1.1.1: The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment.

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1	**Institute Academic Committee Minutes**
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AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY
GUNTHAPALLY (V)
ABDULLAPURMET (M)
R.R. DISTRICT.

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AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Recg. By Govt. of T.S & Affiliated to JNTUH, Hyderabad)
NAAC "B++" Accredited Institute
Gunthapally (V), Abdullapurmet(M), RR Dist, Near Ramoji Film City, Hyderabad -501512.
www.aietg.ac.in email: principal.avanthi@gmail.com

AVIH/AC/2018-2019/01 Date: 28-06-2018

CIRCULAR

This is to inform all the staff members that the Institute Academic Committee will be meeting on 30th June 2018 at 11.00 AM in the Principal's chamber to discuss the following agenda. All members are requested to attend the meeting without fail.

Agenda:

1. Preparation of Academic Calendar for the A.Y 2018-19
2. Preparation of Faculty workloads.
3. Preparation of Semester Timetables.
4. Summer Internship Courses
5. Industrial Visits
6. Guest Lectures
7. Internal Academic Audits
8. Feedback of Various Stake Holders Regarding NAAC

PRINCIPAL

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Copy to:

1. All HODs
2. IQAC coordinator
3. All the Committee Members

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MINUTES OF THE INSTITUTE ACADEMIC COMMITTEE

The Institute Academic Committee meeting was held on 30th June 2018 2018 at 11.00AM in Principal's chamber. The principal welcomed the staff and briefed them on the above objective of the Institute Academic Committee meeting.

Item-1:

- Preparation of Academic of calendar for A.Y. 2018-19

Resolution:

- IQAC Coordinator prepared the Academic calendar based on the calendar provided by the University and issued it to the Department Heads of the college.

Item-2:

- Preparation of Faculty workloads

Resolution:

- Hods are instructed to give the workloads of the faculty well in advance based on their interest in teaching.

Item-3:

- Preparation of Semester Timetables

Resolution:

- Hods are instructed to give the workloads of the faculty well in advance.

Item 5:

- Summer Internship Courses

Resolutions:

- The principal motivated all the HODs to encourage the students to do summer internship programs.

Item-6:

- Guest lectures

Resolutions:

- All the HODs are instructed to conduct guest lectures on the latest topics for all the departments.

Item-7:

- Industrial visits

Resolution:

- The HODs of EEE and MECH departments are advised to take students for industrial visits to BHEL, Singoor Hydel Plant etc.

Item-8:

- Internal Academic Audit

Resolutions:

- All the HODs are suggested to go for internal academic audit for academic development.

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Item-9:

- Feedback of Various Stake Holders Regarding NAAC

Resolution:

- **P**rincipal suggested all the HODs to take feedback from students, teachers, parents etc for NAAC.

Attendance sheet:

Sl.No	Name	Designation	Signature
1	Dr.Md.Yousuf Ali	Principal (Convenor)	
2	Y. Jayapradha	Director (Member)	
3	Swamy Rao Kulakarni	IQAC Coordinator (Member)	
4	Dr.S. Kishore Reddy	HOD, ECE (coordinator)	
5	Dr. ShakeerBasha	HOD, CSE (Member)	
6	Y. Ramesh Babu	HOD, MECH (Member r)	
7	T. Kranthi Kumar	HOD, EEE (Member)	
8	S. Rajendar	CSE (Member)	
9	Dr.K.shailaja	H&S (Member)	
10	E. Prasanna	EEE (Member)	
11	N. Ramana Reddy	MBA (Member)	

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Date: 29/06/2018

CIRCULAR

This is to inform that the Department Academic Committee (DAC) meeting will be held on 4th July 2018 at 02:00PM in the principal chamber. All members are requested to attend the meeting without fail.

Agenda:

1. Report of Department progress for the academic year 2017-18.
2. Workload and timetable preparation
3. Industry MOUs
4. Students' academic performance and placements
5. Suggestions on Add on courses.
6. Student seminars and workshops
7. Any other relevant point

HOD-EEE
Head of the Department
Electrical & Electronics Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

Copy to:

1. Principal Office
2. DAC members

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Minutes of the Meeting:

Following committee met on 04/07/2018 and discussed on following agenda.

Item-1:

Report of Department progress for the academic year 2017-18.

Resolution:

The DAC members evaluated the results of the academic year 2017-18. All the faculty members who met the target of 90 percent or more were appreciated by the committee for outstanding achievement. Those who failed to achieve the percentage target were reprimanded by the committee and were asked to step up their efforts.

Item-2:

Workload and timetable preparation.

Resolution:

Workloads and Timetables for the current semester is prepared .

Item-3:

Industry MOUs.

Resolution:

The DAC members proposed to sign MOU with conscience technologies regarding Internships, Workshops and Value-added courses.

Item-4:

Students' academic performance and placements.

Resolution:

The members of the DAC appreciated the students who were hired by major multinational corporations. They advised to concentrate on the present fourth year students to increase placements in this view committee decided to sign MOU Coign Technologies CRT.

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Item-5:

Suggestions on Add on courses.

Resolution:

The committee was of the opinion that add-on courses and various certification programs will enable students to confidently face the challenges of the changing job market. Hence, it is advised that training in add-on courses should be made compulsory for all the students.

Item-6:

Student seminars and workshops.

Resolution:

The DAC members suggested conducting various seminars and workshops for students to develop their technical skills.

Item-7:

Any other relevant point.

Resolution:

The principal greeted everyone and suggested the faculty to improve the publications in reputed journals and also discussed the importance of online student feedback system which helps continuously for improving teaching standards.

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List of DAC members attended:

S.No.	Name of the Faculty	Designation	Role	Signature
1	Dr. Md. Yousuf Ali	Principal	Chair Person	
2	T. Kranti Kumar	HOD	Member	
3	E. Prasanna	Assistant Professor	Academic Member	
4	M. Ragini	Assistant Professor	Academic Member	
5	K. Chandrasekhar Komati	Assistant Professor	Academic Member	
6	S. Srikanth Reddy	Assistant Professor	Academic Member	
7	V. Satyavardhan Rao	Assistant Professor	Academic Member	
8	M. Shankar	Assistant Professor	Academic Member	
9	M. Satish Kumar	Assistant Professor	Academic Member	

HOD-EEE

Head of the Department
Electrical & Electronics Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

PRINCIPAL
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
ACADEMIC CALENDAR (2018-19)
FOR NON-AUTONOMOUS CONSTITUENT & AFFILIATED COLLEGES
B. TECH. I YEAR I & II SEMESTERS

I SEM

S. No	EVENT	DATE	Duration
1.	Induction programme	16th to 28th July 2018	2 weeks
2.	Commencement of Instruction	30th July 2018	--
3.	First Mid Term Examinations	24th to 26th Sept. 2018	--
4.	Submission of First Mid Term Exam Marks to University on or before	4th Oct. 2018	--
5.	Parent-Teacher Meeting	13th Oct. 2018	--
6.	Dussehra recess	15th to 20th Oct. 2018	1 week
7.	Last date of Instruction	28th Nov. 2018	16 weeks
8.	Second Mid Term Examinations	29th Nov. to 1st Dec. 2018	--
9.	Preparation Holidays and Practical Examinations	3rd to 8th Dec. 2018	1 week
10.	Submission of Second Mid Term Exam Marks to University on or before	8th Dec. 2018	--
11.	End Semester / Supplementary Examinations	10th to 22nd Dec. 2018	2 weeks
12.	Semester Break	24th to 29th Dec. 2018	1 week

II SEM

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	31st Dec. 2018	--
2.	First Mid Term Examinations	25th to 27th Feb. 2019	--
3.	Submission of First Mid Term Exam Marks to University on or before	7th March 2019	--
4.	Parent-Teacher Meeting	9th March 2019	--
5.	Last date of Instruction	20th April 2019	16 weeks
6.	Second Mid Term Examinations	22nd to 24th April 2019	--
7.	Preparation Holidays and Practical Examinations	25th April to 1st May 2019	1 week
8.	Submission of Second Mid Term Exam Marks to University on or before	1st May 2019	--
9.	End Semester / Supplementary Examinations	2nd to 16th May 2019	2 weeks
10.	Summer Vacation	17th May to 6th July 2019	7 weeks

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

REVISED ACADEMIC CALENDAR (2018-19)

FOR NON-AUTONOMOUS CONSTITUENT& AFFILIATED COLLEGES

B. PHARM. II, III & IV YEARS I & II SEMESTERS

I SEM

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	9th July 2018	--
2.	First Mid Term Examinations	4th to 6th Sept. 2018	--
3.	Submission of First Mid Term Exam Marks to University on or before	15th Sept. 2018	--
4.	Parent-Teacher Meeting	13th Oct. 2018	--
5.	Dussehra recess	15th to 20th Oct. 2018	1 week
6.	Last date of Instruction	10th Nov. 2018	16 weeks
7.	Second Mid Term Examinations	12th to 14th Nov. 2018	--
8.	Preparation Holidays and Practical Examinations	15th to 24th Nov. 2018	1 week
9.	Submission of Second Mid Term Exam Marks to University on or before	24th Nov. 2018	--
10.	End Semester / Supplementary Examinations	26th Nov. to 8th Dec. 2018	2 weeks
11.	Semester Break	10th to 15th Dec. 2018	1 week

II SEM

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	24th Dec. 2018	--
2.	First Mid Term Examinations	18th to 20th Feb. 2019	--
3.	Submission of First Mid Term Exam Marks to University on or before	27th Feb. 2019	--
4.	Parent-Teacher Meeting	9th March. 2019	--
5.	Last date of Instruction	20th April 2019	16 weeks
6.	Second Mid Term Examinations	22nd to 24th April 2019	--
7.	Preparation Holidays and Practical Examinations	25th April to 4th May 2019	1 week
8.	Submission of Second Mid Term Exam Marks to University on or before	2nd May 2019	--
9.	End Semester / Supplementary Examinations	6th to 18th May 2019	2 weeks
10.	Summer Vacation	20th May to 13th July 2019	8 weeks

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ACADEMIC CALENDAR (2018-19)

MBA I YEAR - I & II SEMESTERS

MBA I YEAR - I SEMESTER

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	16th July 2018	--
2.	First Mid Term Examinations	10th to 12th Sept. 2018	--
3.	Submission of First Mid Term Exam Marks to University on or before	20th Sept. 2018	--
4.	Parent-Teacher Meeting	13th Oct. 2018	--
5.	Dussehra recess	15th to 20th Oct. 2018	1 week
6.	Last date of Instruction	17th Nov. 2018	16 weeks
7.	Second Mid Term Examinations	19th to 22nd Nov. 2018	--
8.	Preparation Holidays and Practical Examinations	24th Nov. 1st Dec. 2018	1 week
9.	Submission of Second Mid Term Exam Marks to University on or before	30th Nov. 2018	--
10.	End Semester / Supplementary Examinations	3rd to 15th Dec. 2018	2 weeks

MBA I YEAR - II SEMESTER

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	17th Dec. 2018	--
2.	First Mid Term Examinations	14th to 16th Feb. 2019	--
3.	Submission of First Mid Term Exam Marks to University on or before	23rd Feb. 2019	--
4.	Parent-Teacher Meeting	9th March 2019	--
5.	Last date of Instruction	16th April 2019	16 weeks
6.	Second Mid Term Examinations	17th to 20th April 2019	--
7.	Preparation Holidays and Practical Examinations	22nd to 27th April 2019	1 week
8.	Submission of Second Mid Term Exam Marks to University on or before	27th April 2019	--
9.	End Semester / Supplementary Examinations	29th April to 11th May 2019	3 weeks
10.	Summer Vacation	13th May to 6th July 2019	8 weeks

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ACADEMIC CALENDAR (2018-19)

MBA II YEAR - I & II SEMESTERS

MBA II YEAR - I SEMESTER

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	16th July 2018	--
2.	First Mid Term Examinations	10th to 12th Sept. 2018	--
3.	Submission of First Mid Term Exam Marks to University on or before	20th Sept. 2018	--
4.	Parent-Teacher Meeting	13th Oct. 2018	--
5.	Dussehra recess	15th to 20th Oct. 2018	1 week
6.	Last date of Instruction	17th Nov. 2018	16 weeks
7.	Second Mid Term Examinations	19th to 22nd Nov. 2018	--
8.	Preparation Holidays and Practical Examinations	24th Nov. 1st Dec. 2018	1 week
9.	Submission of Second Mid Term Exam Marks to University on or before	30th Nov. 2018	--
10.	End Semester / Supplementary Examinations	3rd to 15th Dec. 2018	2 weeks

MBA II YEAR - II SEMESTER

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	17th Dec. 2018	--
2.	First Mid Term Examinations	14th to 16th Feb. 2019	--
3.	Submission of First Mid Term Exam Marks to University on or before	23rd Feb. 2019	--
4.	Parent-Teacher Meeting	9th March 2019	--
5.	Last date of Instruction	16th April 2019	16 weeks
6.	Second Mid Term Examinations	17th to 20th April 2019	--
7.	Preparation Holidays and Practical Examinations	22nd to 27th April 2019	1 week
8.	Submission of Second Mid Term Exam Marks to University on or before	27th April 2019	--
9.	End Semester / Supplementary Examinations	29th April to 11th May 2019	3 weeks
10.	Summer Vacation	13th May to 6th July 2019	8 weeks

Prabhakar

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
ACADEMIC CALENDAR (2018-19)
M.TECH. I YEAR - I & II SEMESTER

M.Tech. I Year - I Semester

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	8th August 2018	--
2.	First Mid Term Examinations	4th to 6th Oct. 2018	--
3.	Submission of First Mid Term Exam Marks to University on or before	12th Oct. 2018	--
4.	Parent-Teacher Meeting	13th Oct. 2018	--
5.	Dussehra recess	15th to 20th Oct. 2018	1 week
6.	Last date of Instruction	5th Dec. 2018	16 weeks
7.	Second Mid Term Examinations	6th to 8th Dec. 2018	--
8.	Preparation Holidays and Practical Examinations	10th to 15th Dec. 2018	1 week
9.	Submission of Second Mid Term Exam Marks to University on or before	15th Dec. 2018	--
10.	End Semester / Supplementary Examinations	17th to 29th Dec. 2018	2 weeks
11.	Semester Break	31st Dec. 2018to 5th Jan 2019	1 week

M.Tech. I Year - II Semester

S. No	EVENT	DATE	Duration
1.	Commencement of Instruction	7th Jan. 2019	--
2.	First Mid Term Examinations	5th to 7th March 2019	--
3.	Submission of First Mid Term Exam Marks to University on or before	14th March 2019	--
4.	Parent-Teacher Meeting	13th April 2019	--
5.	Last date of Instruction	1st May 2019	16 weeks
6.	Second Mid Term Examinations	2nd to 4th May 2019	--
7.	Summer Vacation	6th May to 15th June 2019	6 weeks
8.	Submission of Second Mid Term Exam Marks to University on or before	10th May 2019	--
9.	Preparation Holidays and Practical Examinations	17th to 22nd June 2019	1 week
10.	End Semester / Supplementary Examinations	24th June to 6th July 2019	2 weeks
11.	Semester Break	8th to 13th July 2019	1 week

7.8.2018

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
ACADEMIC CALENDAR (2018-19)
M.TECH./M.PHARMACY II YEAR - I & II SEMESTER

M.Tech./M. Pharmacy II Year - I Semester

S. No	EVENT	DATE	Duration
1.	Commencement of III Semester	16th July 2018	--
2.	Preparation of Project Work Proposals	11th Aug. 2018	4 weeks
3.	Project Work Review–I, Project approval (Part-I commencement)	13th to 18th Aug. 2018	--
4.	Last date for submission of list of approved students	20th Aug. 2018	--
5.	Comprehensive Viva-Voce	21st Aug. to 25th Oct. 2018	--
6.	Dussehra recess	15th to 20th Oct. 2018	1 week
7.	Last date for submission of Comprehensive Viva-Voce Marks	27th Oct. 2018	--
8.	Project Work Review -II (Phase-I)	12th to 15th Dec. 2018	--
9.	# Project Work Review -II(Phase-II)	27th to 29th Dec. 2018	--
10.	Last date for submission of PRC-II marks	2nd Jan. 2019	--
11.	**Part-I Duration**	13th Aug. to 15th Dec. 2018	**18 weeks**

M.Tech./M.Pharmacy II Year - II Semester

S. No	EVENT	DATE	Duration
1.	Commencement of IV Semester (Project Work Continuation)	17th Dec. 2018	--
2.	Project Work Review -III (Phase –I)	14th to 18th May 2019	--
3.	Last date for submission of Project Work Review-III (Phase-I) Marks	20th May 2019	--
4.	* Date of eligibility of thesis submission	20th May 2019	--
5.	Submission of Thesis and Project Viva –Voce Examination (Phase-I) follows	---	--
6.	**Part-II Duration**	17th Dec. 2018 to 18th May 2019	**22 weeks**
7.	# Project Work Review – III (Phase –II)	21st to 24th Aug. 2019	--
8.	Last date for submission of Project Work Review – III (Phase-II) Marks	26th Aug. 2019	--
9.	Submission of Thesis and Project Viva –Voce Examination (Phase-II) follows	---	--
10.	Last date for Submission of Thesis	26th Oct. 2019	

* After completion of 40 weeks from the date of approval of project work proposal and subject to approval of Project Work Review-III.

\# Phase-II will be conducted only for unsuccessful students in Phase –I

Note: 1. The unsuccessful students in Project Work Review-II (Phase-II) shall appear for Project Work Review-II at the time of Project Work Review-III. These students shall reappear for Project Work Review-III in the next academic year at the time of Project Work Review -II only after completion of Project Work Review -II, and then Project Work Review -III follows.

2. The unsuccessful students in Project Work Review -III (Phase-II) shall reappear for Project Work Review -III in the next academic year at the time of Project Work Review –II only.

3. The Project Viva-Voce External examination Marks must be submitted on the day of examination to the University.

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INSTITUTION ACADEMIC CALENDAR FOR THE ACADEMIC YEAR 2018-19

I[ST] -SEM

ACTIVITY	DATE
COMMENCEMENT OF I SEM CLASS WORK II,III & IV B TECH	09-07-2018
I SPELL OF INSTRUCTIONS II,III & IV B TECH	09-07-2018
CRT CLASSES FOR IV B TECH	
PLANNING TO CONDUCT INTERNSHIP TRAINING PROGRAMME FOR B TECH	15-07-2018 TO 09-11-2018
INDUCTION PROGRAMME FOR I B TECH	16-07-2018 TO 28-07-2018
COMMENCEMENT OF I SEM CLASS WORK II M TECH	16-07-2018
I SPELL OF INSTRUCTIONS II M TECH	16-07-2018
COMMENCEMENT OF I SEM CLASS WORK II MBA	16-07-2018
I SPELL OF INSTRUCTIONS II MBA	16-07-2018
COMMENCEMENT OF I SEM CLASS WORK I MBA	16-07-2018
I SPELL OF INSTRUCTIONS I MBA	16-07-2018
COMMENCEMENT OF I SEM CLASS WORK I B TECH	30-07-2018
I SPELL OF INSTRUCTIONS I B TECH	30-07-2018
BONALU HOLIDAY	06-08-2018
COMMENCEMENT OF I SEM CLASS WORK I M TECH	08-08-2018
I SPELL OF INSTRUCTIONS I M TECH	08-08-2018
PREPARATION OF PROJECT WORK PROPOSALS II M TECH	11-08-2018
PROJECT WORK REVIEW -I FOR II M TECH	13-08-2018
INDEPENDENCE DAY CELEBRATIONS	15-08-2018
COMPREHENSIVE VIVA-VOCE	21-08-2018

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BAKRID HOLIDAY	22-08-2018
SRI KRISHNA ASTAMI HOLIDAY	03-09-2018
I MID EXAMINATIONS II,III & IV B TECH	04-09-2018
TEACHERS DAY CELEBRATIONS	05-09-2018
II SPELL OF INSTRUCTIONS II,III & IV B TECH	07-09-2018
I MID EXAMINATIONS II MBA	10-09-2018
I MID EXAMINATIONS I MBA	10-09-2018
II SPELL OF INSTRUCTIONS II MBA	13-09-2018
II SPELL OF INSTRUCTIONS I MBA	13-09-2018
VINAYAKA CHAVITHI HOLIDAY	13-09-2018
ENGINEERS DAY CELEBRATIONS	15-09-2018
MOHARAM HOLIDAY	21-09-2018
PLANNING TO ORGANIZE FRESHERS DAY	20-09-2018 TO 23-09-2018
I MID EXAMINATIONS I B TECH	24-09-2018
II SPELL OF INSTRUCTIONS I B TECH	27-09-2018
MAHATMA GANDHI JAYANTHI HOLIDAY	02-10-2018
I MID EXAMINATIONS I M TECH	04-10-2018
II SPELL OF INSTRUCTIONS I M TECH	07-10-2018
PLANNING TO CONDUCT WORK SHOP ON GREEN ENERGY SOLUTIONS	07-10-2018 TO 14-10-2018
BATHUKAMMA STARTING DAY HOLIDAY	09-10-2018
DUSSEHRA HOLIDAYS	15-10-2018 TO 20-10-2018
PLANNING TO CONDUCT GUEST LECTURES B.TECH/MBA	01-11-2018 TO 10-11-2018
DEEPAVALI HOLIDAY	07-11-2018

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II MID EXAMINATIONS II,III & IV B TECH	12-11-2018
PREPARATION AND PRACTICLE EXAMINATIONS II,III & IV B TECH	15-11-2018
II MID EXAMINATIONS II MBA	19-11-2018
II MID EXAMINATIONS I MBA	19-11-2018
EID MILADUN NABI HOLIDAY	21-11-2018
GURUNANAK JAYANTHI HOLIDAY	23-11-2018
PREPARATION AND PRACTICLE EXAMINATIONS II MBA	24-11-2018
PREPARATION AND PRACTICLE EXAMINATIONS I MBA	24-11-2018
END SEMESTER EXAMINATIONS II,III & IV B TECH	26-11-2018
II MID EXAMINATIONS I B TECH	29-11-2018
PREPARATION AND PRACTICLE EXAMINATIONS I B TECH	03-12-2018
END SEMESTER EXAMINATIONS II MBA	03-12-2018
END SEMESTER EXAMINATIONS I MBA	03-12-2018
II MID EXAMINATIONS I M TECH	06-12-2018
PLANNING TO ORGANIZE SPORTS MEET	10-12-2018 TO 15-12-2018
END SEMESTER EXAMINATIONS I B TECH	10-12-2018
PREPARATION AND PRACTICLE EXAMINATIONS I M TECH	10-12-2018
PROJECT WORK REVIEW -II (PHASE-I)	12-12-2018
END SEMESTER EXAMINATIONS I M TECH	17-12-2018
PROJECT WORK REVIEW -II (PHASE-II)	27-12-2018

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INSTITUTION ACADEMIC CALENDAR FOR THE ACADEMIC YEAR 2018-19

II[ND] -SEM

ACTIVITY	DATE
COMMENCEMENT OF II SEM CLASS WORK II M TECH	17-12-2018
COMMENCEMENT OF II SEM CLASS WORK I MBA	17-12-2018
I SPELL OF INSTRUCTIONS I MBA	17-12-2018
COMMENCEMENT OF II SEM CLASS WORK II MBA	17-12-2018
I SPELL OF INSTRUCTIONS II MBA	17-12-2018
COMMENCEMENT OF II SEM CLASS WORK II,III & IV B TECH	24-12-2018
I SPELL OF INSTRUCTIONS II,III & IV B TECH	24-12-2018
CRT CLASSES FOR III B TECH	
CHRISTMAS HOLIDAY	25-12-2018
BOXING DAY HOLIDAY	26-12-2018
COMMENCEMENT OF II SEM CLASS WORK I B TECH	31-12-2018
I SPELL OF INSTRUCTIONS I B TECH	31-12-2018
NEW YEAR HOLIDAY	01-01-2019
PLANNING TO CONDUCT INTERNSHIP TRAINING PROGRAMME FOR B TECH	02-01-2019 TO 20-04-2019
COMMENCEMENT OF II SEM CLASS WORK I M TECH	07-01-2019
I SPELL OF INSTRUCTIONS I M TECH	07-01-2019
SANKRANTHI/PONGAL HOLIDAYS	14-01-2019 TO 16-01-2019
PLANNING CONDUCT WORK SHOP ON EMBEDDED SYSTEM DESIGN AND EMERGING IOT TECHNOLOGIES	21-01-2019 TO 25-01-2019
REPUBLIC DAY CELEBRATIONS	26-01-2019
PLANNING TO ORGANIZE TECH RESONACE 2K19	01-02-2019 TO 04-02-2019

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PLANNING CONDUCT ONE DAY WORK SHOP ON ARMATURE RADIO (HAM RADIO)	03-02-2019 TO 05-02-2019
PLANNING CONDUCT WORK SHOP ON ENTREPRENEURSHIP AND ITS GROWTH FOR B.TECH/MBA	04-02-2019 TO 11-02-2019
I MID EXAMINATIONS II MBA	14-02-2019
I MID EXAMINATIONS I MBA	14-02-2019
II SPELL OF INSTRUCTIONS II MBA	17-02-2019
II SPELL OF INSTRUCTIONS I MBA	17-02-2019
I MID EXAMINATIONS II,III & IV B TECH	18-02-2019
II SPELL OF INSTRUCTIONS II,III & IV B TECH	21-02-2019
I MID EXAMINATIONS I B TECH	25-02-2019
II SPELL OF INSTRUCTIONS I B TECH	28-02-2019
PLANNING CONDUCT WORK SHOP ON MOBILE MAKING AND AI	01-03-2019 TO 06-03-2019
MAHA SIVRATHRI HOLIDAY	04-03-2019
I MID EXAMINATIONS I M TECH	05-03-2019
INTERNATIONAL WOMENS DAY CELEBRATIONS	08-03-2019
II SPELL OF INSTRUCTIONS I M TECH	08-03-2019
HOLI HOLIDAY	21-03-2019
BABU JAGJIVANRAM JAYANTHI	05-04-2019
UGADHI HOLIDAY	06-04-2019
II MID EXAMINATIONS II MBA	17-04-2019
II MID EXAMINATIONS I MBA	17-04-2019
GOOD FRIDAY	19-04-2019
PLANNING TO CONDUCT GUEST LECTURES B.TECH/MBA	15-04-2019 TO 21-04-2019
PLANNING TO ORGANIZE YOUTH FEST	19-04-2019 TO 22-04-2019

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II MID EXAMINATIONS I B TECH	22-04-2019
II MID EXAMINATIONS II,III & IV B TECH	22-04-2019
PREPARATION AND PRACTICLE EXAMINATIONS II MBA	22-04-2019
PREPARATION AND PRACTICLE EXAMINATIONS I MBA	22-04-2019
PREPARATION AND PRACTICLE EXAMINATIONS I B TECH	25-04-2019
PREPARATION AND PRACTICLE EXAMINATIONS II,III & IV B TECH	25-04-2019
END SEMESTER EXAMINATIONS II MBA	29-04-2019
END SEMESTER EXAMINATIONS I MBA	29-04-2019
END SEMESTER EXAMINATIONS I B TECH	02-05-2019
II MID EXAMINATIONS I M TECH	02-05-2019
END SEMESTER EXAMINATIONS II,III & IV B TECH	06-05-2019
PROJECT REVIEW -III(PHASE-I) II M TECH	14-05-2019
SUMMER VACATION	17-05-2019 TO 06-07-2019
RAMZAN HOLIDAY	05-06-2019
FOLLOWING DAY OF RAMZAN HOLIDAY	06-06-2019
PREPARATION AND PRACTICLE EXAMINATIONS I M TECH	17-06-2019
END SEMESTER EXAMINATIONS I M TECH	24-06-2019
BONALU HOLIDAY	29-07-2019
BAKRID	12-08-2019
INDEPENDENCE DAY CELEBRATIONS	15-08-2019
PROJECT REVIEW -III(PHASE-II) II M TECH	21-08-2019

