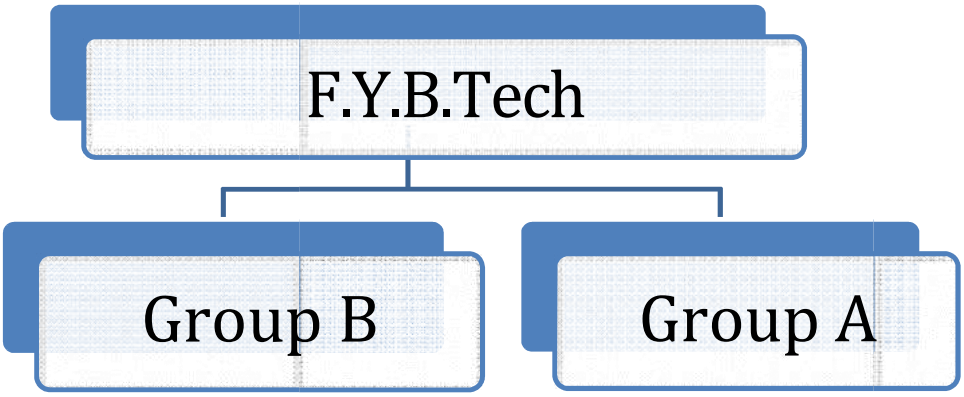
1. To create an environment where students can ascertain that career in engineering matchestheir interests and abilities.
2. To impart strong fundamental and technical knowledge in the basic science subjects toenable them to prepare themselves for successful career.
3. To inculcate habit of innovation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

GOALS

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

STRUCTURE OF FIRST YEAR ENGINEERING

(With effective from Academic Year 2024-25)



Group B

1. **Computer Science and Engineering**
2. **Computer Science and Engineering (AI&DS)**
3. **Chemical Engineering**
4. **Civil Engineering**
5. **Instrumentation & Control Engineering**

Group A

1. **Mechanical Engineering**
2. **Electronics and Computer Science Engineering (ECS)**
3. **Electronics & Telecommunication Engineering (E&Tc)**
4. **Electrical and Computer Engineering (ECE)**

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 andUniversity.

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 campusactivities through shouting/ misconduct is strictly not allowed.
- Use of personal unauthorized electronic gadgets without permission in departmentpremises 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 bestefforts 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 withwritten application.
- Help to conserve energy, Switch off fans and tubes before leaving the classroom.
- Keep the Classrooms clean.

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 thecover/ 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 beforeleaving 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

Semester II											
Sr. No.	**Course Category**	**Course Code**	**Course Title**	**Teaching Scheme**			**Evaluation Scheme**				**Credit**
				L	**T**	**P**	**CA**	**MSE**	**ESE**	**Total**	
1	BSC	24AF1000BS201	Engineering Mathematics–II	3	0	0	20	20	60	100	3
2	BSC	24AF2PHYBS202	Engineering Physics	3	0	0	20	20	60	100	3
3	BSC	24AF2PHYBS203L	Engineering Physics Lab	0	0	2	60	--	40*	100	1
4	ESC	24AF2EGRES204	Engineering Graphics	2	0	0	20	20	60	100	2
5	ESC	24AF2EGRES205L	Engineering Graphics Lab	0	0	2	60	--	40*	100	1
6	ESC	24AF1000ES206	Basic Electrical and Electronics Engineering	3	0	0	20	20	60	100	3
7	ESC	24AF1000ES207L	Basic Electrical and Electronics Engineering Lab	0	0	2	60	--	40*	100	1
8	ESC	24AF2CMEES208	Basic Civil and Mechanical Engineering	3	0	0	20	20	60	100	3
9	BSC	24AF1EEEES209	Energy and Environmental Engineering	2	0	0	50	--	--	50	AU
10	IKS	24AF1000IK210	IKS Bucket#	2	0	0	60	--	40†	100	2
11	VSEC	24AF1000VS211	Design Thinking	2	0	0	60	--	40†	100	2
12	CC	24AF1000CC212A 24AF1000CC212B 24AF1000CC212C	A. Integrated Personality Development B. NSS-II C. Health and Wellness	1	0	2	60	--	40†	100	2
	Total			**21**	**0**	**8**	**510**	**100**	**540**	**1150**	**23**

COURSE CO-ORDINATOR

Sr. No.	Course	Course Code	Course Coordinator	Email id	Contact No.
1	Engineering Mathematics-II	BS201	Mr. P. S. Patil	pramod.patilrut@gmail.com	9764713256
2	Engineering Physics	BS202	Mr. A. A. Shaikh	aashaikh.ge@pvpitsangli.edu.in	9623819950
3	Engineering Graphics	ES204	Mr. A. J. Pawar	ajpawar@pvpitsangli.edu.in	7769033396
4	Basic Electrical & Electronics Engineering	ES206	Ms. K. S. Malidwale	karishmamulani2014@gmail.com	8806199783
			Ms. S. G. Bharati	shreyasbharti@gmail.com	9975242128
5	Basic Civil & Mechanical Engineering	ES208	Mr. C. D. Patil	cdpatil.mech@pvpitsangli.edu.in	7507035940
			Mr. S. P. Patil	sppatil.civil@pvpitsangli.edu.in	7875409856
6	Energy & Environment Engineering	ES209	Ms. A. B. Awate	amrutaaawate02@gmail.com	895664201
7	Design thinking	VS211	Ms. A. P. Lad	aplad@pvpitsangli.edu.in	9970741470
8	IKS Bucket	IK210	Dr. S. L. Patil	slpatil.ge@pvpitsangli.edu.in	9423269875
9	Integrated Personality development	CC212A	Mr. A. K. Chavan	akchavan.ge@pvpitsangli.edu.in	9689043199

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	**II**	Ms. S.A. Jagtap	Chemistry	shivanishinde1296@gmail.com	9175832423
02	**IV**	Mr. A. A. Shaikh	Physics	aashaikh.ge@pvpitsangli.edu.in	9623819950
03	**VI**	Mrs. R. V. Kabadge	Mathematics	rkabadge1996@gmail.com	7756052103
04	**VIII**	Ms. A. B. Awate	Chemistry	amrutaaawate02@gmail.com	895664201
05	**X**	Dr. S. A. Jagadale	Physics	drsandhya.jagadale@gmail.com	8329371213

COURSE TEACHERS

SEM-II

Division Class → Course ↓	II	IV	VI	VIII	X
Engineering Mathematics-I	Mrs. Dr. A.A. Patil	Mr. P. S. Patil	Mrs. R.V. Kabadge	Mrs. A. K. Patil	Ms. S. S. Kadam
Engineering Physics	Dr. S. L. Patil	Mr. A. A. Shaikh	Mrs. Dr. S. A. Jagadale	Mr. A. A. Shaikh	Mrs. Dr.S.A. Jagadale
Engineering Graphics	Ms. A.P. Lad	Mr. C. D. Patil	Mr. C. D. Patil	Mr.A.J. Pawar	Mr.A.J. Pawar
Basic Electrical Engineering	Mr.M.V. Dongare	Ms. K.S. Malidwale	Ms. K.S. Malidwale	Mr.M.V. Dongare	Ms. K.S. Malidwale
Basic Electronics Engineering	Ms. S. G. Bharati	Ms. S. G. Bharati	Ms. S. G. Bharati	Ms. S. G. Bharati	Ms. A.B. Bhairshetti
Basic Civil Engineering	Mr.R.S. Patil	Mr. R.S. Patil	Mrs.S. M. Patil	Mr S.P. Patil	Mrs. U. S. Kasbekar
Basic Mechanical Engineering	Mrs.S. P. Mane	Mr. C. D. Patil	Mr.S.B. Khandagale	Mr. S.J. Adsul	Mrs.S. P. Mane
Energy & Environment Engineering	Ms. S. A. Jagtap	Dr. D. A. Lavate	Ms. A. B. Awate	Ms. A. B. Awate	Ms. S. A. Jagtap
Design thinking	Ms. A.P. Lad	Mr. S.S. Kulkarni	Mr. N. P. Ambole	Mr.S.S. Kulkarni	Mrs. A.P. Lad
IKS Bucket	Mrs.Dr.S.A Jagadale	Dr. S. L. Patil	Dr. S. L. Patil	Mrs. Dr.S.A. Jagadale	Mr. A. A. Shaikh
Integrated Personality development	Ms. M.F. Mujawar	Mr. S. E. Narwade	Mr.D.S. Bharsakale	Mr. S. E. Narwade	Ms. M.F. Mujawar

ACADEMIC CALENDAR 2024-25 SEM-II

Dr V P S S M's

Padmabhooshan Vasantraodada Patil Institute of Technology,

Budhgaon , (Sangli)

First Year Engineering Department

Academic Calendar 2024-25 (SEM II)

March 2025 - Academic Days: 22

M	T	W	T	F	S	S
					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 Vasantdada Punyatithi	1st Mar 2025
Commencement of Classes	3rd Mar 2025
Science Day Celebration	5th Mar 2025
Women's Day	8th Mar 2025
Dhulivandan	14th Mar 2025
Rangpanchmi	19th Mar 2025
Industrial Visit	21th -22th Mar.2025
Gudi Padwa	30th Mar 2025
Ramzan Id	31st Mar 2025
1st Defaulter List	31st Mar 2025

April 2025 - Academic Days: 21

M	T	W	T	F	S	S
	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				

Shri Ram Navami	6th Apr 2025
Mahavir Jayanti	10th Apr 2025
CA -I	8th - 12th Apr 2025
Dr.Babasaheb Ambedkar Jayanti	14th Apr 2025
Good Friday	18th Apr 2025
Annual Socal Gathering	
2nd Defaulter List	30th Apr 2025

May 2025 - Academic Days: 23

M	T	W	T	F	S	S
			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	

Maharashtra Day	1st May 2025
Buddha Pournima	12th May 2025
Mid Semester Exam	2nd - 7th May 2025
Parents Meeting	24th May 2025
Sports Week	
3rd Defaulter List	31st May, 2025

June 2025 - Academic Days: - 16

M	T	W	T	F	S	S
						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						

CA – II	10th -14th June 2025
End of Classes	20th June 2025
Final Defaulter List	20th June 2025
Practical Examination	23th - 28th June 2025
End Semester Exam	24th – 3rd July 2025
Bakri Id	7th June 2025

Dr. Anushka A. Patil	Dr. K. K. Pandyaji	Dr. B. S. Patil
HoD, First Year Engg.	Dean Academic	Principal

Academic Activity Activity Exam Holidays

	Dr.Vasantraodada Patil Shetkari Shikshan Mandal's **Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli)** **FIRST YEAR ENGINEERING DEPARTMENT** **TIME TABLE 2024-25 SEM-II**	**With Effect From 03/03/2025**

Dr. Vasantraodada Patil Shetkari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil Institute of Technology, Sangli

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)

TIME TABLE 2024-25 SEM-II

Curriculum as per NEP-2020

W.E.F. 03/03/2025

Class: FE-**II** **Branch: -** Computer Science & Engg.(CSE) **GROUP(A)** **CL-05**

SrN	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	# ES208- **RSP/SPM**	ES204 - **APL**	**B1- ES207L B2- CC212A B3- BS203L**	IK210- **SAJ**	ES209- **PBP**	# M-M / Counselor Int. Mentee –Mentor or Counselor Interaction
2	11:00 TO 12:00	BS201- **AAP**	BS202- **SLP**		BS202- **SLP**	BS201- **AAP**	
	12:00 TO 12.45		***LONG***	***RECESS***			
3	12.45 TO 13:45	ES206- **MVD**	**B1- CC212A B2- BS203L B3- ES205L**	IK210- **SAJ**	BS201- **AAP**	BS202- **SLP**	***LVH/IITST***
4	13:45 TO 14:45	VS211- **APL**		ES206- **SGB**	ES204- **APL**	# ES206- **MVD/ SGB**	
	14:45 TO 15:00		***SHORT***	***RECESS***			
5	15:00 TO 16:00	**B1- BS203L B2- ES205L B3- ES207L**	ES209- **PBP**	*BS201- **AAP**	**B1- ES205L B2- ES207L B3- CC212A**	ES208- **SPM**	LVH-Library Visit Hour IITST- IIT Spoken Tutorial
6	16:00 TO 17:00		VS211- **APL**	ES208- **RSP**		CC212A- **SEN**	

AAP-/AAPatil **SLP-SLPatil** **APL-/APLad** **MVD-MVDongare** **SGB-SGBharati** ***-Extra**

PBP-/PBPatil **SAJ-/SAJagdale** **ABC** **SPM-/SPMane** **RSP-RSPatil** **#-Alternate**

SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	5	ES205L	Engineering Graphics Laboratory	9	ES209	Energy and Environment Engineering
2	BS202	Engineering Physics	6	ES206	Basic Electrical & Electronics Engineering	10	IK210	IKS Bucket
3	BS203L	Engineering Physics Laboratory	7	ES207L	Basic Electrical & Electronics Engineering Lab	11	VS211	Design Thinking
4	ES204	Engineering Graphics	8	ES208	Basic Civil & Mechanical Engineering	12	CC212A	Integrated Personality Development

(Dr. S. L. Patil)
TT- Coordinator, (F. Y. B. Tech.)

(Dr. Mrs. A. A. Patil)
HOD, (F. Y. B. Tech.)

(Dr. K. K. Pandyaji)
Academic Dean

(Dr. B. S. Patil)
Principal

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Padmabhooshan Vasantraodada Patil Institute of Technology, Sangli

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)

TIME TABLE 2024-25 SEM-II

Curriculum as per NEP-2020

W.E.F. 03/03/2025

Class: FE-**IV** **Branch:** Computer Science & Engg.(CSE) **GROUP(A)** **CL-06**

SrN	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	ES204- **CDP**	BS201- **PSP**	ES204 - **CDP**	**D1- ES207L** **D2- CC212A** **D3- BS203L**	BS201- **PSP**	**# M-M / Counselor Int.** Mentee –Mentor or Counselor Interaction
2	11:00 TO 12:00	VS211- **SSK**	ES206- **SGB**	BS202- **AAS**		IK210- **SLP**	
	12:00 TO 12.45		***LONG***	***RECESS***			
3	12.45 TO 13:45	BS201- **PSP**	BS202- **AAS**	**D1- CC212A** **D2- BS203L** **D3- ES205L**	BS202- **AAS**	# ES206- **KSM/SGB**	***LVH/IITST***
4	13:45 TO 14:45	ES206- **KSM**	VS211- **SSK**		IK210- **SLP**	ES208- **CDP**	
	14:45 TO 15:00		***SHORT***	***RECESS***			
5	15:00 TO 16:00	ES208- **RSP**	**D1- BS203L** **D2- ES05L** **D3- E207L**	ES209- **DAL**	ES209- **DAL**	**D1- ES205L** **D2- ES207L** **D3- CC212A**	**LVH-Library Visit Hour** **IITST- IIT Spoken Tutorial**
6	16:00 TO 17:00	CC212A- **SEN**		*BS201- **PSP**	# ES208- **RSP/CDP**		

PSP-PSPatil **AAS-AAShaikh** **CDP-CDPatil** **KSM-/KSMalidwale** **SGB-SGBharati** ***-Extra**

SLP-SLPatil **SSK-SSKulkarni** **SEN-SENarwade** **RSP-RSPatil** **DAL-/DALavate** **#-Alternate**

SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	5	ES205L	Engineering Graphics Laboratory	9	ES209	Energy and Environment Engineering
2	BS202	Engineering Physics	6	ES206	Basic Electrical & Electronics Engineering	10	IK210	IKS Bucket
3	BS203L	Engineering Physics Laboratory	7	ES207L	Basic Electrical & Electronics Engineering Lab	11	VS211	Design Thinking
4	ES204	Engineering Graphics	8	ES208	Basic Civil & Mechanical Engineering	12	CC212A	Integrated Personality Development

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Padmabhooshan Vasantraodada Patil Institute of Technology, Sangli

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)

TIME TABLE 2024-25 SEM-II

Curriculum as per NEP-2020

W.E.F. 03/03/2025

Class: FE-**VI** **Branch:** CSE+(CSE-AIDS)+CIVIL+Instrumentation **GROUP(A)** **CL-07**

SrN	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	BS201- **DST**	ES209- **ABA**	ES208- **SMP**	ES204 - **CDP**	**F1- ES207L** **F2- CC212A** **F3- BS203L**	**# M-M / Counselor Int.** Mentee –Mentor or Counselor Interaction
2	11:00 TO 12:00	IK210 **-SLP**	ES204- **CDP**	BS202- **SAJ**	ES206- **SBG**		
	12:00 TO 12.45		***LONG***	***RECESS***			
3	12.45 TO 13:45	BS202- **SAJ**	BS201- **DST**	BS201- **DST**	**F1- CC212A** **F2- BS203L** **F3- ES205L**	ES208- **SBK**	***LVH/IITST***
4	13:45 TO 14:45	ES209- **ABA**	VS211- **NPA**	ES206- **KSM**		# ES206- **KSM/SGB**	
	14:45 TO 15:00		***SHORT***	***RECESS***			
5	15:00 TO 16:00	**F1- ES205L** **F2- ES207L** **F3- CC212A**	*BS201- **DST**	**F1- BS203L** **F2- ES205L** **F3- ES207L**	IK210 - **SLP**	BS202- **SAJ**	**LVH-Library Visit Hour** **IITST- IIT Spoken Tutorial**
6	16:00 TO 17:00		CC212A- **KVC**		# ES208- **SMP/SBK**	VS211-**NPA**	

DST-/DSThorat **SAJ-/SAJagdale** **CDP-CDPatil** **KSM-/KSMalidwale** **SGB-SGBharati** ***-Extra**

SMP-/SMPatil **SBK-/SBKhandagale** **ABA-/ABAwate** **SLP-SLPatil** **NPA-NPAmbole** **DSB-DSBbharsakhale** **#-Alternate**

SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	5	ES205L	Engineering Graphics Laboratory	9	ES209	Energy and Environment Engineering
2	BS202	Engineering Physics	6	ES206	Basic Electrical & Electronics Engineering	10	IK210	IKS Bucket
3	BS203L	Engineering Physics Laboratory	7	ES207L	Basic Electrical & Electronics Engineering Lab	11	VS211	Design Thinking
4	ES204	Engineering Graphics	8	ES208	Basic Civil & Mechanical Engineering	12	CC212A	Integrated Personality Development

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FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)

TIME TABLE 2024-25 SEM-II

Curriculum as per NEP-2020

W.E.F. 03/03/2025

Class: FE-**VIII** **Branch:** (CSE-AIDS)+CIVIL+Chemical+Instrumentation **GROUP(A) CL-08**

SrN	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	**H1- ES207L H2- CC212A H3- BS203L**	BS201- **AKP**	ES204- **AJP**	ES204- **AJP**	BS202- **AAS**	**# M-M / Counselor Int.** Mentee –Mentor or Counselor Interaction
2	11:00 TO 12:00		BS202- **AAS**	VS211- **SSK**	VS211- **SSK**	BS201- **AKP**	
	12:00 TO 12.45		***LONG***	***RECESS***			
3	12.45 TO 13:45	ES208- **SJA**	IK210- **SAJ**	BS201- **AKP**	ES206- **SBG**	**H1- CC212A H2- BS203L H3- ES205L**	***LVH/IITST***
4	13:45 TO 14:45	*BS201- **AKP**	# ES206- **SBG/MVD**	# ES208- **SJA/SPP**	ES206- **MVD**		***LVH/IITST***
	14:45 TO 15:00		***SHORT***	***RECESS***			
5	15:00 TO 16:00	IK210- **SAJ**	**H1- ES205L H2- ES207L H3- CC212A**	BS202- **AAS**	**H1- BS203L H2- ES205L H3- ES207L**	ES209- **ABA**	**LVH-Library Visit Hour IITST- IIT Spoken Tutorial**
6	16:00 TO 17:00	ES209- **ABA**		CC212A- **SEN**		ES208- **SPP**	

AKP-/AKPatil **AAS-AAShaikh** **AJP-AJPawar** **MVD-MVDongare** **SGB-SGBharati** ***-Extra**

ABA-/ABAwate **SPP-SPPatil** **SJA-SJAdsul** **SAJ-/SAJagdale** **SSK-SSKulkarni** **SEN-SENarwade** **#-Alternate**

SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	5	ES205L	Engineering Graphics Laboratory	9	ES209	Energy and Environment Engineering
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Padmabhooshan Vasantraodada Patil Institute of Technology, Sangli

FIRST YEAR ENGINEERING DEPARTMENT (F. Y. B. Tech)

TIME TABLE 2024-25 SEM-II

Curriculum as per NEP-2020

W.E.F. 03/03/2025

Class: FE-**X** **Branch:** (CSE-AIDS)+CIVIL+Chemical+Instrumentation **GROUP(A)** **CL-5/6/7/8**

SrN	TIME IN HRS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	10:00 TO 11:00	(8)BS201-**SSK**	**J1- ES207L J2- CC212A J3- BS203L**	(5)VS211-**APL**	(6)CC212A-**SEN**	(7)BS201- **SSK**	**# M-M / Counselor Int.** Mentee –Mentor or Counselor Interaction
2	11:00 TO 12:00	(8)BS202-**SAJ**		(5) ES209-**PBP**	(6)BS202- **SAJ**	(7) # ES208-**SPM /USK**	
	12:00 TO 12.45		***LONG***	***RECESS***			
3	12.45 TO 13:45	**J1- CC212A J2- BS203L J3- ES205L**	(5) ES204- **AJP**	(6)IK210- **AAS**	(7)ES206-**ARB**	(8)BS202- **SAJ**	***LVH/IITST***
4	13:45 TO 14:45		(5)# ES206-**KSM/ ARB**	(6)ES204- **AJP**	(7)ES208- **USK**	(8)VS211- **APL**	
	14:45 TO 15:00		***SHORT***	***RECESS***			
5	15:00 TO 16:00	(5)IK210-**AAS**	(8) BS201-**SSK**	**J1- ES205L J2- ES207L J3- CC212A**	(5)ES206- **KSM**	**J1- BS203L J2- ES205L J3- ES207L**	LVH-Library Visit Hour IITST- IIT Spoken Tutorial
6	16:00 TO 17:00	(5)*BS201- **SSK**	(8) ES208-**SPM**		(5)ES209- **PBP**		

SSK-SSKadam **SAJ-/SAJagdale** **AJP-AJPawar** **KSM-/KSMalidwale** **ARB-ARBhairshetti** ***-Extra**

USK-/USKasbekar **SPM-/SPMane** **PBP-/PBPatil** **AAS-AAShaikh** **APL-/APLad** **SEN-SENarwade** **#-Alternate**

SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course	SrN	Course Code	Name of the Course
1	BS201	Engineering Mathematics-II	5	ES205L	Engineering Graphics Laboratory	9	ES209	Energy and Environment Engineering
2	BS202	Engineering Physics	6	ES206	Basic Electrical & Electronics Engineering	10	IK210	IKS Bucket
3	BS203L	Engineering Physics Laboratory	7	ES207L	Basic Electrical & Electronics Engineering Lab	11	VS211	Design Thinking
4	ES204	Engineering Graphics	8	ES208	Basic Civil & Mechanical Engineering	12	CC212A	Integrated Personality Development

(Dr. S. L. Patil)
TT- Coordinator, (F. Y. B. Tech.)