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC CALENDAR 2018-19
IST -SEM

ACTIVITY	DATE
DEPARTMENT ACADEMIC COMMITTEE MEETING	04-07-2018
COMMENCEMENT OF I SEM CLASS WORK II,III & IV B TECH	09-07-2018
I SPELL OF INSTRUCTIONS II,III & IV B TECH	09-07-2018
CRT CLASSES FOR IV B TECH	
PLANNING TO CONDUCT INTERNSHIP TRAINING PROGRAMME FOR B TECH	15-07-2018 TO 09-11-2018
BONALU HOLIDAY	06-08-2018
INDEPENDENCE DAY CELEBRATIONS	15-08-2018
BAKRID HOLIDAY	22-08-2018
SRI KRISHNA ASTAMI HOLIDAY	03-09-2018
I MID EXAMINATIONS II,III & IV B TECH	04-09-2018
TEACHERS DAY CELEBRATIONS	05-09-2018
II SPELL OF INSTRUCTIONS II,III & IV B TECH	07-09-2018
VINAYAKA CHAVITHI HOLIDAY	13-09-2018
ENGINEERS DAY CELEBRATIONS	15-09-2018
SUBMISSION OF II, III & IV B TECH MID-I MARKS TO UNIVERSITY	15-09-2018
MOHARAM HOLIDAY	21-09-2018
PLANNING TO ORGANIZE FRESHERS DAY	20-09-2018 TO 23-09-2018
MAHATMA GANDHI JAYANTHI HOLIDAY	02-10-2018
PLANNING TO CONDUCT WORK SHOP ON GREEN ENERGY SOLUTIONS	07-10-2018 TO 14-10-2018
BATHUKAMMA STARTING DAY HOLIDAY	09-10-2018
DUSSEHRA HOLIDAYS	15-10-2018 TO 20-10-2018
PLANNING TO CONDUCT GUEST LECTURES B.TECH	04-11-2018 TO 10-11-2018

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DEEPAVALI HOLIDAY	07-11-2018
II MID EXAMINATIONS II,III & IV B TECH	12-11-2018
PREPARATION AND PRACTICLE EXAMINATIONS II,III & IV B TECH	15-11-2018
PLANNING TO ORGANIZE FDP ON ADVANCE TECHNOLOGY OF MACHINES	18-11-2018 TO 25-11-2018
EID MILADUN NABI HOLIDAY	21-11-2018
GURUNANAK JAYANTHI HOLIDAY	23-11-2018
SUBMISSION OF II, III & IV B TECH MID-II MARKS TO UNIVERSITY	24-11-2018
END SEMESTER EXAMINATIONS II,III & IV B TECH	26-11-2018
PLANNING TO ORGANIZE SPORTS MEET	10-12-2018 TO 15-12-2018

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC CALENDAR 2018-19
IIND -SEM

ACTIVITY	DATE
COMMENCEMENT OF II SEM CLASS WORK II,III & IV B TECH	24-12-2018
I SPELL OF INSTRUCTIONS II,III & IV B TECH	24-12-2018
CRT CLASSES FOR III B TECH	
CHRISTMAS HOLIDAY	25-12-2018
BOXING DAY HOLIDAY	26-12-2018
NEW YEAR HOLIDAY	01-01-2019
PLANNING TO CONDUCT INTERNSHIP TRAINING PROGRAMME FOR B TECH	02-01-2019 TO 20-04-2019
SANKRANTHI/PONGAL HOLIDAYS	14-01-2019 TO 16-01-2019
REPUBLIC DAY CELEBRATIONS	26-01-2019
PLANNING TO ORGANIZE TECH RESONACE 2K19	01-02-2019 TO 04-02-2019
PLANNING CONDUCT WORK SHOP ON ENTREPRENEURSHIP AND ITS GROWTH FOR B.TECH	04-02-2019 TO 11-02-2019
I MID EXAMINATIONS II,III & IV B TECH	18-02-2019
II SPELL OF INSTRUCTIONS II,III & IV B TECH	21-02-2019
SUBMISSION OF II, III & IV B TECH MID-I MARKS TO UNIVERSITY	27-02-2019
MAHA SIVRATHRI HOLIDAY	04-03-2019
INTERNATIONAL WOMENS DAY CELEBRATIONS	08-03-2019
HOLI HOLIDAY	21-03-2019
BABU JAGJIVANRAM JAYANTHI	05-04-2019
UGADHI HOLIDAY	06-04-2019
GOOD FRIDAY	19-04-2019
PLANNING TO CONDUCT GUEST LECTURES B.TECH	15-04-2019 TO 21-04-2019
PLANNING TO ORGANIZE YOUTH FEST	19-04-2019 TO 22-04-2019

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II MID EXAMINATIONS II,III & IV B TECH	22-04-2019
PREPARATION AND PRACTICLE EXAMINATIONS II,III & IV B TECH	25-04-2019
SUBMISSION OF II, III & IV B TECH MID-II MARKS TO UNIVERSITY	02-05-2019
END SEMESTER EXAMINATIONS II,III & IV B TECH	06-05-2019
SUMMER VACATION	17-05-2019 TO 06-07-2019
RAMZAN HOLIDAY	05-06-2019
FOLLOWING DAY OF RAMZAN HOLIDAY	06-06-2019
BONALU HOLIDAY	29-07-2019
BAKRID	12-08-2019
INDEPENDENCE DAY CELEBRATIONS	15-08-2019

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

ACADEMIC REGULATIONS FOR B.TECH. REGULAR STUDENTS WITH EFFECT FROM ACADEMIC YEAR 2018-19 (R-18)

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

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

2.0 Eligibility for admission

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

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

3.0 B.Tech. Programme structure

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

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

3.2.1 Semester scheme

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

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

3.2.2 Credit courses

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

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

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

3.2.3 Subject Course Classification

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

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

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

4.0 Course registration

4.1 A 'faculty advisor or counselor' shall be assigned to a group of 20 students, who will advise the students about the under graduate programme, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.

4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through 'on-line registration', ensuring 'date and time stamping'. The on-line registration requests for any 'current semester' shall be **completed before the commencement of SEEs (Semester End Examinations) of the 'preceding semester'**.

4.3 A student can apply for **on-line** registration, **only after** obtaining the '**written approval**' from faculty advisor/counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with Head of the Department, faculty advisor/ counselor and the student.

4.4 A student may be permitted to register for all the subjects/ courses in a semester as specified in the course structure with maximum additional subject(s)/course(s) limited to 4 credits, based on **progress** and SGPA/ CGPA, and completion of the '**pre-requisites**' as indicated for various subjects/ courses, in the department course structure and syllabus contents.

4.5 Choice for '**additional subjects/ courses**' must be clearly indicated, which needs the specific approval and signature of the faculty advisor/ counselor.

4.6 If the student submits ambiguous choices or multiple options or erroneous entries during **on-line** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.

4.7 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any unforeseen or unexpected reasons, then the student shall be allowed to have alternate choice either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the head of the

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

4.8 Dropping of subjects/ courses may be permitted, only after obtaining prior approval from the faculty advisor/ counselor 'within a period of 15 days' from the beginning of the current semester.

4.9 **Open electives**: The students have to choose three open electives (OE-I, II & III) from the list of open electives given. However, the student cannot opt for an open elective subject offered by his own (parent) department, if it is already listed under any category of the subjects offered by parent department in any semester.

4.10 **Professional electives**: The students have to choose six professional electives (PE-I to VI) from the list of professional electives given.

5.0 **Subjects/ courses to be offered**

5.1 A typical section (or class) strength for each semester shall be 60.

5.2 A subject/ course may be offered to the students, **only if** a minimum of 20 students (1/3 of the section strength) opt for it. The maximum strength of a section is limited to 80 (60 + 1/3 of the section strength).

5.3 More than **one faculty member** may offer the **same subject** (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester. However, selection of choice for students will be based on - '**first come first serve** basis and CGPA criterion' (i.e. the first focus shall be on early **on-line entry** from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).

5.4 If more entries for registration of a subject come into picture, then the Head of the Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.

5.5 In case of options coming from students of other departments/ branches/ disciplines (not considering **open electives**), first **priority** shall be given to the student of the '**parent department**'.

6.0 **Attendance requirements:**

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

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

6.2 Shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each semester may be condoned by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.

6.3 A stipulated fee shall be payable for condoning of shortage of attendance.

6.4 Shortage of attendance below 65% in aggregate shall in **no** case be condoned.

6.5 **Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled. They will not be promoted to the next semester.** They may seek re-registration for all those subjects registered in that semester in which the student is detained, by seeking re-admission into that semester as and when offered; if there are any professional electives and/ or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.

6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.0 Academic requirements

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

7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% (26 marks out of 75 marks) in the semester end examination, and a minimum of 40% (40 marks out of 100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing **'C'** grade or above in that subject/ course.

7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Industrial Oriented Mini Project/Summer Internship and seminar, if the student secures not less than 40% marks (i.e. 40 out of 100 allotted marks) in each of them. The student is deemed to have failed, if he (i) does not submit a report on Industrial Oriented Mini Project/Summer Internship, or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) does not present the seminar as required in the IV year I Semester, or (iii) secures less than 40% marks in Industrial Oriented Mini Project/Summer Internship and seminar evaluations.

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

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7.3 Promotion Rules

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

7.4 A student (i) shall register for all courses/subjects covering 160 credits as specified and listed in the course structure, (ii) fulfills all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥ 5.0 (in each semester), and CGPA (at the end of each successive semester) ≥ 5.0, (iv) **passes all the mandatory courses,** to successfully complete the under graduate programme. The performance of the student in these 160 credits shall be taken into account for the calculation of 'the final CGPA **(at the end of under graduate programme),** and shall be indicated in the grade card of IV-year II semester.

7.5 If a student registers for **'extra subjects'** (in the parent department or other departments/branches of Engg.) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those **'extra subjects'** (although evaluated and graded using the same procedure as that of the required 160 credits) will not be taken into account while calculating the SGPA and CGPA. For such **'extra subjects'** registered, percentage of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations 6 and 7.1 – 7.4 above.

7.6 A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure **'C'** grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.

7.7 A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements**. The academic regulations under which a student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.

7.8 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required academic credits.** The academic regulations under which the student has been readmitted shall be applicable to him.

8.0 Evaluation - Distribution and Weightage of marks

8.1 The performance of a student in every subject/course (including practicals and Project Stage – I & II) will be evaluated for 100 marks each, with 25 marks allotted for CIE (Continuous Internal Evaluation) and 75 marks for SEE (Semester End-Examination).

8.2 For theory subjects, during a semester, there shall be two mid-term examinations. Each mid-term examination consists of one objective paper, one descriptive paper and one assignment. The objective paper and the descriptive paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for descriptive paper). The objective paper is set with 20 multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The descriptive paper shall contain 4 full questions out of which, the student has to answer 2 questions, each

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

8.2.1 The semester end examinations (SEE) will be conducted for 75 marks consisting of two parts viz. i) **Part- A** for 25 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit and carry 2 marks each. The next five sub-questions are one from each unit and carry 3 marks each.
- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

8.2.2 For subjects like **Engineering Graphics/Engineering Drawing,** the SEE shall consist of five questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions. There shall be no Part – A, and Part – B system.

8.2.3 For subjects like **Machine Drawing Practice/Machine Drawing**, the SEE shall be conducted for 75 marks consisting of two parts viz. (i) Part – A for 30 marks. 3 out of 4 questions must be answered, (ii) Part – B for 45 marks. Part – B is compulsory.

8.2.4 For the Subject **Estimation, Costing and Project Management**, the SEE paper should consist of Part- A, Part-B and Part C. (i) Part – A – 1 out of 2 questions from Unit – I for 30 Marks, (ii) Part – B – 1 out of 2 questions from Unit – II for 15 Marks, (iii) Part – C – 3 out of 5 questions from Units – III, IV, V for 30 Marks.

8.2.5 For subjects **Structural Engineering – I & II (RCC & STEEL),** the SEE will be conducted for 75 marks consisting of 2 parts viz. (i) Part – A for 15 marks and, (i) Part – B for 60 marks. Part – A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit relating to design theory and codal provisions and carry 2 marks each. The next five sub-questions are from each unit and carry 1 mark each. Part – B consists of 5 questions (numbered 2 to 6) carrying 12 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there is either or choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

8.3 For practical subjects there shall be a continuous internal evaluation during the semester for 25 marks and 75 marks for semester end examination. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The semester end examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the University.

8.4 For the subject having design and/or drawing, (such as engineering graphics, engineering drawing, machine drawing, machine drawing practice and estimation), the distribution shall be 25 marks for continuous internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for semester end examination. There shall be two internal tests in a semester and the average of the two shall be considered for the award of marks for internal tests.

8.5 There shall be an Industrial Oriented Mini Project/Summer Internship, in collaboration with an industry of their specialization. Students will register for this immediately after III year II semester examinations and pursue it during summer vacation. Industrial Oriented Mini Project/Summer Internship shall be submitted in a report form and presented before the committee in IV year I semester. It shall be evaluated for 100 external marks. The committee consists of an external examiner, Head of the Department, supervisor of the Industrial Oriented mini project/Summer Internship and a senior faculty member of the department. There shall be no internal marks for Industrial Oriented Mini Project/Summer Internship.

8.6 There shall be a seminar presentation in IV year I semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 100 internal marks. There shall be no semester end examination for the seminar.

8.7 UG project work shall be carried out in two stages: Project Stage – I during IV Year I Semester, Project Stage – II during IV Year II Semester. Each stage will be evaluated for 100 marks. Student has to submit project work report at the end of each semester. First report includes project work carried out in IV Year I semester and second report includes project work carried out in IV Year I & II Semesters. SEE for both project stages shall be completed before the commencement of SEE Theory examinations.

8.8 For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall evaluate the project work for 75 marks and project supervisor shall evaluate for 25 marks. The student is deemed to have failed, if he (i) does not submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

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

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

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

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

8.10 The laboratory marks and the internal marks awarded by the college are subject to scrutiny and scaling by the University wherever necessary. In such cases, the internal and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University rules and produced before the committees of the University as and when asked for.

8.11 For mandatory courses of Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab, a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course. **These marks should also be uploaded along with the internal marks of other subjects.**

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

9.0 Grading procedure

9.1 Grades will be awarded to indicate the performance of students in each theory subject, laboratory / practicals, seminar, Industry Oriented Mini Project, and project Stage - I & II. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.

9.2 As a measure of the performance of a student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points

Greater than or equal to 90%	**O (Outstanding)**	**10**
80 and less than 90%	**A^+ (Excellent)**	**9**
70 and less than 80%	**A (Very Good)**	**8**
60 and less than 70%	**B^+ (Good)**	**7**
50 and less than 60%	**B (Average)**	**6**
40 and less than 50%	**C (Pass)**	**5**
Below 40%	**F (FAIL)**	**0**
Absent	**Ab**	**0**

9.3 A student who has obtained an '**F**' grade in any subject shall be deemed to have '**failed**' and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.

9.4 To a student who has not appeared for an examination in any subject, '**Ab**' grade will be allocated in that subject, and he is deemed to have '**failed**'. A student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered next. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.

9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

9.6 A student earns grade point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'credit points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

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

9.7 A student passes the subject/ course only when **GP ≥ 5 ('C' grade or above)**

9.8 The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

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

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

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

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

$$\textbf{CGPA} = \{ \textstyle\sum_{j=1}^{M} C_j G_j \} / \{ \sum_{j=1}^{M} C_j \} \textbf{ ... for all S semesters registered}$$

(i.e., up to and inclusive of S semesters, S ≥ 2),

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

Illustration of calculation of SGPA:

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

SGPA = 152/21 = 7.24

Illustration of calculation of CGPA up to 3rd semester:

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

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

CGPA = 518/69 = 7.51

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

9.10 For merit ranking or comparison purposes or any other listing, **only** the '**rounded off**' values of the CGPAs will be used.

9.11 SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester. However, mandatory courses will not be taken into consideration.

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Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

10.0 Passing standards

10.1 A student shall be declared successful or 'passed' in a semester, if he secures a GP ≥ 5 ('C' grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA ≥ 5.00 at the end of that particular semester); and he shall be declared successful or 'passed' in the entire under graduate programme, only when gets a CGPA ≥ 5.00 for the award of the degree as required.

10.2 After the completion of each semester, a grade card or grade sheet shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.), credits earned.

11.0 Declaration of results

11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.

11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

% of Marks = (final CGPA – 0.5) x 10

12.0 Award of degree

12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA ≥ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have **'qualified'** for the award of B.Tech. degree in the chosen branch of Engineering selected at the time of admission.

12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.

12.3 A student with final CGPA (at the end of the under graduate programme) ≥ 8.00, and fulfilling the following conditions - shall be placed in **'first class with distinction'**. However, he

(i) Should have passed all the subjects/courses in **'first appearance'** within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should have secured a CGPA ≥ 8.00, at the end of each of the 8 sequential semesters, starting from I year I semester onwards.

(iii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.

A student not fulfilling any of the above conditions with final CGPA > 8 shall be placed in **'first class'.**

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

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

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

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

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

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

13.0 Withholding of results

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

14.0 Student transfers

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

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

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

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

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

15.0 Scope

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

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

15.3 The University may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the dates notified by the University authorities.

15.4 Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

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

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

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

2. The student shall register for 123 credits and secure 123 credits with CGPA ≥ 5 from II year to IV year B.Tech. programme (LES) for the award of B.Tech. degree.

3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.

4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. Promotion rule

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

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

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

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

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

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

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

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

Malpractices identified by squad or special invigilators

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

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

ACADEMIC REGULATIONS FOR B.TECH. REGULAR STUDENTS WITH EFFECT FROM THE ACADEMIC YEAR 2016-17 (R-16)

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

1.1 JNTUH offers a 4-year (8 semesters) **Bachelor of Technology** (B.Tech.) degree programme, under Choice Based Credit System (CBCS) at its non-autonomous constituent and affiliated colleges with effect from the academic year 2016-17 in the following branches of Engineering:

Sl. No.	Branch
1.	Civil Engineering
2.	Electrical and Electronics Engineering
3.	Mechanical Engineering
4.	Electronics and Communication Engineering
5.	Computer Science and Engineering
6.	Chemical Engineering
7.	Electronics and Instrumentation Engineering
8.	Bio-Medical Engineering
9.	Information Technology
10.	Mechanical Engineering (Mechatronics)
11.	Electronics and Telematics Engineering
12.	Metallurgy and Material Technology
13.	Electronics and Computer Engineering
14.	Mechanical Engineering (Production)
15.	Aeronautical Engineering
16.	Instrumentation and Control Engineering
17.	Biotechnology
18.	Automobile Engineering
19.	Mining Engineering
20.	Petroleum Engineering
21.	Civil and Environmental Engineering
22.	Mechanical Engineering (Nano Technology)
23.	Computer Science & Technology
24.	Pharmaceutical Engineering

2.0 Eligibility for admission

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

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

3.0 B.Tech. Programme structure

3.1 A student after securing admission shall pursue the under graduate programme in B.Tech. in a minimum period of **four** academic years (8 semesters), and a maximum period of **eight** academic years (16 semesters) starting from the date of commencement of first year first semester, failing which student shall forfeit seat in B.Tech course.

Each semester is structured to provide 24 credits, totaling to 192 credits for the entire B.Tech. programme.

Each student shall secure 192 credits (with CGPA ≥ 5) required for the completion of the under graduate programme and award of the B.Tech. degree.

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

3.2.1 Semester scheme

Each under graduate programme is of 4 academic years (8 semesters) with the academic year being divided into two semesters of 22 weeks ($\geq$ 90 instructional days) each, each semester having - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)'. Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) as indicated by UGC and curriculum / course structure as suggested by AICTE are followed.

3.2.2 Credit courses

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

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

Courses like Environmental Science, Professional Ethics, Gender Sensitization lab and other student activities like NCC/NSO and NSS are identified as mandatory courses. These courses will not carry any credits.

3.2.3 Subject Course Classification

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

S. No.	Broad Course Classification	Course Group/ Category	Course Description
1	Foundation Courses (FnC)	BS – Basic Sciences	Includes mathematics, physics and chemistry subjects
2		ES - Engineering Sciences	Includes fundamental Engineering subjects
3		HS – Humanities and Social sciences	Includes subjects related to humanities, social sciences and management
4	Core Courses (CoC)	PC – Professional Core	Includes core subjects related to the parent discipline/ department/ branch of Engineering.
5	Elective Courses (EℓC)	PE – Professional Electives	Includes elective subjects related to the parent discipline/ department/ branch of Engineering.
6		OE – Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the parent discipline/ department/ branch of Engineering.
7	Core Courses	Project Work	B.Tech. project or UG project or UG major project
8		Industrial training/ Mini- project	Industrial training/ Internship/ UG Mini-project/ Mini-project
9		Seminar	Seminar/ Colloquium based on core contents related to parent discipline/ department/ branch of Engineering.
10	Minor courses	-	1 or 2 Credit courses (subset of HS)
11	Mandatory Courses (MC)	-	Mandatory courses (non-credit)

4.0 Course registration

4.1 A 'faculty advisor or counselor' shall be assigned to a group of 15 students, who will advise student about the under graduate programme, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.

4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through 'on-line registration', ensuring 'date and time stamping'. The on-line registration requests for any 'current semester' shall be **completed before the commencement of SEEs (Semester End Examinations) of the 'preceding semester'**.

4.3 A student can apply for **on-line** registration, **only after** obtaining the '**written approval**' from faculty advisor/counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with Head of the Department, faculty advisor/ counselor and the student.

4.4 A student may be permitted to register for the subjects/ courses of **choice** with a total of 24 credits per semester (minimum of 20 credits and maximum of 28 credits per semester and permitted deviation of ± 17%), based on **progress** and SGPA/ CGPA, and completion of the '**pre-requisites**' as indicated for various subjects/ courses, in the department course structure and syllabus contents. However, a **minimum** of 20 credits per semester must be registered to ensure the '**studentship**' in any semester.

4.5 Choice for 'additional subjects/ courses' to reach the maximum permissible limit of 28 credits (above the typical 24 credit norm) must be clearly indicated, which needs the specific approval and signature of the faculty advisor/ counselor.

4.6 If the student submits ambiguous choices or multiple options or erroneous entries during **on-line** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.

4.7 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any unforeseen or unexpected reasons, then the student shall be allowed to have alternate choice either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the head of the department, with due notification and time-framed schedule, within the **first week** after the commencement of class-work for that semester.

4.8 Dropping of subjects/ courses may be permitted, only after obtaining prior approval from the faculty advisor/ counselor (subject to retaining a minimum of 20 credits), '**within a period of 15 days**' from the beginning of the current semester.

4.9 **Open electives**: The students have to choose one open elective (OE-I) in III year I semester, one (OE-II) in III year II semester, and one (OE-III) in IV year II semester, from the list of open electives given. However, the student cannot opt for an open elective subject offered by their own (parent) department, if it is already listed under any category of the subjects offered by parent department in any semester.

4.10 **Professional electives**: students have to choose professional elective (PE-I) in III year II semester, Professional electives II, III, and IV (PE-II, III and IV) in IV year I semester, Professional electives V, and VI (PE-V and VI) in IV year II semester, from the list of professional electives given. However, the students may opt for professional elective subjects offered in the related area.

5.0 Subjects/ courses to be offered

5.1 A typical section (or class) strength for each semester shall be 60.

5.2 A subject/ course may be offered to the students, **only if** a minimum of 20 students (1/3 of the section strength) opt for it. The maximum strength of a section is limited to 80 (60 + 1/3 of the section strength).

5.3 More than **one faculty member** may offer the **same subject** (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester. However, selection of choice for students will be based on - '**first come first serve** basis and CGPA criterion' (i.e. the first focus shall be on early **on-line entry** from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).

5.4 If more entries for registration of a subject come into picture, then the Head of Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.

6.0 Attendance requirements:

6.1 A student shall be eligible to appear for the semester end examinations, if student acquires a minimum of 75% of attendance in aggregate of all the subjects/ courses (excluding attendance in mandatory courses Environmental Science, Professional Ethics, Gender Sensitization Lab, NCC/NSO and NSS) for that semester.

6.2 Shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each semester may be condoned by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.

6.3 A stipulated fee shall be payable towards condoning of shortage of attendance.

6.4 Shortage of attendance below 65% in aggregate shall in **no** case be condoned.

6.5 **Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled. They will not be promoted to the next semester.** They may seek re-registration for all those subjects registered in that semester in which student was detained, by seeking re-admission into that semester as and when offered; in case if there are any professional electives and/ or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.

6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.0 Academic requirements

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

7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% marks (26 out of 75 marks) in the semester end examination, and a minimum of 40% of marks in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing **'C'** grade or above in that subject/ course.

7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to UG mini-project and seminar, if student secures not less than 40% marks (i.e. 40 out of 100 allotted marks) in each of them. The student would be treated as failed, if student (i) does not submit a report on UG mini-project, or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) does not present the seminar as required in the IV year I Semester, or (iii) secures less than 40% marks in UG mini-project/ seminar evaluations.

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

7.3 Promotion Rules

S. No.	Promotion	Conditions to be fulfilled
1	**First year first semester to first year second semester**	**Regular course of study of first year first semester.**
2	**First year second semester to second year first semester**	**i. Regular course of study of first year second semester.** **ii. Must have secured at least 24 credits out of 48 credits i.e., 50% of credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
3.	**Second year first semester to second year second semester**	**Regular course of study of second year first semester.**
4	**Second year second semester to third year first semester**	**i. Regular course of study of second year second semester.** **ii. Must have secured at least 58 credits out of 96 credits i.e., 60% of**

		credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	**Third year first semester to third year second semester**	**Regular course of study of third year first semester.**
6	**Third year second semester to fourth year first semester**	**i. Regular course of study of third year second semester.** **ii. Must have secured at least 86 credits out of 144 credits i.e., 60% of credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
7	**Fourth year first semester to fourth year second semester**	**Regular course of study of fourth year first semester.**

7.4 A student shall register for all subjects covering 192 credits as specified and listed in the course structure, fulfills all the attendance and academic requirements for 192 credits, 'earn all 192 credits' by securing SGPA ≥ 5.0 (in each semester) and CGPA (at the end of each successive semester) ≥ 5.0 to successfully complete the under graduate programme.

7.5 After securing the necessary 192 credits as specified for the successful completion of the entire under graduate programme, the student can avail exemption of two subjects up to 6 credits, that is, one open elective and one professional elective subject or two professional elective subjects for optional drop out from these 192 credits earned; resulting in 186 credits for under graduate programme performance evaluation, i.e., the performance of the student in these 186 credits shall alone be taken into account for the calculation of 'the final CGPA (at the end of under graduate programme, which takes the SGPA of the IV year II semester into account)' , and shall be indicated in the grade card of IV year II semester. However, the performance of student in the earlier individual semesters, with the corresponding SGPA and CGPA for which grade cards have already been given will not be altered.

7.6 If a student registers for some more '**extra subjects**' (in the parent department or other departments/branches of engg.) other than those listed subjects totaling to 192 credits as specified in the course structure of his department, the performances in those '**extra subjects**' (although evaluated and graded using the same procedure as that of the required 192 credits) will not be taken into account while calculating the SGPA and CGPA. For such '**extra subjects**' registered, % of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations 6 and 7.1 – 7.5 above.