(Dr. Mrs. A. A. Patil)
HOD, (F. Y. B. Tech.)

(Dr. K. K. Pandyaji)
Academic Dean

(Dr. B. S. Patil)
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 fromAcademic, Industry and Social spheres. Lectures of faculty from other institutions are organized. Mentoring includes **professional guidance, carrier advancement/ course workspecific/ 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 respectivestudent.

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: 9823787214)

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 isdone by respective counselor.**

CLASS TEACHER

- Receiving assistance with academic endeavors.
- Constructive interaction with a class teacher and participation in collective activities heor 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 YearEngg. Dept. (/Dr. Mrs. A. A. Patil) within 2-3 days after displaying Defaulter List onnotice board as well as on college web site.

REMEDIAL LECTURES

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

Note: 1) Student should **attend Remedial Lectures** as per Time Table Schedule.

1) Time Table Schedule for Remedial Lectures will be display after completion ofMid/ End Term Test.

CO/ EXTRA CURRICULAR ACTIVITIES:

Paper/ PPT Presentation, Nirmiti, Vasantostav and Sports activity benefits the student toparticipate in extracurricular activities.

Date	Activity Name	Participation level	Outcome

REMARKS: Student should submit Xerox copy of certificates obtained from Co/ExtraCurricular 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 doand 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 orany 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 procedureand 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 internationalmeet, 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 otherinstitution 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 non technical journal are 09, 1800 digital booksand 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 facilitiesfor 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 variNational 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 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 (T&P)** 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. Theobjective 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 beresourceful 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, defense services and research sector. We encourage and empower student to become an entrepreneur and provide them necessary awareness and orientation about it.

Our Recruiters

	Dr.Vasantraodada Patil Shetkari Shikshan Mandal's **Padmabhooshan Vasantraodada Patil Institute Of Technology, Budhgaon. (Sangli)** **FIRST YEAR ENGINEERING DEPARTMENT** **TIME TABLE 2024-25 SEM-II**	**With Effect From 17/09/2024**

Subject- Engineering Mathematics–II (3Credits) BTBS201	
Teaching Scheme	**Evaluation Scheme**
Lecture:3hrs/week	Continuous Assessment:-20Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60Marks

Course Objectives:

1. To know and discuss the need and use of complex variables to find roots, to separate complex quantities, and to establish a 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 Gree's, Stoke's and Gauss divergence theorems.

Course Outcomes:

After completion of this course, students will be able to

CO1: Discuss the need and use of complex variables to find roots, separate complex quantities, and to establish relation between circular and hyperbolic functions.

CO2: Solve first and higher order differential equations and apply them as mathematical modeling in electric and mechanical systems.

CO3: Determine Fourier series representation of periodic functions over different intervals.

CO4: Demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence & curl in various engineering streams.

CO5: 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 Contents:

UNIT-I: 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.

UNIT-II: 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.

UNIT-III: 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.

UNIT-IV: 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-range series.

UNIT-V: Vector Calculus

Scalar and vector fields: Gradient, divergence and curl; Solenoidal and irrotational vector fields; Vector identities (statement without proofs); Green‘slemma, Gauss‘s divergence theorem and Stokes‟ theorem (without proofs).

Text Books

1. Higher Engineering Mathematics by B.S. Grewal, Khanna Publishers, New Delhi.

2. Advanced Engineering Mathematics by Erwin Kreyszig, John Wiley & Sons,NewYork.
3. A Course in Engineering Mathematics (VolII) by Dr.B.B.Singh, Synergy Knowledge ware, Mumbai.
4. A Text Book of Applied Mathematics (VolI&II) by P.N.Wartikarand J. N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
5. Higher Engineering Mathematics by H.K. Dasand Er.RajnishVerma, S. Chand & 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 & L.C.Barrett, Tata Mcgraw-Hill Publishing Company Ltd., New Delhi.

Subject- Engineering physics (3Credits) BS202	
Teaching Scheme	**Evaluation Scheme**
Lecture:3hrs/week	Continuous Assessment:-20Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60Marks

Course Objectives:

1. To provide a firm grounding in the basic physics principles and concept to resolve many Engineering and Technological problems.
2. To understand and study the Physics principles behind the developments of engineering materials.

Course Outcomes:

After completion of this course, students will be able to:

1. Familiar with the principles of acoustic design of a hall and also methods of production of ultrasonic and its applications in various fields and also understand the concept of dielectric and polarization types.
2. Acquire the basic knowledge of interference, polarization. Students are able to understand the light propagation in fibre and use of Laser in Science and Engineering.
3. Apply the knowledge of quantum mechanics to set Schrödinger‘s equations.
4. Understand key principle and application of nuclear physics. Identify planes in crystal and characteristics measurements of cubic system.
5. Assimilate wide scope of advanced materials in modern developments and its role in emerging innovating applications.

Course Contents:

Unit1: Acoustics, Ultrasonics and Dielectrics

Acoustics: Introduction, Reflection of sound (reverberation and echo), absorption coefficient, Sabine's formula, Acoustical planning of building and factors affecting architectural acoustics of building.

Ultrasonic Waves: properties, Production of ultrasonics waves: Magnetostriction method and Piezoelectric method, Applications (any three in detail).

Dielectrics: Polar and non-polar dielectrics, Polarization, Types of Dielectric polarization.

UNIT-2: Engineering Optics

Interference in thin film due to reflected light, Wedge shaped film, Newton' Rings, Applications, Polarization: Introduction, types of polarization, definition of optical activity & specific rotation, Lasers: Characteristics, spontaneous emission and stimulated emission; metastable state, population inversion, types of pumping, resonant cavity, He-Ne Laser, semiconductor laser, Applications of Lasers, Optical fibre: Acceptance cone, Numerical aperture, applications of fibre optics.

UNIT-3: Quantum Mechanics

De- Broglie hypothesis of matter waves, Wave function and its physical significance, Heisenberg's uncertainty principle and its application, Schrodinger's time dependent wave equation, Schrodinger's time independent wave equation, Introduction to quantum computing (bits & qubits, difference between classical and quantum computers).

UNIT-4: Crystal Structure & Nuclear Physics

Crystal Structure: Fundamental concepts (lattice, basis, unit cell, crystal systems), Cubic structure: Number of atoms per unit cell, atomic radius, co-ordination number, packing fraction, Comparison of Aluminum (FCC) and Iron (BCC) at room temperature, Miller indices,Relation between ||'and a'.

Nuclear Physics: Introduction to mass defect, Q value of nuclear reaction, properties of Alpha, Beta and Gamma rays, GM Counter.

UNIT-5: Physics of Advanced Materials

Magnetic Materials: Types of magnetic materials, magnetic domain and hysteresis curve,

Semiconductors: Conductivity of semiconductors, Hall Effect (derivation & Applications)

Superconductors: Definition, critical temperature, critical magnetic field, Meissner effect, type I & II superconductors, Introduction to BCS theory.

Nanomaterials: Introduction, top-down and bottom-up approach, Introduction to XRD, FESEM, VSM and CNT, Applications of nano-materials.

Text/ Reference Books:

1. Introduction to Electrodynamics–David R.Griffiths.

2. Concept of Modern Physics – Arthur Beizer. Tata McGraw-Hill Publishing Company Limited.
3. Optics–Ajoy Ghatak. MacGraw Hill Education (India) Pvt.Ltd.
4. Science of Engineering Materials-C.M.Srivastavaand C.Srinivasan. NewAge International Pvt. Ltd.
5. Solid State Physics –A.J.Dekker. McMillan India–Limited.
6. The Feynman Lectures on Physics Vol I,II,III.
7. Introduction to Solid State Physics–Charles Kittel. John Willey and Sons
8. Engineering Physics – M.N. Avadhanulu and P.G. Kshirsagar. S. Chand and Company LTD.
9. Engineering Physics - R.K. Gaur andS. L. Gupta. Dhanpat Rai Publications Pvt. Ltd.-New Delhi.
10. Fundamental of Physics – Halliday and Resnik.Willey Eastern Limited.
11. Nanotechnology:An Introduction To Synthesis, Properties And Applications of Nano materials – Thomas Varghese, K. M. Balakrishna

Subject- Engineering physics Lab (1 Credits) BTBS203L	
Teaching Scheme	**Evaluation Scheme**
Practicle:2hrs/week	Continuous Assessment:-60Marks
	End Semester Exam:-40Marks

Minimum 8-10 experiments are to be performed based on contents from syllabus

Sample List of Experiments:

1. Newton‘s rings - Determination of radius of curvature of Plano convex lens / wavelength of light
2. Wedge Shaped film - Determination of thickness of thin wire
3. Half shade Polarimeter - Determination of specific rotation of optically active material
4. Laser - Determination of wavelength of He-Ne laser light
5. G.M. Counter - Determination of operating voltage of G.M. tube
6. Crystal Plane – Study of planes with the help of models related Miller Indices
7. P N Junction Diode Characteristics
8. Hall Effect – Determination of Hall Coefficient
9. Four Probe Method - Determination of resistivity of semiconductor
10. Measurement of Band gas energy of semiconductors
11. Experiment on fibre optics
12. B-H Curve Experiment
13. Ultrasonic interferometer

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular Winter Examination – 2024

Course: F. Y. B. Tech **Branch: Common To All Branches** **Semester: I**

Subject Code & Name: 24AF2PHYBS102, Engineering Physics

Max Marks: 60 **Date: 08/02/2025** **Duration: 3 Hr.**

Instructions to the Students:

1. *Each question carries 12 marks.*
2. *Question No. 1 will be compulsory and include objective-type questions.*
3. *Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.*
4. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
5. *Use of non-programmable scientific calculators is allowed.*
6. *Assume suitable data wherever necessary and mention it clearly.*