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7.7 A student eligible to appear in the end semester examination for any subject/ course, but absent from it or failed (thereby failing to secure **'C'** grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, CIE assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.

7.8 A student **detained in a semester due to shortage of attendance, may be re-admitted when the same semester is offered in the next academic year for fulfillment of academic requirements**. The academic regulations under which student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which student has been detained.

7.9 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required academic credits.** The academic regulations under which student has been readmitted shall be applicable to him.

8.0 Evaluation - Distribution and Weightage of marks

8.1 The performance of a student in every subject/course (including practicals and UG major project) will be evaluated for 100 marks each, with 25 marks allotted for CIE (Continuous Internal Evaluation) and 75 marks for SEE (Semester End-Examination).

8.2 For theory subjects, during a semester, there shall be two mid-term examinations. Each mid-term examination consists of one objective paper, one descriptive paper and one assignment. The objective paper and the essay paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for essay paper). The objective paper is set with 20 bits of multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The essay paper shall contain 4 full questions out of which, the student has to answer 2 questions, each carrying 5 marks. While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus. Five marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-examination, and the second assignment should be submitted before the conduct of the second mid-examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each student in internals/sessionals. If any student is absent from any subject of a mid-term examination, an on-line test will be conducted for him by the university. The details of the question paper pattern are as follows,

- The end semester examinations will be conducted for 75 marks consisting of two parts viz. i) **Part- A** for 25 marks, ii) **Part - B** for 50 marks.
- Part-A is compulsory question which consists of ten sub-questions. The first five sub-questions are from each unit and carry 2 marks each. The next five sub-questions are one from each unit and carry 3 marks each.

- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

8.3 For practical subjects there shall be a continuous internal evaluation during the semester for 25 sessional marks and 75 semester end examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The semester end examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the university.

8.4 For the subject having design and/or drawing, (such as engineering graphics, engineering drawing, machine drawing) and estimation, the distribution shall be 25 marks for continuous internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for semester end examination. There shall be two internal tests in a semester and the average of the two shall be considered for the award of marks for internal tests.

8.5 There shall be an UG mini-project, in collaboration with an industry of their specialization. Students will register for this immediately after III year II semester examinations and pursue it during summer vacation. The UG mini-project shall be submitted in a report form and presented before the committee in IV year I semester. It shall be evaluated for 100 marks. The committee consists of an external examiner, Head of the Department, supervisor of the UG mini-project and a senior faculty member of the department. There shall be no internal marks for UG mini-project.

8.6 There shall be a seminar presentation in IV year I semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 100 marks. There shall be no semester end examination for the seminar.

8.7 Out of a total of 100 marks for the UG major project, 25 marks shall be allotted for internal evaluation and 75 marks for the end semester examination (viva voce). The end semester examination of the UG major project shall be conducted by the same committee as appointed for the UG mini-project. In addition, the UG major project supervisor shall also be included in the committee. The topics for UG mini project, seminar and UG major project shall be different from one another. The evaluation of UG major project shall be made at the end of IV year II semester. The internal evaluation shall be on the basis of two seminars given by each student on the topic of UG major project.

8.8 The laboratory marks and the sessional marks awarded by the college are subject to scrutiny and scaling by the university wherever necessary. In such cases, the sessional and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the university rules and produced before the committees of the university as and when asked for.

8.9 For mandatory courses environmental science, professional ethics and gender sensitization lab, a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course.

8.10 For mandatory courses NCC/ NSO and NSS, a 'satisfactory participation certificate' shall be issued to the student from the authorities concerned, only after securing ≥ 65% attendance in such a course.

8.11 No marks or letter grade shall be allotted for all mandatory/non-credit courses.

9.0 Grading procedure

9.1 Marks will be awarded to indicate the performance of student in each theory subject, laboratory / practicals, seminar, UG mini project and UG major project. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.

9.2 As a measure of the performance of student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

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

9.3 A student obtaining '**F**' grade in any subject shall be deemed to have '**failed**' and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.

9.4 A student who has not appeared for examination in any subject, '**Ab**' grade will be allocated in that subject, and student shall be considered '**failed**'. Student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered.

9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

9.6 A student earns grade point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'credit points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

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

9.7 The student passes the subject/ course only when **GP ≥ 5 ('C' grade or above)**

9.8 The semester grade point average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

$$\textbf{SGPA} = \{ \textstyle\sum_{i=1}^{N} C_i \, G_i \} / \{ \sum_{i=1}^{N} C_i \}$$ **.... For each semester,**

where 'i' is the subject indicator index (takes into account all subjects in a semester), 'N' is the no. of subjects '**registered**' for the semester (as specifically required and listed under the course structure of the parent department), C_i is the no. of credits allotted to the i^{th} subject, and G_i represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

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

$$\textbf{CGPA} = \{ \textstyle\sum_{j=1}^{M} C_j \, G_j \} / \{ \sum_{j=1}^{M} C_j \}$$ **... for all S semesters registered**

(i.e., up to and inclusive of S semesters, S ≥ 2),

where '**M**' is the **total** no. of subjects (as specifically required and listed under the course structure of the parent department) the student has '**registered**' i.e., from the 1st semester onwards up to and inclusive of the 8^{th} semester, 'j' is the subject indicator index (takes

into account all subjects from 1 to 8 semesters), C_j is the no. of credits allotted to the j^{th} subject, and G_j represents the grade points (GP) corresponding to the letter grade awarded for that j^{th} subject. After registration and completion of first year first semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA

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

SGPA = 152/21 = 7.24

Illustration of calculation of CGPA:

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
I Year I Semester				
Course 1	4	A	8	4 x 8 = 32
Course 2	4	A+	9	4 x 9 = 36
Course 3	4	B	6	4 x 6 = 24
Course 4	3	O	10	3 x 10 = 30
Course 5	3	B+	7	3 x 7 = 21
Course 6	3	A	8	3 x 8 = 24
I Year II Semester				
Course 7	4	B+	7	4 x 7 = 28
Course 8	4	O	10	4 x 10 = 40
Course 9	4	A	8	4 x 8 = 32
Course 10	3	B	6	3 x 6 = 18
Course 11	3	C	5	3 x 5 = 15
Course 12	3	A+	9	3 x 9 = 27
	Total Credits = 42			Total Credit Points = 327

CGPA = 327/42 = 7.79

9.10 For merit ranking or comparison purposes or any other listing, **only** the '**rounded off**' values of the CGPAs will be used.

9.11 For calculations listed in regulations 9.6 to 9.9, performance in failed subjects/ courses (securing **F** grade) will also be taken into account, and the credits of such subjects/ courses will also be included in the multiplications and summations. After passing the failed subject(s) newly secured letter grades will be taken into account for calculation of SGPA and CGPA. However, mandatory courses will not be taken into consideration.

10.0 Passing standards

10.1 A student shall be declared successful or 'passed' in a semester, if student secures a GP ≥ 5 ('C' grade or above) in every subject/course in that semester (i.e. when student gets an SGPA ≥ 5.00 at the end of that particular semester); and a student shall be declared successful or 'passed' in the entire under graduate programme, only when gets a CGPA ≥ 5.00 for the award of the degree as required.

10.2 After the completion of each semester, a grade card or grade sheet (or transcript) shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, and grade earned etc.), credits earned, SGPA, and CGPA.

11.0 Declaration of results

11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.

11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

% of Marks = (final CGPA – 0.5) x 10

12.0 Award of degree

12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 192 credits (with CGPA ≥ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have **'qualified'** for the award of the B.Tech. degree in the chosen branch of Engineering as selected at the time of admission.

12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.

12.3 Students with final CGPA (at the end of the under graduate programme) ≥ 8.00, and fulfilling the following conditions -

(i) Should have passed all the subjects/courses in '**first appearance**' within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should have secured a CGPA ≥ 8.00, at the end of each of the 8 sequential semesters, starting from first year first semester onwards.

(iii) Should not have been detained or prevented from writing the end semester examinations in any semester due to shortage of attendance or any other reason, shall be placed in '**first class with distinction**'.

12.4 Students with final CGPA (at the end of the under graduate programme) ≥ 6.50 but < 8.00, shall be placed in '**first class**'.

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

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

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

12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of '**university rank**' and '**gold medal**'.

13.0 Withholding of results

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

14.0 Transitory regulations

14.1 A student who has discontinued for any reason, or has been detained for want of attendance or lack of required credits as specified, or who has failed after having undergone the degree programme, may be considered eligible for readmission to the same subjects/ courses (or equivalent subjects/ courses, as the case may be), and same professional electives/ open electives (or from set/category of electives or equivalents suggested, as the case may be) as and when they are offered (within the time-frame of 8 years from the date of commencement of student's first year first semester).

15.0 Student transfers

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

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

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

semesters of JNTUH, the students have to study those subjects in JNTUH in spite of the fact that those subjects are repeated.

15.4 The transferred students from other Universities/institutions to JNTUH affiliated colleges who are on rolls to be provide one chance to write the CBT (internal marks) in the **failed subjects and/or subjects not studied** as per the clearance letter issued by the university.

15.5 The autonomous affiliated colleges have to provide one chance to write the internal examinations in the **failed subjects and/or subjects not studied,** to the students transferred from other universities/institutions to JNTUH autonomous affiliated colleges who are on rolls, as per the clearance (equivalence) letter issued by the University.

16.0 Scope

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

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

16.3 The university may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the date notified by the university authorities.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

Academic Regulations for B.Tech. (Lateral Entry Scheme) w.e.f the AY 2017-18

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

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

2. The student shall register for 144 credits and secure 144 credits with CGPA ≥ 5 from II year to IV year B.Tech. programme (LES) for the award of B.Tech. degree. **Out of the 144 credits secured, the student can avail exemption up to 6 credits**, that is, one open elective subject and one professional elective subject or two professional elective subjects resulting in 138 credits for B.Tech programme performance evaluation.

3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.

4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. **Promotion rule**

S. No	Promotion	Conditions to be fulfilled
1	Second year first semester to second year second semester	Regular course of study of second year first semester.
2	Second year second semester to third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 29 credits out of 48 credits i.e., 60% of credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3	Third year first semester to third year second semester	Regular course of study of third year first semester.
4	Third year second semester to fourth year first semester	(i) Regular course of study of third year second semester. (ii) Must have secured at least 58 credits out of 96 credits i.e., 60% of credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Fourth year first semester to fourth year second semester	Regular course of study of fourth year first semester.

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

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractice/Improper conduct	Punishment
	If the student:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the students involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the student is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The hall ticket of the student is to be cancelled and sent to the university.
3.	Impersonates any other student in connection with the examination.	The student who has impersonated shall be expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and UG major project) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation

		of the course by the student is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the chief superintendent/assistant – superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the college campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the student(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The students also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.

7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat.
9.	If student of the college, who is not a student for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat. Person(s) who do not belong to the college will be handed over to police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the student has appeared including practical examinations and UG major project of that semester/year examinations.

12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the university for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

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

* * * * *

Examination Reform Policy

November 2018

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

PRINCIPAL

PRINCIPAL
Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

Examination Reform Policy

November 2018


PRINCIPAL
Avanthi Institute of Engg. & Tech.
Gunthapally (V), Abdullapurmet (Md), R.R. Dist.

MESSAGE

AICTE is taking a multi-pronged approach to recalibrate the technical education in the country, to provide competent professionals. Challenged by keeping the pace of education with the advancements in the technology and industry needs, AICTE has pushed reforms by way of a model curriculum for various engineering disciplines, providing good quality self-learning content through MOOCs, framing a policy for the training of technical teachers 3-week student induction program and enunciating guidelines for the mandatory internship for student among others. Continuing with the streak, AICTE has now come out with an Examination Reform Policy, which would not only improve the quality of technical education in general but also examine the effectiveness of earlier initiatives of AICTE and also those on the anvil.

Evaluation, grading and certification in our system rest on examinations which play an important role in the progression of a learner on the learning path. The examinations not only indicate whether the desired learning outcomes have been achieved but also assess the level of achievements against benchmarks. Thus, examinations serve as checkpoints for both the learner and the external world, allowing appropriate certification to be issued reflecting the proficiency of an individual operating in socio-economic spheres.

This policy comes at a time when knowledge is freely available for creating resources, opportunities for more knowledge, which requires skill of higher order beyond remembering and comprehension. This policy intends to push the evaluation notches up on the Bloom's taxonomy and examine the learner for higher order cognitive skills to drive critical thinking, creativity and problem solving which have to be the attributes of any technical professional. It is hoped that this will also force necessary alignment in the teaching-learning processes on one hand to the bridging of the gap between theory and practicals on the other and prepare students for innovation and creativity.

We request the technical institutions and universities in the country to adopt this examination reform policy. To facilitate this, model question papers and question banks will be developed/ shared through AICTE website. With a view to impart momentum to this much-awaited reform, AICTE shall be conducting a series of training workshops for faculty, across the country.

We thank members of the committee led by Prof. Shettar, Vice-Chancellor, KLE University for developing the policy which will go a long way to enhance the employability ratio and also enable youngsters to become problem-solvers, innovators and job creators. We especially thank MHRD for providing guidance and support throughout the process of creation of this Policy.

(Prof. Anil D. Sahasrabudhe)

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PREFACE

Globalisation of the world economy and higher education are driving profound changes in engineering education system. Worldwide adaptation of Outcome-Based Education (OBE) framework and enhanced focus on higher-order learning and professional skills necessitates paradigm shift in traditional practices of curriculum design, education delivery and assessment. In recent years, worldwide sweeping reforms are being undertaken to bring about essential changes in engineering education in terms of what to teach (content) and how to teach (knowledge delivery) and how to assess (student learning).

Examinations/student assessments play a very important role in deciding the quality of education. The academic quality of examinations (question papers) in Indian engineering education system has been a matter of concern from a long time. This report attempts to bring out recommendations for reforms in examination system to meet challenges of emerging engineering education landscape.

The recommendations are presented in four sections. Beginning in Section-1, the most important drivers for examination reforms in Indian engineering education system are discussed. Section-2 brings out strategies to be adopted to align assessment with the desired student learning outcomes. A two-step method is proposed for mapping the examination questions with course outcomes. Section-3 highlights the necessity of designing question papers to test higher order abilities and skills. Application of blooms taxonomy framework to create an optimal structure of examination papers to test the different cognitive skills is discussed in detail. Challenge of assessing higher order abilities and professional skills through traditional examination system is brought out in Section-4. Several educational experiences and assessment opportunities are identified to overcome the challenges. Appendices contain the supplement material that is helpful for Universities/ Colleges to implement recommendations.

At this juncture, reforms in examinations are critical for the improvement of the quality and relevance of Indian engineering education. It is hoped that the Report will be of use to Universities and Colleges to bring out the much-needed change. The cooperation received from AICTE officials in bringing out the Report is gratefully acknowledged.

Prof. Ashok S. Shettar

Prof. Rama Krishna Challa

Prof. Sanjay Agarwal

Prof. Upendra Pandel

ACKNOWLEDGEMENT

The development of an outcome based Examination Reform Policy for technical education is a result of thoughtful deliberations, involving dedicated and specialized experts. This Policy has been framed to meet the expectations of an academically challenging environment, develop problem-solving skills by students, aligning with current global standards and to enrich the students learning to make them self-enablers and/or match job requirements on successful completion of their degree.

The performance-based new-age reforms in the examination will benefit each student for preparing him/her for success in the knowledge society. This will create proper mapping between program outcomes and assessment tools that lead to the accurate and reliable measurement of attainment of outcomes of the students. In short, the Policy focuses on providing the ability of student to understand the subject and apply the knowledge to real world problems.

We are thankful to the members of the committee Prof. Ashok S. Shettar, Prof. Rama Krishna Challa, Prof. Sanjay Agarwal and Prof. Upendra Pandel who were devotedly committed towards framing this Policy. We thank them for identifying Competencies and Performance Indicators (PIs) with Program Outcomes (POs); Sample Questions for all six levels of Bloom's Taxonomy; Model Question Papers for end semester examinations based on Bloom's Taxonomy; and Sample Scoring Rubrics for communication (written & oral), and assessment of design projects and semester mini projects.

Special thanks and gratitude to Prof. Anil D. Sahasrabdhe, Chairman; Prof M.P. Poonia, Vice Chairman and Prof. A.P. Mittal, Member Secretary, AICTE who have been pivotal in developing this Policy and encouraging throughout the process.

I appreciate the officers and officials of Policy & Academic Planning Bureau for their contribution and support in the exercise that has led to this Policy.

I also sincerely thank all officers and officials of AICTE, who have contributed in one way or other for the development of this Policy.

Thanking all once again and seeking continued support and also feedback on the Policy.

(Prof. Rajive Kumar)
Adviser-I
Policy & Academic Planning Bureau, AICTE

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INTRODUCTION

Globalisation of the world economy and higher education are driving profound changes in engineering education system. There is a continuing need to dynamically adapt to these changes, to ensure that we remain competitive and can respond effectively to the challenges of globalisation. Future engineering graduates not only need to be knowledgeable in his/her discipline but also needs a new set of soft, professional skills and competencies [1].

In recent years, there have been essential changes in engineering education in terms of what to teach (content) and how to teach (knowledge delivery) and how to assess (student learning).

AICTE has already taken initiation to come out with model curriculum for engineering programs. The digital initiatives of MHRD and AICTE have made available very large number of MOOC courses through SWAYAM, that can help the colleges and teachers to adopt innovative methodologies in the delivery of course.

The present report focusses on the recommendations for reforms in examinations (assessment of student) in the context of emerging landscape of engineering education.

Examinations/student assessments play a very important role in deciding the quality of education. They must not only assess student's achievements (and grades) but also measure whether the desired learning outcomes have been achieved. The achievement of objectives and program outcomes are crucial and needs to be proven through accurate and reliable assessments.

The academic quality of examinations (question papers) in Indian engineering education system has been a matter of concern from a long time. It is widely acknowledged that "assessment drives learning", what and how students learn depends to a major extent on how they think they will be assessed [2]. The question papers that require simple memory recall will not ensure deep, meaningful learning. High expectations for learning motivate the students to rise to the occasion. The assessment (examination) must embed those high expectations to ensure that the learner is motivated to attain them.

Considering the above imperatives, it is clear that reforms in Examinations are critical for improvement of the quality of Indian engineering education. The most important drivers for reforms in examination system of Indian engineering education are:

1. Adaptation of Outcome-Based Education Framework

Outcome-based education (OBE)- a performance-based approach has emerged as a major reform model in the global engineering education scenario [3]. The country that wants to be a signatory member of a multinational agreement for the mutual recognition of engineering degrees, i.e. the Washington Accord (WA) must implement OBE. This will be an endorsement that the engineering education system has demonstrated a strong, long-term commitment to quality assurance in producing engineers ready for industry practice in the international scene. Being signatory to the Washington Accord, Indian accreditation agency 'National Board of Accreditation (NBA)' has made it mandatory for engineering institutions to adapt OBE framework for their curriculum design, delivery and assessment. In OBE framework, the educational outcomes of a program are clearly and unambiguously specified. These determine the curriculum content and its organization, the teaching methods and strategies and the assessment process.

Though Indian Universities and Colleges have started adapting OBE framework for their engineering programs, the focus is limited to the curriculum design part, i.e. connecting curriculum components to the program outcomes. Very little attention is being given for connecting examination questions/assessment tools to the program outcomes. The absence of proper mapping between program outcomes and assessment tools lead to the inaccurate and unreliable measurement of attainment of outcomes by the students. This missing connect creates a big gap in the effective adaptation of OBE framework, making the whole exercise futile.

2. Importance of Higher-order Abilities and Professional Skills

In the present examination system, memorization occupies a dominant place. The recall of factual knowledge, though essential to any examination, is only one of several major abilities to be demonstrated by the graduates. The assessment process must also test higher level skills viz. ability to apply knowledge, solve complex problems, analyse, synthesise and design. Further, professional skills like the ability to communicate, work in teams, lifelong learning have become important elements for employability of the graduates [4]. It is important that the examinations also give appropriate weightage to the assessment of these higher-level skills and professional competencies.

Keeping in view of the above challenges and looking at some of the worldwide best practices in assessment, the present report comes up with several recommendations that can be used by Universities/ Colleges to design their assessment strategies.

ASSESSMENT STRATEGY FOR OUTCOME-BASED EDUCATION

1. Mapping Program Outcomes to Assessment (Examinations)

Graduate attributes (GAs) articulate the generic abilities to be looked for in a graduate of any undergraduate degree program. They form the Program Outcomes (POs) that reflect the skills, knowledge and abilities of graduates regardless of the field of study. This does not mean that POs are necessarily independent of disciplinary knowledge –rather, these qualities may be developed in various disciplinary contexts.

In outcome-based education, a "design down" process is employed which moves from POs to Course Outcomes (COs) and outcomes for individual learning experiences. Outcomes at each successive level need to be aligned with, and contribute to, the program outcomes.

Courses are the building blocks of a program. Teaching strategies, learning activities, assessments and resources should all be designed and organized to help students achieve the learning outcomes at the course level. In the assessment activities, students demonstrate their level of achievement of the course learning outcomes. In a constructively aligned program, the courses are carefully coordinated to ensure steady development or scaffolding from the introduction to mastery of the learning outcomes, leading to achievement of the intended POs. For the effectiveness of the program, the achievement of POs is crucial which needs to be proven through accurate and reliable assessments.

2. Two-step Process for Bringing Clarity to POs

POs give useful guidance at the program level for the curriculum design, delivery and assessment of student learning. However, they represent fairly high-level generic goals that are not directly measurable. Real observability and measurability of the POs at course level is very difficult. To connect high-level learning outcomes (POs) with course content, course outcomes and assessment, there is a necessity to bring further clarity and specificity to the program outcomes [5]. This can be achieved through the following two-step process of identifying Competencies and Performance Indicators (PI).

(1) Identify Competencies to be attained: For each PO define competencies –different abilities implied by program outcome statement that would generally require different assessment measures. This helps us to create a shared understanding of the competencies we want students to achieve. They serve as an intermediate step to the creation of measurable indicators.

Example:

Program Outcome (Attribute 3)

Design:

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and

design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

Competencies

1. Demonstrate an ability to define a complex, open-ended problem in engineering terms.
2. Demonstrate an ability to generate a diverse set of alternative design solutions.
3. Demonstrate an ability to select the optimal design scheme for further development.
4. Demonstrate an ability to advance an engineering design to the defined end state.

(2) Define Performance Indicators: For each of the competencies identified, define performance Indicators (PIs) that are explicit statements of expectations of the student learning. They can act as measuring tools in assessment to understand the extent of attainment of outcomes. They can also be designed to determine the appropriate achievement level or competency of each indicator so that instructors can target and students can achieve the acceptable level of proficiency.

Example:

For the Competency -2

Demonstrate an ability to generate a diverse set of alternative design solutions

Performance Indicators:

1. Apply formal idea generation tools to develop multiple engineering design solutions
2. Build models, prototypes, algorithms to develop a diverse set of design solutions
3. Identify the functional and non-functional criteria for evaluation of alternate design solutions.

It should be noted that, when we consider the program outcome, it looks like, it can be achieved only in the Capstone project. But if we consider the competencies and performance indicators, we start seeing the opportunities of addressing them (and hence PO) in various courses of the program.

Once the above process is completed for the program, the assessment of COs for all the courses is designed by connecting assessment questions (used in various assessment tools) to the PIs. By following this process, where examination questions map with PIs, we get clarity and better resolution for the assessment of COs and POs. The pictorial representation of the process is given in Fig. 1

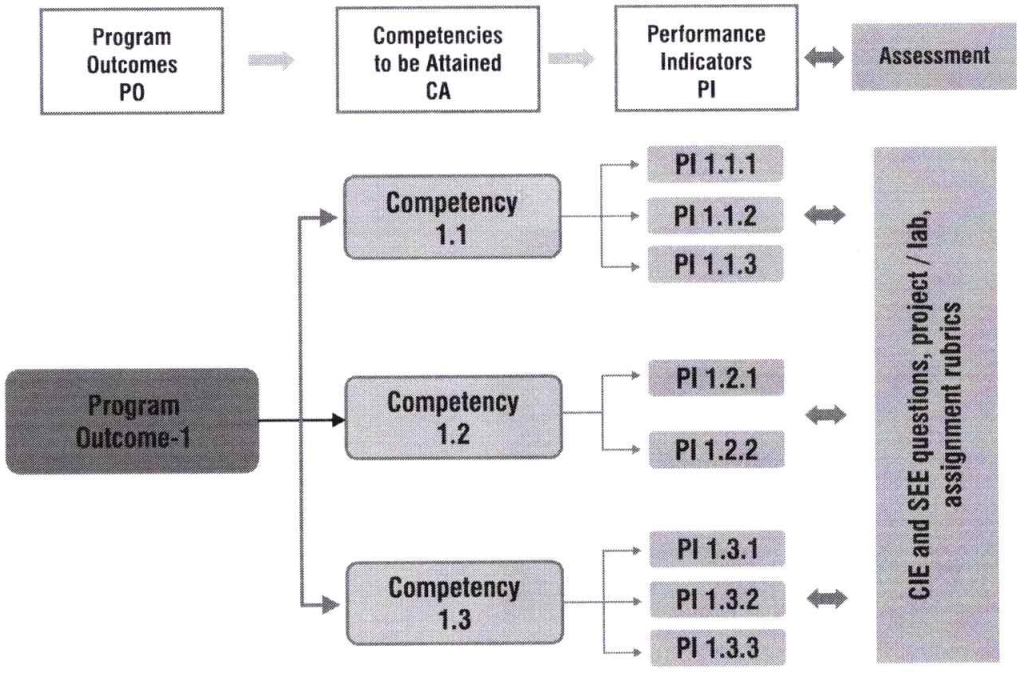

Fig. 1: Connecting POs to Assessment

3. Program Outcomes – Competencies – Performance Indicators

Following table gives the suggestive list of competencies and associated performance indicators for each of the PO in Mechanical Engineering Program.

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.	
Competency	**Indicators**
1.1 Demonstrate competence in mathematical modelling	1.1.1 Apply mathematical techniques such as calculus, linear algebra, and statistics to solve problems 1.1.2 Apply advanced mathematical techniques to model and solve mechanical engineering problems
1.2 Demonstrate competence in basic sciences	1.2.1 Apply laws of natural science to an engineering problem
1.3 Demonstrate competence in engineering fundamentals	1.3.1 Apply fundamental engineering concepts to solve engineering problems
1.4 Demonstrate competence in specialized engineering knowledge to the program	1.4.1 Apply Mechanical engineering concepts to solve engineering problems.
PO 2: Problem analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	
Competency	**Indicators**
2.1 Demonstrate an ability to identify and formulate complex engineering problem	2.1.1 Articulate problem statements and identify objectives 2.1.2 Identify engineering systems, variables, and parameters to solve the problems 2.1.3 Identify the mathematical, engineering and other relevant knowledge that applies to a given problem

2.2	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1	Reframe complex problems into interconnected sub-problems
		2.2.2	Identify, assemble and evaluate information and resources.
		2.2.3	Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions
		2.2.4	Compare and contrast alternative solution processes to select the best process.
2.3	Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy.
		2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.
2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1	Apply engineering mathematics and computations to solve mathematical models
		2.4.2	Produce and validate results through skilful use of contemporary engineering tools and models
		2.4.3	Identify sources of error in the solution process, and limitations of the solution.
		2.4.4	Extract desired understanding and conclusions consistent with objectives and limitations of the analysis

PO 3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

Competency		Indicators	
3.1	Demonstrate an ability to define a complex/ open-ended problem in engineering terms	3.1.1	Recognize that need analysis is key to good problem definition
		3.1.2	Elicit and document, engineering requirements from stakeholders
		3.1.3	Synthesize engineering requirements from a review of the state-of-the-art
		3.1.4	Extract engineering requirements from relevant engineering Codes and Standards such as ASME, ASTM, BIS, ISO and ASHRAE.
		3.1.5	Explore and synthesize engineering requirements considering health, safety risks, environmental, cultural and societal issues
		3.1.6	Determine design objectives, functional requirements and arrive at specifications
3.2	Demonstrate an ability to generate a diverse set of alternative design solutions	3.2.1	Apply formal idea generation tools to develop multiple engineering design solutions
		3.2.2	Build models/prototypes to develop a diverse set of design solutions
		3.2.3	Identify suitable criteria for the evaluation of alternate design solutions
3.3	Demonstrate an ability to select an optimal design scheme for further development	3.3.1	Apply formal decision-making tools to select optimal engineering design solutions for further development
		3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development
3.4	Demonstrate an ability to advance an engineering design to defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)
		3.4.2	Generate information through appropriate tests to improve or revise the design

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Competency		Indicators	
4.1	Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	4.1.1	Define a problem, its scope and importance for purposes of investigation
		4.1.2	Examine the relevant methods, tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation
		4.1.3	Apply appropriate instrumentation and/or software tools to make measurements of physical quantities
		4.1.4	Establish a relationship between measured data and underlying physical principles.