					(Level/CO)	Marks
Q. 1	**Objective type questions. (Compulsory Question)**					**12**
1	The speed of propagation of ultrasonic waves increases with increase in				Remember (CO1)	1
	a. Wavelength	b. Frequency	c. Amplitude	d. Intensity		
2	Dielectric materials are generally				Remember (CO1)	1
	a. Insulating Materials	b. Ferri Electric Materials	c. Ferro Electric Materials	d. Superconducting Materials		
3	In Newton's ring shape of interference pattern is				Remember (CO2)	1
	a. Straight fringes	b Circular fringes	c. Elliptical fringes.	d. Straight & Equidistant lines		
4	The substance which rotates the plane of polarization to left is called as				Remember (CO2)	1
	Dextrorotatory	b. Levorotatory	c. Oscillatory	d. None of these		
5	The principle of Laser is				Remember (CO2)	1
	a. Spontaneous emission	b. Stimulated emission	c. Thermionic emission	d. All of these		
6	Numerical aperture is also called as _____ of the fiber				Remember (CO2)	1
	a. Reflecting angle	b. Sine of Acceptance angle	c. Scattering angle	d. Recoiling angle		
7	According to Heisenberg's principle, certainty in position involves				Remember (CO3)	1
	a. Uncertainty in momentum	b. certainty in momentum	c. uncertainty in position	d. certainty in position		
8	What is the fundamental unit of information in quantum computing				Remember	1

	a. Bit	b. Qubit	c. Byte	d. Quantum Byte	(CO3)	
9	Geiger Muller Counter is used to measure				Remember (CO4)	1
	a. α particles	b. β and ϒ particles	c. α, β & ϒ particles	d. None of these		
10	Number of atoms per unit cell for Face centered Cubic structure is				Remember (CO4)	1
	a.1	b. 4	c. 2	d. 6		
11	The temperature at which normal material turns into superconductor is				Remember (CO5)	1
	a. Absolute Temperature	b. Critical Temperature	c. Mean Temperature	d. Crystallization Temperature		
12	1 Nanometer=_____m				Remember (CO5)	1
	a.10^{9}	b. 10^{-10}	c. 10^{-9}	d. 10^{10}		
Q. 2	**Solve the following.**					**12**
A)	What is Piezoelectric effect? Describe the production of ultrasonic waves by using Piezoelectric method.				**Remember/ Understand (CO1)**	**6**
B)	Explain any three factors affecting architectural acoustics of a building. A cinema hall has a volume of 7500 m^3 . It is required to have reverberation time of 1.5 sec. What should be the total absorption in the hall?				**Understand (CO1)**	**6**
Q.3	**Solve the following.**					**12**
A)	Derive an expression for diameter of n^{th} bright and dark Newton's rings.				**Understand (CO2)**	**6**
B)	Explain the construction and working of Helium Neon laser.				**Understand (CO2)**	**6**
Q. 4	**Solve Any Two of the following.**					**12**
A)	What is Heisenberg's uncertainty principle? If the uncertainty in position of an electron is $4X10^{-10}$m. Calculate the uncertainty in its momentum.				**Remember/ Understand (CO3)**	**6**
B)	Derive time independent Schrodinger wave equation.				**Understand (CO3)**	**6**

C)	Derive time dependent Schrodinger wave equation.	Understand (CO3)	6
Q.5	**Solve Any Two of the following.**		12
A)	Define atomic packing fraction. Calculate the atomic packing fraction in SC, BCC, FCC lattices.	Remember/ Understand (CO4)	6
B)	Derive the relation between lattice parameter 'a' and crystal density 'ρ' Copper has FCC structure and its atomic radius is 1.278 A^0. Calculate density of Cu. Given atomic weight of Cu=63.5.	Understand (CO4)	6
C)	With neat diagram explain the construction & working of Geiger Muller Counter.	Understand (CO4)	6
Q. 6	**Solve Any Two of the following.**		12
A)	Explain the B-H curve for ferromagnetic materials. Define Coercivity and retentivity	Understand (CO5)	6
B)	Define superconductivity and distinguish between Type I & Type II superconductors.	Understand (CO5)	6
C)	What is nanomaterial? Explain top-down and bottom-up approach for synthesis of nanomaterial	Understand (CO5)	6
	***** End *****		

Subject- Engineering Graphics (2 Credits) BTBS204	
Teaching Scheme	**Evaluation Scheme**
Lecture:2hrs/week	Continuous Assessment:-20 Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60 Marks

Course Objectives:

1. To prepare you to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
2. To prepare you to communicate effectively
3. To prepare you to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course Outcomes:

CO1	Understand the basics of engineering graphics and its applications.
CO2	Describe the common terms used in design and drawing
CO3	Construct the positions of line for given conditions
CO4	Visualize the 2D and 3D views of the object
CO5	Ability to apply orthographic, sectional, auxiliary and isometric view in engineering drawing
CO6	Understand the geometries of development of engineering projects

Course Contents:

Unit 1: Introduction to Engineering Drawing

Principles of Engineering Graphics and their significance, usage of drawing instruments, line and lettering, Scales: Plain, Diagonal and Vernier Scale. Principles of Engineering Graphics; Orthographic Projection; Descriptive Geometry; Drawing Principles; Isometric Projection; Surface Development; Perspective; Readinga Drawing; Sectional Views; Dimensioning & Tolerances; True Length, Angle; intersection, Shortest Distance.

Unit 2: Projection and Points Lines

Points is situated in different quadrants, Projection of lines inclined to both the planes, True length of straight lines and its inclination with reference plane, traces of line.

Unit 3: Projection of Planes & Solids:

Projection of planes inclined to one plane & perpendicular to other plane, Auxiliary Plane, Projection of solid with axis inclined to both the planes.

Unit 4: Sections of solids & Development of Surfaces:

Sections of solids, Section planes perpendicular to one plane and parallel or inclined to other plane, Method of development, Developments of lateral surfaces of right solids.

Unit 5: Orthographic & Isometric Views:

Principal of projection, Methods of projection, Orthographic projection, Isometric axes, lines & planes, Isometric Scale, Isometric drawing or isometric View.

Reference/Text Books:

1. N. D. Bhatt, Engineering Drawing, Charotar Publishing House, 46th Edition, 2003.
2. K. V. Nataraajan, A text book of Engineering Graphic, Dhanalakshmi Publishers, Chennai, 2006.
3. K. Venugopal and V. Prabhu Raja, Engineering Graphics, New Age International (P) Ltd, 2008.
4. Dhananjay A. Jolhe, Engineering Drawing with an Introduction to AutoCAD, Mc GrawHill Education, 2017.

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Subject- Engineering Graphics Lab(1Credits)BTES205L	
Teaching Scheme	**Evaluation Scheme**
Practicle:2hrs/week	Continuous Assessment:-60 Marks
	End Semester Exam:-40 Marks

Minimum 8-10 experiments are to be performed based on contents from syllabus

Sample List of Experiments:

1. Lines, lettering and dimensioning.
2. Geometrical Constructions.
3. Orthographic projections.
4. Projections of points and straight lines
5. Projections of planes.
6. Projections of solids.
7. Section of solids.
8. Isometric Projections.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular Winter Examination – 2024

Course: B.Tech. **Branch: Common To All Branches**

Semester: I

Subject Code & Name: 24AF2EGRES104; Engineering Graphics

Max Marks: 60 **Date:** 11/02/2025 **Duration: 4 Hr.**

Instructions to the Students:

1. *Each question carries 12 marks.*
2. *Question No. 1 will be compulsory and include objective-type questions.*
3. *Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.*
4. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
5. *Use of non-programmable scientific calculators is allowed.*
6. *Assume suitable data wherever necessary and mention it clearly.*

		(Level /CO)	Marks
Q. 1	**Objective type questions. (Compulsory Question)**		**12**
1	Set squares are primarily used for drawing which angles? A) 30°, 45°, 60°, and 90° B) 15°, 35°, 75°, and 95° C) 10°, 20°, 50°, and 80° D) 25°, 50°, 70°, and 100°	(CO1)	1
2	What is the purpose of a center line in a drawing? A) To show visible outlines B) To represent symmetry and centers of circles C) To indicate section lines D) To show cutting planes	(CO1)	1
3	Which of the following is true for first-angle projection? A) The object is placed between the observer and the projection plane B) The projection plane is placed between the observer and the object C) Views are placed as they appear in reality D) It is the standard method in the United States	(CO2)	1
4	If a point is located on the XY plane in orthographic projection, which of the following is true? A) Its Z-coordinate is zero B) Its X-coordinate is zero C) Its Y-coordinate is zero D) It is in the first quadrant	(CO2)	1
5	The true length of a line is seen in which of the following conditions? A) When the line is parallel to the plane B) When the line is perpendicular to the plane C) When the line is inclined to both HP and VP D) When viewed from the side	(CO3)	1
6	If a line is located in the first quadrant and is inclined to HP, where will its front view be located? A) Above the XY line B) Below the XY line C) On the XY line D) At the origin	(CO 3)	1

7	A pentagonal plane resting on HP with an edge inclined to VP will have its top view appearing as: A) A pentagon B) A horizontal line C) A distorted pentagon D) A vertical line	(CO 4)	1
8	If a plane is inclined to both HP and VP, its projections appear as: A) A true shape in both views B) A point in both views C) Inclined lines in both views D) A horizontal and vertical line	(CO 4)	1
9	When a prism is lying on HP with its axis inclined to HP, its front view will be: A) A rectangle B) A parallelogram C) A line D) An ellipse	(CO 4)	1
10	Which of the following is NOT a principal plane in orthographic projection? A) Horizontal plane (HP) B) Vertical plane (VP) C) Side plane (SP) D) Profile plane (PP)	(CO 5)	1
11	The angles between the projection of the x-axis, y-axis, and z-axis in an isometric view are: A) 90° B) 120° C) 45° D) 60°	(CO 5)	1
12	When a solid is cut by a plane, the shape of the section depends on: A) The position of the plane B) The material of the solid C) The color of the solid D) The surface texture of the solid	(CO 5)	1

Q. 2	**Solve the following.**		**12**
A)	Draw the following lines by stating their description and general applications: i. Continuous thick or Continuous wide ii. Dashed thin (narrow) iii. Chain thin Long-dashed dotted (narrow)	(CO 1)	**6**
B)	Differentiate Aligned and Uni-directional system of placing the dimensions on a drawing with the help of diagrams.	(CO 2)	**6**
Q.3	**Solve the following.**		**12**
A)	A line AB, 50 mm long, is inclined to the HP at 30° and parallel to the VP. The end nearest to the HP is 40 mm above it and 25 mm in front of the VP. Draw the projections.	(CO 3)	**6**
B)	A point P is in the first quadrant. Its shortest distance from the intersection point of H.P., V.P. and Auxiliary vertical plane, perpendicular to the H.P. and V.P. is 70 mm and it is equidistant from principal planes (H.P. and V.P.). Draw the projections of the point and determine its distance from the H.P. and V.P.	(CO 2)	**6**
Q. 4	**Solve Any Two of the following.**		**12**
A)	Draw the projections of a regular hexagon of 25 mm side, having one of its sides in the H.P. and inclined at 60° to the V.P., and its surface making an angle of 45° with the H.P.	(CO 4)	**6**

B)	A square pyramid of side of base 40 mm and length of axis 60 mm is resting on its corner of base on ground with an edge of the base through that corner making an angle of 60° with the HP. The apex is away from the observer and the axis is parallel to the HP. Draw the projections if the axis is inclined to the VP at 20°.	(CO 4)	**6**
C)	A cone of diameter 60 mm and height 60 mm is resting on the HP on one of its generators. Draw its projections if its axis is parallel to the VP.	(CO 4)	**6**
Q.5	**Solve Any Two of the following.**		**12**
A)	A pentagonal pyramid having a base side of 45 mm and a slant length of 80 mm rests on its base on the HP with a base edge AB perpendicular to the VP. A section plane passing through corner D and perpendicular to the slant face ABO cuts the solid. Draw FV and sectional TV.	(CO 5)	**6**
B)	A cylinder of 40 mm diameter, 60 mm height and having its axis vertical, is cut by a section plane, perpendicular to the V.P., inclined at 45° to the H.P. and intersecting the axis 32 mm above the base. Draw its front view, sectional top view, sectional side view and true shape of the section	(CO 5)	**6**
C)	Draw the development of the lateral surface of the part P of the triangular pyramid as shown in Fig. 1. The line o'1' in the front view is the true length of the slant edge because it is parallel to xy in the lop view. The true length of the side of the base is seen in the top view.	(CO 6)	**6**

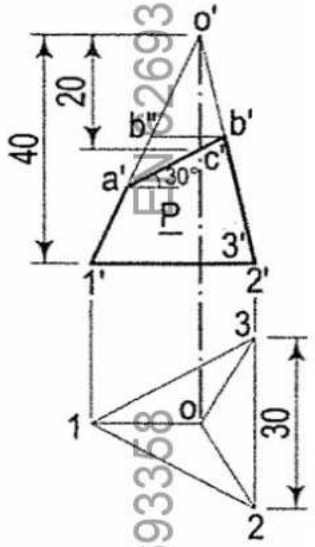

Fig. 1

Q. 6	**Solve Any Two of the following.**		**12**
A)	Draw the FV and TV of the object shown in Fig. 2 using the third-angle method.	(CO 5)	6

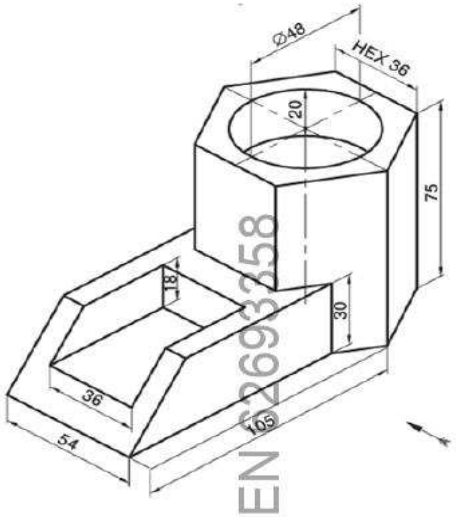

Fig. 2

B) Draw the half-sectional FV, and half-sectional RHSV of the object as shown in Fig.3 by using first angle method. (CO 5)

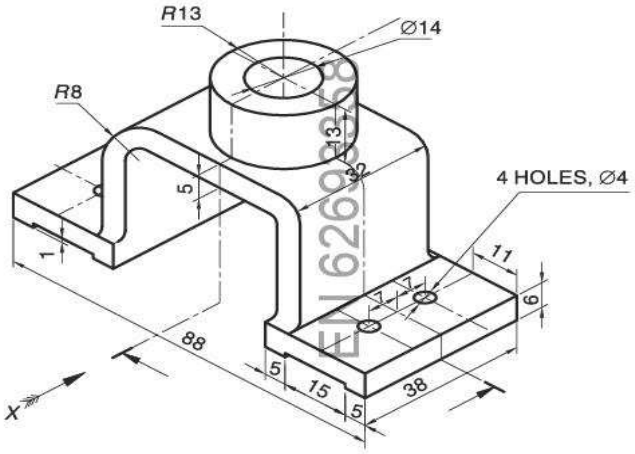

Fig. 3

C) Fig. 4 shows the FV and LHSV of an object. Draw its isometric view. (CO 5)

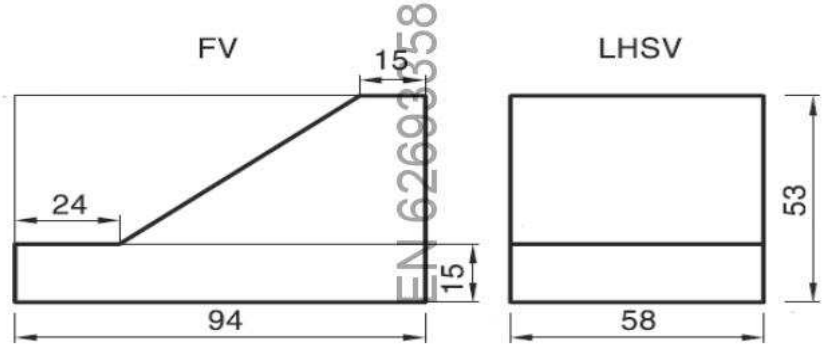

Fig. 4

***** End *****

Subject-Basic Electrical and Electronics Engineering (3 Credits) (BTES206)	
Teaching Scheme	**Evaluation Scheme**
Lecture:3hrs/week	Continuous Assessment:-20Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60Marks

Course Objectives:

1. To equip the students with an understanding of the fundamental principles of DC and AC electrical circuits.
2. To introduce the working principles and applications of fundamental electronic devices and circuits.
3. To identify various measurement instruments and their use in electric and electronic measurements.

Course Outcomes:

After completion of this course, students will be able to:

CO 1. Apply fundamental concepts and circuit laws to solve simple DC and AC circuits

CO 2. Interpret the construction and working of different types of electrical machines

CO 3. Analyze building blocks of basic dc power supply.

CO 4. Outline the principle of BJT as an amplifier.

CO 5. Apply the knowledge of measuring instruments in electronic instrumentation system.

Contents:

UNIT-I: Electrical Circuits

DC Circuits: Circuit Components: Conductor, Resistor, Inductor, Capacitor, Ohm's Law, Kirchhoff's Laws, Independent and Dependent Sources, Simple problems - Nodal Analysis, Mesh analysis with independent sources only (Steady state), Star-Delta Transformation.

AC Circuits: AC Signal Parameters, Waveforms, Average value, RMS Value, Instantaneous power, active power, reactive power and apparent power, power factor – Steady state analysis of RLC circuits (Simple problems only).

UNIT-II: Electrical Machines

Difference between Generator & motors, DC motors: Construction, working principle, types, characteristics, Back emf and Torque Equation. Working principle of Induction motor. Single Phase Transformer: Construction and working (no load & on load), EMF Equation, Losses, Efficiency, Regulation.

UNIT-III: Rectifiers and Power Supplies

PN Junction diode: Principle of operation, V-I characteristics, Diode current equation, principle of avalanche breakdown. Block diagram description of a dc power supply, Working of a full wave bridge rectifier, capacitor filter (no analysis), working of Zener diode and its application as voltage regulator. Working of linear voltage regulators – 78xx and 79xx.

UNIT-IV: BJT and Amplifiers

Bipolar Junction Transistors: PNP and NPN structures, Principle of operation, relation between current gains in CE, CB and CC, input and output characteristics of common emitter configuration, DC load line, stability factor, Biasing Techniques.

Amplifiers: Transistor as an amplifier, Operation of single stage RC coupled amplifier with its frequency response.

UNIT-V: Measurements and Instrumentation

Functional elements of an instrument, working principle of: Moving Coil and Moving Iron instruments, Ammeter, voltmeter, wattmeter, Energy meter, Block diagram & working of: Multi-meter, Function Generator and Digital Storage Oscilloscope.

Text Books:-

1. Kothari DP and I.J Nagrath, ―Basic Electrical and Electronics Engineering‖, Second Edition, McGraw Hill Education, 2020
2. Boylstad, Electronics Devices and Circuits Theory, Pearson Education
3. A.K. Sawhney, Puneet Sawhney ‗A Course in Electrical & Electronic Measurements & Instrumentation', Dhanpat Rai and Co, New Delhi, 2015

Reference Books:-

1. Millman Halkias: Electronic Devices and Circuits, McGraw-Hill Publication, 2000.
2. Donald Neaman, Electronic Circuit Analysis and Design, McGraw-Hill Publication, 3rd Edition
3. B. L. Theraja, Electrical Technology – Volume - I, S. Chand.
4. V. N. Mittal and Arvind Mittal, Basic Electrical Engineering, McGraw-Hill Publication.
5. D C Kulshreshtha, Basic Electrical Engineering‖, Tata McGraw Hill, 2010
6. B. L. Theraja, Fundamentals of Electrical Engineering and Electronics, S. Chand, 2006
7. H.S. Kalsi, Electronic Instrumentation', Tata McGraw-Hill, New Delhi, 2010

Subject-Basic Electrical and Electronics Engineering Lab (1Credits) BTES207L	
Teaching Scheme	**Evaluation Scheme**
Practicle:2hrs/week	Continuous Assessment:-60Marks
	End Semester Exam:-40Marks

Minimum8-10experimentsaretobeperformed based on contents from syllabus Sample

List of Experiments:

1. To verify KCL and KVL.
2. To analyze series RLC circuit
3. Calculate RMS, average and peak value of the signal using multi-meter and DSO.
4. Study of V-I characteristics of PN Junction Diode
5. Study of Full Wave Rectifier using PN Junction Diode
6. Study of Zener diode as voltage regulator
7. Study of V-I Characteristics of BJT
8. Calculate Q point on DC load line using voltage divider biasing.
9. Study of BJT as an amplifier.
10. Frequency response of RC coupled amplifier.
11. Measurement and testing of various electronic components using multimeter.
12. Mini-project.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular/Supplementary Winter Examination – 2024

Course: B.Tech Branch : Common To All Branches Semester : I

Subject Code & Name: 24AF1000ES106 & Basic Electrical & Electronics Engineering

Max Marks: 60 Date: 13/02/2025 Duration: 3 Hr.

Instructions to the Students:

1. *Each question carries 12 marks.*
2. *Question No. 1 will be compulsory and include objective-type questions.*
3. *Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.*
4. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
5. *Use of non-programmable scientific calculators is allowed.*
6. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Objective type questions. (Compulsory Question)**		**12**
1	What is the equivalent resistance when two 4Ω resistors are connected in parallel? A) 2Ω B) 4Ω C) 8Ω D) 1Ω	CO1	1
2	In nodal analysis, the unknown variables are A) Currents in each branch B) Voltage at each node C) Resistance of each branch D) Inductance of each loop	CO3	1
3	In a purely capacitive AC circuit, the current A) Leads the voltage by 90° B) Lags the voltage by 90° C) Is in phase with voltage D) Is zero	CO2	1
4	What is the purpose of back EMF in a DC motor? A) To increase the current in the armature B) To regulate the speed of the motor C) To reduce torque in the motor D) To stop the motor from running	CO1	1
5	The working principle of an induction motor is based on A) Mutual Induction B) Self Induction C) Fleming's Right-Hand Rule D) Static Magnetic Field	CO2	1
6	In a PN junction diode, current conduction in forward bias is mainly due to A) Electrons only B) Holes only C) Both electrons and holes D) Majority carriers only	CO1	1
7	In a DC power supply, the function of a rectifier is to A) Convert AC to DC B) Convert DC to AC C) Convert DC to DC D) Regulate voltage	CO1	1

8	In a Zener diode voltage regulator, the output voltage A) Varies with input voltage B) Remains constant if input voltage is within limits C) Is always equal to input voltage D) Depends on load current only				CO3	1
9	In an NPN transistor, the majority charge carriers in the base are A) Electrons B) Holes C) Both electrons and holes D) Ions				CO2	1
10	The DC load line of a transistor amplifier circuit helps in A) Determining the operating point B) Reducing power consumption C) Increasing gain D) Decreasing leakage current				CO3	1
11	A moving coil instrument operates on the principle of A) Electromagnetic induction B) Electrostatic force C) Magnetic field interaction D) Heating effect of current				CO1	1
12	In a function generator, which parameter cannot be adjusted directly? A) Frequency B) Waveform shape C) Output voltage D) Load resistance				CO2	1
Q.2	**Solve the following.**					12
A)	State and explain Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL).				CO1	6
B)	A resistor of 10Ω is connected across a 230V, 50Hz AC supply. Find: (a) The RMS current (b) The power dissipated in the resistor				CO1	6
Q.3	**Solve the following.**					12
A)	Define and derive the expression for the RMS (Root Mean Square) value of a sinusoidal waveform.				CO3	6
B)	Define back EMF in a DC motor and derive the torque equation of a DC motor				CO2	6
Q.4	**Solve Any Two of the following.**					12
A)	Explain the working of a full-wave bridge rectifier				CO1	6
B)	Explain the function of a capacitor filter in a rectifier circuit.				CO3	6
C)	A full-wave rectifier is supplied with a 230V RMS AC input. If the transformer has a turns ratio of 10:1, calculate: a) The secondary voltage b) The peak output voltage (Assume diode drop = 0.7V)				CO2	6
Q.5	**Solve Any Two of the following.**					12
A)	Derive the relationship between current gains (α and β) in Common Base (CB) and Common Emitter (CE) configurations.				CO2	6
B)	Explain the construction and working principle of PNP.				CO3	6
C)	Explain the construction and working principle of a DC motor.				CO1	6
Q.6	**Solve Any Two of the following.**					12
A)	Explain the construction and working of a Moving Iron instrument.				CO3	6
B)	Draw and explain the block diagram of a digital multimeter.				CO2	6
C)	Describe the operation of a function generator.				CO1	6

Subject- Basic Civil and Mechanical Engineering (3Credits) BTES208	
Teaching Scheme	**Evaluation Scheme**
Lecture:3hrs/week	Continuous Assessment:-20Marks
	Mid Term Test:-20 Marks
	End Semester Exam:-60Marks

Course Objectives:

1. To identify various Civil Engineering materials and choose suitable material among various options.
2. To know and apply principles of surveying to solve engineering problem
3. To identify various Civil Engineering structural components and select appropriate structural system among various options
4. To Explain and define various properties of basic thermodynamics, materials and manufacturing processes.
5. To know and discuss the working principle of various power consuming and power developing devices.