4.2	Demonstrate an ability to design experiments to solve open-ended problems	4.2.1	Design and develop an experimental approach, specify appropriate equipment and procedures
		4.2.2	Understand the importance of the statistical design of experiments and choose an appropriate experimental design plan based on the study objectives
4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, tools and techniques to conduct experiments and collect data
		4.3.2	Analyze data for trends and correlations, stating possible errors and limitations
		4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
		4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

Competency		Indicators	
5.1	Demonstrate an ability to identify/ create modern engineering tools, techniques and resources	5.1.1	Identify modern engineering tools such as computer-aided drafting, modeling and analysis; techniques and resources for engineering activities
		5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems
5.2	Demonstrate an ability to select and apply discipline-specific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.
		5.2.2	Demonstrate proficiency in using discipline-specific tools
5.3	Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.3.1	Discuss limitations and validate tools, techniques and resources
		5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Competency		Indicators	
6.1	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level
6.2	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.2.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.

Competency		Indicators	
7.1	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts	7.1.1	Identify risks/impacts in the life-cycle of an engineering product or activity
		7.1.2	Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability

7.2	Demonstrate an ability to apply principles of sustainable design and development	7.2.1	Describe management techniques for sustainable development
		7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Competency		Indicators	
8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives
8.2	Demonstrate an ability to apply the Code of Ethics	8.2.1	Identify tenets of the ASME professional code of ethics
		8.2.2	Examine and apply moral & ethical principles to known case studies

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Competency		Indicators	
9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team
		9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal.
9.2	Demonstrate effective individual and team operations--communication, problem-solving, conflict resolution and leadership skills	9.2.1	Demonstrate effective communication, problem-solving, conflict resolution and leadership skills
		9.2.2	Treat other team members respectfully
		9.2.3	Listen to other members
		9.2.4	Maintain composure in difficult situations
9.3	Demonstrate success in a team-based project	9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

Competency		Indicators	
10.1	Demonstrate an ability to comprehend technical literature and document project work	10.1.1	Read, understand and interpret technical and non-technical information
		10.1.2	Produce clear, well-constructed, and well-supported written engineering documents
		10.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear
10.2	Demonstrate competence in listening, speaking, and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others
		10.2.2	Deliver effective oral presentations to technical and non-technical audiences
10.3	Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations
		10.3.2	Use a variety of media effectively to convey a message in a document or a presentation

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PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	
Competency	**Indicators**
11.1 Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.1.1 Describe various economic and financial costs/benefits of an engineering activity 11.1.2 Analyze different forms of financial statements to evaluate the financial status of an engineering project
11.2 Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1 Analyze and select the most appropriate proposal based on economic and financial considerations.
11.3 Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.3.1 Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks. 11.3.2 Use project management tools to schedule an engineering project, so it is completed on time and on budget.
PO 12: Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	
Competency	**Indicators**
12.1 Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1 Describe the rationale for the requirement for continuing professional development 12.1.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
12.2 Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1 Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current 12.2.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
12.3 Demonstrate an ability to identify and access sources for new information	12.3.1 Source and comprehend technical literature and other credible sources of information 12.3.2 Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.

The above table can be used for most of the engineering programs. However, for Computer Science & Engineering/ Information Technology programs it requires some modifications.

A suggestive list of competencies and associated performance indicators for Computer Science & Engineering/ Information Technology **Programs is given in Appendix- A.**

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IMPROVING STRUCTURE AND QUALITY OF ASSESSMENTS

For improving the structure and quality of assessment in various engineering programs following points need to be remembered:

1. In Indian engineering education system, written examinations play a major role in assessing the learning and awarding of grades to the student. Universities and colleges give highest weightage to the outcomes of the written examinations in overall grading. Questions raised in the examination/test papers play an important role in defining the level of learning the student is expected to achieve in the courses and hence in the program. Since assessment drives learning, the design of question papers needs to go beyond the mere test of memory recall. They also need to test higher-order abilities and skills.

2. Written examinations assess a very limited range of outcomes and cognitive levels. Particularly in the courses, where course outcomes (COs) cover a broad range of expectations, written examinations alone will not be sufficient to make valid judgements about student learning. A wide range of assessment methods (e.g., term papers, open-ended problem-solving assignments, course/lab project rubrics, portfolios etc.) need to be employed to ensure that assessment methods match with learning outcomes.

3. It is advisable to formulate assessment plans for each of the course in the program that brings clarity to the following:

   a. Alignment of assessment with learning outcome of the course

   b. Level of learning (cognitive) student is expected to achieve

   c. Assessment method to be adapted

The method to align examination questions/assessment to COs and hence POs was discussed in the section-1. The following sections discuss the application of Bloom's taxonomy framework to create the optimal structure of examination papers to test the different cognitive skills.

1. Bloom's Taxonomy for Assessment Design

Bloom's Taxonomy provides an important framework to not only design curriculum and teaching methodologies but also to design appropriate examination questions belonging to various cognitive levels. Bloom's Taxonomy of Educational Objectives developed in 1956 by Benjamin Bloom [6] was widely accepted by educators for curriculum design and assessment. In 2001, Anderson and Krathwohl modified Bloom's taxonomy [7] to make it relevant to the present-day requirements. It attempts to divide learning into three types of domains (cognitive, affective, and behavioural) and then defines the level of performance for each domain. Conscious efforts to map the curriculum and assessment to these levels can help the programs to aim for higher-level abilities which go beyond remembering or understanding, and require application, analysis, evaluation or creation.

Revised Bloom's taxonomy in the cognitive domain includes thinking, knowledge, and application of knowledge. It is a popular framework in engineering education to structure the assessment as it characterizes complexity and higher-order abilities. It identifies six levels of competencies within the cognitive domain (Fig. 2) which are appropriate for the purposes of engineering educators.

According to revised Bloom's taxonomy, the levels in the cognitive domain are as follows:

Level	Descriptor	Level of attainment
1	Remembering	Recalling from the memory of the previously learned material
2	Understanding	Explaining ideas or concepts
3	Applying	Using the information in another familiar situation
4	Analysing	Breaking information into the part to explore understandings and relationships
5	Evaluating	Justifying a decision or course of action
6	Creating	Generating new ideas, products or new ways of viewing things

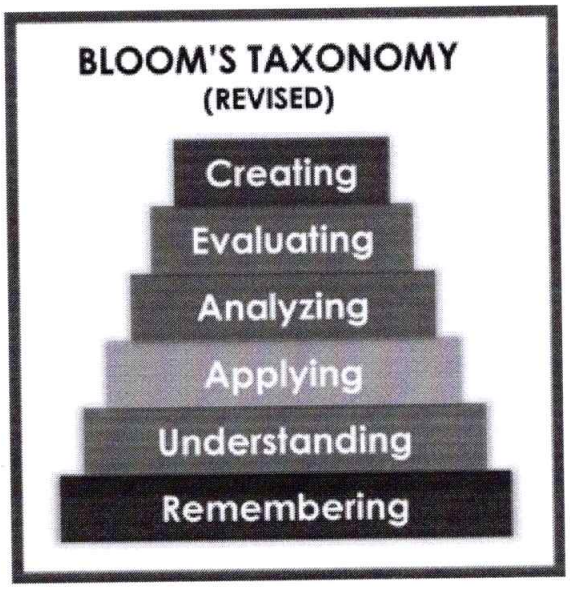

Fig. 2: Revised Bloom's Taxonomy

Bloom's taxonomy is hierarchical, meaning that learning at the higher level requires that skills at a lower level are attained.

2. Action Verbs for Assessment

Choice of action verbs in constructing assessment questions is important to consider. Quite often, the action verbs are indicators of the complexity (level) of the question. Over time, educators have come up with a taxonomy of measurable verbs corresponding to each of the Bloom's cognitive levels [8]. These verbs help us not only to describe and classify observable knowledge, skills and abilities but also to frame the examination or assignment questions that are appropriate to the level we are trying to assess.

Suggestive list of skills/ competencies to be demonstrated at each of the Bloom's level and corresponding cues/ verbs for the examination/ test questions is given below:

Level	Skill Demonstrated	Question cues / Verbs for tests
1. Remember	• Ability to recall of information like facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria • ability to recall methodology and procedures, abstractions, principles, and theories in the field • knowledge of dates, events, places • mastery of subject matter	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where
2. Understand	• understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss
3. Apply	• use information • use methods, concepts, laws, theories in new situations • solve problems using required skills or knowledge • Demonstrating correct usage of a method or procedure	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
4. Analyse	• break down a complex problem into parts • Identify the relationships and interaction between the different parts of a complex problem • identify the missing information, sometimes the redundant information and the contradictory information, if any	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
5. Evaluate	• compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument • verify value of evidence • recognize subjectivity • use of definite criteria for judgments	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
6. Create	• use old ideas to create new ones • Combine parts to make (new) whole, • generalize from given facts • relate knowledge from several areas • predict, draw conclusions	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

It may be noted that some of the verbs in the above table are associated with multiple Bloom's Taxonomy levels. These verbs are actions that could apply to different activities. We need to keep in mind that it's the skill, action or activity we need students to demonstrate that will determine the contextual meaning of the verb used in the assessment question.

3. Assessment Planning

While using Bloom's taxonomy framework in planning and designing of assessment of student learning, following points need to be considered:

1. Normally the first three learning levels; remembering, understanding and applying and to some extent fourth level analysing are assessed in the Continuous Internal Evaluation (CIE) and Semester End

Examinations (SEE), where students are given a limited amount of time. And abilities; analysis, evaluation and creation can be assessed in extended course works or in a variety of student works like course projects, mini/ minor projects, internship experience and final year projects.

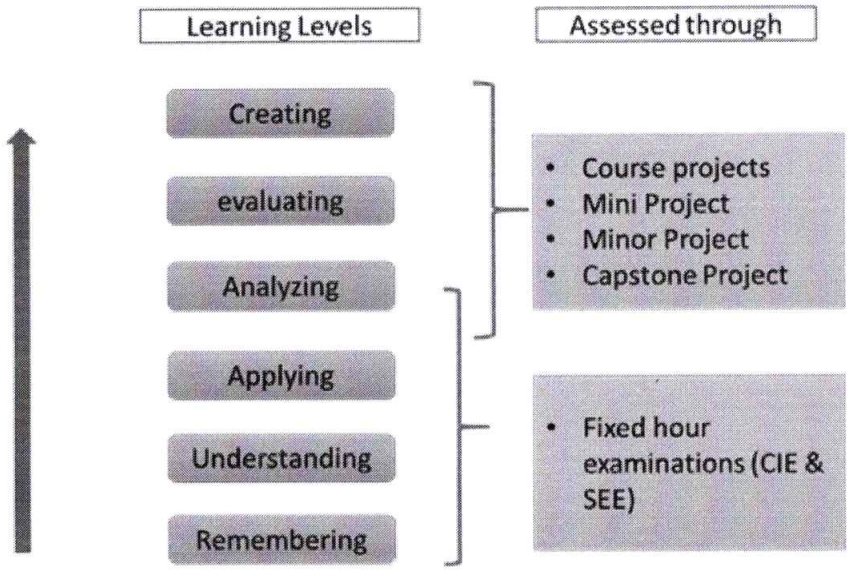

Fig. 3: Assessment methods for different Bloom's cognitive levels

2. Before adopting this framework for reforms in examination system of a University/Institution, it is worthwhile to study the present pattern of assessment in each of the course in the program to gain insight about:

    a) Alignment of assessment questions with course learning outcomes

    b) Whether all the learning outcomes are tested; sometimes some learning outcomes are over tested at the expense of others which may be not tested at all.

    c) Overall weightage in the assessment, to each of Bloom's learning levels

    d) Assessment methods used to adequately assess the content and desired learning outcomes

    Based on the study, improvement priorities for each of the above factors need to be arrived at. The reform process needs to be well planned and implemented through institutional strategy and communicated to all stakeholders particularly to the students.

3. A good and reasonable examination paper must consist of various difficulty levels to accommodate the different capabilities of students. Bloom's taxonomy framework helps the faculty to set examination papers that are well balanced, testing the different cognitive skills without a tilt towards a tough or easy paper perception. If the present examination questions are more focused towards lower cognitive skills, conscious efforts need to be made to bring in application skills or higher cognitive skills in the assessment. It is recommended that at institution/ University level, upper limit need to be arrived for lower order skills (for example, no more than 40% weightage for knowledge-oriented questions). It is important to note that, as nature of every course is different, the weightage for different cognitive levels in the question papers can also vary from course to course.

    - Examples of typical questions for each of Bloom's cognitive level are given in Appendix-B
    - Model Question Papers are given in Appendix- C

ASSESSING HIGHER-ORDER ABILITIES & PROFESSIONAL SKILLS

In the 21st century, professional skills (also known as soft skills, generic skills or transferable skills) have emerged as important attributes of a graduate engineer. Studies show that Industry/ employers around the world value these abilities more than the disciplinary knowledge. This is also reflected in the NBA graduate attributes wherein six out of twelve attributes belong to this category, viz. (1) communication, (2) teamwork, (3) understanding ethics and professionalism, (4) understanding global and societal contexts, (5) lifelong learning, and (6) knowledge of contemporary issues. Further, higher-order cognitive abilities like critical thinking, problem-solving and making informed decisions are also crucial for a graduate to succeed in the emerging world. Though the employers consider these professional skills and higher abilities as important, students are weak in them. The main challenge surrounding them is that they are difficult to assess through existing conventional examination system.

1. Innovative Educational Experiences to Teach and Assess

One of the main obstacles in addressing these outcomes is the limitation of educational experience we create within our engineering programs. Most of the coursework in our programs are oriented towards teaching technical knowledge and skills; hence, the assessment is limited to those abilities. However, acquiring the professional outcomes may not result simply from participation in a particular class or set of classes. Rather, these outcomes are more often acquired or influenced through sources both in and outside the classroom [4].

To address these challenges, comprehensive reforms are needed in the way we design our curriculum, student learning experiences and assessment of the outcomes. Worldwide several attempts are being made to address these challenges. Following are the few educational experiences that are recommended to teach and assess professional outcomes and higher-order cognitive abilities:

- Course projects
- Open-ended experiments in laboratories
- Project-based learning modules
- MOOCs
- Co-Curricular experiences
- Mini / Minor projects
- Final year projects
- Internship experiences
- E-portfolios of student works

2. Using Scoring Rubrics as Assessment Tool

To evaluate the above, student works for attainment of course outcomes and hence POs, it is of

utmost importance to have reliable methods / proper assessment tools. Rubrics provide a powerful tool for assessment and grading of student work. They can also serve as a transparent and inspiring guide to learning. Rubrics are scoring, or grading tool used to measure a students' performance and learning across a set of criteria and objectives. Rubrics communicate to students (and to other markers) your expectations in the assessment, and what you consider important.

There are three components within rubrics namely (i) criteria / performance Indicator: the aspects of performance that will be assessed, (ii) descriptors: characteristics that are associated with each dimension, and (iii) scale/level of performance: a rating scale that defines students' level of mastery within each criterion.

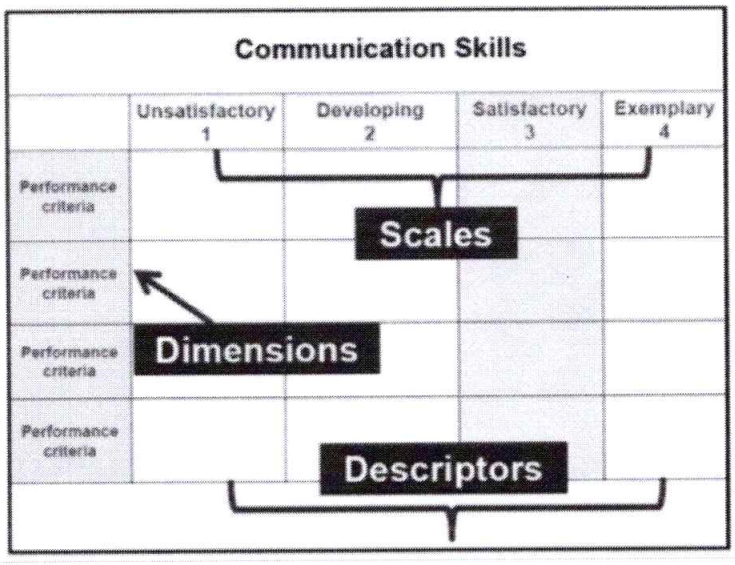

Fig. 4: Examples of Rubrics (Accessed from Rogers 2010)

3. Open-Book Examinations

In the earlier sections it was noted that the traditional written examinations have a significant weakness that they tend to encourage rote learning and more superficial application of knowledge. This deficiency can be overcome by "open-book examination". Open-book examination is similar to time constrained written examinations but designed in a way that allows students to refer to either class notes, textbooks, or other approved material while answering questions. They are particularly useful if you want to test skills in application, analysis and evaluation, i.e. higher levels of Bloom's taxonomy. However, in a program, the courses or the curriculum areas that are best suited to an open-book exam are to be carefully chosen.

Advantages of open-book examinations

1. Less demanding on memory and hence less stressful
2. Questions can emphasise more on problem-solving, application of knowledge and higher-order thinking rather than simple recall of facts.
3. Assessment questions can reflect real-life situations that require comprehension, information retrieval and synthesising skills of the students to solve.

Designing a good open-book examination

- Set questions that require students to do things with the information available to them, rather than to merely locate the correct information and then summarize or rewrite it.
- The questions in open-book exam must take advantage of the format, and give more weightage

to the application of knowledge, critical thinking and use of resources for solving real complex engineering problems.

- As the nature of questions is complex, it is to be ensured that the students get enough time. Open book test questions typically take longer time compared to traditional examinations. It is advisable either to set less number of questions that encompass 2 or 3 concepts taught or allocate longer duration of time for the examinations.

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Appendix-A

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation for the solution of complex engineering problems.

Competency		Indicators	
1.2	Demonstrate competence in mathematical modelling	1.2.1	Apply the knowledge of discrete structures, linear algebra, statistics and numerical techniques to solve problems
		1.2.2	Apply the concepts of probability, statistics and queuing theory in modeling of computer-based system, data and network protocols.
1.5	Demonstrate competence in basic sciences	1.5.1	Apply laws of natural science to an engineering problem
1.6	Demonstrate competence in engineering fundamentals	1.6.1	Apply engineering fundamentals
1.7	Demonstrate competence in specialized engineering knowledge to the program	1.7.1	Apply theory and principles of computer science and engineering to solve an engineering problem

PO 2: Problem analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Competency		Indicators	
2.1	Demonstrate an ability to identify and formulate complex engineering problem	2.5.1	Evaluate problem statements and identifies objectives
		2.5.2	Identify processes/modules/algorithms of a computer-based system and parameters to solve a problem
		2.5.3	Identify mathematical algorithmic knowledge that applies to a given problem
2.6	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.6.1	Reframe the computer-based system into interconnected subsystems
		2.6.2	Identify functionalities and computing resources.
		2.6.3	Identify existing solution/methods to solve the problem, including forming justified approximations and assumptions
		2.6.4	Compare and contrast alternative solution/methods to select the best methods
		2.6.5	Compare and contrast alternative solution processes to select the best process.
2.7	Demonstrate an ability to formulate and interpret a model	2.7.1	Able to apply computer engineering principles to formulate modules of a system with required applicability and performance.
		2.7.2	Identify design constraints for required performance criteria.
2.8	Demonstrate an ability to execute a solution process and analyze results	2.8.1	Applies engineering mathematics to implement the solution.
		2.8.2	Analyze and interpret the results using contemporary tools.
		2.8.3	Identify the limitations of the solution and sources/causes.
		2.8.4	Arrive at conclusions with respect to the objectives.

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PO 3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.			
Competency		**Indicators**	
3.5	Demonstrate an ability to define a complex/ open-ended problem in engineering terms	3.5.1	Able to define a precise problem statement with objectives and scope.
		3.5.2	Able to identify and document system requirements from stake- holders.
		3.5.3	Able to review state-of-the-art literature to synthesize system requirements.
		3.5.4	Able to choose appropriate quality attributes as defined by ISO/IEC/IEEE standard.
		3.5.5	Explore and synthesize system requirements from larger social and professional concerns.
		3.5.6	Able to develop software requirement specifications (SRS).
3.6	Demonstrate an ability to generate a diverse set of alternative design solutions	3.6.1	Able to explore design alternatives.
		3.6.2	Able to produce a variety of potential design solutions suited to meet functional requirements.
		3.6.3	Identify suitable non-functional requirements for evaluation of alternate design solutions.
3.7	Demonstrate an ability to select optimal design scheme for further development	3.7.1	Able to perform systematic evaluation of the degree to which several design concepts meet the criteria.
		3.7.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development
3.8	Demonstrate an ability to advance an engineering design to defined end state	3.8.1	Able to refine architecture design into a detailed design within the existing constraints.
		3.8.2	Able to implement and integrate the modules.
		3.8.3	Able to verify the functionalities and validate the design.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
Competency		**Indicators**	
4.4	Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	4.4.1	Define a problem for purposes of investigation, its scope and importance
		4.4.2	Able to choose appropriate procedure/algorithm, dataset and test cases.
		4.4.3	Able to choose appropriate hardware/software tools to conduct the experiment.
4.5	Demonstrate an ability to design experiments to solve open-ended problems	4.5.1	Design and develop appropriate procedures/methodologies based on the study objectives
4.6	Demonstrate an ability to analyze data and reach a valid conclusion	4.6.1	Use appropriate procedures, tools and techniques to collect and analyze data
		4.6.2	Critically analyze data for trends and correlations, stating possible errors and limitations
		4.6.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
		4.6.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

Competency		Indicators	
5.4	Demonstrate an ability to identify/create modern engineering tools, techniques and resources	5.4.1	Identify modern engineering tools, techniques and resources for engineering activities
		5.4.2	Create/adapt/modify/extend tools and techniques to solve engineering problems
5.5	Demonstrate an ability to select and apply discipline-specific tools, techniques and resources	5.5.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.
		5.5.2	Demonstrate proficiency in using discipline-specific tools
5.6	Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.6.1	Discuss limitations and validate tools, techniques and resources
		5.6.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Competency		Indicators	
6.3	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.3.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level
6.4	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.4.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.

Competency		Indicators	
7.3	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts	7.3.1	Identify risks/impacts in the life-cycle of an engineering product or activity
		7.3.2	Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability
7.4	Demonstrate an ability to apply principles of sustainable design and development	7.4.1	Describe management techniques for sustainable development
		7.4.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Competency		Indicators	
8.3	Demonstrate an ability to recognize ethical dilemmas	8.3.1	Identify situations of unethical professional conduct and propose ethical alternatives

8.4	Demonstrate an ability to apply the Code of Ethics	8.4.1 Identify tenets of the ASME professional code of ethics 8.4.2 Examine and apply moral & ethical principles to known case studies

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Competency		Indicators
9.4	Demonstrate an ability to form a team and define a role for each member	9.4.1 Recognize a variety of working and learning preferences; appreciate the value of diversity on a team 9.4.2 Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal.
9.5	Demonstrate effective individual and team operations--communication, problem-solving, conflict resolution and leadership skills	9.5.1 Demonstrate effective communication, problem-solving, conflict resolution and leadership skills 9.5.2 Treat other team members respectfully 9.5.3 Listen to other members 9.5.4 Maintain composure in difficult situations
9.6	Demonstrate success in a team-based project	9.6.1 Present results as a team, with smooth integration of contributions from all individual efforts

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

Competency		Indicators
10.4	Demonstrate an ability to comprehend technical literature and document project work	10.4.1 Read, understand and interpret technical and non-technical information 10.4.2 Produce clear, well-constructed, and well-supported written engineering documents 10.4.3 Create flow in a document or presentation - a logical progression of ideas so that the main point is clear
10.5	Demonstrate competence in listening, speaking, and presentation	10.5.1 Listen to and comprehend information, instructions, and viewpoints of others 10.5.2 Deliver effective oral presentations to technical and non-technical audiences
10.6	Demonstrate the ability to integrate different modes of communication	10.6.1 Create engineering-standard figures, reports and drawings to complement writing and presentations 10.6.2 Use a variety of media effectively to convey a message in a document or a presentation

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Competency		Indicators
11.4	Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.4.1 Describe various economic and financial costs/benefits of an engineering activity 11.4.2 Analyze different forms of financial statements to evaluate the financial status of an engineering project
11.5	Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.5.1 Analyze and select the most appropriate proposal based on economic and financial considerations.

11.6	Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.6.1 Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks. 11.6.2 Use project management tools to schedule an engineering project, so it is completed on time and on budget.
PO 12: Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
Competency		**Indicators**
12.4	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.4.1 Describe the rationale for the requirement for continuing professional development 12.4.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
12.5	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.5.1 Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current 12.5.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
12.6	Demonstrate an ability to identify and access sources for new information	12.6.1 Source and comprehend technical literature and other credible sources of information 12.6.2 Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.


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Appendix-B

SAMPLES QUESTIONS FOR BLOOMS TAXONOMY LEVELS:

1. REMEMBER

Skill Demonstrated	Question Ques / Verbs for tests
• Ability to recall of information like, facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria • ability to recall methodology and procedures, abstractions, principles, and theories in the field • knowledge of dates, events, places • mastery of subject matter	list, define, describe, state, recite, recall, identify, show, label, tabulate, quote, name, who, when, where, etc.

Sample Questions:

1. State Ohm's law
2. List the physical and chemical properties of silicon
3. List the components of A/D converter
4. List the arithmetic operators available in C in increasing order of precedence.
5. Define the purpose of a constructor.
6. Define the terms: Sensible heat, Latent heat and Total heat of evaporation
7. List the assembler directives.
8. Describe the process of galvanisation and tinning
9. Write truth table and symbol of AND, OR, NOT, XNOR gates
10. Define the terms: Stress, Working stress and Factor of safety.
11. What is the difference between declaration and definition of a variable/function?
12. List the different storage class specifiers in C.
13. What is the use of local variables?
14. What is a pointer to a pointer?
15. What are the valid places for the keyword "break" to appear?
16. What is a self-referential structure?

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2. UNDERSTAND

Skill Demonstrated	Question Ques / Verbs for tests
• understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss

Sample Questions:

1. Explain the importance of sustainability in Engineering design
2. Explain the behaviour of PN junction diode under different bias conditions
3. Describe the characteristics of SCR and transistor equivalent for a SCR
4. Explain the terms: Particle, Rigid body and Deformable body giving two examples for each.
5. How many values of the variable num must be used to completely test all branches of the following code fragment?

```
if (num>0)
    if (value<25)
{
        value=10*num;
        if(num<12)
                value=value/10;
}
else
        Value=20*num;
else
        Value=30*num
```

6. Discuss the effect of Make in India initiative on the Indian manufacturing Industry.
7. Summarise the importance of ethical code of conduct for engineering professionals
8. Explain the syntax for 'for loop'.
9. What is the difference between including the header file with-in angular braces < > and double quotes " "?
10. What is the meaning of base address of the array?
11. What is the difference between actual and formal parameters?
12. Explain the different ways of passing parameters to the functions.
13. Explain the use of comma operator (,).
14. Differentiate between entry and exit controlled loops.
15. How is an array different from linked list?

3. APPLY

Skill Demonstrated	Question Ques / Verbs for tests
• use information • use methods, concepts, laws, theories in new situations • solve problems using required skills or knowledge • Demonstrating correct usage of a method or procedure	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify

Sample Questions:

1. Model and realize the following behaviors using diodes with minimum number of digital inputs.

   (i) Turning on of a burglar alarm only during night time when the locker door is opened.

   (ii) Providing access to an account if either date of birth or registered mobile number or both are correct.

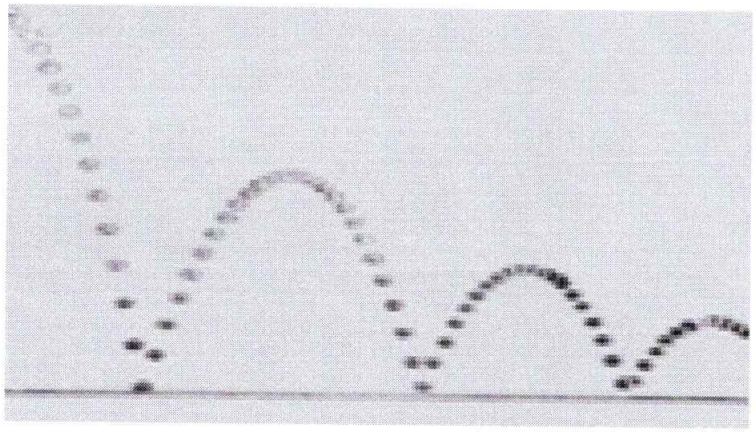
   (iii) Updating the parking slot empty light in the basement of a shopping mall.

2. One of the resource persons needs to address a huge crowd (nearly 400 members) in the auditorium. A system is to be designed in such a way that everybody attending the session should be able to hear properly and clearly without any disturbance. Identify the suitable circuit to boost the voice signal and explain its functionality in brief.

3. A ladder 5.0 m long rests on a horizontal ground & leans against a smooth vertical wall at an angle 20^0 with the vertical. The weight of the ladder is 900 N and acts at its middle. The ladder is at the point of sliding, when a man weighing 750 N stands on a rung 1.5 m from the bottom of the ladder. Calculate the coefficient of friction between the ladder & the floor.

4. A ball is dropped from 6 meters above a flat surface. Each time the ball hits the surface after falling a distance h, it rebounds a distance rh. What will be the total distance the ball travels in each of the following cases.

   (a) r>1 (b) 0<r<1 (c) r=1



5. The region bounded by the curves y=e ^ ((-1)□x),y=0,x=1, and x=5 is rotated about the x-axis. Use Simpson's Rule with n=8 to estimate the volume of the resulting solid.

6. An electric train is powered by machine which takes the supply from 220 V DC rail running above the train throughout. Machine draws current of 100 A from the DC rail to account for high torque during starting and runs at 700 r.p.m initially. Calculate the new speed of the train once it picks up the speed

where the torque output required is only 70% of starting torque. Assume the motor has a resistance of 0.1Ω across its terminals.

7. Write an algorithm to implement a stack using queue.

8. A single array A[1..MAXSIZE] is used to implement two stacks. The two stacks grow from opposite ends of the array. Variables top1 and top2 (topl< top2) point to the location of the topmost element in each of the stacks. What is the condition for "stack full", if the space is to be used efficiently.

9. Consider the following table of arrival time and burst time for three processes P0, P1 and P2.

Process	Arrival time	Burst Time
P0	0 ms	9 ms
P1	1 ms	4 ms
P2	2 ms	9 ms

The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?

10. A CPU generates 32-bit virtual addresses. The page size is 4 KB. The processor has a translation look-aside buffer (TLB) which can hold a total of 128-page table entries and is 4-way set associative. What is the minimum size of the TLB tag?

4. ANALYZE

Skill Demonstrated	Question Ques / Verbs for tests
• break down a complex problem into parts. • Identify the relationships and interaction between the different parts of complex problem	classify, outline, break down, categorize, analyse, diagram, illustrate, infer, select

Sample Questions:

1. A class of 10 students consists of 5 males and 5 females. We intend to train a model based on their past scores to predict the future score. The average score of females is 60 whereas that of male is 80. The overall average of the class is 70. Give two ways of predicting the score and analyse them for fitting model.

2. Suppose that we want to select between two prediction models, M1 and M2. We have performed 10 rounds of 10-fold cross-validation on each model, whereas the same data partitioning in round one is used for both M1 and M2. The error rates obtained for M1 are 30.5, 32.2, 20.7, 20.6, 31.0, 41.0, 27.7, 26.0, 21.5, 26.0. The error rates for M2 are 22.4, 14.5, 22.4, 19.6, 20.7, 20.4, 22.1, 19.4, 16.2, 35.0. Comment on whether one model is significantly better than the other considering a significance level of 1%.

3. Return statement can only be used to return a single value. Can multiple values be returned from a function? Justify your answer.

4. Bob wrote a program using functions to find sum of two numbers whereas Alex wrote the statements to find the sum of two numbers in the main() function only. Which of the two methods is efficient in execution and why?

5. Carly wants to store the details of students studying in 1st year and later on wishes to retrieve the

information about the students who score the highest marks in each subject. Specify the scenario where the data can be organized as a single 2-D array or as multiple 1-D arrays.

6. Dave is working on a Campus Management Software but is unable to identify the maximum number of students per course. He decided to implement the same using arrays but discovered that there is memory wastage due to over-provisioning. Which method of memory storage should be used by Dave and how it can be implemented using C?

7. Albert is working on a 32-bit machine whereas Julie is working on a 64-bit machine. Both wrote the same code to find factorial of a number but Albert is unable to find factorial of a number till 9 whereas Julie is able to find the factorial of higher number. Identify the possible reason why Albert is unable to find the factorial. Suggest some changes in the code so that Albert can handle bigger inputs.

8. While writing a C code, the problem faced by the programmers is to find if the parenthesis is balanced or not. Write an algorithm to check if the parenthesis in C code are balanced. Initially your code should work for balanced { and } braces.

9. Swapping of the data in a linked list can be performed by swapping the contents in the linked list. Can the contents of a linked list be swapped without actually swapping the data?

5. EVALUATE

Skill Demonstrated	Question Ques / Verbs for tests
• compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument • verify value of evidence • recognize subjectivity • use of definite criteria for judgments	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate

6. CREATE

Skill Demonstrated	Question Ques / Verbs for tests
• use old ideas to create new ones • Combine parts to make (new) whole, • generalize from given facts • relate knowledge from several areas • predict, draw conclusions	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

Both higher order cognitive skills 'Evaluate' and 'Create' are difficult to assess in time-limited examinations. These need to be assessed in variety of student works like projects, open ended problem-solving exercises etc. Typical examples of problem statements or need statements which need higher order abilities to solve are given below

Sample Problem / Need statements:

1. Automatic tethering of milking machine to the udder of a cow. A milk diary wants to automate the milking process. The milking process involves attaching the milking cups to the teats. Design a system for the same.

2. An electric vehicle uses LIoN batteries. The batteries have to be charged and get discharged during use.

The batteries require continuous monitoring during charging and discharging so that they remain healthy and yield a long life. Design a system to monitor and manage the health of the batteries.

3. A Biotech industry needs automation for filling its product into 20 ltr bottles. Design a system to meter the flow into the bottles so that each bottle has 20 ltr of the liquid. There will be more than one filling station and the system has to monitor all the filling stations as well as keep count of the total production on a daily basis.
4. Microwave Doppler radar with a range of 9m are available for motion detection. Design a surround view monitoring system for a 3 wheeler to detect human obstacles while the vehicle is in motion.
5. Design a system to assist the driver by using cameras to detect lane markers and pedestrians while the vehicle is in motion.
6. Develop a small size USB 2.0 / 3.0 CMOS camera system which can be used for industrial inspection, medical applications, microscopy, etc. The system should be able to capture the image quickly and be able to process the captured image and then store it also

Appendix-C

MODEL QUESTION PAPER

Course: Programming for Problem solving (ESC 103)
Maximum Marks :100; Duration: 03 hours

Q.No	Questions	Marks	CO	BL	PI
1(a)	Explain the steps involved in solving a problem using computer.	08	CO1	L2	1.4.1
1(b)	Write an algorithm to find roots of a quadratic equation ax2 + bx +c = 0 reading the values of a, b and c.	12	CO2	L3	1.4.1
2(a)	Compare if-else-if and switch statement giving examples for their relevant use.	08	CO2	L2	1.4.1
2b	Write a C program that reads a given integer number and checks whether it a palindrome. A palindrome is a number that has same value even when it is reversed. Eg: 12321 is a palindrome.	12	CO3	L3	1.4.1
3a	Compare the working of three looping constructs of C language giving their syntax.	08	CO3	L2	1.4.1

3b	What does the following program do?
	#include <stdio.h>
	int main()
	{
	char ch;
	int vcnt = 0, ccnt=0;
	for (ch = getchar(); ch != '\n'; ch=getchar()){
	if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u' ||
	ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U')
	vcnt++;
	else if((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z'))
	ccnt++;
	}
	printf(" %d %d\n", vcnt, ccnt);
	}
	Rewrite the above program using while and switch constructs.
		12	CO4	L4	1.4.1

4a	Compare call by value and call by reference with relevant examples.	8	CO3	L2	1.4.1
4b	Write a C function to find the largest and smallest in a given list of integers of size n using call by reference: void minmax(int list[ ], int n, int *min, int *max);	12	CO3	L3	1.4.1
5a	Explain at least four file handling operations available in C language giving their syntax.	4	CO3	L2	1.4.1
5b	Identify the bug in the following function written to return the swapped values of two integer variables given:				

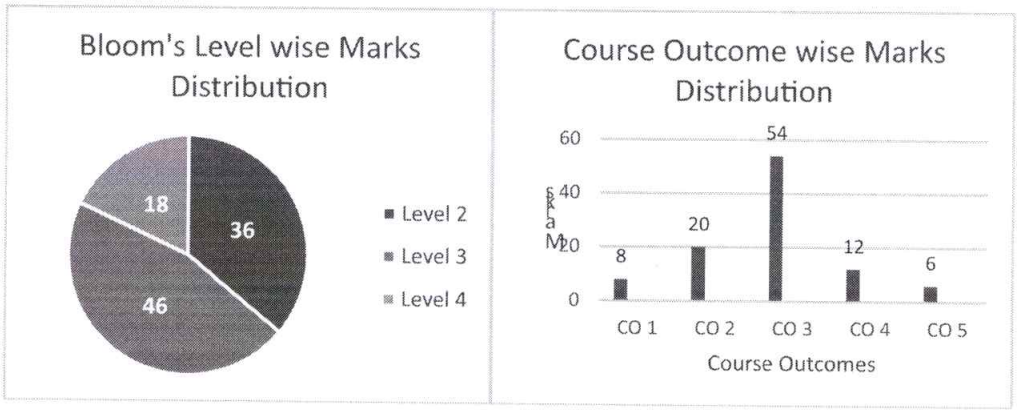
	int swap(int *x, int *y)
	{
	int *temp;
	temp = x, x=y, y = temp;
	}
		6	CO5	L4	1.4.1

5c	Define a structure to store time with three components hours, mins and seconds. Write a modular C program to compute the time taken by an athlete to complete a marathon reading the start and end time of his run.	10	CO3	L3	1.4.1

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

PO – Program Outcomes; PI Code – Performance Indicator Code



MODEL QUESTION PAPER FOR END SEMESTER EXAMINATION

Course Name: Programming for Problem Solving
Duration: 3 hrs. ; Max. Marks: 100

Instructions:

a. Attempt five questions selecting ONE from each section. Question 9 (Section E) is compulsory.

b. All the questions carry equal marks.

c. Draw neat diagrams wherever applicable.

Q. No	Question	Marks	BL	CO	PO	PI Code
	Section-A					
1.	a. What is an algorithm? Explain the characteristics of an algorithm.	2+6	1,2	2	1	1.4.1
	b. Write an algorithm to find angle between hour and minute hands of a clock at a given time.	7	3	3	1	1.4.1
	c. Is it mandatory to declare main() function with return type as void or int. What will be the effect if there is no return type declared for main() function?	3+2	4	3	1	1.4.1
	OR					
2.	a. What is the difference between definition and declaration in C? When a user writes "int x;" is it treated as declaration or definition in C.	3+2	2,4	3	1	1.4.1
	b. Write a program in C to find largest of 3 positive integer numbers using conditional operators.	7	3	3	1,2	1.4.1, 2.2.4
	c. What is meant by iterative statements? What are the different types of iterative statements in C?	8	1,2	3	1	1.4.1
	Section-B					
3.	a. Bob has placed N objects in a row which are marked with a number equal to their weight in Kg. He wants to check whether the objects are in increasing order of their weights or not. Write a C program to help Bob.	12	3	3,6,7	1,2	1.4.1, 2.2.4
	b. Differentiate between Big-O and Big-Omega notation.	4	2	3	1	1.4.1
	c. What is the role of index in an array? How are the elements of a 2D array accessed in C?	2+2	2	3	1	1.4.1
	OR					
4.	a. Ram is conducting a study which is based on counting the number of cars crossing the highway. Every hour he generates a random string containing sequence of characters <rbwbwr...>, where r represents red color, w denotes white color and b denotes blue color cars. The string is forwarded to Shyam for analysis who computes the number of red, blue and white color cars crossing Ram every hour. Assume that Ram works for 5 hours in a day, help Shyam generate a daily report containing the following: i. Total number of different colour cars crossing Ram in an hour. ii. Total number of different colour cars crossing Ram in a day. iii. Total number of cars crossing Ram in a day.	4+4+4	3	3,6,7	1,2	1.4.1, 2.2.4

	b. What is a variable? Explain the ways to declare scope of a variable.	2+6	1,2	3	1	1.4.1
	Section-C					
5.	a. Write a program which will read positive integer numbers from the users and compute the sum if the number can be expressed as power of 2. The test whether a number can be expressed as power of 2 will be done using a function power_of_two(int a).	12	3	3,6,7	1,2	1.4.1
	b. What is recursion? Differentiate between homogeneous and heterogeneous recursion with the help of an example.	2+3+3	2	3	1	1.4.1
	OR					
6.	a. What are the different ways to pass parameters to a function? Explain with the help of a suitable example.	4+4	2	3,5	1	1.4.1
	b. Is it possible to return multiple values from a function? Justify the statement with the help of an example.	4+8	3	3,6,7	1,2	1.4.1
	Section-D					
7.	a. What is a structure? What is the benefit offered by using a structure over multiple arrays?	2+6	2	5	1	1.4.1
	b. Ram is working on a project which requires returning multiple values from a function. He observed that a return statement can only be used to return a single value from a function. How the function should be implemented so that multiple values can be returned by Ram?	12	4	5	1	1.4.1
	OR					
8.	a. Write a program that reads a number as input from the user. The entered number is written to a file "even.txt" if the input is even else it is written to "odd.txt". Write a C code to perform the desired task.	12	3	5	1	1.4.1
	b. What are the different methods to open a file? Explain each with the help of a C program.	3+5	2	5	1	1.4.1
	Section-E (Compulsory Question)					
9.	a. What is a compiler? List names of any 2 compilers.	2 ½	1	1	1	1.4.1
	b. What are the benefits of designing a flowchart for solving a problem?	2 ½	4	2	1	1.4.1

	c. What is the output of the following code?
	int main(){
	int x=10;
	int y=sizeof(x/2);
	printf("%d",y); }
		2 ½	3	4	1	1.4.1

	d. What is the difference between creating constant using #define macro and const keyword?	2 ½	3	3	1	1.4.1
	e. What is the role of function prototype? When is it required in C?	2 ½	2	3	1	1.4.1
	f. Which of the following are unary operators in C? State reason for your answer. a. ! b. sizeof c. ~ d. &&	2 ½	2	3	1	1.4.1

	g. Which of the following special symbol allowed in a variable name? State reason for your answer. a. * (asterisk) b. | (pipeline) c. - (hyphen) d. _ (underscore)	2 ½	2	3	1	1.4.1
	h. In which header file is the NULL macro defined? State reason for your answer. a. stdio.h b. stddef.h c. stdio.h and stddef.h d. math.h	2 ½	2	3	1	1.4.1

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

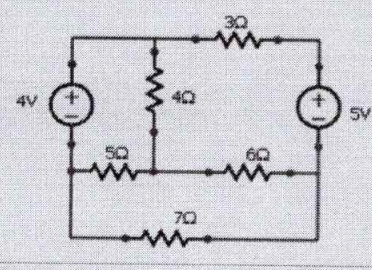
PO – Program Outcomes; PI Code – Performance Indicator Code

MODEL QUESTION PAPER

Total Duration (H:M): 3:00

Course : Basic Electrical Engineering (ESC101)

Maximum Marks :100

Q.No	Questions	Marks	CO	BL	PI
1(a)	Calculate current through 4 Ω resistor using Kirchoff's Laws? Verify the same using Superposition Theorem.  	12	CO1	L3	1.3.1
1(b)	Derive the expression for the transient current in a series 'R-L' circuit when a 'dc' voltage of V volts is applied. Sketch time variation of current in the circuit.	8	CO1	L2	1.3.1
2(a)	Two impedances Z1=15+j12Ω and Z2=8-j5 Ω are connected in parallel. If the potential difference across one of the impedance is 250 V, calculate i) total current and branch currents ii) total power and power consumed in each branch iii) overall p.f. IV) draw the phasor diagram	12	CO2	L3	1.3.1
2b	It is desired to operate a 100 W, 120 V, electric bulb at its rated current on a 240 V, 50 Hz supply. The simplest arrangement is to use either (a) a resistor, or (b) a capacitor or (c) an inductor having 10 Ω resistance in series with the electric bulb so as to drop the excess voltage. Determine the value of the component used, the total power consumed and the power factor in each case. Giving reasons, state which alternative is the best.	8	CO2	L4	1.3.1

3a	A single phase 25 kVA 1000/2000 V, 50 Hz transformer has maximum efficiency of 98% at full load upf. Determine its efficiency at, (a) 3/4th full load, unity power factor (b) 3/4th full load 0.8 power factor	12	CO3	L3	1.3.1
3b	Explain the working of a practical transformer with relevant phasor diagram. and define voltage regulation.	8	CO3	L2	1.3.1
4a	A two pole 3 phase 50 Hz induction motor is running on load with a slip of 4%. Calculate the actual speed and the synchronous speed of the machine. Sketch the speed/ load characteristic of the machine.	8	CO4	L2	1.3.1
4b	A wireless battery powered drilling machine operates on 24 V DC with constant speed and negligible field current. Initially when the machine is powered it runs at 1200 rpm and draws 0.5 A from the battery. Further when the drill bit starts drilling the hole, the speed reduces to 1120 rpm. Determine power requirement from the battery for drilling if the resistance of the armature is 0.2Ω. What is the power drawn initially?	12	CO4	L4	1.3.1
5a	Explain the working principle of a single phase pulse width modulated voltage source inverter with relevant circuit diagram and draw the output voltage wave form.	8	CO5	L2	1.3.1
5b	To protect an expensive circuit component from being delivered too much power, you decide to incorporate a fast blowing fuse into the design. Knowing that the circuit component is connected to 12 V, its minimum power consumption is 12 watts and the maximum power it can safely dissipate is 100 watts, which of the three available fuse ratings should you select: 1A , 4A or 10 A? Give reasons.	6	CO6	L4	1.3.1
5c	Calculate the i) ampere-hour and ii) watt-hour efficiency of a secondary cell which is discharged at a uniform rate of 30 A for 6 hours at an average terminal voltage of 2 V. It is then charged at a uniform rate of 40 A for 5 hours to restore it to its original condition. The terminal voltage during charging is 2.5 V.	6	CO6	L3	1.3.1

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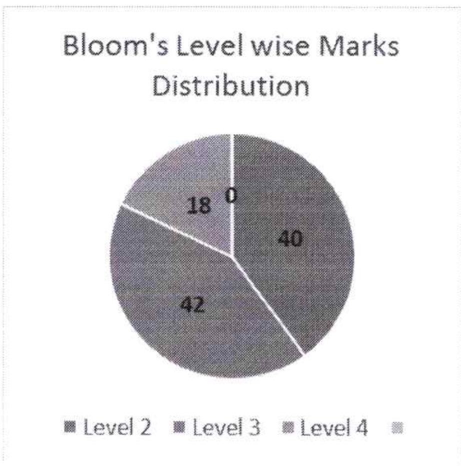

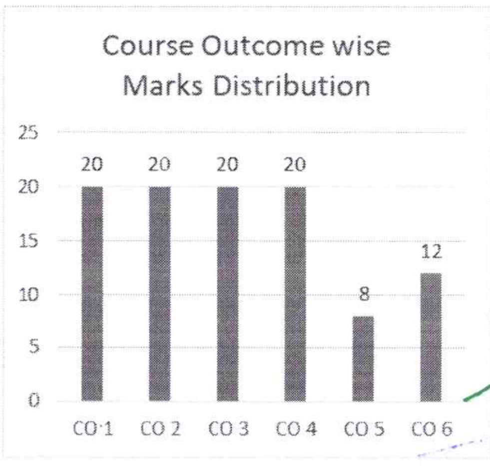

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APPENDIX
Sample Scoring Rubrics

Appendix-D

RUBRICS FOR COMMUNICATION (WRITTEN & ORAL)

Component	Proficient	Acceptable	Needs Improvements
Written Communication	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. Grammatical and spelling errors make it difficult for the reader to interpret the text in places.
Presentation Visual Aids	Slides are error-free and logically present the main components of the process and recommendations. Material is readable and the graphics highlight and support the main ideas.	Slides are error-free and logically present the main components of the process and recommendations. Material is mostly readable and graphics reiterate the main ideas.	Slides contain errors and lack a logical progression. Major aspects of the analysis or recommendations are absent. Diagrams or graphics are absent or confuse the audience.
Oral Presentation	Speakers are audible and fluent on their topic, and do not rely on notes to present or respond. Speakers respond accurately and appropriately to audience questions and comments.	Speakers are mostly audible and fluent on their topic, and require minimal referral to notes. Speakers respond to most questions accurately and appropriately.	Speakers are often inaudible or hesitant, often speaking in incomplete sentences. Speakers rely heavily on notes. Speakers have difficulty responding clearly and accurately to audience questions.
Body Language	Body language, as indicated by appropriate and meaningful gestures (e.g., drawing hands inward to convey contraction, moving arms up to convey lift, etc.) eye contact with audience, and movement, demonstrates a high level of comfort and connection with the audience.	Body language, as indicated by a slight tendency to repetitive and distracting gestures (e.g., tapping a pen, wringing hands, waving arms, clenching fists, etc.) and breaking eye contact with audience, demonstrates a slight discomfort with the audience.	Body language, as indicated by frequent, repetitive and distracting gestures, little or no audience eye-contact, and /or stiff posture and movement, indicate a high degree of discomfort interacting with audience.

RUBRICS FOR ASSESSMENT OF DESIGN PROJECTS

Category	Needs Improvements	Acceptable	Proficient
Purpose of the Project	Does not clearly explain the intended outcome of the project or provides little information about the problem that was being solved, the need being met, or why the project was selected	Provides a description of the intended outcome of the project which includes information about the problem that was being solved or the need being met, and why the project was selected	Provides a detailed intended outcome of the project which includes information about the problem that was being solved or the need being met, and clearly articulates the reasons and decision-making process used to select the project
Research	Lacks awareness of similar work done by others in an unacceptable literary form	Reflects awareness of similar work done by others and presents it in an acceptable literary format	•Reflects thorough understanding of similar work done by others and presents it in an acceptable literary format
Choices	Lacks justification of choices with little or no references to functional, aesthetic, social, economic, or environmental considerations	Justifies choices made with reference to functional, aesthetic, social, economic, or environmental considerations	Demonstrates sophisticated justification of choices with reference to functional, aesthetic, social, economic, or environmental consideration
Alternative Designs	Only one design presented or clearly infeasible alternative given. Serious deficiencies in exploring and identifying alternative designs.	Alternative approaches identified to some degree.	Final design achieved after review of reasonable alternatives.
Application of Engineering Principles	No or erroneous application of engineering principles yielding unreasonable solution. Serious deficiencies in proper selection and use of engineering principles.	Effective application of engineering principles resulting in reasonable solution.	Critical selection and application of engineering principles ensuring reasonable results.
Final Design	Not capable of achieving desired objectives.	Design meets desired objectives.	Design meets or exceeds desired objectives.
Interpretation of Results	No or erroneous conclusions based on achieved results. Serious deficiencies in support for stated conclusions.	Sound conclusions reached based on achieved results.	Insightful, supported conclusions and recommendations.

Rubrics can also be used effectively to design the continuous assessment of the student projects. The Performance Indicators referred to in the previous sections can be used measurement criteria in the rubric. In the following example, we can see that for different phases of the students projects, we can design the rubrics keeping in mind the deliverables of the project at that particular stage.