Course Outcomes:

Students will be able to:

1. Identify various Civil Engineering materials and choose suitable material among various options.
2. Apply principles of surveying to solve engineering problem
3. Identify various Civil Engineering structural components and select appropriate structural system among various options
4. Explain and define various properties of basic thermodynamics, materials and manufacturing processes.
5. Know and discuss the working principle of various power consuming and power developing devices

Course Contents:

Part I Basic Civil Engineering

Module 1: Introduction to civil engineering

Various Branches, role of civil engineer in various construction activities, basic engineering properties and uses of materials: earth, bricks, timber, stones, sand, aggregates, cement, mortar, concrete, steel, bitumen, glass, FRP, composite materials.

Module 2: Building Components & Building Planning

Foundation and superstructure, functions of foundation, types of shallow and deep foundations, suitability in different situation, plinth, walls, lintels, beams, columns, slabs, roofs, staircases, floors, doors, windows, sills, Study of Building plans, ventilation, basics of plumbing and sanitation

Module3: Surveying

Principles of survey, elements of distance and angular measurements, plotting of area, base line and offsets, introduction to Plane table surveying, introduction to levelling, concept of bench marks, reduced level, contours.

Part II Basic Mechanical Engineering

Unit 1: Introduction to Mechanical Engineering:

Introduction to Laws of Thermodynamics with simple examples pertaining to respective branches, IC Engines: Classification, Applications, Basic terminology, 2 and 4 stroke IC engine working principle, Power Plant: Types of Power plant; Gas power plant, Thermal power plant, Nuclear power plant, Automobiles: Basic definitions and objectives.

Unit2:

Design Basics, Machine and Mechanisms, Factor of safety, Engineering Materials: types and applications, basics of Fasteners Machining and Machinability, Introduction to Lathe machine, Drilling machine, Milling machine, basics of machining processes such as turning, drilling and milling, Introduction to casting.

Text Books

1. Anurag Kandya, ―Elements of Civil Engineering‖, Charotar Publishing,Anand
2. M. G. Shah, C. M. Kale, and S. Y. Patki, ―Building Drawing‖, Tata McGrawHill
3. Sushil Kumar, ―Building Construction‖, Standard PublishersDistributors
4. M. S. Palani Gamy, ―Basic Civil Engineering‖, Tata Mc-Graw Hill Publication
5. Kanetkar T. P. and Kulkarni S. V., ―Surveying and Levelling‖, Vols. I, II and III, Vidyarthi Gruh Prakashan,Pune
6. Punmia, ―Surveying‖, Vol.- I, Vol.-II, Vol.-III, Laxmi Publications
7. G. K. Hiraskar, ―Basic Civil Engineering‖, Dhanpat RaiPublications
8. Gopi Satheesh, ―Basic Civil Engineering‖, PearsonEducation
9. P. K. Nag ―Engineering Thermodynamics‖, Tata McGraw Hill, New Delhi 3rd ed.2005
10. Ghosh, A K Malik, ―Theory of Mechanisms and Machines‖, Affiliated East West Press Pvt. Ltd. NewDelhi.
11. Serope Kalpakaji and Steven R Schimd ― Amanufacturing Engineering and Techology‖ Addision Wsley Laongman India 6th Edition2009
12. V. B. Bhandari, ― Deisgn of Machine Elements‖, Tata McGraw Hill Publications, NewDelhi.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular/Supplementary Winter Examination – 2024

Course: Engineering **Branch: Common To All Branches**

Semester : 1st Sem

Subject Code & Name: 24AF2CMEES108 (Basic Civil and Mechanical Engineering)

Max Marks: 60 **Date:22/02/2025** **Duration: 3 Hr.**

Instructions to the Students:

1. *Each question carries 12 marks.*
2. *Question No. 1 will be compulsory and include objective-type questions.*
3. *Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.*
4. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
5. *Use of non-programmable scientific calculators is allowed.*
6. *Assume suitable data wherever necessary and mention it clearly.*

					(Level/CO)	Marks
Q. 1	**Objective type questions. (Compulsory Question)**				Remember	**12**
1	A…… is a horizontal member which is placed across an opening to support the position of the structure above it.					1
	a. Doors	b. Windows	c. Sill	d. Lintel		
2	what is the primary function of a shallow foundation					1
	a. To transfer loads to a deeper	b. To distribute loads over a larger area to reduce soil pressure	c. To provide Lateral Support to the superstructure	d. To resist uplift forces		
3	What is the primary function of cement in concrete?					1
	a. To provide Strength	b. To improve workability	c. To reduce shrinkage	d. To increase durability		
4	The entire assembly of styles, Pannels & rails is known as the…….					1
	a Putty	b. Horn	c. Sash	d. Shutter		
5	What is surveying?					1
	a. To find elevations w.r to datum	b. Show's the relative positions of the object on the	c. To find elevations of points having	d. All of above		

		surface of the earth	same contour intervals			
6	What is the term used for an imaginary line on the ground Joining of equal elevations					1
	a. Level Line	b. Line of sight	c. Datum	d. Contour		
7	Which of the following kind of energy output is obtained from a 'Steam Power Plant'					1
	a. Electricity	b. Thermal energy	c. Sound energy	d. Heat energy		
8	Which of the following is a classification of automobiles based on Load?					1
	a. Heavy transport vehicle (HTV)	b. Sedan Hatchback car	c. Four wheeler vehicle	d. Front-wheel drive		
9	Petrol engines are..... than diesel engines.					1
	a. Lighter	b.Unpredictable	c. Heavier	d. None of the mentioned		
10	Which of the following is a type of thermodynamic system?					1
	a. Open system	b. Closed system	c. Thermally isolated system	d. All of the mentioned		
11	Sand mold and permanent mold are the parts of..... manufacturing process.					1
	a. Machining	b. Casting	c. Welding	d. None of above		
12	Which of the following operation is not carried out on Lathe Machine.					1
	a. Welding	b. Facing	c. Turning	d. Parting		
Q. 2	**Solve the following.**				**CO2**	**12**
A)	Describe in detail concrete with its types & properties?					6
B)	Explain the role of Civil engineer in the field of Construction engineering?					6

Q.3	**Solve the following.**	**CO3**	**12**
A)	Explain the foundation with its types & function of foundation?		6
B)	Describe in detail 'lean to roof" with sketch?		6
Q. 4	**Solve Any Two of the following.**	**CO4**	**12**
A)	Describe in detail "Metric chain" with sketch?		6
B)	Describe Advantages & Disadvantages of "Plane Table surveying"?		6
C)	Define the terms? i) Reduced level ii) Height of instrument iii) Contour line iv) Bench marks v) Change Point vi) Contour interval		6
Q.5	**Solve Any Two of the following.**	**CO5**	**12**
A)	Describe first law of thermodynamics. Enlist the limitations of the same?		6
B)	Classify Internal combustion engines based on (i) Cycle of operation, ii) Fuel used, iii) Cylinder Arrangement, (iv) No. of strokes, (v) Application, (vi) Ignition method.		6
C)	What is the function of Power plant. Explain in brief working of thermal power plant with suitable sketch?		6
Q. 6	**Solve Any Two of the following.**	**CO5**	**12**
A)	What is the difference between machine and mechanism? Explain any two types of mechanism with suitable diagrams.		6
B)	Classify engineering materials. Describe in detail properties and applications of any two non-ferrous metals?		6
C)	With suitable diagrams describe any six operations performed on Lathe machine?		6
	***** End *****		

Subject- Energy and Environmental Engineering (Audit) BTES209	
Teaching Scheme	**Evaluation Scheme**
Lecture:2hrs/week	Continuous Assessment:-50Marks

Course Objectives

1. To impart the knowledge of Environmental education to the students of Engineering and Technology.
2. To explain basic concepts of sources, causes, effects and control measures of environmental pollution
3. To impart the knowledge of energy sources and power generation
4. To understand the role of individual for the protection of Environment.

Course Outcomes

Student should able to:

1. Know and understand about components and segments of environment, ecosystem and its types.
2. Understand power consuming and power developing devices for the effective utilization
3. Understand and to explain types of Energies such as wind energy, solar energy, hydro energy etc.
4. Understand and explain various types of air pollution, their effects and control measures.
5. Know the various types of water pollution, sources, waste water treatment, effect of water pollution on health and soil pollution

Course Contents:

Unit1: Environment

Introduction, Components of Environment, Types of Environment, Brief discussion on Segments of Environment, Environmental Pollution, Ecosystem: Types of Ecosystem, Components of Ecosystem.

Unit2: Conventional Power Generation

Gas Turbine Power Plant: Introduction, Simple Gas Turbine Plant, Open and closed cycle gas turbine plant, Fuels for Gas Turbine Plant. Hydro Power Plant: Introduction, Selection of site for hydro power station, Role of Hydroelectric station in power industry,

Classification of Hydroelectric plant, General arrangement and operation. Nuclear Power Plant: Introduction, Nuclear materials, Selection of site, Main parts of nuclear reactor and their functions, Workingof Nuclear Power Plant

Unit3: Energy and Environment

Introduction, Sources of Energy, Renewable sources of Energy: Solar Energy, Hydro Energy, Tidal Energy, Wind Energy, Biomass Energy, Geothermal Energy, Non Renewable Energy Sources Coal, Petroleum, Natural Gas.

Unit4: Air Pollution

Introduction, Brief discussion on air pollutants, Sources of Air Pollution: Pollutants from Industry, Pollution by Automobiles, Effect of Air Pollutions: Acid rain, Green House Effect, Global warming; Brief discussion on Control of Air Pollution.

Unit5: Water and Soil Pollution

Introduction, Types of Water Pollutants, Sources of Water Pollution, Methods to remove impurities in water, Treatment of Industrial waste water: Activated Sludge Process, Impact of Water Pollution on Human Health, Water as a carrier for the transmission of diseases. Sources of Soil Pollution, Harmful effects of Soil Pollution, Control of Soil Pollution.

Text Books:

1. A Textbook on Power System Engineering, A, Chakrabarti, M. L. Soni, P. V. Gupta, U. S. Bhatnagar, Dhanpat Rai and Co. Pvt. Ltd
2. Environmental Chemistry (II edition), Ane Books Pvt.Ltd. V. K. Ahluwalia
3. Environmental Chemistry (sixth edition), A. K. De
4. Essential Environmental Studies, S. P. Mishra and S. N. Pandey

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Reference Books:

1. Environmental Science, sixteenth edition, G. Tyler Miller and S. E. Spoolman, Cengage publication.
2. A Textbook of Engineering Chemistry, Dr. S. S. Dara and Dr. S. S. Umare
3. Textbook on Experiments & Calculations In Engineering Chemistry: S. S. Dara, S Chand & Company Pvt Ltd.

Subject- Design Thinking (2Credits) VS211	
Teaching Scheme	**Evaluation Scheme**
Lecture:2hrs/week	Continuous Assessment:-60Marks
	End Semester Exam:-40Marks

Course Objective:

The objective of this Course is to provide the new ways of creative thinking and Learn the innovation cycle of Design Thinking process for developing innovative products which useful for a student in preparing for an engineering career.

Course Outcomes (CO):

After completion of this course, students will be able to:

CO1. Compare and classify the various learning styles and memory techniques and apply them in their engineering education.

CO2. Analyze emotional experience and Inspect emotional expressions to better understand users while designing innovative products.

CO3. Develop new ways of creative thinking and learn the innovation cycle of Design Thinking process for developing innovative products.

CO4. Propose real-time innovative engineering product designs and Choose appropriate frameworks, strategies, techniques during prototype development.

CO5. Perceive individual differences and its impact on everyday decisions and further create a better customer experience.

Course Contents:

UNIT-I: An Insight to Learning and Remembering:

Memory Understanding the Learning Process, Kolbs Learning Styles, Assessing and Interpreting, Understanding the Memory process, Problems in retention, Memory enhancement techniques

UNIT-II: Emotions and Basics of Design Thinking

Understanding Emotions: Experience & Expression, Assessing Empathy, Application with Peers, Definition of Design Thinking, Need for Design Thinking, Objective of Design Thinking, Concepts & Brainstorming, Stages of Design Thinking Process (explain with examples) –Empathize, Define, Ideate, Prototype, Test.

UNIT-III: Problem Fixing and Process of Product Design

Understanding Creative thinking process, Understanding Problem Solving, Testing Creative Problem Solving, Process of Engineering Product Design, Design Thinking Approach, Stages of Product Design, Examples of best product designs and functions, Assignment – Engineering Product Design.

UNIT-IV: Prototyping & Testing

What is Prototype? Why Prototype? Rapid Prototype Development process, Testing, Sample Example, Test Group Marketing.

UNIT-V: Design Thinking & Customer Centricity

Practical Examples of Customer Challenges, Use of Design Thinking to Enhance Customer Experience, Parameters of Product experience, Alignment of Customer Expectations with Product Design.

Text books:

1. Karmic Design Thinking by Prof. Bala Ramadurai
2. Muhammad Mashhood Alam, Transforming an Idea into Business with Design Thinking, First Edition, Taylor and Francis Group, 2019.
3. S. Balarara, Thinking Design, Sage Publications, 2011.

Reference books:

1. Tim Brown, Change by Design. How Design Thinking Transforms Organizations end Inspires Innovation, HarperCollins e-books, 2009.
2. Michael Lewrick, Patrick Link, Larry Leifer, fire Design Thinking Toolbox, John Wiley & Sons, 2020.
3. Michael Lewrick, Patrick Link, Larry Leifer, The Design Thinking Playbook, John Wiley & Sons, 2018.
4. Kristin Fontichiaro, Design Thinking, Cherry Lake Publishing, USA, 2015.
5. Walter Brenner, Falk Uebemickel, Design Thinking for Innovation - Research and Practice, Springer Series, 2016.
6. Gavin Ambrose, Paul Hands, Design Thinking, AVA Publishing, 2010.

Subject- Integrated Personality Development (2Credits) CC212A	
Teaching Scheme	**Evaluation Scheme**
Lecture:1hrs/week	Continuous Assessment:-60Marks
Practical: 2 hrs/ week	End Semester Exam:-40Marks

Course Introduction:

The Need for Values Students will learn about the need for values as part of their holistic development to become successful in their many roles - as ambitious students, reliable employees, caring family members, and considerate citizens.

Course Outcomes:

After completion of this course, students will be able to:

CO1. To provide students with soft skills that complement their hard skills, making them more marketable when entering the workforce.

CO2. To enhance awareness of India‘s glory and global values, and to create considerate citizens who strive for the betterment of their family, college, workforce, and nation.

CO3. To inspire students to strive for a higher sense of character by learning from role models who have lived principled, disciplined, and value-based lives.

Course Content:

Unit		Description
1	**Module**: Remaking Yourself **Subject** : Begin with the End in Mind	Students will learn to visualize there future goals and will structure their lives through smart goals to give themselves direction and ultimately take them to where they want to go.
	Module: Remaking Yourself **Subject** : Being Addiction: Free	Students will explore the detrimental effects of addictions on one's health, personal life, and family life. They will learn how to take control of their life by becoming addiction free
	Module: Selfless Service **Subject** : Case Study: Disaster Relief	Students will apply previous lessons of seva to analyze the case study of the Bhuj earthquake: relief work.
	Module: Soft Skills Subject : Teamwork & Harmony	Students will learn the six steps of teamwork and harmony that are essential for students': professional and daily life.
	Module: My India My Pride **Subject** : Present Scenario	To implement the transformation of India from a developing country into a developed country it is necessary to have a value-based citizen Students will see how the transformation to a Greater India relies on the vision and efforts of themselves as a youth.
	Module: My India My Pride **Subject** : An ideal Citizen -1	Students will learn that to become value-based citizens, they must first develop good values in their lives They start by exploring the values of responsibility and integrity
	Module: My India My Pride **Subject** : An ideal Citizen -2	Students will learn that by developing the values of loyalty, sincerity, and punctuality, they became indispensable and can leave a strong impression, They will start developing these values by trying to keep perfection in every small task and by looking at the bigger picture.

2	**Module**: Facing Failures **Subject** : Timeless Wisdom for Daily Life	Students will learn the role wisdom plays in finding long-term stability. They will use ancient wisdom to solve their modern-day challenges.
	Module: From House to Home **Subject** : Forgive & Forget	Students will understand the importance and benefits that forgiveness plays in their personal and professional life. They will learn to apply this knowledge in realistic situations
	Module: Remaking Yourself **Subject** : Stress Management	Students will learn to cope with current and future causes of stress.
	Module: Remaking Yourself Subject : Better Health Setter Future	A healthy body prevents disease and stress: increases positivity, productivity, and brainpower. Students will learn to maintain good health through regular exercise, healthy eating habits, and regular and sufficient sleep.

	Module: Learning from Legends Subject : Words of Wisdom	A panel of learned and experienced mentors will personally answer practical questions that students face in them daily life.
	Module: Soft Skits Subject : Financial Planning	Students will develop a variety of practical financial skills that prepare them to become financially stable throughout their future careers.
	Module: Remaking Yourself Subject : Impact of Company	Students will understand that the type of company that we keep, has a crucial rale in determining who we are and who we will become. They will develop the ability to create a positive environment around them.
	Life After IPDC	This concluding lecture encourages students to keep practising these priceless lessons and prepares them for the next steps in their lives

COURSE MATERIAL / MAIN COURSE WORKBOOK –

There will be one workbook for each semester. Each workbook will be Presented and designed by BAPS IPDC Team. These official workbooks would be the course-material for study of IPDC. These workbooks will solve the purpose of study, submission and viva for students.

1. IPDC Workbook-2 (presented by B.A.P.S. Swaminarayan Sanstha)

Subject- (IKS) INDIAN ASTRONOMY (IK210)	
Teaching Scheme	**Evaluation Scheme**
Lecture:2hrs/week	Continuous Assessment:-60Marks
	End Semester Exam:-40Marks

Course Objective:

1. To equip the introductory knowledge of Indian astronomy from the time of the Rig-Veda all the way till the pre-modern period.
2. Participants will also be able to understand how our ancient scientists forecast eclipses and position of planets

Learning Outcome:

The study of astronomy in our culture has deep roots and provides scientific explanations for various phenomena. As it broadens their view and comprehension of the world, it is crucial to teach the younger generation about the cosmos and how it functions. Students via this course will develop a broader understanding of various viewpoints about how different cultures have observed the universe and the tools discovered for its understanding. Indian Astronomy course will also bring students closer to our culture and foster critical thinking by combining scientific and metaphysical approaches, fostering creativity and connecting subjects like mathematics, physics, and chemistry in practical ways. This course will help student to discern the facts and bust the conceptions about the beginnings of the life and universe. The course will provide ample scope to students for their own discoveries and novel scientific improvements.

Syllabus

1. Preliminaries of Indian Astronomy
2. Developments from the Vedic period up to the Siddhāntic period
3. Indian Calendar
4. Solar and Lunar Eclipses
5. Tripraśna Topics (Diurnal problems)
6. Planetary longitudes and latitudes and Nīlakaṇṭha Somayājī‟s revised planetary model
7. Rates of motion of planets
8. Tripraśna
9. Rising times of Rāśis and finding Lagna
10. Eclipse calculations
11. The Vākya system

References Books:

1. S. N. Sen and K. S. Shukla, History of Astronomy in India, 2nd Ed., INSA, Delhi, 2001.
2. S. Balachandra Rao, Indian Astronomy An Introduction, Universities Press, Hyderabad, 2000
3. History of Astronomy: A Handbook, Edited by K. Ramasubramanian, Aniket Sule and Mayank Vahia, SandHI, IIT Bombay, and T.I.F.R. Mumbai, 2016.
4. B.V. Subbarayappa and K.V. Sarma, Indian Astronomy: A Source Book, Nehru Centre, Bombay, 1985.
5. Tantrasaṅgraha of Nīlakaṇṭha Somayājī, Translation and Notes, K. Ramasubramanian and M. S. Sriram, Hindustan Book Agency, New Delhi, 2011
6. Karaṇapaddhati of Putumana Somayājī, Venketeswara Pai et al., HBA New Delhi and Springer 2018

Credit Framework under Four-Years UG Engineering Programme with Multiple Entry and Multiple Exit options:

- The Four-year Bachelor‘s Multidisciplinary Engineering Degree Programme allows the students to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per their choices and the feasibility of exploring learning from different institutions.
- The minimum and maximum credit structure for different levels under the Four- year Bachelor‘s Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

1. Credit Framework

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
4.5	One Year UG Certificate in Engg./ Tech.	40	44	2	1
5.0	Two Years UG Diploma in Engg./ Tech.	80	88	4	2
5.5	Three Years Bachelor’s Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.)	120	132	6	3
	4-Years Bachelor’s degree				

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
6.0	(B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor	160	176	8	4
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Honors and Multidisciplinary Minor	180	194	8	4
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Honors with Research and Multidisciplinary Minor	180	194	8	4
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Major Engg. Discipline with Double Minors (Multidisciplinary and Specialization Minors)	180	194	8	4

- There are multiple exit options at each level. Student will be given a specific Qualification mentioned in the table depending on the level at which he/she decide to have an exit. Ex. If a student decides to exit after completion of two years (level 5.0) of the program, he will be given a Diploma in Engineering with specific exit condition mentioned in the syllabus of the

specific branch. He/she can rejoin the program with the multiple entry option at the level next where he/she chose to exit previously. (Student can join at level 5.5 if successfully completed level 5.0 previously at the time of exit).