5 - SEMESTER MINI PROJECT

RUBRICS FOR REVIEW – I

PI Code	PI	Marks	Very Poor Up to 20%	Poor Up to 40%	Average Up to 60%	Good Up to 80%	Very good Up to 100%
2.1.1	Articulate problem statements and identify objectives - GA	02	Problem statement and objectives are not identified	Problem statement and objectives are not clear	Problem statement is clear and objectives are not in line with problem statement	Problem statement is clear and objectives are not completely defined.	Problem statement is clear and objectives are completely defined
2.1.2	Identify engineering systems, variables, and parameters to solve the problems - IA	02	Engineering systems are not identified. Variables, and parameters to solve the problems are not defined	Engineering systems are identified but not clear. Variables, and parameters to solve the problems are not defined	Engineering systems are clear. Variables, and parameters to solve the problems are not defined	Engineering systems are identified. Variables, and parameters to solve the problems are partially defined	Engineering systems are identified. Variables, and parameters to solve the problems are completely defined
2.2.3	Identify existing processes/ solution methods for solving the problem, including forming justified approximations and assumptions - GA	02	Not able to identify existing solution for solving the problem. The assumptions, approximations and justifications are also not identified.	Not able to identify existing solution for solving the problem. The assumptions, approximations and justifications are identified but not clear	Not able to identify existing solution for solving the problem. But assumptions and approximations are aligned to the objectives.	Able to identify existing solution for solving the problem. Assumptions, and approximations are clear	Able to identify existing solution for solving the problem. But assumptions, approximations and justifications are clear
2.2.4	Compare and contrast alternative solution processes to select the best process - GA	02	Not able to identify alternative solution processes	Not able to compare alternative solution processes	Able to compare alternative solution processes but could not contrast clearly	Able to compare alternative solution processes and contrast clearly but not able to select best process	Able to compare alternative solution processes, contrast it and also able to select best process
10.1.1	Read, understand and interpret technical and non-technical information - GA	02	Not able to identify technical and non-technical information	Able to identify non-technical information	Able to read technical and non-technical information, but could not understand and interpret	Able to read, understand technical and non-technical information, but could not interpret	Able to read, understand and interpret technical and non-technical information

GA – Group Assessment IA – Individual Assessment

RUBRICS FOR REVIEW – II

PI Code	PI	Marks	Very Poor Up to 20%	Poor Up to 40%	Average Up to 60%	Good Up to 80%	Very good Up to 100%
3.2.1	Apply formal idea generation tools to develop multiple engineering design solutions - GA	02	Not able to identify tools to develop solutions	Able to identify but not able to use it effectively	Able to use the tool but not able to generate engineering designs	Able to generate engineering designs but not able to justify	Able to generate engineering designs with justification
3.2.3	Identify suitable criteria for evaluation of alternate design solutions - GA	02	Not able to identify criteria	Able to identify criteria but not able to use them	Able to use criteria but not able to compare alternatives	Not able to justify the comparison with criteria	Able to justify the comparison with criteria
3.3.1	Apply formal decision-making tools to select optimal engineering design solutions for further development - GA	02	Not able to identify decision-making tools	Able to identify but not able to choose optimum one	Able to identify optimum one but not able to use it	Able to use optimum one but not able to justify	Able to use optimum one with justification
3.2.2	Build models/ prototypes to develop diverse set of design solutions - IA	02	Not able to identify tool to build model/ prototype	Able to choose the tool but not able to use it effectively	Able to use the tool but not able to generate alternatives	Able to generate alternatives but not able to justify the best solution	Able to generate and justify the best solution
13.1.1	Develop 2D drawings of components/ systems using modern CAD tools - IA	02	Not able to identify CAD tools	Able to identify but not able to use CAD tool	Able to use CAD tool but not able to generate drawings	Able to generate drawings but not able to follow drawing standards	Able to generate drawings with standards
13.1.2	Develop 3D models of components/systems using modern CAD tools - IA	03	Not able to identify CAD tools	Able to identify but not able to use CAD tool	Able to use CAD tool but not able to generate 3D models	Able to generate models but not able to follow standards	Able to generate models with standards
13.1.3	Apply GD&T principles as per ASME standards to manufacturing drawings, with all relevant data like material, hardness, surface finish, and tolerances - IA	02	Not able to extract GD&T principles from ASME standards	Able to extract but not able to understand them	Able to understand but not able to apply GD&T standards	Able to apply GD&T standards to drawings but not able to justify	Able to apply and justify GD&T standards to drawings

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GA – Group Assessment IA – Individual Assessment

RUBRICS FOR REVIEW – III

PI Code	PI	Marks	Very Poor Up to 20%	Poor Up to 40%	Average Up to 60%	Good Up to 80%	Very good Up to 100%
3.4.2	Generate information through appropriate tests to improve or revise design - GA	02	Not able to identify suitable tests to be done	Able to identify but not able to follow testing procedure	Able to follow testing procedures but not able to collect information	Able to collect information but not able to apply it for improvement	Able to apply information for the improvement
4.3.1	Use appropriate procedures, tools and techniques to conduct experiments and collect data - GA	04	Not able to identify tools, techniques and procedures	Able to identify but not able to conduct experiments	Able to conduct experiments but not able to follow procedure	Able to follow procedure but not able to collect data	Able to collect data as per the standards
4.3.2	Analyze data for trends and correlations, stating possible errors and limitations - GA	03	Not able to understand data	Able to understand but not able to analyze data	Able to analyze data but not able to correlate them	Able to correlate but not able to identify errors and limitations	Able to identify errors and limitations
10.2.2	Deliver effective oral presentations to technical and non-technical audiences - IA	03	Could not deliver effective presentations.	Could not deliver presentation, but presentation was prepared and attempted.	Able to deliver fair presentation but not able to answer to the audiences	Deliver effective presentations but able to answer partially to the audience queries.	Deliver effective presentation and able to answer all queries of the audience.
9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts – GA + IA	03	No Contribution from an individual to a team	Contributions from an individual to a team is minimal	Contributions from an individual to a team is moderate	A contribution from an individual to a team is good but not well groomed in team.	Contribution from an individual to a team is good and results in an integrated team presentation.

GA – Group Assessment IA – Individual Assessment

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AICTE COMMITTEE ON EXAMINATION REFORMS

Members of the Committee

1. **Prof. Ashok S. Shettar, Chairman**
   Vice Chancellor, KLE Technological University, Hubballi, Karnataka
2. **Prof. Rama Krishna Challa,**
   Head, Dept. of Computer Science and Engineering, NITTTR, Chandigarh
3. **Prof. Sanjay Agrawal**
   Dept. of Computer Engineering and Applications, NITTR, Bhopal (M.P)
4. **Prof. Upendra Pandel**
   Dept. of Metallurgical & Material Engineering, MNIT, Jaipur

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by State Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

- **Academic requirements**

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

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

- **Promotion Rules**

S. No.	Promotion	Conditions to be fulfilled
1	**First year first semester to first year second semester**	**Regular course of study of first year first semester.**
2	**First year second semester to second year first semester**	**(i) Regular course of study of first year second semester.**

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		(ii) Must have secured at least 18 credits out of 37 credits i.e., 50% credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3.	**Second year first semester to second year second semester**	**Regular course of study of second year first semester.**
4	**Second year second semester to third year first semester**	**(i) Regular course of study of second year second semester.** **(ii) Must have secured at least 47 credits out of 79 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
5	**Third year first semester to third year second semester**	**Regular course of study of third year first semester.**
6	**Third year second semester to fourth year first semester**	**(i) Regular course of study of third year second semester.** **(ii) Must have secured at least 73 credits out of 123 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
7	**Fourth year first semester to fourth year second semester**	**Regular course of study of fourth year first semester.**

- A student (i) shall register for all courses/subjects covering 160 credits as specified and listed in the course structure, (ii) fulfills all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥ 5.0 (in each semester), and CGPA (at the end of each successive semester) ≥ 5.0, (iv) **passes all the mandatory courses,** to successfully complete the under graduate programme. The performance of the student in these 160 credits shall be taken into account for the calculation of 'the final CGPA **(at the end of under graduate programme),** and shall be indicated in the grade card of IV year II semester.
- If a student registers for '**extra subjects**' (in the parent department or other

departments/branches of Engg.) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those **'extra subjects'** (although evaluated and graded using the same procedure as that of the required 160 credits) will not be taken into account while calculating the SGPA and CGPA. For such **'extra subjects'** registered, percentage of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations 6 and 7.1 – 7.4 above.

- A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure **'C'** grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.
- A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements**. The academic regulations under which a student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has beendetained.
- student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required academic credits.** The academic regulations under which the student has been readmitted shall be applicable to him.
- **Evaluation - Distribution and Weightage of marks**
  - The performance of a student in every subject/course (including practical's and Project Stage – I & II) will be evaluated for 100 marks each, with 25 marks allotted for CIE (Continuous Internal Evaluation) and 75 marks for SEE (Semester End-Examination).
  - For theory subjects, during a semester, there shall be two mid-term examinations. Each mid-term examination consists of one objective paper, one descriptive paper and one assignment. The objective paper and the descriptive paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for descriptive paper). The objective paper is set with 20 multiple choice, fill-
  - in the blanks and matching type of questions for a total of 10 marks. The descriptive paper shall contain 4 full questions out of which the student has to answer 2 questions, each carrying 5 marks. While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus. Five marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted

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

- The semester end examinations (SEE) will be conducted for 75 marks consisting of two parts viz. i) **Part- A** for 25 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit and carry 2 marks each. The next five sub-questions are one from each unit and carry 3 marks each.
- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

➢ For subjects like **Engineering Graphics/Engineering Drawing,** the SEE shall consist of five questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions. There shall be no Part – A, and Part – B system.

➢ For subjects like **Machine Drawing Practice/Machine Drawing**, the SEE shall be conducted for 75 marks consisting of two parts viz. (i) Part – A for 30 marks. 3 out of 4 questions must be answered, (ii) Part – B for 45 marks. Part – B is compulsory.

➢ For the Subject **Estimation, Costing and Project Management**, the SEE paper should consist of Part- A, Part-B and Part C. (i) Part – A – 1 out of 2 questions from Unit – I for 30 Marks, (ii) Part – B – 1 out of 2 questions from Unit – II for 15 Marks, (iii) Part – C – 3 out of 5 questions from Units – III, IV, V for 30 Marks.

➢ For subjects **Structural Engineering – I & II (RCC & STEEL),** the SEE will be conducted for 75 marks consisting of 2 parts viz. (i) Part – A for 15 marks and, (i) Part – B for 60 marks. Part – A is a compulsory question consisting of ten sub-questions. The first five sub-questions are from each unit relating to design theory and codal provisions and carry 2 marks each. The next five sub-questions are from each unit and carry 1 mark each. Part – B consists of 5 questions (numbered 2 to 6) carrying 12 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there is either or choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

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- **8.3** For practical subjects there shall be a continuous internal evaluation during the semester for 25 marks and 75 marks for semester end examination. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for
- 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The semester end examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the University.
- **8.4** For the subject having design and/or drawing, (such as engineering graphics, engineering drawing, machine drawing, machine drawing practice and estimation), the distribution shall be 25 marks for continuous internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for semester end examination. There shall be two internal tests in a semester and the average of the two shall be considered for the award of marks for internal tests.
- **8.5** There shall be an Industrial Oriented Mini Project/Summer Internship, in collaboration with an industry of their specialization. Students will register for this immediately after III year II semester examinations and pursue it during summer vacation. Industrial Oriented Mini Project/Summer Internship shall be submitted in a report form and presented before the committee in IV year I semester. It shall be evaluated for 100 external marks. The committee consists of an external examiner, Head of the Department, supervisor of the Industrial Oriented mini project/Summer Internship and a senior faculty member of the department. There shall be no internal marks for Industrial Oriented Mini Project/Summer Internship.
- There shall be a seminar presentation in IV year I semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 100 internal marks. There shall be no semester end examination for the seminar.
- UG project work shall be carried out in two stages: Project Stage – I during IV Year I Semester, Project Stage – II during IV Year II Semester. Each stage will be evaluated for 100 marks. Student has to submit project work report at the end of each semester. First report includes project work carried out in IV Year I semester and second report includes project work carried out in IV Year I & II Semesters. SEE for both project stages shall be completed before the commencement of SEE Theory examinations.
- For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall evaluate the project
- work for 75 marks and project supervisor shall evaluate for 25 marks. The student

is deemed to have failed, if he (i) does not submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

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

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

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

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

- The laboratory marks and the internal marks awarded by the college are subject to scrutiny and scaling by the University wherever necessary. In such cases, the internal and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University rules and produced before the committees of the University as and when asked for.

- For mandatory courses of Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization lab, a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course. **These marks should also be uploaded along with the internal marks of other subjects.**

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

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Teaching Faculty Work Load I SEM for the Academic year 2018-19

S.No	Name of the faculty	Subjects	Class	No of periods	Total Workload
1	Dr M.Surender Reddy	HVE	IV-EEE	5	11
		BES LAB	III-EEE	6	
2	T.Kranti Kumar	NT	II-EEE	5	11
		NT-LAB	II-EEE	6	
3	E.Prasanna	EMF	II-EEE	5	10
		SGP	IV-EEE	5	
4	M.Satish Kumar	NA	II-ECE-A&B	10	16
		EM&I LAB	IV-EEE	6	
5	M.Ragini	PSOC	IV-EEE	5	16
		PS-II	III-EEE	5	
		NT-LAB	II-EEE	6	
6	K. NAGARJUNA	EDS	IV-EEE	5	16
		EM-I	II-EEE	5	
		EM-I LAB	II-EEE	6	
7	K.Chandra shekar	NPCG	III- ECE-A	5	16
		NPCG	III-ECE-B	5	
		BEE LAB	II-ECE-A	6	
8	B.Kishan	UEE	IV-EEE	5	16
		E&MI	III-EEE	5	
		E&M I LAB	III-EEE	6	
9	M.Shanker	ET	II-ECE-(A&B)	10	16
		BEE LAB	II-ECE-B	6	
10	V.Satyavardhan Rao	EM-I LAB	II-EEE	6	6
11	S.Srikanth Reddy	BEE	I-CSE -A	5	11
		BEE-LAB	I-CSE-A	6	
12	G.Santosh	CS LAB	II -EEE	6	6

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13	Jadav Santosh	BEE-LAB	I-EEE	6	11
		BEE	I-EEE	5	
14	B.Srikanth	BEE-LAB	CSE-B	6	6
15	G.Pavan	BEE	I-CSE-B	5	11
		BEE-LAB	I-CSE-B	6	

HOD

Head of the Department
Electrical & Electronics Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (VIII), Abdullapur Met (R.R.),
Ranga Reddy District.

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Teaching Faculty Work Load II SEM for the Academic year 2018-19

S.No	Name of the faculty	Subjects	Class	No of periods	Total Workload
1	Dr.K.Brahmanandam	EM-II	II-EEE	5	10
		PROJECT	IV-EEE	5	
2	Dr M.Surender Reddy	HVDC & FACTS	IV-EEE	5	11
		PS -LAB	III-EEE	6	
3	T.Kranti Kumar	PS-I	II-EEE	5	10
		HVE	III-EEE	5	
4	E.Prasanna	SGP	III-EEE	5	11
		PE - LAB	III-EEE	6	
5	M.Satish Kumar	ACS	IV-EEE	5	16
		LSA	III-EEE	5	
		EM-II LAB	II-EEE	6	
6	M.Ragini	STLD	II-EEE	5	10
		NCES	III-EEE	5	
7	K. NAGARJUNA	PE	III-EEE	5	16
		CS	II-EEE	5	
		CS LAB	II-EEE	6	
8	K.Chandra shekar	PSA	III-EEE	5	11
		PE LAB	III-EEE	6	
9	B.Srikanth	EM-II LAB	II-EEE	6	8
		SEMINAR	IV-EEE	2	
10	M.Shanker	CS	II-ECE-(A&B)	10	16
		BEE LAB	I-ECE	6	
11	V.Satyavardhan Rao	PS LAB	III-EEE	6	12
		MINI PROJECT	IV-EEE	6	
12	S.Srikanth Reddy	BEE	I-ECE	6	12
		BEE-LAB	I-ECE	6	
13	Jadhav Santhosh	RES	IV-EEE	5	5

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14	G.Pavan	EM-II	II-EEE	5	10
		EHVAC T	IV-EEE	5	
15	G.Santhosh	CS LAB	II-EEE	6	11
		PROJECT	IV-EEE	5	

HOD

Head of the Department
Electrical & Electronics Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

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A.Y 2018-19 TIME TABLE

II B.Tech EEE I SEM **W.E. F:19-07-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	M-IV	EM-I/ EDC LAB			Lunch Break	EMF	EM-1	EC(T)
TUE	EMF	EM-1	M-IV	EC		NT	EST	SPORTS
WED	EC	EDC/ NT LAB				EM-1	NT	COUN
THU	NT	NT /EM-I LAB				M-IV	EMF	EM-I / NT(T)
FRI	EST	NT	EM-I	EC		EMF	M-IV	M-IV/EMF(T)
SAT	EM-I	EC	EMF	M-IV		EC	NT	LIB/INT

M-IV	P.Shiva Latha
Electromagnetic Field (EMF)	E Prasanna
Electronic Circuits (EC)	S. Ravi
Electricals Machines-1 (EM-I)	K Nagarjuna
Network Theory (NT)	T. Kranthi Kumar
Electricals Machines -1 Lab (EM-I LAB)	K. Nagarjuna/V.Satyavardhan
Electronic Devices Circuits Lab (EDC LAB)	S. Ravi
Network Theory Lab (NT LAB)	M.Ragini/T.Kranthi Kumar
Environmental Science & technology (EST)	S Sahadev

H.O.D (EEE)

Head of the Department
Electrical & Electronics Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY
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A.Y 2018-19 TIME TABLE

II B. Tech EEE II SEM **W.E. F:24-12-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	EM-II	EM-II / CS LAB			Lunch Break	PS-I	CS	SPORTS
TUE	PS-I	EM-II	CS	STLD		BEFA		LIB/INT
WED	CS	CS LAB /EC LAB				EM-II	BEFA	BEFA
THU	BEFA	EM-II	PS-I	CS		STLD	GENDER SESTIZIATION	
FRI	STLD	EC / EM-II LAB				PS-I	STLD	COUN.
SAT	EM-II	BEFA	PS-I	STLD		CS	GENDER SESTIZIATION	

Electrical Machines-II (EM-II)	Dr.K. Brahmanandam
STLD	M.Ragini
Power Systems -I (PS-I)	T.Kranthi Kumar
Control Systems (CS)	K.Nagarjuna
BEFA	N.Ramana Reddy
Electrical Machines-II Lab	M.Satish Kumar/B.Srikanth
Electronics Circuit Lab (EC Lab)	S. Ravi
Control Systems Lab (CS Lab)	K.Nagarjuna/B.Srikanth
Gender Sensitization	N. Srilaxmi

H.O.D (EEE)

Head of the Department
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A.Y 2018-19 TIME TABLE

III B. Tech EEE I SEM **W.E. F:19-07-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	PS-II	FOM	EM&I	PEC	LUNCH BREAK	MPMC	PE	LIB/INT
TUE	EM&I	MPMC LAB				PS-II	PEC	FOM
WED	MPMC	PS-II	PEC	FOM		EM&I	PE	PS-II/PEC(T)
THU	PEC	BES /EM&I LAB				MPMC	FOM	MPMC/E&MI(T)
FRI	FOM	EM&I	MPMC	PE		PS-II	PEC	SPORTS
SAT	MPMC	BES/EM&I LAB				EM&I	PS-II	PE

Electrical Measurements & Instrumentation (EM&I)	B. KISHAN
Power Systems – II (PS-II)	M.RAGINI
Microprocessors and Microcontrollers (MPMC)	NIRMALA
Fundamentals of Management (FOM)	NARASIMHA
Electrical Measurements & Instrumentation Lab (EM&I LAB)	B.KISHAN/M.SATISH KUMAR
Basic Electrical simulation Lab (BES LAB)	M.SURENDER REDDY
Microprocessors and Microcontrollers Lab (MPMC LAB)	NIRMALA
Professional Ethics (PE)	S RAMBABU
Principles of Electronics Communications (PEC)	S RAVI

H.O.D (EEE)

Head of the Department
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Avanthi Institute of Engineering & Technology
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A.Y 2018-19 TIME TABLE

III B. Tech EEE II SEM **W.E. F:24-12-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	SGP	HVE	PE	PSA	Lunch Break	NCES	SGP	SPORTS
TUE	NCES	HVE	SGP	PE		PS LAB / PE LAB		
WED	PSA	PE	HVE	NCES		SGP	HVE	COUN
THU	PE	NCES	HVE	PSA		AECS LAB /PE LAB		
FRI	PSA	SGP	PE	HVE		NCES	INT/LIB	
SAT	SGP	NCES	PSA	PSA		PS LAB /AECS LAB		

Power Systems Analysis (PSA)	K.Chandrashekar
High Voltage Engineering (HVE)	T. Kranthi Kumar
Power Electronics (PE)	K.Nagarjuna
Switch Gear and Protection (SGP)	E. Prasanna
Non-Conventional Energy Sources (NCES)	M. Ragini
Power System Lab (PS LAB)	M.Surender Reddy/V.Satyavardan Rao
Power Electronics Lab	E.Prasanna/K.Chandrashekar
Advanced English Communication Skills Lab (AECS Lab)	V Priyanka

H.O.D (EEE)

Head of the Department
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A.Y 2018-19 TIME TABLE

IV B.Tech EEE I SEM **W.E. F:19-07-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	EDS	HVE	PSOC	DSP	Lunch Break	SGP	UEE	INT/LIB
TUE	DSP	PSOC	EDS	SGP		HVE	UEE	SPORTS
WED	SGP	HVE	UEE	EDS		PSOC	DSP	SGP/PSOC(T)
THU	HVE	DSP	PSOC	EDS		SGP	UEE	SPORTS
FRI	UEE	EM LAB/ MP & ID LAB				SGP	HVE	HVE / DSP(T)
SAT	PSOC	EM LAB/ MP & ID LAB				DSP	EDS	UEE(T)

Digital Signal Processing (DSP)	Syed Rabbani
High Voltage Engineering (HVE)	Dr. M. Surendar Reddy
Switch Gear Protection (SGP)	E.Prasanna
Electrical Distribution System (EDS)	K. Nagarjuna
Power System Operating and Control (PSOC)	M. Ragini
Utilization of Electrical Energy (UEE)	B.Kishan
Electrical Measurements Lab (EM LAB)	M.Sathis Kumar/B.Kishan
Micro Processor & Interfacing Devices Lab (MPID LAB)	Syed Rabbani

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A.Y 2018-19 TIME TABLE

IV B. Tech EEE II SEM **W.E. F:24-12-2018** **COLLEGE TIMINGS: 09.30AM –03.50PM**

DAY ⇩	9:30-10:20	10.20-11:10	11:10-12:00	12:00-12:50	12:50-01:20	01:20-2:10	2:10-3:00	3:00-3:50
MON	HVDC	RES	HVDC	EHV	Lunch Break	MINI PROJECT		
TUE	HVDC	EHV	RES	EHV		PROJECT STAGE-I		
WED	RES	RES	HVDC	EHV		SEMINAR		
THU	EHV	PROJECT STAGE-I				HVDC	LIB/INT	
FRI	RES	EHV	RES	HVDC		MINI PROJECT		
SAT	HVDC	EHV	RES			PROJECT STAGE-I		

Fundamentals of HVDC & FACTS Devices (HVDC)	Dr.M. Surender Reddy
Renewable Energy Sources (RES)	J Santosh Kumar
EHVAC Transmission (EHV)	G Pavan Kumar
Seminar	B. Srikanth
Mini Project	V.Satyavardhan Rao
Project	Dr.K. Brahmanandam

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Department of Electrical and Electronics Engineering

A.Y. 2018 – 2019

SYLLABUS COMPLETION STATUS FOR MID-I

IV-I EEE **Date:01/09/2018**

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Digital Signal Processing (DSP)	Syed Rabbani	2.4	
2	High Voltage Engineering (HVE)	Dr. M. Surendar Reddy	2.5	
3	Switch Gear Protection (SGP)	E.Prasanna	2.5	
4	Electrical Distribution System (EDS)	K. Nagarjuna	2.4	
5	Power System Operating and Control (PSOC)	M. Ragini	2.5	
6	Utilization of Electrical Energy (UEE)	B.Kishan	2.5	

III-I EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Electrical Measurements & Instrumentation (EM&I)	B. KISHAN	2.5	
2	Power Systems – II (PS-II)	M.RAGINI	2.5	
3	Microprocessors and Microcontrollers (MPMC)	NIRMALA	2.4	
4	Fundamentals of Management (FOM)	NARASIMHA	2.5	
5	Principles of Electronics Communications (PEC)	S RAVI	2.5	

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II-I EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	M-IV	P.Shiva Latha	2.5	
2	Electromagnetic Field (EMF)	E Prasanna	2.5	
3	Electronic Circuits (EC)	S. Ravi	2.4	
4	Electricals Machines-1 (EM-I)	K Nagarjuna	2.5	
5	Network Theory (NT)	T. Kranthi Kumar	2.5	

HOD

Head of Department
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Department of Electrical and Electronics Engineering

A.Y. 2018 – 2019

SYLLABUS COMPLETION STATUS FOR MID-II

IV-I EEE **Date:10/11/2018**

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Digital Signal Processing (DSP)	Syed Rabbani	5	
2	High Voltage Engineering (HVE)	Dr. M. Surendar Reddy	4.9	
3	Switch Gear Protection (SGP)	E.Prasanna	5	
4	Electrical Distribution System (EDS)	K. Nagarjuna	4.9	
5	Power System Operating and Control (PSOC)	M. Ragini	5	
6	Utilization of Electrical Energy (UEE)	B.Kishan	5	

III-I EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Electrical Measurements & Instrumentation (EM&I)	B. KISHAN	5	
2	Power Systems – II (PS-II)	M.RAGINI	5	
3	Microprocessors and Microcontrollers (MPMC)	NIRMALA	4.9	
4	Fundamentals of Management (FOM)	NARASIMHA	5	
5	Principles of Electronics Communications (PEC)	S RAVI	5	

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II-I EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	M-IV	P.Shiva Latha	5	
2	Electromagnetic Field (EMF)	E Prasanna	5	
3	Electronic Circuits (EC)	S. Ravi	5	
4	Electricals Machines-1 (EM-I)	K Nagarjuna	4.9	
5	Network Theory (NT)	T. Kranthi Kumar	5	

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Department of Electrical and Electronics Engineering

A.Y. 2018 – 2019

SYLLABUS COMPLETION STATUS FOR MID-I

IV-II EEE **Date: 16/02/2019**

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Fundamentals of HVDC & FACTS Devices (HVDC)	Dr.M. Surender Reddy	2.5	
2	Renewable Energy Sources (RES)	J Santosh Kumar	2.4	
3	EHVAC Transmission (EHV)	G Pavan Kumar	2.5	

III-II EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Power Systems Analysis (PSA)	K.Chandrashekar	2.5	
2	High Voltage Engineering (HVE)	T. Kranthi Kumar	2.5	
3	Power Electronics (PE)	K.Nagarjuna	2.4	
4	Switch Gear and Protection (SGP)	E. Prasanna	2.4	
5	Non-Conventional Energy Sources (NCES)	M. Ragini	2.5	

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II-II EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Electrical Machines-II (EM-II)	Dr.K. Brahmanandam	2.4	
2	STLD	M.Ragini	2.5	
3	Power Systems -I (PS-I)	T.Kranthi Kumar	2.5	
4	Control Systems (CS)	K.Nagarjuna	2.4	
5	BEFA	N.Ramana Reddy	2.5	

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Department of Electrical and Electronics Engineering

A.Y. 2018 – 2019

SYLLABUS COMPLETION STATUS FOR MID-II

IV-II EEE **Date: 20/04/2019**

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Fundamentals of HVDC & FACTS Devices (HVDC)	Dr.M. Surender Reddy	5	
2	Renewable Energy Sources (RES)	J Santosh Kumar	5	
3	EHVAC Transmission (EHV)	G Pavan Kumar	5	

III-II EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Power Systems Analysis (PSA)	K.Chandrashekar	5	
2	High Voltage Engineering (HVE)	T. Kranthi Kumar	5	
3	Power Electronics (PE)	K.Nagarjuna	4.9	
4	Switch Gear and Protection (SGP)	E. Prasanna	5	
5	Non-Conventional Energy Sources (NCES)	M. Ragini	5	

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II-II EEE

S.NO	NAME OF THE SUBJECT	NAME OF THE FACULTY	SYLLABUS COVERED (No.of UNITS)	SIGNATURE
1	Electrical Machines-II (EM-II)	Dr.K. Brahmanandam	5	
2	STLD	M.Ragini	5	
3	Power Systems -I (PS-I)	T.Kranthi Kumar	5	
4	Control Systems (CS)	K.Nagarjuna	4.9	
5	BEFA	N.Ramana Reddy	5	

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Cir./Exam Section/0001 Date: 01-09-2018

Attention all the II, III, IV B. TECH I SEM students are here by informing you that MID-I examinations will be conducted from 04-09-2018 to 06-09-2018.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH
Signature				

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Copy to: 1. ALL HOD's (EEE, MECH, ECE, CSE)

2. Administrative Office

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Cir./Exam Section/0002 Date: 20-09-2018

Attention all the I B. TECH I SEM students are here by informing you that MID-I examinations will be conducted from 24-09-2018 to 26-09-2018.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH	BS&H
Signature					

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Copy to: 1. ALL HOD's (EEE, MECH, ECE, CSE, BS&H)

2. Administrative Office

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Cir./Exam Section/0003 Date: 08-11-2018

Attention all the II, III, IV B. TECH I SEM students are here by informing you that MID-II examination will be conducted from 12-11-2018 to 14-11-2018.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH
Signature				

PRINCIPAL

OIE

Copy to: 1. ALL HOD's (EEE, MECH, ECE, CSE)

2. Administrative Office

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www.aietg.ac.in email: principal.avanthi@gmail.com

Cir./Exam Section/0004 Date: 24-11-2018

Attention all the I B. TECH I SEM students are here by informing you that MID-II examination will be conducted from 29-11-2018 to 01-12-2018.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH	BS&H
Signature					

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Cir./Exam Section/0005 Date: 14-02-2019

Attention all the II, III, IV B. TECH II SEM students are here by informing you that MID-I examinations will be conducted from 18-02-2019 to 20-02-2019.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH
Signature				

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Cir./Exam Section/0006 Date: 23-02-2019

Attention all the I B. TECH II SEM students are here by informing you that MID-I examination will be conducted from 27-02-2019 to 01-03-2019.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH	BS&H
Signature					

OIE

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Copy to: 1. ALL HOD's (EEE, MECH, ECE, CSE, BS&H)

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Cir./Exam Section/0007 Date: 18-04-2019

Attention all the II, III, IV B. TECH II SEM students are here by informing you that MID-II examinations will be conducted from 22-04-2019 to 24-04-2019.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH
Signature				

PRINCIPAL

OIE

Copy to: 1. ALL HOD's (EEE, MECH, ECE, CSE)

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Cir./Exam Section/0008 Date: 18-04-2019

Attention all the I B. TECH II SEM students are here by informing you that MID-II examinations will be conducted from 24-04-2019 to 26-04-2019.

Time: FN: 10.00 AM TO 11.30 AM

AN: 02.00 PM TO 03.30 PM

Note: HOD's are requested to circulate among all concern students.

HOD	CSE	ECE	EEE	MECH	BS&H
Signature					

OIE

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EXAMINATION BRANCH

B.TEC I YEAR I SEMESTER – R18 REGULATIONS I - MID TERM EXAMINATIONS SEPTEMBER -2018

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM (MID EXAM: 10.00 AM TO 11.00 AM, QUIZ EXAM:11.00 AM TO 11.30 AM)
AN: 02.00 PM TO 03.30 PM (MID EXAM: 02.00 PM TO 03.00 PM, QUIZ EXAM: 03.00 PM TO 03.30 PM)

BRANCH	DATE, SESSION AND DAY			
	24-09-2018 FN MONDAY	24-09-2018 AN MONDAY	25-09-2018 FN TUESDAY	25-09-2018 AN TUESDAY
CIVIL ENGINEERING (01-C E)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Engineering Physics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	---
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to EEE, CSE, IT)	Basic Electrical Engineering (Common to EEE, CSE, IT)	English (Common to EEE, CSE, IT)
MECHANICAL ENGINEERING (03-ME)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Engineering Physics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	---

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CONTINUED ON PAGE 2

BRANCH	DATE, SESSION AND DAY			
	24-09-2018 FN MONDAY	24-09-2018 AN MONDAY	25-09-2018 FN TUESDAY	25-09-2018 AN TUESDAY
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Applied Physics (Common to ECE, EIE)	---
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to EEE, CSE, IT)	Basic Electrical Engineering (Common to EEE, CSE, IT)	English (Common to EEE, CSE, IT)
ELECTRONICS AND INSTRUMENTATION ENGINEERING (10-EIE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Applied Physics (Common to ECE, EIE)	----

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EXAMINATION BRANCH

II YEAR B.TECH -I SEMESTER – R16 REGULATION I- MID TERM EXAMINATIONS SEPTEMBER -2018

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
CIVIL ENGINEERING (01-C E)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Strength of Materials - I (common to CE,CEE)	Fluid mechanics – I (Common to CE,CEE)	Surveying (Common to CE,CEE)	Building Material , Construction and Planning
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Circuits	Network Theory	Electrical Machines-I	Electromagnetic Fields
MECHANICAL ENGINEERING (03- ME)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Thermodynamics (Common to ME, AE, MSNT)	Mechanics of solids (Common to ME, MECT, AE, AME, MIE, MSNT)	Metallurgy and Material Science (Common to ME, MECT, AME, MSNT)	Kinematics of Machinery (Common to ME, MSNT)

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CONTINUED ON PAGE 2

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Analog Electronics (Common to ECE, ETM)	Network Analysis (Common to ECE,ETM)	Signals and Stochastic Process (Common to ECE , ETM)	Electrical Technology (Common to ECE, ETM, AME)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Data Structures Through C++ (Common to CSE, IT)	Mathematical Foundations of Computer science (Common to CSE, IT)	Digital logic Design (Common to CSE, IT)	Object Oriented Programming Through java (Common to CSE, IT)
ELECTRONICS AND INSTRUMSNTTATION ENGINEERING (10-EIE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Devices and Circuits (Common to EIE, BME, MECT)	Signals and Systems (Common to BME, EIE)	Electrical and Electronic Measurements	Transducers Engineering
BIO-MEDICAL ENGINEERING (11-BME)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Devices and Circuits (Common to EIE, BME, MECT)	Signals and Systems (Common to BME, EIE)	Bioelectricity	Applied Biochemistry

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TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	04-09-2018 FN TUESDAY	**04-09-2018 AN TUESDAY**	**05-09-2018 FN WEDNESDAY**	**05-09-2018 AN WEDNESDAY**	**06-09-2018 FN THURSDAY**
INFORMATION TECHNOLOGY (12-IT)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Data structures through C++ (Common to CSE, IT)	Mathematical Foundations of Computer Science (Common to CSE, IT)	Digital Logic Design (Common to CSE, IT)	Object Oriented Programming Through Java (Common to CSE, IT)
MECHANICAL ENGINEERING (MECHATRONICS) (14- MECT)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Devices & Circuits (Common to EIE, BME, MECT)	Mechanics of Solids (Common to ME, MECT, AE, AME, MIE, MSNT)	Metallurgy & Material science (Common to ME, MECT, AME, MSNT)	Thermal Science
ELECTRONICS AND TELEMATICS ENGINEERING (17-ETM)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Analog Electronics (Common to ECE, ETM)	Network Analysis (Common to ECE, ETM)	Signals and Stochastic Process (Common to ECE , ETM)	Electrical Technology (Common to ECE, ETM, AME)
METALLURGY AND MATERIAL ENGINEERING (18- MMT)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Physical Metallurgy	Thermodynamics & Kinetics	Mechanics of Solids and Mechanics of Fluids	Fuels, Furnaces and Refractories

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS SEPTEMBER-2018

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
ELECTRICAL AND ELECTRONICS ENGINEERING **(02-EEE)**	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Electrical Measurements & Instrumentation	Microprocessors and Microcontrollers (Common to EEE, EIE)	Power Systems – II	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Database Management Systems Disaster Management Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Non destructive Testing Methods Operating Systems Optimization Technique Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

Date:21-08-2018

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS SEPTEMBER-2018

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
MECHANICAL ENGINEERING 03-ME)	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Thermal Engineering-I (Common to ME, AME)	Metrology and Machine Tools	Design of Machine Members –I	**(Open Elective-I)** Analog and Digital I.C. Applications
					Computer Organization
					Database Management Systems
					Disaster Management
					Electrical Engineering Materials
					Electronic Measurements and Instrumentation
					Environmental Engineering
					Fabrication Processes
					Fundamentals of Engineering Materials
					Intellectual Property Rights
					Introduction to Mining Technology
					Introduction to Space Technology
					Materials Characterization Techniques
					Materials Science and Engineering
					Nanotechnology
					Non destructive Testing Methods
					Non-Conventional Power Generation
					Operating Systems
					Principles of Electronic Communications
					Reliability Engineering
					Renewable Energy Sources
					Scripting Languages

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III YEAR B.TECH - I SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS SEPTEMBER-2018

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
ELECTRONICS AND COMMUNICATION ENGINEERING **(04-ECE)**	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Digital Communications (Common to ECE, ETM)	Electromagnetic Theory and Transmission Lines (Common to ECE, ETM)	Linear and Digital IC Applications (Common to ECE, EIE, BME E.COMP.E, ETM)	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Database Management Systems Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Operating Systems Optimization Techniques Reliability Engineering Renewable Energy Sources Scripting Languages

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS SEPTEMBER-2018

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
COMPUTER SCIENCE AND ENGINEERING (05-CSE)	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Design and Analysis of Algorithms (Common to CSE, IT)	Software Engineering (Common to CSE, ECOMP.E, IT)	Data Communication and Computer Networks (Common to CSE, IT)	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Optimization Techniques Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS SEPTEMBER-2018

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY
COMPUTER SCIENCE AND ENGINEERING (05-CSE)	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Design and Analysis of Algorithms (Common to CSE, IT)	Software Engineering (Common to CSE, ECOMP.E, IT)	Data Communication and Computer Networks (Common to CSE, IT)	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Optimization Techniques Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

Date: 21-08-2018

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E X A M I N A T I O N B R A N C H

IV YEAR B.TECH - I SEMESTER– R15 REGULATION I- MID TERM EXAMINATIONS SEPTEMBER-2018

T I M E T A B L E

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY	06-09-2018 AN THURSDAY	07-09-2018 FN FRIDAY	07-09-2018 AN FRIDAY
CIVIL ENGINEERING (01-C E)	Remote Sensing & GIS (Comm. To CE, CEE)	Watershed Management (Comm. To CE, CEE, ACE)	Estimating & Costing (Comm. To CE, CEE)	Water Resources Engineering-II	Advanced Foundation Engineering Finite Element Methods (Comm. To CE, CEE)	Transportation Engineering -II	Advanced Structural Design Earth and Rock fill Dams and Slope Stability Water Resources Systems Analysis Industrial Waste Water Treatment (Comm. To CE, CEE)	Air Pollution and Control (Comm. To CE, CEE)
ELECTRICAL AND ELECTRONICS ENGINEERING (02-E E E)	VLSI Design (Comm to EEE, EIE, BME)	Utilization of Electrical Energy	Digital Signal Processing	Power System Operation and Control	Digital Control Systems (comm. To EEE, EIE) High Voltage Engineering Data structures	Optimization Techniques Electrical Distribution Systems Electrical Estimation and Costing	Switch Gear and Protection	--

DATE:21-08-2018 Sd/-

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E X A M I N A T I O N B R A N C H

IV YEAR B.TECH - I SEMESTER– R15 REGULATION I- MID TERM EXAMINATIONS SEPTEMBER-2018

T I M E T A B L E

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY	06-09-2018 AN THURSDAY	07-09-2018 FN FRIDAY	07-09-2018 AN FRIDAY
MECHANICAL ENGINEERING (03-M E)	OPERATIONS RESEARCH (Comm. To ME, CSE, IT, MCT, AE, AME,MIE, ,MSNT, ACE)	Power Plant Engineering (Comm. To ME, MCT)	CAD/CAM (Comm. To ME, AE, AME, MSNT)	Instrumentation and Control Systems (Comm. To ME, AME)	Robotics (Comm. To ME, AME, MSNT)	Unconventional Machining Processes	--	--
					Mechanical Vibrations (Comm. TO ME, AME, MSNT)	CNC Technology (Comm. To ME, MSNT)		
					Mechatronics (Comm. To ME, AME)	Automation in Manufacturing		
					Mechanics of Composite Materials (Comm. To ME, MSNT)	Design for Manufacturing		
					Industrial Management	Nanotechnology (Comm. To ME, CHEM, BME)		

DATE:21-08-2018

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E X A M I N A T I O N B R A N C H

IV YEAR B.TECH - I SEMESTER– R15 REGULATION I- MID TERM EXAMINATIONS SEPTEMBER-2018

T I M E T A B L E

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	04-09-2018 FN TUESDAY	04-09-2018 AN TUESDAY	05-09-2018 FN WEDNESDAY	05-09-2018 AN WEDNESDAY	06-09-2018 FN THURSDAY	06-09-2018 AN THURSDAY	07-09-2018 FN FRIDAY	07-09-2018 AN FRIDAY
ELECTRONICS AND COMMUNICATIONS ENGINEERING (04-E C E)	Management Science (Comm. To ECE, ETM, MMT)	Microwave Engineering	Computer Networks (Comm. To ECE, EIE, BME)	Multimedia and Signal Coding (Comm. To ECE, ETM)	Digital Image Processing (Comm. To ECE, ETM)	Television Engineering	Cellular and Mobile Communications	--
						Optical Communications (Comm. To ECE, ETM)		
					Object Oriented Programming through Java	Embedded Systems Design (Comm. To ECE, ETM)		
COMPUTER SCIENCE AND ENGINEERING (05-C S E)	OPERATIONS RESEARCH (Comm. To ME, CSE, IT, MCT, AE, AME,MIE, ,MSNT, ACE)	Design Patterns (Comm. To CSE, IT)	Linux Programming	Cloud Computing	Software Project Management (Comm. To CSE, IT)	Machine Learning	Information Retrieval Systems (Comm. To CSE, IT)	Data Warehousing and Data Mining
	Image processing and Pattern Recognition (Comm. To CSE, IT)					Soft Computing (Comm. To CSE, IT)		
	Big data analytics(Associate analytics-II) (Comm. To CSE, IT)				Mobile Computing	Artificial Intelligence		
	Information Security assessments and credits(security analyst-2) (Comm. To CSE, IT)				Computer Graphics (Comm. To CSE, IT)	Computer Forensics		

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DATE:21-08-2018

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EXAMINATION BRANCH

B.TECH I YEAR I SEMESTER – R18 REGULATIONS II - MID TERM EXAMINATIONS NOVEMBER - 2018

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM (MID EXAM: 10.00 AM TO 11.00 AM, QUIZ EXAM:11.00 AM TO 11.30 AM)
AN: 02.00 PM TO 03.30 PM (MID EXAM: 02.00 PM TO 03.00 PM, QUIZ EXAM: 03.00 PM TO 03.30 PM)

BRANCH	DATE, SESSION AND DAY			
	29-11-2018 FN THURSDAY	29-11-2018 AN THURSDAY	30-11-2018 FN FRIDAY	30-11-2018 AN FRIDAY
CIVIL ENGINEERING (01-C E)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Engineering Physics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	---
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to EEE, CSE, IT)	Basic Electrical Engineering (Common to EEE, CSE, IT)	English (Common to EEE, CSE, IT)
MECHANICAL ENGINEERING (03-ME)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Engineering Physics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	---

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BRANCH	DATE, SESSION AND DAY			
	29-11-2018 FN THURSDAY	29-11-2018 AN THURSDAY	30-11-2018 FN FRIDAY	30-11-2018 AN FRIDAY
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Applied Physics (Common to ECE, EIE)	---
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to EEE, CSE, IT)	Basic Electrical Engineering (Common to EEE, CSE, IT)	English (Common to EEE, CSE, IT)
ELECTRONICS AND INSTRUMENTATION ENGINEERING (10-EIE)	Mathematics-I (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Programming for Problem Solving (Common to CE, ME, AE, MECT, MME, MIE, PTME, ECE, EIE)	Applied Physics (Common to ECE, EIE)	----

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EXAMINATION BRANCH

II YEAR B.TECH -I SEMESTER – R16 REGULATION II- MID TERM EXAMINATIONS NOVEMBER -2018

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY
CIVIL ENGINEERING (01-C E)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Strength of Materials - I (common to CE,CEE)	Fluid mechanics – I (Common to CE,CEE)	Surveying (Common to CE,CEE)	Building Material , Construction and Planning
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Circuits	Network Theory	Electrical Machines-I	Electromagnetic Fields
MECHANICAL ENGINEERING (03- ME)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Thermodynamics (Common to ME, AE, MSNT)	Mechanics of solids (Common to ME, MECT, AE, AME, MIE, MSNT)	Metallurgy and Material Science (Common to ME, MECT, AME, MSNT)	Kinematics of Machinery (Common to ME, MSNT)

CONTINUED ON PAGE 2

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TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	12-11-2018 FN MONDAY	**12-11-2018 AN MONDAY**	**13-11-2018 FN TUESDAY**	**13-11-2018 AN TUESDAY**	**14-11-2018 FN WEDNESDAY**
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Analog Electronics (Common to ECE, ETM)	Network Analysis (Common to ECE,ETM)	Signals and Stochastic Process (Common to ECE , ETM)	Electrical Technology (Common to ECE, ETM, AME)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Data Structures Through C++ (Common to CSE, IT)	Mathematical Foundations of Computer science (Common to CSE, IT)	Digital logic Design (Common to CSE, IT)	Object Oriented Programming Through java (Common to CSE, IT)
ELECTRONICS AND INSTRUMSNTTATION ENGINEERING (10-EIE)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Devices and Circuits (Common to EIE, BME, MECT)	Signals and Systems (Common to BME, EIE)	Electrical and Electronic Measurements	Transducers Engineering
BIO-MEDICAL ENGINEERING (11-BME)	Mathematics – IV (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Electronic Devices and Circuits (Common to EIE, BME, MECT)	Signals and Systems (Common to BME, EIE)	Bioelectricity	Applied Biochemistry

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS NOVEMBER-2018

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY
ELECTRICAL AND ELECTRONICS ENGINEERING **(02-EEE)**	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Electrical Measurements & Instrumentation	Microprocessors and Microcontrollers (Common to EEE, EIE)	Power Systems – II	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Database Management Systems Disaster Management Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Non destructive Testing Methods Operating Systems Optimization Technique Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

Date:25-10-2018

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS NOVEMBER-2018

TIMETABLE

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY
MECHANICAL ENGINEERING 03-ME)	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Thermal Engineering-I (Common to ME, AME)	Metrology and Machine Tools	Design of Machine Members –I	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Organization Database Management Systems Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Intellectual Property Rights Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Operating Systems Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

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TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	12-11-2018 FN	12-11-2018 AN	13-11-2018 FN	13-11-2018 AN	14-11-2018 FN

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS NOVEMBER-2018

TIMETABLE

	MONDAY	MONDAY	TUESDAY	TUESDAY	WEDNESDAY
ELECTRONICS AND COMMUNICATION ENGINEERING **(04-ECE)**	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Digital Communications (Common to ECE, ETM)	Electromagnetic Theory and Transmission Lines (Common to ECE, ETM)	Linear and Digital IC Applications (Common to ECE, EIE, BME E.COMP.E, ETM)	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Database Management Systems Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Operating Systems Optimization Techniques Reliability Engineering Renewable Energy Sources Scripting Languages

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TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

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EXAMINATION BRANCH

III YEAR B.TECH - I SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS NOVEMBER-2018

TIMETABLE

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING **(05-CSE)**	Fundamentals of Management (Common to CE, EEE, ME, ECE, CSE, EIE, BME, IT, MECT, ETM, MME, E.COMP.E, AE, AME, MNE, PTM, CEE, MSNT)	Design and Analysis of Algorithms (Common to CSE, IT)	Software Engineering (Common to CSE, ECOMP.E, IT)	Data Communication and Computer Networks (Common to CSE, IT)	**(Open Elective-I)** Analog and Digital I.C. Applications Computer Graphics Computer Organization Disaster Management Electrical Engineering Materials Electronic Measurements and Instrumentation Environmental Engineering Fabrication Processes Fundamentals of Engineering Materials Fundamentals of Mechanical Engineering Intellectual Property Rights Introduction to Mechatronics Introduction to Mining Technology Introduction to Space Technology Materials Characterization Techniques Materials Science and Engineering Nanotechnology Non destructive Testing Methods Non-Conventional Power Generation Optimization Techniques Principles of Electronic Communications Reliability Engineering Renewable Energy Sources Scripting Languages

Date: 25-10-2018

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TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

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EXAMINATIONBRANCH

IV YEAR B.TECH - I SEMESTER– R15 REGULATION- II- MID TERM EXAMINATIONS NOVEMBER-2018

TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY	14-11-2018 AN WEDNESDAY
CIVIL ENGINEERING (01-C E)	Remote Sensing & GIS	Transportation Engineering -II	Estimating & Costing	Water Resources Engineering-II	ELECTIVE-II Finite Element Methods	ELECTIVE-III Advanced Structural Design
					Advanced Foundation Engineering	Earth and Rock fill Dams and Slope Stability
					Watershed Management	Water Resources Systems Analysis
					Air Pollution and Control	Industrial Waste Water Treatment
ELECTRICAL AND ELECTRONICS ENGINEERING (02-E E E)	Switch Gear and Protection	Utilization of Electrical Energy	Digital Signal Processing	Power System Operation and Control	Elective-I High Voltage Engineering	Elective-II Optimization Techniques
					VLSI Design	Electrical Distribution Systems
					Digital Control Systems	Electrical Estimation and Costing
					Data Structures	

DATE:25-10-2018

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E X A M I N A T I O N B R A N C H

IV YEAR B.TECH - I SEMESTER– R15 REGULATION- II- MID TERM EXAMINATIONS NOVEMBER-2018

T I M E T A B L E

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY	14-11-2018 AN WEDNESDAY
MECHANICAL ENGINEERING (03-M E)	Operations Research	Power Plant Engineering	CAD/CAM	Instrumentation and Control Systems	ELECTIVE – I Robotics	ELECTIVE – II Unconventional Machining Processes
					Mechanical Vibrations	
					Mechatronics	
					Mechanics of Composite Materials	CNC Technology
					Industrial Management	Automation in Manufacturing
						Design for Manufacturing
						Nanotechnology
ELECTRONICS AND COMMUNICATIONS ENGINEERING (04-E C E)	Management Science	Computer Networks	Microwave Engineering	Cellular and Mobile Communications	Elective – I Digital Image Processing	Elective -II: Television Engineering
					Multimedia and Signal Coding	Optical Communications
					Object Oriented Programming through Java	Embedded Systems Design

DATE:25-10-2018

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EXAMINATIONBRANCH

IV YEAR B.TECH - I SEMESTER– R15 REGULATION- II- MID TERM EXAMINATIONS NOVEMBER-2018

TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	12-11-2018 FN MONDAY	12-11-2018 AN MONDAY	13-11-2018 FN TUESDAY	13-11-2018 AN TUESDAY	14-11-2018 FN WEDNESDAY	14-11-2018 AN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING (05-C S E)	Cloud Computing	Design Patterns	Data Warehousing and Data Mining	Linux Programming	ELECTIVE – I Software Project Management	ELECTIVE – II Machine Learning
					Image processing and Pattern Recognition	Soft Computing
					Mobile Computing	Information Retrieval Systems
					Computer Graphics	Artificial Intelligence
					Operations Research	Computer Forensics
					Big data analytics(Associate analytics-II)	
					Information Security assessments and audits(security analyst-2)	
CHEMICAL ENGINEERING (08-C H E M)	Transport Phenomena	Process Dynamics & Control	Chemical Process Equipment Design	Process Modeling and Simulation	ELECTIVE-I Biochemical Engineering	ELECTIVE - II Polymer Technology
					Computational Fluid Dynamics	Petroleum and Petrochemical Technology
					Nanotechnology	Chemical Process Optimization
ELECTRONICS AND INSTRUMENTATION ENGINEERING (10-E I E)	Analytical Instrumentation	VLSI Design	Embedded Systems	PC Based Instrumentation	Elective –I Telemetry and Telecontrol	Elective – II Computer Networks
					Optoelectronics & Laser Instrumentation	Digital Control Systems
					Robotics and Automation	Medical Instrumentation

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EXAMINATION BRANCH

B.TEC I YEAR II SEMESTER – R18 REGULATIONS I - MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM (MID EXAM: 10.00 AM TO 11.00 AM, QUIZ EXAM:11.00 AM TO 11.30 AM)
AN: 02.00 PM TO 03.30 PM (MID EXAM: 02.00 PM TO 03.00 PM, QUIZ EXAM: 03.00 PM TO 03.30 PM)

BRANCH	DATE, SESSION AND DAY			
	27-02-2019 FN WEDNESDAY	27-02-2019 AN WEDNESDAY	28-02-2019 FN THURSDAY	28-02-2019 AN THURSDAY
CIVIL ENGINEERING (01-C E)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common To CE, ME, AE, MECT, MME, MIE, PTME)
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Applied Physics (Common to EEE, CSE, IT)	Programming for Problem Solving (Common to EEE, CSE, IT)	-------
MECHANICAL ENGINEERING (03-ME)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

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BRANCH	DATE, SESSION AND DAY			
	27-02-2019 FN WEDNESDAY	**27-02-2019 AN WEDNESDAY**	**28-02-2019 FN THURSDAY**	**28-02-2019 AN THURSDAY**
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to ECE, EIE)	Basic Electrical Engineering (Common to ECE, EIE)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Applied Physics (Common to EEE, CSE, IT)	Programming for Problem Solving (Common to EEE, CSE, IT)	-----
ELECTRONICS AND INSTRUMENTATION ENGINEERING (10-EIE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to ECE, EIE)	Basic Electrical Engineering (Common to ECE, EIE)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

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EXAMINATION BRANCH

II YEAR B.TECH –I1 SEMESTER – R16 REGULATION - I MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
CIVIL ENGINEERING (01-C E)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Strength of Materials - II (Common to CE ,CEE)	Fluid Mechanics - II (Common to CE ,CEE)	Structural Analysis (Common to CE ,CEE)	Engineering Geology
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT)	Control Systems (Common to EEE, ECE, EIE, ETM)	Power Systems - I	Electrical Machines-II
MECHANICAL ENGINEERING (03- ME)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Fluid Mechanics and Hydraulic Machines (Common to ME, MSNT)	Dynamics Of Machinery	Manufacturing Process	Machine Drawing

DATE: 04-02-2019

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BRANCH	DATE, SESSION AND DAY				
	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, **CEE**, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT	Control Systems (Common to EEE, ECE, EIE, ETM)	Pulse And Digital Circuits (Common to ECE, ETM)	Analog Communications (Common To ECE, ETM)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Computer Organization (Common to CSE,IT	Database Management Systems (Common to CSE,IT	Operating Systems (Common to CSE,IT	Formal Languages And Automata Theory (Common to CSE,IT
ELECTRONICS AND INSTRUMSNTTATIO N ENGINEERING (10-EIE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Electronic Circuit Analysis	Control Systems (Common to EEE, ECE, EIE, ETM)	Digital Logic & Pulse Circuits (Common to BME,EIE,)	Probability Theory And Stochastic Processes
BIO-MEDICAL ENGINEERING (11-BME)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Biomedical Equipment	Bio Transducers And Applications --	Digital Logic & Pulse Circuits (Common to BME,EIE,)	Clinical Sciences

DATE: 04-02-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
ELECTRICAL AND ELECTRONICS ENGINEERING **(02-EEE)**	Power Systems Analysis	Power Electronics	Switch Gear and Protection	**Professional Elective - I**	**(Open Elective-I)**
					Artificial Neural Networks
				Computer Organization	Cyber Security
					Coal Gasification, Coal Bed Methane and Shale Gas
					Data Structures
				Linear Systems Analysis	Energy Management and Conservation
					Environmental Impact Assessment
					Entrepreneurship and Small Business Enterprises
				Linear and Digital IC Applications	Geo-Informatics
					Fabrication Processes
				Electrical and Electronics Instrumentation	Fundamentals of Robotics
					Industrial Electronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Science and Technology of Nano Materials
					Robotics
					Remote Sensing and GIS
					Software Testing Methodologies
					Soft Computing Techniques
					World Class Manufacturing