- Minimum credit requirements of each level are mentioned in the credit framework table.
- There are 4 distinct options available at level 6.0.
- First one is basic level 6.0 option where minimum 160-maximum 176 credits are mandatory which can be completed as per the Semester-wise Credit distribution structure mentioned in the table given below.

  Here, the Bachelor‘s Engineering Degree in chosen Engg./ Tech. Discipline with multidisciplinary minor (min.160-max.176 Credits) i.e. **—B. Tech in Electronics and Telecommunication Engineering with Computer Engineering** (160-176 credits) enables students to take up five-six or required additional courses of 14 credits in the discipline other than Electronics and Telecommunication Engineering distributed over semesters IIIto VIII. Here in the case of **—B. Tech in Electronics and Telecommunication Engineering with Computer Engineering‖** (160-176 credits) student is supposed to takeup 50% or more courses to complete the 50% or more credits (from assigned 14 credits) from **Computer Engineering minor bucket**. The remaining courses to complete the assigned 14 credits can be covered from other discipline‘s minor buckets.
- Remaining three level 6.0 options are the advanced options where the student is given an opportunity to get extra qualification by earning some extra credits (18-20 extra credits). These three options are given below:
- Level 6.0: The **Bachelor’s Engineering Degree with Honours** in chosen Major Engg./ Tech. Discipline i.e. in Electronics and Telecommunication Engineering with Honours with Multidisciplinary Minor (180-194 credits) enables students of Electronics and Telecommunication Engineering to take up five-six additional courses of 18 to 20 credits in the Electronics and Telecommunication Engineering discipline distributed over semesters III to VIII. The decision regarding the mechanism of distribution of these 18-20 credits over semesters III to VIII, which are over and abovethemin.160-max.176 Credits prescribed for the duration of four years will be taken by Academic Authorities of University. **Student must have CGPA equal to or greater than 7.5 at the end of second semester to go for this option**.
- Level 6.0: The **Bachelor’s Engineering Degree with Research** in i.e. in Electronics and

Telecommunication Engineering with Research with Multidisciplinary Minor (180-194 credits) enables students of Electronics and Telecommunication Engineering to take up a research project of 18 to 20 credits in the Electronics and Telecommunication Engineering discipline distributed over semesters VII to VIII. **Student must have CGPA equal to or greater than 7.5 at the end of sixth semester to go for this option**.

- Level 6.0: The **Bachelor's Engineering Degree with Research** in i.e. in Electronics and Telecommunication Engineering with Research with Multidisciplinary Minor (180-194 credits) enables students of Electronics and Telecommunication Engineering to take up a research project of 18 to 20 credits in the Electronics and Telecommunication Engineering discipline distributed over semesters VII to VIII. **Student must have CGPA equal to or greater than 7.5 at the end of sixth semester to go for this option**.
- Level 6.0: The **Bachelor's Engineering Degree in chosen Engg./ Tech. Discipline with Double Minor** (Multidisciplinary and Specialization Minor, 180- 194 credits), i.e. **—B. Tech in Electronics and Telecommunication Engineering with *other selected discipline in* Engineering (as MDM) with Specialization Minor in Computer Engineering** (180-194 credits) enables students to take up five-six additional courses of 14 credits in the discipline other than Electronics and Telecommunication Engineering(for completion of multidisciplinary minor) and 18 to 20 extra credits in the **Computer Engineering discipline** distributed over semesters III to VIII. Here, the ***other selected discipline* in Engineering should be different from Specialization Minor i.e. Computer Engineering**. This enables students to take up five-six or required additional courses of 18 to 20 credits in the **Computer Engineering** discipline distributed over semesters III to VIII, which are over and above the min.160-max.176 Credits. The decision regarding the mechanism of distribution of these 18-20 credits over semesters III to VIII, prescribed for the duration of four years will be taken by Academic Authorities of University. **Student must have CGPA equal to or greater than 7.5 at the end of second semester to go for this option**.

2. General Rules and Regulations

1. The normal duration of the course leading to B.Tech degree will be EIGHT semesters.

2. The normal duration of the course leading to M.Tech. degree will be FOUR semesters.

3. Each academic year shall be divided into 2 semesters, each of 20 weeks duration, including evaluation and grade finalization, etc. The Academic Session in each semester shall provide for at least 90 Teaching Days, with at least 40 hours of teaching contact periods in a five to six days session per week. The semester that is typically from Mid- July to November is called the ODD SEMESTER, and the one that is from January to Mid-May is called the EVEN SEMESTER. Academic Session may be scheduled for the Summer Session/Semester as well. For 1st year B. Tech and M. Tech the schedule will be decided as per the admission schedule declared by Government of Maharashtra.

4. The schedule of academic activities for a Semester, including the dates of registration, mid-semester examination, end-semester examination, inter-semester vacation, etc. shall be referred to as the Academic Calendar of the Semester, which shall be prepared by the Dean (Academic), and announced at least TWO weeks before the Closing Date of the previous Semester.

5. The Academic Calendar must be strictly adhered to, and all other activities including co- curricular and/or extra -curricular activities must be scheduled so as not to interfere with the Curricular Activities as stipulated in the Academic Calendar.

3. Registration:

1. Lower and Upper Limits for Course Credits Registered in a Semester, by a Full- Time Student of a UG/PG Programme:
   A full time student of a particular UG/PG programme shall register for the appropriate number of course credits in each semester/session that is within the minimum and maximum limits specific to that UG/PG programme as stipulated in the specific Regulations pertaining to that UG/PG programme.
2. Mandatory Pre-Registration for higher semesters: In order to facilitate proper planning of the academic activities of a semester, it is essential for the every institute to inform to Dean (Academics) and COE regarding details of total no. of electives offered (Course-wise) along

with the number of students opted for the same. This information should be submitted within two weeks from the date of

3. commencement of the semester as per academic calendar.
4. PhD students can register for any of PG/PhD courses and the corresponding rulesof evaluation will apply.
5. Under Graduate students may be permitted to register for a few selected Post Graduate courses, in exceptionally rare circumstances, only if the DUGC/DPGC is convinced of the level of the academic achievement and the potential in a student.

4. Course Pre-Requisites:

1. In order to register for some courses, it may be required either to have exposure in, or to have completed satisfactorily, or to have prior earned credits in, some specified courses.

2. Students who do not register on the day announced for the purpose may be permitted LATE REGISTRATION up to the notified day in academic calendar on payment of late fee.

3. REGISTRATION IN ABSENTIA will be allowed only in exceptional cases with the approval of the Dean (Academic) / Principal.

4. A student will be permitted to register in the next semester only if he fulfills the following conditions:

i. Satisfied all the Academic Requirements to continue with the programme of Studies without termination

ii. Cleared all Institute, Hostel and Library dues and fines (if any) of the previous semesters;

iii. Paid all required advance payments of the Institute and hostel for the current semester;

iv. Not been debarred from registering on any specific ground by the Institute.

5. Evaluation System:

1. Absolute grading system based on absolute marks as indicated below will be implemented from academic year 2023-24,from I year B. Tech.

Percentage of marks	Letter Grade	Grade Point
91-100	EX	10.0
86-90	AA	9.0
81-85	AB	8.5
76-80	BB	8.0
71-75	BC	7.5
66-70	CC	7.0
61-65	CD	6.5
56-60	DD	6.0
51-55	DE	5.5
40-50	EE	5.0

<40	EF	0.0

1.	Continuous Assessment Marks	40
2.	End Semester Examination(ESE)Marks	60

2. Class is awarded based on CGPA of all eighth semester of B.Tech Program.

CGPA for pass is minimum 5.0	
CGPA upto <5.50	Pass class
CGPA≥5.50&<6.00	Second Class
CGPA≥6.00&<7.5	First Class
CGPA >7.50	Distinction
[Percentage of Marks=CGPA*10.0]	

3. A total of100 Marks for each theory course are distributed as follows:

Mid Semester Exam(MSE)Marks	20
Continuous Assessment Marks	20
End Semester Examination(ESE)Marks	60

4. A total of 100 Marks for each practical course are distributed as follows

- It is mandatory for every student of B. Tech to score a minimum of 40 marks out of 100, M. Tech to score a minimum of 45 marks out of 100 with a minimum of 20 marks out of 60 marks in End Semester Examination for theory course.
- This will be implemented from the first year of B. Tech starting from Academic Year 2023-24

6. Description of Grades

EX Grade: An EX‘ grade stands for outstanding achievement.

EE Grade: An EE‘ grade stands for minimum passing grade.

The students may appear for the remedial examination for the subjects he/she failed for the current semester of admission only and his/her performance will be awarded with EE grade only. If any of the students remain absent for the regular examination due to genuine reason and the same will be verified and tested by the Dean (Academics) or committee

constituted by the University Authority.

FF Grade: The FF grade denotes very poor performance, i.e. failure in a course due to poor performance .The students who have been awarded FF grade in a course in any semester must repeat the subject in next semester.

7. Evaluation of Performance

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 up to two decimal places). A Semester Grade Point Average (SGPA) will be computed for each semester as follows:

$$SGPA = \frac{[\sum_{i=1}^{n} c_i g_i]}{[\sum_{i=1}^{n} c_i]}$$

Where
'n' is the number of subjects for the semester,
'c_i' is the number of credits allotted to a particular subject, and
'g_i' 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 (upto 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:

$$CGPA = \frac{[\sum_{i=1}^{m} c_i g_i]}{[\sum_{i=1}^{m} c_i]}$$

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.

8. Attendance Requirements:

a. All students must attend every lecture, tutorial and practical classes.

b. To account for approved leave of absence (eg. representing the Institute in sports, games or athletics; placement activities; NCC/NSS activities; etc.) and/or any other such contingencies like medical emergencies, etc., the attendance requirement shall be a minimum of 75% of the classes actually conducted. If the student failed to maintain 75% attendance, he/she will be detained for appearing the successive examination. The Dean (Academics)/ Principal is permitted to give 10% concession for the genuine reasons as such the case may be. In any case the student will not be permitted for appearing the examination if the attendance is less than 65%.

c. The course instructor handling a course must finalize the attendance 3 calendar days before the last day of classes in the current semester and communicate clearly to the students by displaying prominently in the department and also in report writing to the head of the department concerned.

d. The attendance records are to be maintained by the course instructor and he shall show it to the student, if and when required.

9. Transfer of Credits:

The courses credited elsewhere, in Indian or foreign University/Institutions/ Colleges/Swayam Courses by students during their study period at DBATU may count towards the credit requirements for the award of degree. The guidelines for such transfer of credits are as follows:

a. 20 % of the total credit will be considered for respective calculations.

b. Credits transferred will be considered for overall credits requirements of the programme.

c. Credits transfer can be considered only for the course at same level i.e UG, PG etc.

d. A student must provide all details (original or attested authentic copies) such as course contents, number of contact hours, course instructor /project guide and evaluation system for the course for which he is requesting a credits transfer. He shall also provide the approval or acceptance letter from the other side. These details will be evaluated by the concerned

Board of Studies before giving approval. The Board of Studies will then decide the number of equivalent credits the student will get for such course(s) in DBATU. The complete details will then be forwarded to Dean for approval.

e. A student has to get minimum passing grades/ marks for such courses for which the credits transfers are to be made.

f. Credits transfers availed by a student shall be properly recorded on academic record(s) of the student.

g. In exceptional cases, the students may opt for higher credits than the prescribe.

____END___