Date:04-02-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
MECHANICAL ENGINEERING **(03-ME)**	Thermal Engineering –II (Common to ME ,AME)	Heat Transfer	Design of Machine Members-II	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
				Finite Element Methods	Cyber Security
					Coal Gasification, Coal Bed Methane and Shale Gas
				Refrigeration and Air Conditioning	Data Structures
					Design Estimation and Costing of Electrical Systems
					Energy Management and Conservation
					Environmental Impact Assessment
				Machine Tool Design	Entrepreneurship and Small Business Enterprises
					Energy Storage Systems
					Geo-Informatics
				IC Engines and Gas Turbines	Industrial Electronics
					Introduction to Mechatronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Robotics
					Remote Sensing and GIS
					Software Testing Methodologies
					Soft Computing Techniques
					Science and Technology of Nano Materials

Date: 04-02-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
ELECTRONICS AND COMMUNICATION ENGINEERING **(04-ECE)**	Antennas and Wave Propagation (Common to ECE ,ETM)	Microprocessors and Microcontrollers (Common to ECE , ETM E.COMP.E)	Digital Signal Processing (Common to ECE ,EIE, ETM, BME, E.COMP.E)	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
					Cyber Security
				Computer organization and operating system	Coal Gasification, Coal Bed Methane and Shale Gas
					Data Structures
					Design Estimation and Costing of Electrical Systems
				Digital Image Processing	Energy Management and Conservation
					Environmental Impact Assessment
					Entrepreneurship and Small Business Enterprises
				Spread Spectrum Communications	Energy Storage Systems
					Geo-Informatics
					Fabrication Processes
				Digital system Design	Fundamentals of Robotics
					Industrial Electronics
					Industrial Management
					Introduction to Mechatronics
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Remote Sensing and GIS
					Robotics
					Science and Technology of Nano Materials
					Soft Computing Techniques
					Software Testing Methodologies
					World Class Manufacturing

Date: 04-02-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION I - MID TERM EXAMINATIONS FEBRUARY-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING **(05-CSE)**	Compiler Design (Common to CSE , IT)	Web Technologies (Common to CSE , IT)	Cryptography and Network Security (Common to CSE , IT)	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
				Mobile Computing	Coal Gasification, Coal Bed Methane and Shale Gas
				Design Patterns	Data Structures
					Design Estimation and Costing of Electrical Systems
				Artificial Intelligence	Energy Management and Conservation
					Environmental Impact Assessment
					Entrepreneurship and Small Business Enterprises
				Information Security Management (Security Analyst - I)	Energy Storage Systems
					Geo-Informatics
					Fabrication Processes
					Fundamentals of Robotics
				Introduction to Analytics (Associate Analytics - I)	Industrial Electronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Introduction to Mechatronics
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Remote Sensing and GIS
					Robotics
					Science and Technology of Nano Materials
					Soft Computing Techniques
					World Class Manufacturing

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EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-I MID TERM EXAMINATIONS FEBRUARY-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
CIVIL ENGINEERING (01-CE)	Construction Management (Common To CE, CEE)	Prestressed Concrete Structures	Design And Drawing Of Irrigation Structures	---	---
			Geo Environmental Engineering		
			Rehabilitation And Retrofitting Of Structures		
			Solid Waste Management		
ELECTRICAL AND ELECTRONICS ENGINEERING (02-EEE)	Principles Of Reliability Engineering	Fundamentals Of HVDC And FACTS Devices	Advanced Control Systems	---	---
	Renewable Energy Sources		Ehv Ac Transmission		
	Neural Networks And Fuzzy Logic (Common To EEE, EIE)		Nanotechnology		

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EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-I MID TERM EXAMINATIONS FEBRUARY-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
MECHANICAL ENGINEERING (03-ME)	Production Planning and Control (Common to ME, MECT)	Artificial Neural Networks (Common to ME,MECT,MSNT)	Computational fluid dynamics (Common to ME,MSNT)	Plant layout and Material Handling (Common to ME,AME)	----
		Maintenance and Safety Engineering (Common to ME, AME, MSNT)	Gas Dynamics		
		Total Quality Management	Jet Propulsion & Rocket Engineering		
			Renewable Energy Sources (Common to ME, AME, MSNT)		
ELECTRONICS AND COMMUNICATION ENGINEERING (04-ECE)	Artificial Neural Networks	Network Security (Common to ECE, ETM)	Digital signal processors and architectures	Wireless communications and networks (Common to ECE, ETM)	----
	Biomedical Instrumentation	Radar Systems (Common to ECE, ETM)	RF Circuit Design (Common to ECE, ETM)		
	Satellite Communications (Common to ECE, ETM)	Telecommunication Switching Systems and Networks			

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EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-I MID TERM EXAMINATIONS FEBRUARY-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	18-02-2019 FN MONDAY	18-02-2019 AN MONDAY	19-02-2019 FN TUESDAY	19-02-2019 AN TUESDAY	20-02-2019 FN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING (05-CSE)	Management Science (Common to CSE, IT)	Information Security Incident Response & Management (Security Analyst 3) (Common to CSE, IT)	Database Security	Ad hoc and Sensor Networks (Common to CSE, IT)	Multimedia & Rich Internet Applications- (Common to CSE, IT)
		Predictive Analytics (Associate Analytics 3) (Common to CSE, IT)	Embedded Systems		
		Scripting Languages	Storage Area Networks (Common to CSE, IT)		
		Semantic Web and Social Networks			
		Web Services			
CHEMICAL ENGINEERING (08-CHEM)	Industrial Pollution & Control Engineering	Fluidization Engineering	Energy Engineering	---	---
		Membrane Technology - (Common to CHEM, PTME)	Food Processing Technology		
		Technology of Pharmaceuticals and Fine Chemicals	Industrial safety and Hazard management		

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EXAMINATION BRANCH

B.TEC I YEAR II SEMESTER – R18 REGULATIONS II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM (MID EXAM: 10.00 AM TO 11.00 AM, QUIZ EXAM:11.00 AM TO 11.30 AM)
AN: 02.00 PM TO 03.30 PM (MID EXAM: 02.00 PM TO 03.00 PM, QUIZ EXAM: 03.00 PM TO 03.30 PM)

BRANCH	DATE, SESSION AND DAY			
	24-04-2019 FN WEDNESDAY	24-04-2019 AN WEDNESDAY	25-04-2019 FN THURSDAY	25-04-2019 AN THURSDAY
CIVIL ENGINEERING (01-C E)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common To CE, ME, AE, MECT, MME, MIE, PTME)
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Applied Physics (Common to EEE, CSE, IT)	Programming for Problem Solving (Common to EEE, CSE, IT)	-
MECHANICAL ENGINEERING (03-ME)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

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BRANCH	DATE, SESSION AND DAY			
	24-04-2019 FN WEDNESDAY	**24-04-2019 AN WEDNESDAY**	**25-04-2019 FN THURSDAY**	**25-04-2019 AN THURSDAY**
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to ECE, EIE)	Basic Electrical Engineering (Common to ECE, EIE)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Applied Physics (Common to EEE, CSE, IT)	Programming for Problem Solving (Common to EEE, CSE, IT)	-----
ELECTRONICS AND INSTRUMENTATION ENGINEERING (10-EIE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to ECE, EIE)	Basic Electrical Engineering (Common to ECE, EIE)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

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CONTINUED ON PAGE –3

BRANCH	DATE, SESSION AND DAY			
	24-04-2019 FN WEDNESDAY	**24-04-2019 AN WEDNESDAY**	**25-04-2019 FN THURSDAY**	**25-04-2019 AN THURSDAY**
INFORMATION TECHNOLOGY (12- IT)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Applied Physics (Common to EEE, CSE, IT)	Programming for Problem Solving (Common to EEE, CSE, IT)	-
MECHANICAL ENGINEERING (MECHATRONICS) (14-MECT)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME))
METALLURGY AND MATERIAL ENGINEERING (18-MME)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

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BRANCH	DATE, SESSIONAND			
	24-04-2019 FN WEDNESDAY	**24-04-2019 AN WEDNESDAY**	**25-04-2019 FN THURSDAY**	**25-04-2019 AN THURSDAY**
AERONUTICAL ENGINEERING (21 – AE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)
MINING ENGG. (25-MIE)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)
PTMETROLIUM ENGG. (27- PTME)	Mathematics-II (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Chemistry (Common to CE, ME, AE, MECT MME, MIE, PTME, EEE, ECE, CSE, EIE, IT)	Engineering Mechanics (Common to CE, ME, AE, MECT, MME, MIE, PTME)	English (Common to CE, ME, AE, MECT, MME, MIE, PTME)

NOTE:

i) ANY OMISSIONS OR CLASHES IN THIS TIME TABLE MAY PLEASE BE INFORMED TO THE CONTROLLER OF EXAMINATIONS IMMEDIATELY.
ii) EVEN IF GOVERNMENT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES, THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL.

DATE:02-04-2019

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EXAMINATION BRANCH

II YEAR B.TECH –I1 SEMESTER – R16 REGULATION - II MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	DATE, SESSION AND DAY				
	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
CIVIL ENGINEERING (01-C E)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Strength of Materials - II (Common to CE ,CEE)	Fluid Mechanics - II (Common to CE ,CEE)	Structural Analysis (Common to CE ,CEE)	Engineering Geology
ELECTRICAL AND ELECTRONICS ENGINEERING (02- EEE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT)	Control Systems (Common to EEE, ECE, EIE, ETM)	Power Systems - I	Electrical Machines-II
MECHANICAL ENGINEERING (03- ME)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Fluid Mechanics and Hydraulic Machines (Common to ME, MSNT)	Dynamics Of Machinery	Manufacturing Process	Machine Drawing

DATE: 02-04-2019

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BRANCH	DATE, SESSION AND DAY				
	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
ELECTRONICS & COMMUNICATIONS ENGINEERING (04- ECE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, **CEE**, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT	Control Systems (Common to EEE, ECE, EIE, ETM)	Pulse And Digital Circuits (Common to ECE, ETM)	Analog Communications (Common To ECE, ETM)
COMPUTER SCIENCE & ENGINEERING (05- CSE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Computer Organization (Common to CSE,IT	Database Management Systems (Common to CSE,IT	Operating Systems (Common to CSE,IT	Formal Languages And Automata Theory (Common to CSE,IT
ELECTRONICS AND INSTRUMSNTTATIO N ENGINEERING (10-EIE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Electronic Circuit Analysis	Control Systems (Common to EEE, ECE, EIE, ETM)	Digital Logic & Pulse Circuits (Common to BME,EIE,)	Probability Theory And Stochastic Processes
BIO-MEDICAL ENGINEERING (11-BME)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Biomedical Equipment	Bio Transducers And Applications --	Digital Logic & Pulse Circuits (Common to BME,EIE,)	Clinical Sciences

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BRANCH	DATE, SESSION AND DAY				
	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
INFORMATION TECHNOLOGY (12-IT)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Computer Organization (Common to CSE, IT	Database Management Systems (Common to CSE, IT)	Operating Systems (Common to CSE, IT	Formal Languages and Automata Theory (Common to CSE, IT
MECHANICAL ENGINEERING (MECHATRONICS) (14- MECT)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT	Kinematics Of Machinery (Common to MECT, AME	Fluid Mechanics & Heat Transfer	Electrical Engineering
ELECTRONICS AND TELEMATICS ENGINEERING (17-ETM)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Switching Theory & Logic Design (Common to EEE, ECE, ETM, MECT)	Control Systems (Common to EEE, ECE, EIE, ETM)	Pulse and Digital Circuits (Common to ECE, ETM)	Analog Communications (Common to ECE, ETM)
METALLURGY AND MATERIAL ENGINEERING (18- MMT)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Mineral Processing	Mechanical Metallurgy	Principles Of Extractive Metallurgy	Thermodynamics Of Materials

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DATE: 02-04-2019

BRANCH	DATE, SESSION AND DAY				
	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
AERONUTICAL ENGINEERING (21- AE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Fundamentals Of Structural Analysis	Aircraft Performance	Low Speed Aerodynamics	Control Theory
AUTOMOBILE ENGG. (24-AME)	Thermodynamics	Fundamentals of Management	Kinematics of Machinery (Common To MECT, AME	Production Technology (Common To AME, MSNT)	Alternative Fuels For Automobiles
MINING ENGG. (25-MIE)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Mine Mechanization - I	Drilling And Blasting	Mine Surveying	Mine Environmental Engineering - I
PETROLIUM ENGG. (27- PTME)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Petroleum Geology	Chemical Engineering Fluid Mechanics	Process Heat Transfer	Petroleum Exploration Methods

DATE: 02-04-2019

PRINCIPAL
Avanthi Institute of Engg. & Tech
Cheripally (V), Abdullapurmet (Mdl), R.R. Dist.

BRANCH	DATE, SESSION AND DAY				
	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
CIVIL & ENVIRONMENTAL ENGINEERING (28-C E E)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, MIE, PTME, CEE, MSNT)	Strength of Materials - II (Common to CE ,CEE)	Fluid Mechanics - II (Common to CE ,CEE)	Structural Analysis (Common to CE ,CEE)	Building Materials, Construction and Planning
MECHANICAL ENGINEERING–NANO TECHNOLOGY (MATERIALSCIENCE AND NANO TECHNOLOGY) (29-MSNT)	Business Economic and Financial Analysis (Common to CE, EEE, ME, ECE, CSE, EIE, ,BME, IT, MECT, ETM, MMT, AE, AME, MIE, PTME, CEE, MSNT)	Fluid Mechanics and Hydraulic Machines (Common to ME, MSNT)	Design of Machine Members-I	Production Technology (Common to AME, MSNT)	Dynamics of Machines

NOTE:

I) ANY OMISSIONS OR CLASHES IN THIS TIME TABLE MAY PLEASE BE INFORMED TO THE CONTROLLER OF EXAMINATIONS IMMEDIATELY.
II) EVEN IF GOVERNMSNTT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES, THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL.

Sd/-

DATE:02-04-2019

CONTROLLER OF EXAMINATIONS

PRINCIPAL
Avanthi Institute of Engg. & Tech
Cherlapally (V), Abdullapurmet (Mdl), R.R. Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

KUKATPALLY - HYDERABAD – 5000 85

EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
CIVIL ENGINEERING (01-CE)	Design of Steel Structures (Common to CE ,CEE)	Environmental Engineering	Soil Mechanics	**Professional Elective - I**	**(Open Elective-I)**
				Air Pollution and Control.	Artificial Neural Networks
					Cyber Security
					Coal Gasification, Coal Bed Methane and Shale Gas
				Advanced Structural Analysis.	Data Structures
					Design Estimation and Costing of Electrical Systems
				Ground Water Development and Management	Energy Management and Conservation
					Environmental Impact Assessment
					Energy Storage Systems
					Entrepreneurship and Small Business Enterprises
				Earth and Rock fill Dams and Slope Stability	Fabrication Processes
					Fundamentals of Robotics
					Industrial Electronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Introduction to Mechatronics
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Robotics
					Software Testing Methodologies
					Soft Computing Techniques
					Science and Technology of Nano Materials
					World Class Manufacturing

Date: 02-04-2019

PRINCIPAL
Avanthi Institute of Engg. & Tech
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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

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BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
ELECTRICAL AND ELECTRONICS ENGINEERING **(02-EEE)**	Power Systems Analysis	Power Electronics	Switch Gear and Protection	**Professional Elective - I**	**(Open Elective-I)**
				Computer Organization	Artificial Neural Networks
					Cyber Security
					Coal Gasification, Coal Bed Methane and Shale Gas
				Linear Systems Analysis	Data Structures
					Energy Management and Conservation
					Environmental Impact Assessment
				Linear and Digital IC Applications	Entrepreneurship and Small Business Enterprises
					Geo-Informatics
					Fabrication Processes
				Electrical and Electronics Instrumentation	Fundamentals of Robotics
					Industrial Electronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Science and Technology of Nano Materials
					Robotics
					Remote Sensing and GIS
					Software Testing Methodologies
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Date:02-04-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

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AN: 02.00 PM TO 03.30 PM

BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
MECHANICAL ENGINEERING (03-ME)	Thermal Engineering –II (Common to ME ,AME)	Heat Transfer	Design of Machine Members-II	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
				Finite Element Methods	Cyber Security
					Coal Gasification, Coal Bed Methane and Shale Gas
				Refrigeration and Air Conditioning	Data Structures
					Design Estimation and Costing of Electrical Systems
					Energy Management and Conservation
					Environmental Impact Assessment
				Machine Tool Design	Entrepreneurship and Small Business Enterprises
					Energy Storage Systems
					Geo-Informatics
				IC Engines and Gas Turbines	Industrial Electronics
					Introduction to Mechatronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Robotics
					Remote Sensing and GIS
					Software Testing Methodologies
					Soft Computing Techniques
					Science and Technology of Nano Materials

Date: 02-04-2019

PRINCIPAL
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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

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BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
ELECTRONICS AND COMMUNICATION ENGINEERING **(04-ECE)**	Antennas and Wave Propagation (Common to ECE ,ETM)	Microprocessors and Microcontrollers (Common to ECE , ETM E.COMP.E)	Digital Signal Processing (Common to ECE ,EIE, ETM, BME, E.COMP.E)	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
					Cyber Security
				Computer organization and operating system	Coal Gasification, Coal Bed Methane and Shale Gas
					Data Structures
					Design Estimation and Costing of Electrical Systems
				Digital Image Processing	Energy Management and Conservation
					Environmental Impact Assessment
					Entrepreneurship and Small Business Enterprises
				Spread Spectrum Communications	Energy Storage Systems
					Geo-Informatics
					Fabrication Processes
				Digital system Design	Fundamentals of Robotics
					Industrial Electronics
					Industrial Management
					Introduction to Mechatronics
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Java Programming
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Remote Sensing and GIS
					Robotics
					Science and Technology of Nano Materials
					Soft Computing Techniques
					Software Testing Methodologies
					World Class Manufacturing

Date: 02-04-2019

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EXAMINATION BRANCH

III YEAR B.TECH – II SEMESTER– R16 REGULATION II - MID TERM EXAMINATIONS APRIL-2019

TIMETABLE

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BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING (05-CSE)	Compiler Design (Common to CSE , IT)	Web Technologies (Common to CSE , IT)	Cryptography and Network Security (Common to CSE , IT)	**Professional Elective - I**	**(Open Elective-I)** Artificial Neural Networks
				Mobile Computing	Coal Gasification, Coal Bed Methane and Shale Gas
				Design Patterns	Data Structures
					Design Estimation and Costing of Electrical Systems
				Artificial Intelligence	Energy Management and Conservation
					Environmental Impact Assessment
					Entrepreneurship and Small Business Enterprises
				Information Security Management (Security Analyst - I)	Energy Storage Systems
					Geo-Informatics
					Fabrication Processes
					Fundamentals of Robotics
				Introduction to Analytics (Associate Analytics - I)	Industrial Electronics
					Industrial Management
					Introduction to Aerospace Engineering
					Introduction to Material Handling
					Intellectual Property Rights
					Introduction to Mechatronics
					Medical Electronics
					Metallurgy of Non Metallurgists
					Non-Conventional Energy Sources
					Optimization Technique
					Principles of Computer Communications and Networks
					Remote Sensing and GIS
					Robotics
					Science and Technology of Nano Materials
					Soft Computing Techniques
					World Class Manufacturing

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Date: 02-04-2019

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
KUKATPALLY - HYDERABAD – 500 085
EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-II MID TERM EXAMINATIONS APRIL-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
CIVIL ENGINEERING (01-CE)	Construction Management (Common To CE, CEE)	Prestressed Concrete Structures	Design And Drawing Of Irrigation Structures	---	---
			Geo Environmental Engineering		
			Rehabilitation And Retrofitting Of Structures		
			Solid Waste Management		
ELECTRICAL AND ELECTRONICS ENGINEERING (02-EEE)	Principles Of Reliability Engineering	Fundamentals Of HVDC And FACTS Devices	Advanced Control Systems	---	---
	Renewable Energy Sources		Ehv Ac Transmission		
	Neural Networks And Fuzzy Logic (Common To EEE, EIE)		Nanotechnology		

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EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-II MID TERM EXAMINATIONS APRIL-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
MECHANICAL ENGINEERING (03-ME)	Production Planning and Control (Common to ME, MECT)	Artificial Neural Networks (Common to ME,MECT,MSNT)	Computational fluid dynamics (Common to ME,MSNT)	Plant layout and Material Handling (Common to ME,AME)	----
		Maintenance and Safety Engineering (Common to ME, AME, MSNT)	Gas Dynamics		
		Total Quality Management	Jet Propulsion & Rocket Engineering		
			Renewable Energy Sources (Common to ME, AME, MSNT)		
ELECTRONICS AND COMMUNICATION ENGINEERING (04-ECE)	Artificial Neural Networks	Network Security (Common to ECE, ETM)	Digital signal processors and architectures	Wireless communications and networks (Common to ECE, ETM)	----
	Biomedical Instrumentation	Radar Systems (Common to ECE, ETM)	RF Circuit Design (Common to ECE, ETM)		
	Satellite Communications (Common to ECE, ETM)	Telecommunication Switching Systems and Networks			

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EXAMINATIONBRANCH
IV YEAR B.TECH-II SEMESTER–R15 REGULATION-II MID TERM EXAMINATIONS APRIL-2019
TIME TABLE

TIME→ FN: 10.00 AM TO 11.30 AM
AN: 02.00 PM TO 03.30 PM

BRANCH	22-04-2019 FN MONDAY	22-04-2019 AN MONDAY	23-04-2019 FN TUESDAY	23-04-2019 AN TUESDAY	24-04-2019 FN WEDNESDAY
COMPUTER SCIENCE AND ENGINEERING (05-CSE)	Management Science (Common to CSE, IT)	Information Security Incident Response & Management (Security Analyst 3) (Common to CSE, IT)	Database Security	Ad hoc and Sensor Networks (Common to CSE, IT)	Multimedia & Rich Internet Applications- (Common to CSE, IT)
		Predictive Analytics (Associate Analytics 3) (Common to CSE, IT)	Embedded Systems		
		Scripting Languages	Storage Area Networks (Common to CSE, IT)		
		Semantic Web and Social Networks			
		Web Services			
CHEMICAL ENGINEERING (08-CHEM)	Industrial Pollution & Control Engineering	Fluidization Engineering	Energy Engineering	---	---
		Membrane Technology - (Common to CHEM, PTME)	Food Processing Technology		
		Technology of Pharmaceuticals and Fine Chemicals	Industrial safety and Hazard management		

DATE:02-04-2019

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NAAC "B++" Accredited Institute
Gunthapally (V), Abdullapurmet(M), RR Dist, Near Ramoji Film City, Hyderabad -501512.
www.aietg.ac.in email: principal.avanthi@gmail.com

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Ref: AVIH/EEE/PROJECT/Cir/2018-19/01 **DATE: 27.12.2018**

PROJECT SCHEDULE

For the academic year 2018-19, all the IV B.Tech II Semester (2015 Admitted Batch) are hereby informed that the students should undergo the course PROJECT WORK as per the JNTUH R15 Regulations. The following is the detailed schedule.

S.NO.	Review & Assessment	Topic	Tentative Schedule
1	Project Initialization	a. Problem identification b. Domain and Technology c. Objective of Project d. Submission of Abstract e. Weekly plan of work	07.01.2019 to 12.01.2019
2	First Review Assessment	a. Literature Survey b. Identification of problem c. Disadvantage of Existing System d. Proposed Systems e. Advantages f. Design	04.02.2019 to 09.02.2019
3	Second Review Assessment	a. Methodology and Expected Results b. Implementation and Results c. Analysis d. Progress of work observation	04.03.2019 to 09.03.2019
4	Third and final Review Assessment	a. Testing and validation b. Project documentation status c. Conclusion and future study d. Submission of Project document	08.04.2019 to 13.04.2019

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www.aietg.ac.in email: principal.avanthi@gmail.com

Guidelines to students:

1. Out of a total of 200 marks for the project work, 50 marks shall be allotted for Internal Evaluation and 150 marks for the End Semester Examination (Viva Voce).

2. The End Semester Examination of the project work shall be conducted by the same committee as appointed for the industry-oriented mini-project.

3. In addition, the project supervisor shall also be included in the committee.

4. The topics for industry oriented mini project, seminar and project work shall be different from one another.

5. The evaluation of project work shall be made at the end of the IV year.

6. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.

Project Co-Ordinator **HOD-EEE**

PRINCIPAL
Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

Head of the Dept.
Electrical & Electronics Engg.
Avanthi Institute of Engineering & Tech.
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

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DEPARTMENT OF MECHANICAL ENGINEERING

Ref: AVIH/MECH/PROJECT/Cir/2018-19/01 **DATE: 27.12.2018**

PROJECT SCHEDULE

For the academic year 2018-19, all the IV B.Tech II Semester (2015 Admitted Batch) are hereby informed that the students should undergo the course PROJECT WORK as per the JNTUH R15 Regulations. The following is the detailed schedule.

S.NO.	Review & Assessment	Topic	Tentative Schedule
1	Project Initialization	a. Problem identification b. Domain and Technology c. Objective of Project d. Submission of Abstract e. Weekly plan of work	07.01.2019 to 12.01.2019
2	First Review Assessment	a. Literature Survey b. Identification of problem c. Disadvantage of Existing System d. Proposed Systems e. Advantages f. Design	04.02.2019 to 09.02.2019
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PRINCIPAL
Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

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Project Co-Ordinator

PRINCIPAL
Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

HOD-MECH

Head of the Department
Mechanical Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

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DEPARTMENT OF ELECTRONOCIS AND COMMUNICATION ENGINEERING

Ref: AVIH/ECE/PROJECT/Cir/2018-19/01 **DATE: 27.12.2018**

PROJECT SCHEDULE

For the academic year 2018-19, all the IV B.Tech II Semester (2015 Admitted Batch) are hereby informed that the students should undergo the course PROJECT WORK as per the JNTUH R15 Regulations. The following is the detailed schedule.

S.NO.	Review & Assessment	Topic	Tentative Schedule
1	Project Initialization	a. Problem identification b. Domain and Technology c. Objective of Project d. Submission of Abstract e. Weekly plan of work	07.01.2019 to 12.01.2019
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PRINCIPAL
Avanthi Institute of Engg. & Tech
Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist

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Project Co-Ordinator

HOD-ECE

Head of the Department
Electronics & Communication Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

PRINCIPAL
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Gunthapally (V), Abdullapurmet (Mdl), R.R. Dist.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Ref: AVIH/CSE/PROJECT/Cir/2018-19/01 **DATE: 27.12.2018**

PROJECT SCHEDULE

For the academic year 2018-19, all the IV B.Tech II Semester (2015 Admitted Batch) are hereby informed that the students should undergo the course PROJECT WORK as per the JNTUH R15 Regulations. The following is the detailed schedule.

S.NO.	Review & Assessment	Topic	Tentative Schedule
1	Project Initialization	a. Problem identification b. Domain and Technology c. Objective of Project d. Submission of Abstract e. Weekly plan of work	07.01.2019 to 12.01.2019
2	First Review Assessment	a. Literature Survey b. Identification of problem c. Disadvantage of Existing System d. Proposed Systems e. Advantages f. Design	04.02.2019 to 09.02.2019
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PRINCIPAL
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6. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.

Project Co-Ordinator

HOD-CSE

Head of the Department
Computer Science & Engineering
Avanthi Institute of Engineering & Technology
Gunthapally (Vill), Abdullapur Met (Mdl),
Ranga Reddy District.

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